

**ATTACHMENT D
INITIAL STUDY FOR CONDITIONAL USE PERMIT #6222**

Initial Study/Mitigated Negative Declaration

Arroyo Seco Canyon Project

Prepared for | City of Pasadena
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SECTION 1.0 INTRODUCTION

1.1 PURPOSE OF INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

The California Environmental Quality Act (CEQA) (*California Public Resources Code* §21000 et seq.) and the State CEQA Guidelines (*California Code of Regulations*, Title 14, §15000 et seq.) require that local government agencies, prior to taking action on projects requiring discretionary approval, consider the environmental consequences of such projects. In accordance with CEQA, this Initial Study (IS) has been prepared as documentation to support a Mitigated Negative Declaration (MND) for the Arroyo Seco Canyon Project (Project) proposed by the City of Pasadena. This IS/MND includes a description of the proposed Project; the location of the Project site; an evaluation of the potential environmental impacts of Project implementation; and recommended mitigation measures to lessen or avoid impacts on the environment.

Pursuant to Section 15367 of the State CEQA Guidelines, the City of Pasadena is the Lead Agency for the Project. This Project is being implemented under a partnership between the City of Pasadena Department of Water and Power (PWP) and the Arroyo Seco Foundation (ASF).¹ However, the City of Pasadena is serving as the Lead Agency, as it has the principal responsibility for carrying out the Project and has the authority for approving the Project and its accompanying environmental documentation.

In addition to addressing the potential environmental impacts that would result from the proposed Project, this IS/MND serves as the primary environmental document for future activities associated with the Project, including discretionary approvals requested or required for Project implementation. The Project proposes improvements to three areas within the Arroyo Seco Canyon. Project components include improvements to Area 1, Arroyo Seco Headworks; Area 2, Arroyo Seco Intake; and Area 3, Jet Propulsion Laboratory (JPL) East Parking Lot that would allow for the recharge of greater amounts of surface water into the groundwater basin, and would provide additional recreational and educational amenities.

This IS/MND evaluates the potential environmental impacts associated with implementation of the Project; includes significance determinations from the environmental analyses; identifies project design features (PDF) and regulatory requirements (RR) to be incorporated into the Project; and sets forth mitigation measures (MM) that would lessen or avoid potentially significant Project impacts on the environment. The IS/MND indicates that, while implementation of the Project would have environmental impacts, MMs have been incorporated to reduce potentially adverse impacts to levels considered less than significant (State CEQA Guidelines §15070). The reader is referred to the full text of this IS/MND and the technical appendices for a complete discussion and analysis of the Project's potential environmental effects.

As the Lead Agency, the City has reviewed and revised, as necessary, all submitted drafts and technical studies and has commissioned the preparation of this IS/MND to reflect its independent judgment, including reliance on City staff for the review of all technical subconsultant reports. Data for this IS/MND was obtained from on-site field observations; discussions with affected agencies; review of available technical studies, reports, guidelines, and data; and review of specialized environmental assessments prepared for the Project.

¹ The ASF is a community-based 501(c)(3) nonprofit organization that advocates an integrated, harmonious approach to watershed and flood management, water conservation, habitat enhancement, and the expansion of recreational opportunities in the Arroyo Seco.

1.2 SUMMARY OF ENVIRONMENTAL IMPACTS

The Arroyo Seco Canyon Project proposes improvements in three areas along the Upper Arroyo Seco, north of Devil's Gate Dam.

Area 1: Improvements proposed in Area 1 include habitat restoration along the stream channel, a new nature trail, and a rest area/picnic area, along with demolition of the existing Headworks structure on the Arroyo Seco.

Area 2: The existing diversion and intake structures are located on the Arroyo Seco in Area 2. New diversion and weir structures, a control equipment enclosure, and improvements to the damaged portion of the Gabrielino Trail/access road are proposed in this area.

Area 3: A recreational parking lot, sedimentation basins, expanded spreading basins, a restroom, and a guard station are proposed in Area 3 where the JPL East Parking Lot and four existing spreading basins are located.

Section 1.0 of this IS/MND provides the purpose of the IS/MND and a summary of the Project's environmental impacts; Section 2.0 discusses the existing environmental setting, and Section 3.0 provides a discussion of the improvements proposed as part of the Arroyo Seco Canyon Project. Section 4.0 of this IS/MND evaluates the impacts that would occur with Project implementation.

As analyzed, no impacts on Agriculture and Forest Resources and Population and Housing would accompany the Project. A number of PDFs would serve to minimize or avoid environmental impacts. Compliance with existing regulations would also reduce environmental impacts. With implementation of PDFs and compliance with RRs, the Project would have less than significant impacts on Aesthetics, Air Quality, Geology and Soils, Greenhouse Gas Emissions, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Public Services, and Utilities and Service Systems.

To avoid and reduce other potentially significant Project impacts, MMs have been developed for Biological Resources, Cultural Resources, Hazards/Hazardous Materials, Recreation, and Transportation/Traffic. With the implementation of these MMs, impacts would be reduced to less than significant levels.

The City will include these PDFs, RRs and MMs in the Contractor Specifications, as appropriate, and verify their implementation as part of the Mitigation Monitoring and Reporting Program (MMRP) for the Project. These PDFs, RRs and MMs are listed below.

Aesthetics

PDF AES-1 Public improvements in Areas 1 and 2 will be designed to comply with the Arroyo Seco Design Guidelines that address habitat restoration and landscaping using high value native plant species that would contribute to the genetic material of the Arroyo Seco, walls, signs, and site furnishings that are consistent with those found in the Hahamongna Watershed Park (HWP), subject to design review and approval by the City's Planning Division.

RR AES-1 The proposed improvements in Area 3 are required to be designed to comply with applicable criteria in the Arroyo Seco Design Guidelines, subject to design review and approval by the City's Planning Division.

Air Quality

- RR AQ-1** During construction, the Contractor is required to comply with the South Coast Air Quality Management District's (SCAQMD's) Rule 403, Fugitive Dust, which requires the implementation of best available control measures (BACM) for any activity or man-made condition capable of generating fugitive dust including, but not limited to, earth-moving activities, construction/demolition activities, disturbed surface area, or heavy- and light-duty vehicular movement. The BACMs include stabilizing soil; watering surface soils and crushed materials; covering hauls or providing freeboard; preventing track-out; and limiting vehicle speeds and wind barriers, among others.
- RR AQ-2** In accordance with Section 2449(d)(3) of California Air Resources Board's (CARB's) Regulation for In-Use Off-Road Diesel-Fueled Fleets, construction equipment and vehicles are required to limit idling times to no more than five consecutive minutes.

Biological Resources

- PDF BIO-1** Habitat restoration in Area 1 will utilize native plant species, in accordance with the Plant Palettes set forth in Appendix A of the Arroyo Seco Design Guidelines, which allow for substitutions with the concurrence of the Project's biologist/restoration specialist.
- RR BIO-1** The City of Pasadena Department of Water and Power is required to obtain all necessary permits for impacts to "waters of the United States" and "waters of the State" from applicable resource agencies, including the United States Army Corps of Engineers (USACE), the Los Angeles Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW).
- RR BIO-2** Tree pruning, removal, relocation, and replacement is required to be made in compliance with the City of Pasadena "City Trees and Tree Protection Ordinance" (Section 8.52 of the Pasadena Municipal Code), which requires that mature, public, landmark, landmark-eligible, native and specimen trees be protected and preserved. Work on protected trees must be approved by the City Manager or his/her designated personnel.
- MM BIO-1** A Biological Monitor shall be on site during vegetation clearing activities in Project work areas (i.e., areas of disturbance). Prior to the start of activities, the Biological Monitor shall confirm that the limits of Project work areas are clearly marked. In addition, the Biological Monitor shall conduct a pre-clearing sweep of the Project work area and shall flush and/or move common and unlisted special status wildlife to nearby suitable habitat outside the Project work area to the extent practicable. The Biological Monitor shall also be familiar with least Bell's vireo and shall conduct pre-clearing non-protocol surveys for this species while onsite. If a least Bell's vireo or other State of federally listed species is detected, work activity within 200 feet of the occupied habitat detected will be temporarily halted and the City will consult with the USFWS and CDFW. With authorization from these agencies, which may include a 'take' permit, the project will proceed in accordance with conditions developed in the consultation. Conditions will include avoidance and minimization measures to prevent or minimize impacts on the listed species(s) occurring on or adjacent to the site.

MM BIO-2 Project construction shall be conducted in compliance with the conditions set forth in the Migratory Bird Treaty Act (MBTA) and *California Fish and Game Code* with methods approved by the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) to protect active bird/raptor nests. To the maximum extent feasible, vegetation removal shall occur during the non-breeding season for nesting birds (generally late September to early March) and nesting raptors (generally early July to late January) to avoid impacts to nesting birds and raptors. If the Project requires that work be initiated during the breeding season for nesting birds (March 1–September 30) and nesting raptors (February 1–June 30), in order to avoid direct impacts on active nests, a pre-construction survey shall be conducted by a qualified Biologist for nesting birds and/or raptors within 3 days prior to clearing of any vegetation and/or any work near existing structures (i.e., within 300 feet for nesting birds and within 500 feet for nesting raptors). If the Biologist does not find any active nests within or immediately adjacent to the impact areas, the vegetation clearing/construction work shall be allowed to proceed.

If the Biologist finds an active nest within or immediately adjacent to the construction area and determines that the nest may be impacted or breeding activities substantially disrupted, the Biologist shall delineate an appropriate buffer zone around the nest depending on the sensitivity of the species and the nature of the construction activity. Any nest found during survey efforts shall be mapped on the construction plans. The active nest shall be protected until nesting activity has ended. To protect any nest site, the following restrictions to construction activities shall be required until nests are no longer active, as determined by a qualified Biologist: (1) clearing limits shall be established within a buffer around any occupied nest (the buffer shall be 100–300 feet for nesting birds and 300–500 feet for nesting raptors), unless otherwise determined by a qualified Biologist and (2) access and surveying shall be restricted within the buffer of any occupied nest, unless otherwise determined by a qualified Biologist. Encroachment into the buffer area around a known nest shall only be allowed if the Biologist determines that the proposed activity would not disturb the nest occupants. Construction can proceed when the qualified Biologist has determined that fledglings have left the nest or the nest has failed.

MM BIO-3 A Biological Monitor shall conduct a pre-construction bat habitat assessment of the trees marked for potential removal. Potential for roosting shall be categorized by 1) potential for solitary roost sites 2) potential for colonial roost sites (10 bats or more). If the potential for colonial roosting is determined, those trees shall not be removed during the bat maternity roost season (March 1 – July 31). Trees potentially supporting colonial roosts outside of maternity roost season, and trees potentially supporting solitary roosts may be removed via a two-step removal process, whereby some level of disturbance (such as trimming of lower branches) (at the direction of the Biological Monitor) is applied to the tree on day one to allow bats to escape during the darker hours, and the roost tree shall be removed the following day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal).

MM BIO-4 Prior to habitat disturbing activities of any Project component, a detailed restoration program shall be developed and implemented for any special status vegetation type identified within the Project disturbance limits that is removed. These special status vegetation types shall be restored within the project disturbance limits at a ratio of not less than 1:1, or as agreed to by the City of Pasadena in consultation

with the CDFW. If the 1:1 ratio cannot be achieved within the project disturbance limits, then the balance shall be achieved by identifying additional areas for restoration or conservation within the Arroyo Seco or adjacent watersheds. Restoration shall consist of seeding and container plantings of appropriate species. A Restoration Program shall be submitted to the City of Pasadena for review by a qualified Biologist and approval by the resource agencies (USACE, RWQCB, CDFW) prior to issuance of grading permits. The Restoration Program shall include, at a minimum, the following elements:

- a. **Responsibilities and qualifications of the personnel to implement and supervise the plan.** The responsibilities of the landowner, specialists, and maintenance personnel that will supervise and implement the plan shall be specified.
- b. **Site selection.** The site(s) for mitigation shall be determined in coordination with the City of Pasadena and the resource agencies. Restoration required outside the Project disturbance limits shall be located in dedicated open space areas (i.e. preserved in perpetuity as open space) and shall be contiguous with other natural open space areas.
- c. **Site preparation and planting implementation.** The site preparation shall include (1) protection of existing native species; (2) trash and invasive non-natives removal; (3) native species salvage and reuse (i.e., duff); (4) soil treatments (i.e., imprinting, decompacting); (5) erosion-control measures (i.e., rice or willow wattles); and (6) native seed mix application and plantings.
- d. **Schedule.** Establishment of restoration/revegetation sites shall be conducted between October 1 and January 30. Seeding and planting of container plants shall take place immediately after preparation of the restoration sites.
- e. **Maintenance plan/guidelines.** The maintenance plan shall include (1) invasive non-natives control, (2) herbivory control, (3) trash removal, (4) irrigation system maintenance, (5) maintenance training, and (6) replacement seeding and/or planting.
- f. **Monitoring Plan.** The monitoring plan shall include (1) site preparation and implementation activities; (2) performance criteria as approved by the City of Pasadena and resource agencies; (3) long-term monitoring requirements and methods to determine compliance with performance criteria; (4) goals and methods of site maintenance (e.g., weed removal, erosion control); (5) preparation of regular progress reports to document site progress; and (6) preparation of annual reports which shall be submitted to the City of Pasadena and resources agencies for three to five years. The monitoring shall be conducted for three to five years, depending upon the performance standard requirements for the vegetation type at the mitigation site.
- g. **Long-term preservation.** Long-term preservation of the restoration site shall be outlined in the conceptual mitigation plan to ensure the mitigation site is not impacted by future development.

- h. Performance standards will be identified and will apply for each special status vegetation type.** Revegetation shall be considered successful at three years if the percent cover and species diversity of the restored and/or created habitat areas are similar to percent cover and species diversity of adjacent existing habitats, as determined by quantitative testing of existing, restored, and created habitat areas.

In addition, earth-moving equipment shall avoid maneuvering in areas outside the construction limits in order to avoid disturbing adjacent habitats. Prior to grading, the construction limits shall be identified on the grading plan and established at the Project site with appropriate staking and flagging materials. The Contractor shall submit a letter to the City of Pasadena verifying that the construction limits have been staked and flagged at the Project site.

MM BIO-5 Mitigation for the loss of jurisdictional resources shall be negotiated with the resource agencies during the regulatory permitting process (see RR BIO-1) and shall ensure that mitigation to compensate for permanent impacts on jurisdictional resources is equivalent or superior to biological functions and values impacted by the Project. Potential mitigation options may include: (1) removal of exotic species from the Arroyo Seco Canyon or Hahamongna Watershed Park or elsewhere within the Arroyo Seco or adjacent watersheds; (2) payment to a mitigation bank or regional riparian enhancement program (e.g., invasive plant or wildlife species removal); and/or (3) restoration of riparian habitat, including qualifying vegetation and trees, either on site or off site at a ratio of no less than 1:1, determined through consultation with the USACE, the RWQCB, and the CDFW. The restoration plan shall detail the methodology and performance standards, which shall be prepared in accordance with requirements specified in permits/agreements issued by the USACE, the RWQCB, and the CDFW.

MM BIO-6 A team of qualified specialists in hydrology and plant and wildlife biology will monitor the Arroyo Seco stream and associated riparian habitat from the intake structure (i.e. diversion point) downstream to Devil's Gate Dam. The extent of the riparian habitat will be defined based on field observations during the initial site visit. Monitoring will begin with an initial baseline assessment to be conducted within six months prior to start of increased diversions. Thereafter, monitoring shall continue quarterly for a duration of five years. Data will be gathered at fixed points along the stream, and general descriptive notes and photos will be taken of the entire stretch. Data will include surface flow measurements; surface water extent mapping; vegetation mapping; a vegetation health assessment; active channel location mapping; and a plant and wildlife habitat suitability assessment. Data from four quarterly visits will be compiled in an annual report. Annual reports will also include U.S. Geological Survey (USGS) stream gauge data from the Arroyo Seco (upstream of the Project site) and City of Pasadena data on diversion amounts within the year. These reports will consider all potential contributing factors, including precipitation and hydrologic conditions, flows from other managed tributaries, as well as potential maintenance and sediment removal activities behind the Devil's Gate Dam, and focus the reports on that which is attributable to the project to the maximum extent feasible. Annual reports will conclude with an assessment on the effects of increased diversion and will provide recommendations for corrective actions, if deemed necessary to avoid or reduce downstream impacts attributable to the Project. Reports will be submitted to the City of Pasadena for review and approval of recommended corrective measures, if any.

Alternatively, if the City chooses not to take corrective measures, the City may mitigate for any loss of vegetation at a minimum 1:1 replacement ratio. The City shall only be required to mitigate for those impacts attributable to the City's increased diversions. Replacement vegetation shall be in kind; shall be equal to or greater than biological value prior to diversion; and shall be located within the Arroyo Seco watershed. Vegetation replacement shall mitigate for plant and wildlife impacts of the impacted community. Re-vegetated riparian communities within Area 1 established as part of the Project may potentially qualify towards credit for reduced flow impacts, if credit is available.

- MM BIO-7** Prior to commencement of construction activities, trees not expected to be impacted by construction shall be enclosed by barriers such as chain-link fencing or orange snow fencing. At a minimum, the barriers will be placed at the outer canopy of each tree to be protected in place, and no grade changes will be made within the barriers without prior approval by the City. During Project construction, a biological monitor will be periodically present to record the number of trees actually impacted. If project construction can avoid impacting oak trees, the number of replacement trees will be reduced accordingly.

Cultural Resources

- PDF CUL-1** A temporary bridge will be constructed over Bridge No. 3 prior to the start of construction activities in Areas 1 and 2. The temporary bridge will be used for all construction vehicles and equipment and will be removed after construction activities are completed.

- RR CUL-1** If human remains are encountered during excavation activities, all work is required to halt in the immediate vicinity of the discovery and the County Coroner must be notified (*California Public Resources Code* §5097.98). The Coroner is required to determine whether the remains are of forensic interest. If the Coroner, with the aid of an Archaeologist, determines that the remains are prehistoric, s/he is required to contact the Native American Heritage Commission (NAHC). The NAHC is responsible for designating the most likely descendant (MLD), who is responsible for the ultimate disposition of the remains, as required by Section 7050.5 of the *California Health and Safety Code*. The MLD is required to make his/her recommendation within 48 hours of being granted access to the site. The MLD's recommendation is required to be followed if feasible, and may include scientific removal and non-destructive analysis of the human remains and any items associated with Native American burials (*California Health and Safety Code* §7050.5). If the landowner rejects the MLD's recommendations, the landowner is required to rebury the remains with appropriate dignity on the property in a location that will not be subject to further subsurface disturbance (*California Public Resources Code* §5097.98).

- MM CUL-1** Prior to the start of construction activities in Areas 1 and 2, the cast concrete baluster railing of Bridge No. 2 shall be protected from construction activities that include the movement of heavy and large motor vehicles and machinery over it to gain access to Areas 1 and 2. Each baluster railing, from the bridge deck to the top of the railing, shall be clad with solid plywood panels, with a minimum thickness of $\frac{3}{4}$ inches (or equally effective measures shall be installed) to protect against unintentional impacts from passing over the bridge. The plywood barriers shall be secured without damaging the balusters or railing.

The design and construction (and eventual removal) of the protective barriers at Bridge No. 2 shall be prepared in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties. The plans for the temporary barriers shall be reviewed by an architectural historian, historic architect, and structural or civil engineer who has experience with the physical components of historic bridges. A qualified architectural historian (who meets the Secretary of Interior's Professional Qualification Standards) shall be retained to monitor the proposed installation and removal of the protective barriers on Bridge No. 2, prior to construction. An installation/construction/repair methodology to protect the historic resources shall be developed prior to construction activities to ensure that the protective measures adequately safeguard Bridge No. 2.

A pre-construction and a post-construction survey shall be prepared to ensure that adverse effects or significant impacts have not occurred to the bridge. The installation/construction methodology and post-construction survey shall be submitted to the City of Pasadena Department of Planning – Historic Preservation.

MM CUL-2

Prior to commencement of construction activities within Areas 1 and 2, the design and construction (and eventual removal) of the temporary bridge over Bridge No. 3 shall be prepared in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties. The plans for temporary bridge shall be reviewed by an architectural historian, historic architect, and structural or civil engineer who has experience with the physical components of historic bridges and stone walls. A qualified architectural historian (who meets the Secretary of Interior's Professional Qualification Standards) shall be retained to monitor the proposed installation/construction and removal plan documents for the temporary bridge on Bridge No. 3, prior to the start of construction activities.

A pre-construction and a post-construction survey shall be prepared to ensure that adverse effects or significant impacts have not occurred to the bridge. The installation/construction methodology and post-construction survey shall be submitted to the City of Pasadena Department of Planning and Community Development, Design and Historic Preservation.

MM CUL-3

Prior to commencement of earthmoving activities, the City shall retain a qualified Archaeologist to observe grading activities. The Archaeologist shall be present at the pre-grade conference; shall establish procedures for archaeological resource surveillance; and shall establish, in cooperation with the Contractor, procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of the artifacts, as appropriate. Should archaeological resources be found during ground-disturbing activities for the Project, the Archaeologist shall first determine whether it is a "unique archaeological resource" pursuant to the California Environmental Quality Act (CEQA, i.e., Section 21083.2[g] of the *California Public Resources Code*) or a "historical resource" pursuant to Section 15064.5(a) of the State CEQA Guidelines. If the archaeological resource is determined to be a "unique archaeological resource" or a "historical resource", the Archaeologist shall formulate a mitigation plan in consultation with the City of Pasadena that satisfies the requirements of the above-referenced sections. The Archaeologist shall prepare a report of the results of any study prepared as part of a testing or mitigation plan, following guidelines of the California Office of Historic Preservation, and s/he shall record the site and submit the recordation form to the City of Pasadena and the California Historic Resources Information System (CHRIS) at the South Central Coastal Information Center (SCCIC) at California

State University, Fullerton. Work may proceed in other areas of the site, subject to the direction of the Archaeologist.

- MM CUL-4** Prior to commencement of earthmoving activities, a qualified Paleontologist shall be retained to observe grading activities in native soils that are 5 feet below the ground surface or deeper, in paleontologically sensitive sediments, and to conduct salvage excavation of paleontological resources, as necessary. The Paleontologist shall be present at the pre-grading conference; shall establish procedures for paleontological resources surveillance; and shall establish, in cooperation with the Contractor, procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of any fossils discovered, as appropriate. If paleontological resources are discovered, the Paleontologist shall report such findings to the City of Pasadena. If paleontological resources are found to be significant, the Paleontologist shall determine appropriate actions, in cooperation with the City, for exploration and/or salvage. These actions, as well as final mitigation and disposition of the resources, shall be subject to the approval of the City. All recovered fossils shall be deposited in an accredited institution or museum, such as the Natural History Museum of Los Angeles County.

Geology and Soils

- RR GEO-1** Grading, excavation, and construction is required to comply with the City's Building Code (Title 14 of the Pasadena Municipal Code, which incorporates the 2010 California Building Code), as they relate to site preparation and construction; alteration; moving; demolition; repair; use and occupancy of buildings; and structures and building service equipment within the City. The California Building Code requires the preparation of engineering geologic reports, supplemental ground-response reports, and/or geotechnical reports for all new construction; new structures on existing sites; and alterations to existing buildings. It also includes seismic design criteria and requirements for use in the structural design of buildings (i.e., based on seismic hazard maps and the seismic design category) and specifies building components that require special seismic certification.
- RR GEO-2** Proposed improvements must be designed and constructed in accordance with the recommendations of the Geotechnical Feasibility Report that has been prepared for the Project, as required by the City's Building Code.

Hazards/Hazardous Materials

- RR HAZ-1** Construction activities are required to comply with existing federal, State, and local regulations regarding hazardous material use, storage, disposal, and transport to prevent risks to public health and safety. Construction wastes that meet hazardous waste criteria must be stored, manifested, transported, and disposed of in accordance with the *California Code of Regulations* (Title 22) and to the satisfaction of the Los Angeles County Fire Department, which serves as the local Certified Unified Program Agency (CUPA).
- RR HAZ-2** The City shall continue to implement its Emergency Operations Plan, which outlines the City's responses to emergencies associated with natural disasters, technological incidents, and national security emergencies.

- MM HAZ-1** The City shall require Construction Contractors to implement the following measures:
- Trucks and equipment entering the site shall be inspected to be free from oil, gasoline, or other vehicle fluid leaks.
 - Equipment fueling areas shall be located outside jurisdictional waters as identified by the USACE and CDFW.
 - Hazardous materials shall not be stored within the 50-year floodplain for the Arroyo Seco. Instead, hazardous materials shall be stored within staging areas located away from the Arroyo Seco and shall be removed prior to the start of the storm season.
 - All hazardous material spills and contaminated soils shall be excavated immediately upon discovery to minimize soil and water contamination and the potential of wildlife being poisoned or otherwise harmed.
 - The Contractor shall maintain hazardous materials spill control, containment, and cleanup kits of adequate size and materials for potential accidental instream spills and releases.
- MM HAZ-2** Should discolored or odorous soils be encountered during grading and excavation activities in Area 3, the Contractor shall have a sample of the soils analyzed for the presence of contamination. If the results of the testing show that chemical levels are present below regulatory levels, grading and excavation activities may proceed accordingly. Otherwise, remediation and/or removal of the contaminated soils shall be completed prior to continued ground disturbance if chemical levels are above regulatory standards. Remediation and/or disposal shall be conducted with the oversight of applicable regulatory agencies such as the Los Angeles County Fire Department, the South Coast Air Quality Management District (SCAQMD), the California Department of Toxic Substances Control (DTSC), and/or the U.S. Environmental Protection Agency in compliance with established maximum contaminant levels (MCLs).
- MM HAZ-3** The Contractor shall schedule the temporary bridge construction and the access road reconstruction in Area 2 so as to shorten the necessary closures of the bridges and access road to the extent feasible. The Contractor shall also inform the Pasadena Department of Water and Power (PWP), the Pasadena Fire Department, the Pasadena Police Department, the Los Angeles County Fire Department, and the United States Forest Service (USFS) at least one week in advance of the start of construction of the times when work on Bridge No. 1/temporary bridge; Bridge No. 3/temporary bridge; and the Gabrielino Trail/access road are planned. Any major changes to the schedule shall be forwarded to these agencies at least one week prior to the bridge or trail closures.
- MM HAZ-4** The Contractor shall not use, operate, or cause to be operated any internal combustion engine that uses hydrocarbon fuel, unless the engine is equipped with a spark arrestor and is maintained in effective working order, or the engine is constructed, equipped and maintained for the prevention of fire.

Hydrology and Water Quality

- PDF HYD-1** Habitat restoration proposed in Area 1 will create a more natural riparian corridor for the Arroyo Seco and will include recontouring the stream channel; stabilizing the bank; revegetating with native plants; creating planting islands; and placing woody debris clusters at scattered locations.
- PDF HYD-2** Replacement of the diversion and weir structures in Area 2 and additional spreading basins and expansion of the spreading basins in Area 3 will increase groundwater recharge using the City's surface water rights from the Arroyo Seco.
- PDF HYD-3** The proposed restroom in Area 3 will be located outside the 50-year floodplain and would be connected to the public sewer system. In addition, trash cans and pet waste stations will be provided in Areas 1 and 3 to reduce pollutants that may enter the Arroyo Seco.
- RR HYD-1** Prior to the start of construction activities, the Contractor is required to file a Permit Registration Document (PRD) with the State Water Resources Control Board (SWRCB) in order to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with the Construction and Land Disturbance Activities (Order No 2009-009-DWQ, NPDES No. CAS000002) or the latest approved general permit. This permit is required for construction activities (including demolition, clearing, grading, and excavation) and other land disturbance activities that result in the disturbance of one acre or more of total land area. The PRD consists of a Notice of Intent (NOI); a Risk Assessment; a Site Map; a Storm Water Pollution Prevention Program (SWPPP); an annual fee; and a signed certification statement. Pursuant to permit requirements, the Contractor must implement Best Management Practices (BMPs) in the SWPPP into the Project to reduce or eliminate construction-related pollutants in the runoff.
- RR HYD -2** The Contractor is required to comply with SWRCB Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification", which requires compliance with all conditions of the Water Quality Certification issued by the Regional Water Quality Control Board (RWQCB). Compliance with the Water Quality Certification issued by the RWQCB would ensure that any discharge does not conflict with the applicable provisions of Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), or 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act, or any other applicable requirements of State law.
- RR HYD-3** Construction activities that will result in discharges of groundwater and dewatering that could result in discharges to surface waters are required to comply with the effluent limitations, discharge prohibitions, receiving water limitations, and other provisions outlined in the Los Angeles RWQCB Order No. R4-2013-0095. This Order requires that an NOI be filed with the Los Angeles RWQCB prior to dewatering activities and discharge into surface waters; water sampling and analysis; implementation of BMPs to prevent water quality degradation; and/or treatment of groundwater prior to discharge. The Los Angeles RWQCB reviews the NOI and the proposed discharge; authorizes the discharge subject to the

requirements in the Order; and prescribes an appropriate monitoring and reporting program.

RR HYD-4 The Contractor is required to comply with the City's Stormwater Management and Discharge Control Ordinance (Chapter 8.7 of the Pasadena Municipal Code), which prohibits illicit discharges and connections to the municipal storm water system; requires that storm water pollutants be reduced through litter control, natural water course protection, and containment of spills; and calls for the implementation of BMPs during construction through storm water pollution prevention plans (SWPPPs) and standard urban storm water mitigation plans (SUSMPs) for new development and major redevelopment.

RR HYD-5 All new construction and improvements in flood-prone areas are required by the City's Floodplain Management Regulations Ordinance (Chapter 14.27 of the Pasadena Municipal Code) to be adequately anchored to prevent flotation, collapse, or lateral movement; to be constructed with materials and equipment resistant to flood damage; to have utility and service facilities designed and located to prevent water from entering; and to provide adequate drainage to reduce exposure to flood hazards.

Land Use and Planning

RR LU-1 The proposed improvements in Area 3 must be designed and constructed in compliance with the *Hahamongna Watershed Park Master Plan* (HWMP) and the proposed restroom building will require Design Review Approval.

RR LU-2 The proposed Project will require a Conditional Use Permit (CUP) for developing/improving recreational facilities in the Open Space zone.

Mineral Resources

PDF MIN-1 Large cobbles and boulders exposed in Area 2 will be collected and stockpiled at a designated area for future use as trail markers, signs, and other decorative purposes.

RR MIN-1 Excavation activities in Area 3 is required to include the collection of arroyo stone for use in structures, signs, walls, and other improvements in accordance with the Arroyo Seco Design Guidelines, subject to the review and approval of the City's Planning Division.

Noise

RR NOI-1 In accordance with Section 9.36.070 of the City of Pasadena Municipal Code, the Contractor is required to limit noise-generating construction activities to between the hours of 7:00 AM and 7:00 PM Monday through Friday and between the hours of 8:00 AM and 5:00 PM Saturday in or within 500 feet of a residential district. No noise-generating construction activities shall be conducted on Sundays and federal holidays.

- MM NOI-1** The Contractor shall implement the following noise-reduction measures during all construction activities:
- Equip all construction equipment (fixed or mobile) with properly operating and maintained mufflers, consistent with or exceeding manufacturers' standards.
 - Ensure that construction equipment engine enclosures and covers, as provided by manufacturers, shall be in place during operation.
 - Place all stationary construction equipment so that the equipment is as far as feasible from noise-sensitive receptors and so that the emitted noise is directed away from the noise-sensitive receptors.
 - Locate equipment and materials staging in areas that will create the greatest distance between staging area noise sources and noise-sensitive receptors during Project construction.
 - Ensure that construction equipment is shut down when not in use.
 - Limit haul truck deliveries to the same hours specified for the operation of construction equipment.

Public Services

- RR PS-1** Proposed improvements are required to be designed and constructed in accordance with the Pasadena Fire Prevention Code (Chapter 14.28 of the City's Municipal Code), which adopts the California Fire Code with changes and additions to the adopted code.

Recreation

- MM REC-1** Prior to the closure of recreational trails for public use, the Construction Contractor shall post signs at the parking lots and trail entrances providing at least one week of advanced notice of the dates and times of planned trail closures. The trails shall be closed no more than 5 consecutive days in non-emergency circumstances. In addition to the closure notice, the Contractor shall provide directions to the nearest trails in the surrounding areas that would be open for public use at the times when the trails are closed.

Transportation/Traffic

- PDF TRA-1** During the construction phase, a temporary access road will be maintained in Area 3 prior to the availability of the permanent access road, to provide continued vehicle access to the Jet Propulsion Laboratory (JPL) campus via the JPL Bridge. During construction activities in Area 3, the temporary access road will be available for use by JPL employees and visitors during the working weekdays, but the access road will be restricted at other times.

- RR TRA-1** Construction activities are required to be conducted in accordance with the Standard Specifications for Public Works Construction (Greenbook) and the City's Supplements and Modifications to the Greenbook to maintain access to all parcels in and near the construction sites. This includes notification of residents and businesses affected by the road work; utility agencies with facilities in the area; the Pasadena Fire and Police Departments; and other emergency service providers.

The Greenbook also requires that access be made available at the end of each workday.

RR TRA-2 Temporary traffic control devices and methods used during construction are required to conform to the requirements of the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD) and the California Supplement to the MUTCD. The Contractor shall provide traffic tapers, traffic control devices, barricading, and signs necessary to ensure driver awareness and safety in construction areas and to assist fire and law enforcement personnel.

MM TRA-1 During construction activities in Areas 1, 2 and 3, all Contractors shall schedule the arrival and departure of the construction equipment, and construction trucks outside the AM peak hours of 7:30 AM to 8:30 AM and the PM peak hours of 4:30 PM to 5:30 PM. In addition, trucks transporting sediment and debris from the site shall travel to and from the site outside the AM and PM peak hours.

MM TRA-2 During construction activities in Areas 1 and 2, use of Bridge No. 1, Bridge No. 3, and the Gabrielino Trail/access road by hikers, bicyclists and equestrians shall be limited or prohibited when work on the temporary bridges and Gabrielino Trail/access road is ongoing. Flagpersons and/or other safety procedures shall be used as necessary to ensure the safety of recreational users.

MM TRA-3 Prior to the start of construction, the Construction Contractor shall provide written notice to the USFS and residences at the Ranger Station of the anticipated construction schedule, stating that access may be temporarily obstructed on an intermittent basis and providing a schedule of anticipated closures. In order to ensure that emergency vehicles would not be obstructed at any time, any temporary obstructions to the Gabrielino Trail/access road that could hinder emergency vehicular access shall be mobile and able to be removed from the roadway immediately upon notice from emergency responders.

Utilities and Service Systems

RR UTIL-1 The Contractor shall comply with the City's Construction and Demolition Waste Management Ordinance (Chapter 8.62 of the Pasadena Municipal Code), which requires preparation and implementation of a Waste Management Plan that shows how at least 50 percent of construction and demolition debris would be diverted away from landfills. The Waste Management Plan shall be subject to City approval prior to the start of construction activities, and the Contractor shall provide monthly reports to demonstrate compliance during the construction phase.

Cumulative Traffic

MM CUM-1 The Contractor for the Arroyo Seco Canyon Project shall coordinate with the Los Angeles County Department of Public Works and their contractor for the sediment removal activities at Devil's Gate Reservoir on the schedule of trucks coming to and from Scholl Canyon Landfill, such that the Project's truck traffic avoids the AM and PM peak hours to reduce conflict with local traffic and so that truck arrival times are staggered between the two projects to avoid queuing on Figueroa Street and on the State Route 134 on- and off-ramps.

SECTION 2.0 ENVIRONMENTAL SETTING

2.1 PROJECT LOCATION

The Project site is located within the Arroyo Seco Watershed, which is a subwatershed of the larger Los Angeles River Watershed. The Arroyo Seco is a perennial creek, which means there is generally flowing water year-round, but the flow is below the surface (underground) in some locations. Creek flows that originate in the San Gabriel Mountains continue to flow south through the cities of Pasadena, South Pasadena and Los Angeles, before joining the Los Angeles River just east of Elysian Park and west of the Interstate (I) 5/I-110 Interchange. Within the City of Pasadena, the Arroyo Seco passes through three distinct recreational areas: (1) Upper Arroyo Seco, containing Hahamongna Watershed Park and Devil's Gate Dam; (2) Central Arroyo Seco, containing the Brookside Golf Course and Rose Bowl; and (3) Lower Arroyo Seco, containing an archery range, casting pond, and Memorial Grove. The Project proposes new facilities and improvements in the Upper Arroyo Seco (in the City of Pasadena on land owned by the City) and sewer line connection to the JPL campus in the City of La Cañada Flintridge through the JPL Bridge. Exhibit 2-1, Regional Location and Local Vicinity Map, shows the location of the Arroyo Seco in the City of Pasadena.

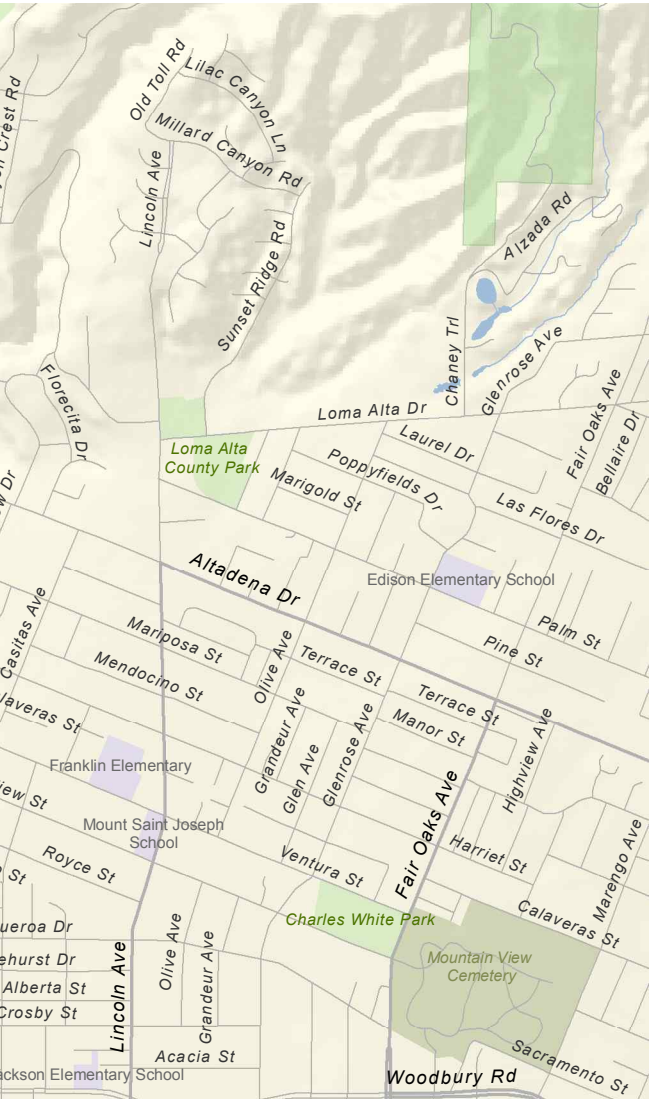
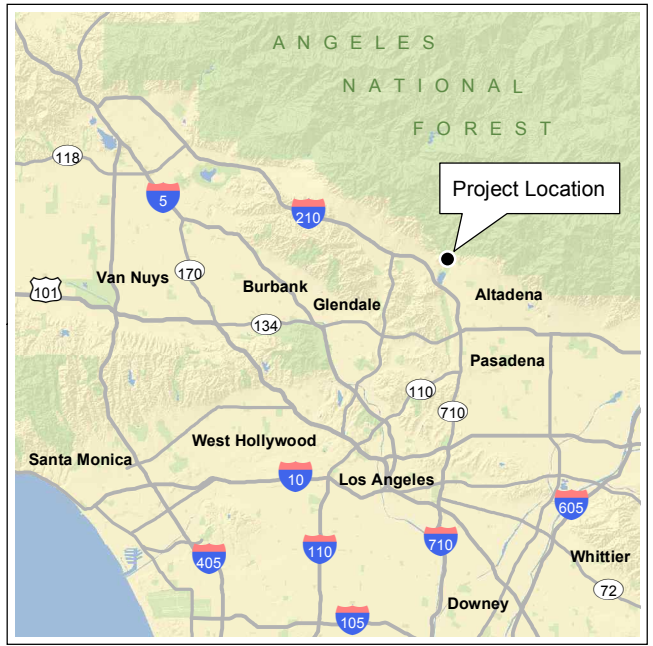
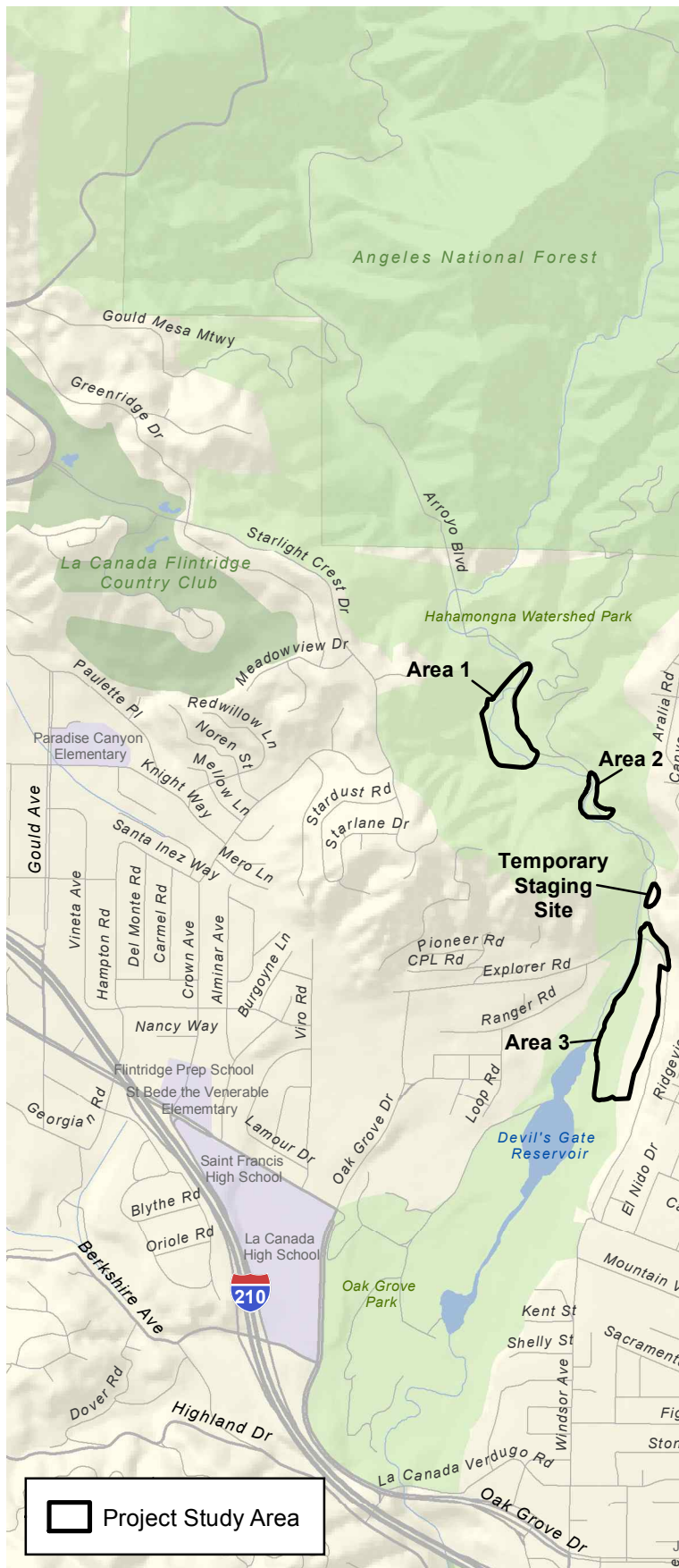
The Project site can be accessed via I-210 by exiting Windsor Avenue and traveling northward for approximately 0.8 mile to its intersection with Ventura Street. From this intersection, the JPL East Parking Lot is located approximately 0.27 mile north along Explorer Road, which can be accessed by walking, bicycling, driving, or by horse.

The Project site consists of three primary areas: Area 1, Arroyo Seco Headworks; Area 2, Arroyo Seco Intake; and Area 3, JPL East Parking Lot. These 3 areas are connected together by the Gabrielino Trail, which serves as a recreational trail and the access road for City of Pasadena and United States Forest Service (USFS) vehicles heading into the Arroyo Seco Canyon. The locations of the three areas where improvements are proposed are described below and shown on Exhibit 2-2, Project Location Areas 1, 2, and 3.

2.2 EXISTING CONDITIONS

The Arroyo Seco is an important source of water supply for the City of Pasadena. The City owns the right to divert up to 25 cubic feet per second (cfs) of surface water from the Arroyo Seco and its tributaries into the City's spreading basins located along the east side of the Devil's Gate Reservoir, upstream of Devil's Gate Dam. An additional 7 cfs of surface water rights from Millard Creek (which is a tributary to the Arroyo Seco) are held by the Lincoln Avenue Water Company (LAWC). PWP and LAWC use the surface water to recharge the underlying Monk Hill Subbasin (a sub-aquifer of the Raymond Basin) for groundwater well extraction.

PWP currently operates several structures in the Arroyo Seco Canyon that capture and convey stream water to a series of groundwater recharge basins that are located adjacent to the National Aeronautics and Space Administration's (NASA's) JPL. These facilities include the Arroyo Seco Headworks structure and adjacent sedimentation basins, the Arroyo Seco Intake Dam, and the associated pipelines that convey water to the existing spreading basins. A large number of these facilities were entirely or severely damaged due to debris flows in 2010 subsequent to the 2009 Station Fire.

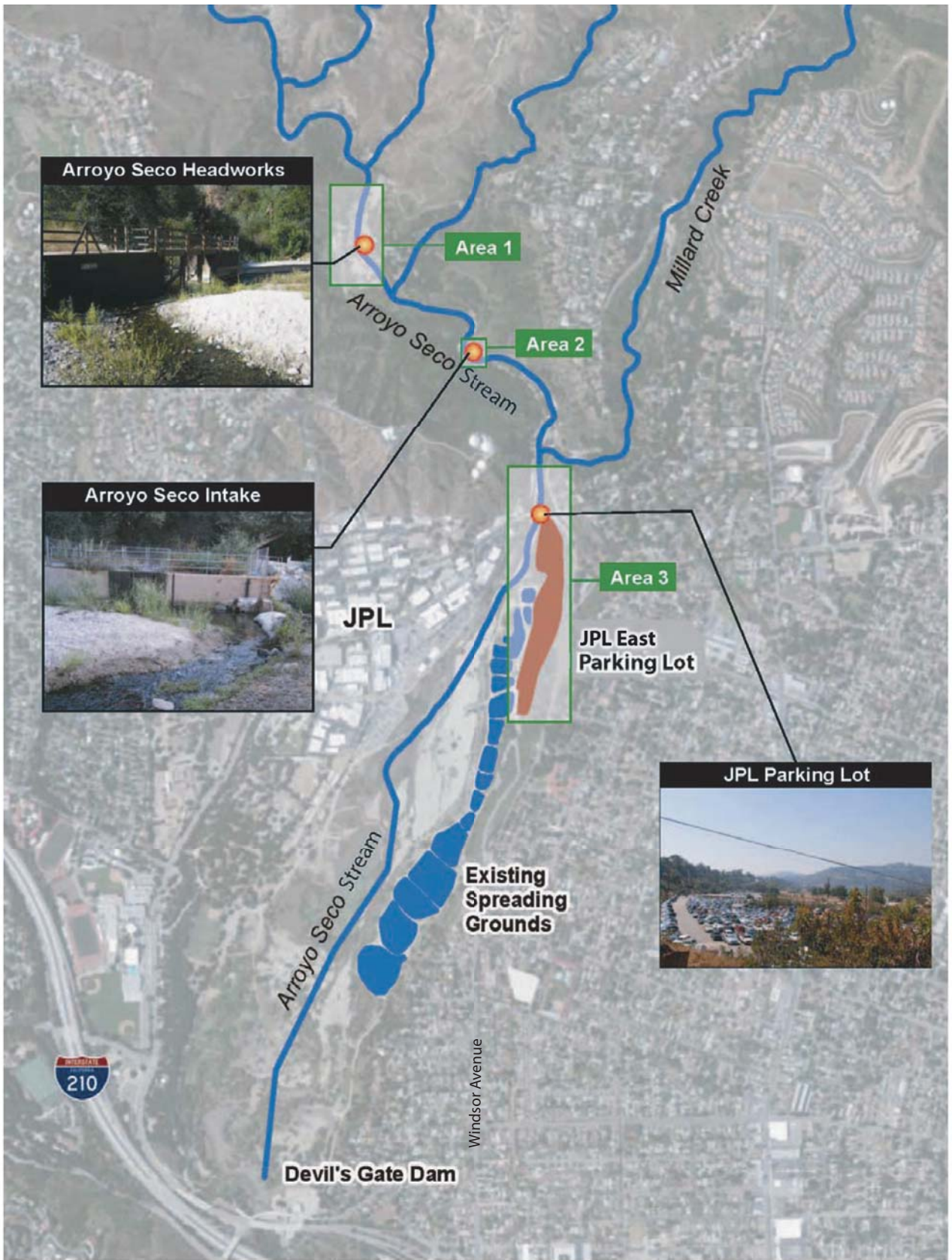


Regional Location and Local Vicinity

Exhibit 2-1

Arroyo Seco Canyon Project





Source: Carollo 2013

Project Location Areas 1, 2, and 3

Exhibit 2-2

Arroyo Seco Canyon Project



Map not to scale



2.2.1 HYDROLOGY AND DRAINAGE

Natural Drainage

The Arroyo Seco Watershed includes approximately 47 square miles of land and is generally divided by the Devil's Gate Dam into the upper and lower watersheds. The drainage area north of the Dam is approximately 32 square miles. Numerous tributary streams within the San Gabriel Mountains contribute flows to the Arroyo Seco, including Colby Canyon, Little Bear Canyon, Bear Canyon, Long Canyon, Dark Canyon, Brown Canyon, Pine Canyon, Falls Canyon, Fern Canyon, El Prieto Canyon, and Millard Canyon.

Water flow within the Arroyo Seco is perennial, but can be highly variable due to seasonal rains, with the majority of rain events occurring between November and April. During drought and/or dry summer months, the stream flows can drop below the surface in areas with deeper alluvial deposits, such as in Hahamongna Watershed Park (HWP). Between 1990 and 2011, flows in the Arroyo Seco varied significantly and ranged from 471 acre-feet in 2002 to 37,888 acre-feet in 2005. Based on the results of a hydrologic study of the entire Arroyo Seco Watershed conducted by the Los Angeles County Flood Control District (LACFCD), the 2-year, 5-year, 10-year, and 50-year peak storm flows at the existing diversion structure in Area 2 were estimated to be 2,200, 4,100, 5,500 and 8,400 cfs, respectively. The 100-year storm event is estimated to generate 10,010 cfs (Carollo 2013).

In addition to highly variable stream flows, the San Gabriel Mountains are very erodible and regularly deposit alluvium, including large boulders, eroded rocks, cobbles, gravels, and coarse to fine sandy soils, into the stream course. Large amounts of sediment are deposited into the Arroyo Seco following large storm events and particularly after wildfires. During large storm events, flows could have four times more sediment load than during average years. Large storm events with sediment-laden flows are historically allowed to bypass the City's flood control facilities and continue downstream into the Devil's Gate Reservoir. However, due to the 2009 Station Fire and destruction of vegetation in upstream watershed areas, a large number of these facilities were entirely or significantly damaged due to the subsequent sediment flows. Additionally, the streambed was altered and filled with debris (e.g., sediment, vegetative/woody materials, and rocks/cobbles) in many places.

Existing Drainage Facilities

The Project site can be divided into three primary areas: Area 1 - Arroyo Seco Headworks; Area 2 - Arroyo Seco Intake; and Area 3 - JPL East Parking Lot.

Area 1 – Arroyo Seco Headworks

Area 1 is the northernmost and farthest upstream area, and is located approximately 0.7 mile north and upstream of the JPL East Parking Lot. This area is primarily located in the low- to mid-level floodplain of the Arroyo Seco and features a bend in the stream course. It includes the existing Headworks structure across the stream; an approximate 1,000-foot portion of the Arroyo Seco streambed and associated sedimentation basins; naturally vegetated areas; and the Gabrielino Trail. A chain-link fence runs along the western edge of the trail from Area 1 to Area 2.

The Arroyo Seco Headworks structure was designed to divert flows into adjacent sedimentation basins to reduce the amount of suspended solids in the stream flow. The natural stream channel around the Headworks and sedimentation basins were substantially altered due to the debris flows following the 2009 Station Fire, thus rendering the facilities inoperable. The USFS Ranger Station, which includes three dwelling units providing housing for USFS Rangers, is located just

east of the Gabrielino Trail. An aerial photograph of Area 1 is depicted in Exhibit 2-3a, Area 1 – Arroyo Seco Headworks.

Area 2 – Arroyo Seco Intake

Area 2 is located approximately 0.3 mile downstream from the Arroyo Seco Headworks and 0.4 mile upstream from the JPL East Parking Lot. The primary structures in Area 2 include the diversion structure and intake structure, an equipment building, the Gabrielino Trail, and a historic bridge (Bridge No. 3) over the Arroyo Seco.

The diversion structure has historically diverted streamflows into the intake structure, which was designed to accommodate up to approximately 25 cfs of water. Upon entering the intake, the water is piped downstream approximately 3,000 feet to the PWP's spreading basins. The diversion structure consists of an approximate nine-foot high reinforced concrete retaining wall on the east bank of the stream. Near the downstream end of the retaining wall is a reinforced concrete weir that extends above the streambed roughly two feet, and generally does not support diversion of water at higher flows.² The diversion structure and intake structure were slightly damaged due to the debris flows following the 2009 Station Fire. Since then, the structures were repaired and placed back into service.

There is a small building pad north of the intake structure that previously supported an equipment building on the east side of the Gabrielino Trail/access road. There is another equipment building south of the intake structure and east of the Gabrielino Trail/access road. Approximately 150 feet of the Gabrielino Trail's protective embankment between the diversion structure and Bridge No. 3 has eroded, causing the edge of the paved road to break and fall apart. Currently, K-rails are used as a temporary means to prevent vehicle or foot traffic from approaching the drop-off adjacent to the trail. An aerial photograph of Area 2 is depicted in Exhibit 2-3b, Area 2 – Arroyo Seco Intake.

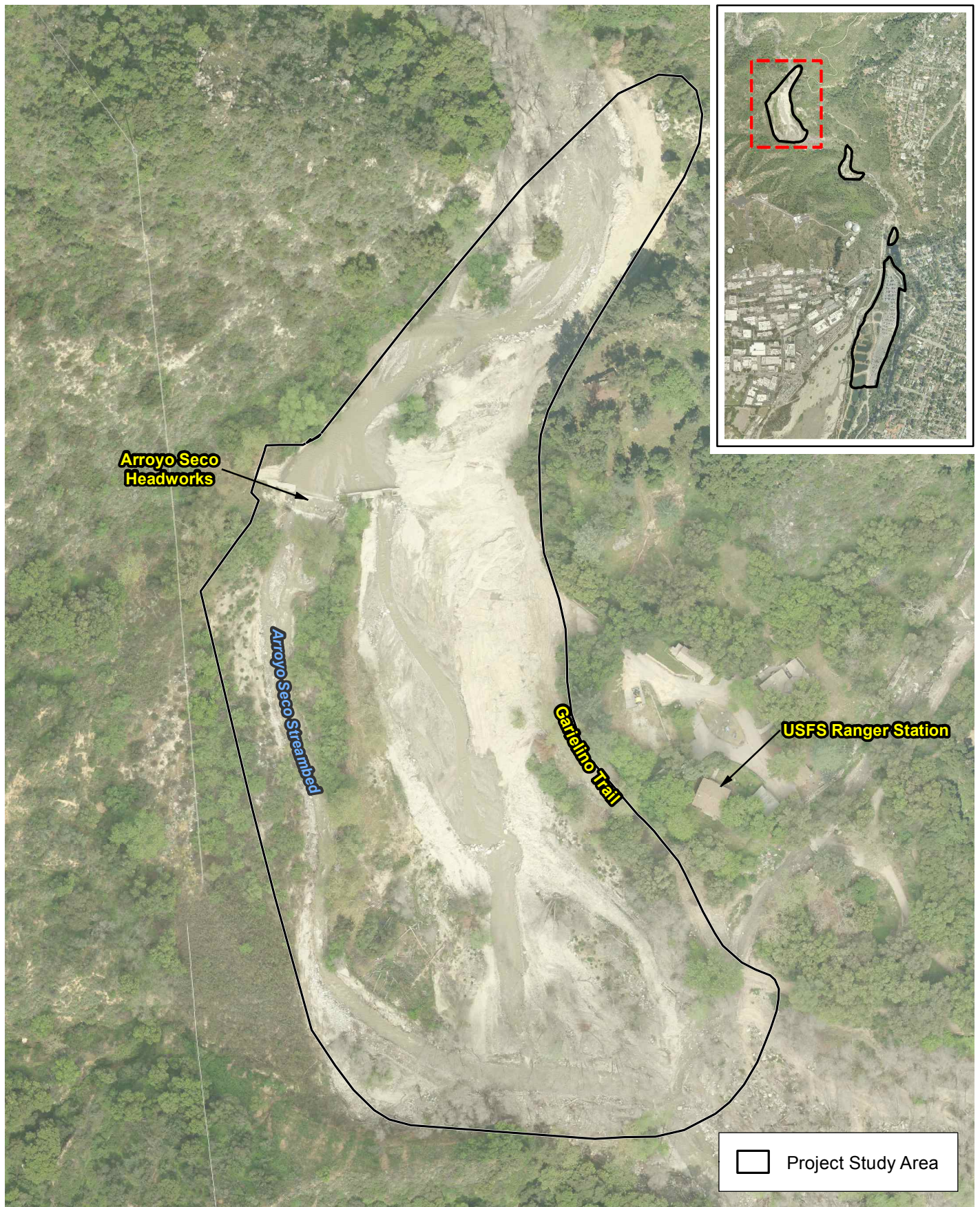
Millard Creek joins the Arroyo Seco approximately 0.25 mile south of the Arroyo Seco Intake and 0.15 mile north of the JPL East Parking Lot. There was an intake structure at this location that was completely damaged by floods after the 2009 Station Fire, but no new intake structure is proposed in this area. Bridge No. 1 spans Millard Creek and Bridge No. 2 crosses the Arroyo Seco just north of the Millard Creek confluence. South of this confluence and approximately 600 feet north of the JPL East Parking Lot is an area that may be used as a temporary staging site for construction activities. Construction materials, equipment, and vehicles may be temporarily located in this area during construction activities in Areas 1 and 2. An aerial photograph of this area is depicted in Exhibit 2-3c, Temporary Staging Area. All areas contained within the boundaries of the Study Area, as discussed in Section 4.4, Biological Resources, may also be used for construction staging activities.


Area 3 – JPL East Parking Lot

Area 3 includes the JPL East Parking Lot, adjacent City-owned spreading basins, and the access bridge that connects the Parking Lot to the NASA JPL Campus to the west. The Parking Lot is approximately 9.6 acres and contains 1,132 parking spaces that NASA JPL has leased from the City since 1960; these are restricted for use by NASA JPL employees and visitors. The Parking Lot is accessed from Explorer Road, which begins near the intersection of Windsor Avenue and Ventura Street, and travels through the Parking Lot northward to the access bridge. The Gabrielino Trail runs parallel to and east of the Parking Lot and also serves as a maintenance

² As stream flows increase during runoff events or seasonally higher water, the bed load is trapped on the upstream side of the weir, directing sediment into the intake. These sediments clog the intake and require maintenance that stops water diversion and groundwater recharge.

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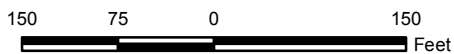


 Project Study Area

Area 1 – Arroyo Seco Headworks

Exhibit 2-3a

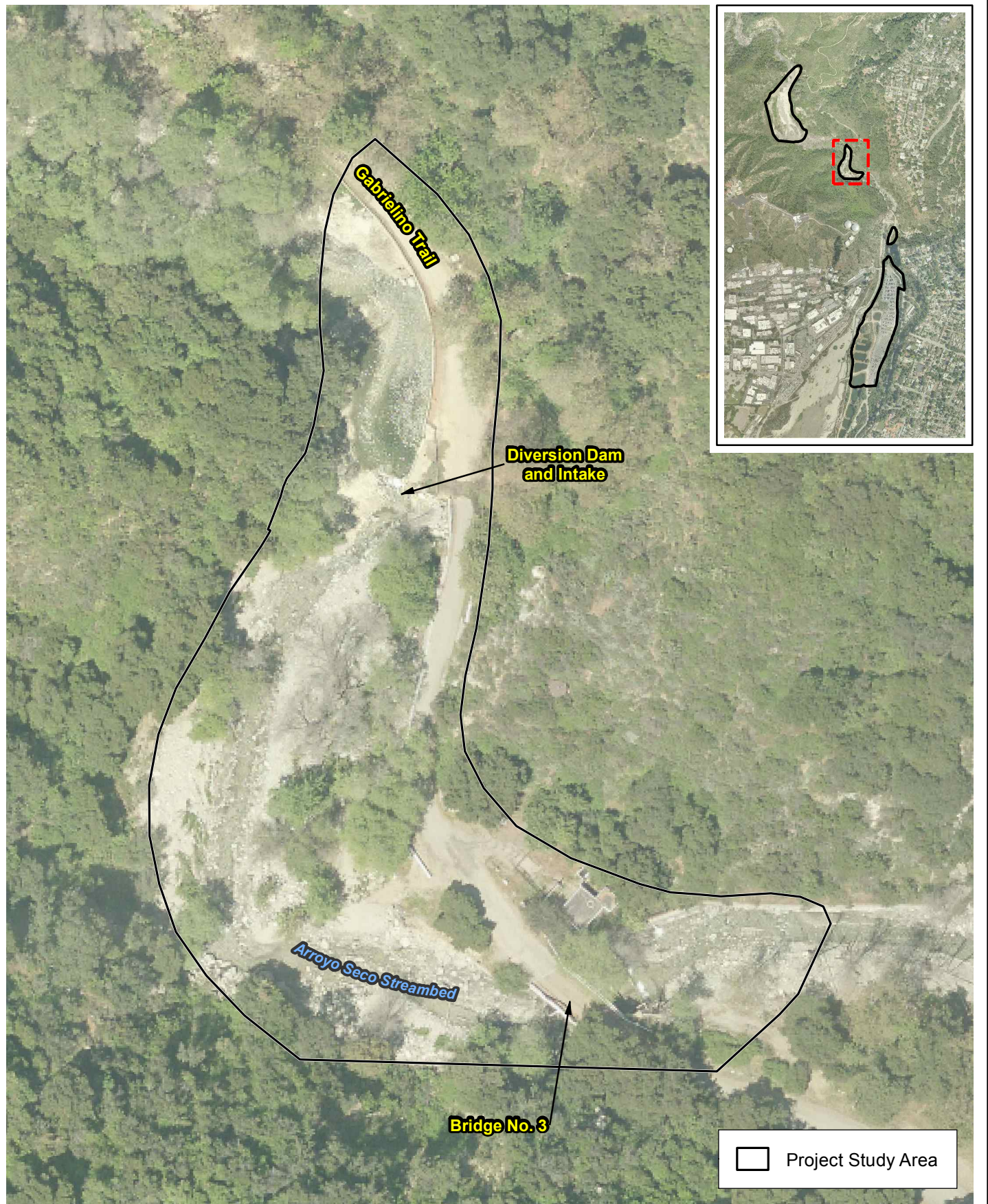
Arroyo Seco Canyon Project




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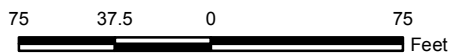


 Project Study Area

Area 2 – Arroyo Seco Intake

Exhibit 2-3b

Arroyo Seco Canyon Project



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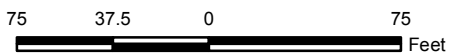
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Temporary Staging Site

Exhibit 2-3c

Arroyo Seco Canyon Project



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access road (North Arroyo Boulevard) that leads into the Arroyo Seco Canyon area. Area 3 is located within the HWP boundaries.

A series of 15 spreading basins are located northeast of the Devil's Gate Reservoir; west of the JPL East Parking Lot; approximately 650 feet south of the JPL Bridge; and approximately 2,200 feet north of Devil's Gate Dam. Area 3 includes only the four upper spreading basins that are located west of the JPL East Parking Lot. A 12-inch diameter water line serves NASA JPL, a series of 30-inch-diameter hume line and a 16-inch-diameter ductile iron pipeline connect the Intake to the spreading basins, and two 24-inch-diameter pipelines and an 8-inch-diameter sludge line from the Behner Water Treatment Plant cross the parking lot to the spreading basins. Additionally, the Altadena Drain, a storm drain line from the Altadena area, crosses Area 3 to the Arroyo Seco within a Los Angeles County storm drain easement. An aerial photograph of Area 3 is depicted in Exhibit 2-3d, Area 3 – JPL East Parking Lot.

2.2.2 BIOLOGICAL RESOURCES

The Arroyo Seco Canyon has a north-south alignment with steep east- and west-facing slopes. Chaparral and coastal sage scrub/sumac scrub are the dominant vegetation types on these steep slopes, although there are pockets of coast-live oak woodlands on the east-facing slopes. A perennial stream with a pool and riffles meanders through the canyon bottom and supports a dense riparian woodland before exiting the canyon and crossing alluvial flats towards the Devil's Gate Dam.

Vegetation types within the Project site disturbance limits include California buckwheat scrub, California buckwheat scrub/annual brome grasslands, California buckwheat scrub/laurel sumac scrub, coast-live oak woodland, California sagebrush scrub/laurel sumac scrub, California sagebrush scrub/California buckwheat scrub, disturbed, disturbed/annual brome grasslands, mule fat thickets, annual brome grasslands, coast live oak/California sycamore woodland, poison oak scrub, riparian herb, riparian herb/unvegetated wash, scrub oak chaparral, arroyo willow thickets, laurel sumac scrub, California sycamore woodland, white alder grove/California sycamore woodland, and arroyo willow thickets/mule fat thickets.

Area 1 is dominated by arroyo willow thicket and white alder grove/California sycamore woodlands; Area 2 is dominated by white alder grove/California sycamore woodland; Area 3 is dominated by developed and disturbed/annual brome grasslands; and the temporary staging site is dominated by California sagebrush scrub/California buckwheat scrub. The vegetation primarily consists of native trees and plants, although minimal amounts of non-native vegetation such as giant reed (*Arundo donax*) and tree tobacco (*Nicotiana glauca*) were observed in the disturbed portions of Area 1.

The native vegetation and the presence of naturally occurring pooled and running water gives the site potential to support many wildlife species. Amphibians observed or expected to occur on the Project site include the coast range newt (*Taricha torosa torosa*), California chorus frog (*Pseudacris cadaverina*), Pacific chorus frog (*Pseudacris regilla*), and western toad (*Anaxyrus boreas*). Reptiles observed or expected to occur on the Project site include western fence lizard (*Sceloporus occidentalis*), western whiptail (*Cnemidophorus tigris*), side-blotched lizard (*Uta stansburiana*), gopher snake (*Pituophis catenifer*), and western rattlesnake (*Crotalus oregonus*). The Project site is also expected to draw a multitude of bird species (residents and migrants). Bird species that were observed or expected to occur on the site include residents such as the California quail (*Callipepla californica*), western screech-owl (*Megascops kennicottii*), great horned owl (*Bubo virginianus*), Anna's hummingbird (*Calypte anna*), acorn woodpecker (*Melanerpes formicivorus*), western scrub-jay (*Aphelocoma californica*), oak titmouse (*Baeolophus inornatus*), bushtit (*Psaltriparus minimus*), house wren (*Troglodytes aedon*),

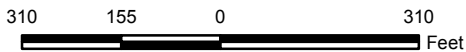
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Area 3 – JPL East Parking Lot

Exhibit 2-3d

Arroyo Seco Canyon Project



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California towhee (*Melospiza crissalis*), lesser goldfinch (*Spinus psaltria*), and migrants such as black-chinned hummingbird (*Archilochus alexandri*), western wood-pewee (*Contopus sordidulus*), Pacific-slope flycatcher (*Empidonax difficilis*), cliff swallow (*Petrochelidon pyrrhonota*), black-throated gray warbler (*Setophaga nigrescens*), Wilson's warbler (*Cardellina pusilla*), white-crowned sparrow (*Zonotrichia leucophrys*), and Bullock's oriole (*Icterus bullockii*).

In addition, the Project site is expected to have a high abundance of small and large mammals. Mammals observed or expected to occur on the Project site include large mammals such as the mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), mountain lion (*Puma concolor*), American black bear (*Ursus americanus*), bobcat (*Lynx rufus*), and small mesopredators such as striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), and small herbivores like the desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Otospermophilus beecheyi*), and Botta's pocket gopher (*Thomomys bottae*). A variety of bats are also expected to occur, including the California bat (*Myotis californicus*), hoary bat (*Lasiurus cinereus*), big brown bat (*Eptesicus fuscus*), and Brazilian free-tailed bat (*Tadarida brasiliensis*). A comprehensive list of observed plant and animal species is provided in Attachment B of Appendix B.

2.2.3 LAND USE

On-Site and Surrounding Land Uses

Areas 1 and 2 are located within an open space area that is accessible to the general public, including hikers, bicyclists, and equestrians, via the Gabrielino Trail. There are no occupied land uses in these areas. Areas 1 and 2 are surrounded by open space associated with the Angeles National Forest (ANF). There are no residences or other permanent land uses in the vicinity, other than the residences associated with the USFS Ranger Station adjacent to Area 1.

Area 3 contains the existing spreading basins and the JPL East Parking Lot. The City owns the JPL East Parking Lot, but leases the lot to NASA JPL. The parking lot is currently restricted for use by NASA JPL employees and visitors, with a shuttle carrying employees and visitors across the access bridge to the NASA JPL campus and back. Area 3 is surrounded by single-family residential neighborhoods to the east, including several schools located primarily within the unincorporated Altadena area, although some residential areas are located within City of Pasadena boundaries. All residential properties to the west of the Project site are located within the City of La Cañada Flintridge, including the NASA JPL. Property to the southwest includes portions of Hahamongna Watershed Park (formerly Oak Grove Park), which spans both sides of the Hahamongna Basin within the City of Pasadena, followed by residential land uses within the City of La Cañada Flintridge on the opposite (west) site of the Hahamongna Basin.

Applicable Land Use Plans

City of Pasadena General Plan and Zoning Code

As previously discussed, all Project components are located entirely within the City of Pasadena. The Upper Arroyo Seco is designated and zoned as Open Space and a portion of Area 3 is zoned Planned Development – 16 in the City of Pasadena's Land Use Plan and Zoning Map (Pasadena 2009, 2012b). Although the Arroyo Seco originates in the ANF and although Area 1 is located within the mapped boundary of the ANF, the portions of the Project site within the ANF boundary are designated in the USFS Land Management Plan as Non-Forest System Land and are not subject to the jurisdiction of the USFS (USFS 2005a).

Hahamongna Watershed Park Master Plan

The Arroyo Seco Master Plan is a master planning document that consists of four elements: (1) Hahamongna Watershed Park Master Plan, (2) Central Arroyo Seco Master Plan, (3) Lower Arroyo Seco Master Plan, and (4) Design Guidelines for the Arroyo Seco. The *Hahamongna Watershed Park Master Plan* (HWMP) and the *Arroyo Seco Design Guidelines* are applicable documents that address certain components of the proposed Project.

The HWMP sets forth objectives for the future use and development of HWP, which includes approximately 1,300 acres of open space that extends up the Arroyo Seco Canyon from the Devil's Gate Dam. The lower watershed, the 330 acres roughly defined as the floodplain and basin behind the Dam, is the focus of the HWMP. The HWMP establishes a framework for flood management, water conservation, habitat restoration, recreation, and cultural resources protection in this area. A conceptual approval of the HWMP was given by the City in 1999, with the HWMP adopted in 2003 and an amendment approved in 2010.

Only Area 3 of the Project site is within the HWMP's HWP study area. The projects specified in the HWMP include the conversion of the JPL East Parking Lot to a small public parking area at the north end and the expansion of the existing spreading grounds through the creation of new spreading basins on the central and southern portions of the parking lot. The HWMP also calls for a new restroom at the northern end of Area 3; a sunset overlook south of Area 3; a bridge crossing for the North Perimeter Trail from an existing trail across Area 3; storm drain improvements; and habitat restoration around the spreading basins. A number of other improvements are planned in the HWMP for areas outside Area 3 and on the west side of the Arroyo Seco.

Arroyo Seco Design Guidelines

The Arroyo Seco Design Guidelines document comprises one of the four elements of the Arroyo Seco Master Plan and includes design criteria and guidelines for improvements in the Arroyo Seco. The guidelines address the following components:

- Habitat Restoration and Land Improvements
- Architecture
- Cultural Resource Preservation
- Recreation
- Signage
- Walls, Fences, and Gates
- Walkways, Paths, and Trails
- Parking and Traffic Control
- Public Art
- Site Furnishings

The proposed improvements in Area 3 would be subject to these design guidelines. For consistency, improvements subject to public use (e.g., rock walls, benches, signs, picnic tables) in Areas 1 and 2 will be designed according to these guidelines.

2.3 PROJECT BACKGROUND AND PURPOSE

The purpose of the proposed Project is to take a multi-benefit approach to repair/replace facilities that were damaged or destroyed by Station Fire-related events; to increase the utilization of surface water rights held by the City; improve water quality in the canyon; improve biological habitats; restore hydrological function and fish passage; and improve ecosystem health through the following enhancements:

- Remove exposed portions of existing infrastructure designed for sediment removal (Area 1)
- Naturalize the Arroyo Seco streambed (Area 1)
- Restore and improve the intake facilities (Area 2)
- Expand recharge operations by creating additional spreading basins (Area 3)
- Reduced barriers to fish passage
- Enhance recreational facilities
- Improve water quality through the proposed restroom
- Improve stormwater quality through a smaller decomposed granite parking lot

2.3.1 2009 STATION FIRE

The Station Fire burned a total of 161,189 acres (or nearly 252 square miles) of the Angeles National Forest in 2009. The fire burned vegetation and soils on steep side slopes within the Los Angeles River, San Gabriel River, Mojave River, and Santa Clara River Watersheds. This led to substantial erosion, debris flows, and flooding during subsequent winter storm seasons and summer storm events. PWP facilities in and near the Arroyo Seco have been significantly damaged, and the streambed has been altered by accumulated sediment due to the major debris flows following the Station Fire. It is estimated that over 1 million cubic yards of sediment accumulated behind the Devil's Gate Dam during the storms, which passed through the PWP's Headworks and diversion structures.

As a result of the damage generated by the sediment-laden flows following the Station Fire, the Project involves enhancing the existing diversion and intake structures in Area 2 to improve sediment removal and eliminate the need for the Headworks facility in Area 1 and naturalize the Arroyo Seco streambed through restoration activities in Area 1.

2.3.2 SURFACE WATER DIVERSION AND INFILTRATION

The spreading basins in Area 3 cover approximately 13 acres and can hold approximately 39 acre-feet of water, which is nearly equal to the existing average annual daily recharge volume of 35.75 acre-feet (af) per day. The average percolation rate of the basins is estimated to be 18 cfs after the basins have filled with water and allowed time for the ground to become saturated. Historically, approximately 2,300 af of water were recharged annually prior to the 2009 Station Fire. The City receives groundwater pumping credit equal to approximately 60 percent of the amount of water recharged into the groundwater basin.

An analysis conducted by Carollo Engineers in 2013 examined 23 years' worth of rainfall and recharge data and determined that, on average, PWP is regularly forfeiting a portion of its surface water rights due to a combination of high concentration of sediment deposits following initial storm events and spreading capacity constraints. Based on the analysis of flows during the 3 wettest

years between 1990 to 2012 (which were 1998, 2005, and 2011), it was determined that approximately 25 af of additional spreading basin capacity would be needed to capture all forfeited flows and that the additional basin capacity would have been utilized about 40 days per year during these 3 wettest years (Carollo 2013). Activities proposed within Area 3, including the reconfiguration and expansion of the existing spreading basins, would reduce the forfeiture of surface water.

2.4 CEQA REVIEW PROCESS

This IS/MND has been prepared to analyze the impacts associated with (1) the proposed habitat restoration, (2) reconstruction, and expansion of facilities for water conservation and (3) the recreational amenities at three separate areas along the Upper Arroyo Seco. Review of previous related environmental documentation was made to determine whether the proposed improvements have been addressed in previous documents and if there is a need or ability to tier off these documents.

The review indicated that the Master Environmental Impact Report (Master EIR) for the Arroyo Seco Master Plan analyzed the impacts of proposed improvements in Area 3, but the impacts of improvements proposed in Areas 1 and 2 have not been analyzed in any environmental document. As such, this IS/MND analyzes the impacts of the Project in all three areas, and compares the impacts in Area 3 with those in the Master EIR. Applicable mitigation measures from the Master EIR are then incorporated into this IS/MND. As necessary, such measures are updated and/or supplemented with additional mitigation to specifically address Project-related impacts.

The City of Pasadena is serving as the Lead Agency for the CEQA environmental review process and has submitted this IS/MND to responsible and trustee agencies and other potentially affected agencies and adjacent property owners. A Notice of Intent to Adopt an MND was also sent to the State Clearinghouse and the Los Angeles County Registrar-Recorder/County Clerk. The IS/MND and associated technical reports can be viewed online at the City's website at http://www.cityofpasadena.net/Planning/Environmental_Notices/ and the Arroyo Seco Foundation website at <http://www.arroyoseco.org/ascp/ismnd/htm>. Notices were also posted at the site and in the surrounding neighborhood.

In accordance with Section 15073 of the State CEQA Guidelines, a Negative Declaration or Mitigated Negative Declaration must be subject to a 30-day public review period when submitted to the State Clearinghouse for review by State agencies. The public review period for this IS/MND has been set from October 9, 2014 to November 8, 2014.

In reviewing the IS/MND, the reviewer should focus on the sufficiency of the document in identifying and analyzing the potential impacts on the environment and ways in which the Project's potentially significant effects are avoided or mitigated. Comments should be sent in writing and postmarked by November 8, 2014, by mail, email or fax to Mr. Jose Jimenez of the City of Pasadena at the address below.

Jose Daniel Jimenez
City of Pasadena
Planning and Community Development
175 North Garfield Avenue
Pasadena California 91101-1704
phone: (626) 744-7137
fax: (626) 396-8998
email: josejimenez@cityofpasadena.net

In accordance with Section 15074 of the State CEQA Guidelines, prior to approving the Project, the Hearing Officer will consider the IS/MND together with any comments received during the public review process. The City will adopt the IS/MND only if it finds that there is no substantial evidence in the record that the Project will have a significant adverse effect on the environment and that the IS/MND reflects the independent judgment and analysis of the City. A Notice of Determination will be filed with the County Clerk and the State Clearinghouse after adoption of the MND.

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SECTION 3.0 PROJECT DESCRIPTION

The proposed Project involves minimizing the overall area for surface water diversion, spreading, and sedimentation management and locating it closer to the base of the Arroyo Seco Canyon. This would simplify sediment management and maintenance activities that are currently constrained by difficult access into the canyon. Instead of reconstructing the damaged Headworks structure in the Arroyo Seco stream, the Project would replace the diversion and intake structures in the Arroyo Seco Canyon to allow for capture of up to 25 cfs into the spreading basins and the bypass of debris and sediment during high flows. The facilities and improvements that would be constructed as part of the Arroyo Seco Canyon Project would be located at three areas along the Arroyo Seco: Area 1 – Arroyo Seco Headworks; Area 2 – Arroyo Seco Intake; and Area 3 – JPL East Parking Lot (refer to Exhibit 2-2).

3.1 PROJECT COMPONENTS

3.1.1 AREA 1 – ARROYO SECO HEADWORKS

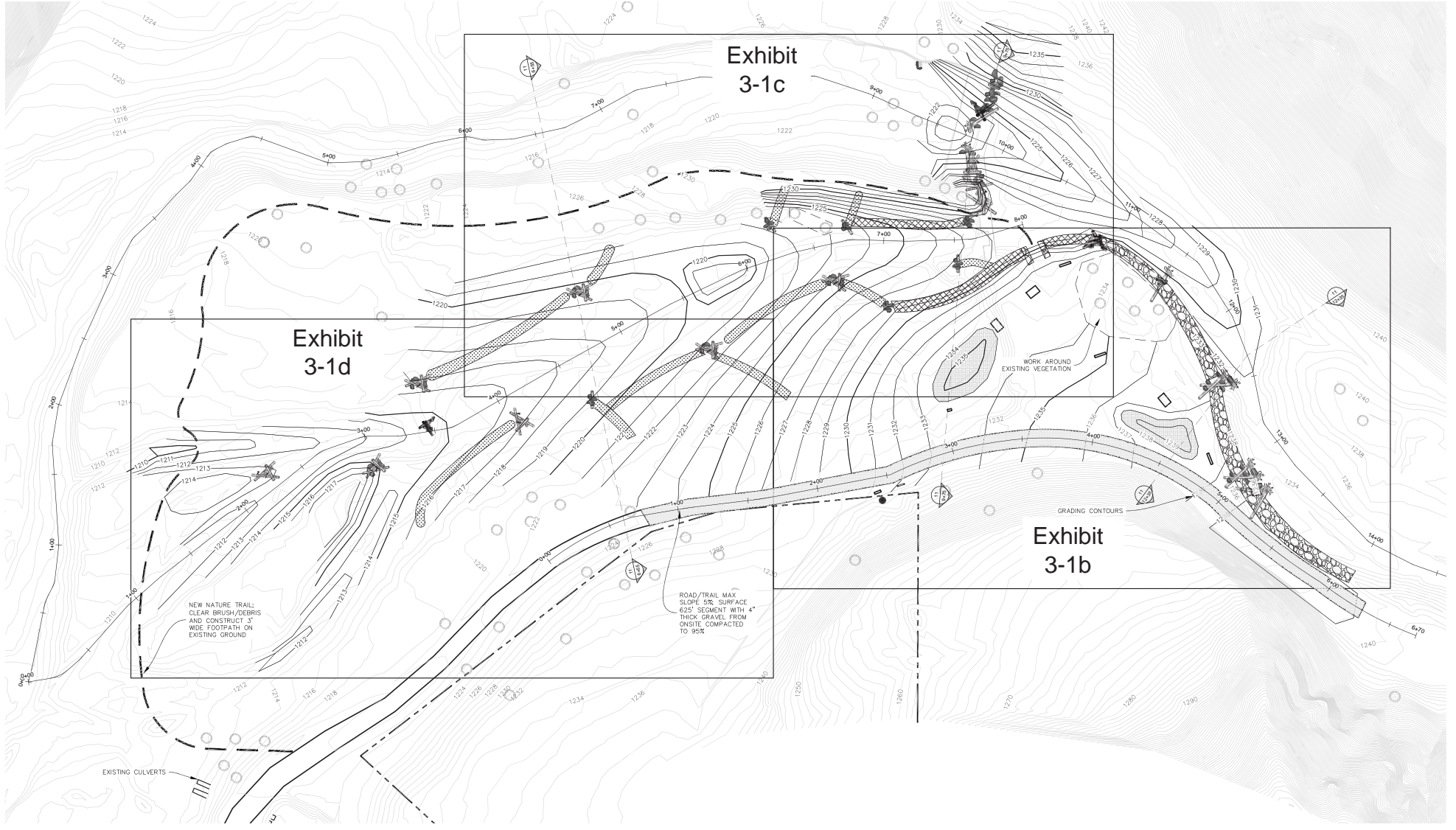
The exposed portions of the Headworks structure will be removed, and improvements in Area 1 will focus on rehabilitating an approximate 6-acre area of the Arroyo Seco floodplain that was significantly impacted by flooding in 2010. The conceptual design for Area 1 is provided in Exhibit 3-1a, Area 1 Conceptual Design, which depicts the entire Area 1 plan, and provides a legend for the more detailed views of the plans that follow, depicted as Exhibits 3-1b, 3-1c, and 3-1d. Stream restoration would involve native plant revegetation and invasive species removal on approximately 1,000 feet of the stream. In addition, the Project includes construction of a rock bank revetment; bank stabilization; creation of planting islands; and installation of woody debris clusters.

Exhibit 3-1b, Area 1 Conceptual Design, depicts the proposed improvements to the most upstream portion of Area 1, including the planted boulder revetment, which would assist in directing creek flows around the proposed picnic area (located outside the five-year floodplain), large wood structures, and boulders. These improvements would facilitate natural sedimentation and would provide opportunities for natural revegetation. In addition, benches, picnic tables, and steps that descend over the bio-block revetment (to allow access from the nature trail to the picnic area), willow baffles, and an equestrian water trough and post are proposed in this area.

The large wood structures would be made of raw logs available from nearby lumber mills or down trees that are not rotten. The logs would be anchored and bolted together into woody debris clusters. These clusters would be positioned to collect debris at the edge of the stream below the two-year water surface elevation. At points of high velocities and shear forces, these clusters would be kept in place with boulders. The proposed picnic tables and benches would be made of heavy duty wood with weatherproofing and would be bolted to buried concrete blocks. Trash cans would have bear-proof lids. Signage would be made of wood or boulders, or other materials including metal and plastic. A signage plate would be placed near the picnic area that describes the dynamic conditions of the Upper Arroyo and river restoration components. Signage would also be located along the nature trail, which would meander and cross the streambed, to describe the native animals, aquatic life, and plants.

Exhibit 3-1c, Area 1 Conceptual Design, depicts the portion of Area 1 that contains the main creek channel, including the locations of the large wood structures and boulders, the bio-block revetment, and the nature trail alignment. This new trail is proposed across the Arroyo Seco from the lower portion of Area 1 and would meander between the Arroyo Seco main channel and the re-created riparian zone and would cross the stream at the northern section, with steps leading

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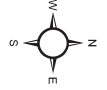


Source: Carollo 2014

Area 1 Conceptual Design

Exhibit 3-1a

Arroyo Seco Canyon Project





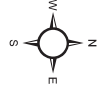
LEGEND	
	BOULDER REVETMENT
	BIO-BLOCK REVETMENT
	WILLOW BAFFLE
	IMPORTED TOPSOIL
	IMPORTED AGGREGATE BASE
	BOULDERS
	LARGE WOOD STRUCTURE
	FOREST SERVICE PROPERTY
	NATURE TRAIL
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EXISTING TREE TO BE PRESERVED

Source: Carollo 2014

Area 1 Conceptual Design

Exhibit 3-1b

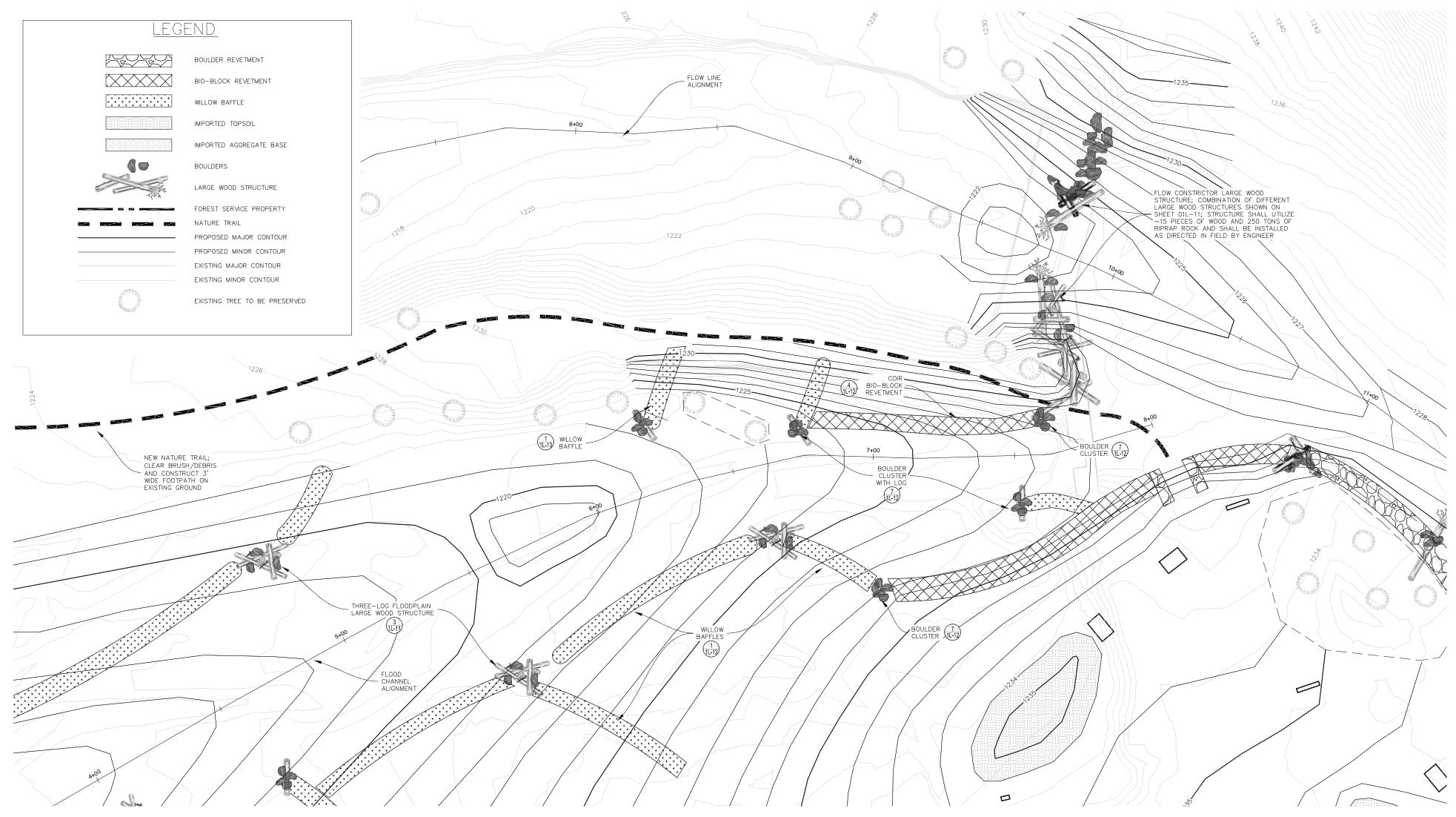
Arroyo Seco Canyon Project



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LEGEND

	BOULDER RETEVMENT
	BIO-BLOCK RETEVMENT
	WILLOW BAFFLE
	IMPORTED TOPSOIL
	IMPORTED AGGREGATE BASE
	BOULDERS
	LARGE WOOD STRUCTURE
	FOREST SERVICE PROPERTY
	NATURE TRAIL
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EXISTING TREE TO BE PRESERVED

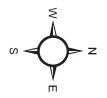


Source: Carollo 1914

Area 1 Conceptual Design

Exhibit 3-1c

Arroyo Seco Canyon Project



to the rest area/picnic area. It would be approximately three feet wide and would consist of the existing ground cleared of brush and debris. Exhibit 3-1d, Area 1 Conceptual Design, depicts the downstream portion of Area 1, including the locations of the willow baffles and wood structures and boulders. Additionally, a number of interpretive signage on the local watershed and native species would be installed, and a portion of the existing chain-link fence on the west side of the Gabrielino Trail/access road of Area 1 would be removed, and the trail/road would be leveled.

The preliminary planting palette includes four main restoration areas, including Riparian Floodplain, Natural Uplands, Irrigated Picnic Area, and Willow Baffles. The restoration planting palette would involve a mix of seeds and container species. The proposed planting layout for Area 1 shows that riparian tree species would be distributed along a moisture gradient. Trees such as willow and white alder would be planted near or at the water's edge. Other tree species, like California sycamore or coast live oak, would be planted where the soil is drier and the water table is at greater depths. Other common native riparian tree species that are native to the upper Arroyo Seco area would be planted in the understory of Area 1. A meandering nature trail would be developed in this restoration area and would cross the streambed.

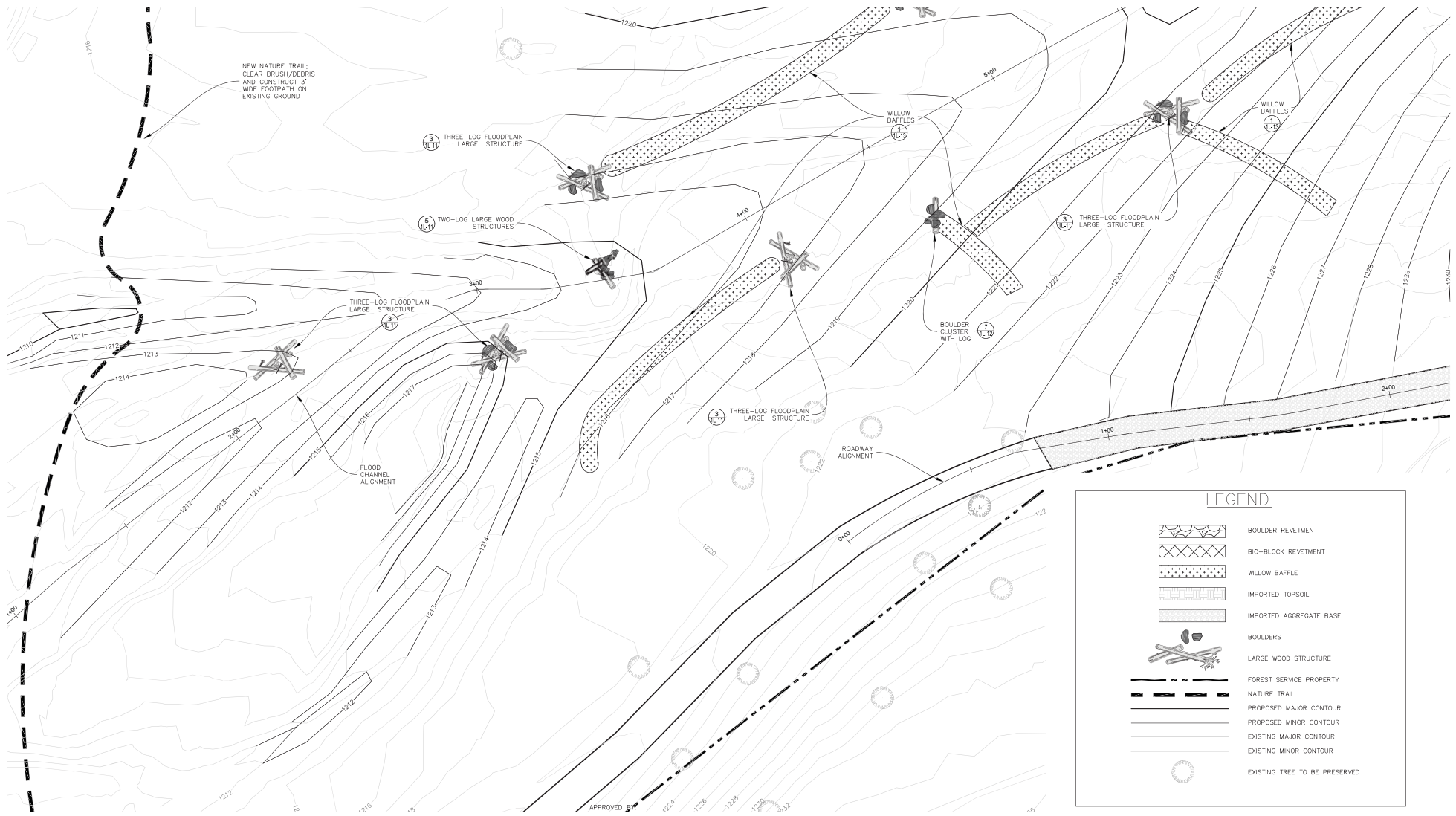
Trees to be planted in Area 1 would include coast live oak, California sycamore, Fremont cottonwood, California bay laurel, or other suitable native trees, with an associated irrigation system to support the tree establishment. Riparian planting in the rest area/picnic area would be temporarily irrigated. Water line connections would be made from the adjacent USFS Ranger Station to the proposed rest area/picnic area for the existing water fountain, restoration vegetation establishment, and the horse water trough.

3.1.2 AREA 2 – ARROYO SECO INTAKE

Exhibit 3-2a, Area 2 – Preliminary Site Plan, depicts the proposed improvements in Area 2, which include the replacement of the diversion weir and intake structures and reconstruction of the access road. The access road south of the intake structure in Area 2 would be stabilized through the reconstruction of the slope and the provision of protective riprap. The road would be repaved with asphalt and the existing river rock wall would be extended north towards the diversion structure. The use of arroyo stone for the rock wall along the access road is consistent with the style found throughout the Arroyo Seco and is an essential characteristic of Arroyo culture. A cross-section of the proposed road reconstruction is included in Exhibit 3-2a.

The existing diversion structure would be replaced with either a pneumatically operated spillway gate, as depicted in Exhibit 3-2b, or a motorized crest gate, as depicted in Exhibit 3-2c. Either option would allow an increase in the amount of water that could be diverted to the spreading basins in Area 3 and to better manage sediment buildup behind the diversion structure. The gate/weir would have a sluice or slide gate (with an electric or a hydraulic actuator); a 35-foot-wide and 10-foot-long diversion sill, a trash rack, and a fine screen. The new gate/weir could be effectively removed from the flow path during large storm events to minimize the amount of sediment that builds up at the diversion structure. At other times, the weir/gate would be raised to allow stream flow to be diverted through the intake structure into the spreading basins. A small educational signage plate would be located adjacent to the intake structure describing the storm water diversion operation, the fish screen, and its beneficial impact on aquatic life.

An equipment building located north of the intake structure was damaged by the 2010 winter storms and will be replaced. The proposed control equipment enclosure would be approximately 6 feet by 10 feet and would house the controls for the diversion structure. Electric power for the diversion structure and control equipment enclosure would be supplied by an existing power line at the travelling screen building (southeast of the intake structure).



Source: Carollo 194

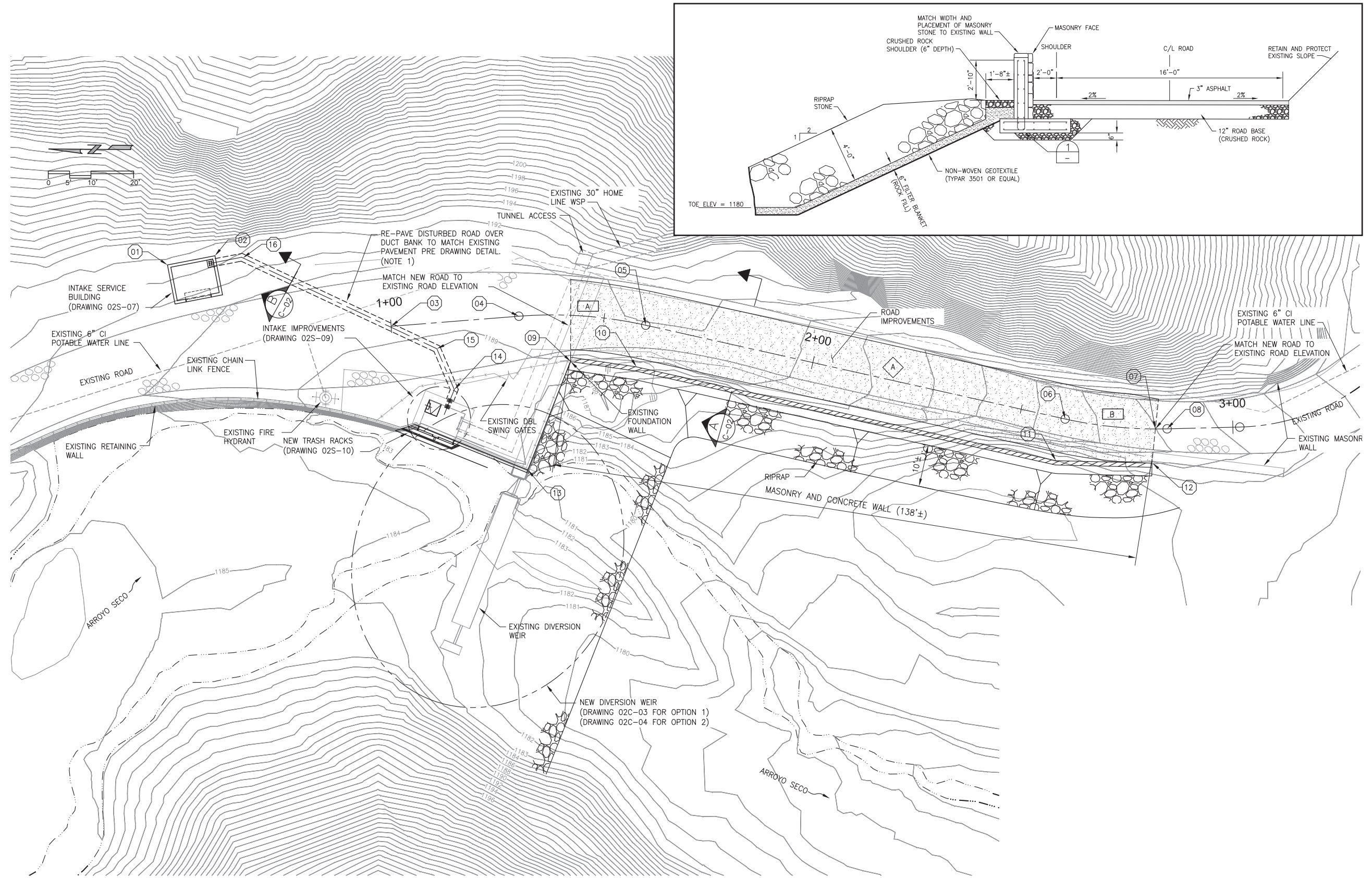
Area 1 Conceptual Design

Arroyo Seco Canyon Project

Exhibit 3-1d



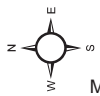
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Source: Carollo 2014

Area 2 – Preliminary Site Plan

Arroyo Seco Canyon Project

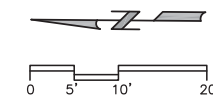
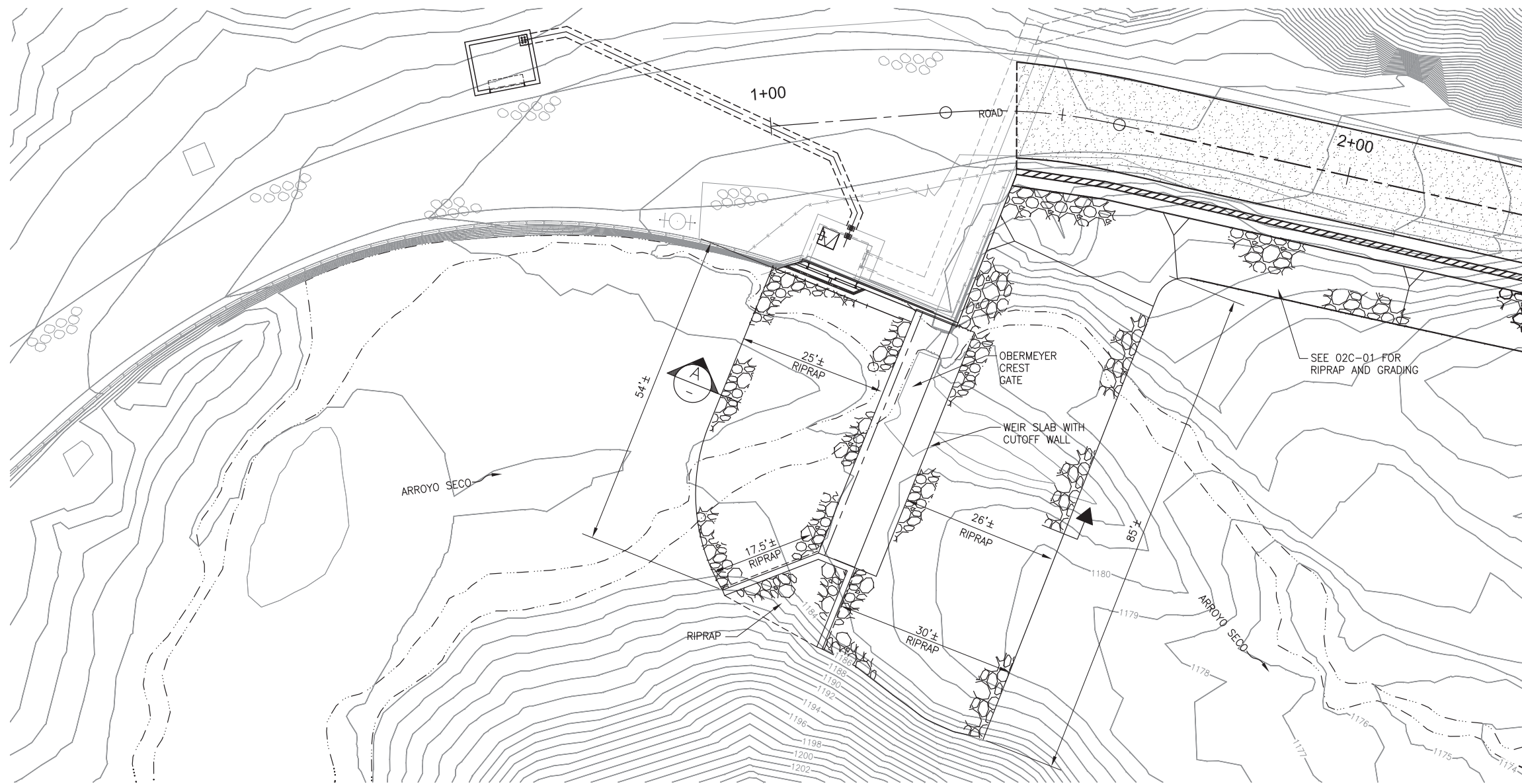


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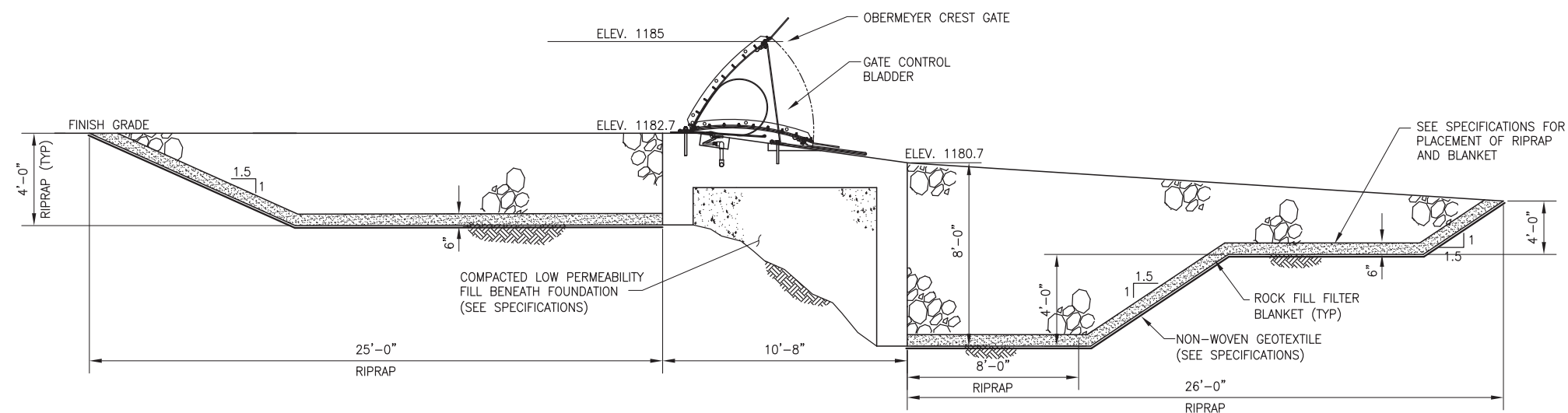
Exhibit 3-2a



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PLAN



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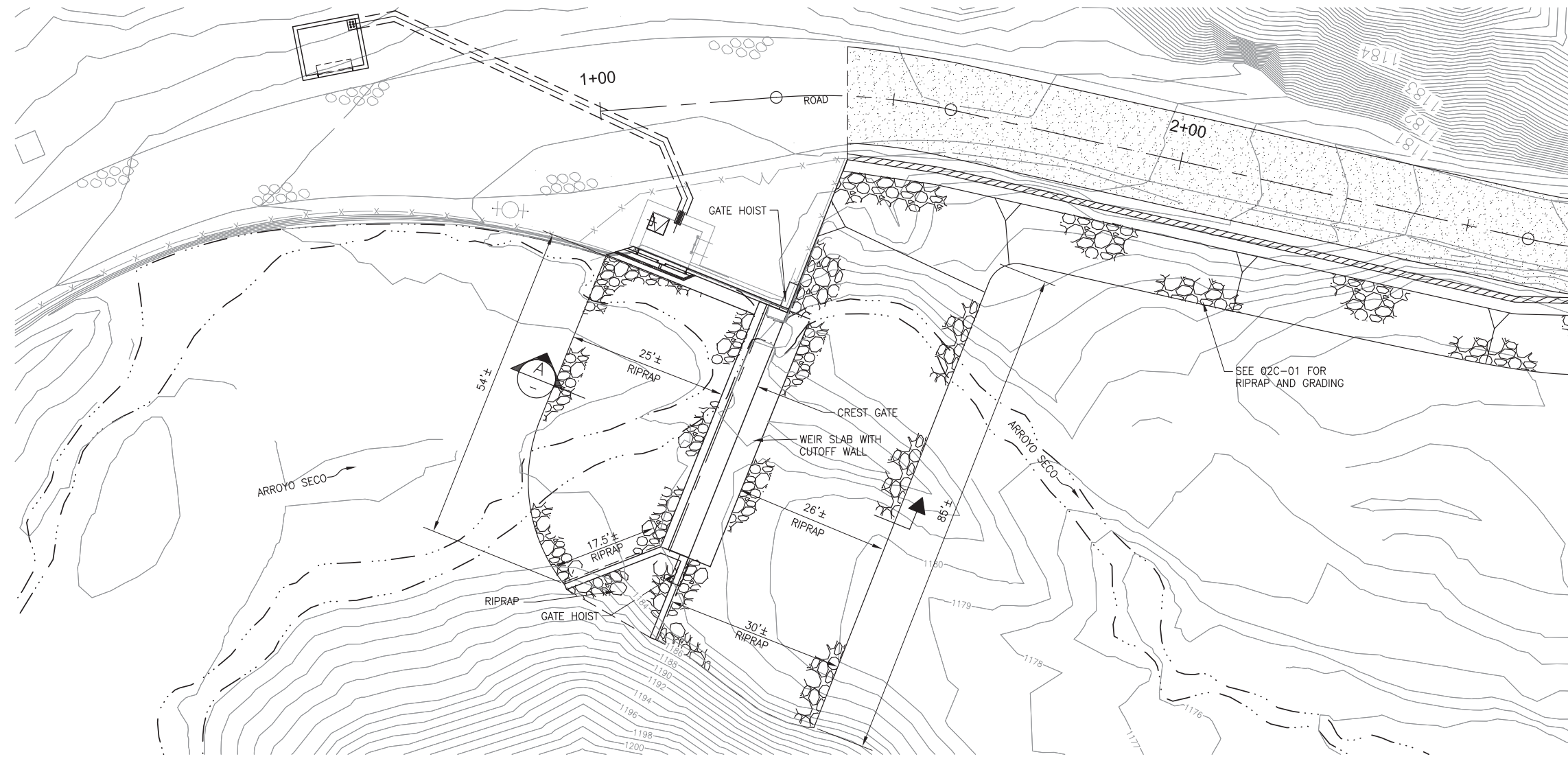
Source: Carollo 2014

Area 2 – Option 1: Pneumatic Spillway Gate

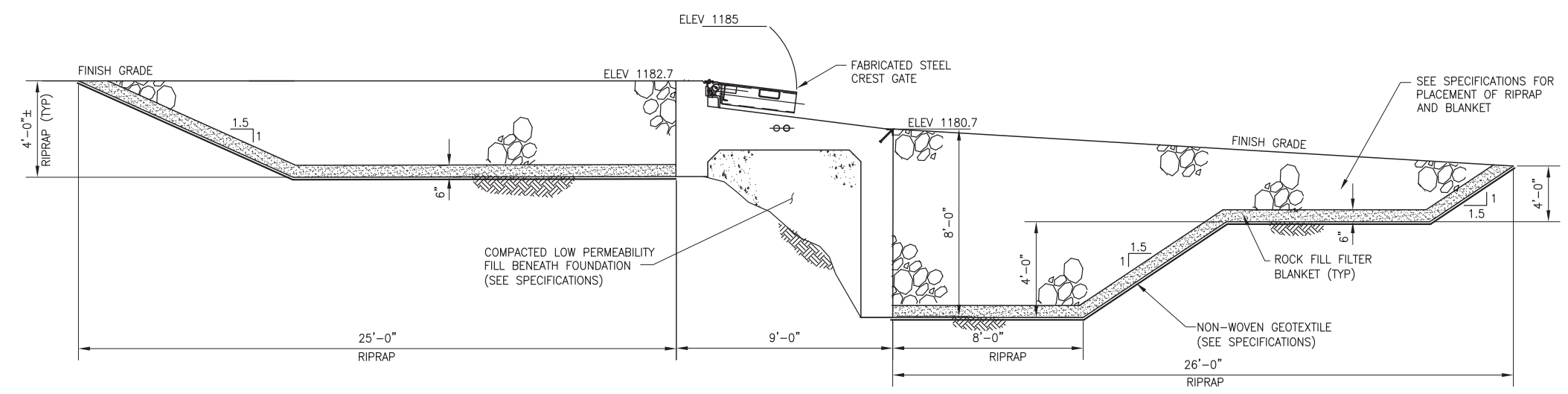
Arroyo Seco Canyon Project

Exhibit 3-2b





PLAN



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Source: Carollo 2014

Area 2- Option 2: Motorized Steel Crest Gate

Exhibit 3-2c

Arroyo Seco Canyon Project



3.1.3 AREA 3 – JPL EAST PARKING LOT

Improvements proposed in Area 3 include a public recreational parking lot with up to 100 parking stalls paved with decomposed granite or other pervious materials; enlarging existing spreading basins; new sedimentation basins; an access road; a potential future pedestrian pathway; an existing trail/equestrian pathway; interpretative signage; a pet waste disposal station; a guard station near the JPL Bridge access point; and a public restroom that is compliant with the Americans with Disabilities Act (ADA). The restroom would include a trash receptacle and a recycling bin.

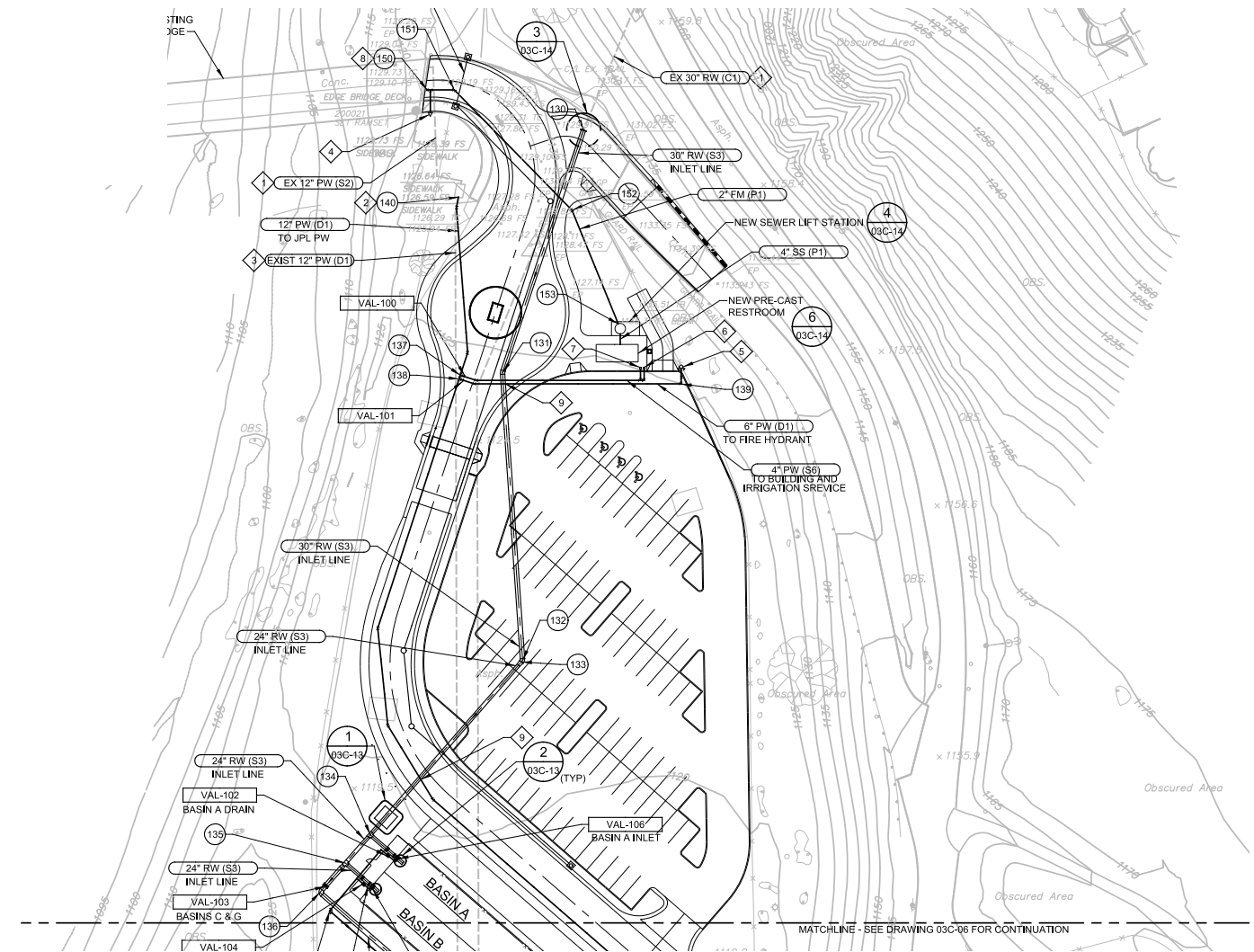
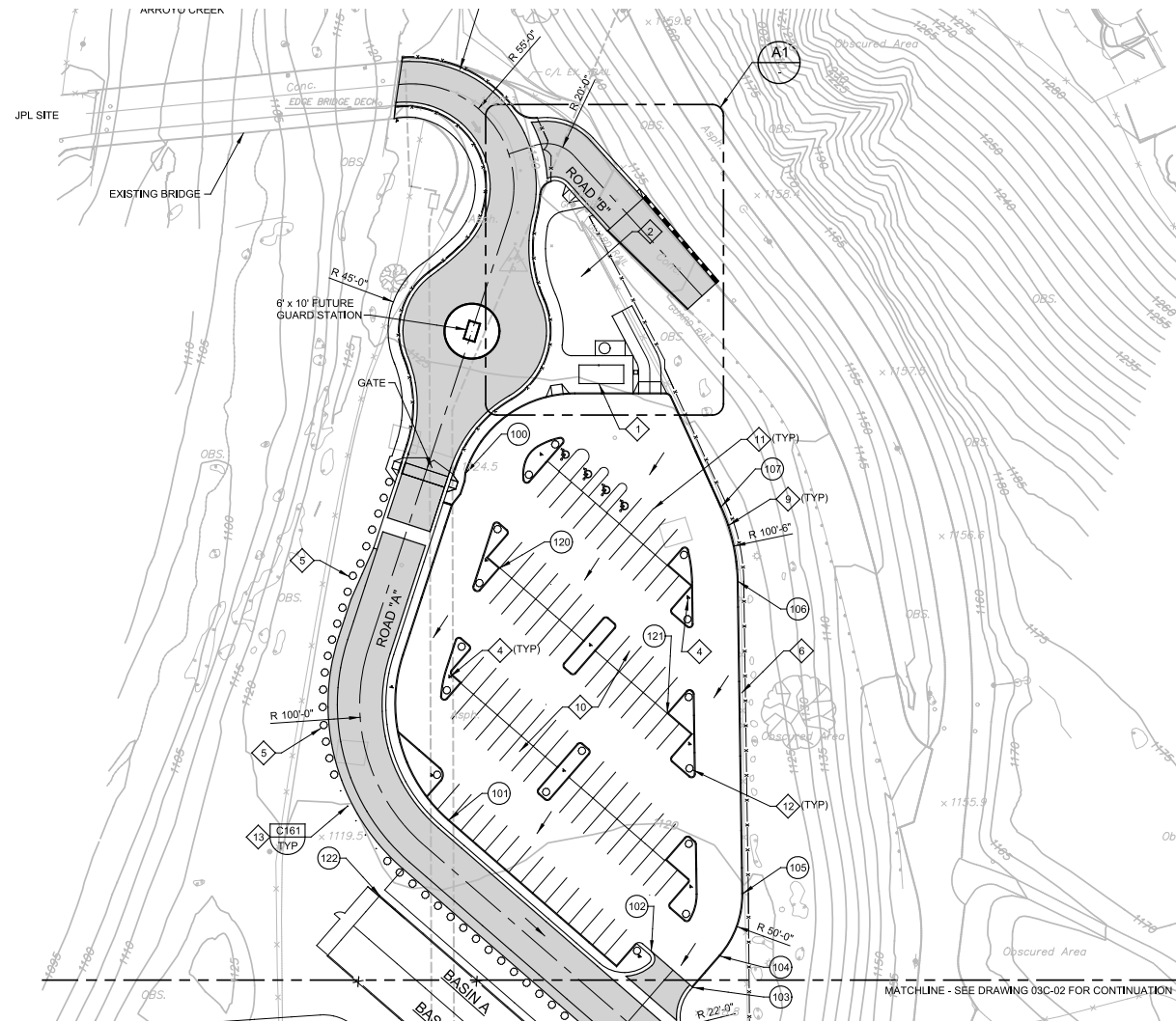
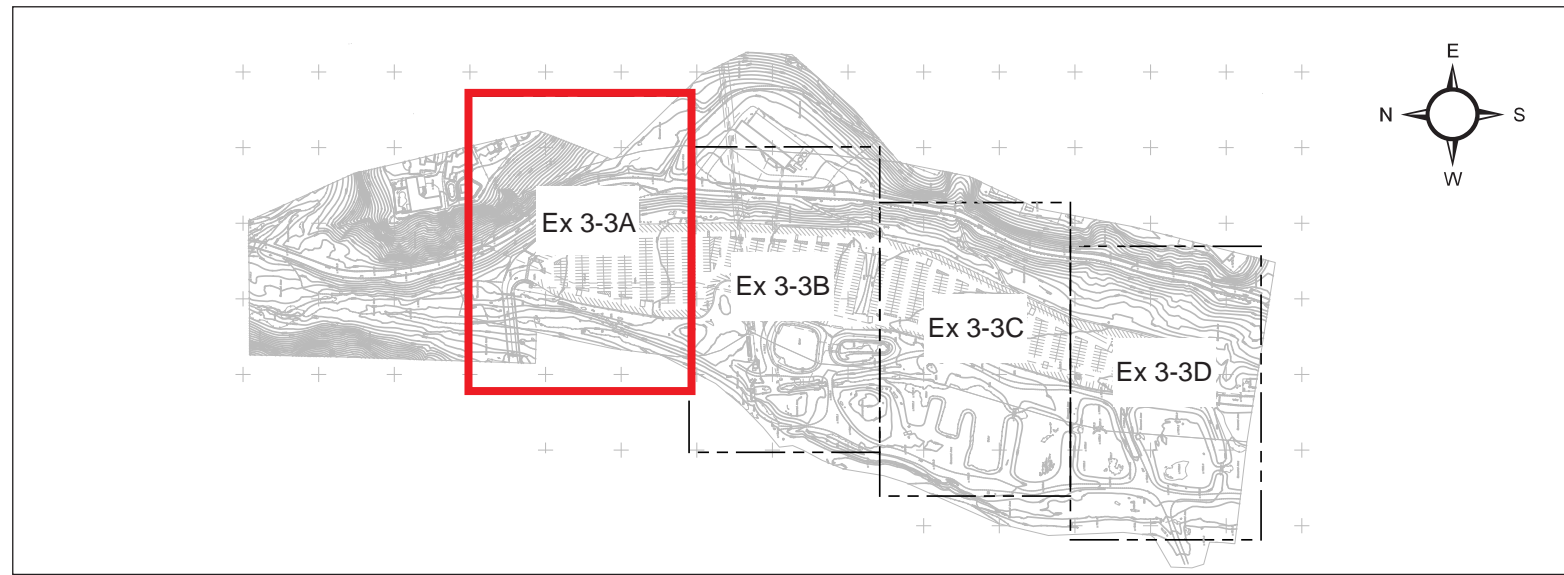
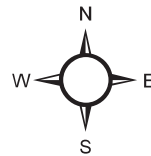
Exhibit 3-3a, Parking Lot, Restroom and Piping Plan, depicts the proposed parking in Area 3, which would be consolidated at the north end (1.25 acres) of the existing parking lot area and a 2-lane, 24-foot wide paved access road along the eastern edge of Area 3. The road would include a two-foot curb and gutter along the eastern edge, and a five-foot “pull over” area along the western edge of the road. At the northernmost end of this road is the proposed guard station that would monitor access to the NASA-JPL property to the west, including a proposed roundabout that would allow vehicles to turn around without needing to cross the existing JPL Bridge. The piping plan depicts the 30-inch-diameter inlet line that transports creek flows into the spreading basins, as well as to the downstream basin inlets.

Native shade trees (e.g., California sycamore or similar species) would be provided along with native shrubs and grasses in parking islands of the parking lot and an irrigation system would be installed. The public restroom and a pet waste disposal station would be constructed at the north end of the new parking lot. The restroom would have two gender-neutral stalls, fire-retardant shingles, door locks, dead bolts, and a storage room. A sewer lift station on a concrete pad would be located directly adjacent to the restroom building. A potential future pedestrian pathway/trail could be constructed from the north end of the parking lot to connect to the existing Gabrielino Trail/access road to the northeast. In addition, a signage kiosk would be located at the top of the existing Gabrielino Trail/access road overlooking the spreading basins and would describe the spreading basin operations and inform visitors of the benefits of local water supplies and groundwater recharge. A security fence would be installed on both sides of the bridge and the proposed roundabout.

Two sedimentation basins would be constructed to serve both the existing and enlarged spreading basins. The proposed sedimentation basins in Area 3 would each be rectangular, basins that are approximately 160 feet long by 20 feet wide by 10 feet deep. The proposed spreading basins would generally have an operating water depth of 1 foot and freeboard of 2 feet with basin wall slopes of 3:1, which will provide an additional 25 af capacity of spreading volume. A 15-foot-wide dirt access road would be provided around each basin that is expanded or built. With the area’s sloping terrain, maximum depths of the basins would range from 5.5 feet to 6.5 feet. To maximize the effective recharge area for the spreading basins, three existing basins would be combined with the new basins, which are proposed immediately to the east of the existing basins, except for the proposed Basin J. Spillways, pipelines, culverts, and valves would be provided to connect the basins to each other.

Exhibit 3-3b, Area 3 – Basins A–F and Piping Plan, depicts the locations and sizes of the two proposed pre-sedimentation basins (Basins A and B), four of the proposed spreading basins, and the access road alignment. The Piping Plan depicts the 30-inch-diameter inlet line, overflow lines, drain lines, and inlet/outlet connections between spreading basins.

Exhibit 3-3c, Area 3 – Basins F–I and Piping Plan, depicts the locations and sizes of three of the expanded spreading basins and the access road alignment. The Piping Plan depicts the 30-inch-diameter inlet line, inlet/outlet connections between spreading basins, and relocation of



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Area 3 – Parking Lot, Restroom, and Piping Plan

Arroyo Seco Canyon Project

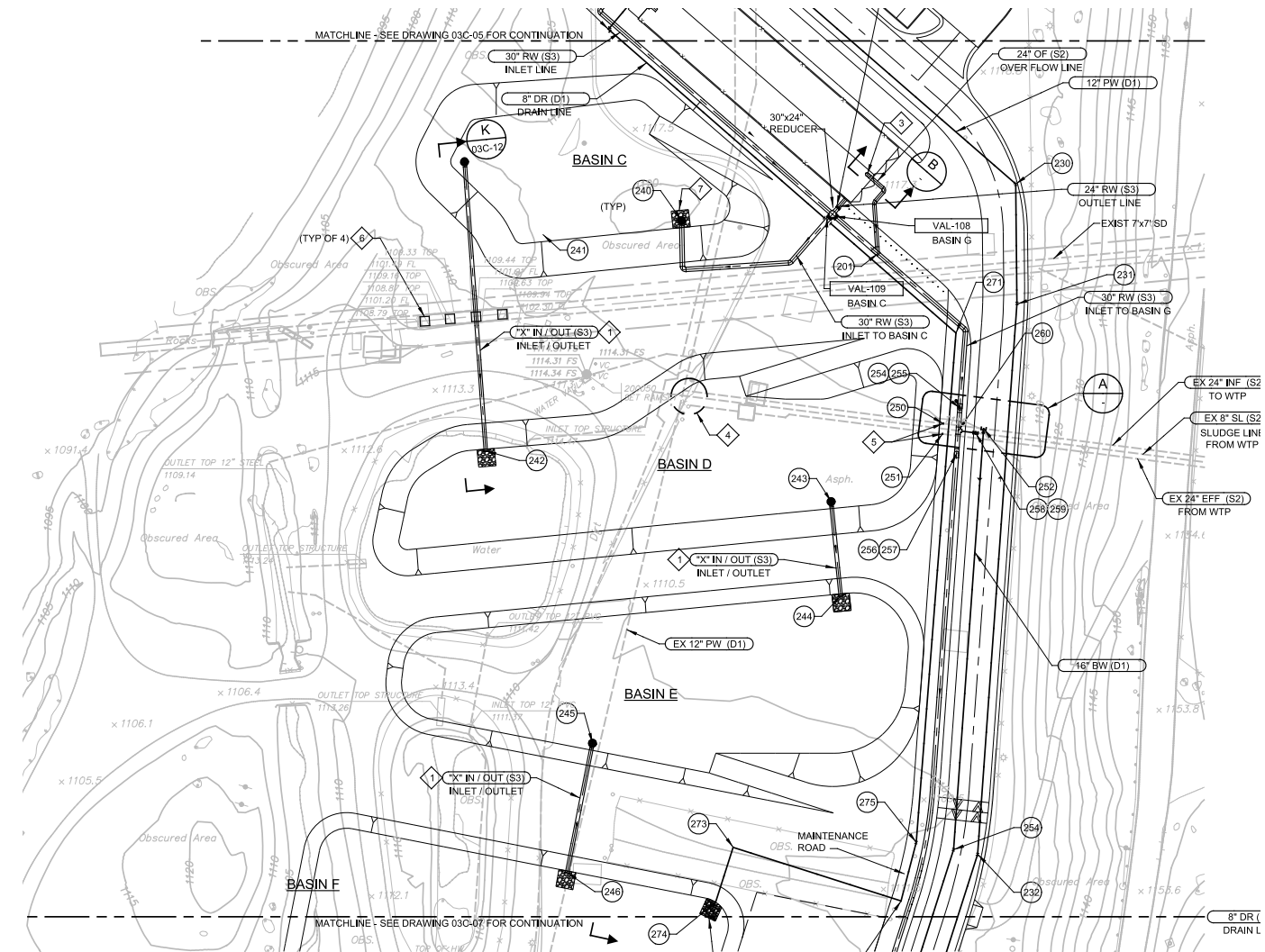
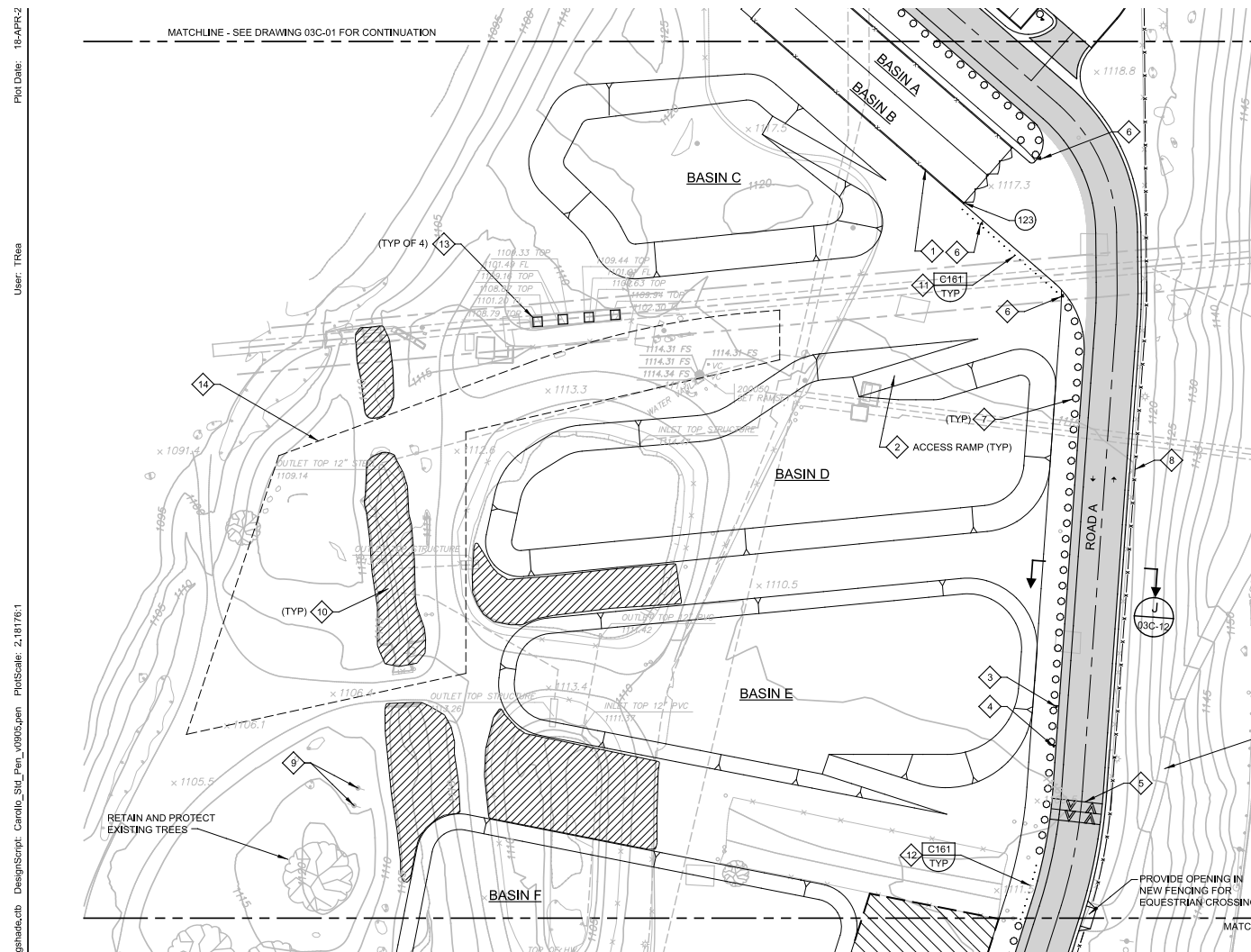
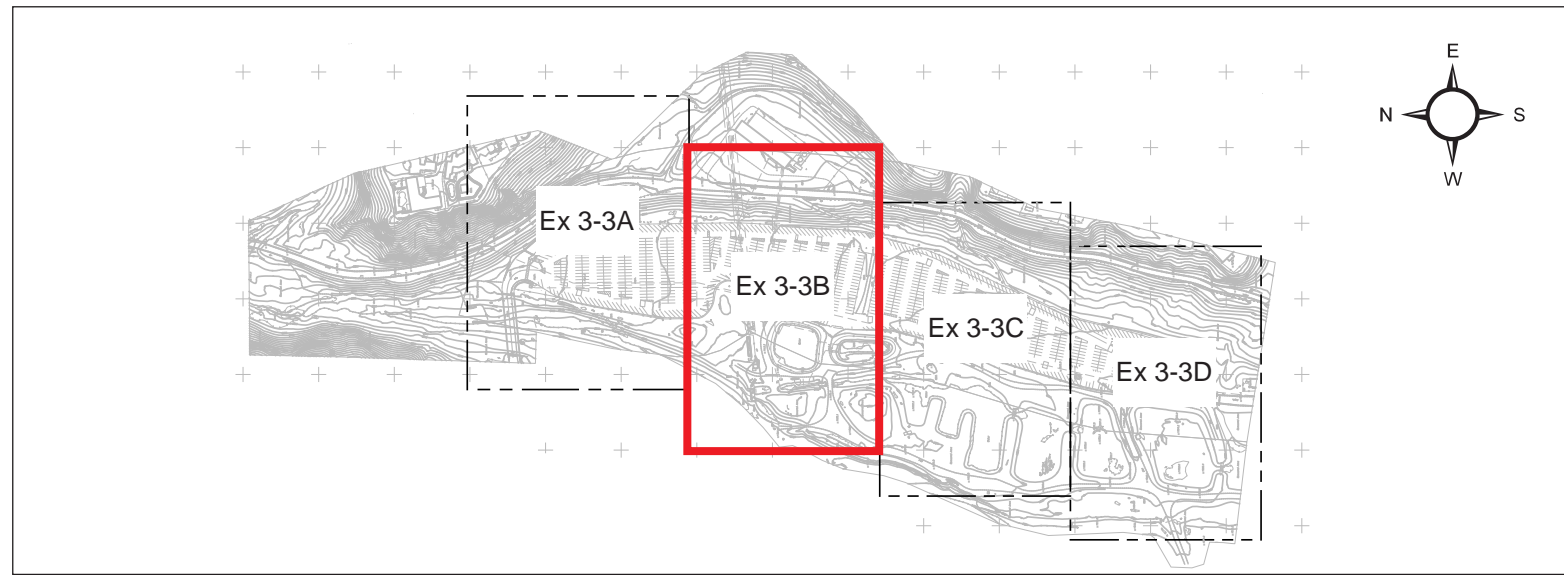
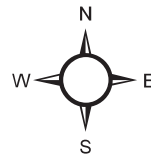
Source: Carollo 2014

Exhibit 3-3a



the 12-inch-diameter potable water line to the NASA-JPL property. The following would also be installed: a new 12-inch-diameter line along the relocated access road to serve a future groundwater well beside Basin F; a 16-inch-diameter utility line to serve existing wells in the Arroyo and the existing Monk Hill Treatment Plant; and a 12-inch diameter discharge main for the existing Arroyo Booster. Exhibit 3-3d, Area 3 – Basin J and Piping Plan, depicts the location and size of the proposed Basin J spreading basin and the access road alignment. The Piping Plan depicts the inlet/outlet connections between spreading basins and the Project's various pipelines.

Table 3.1-1 compares the improvements proposed in and near Area 3 as contained in the adopted HWMP and the improvements analyzed in the Final Master EIR for the Arroyo Seco Master Plan (ASMP) with those proposed by the Arroyo Seco Canyon Project.



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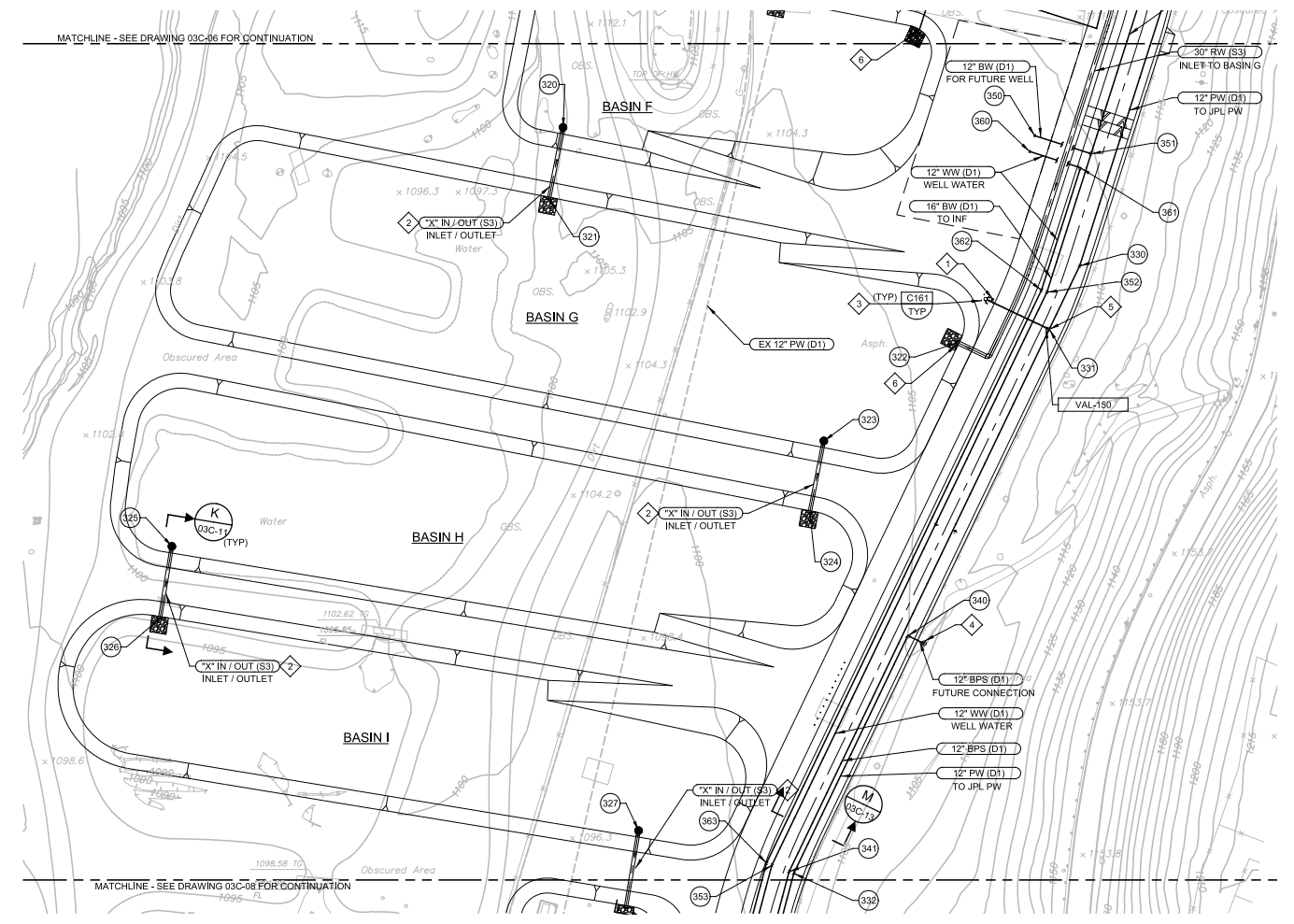
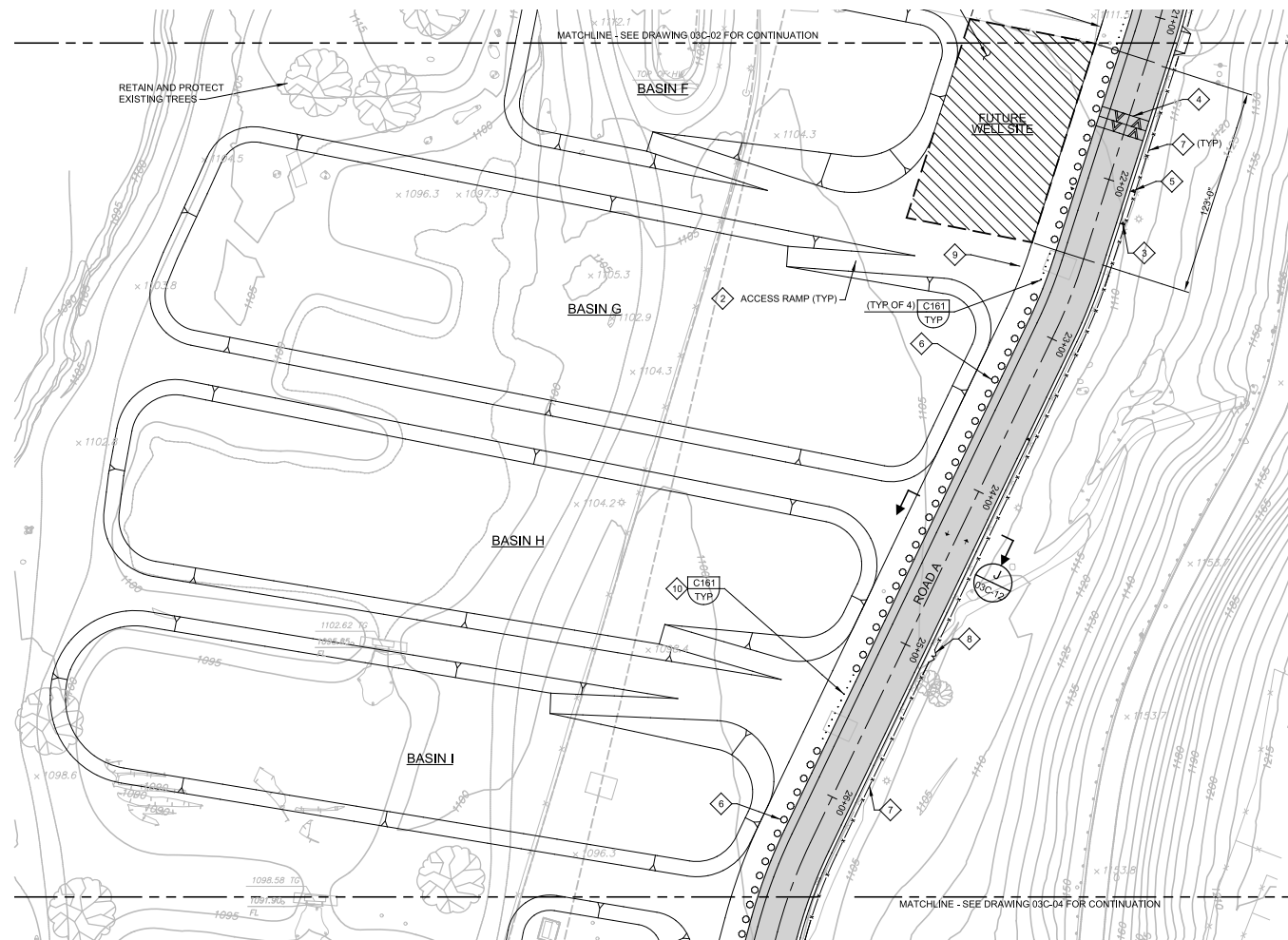
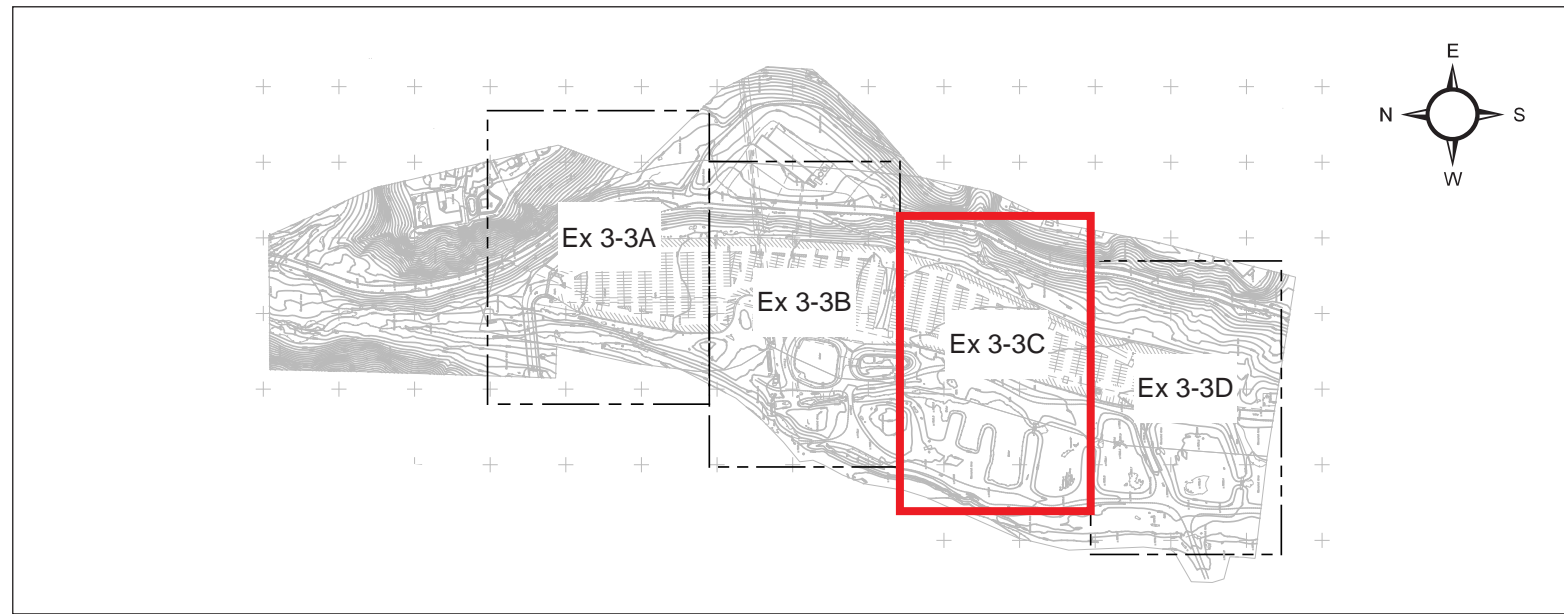
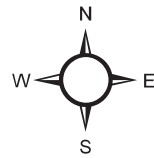
Area 3 – Basins A – F and Piping Plan

Arroyo Seco Canyon Project

Source: Carollo 2013

Exhibit 3-3b





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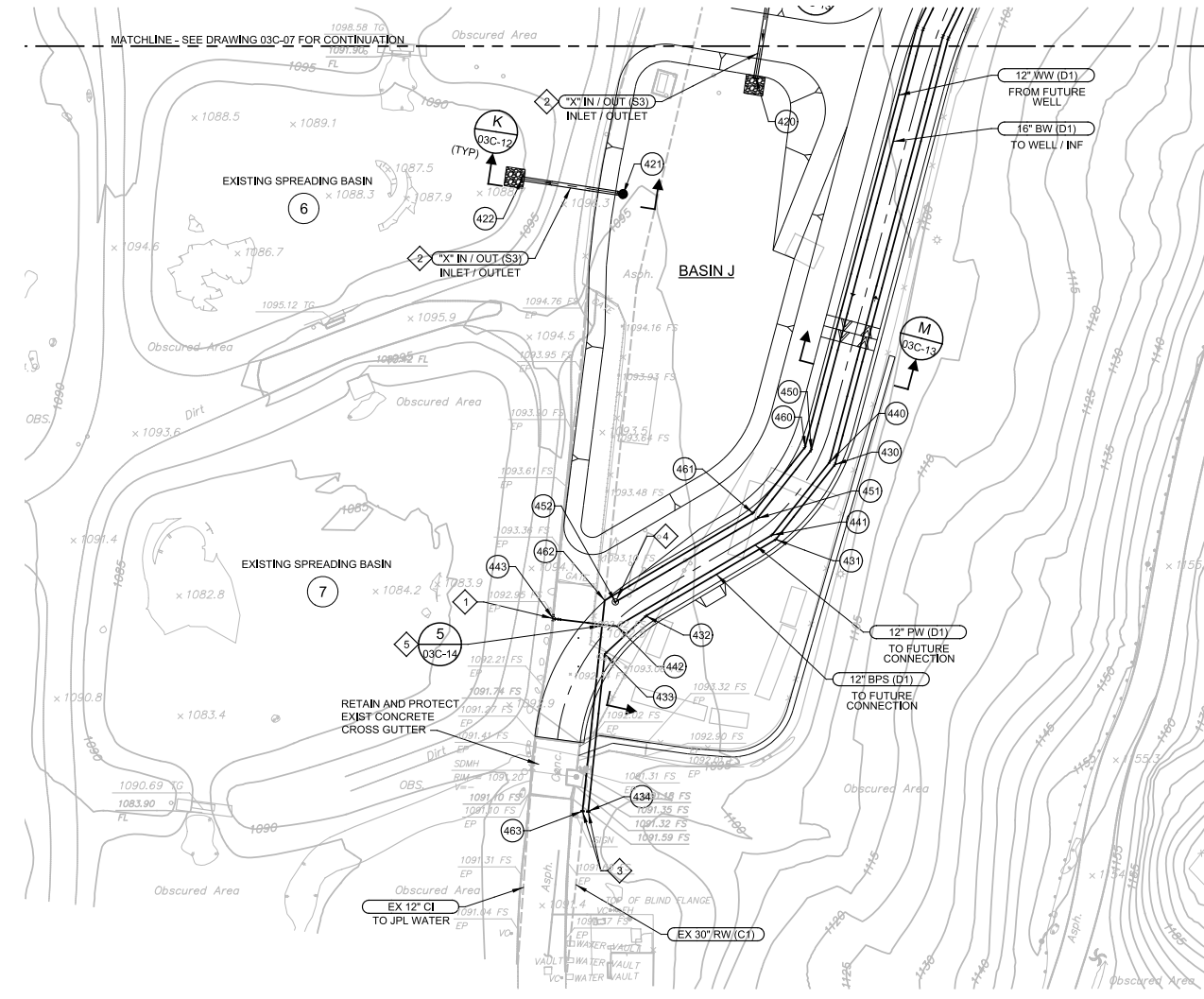
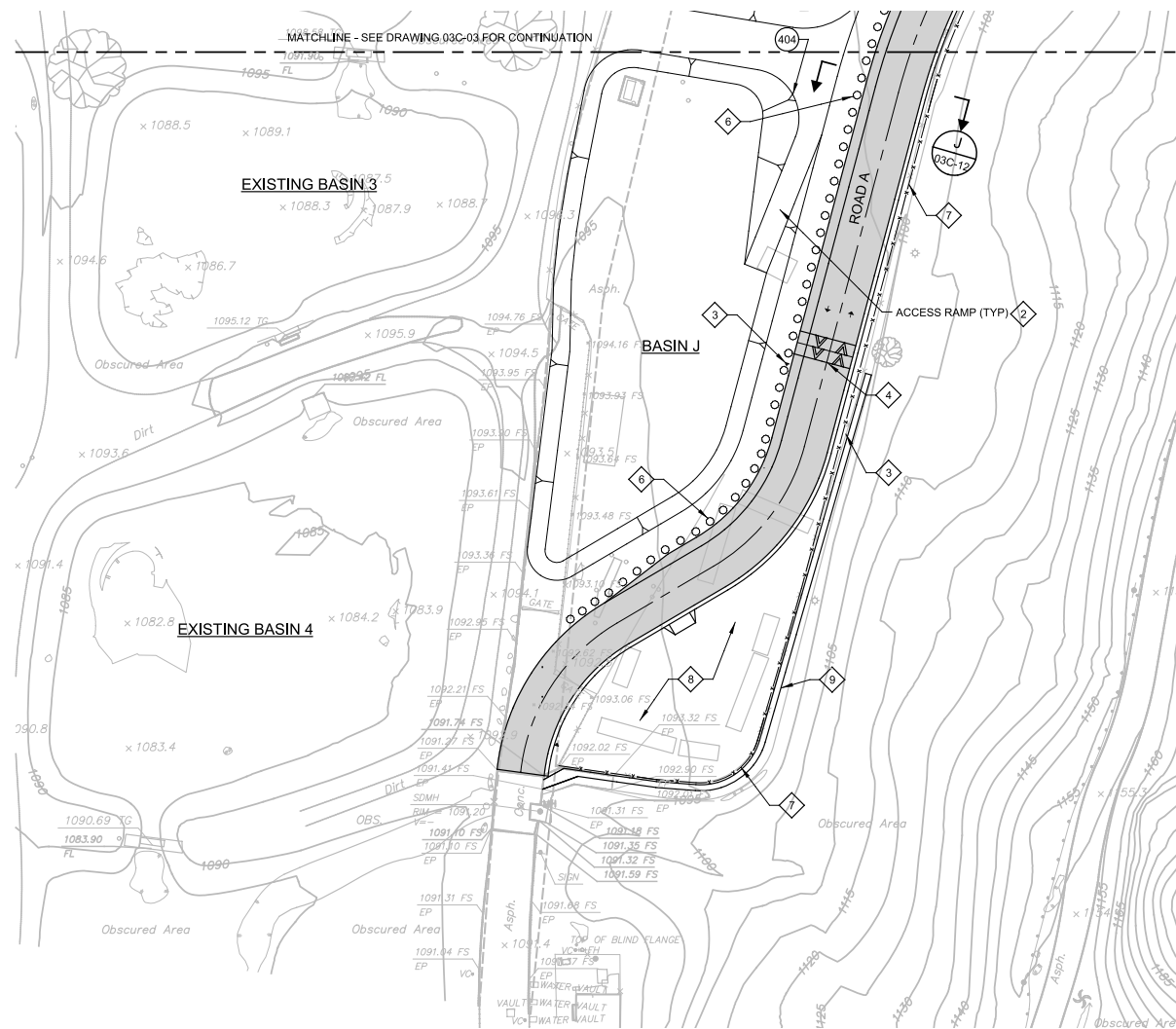
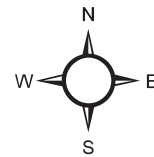
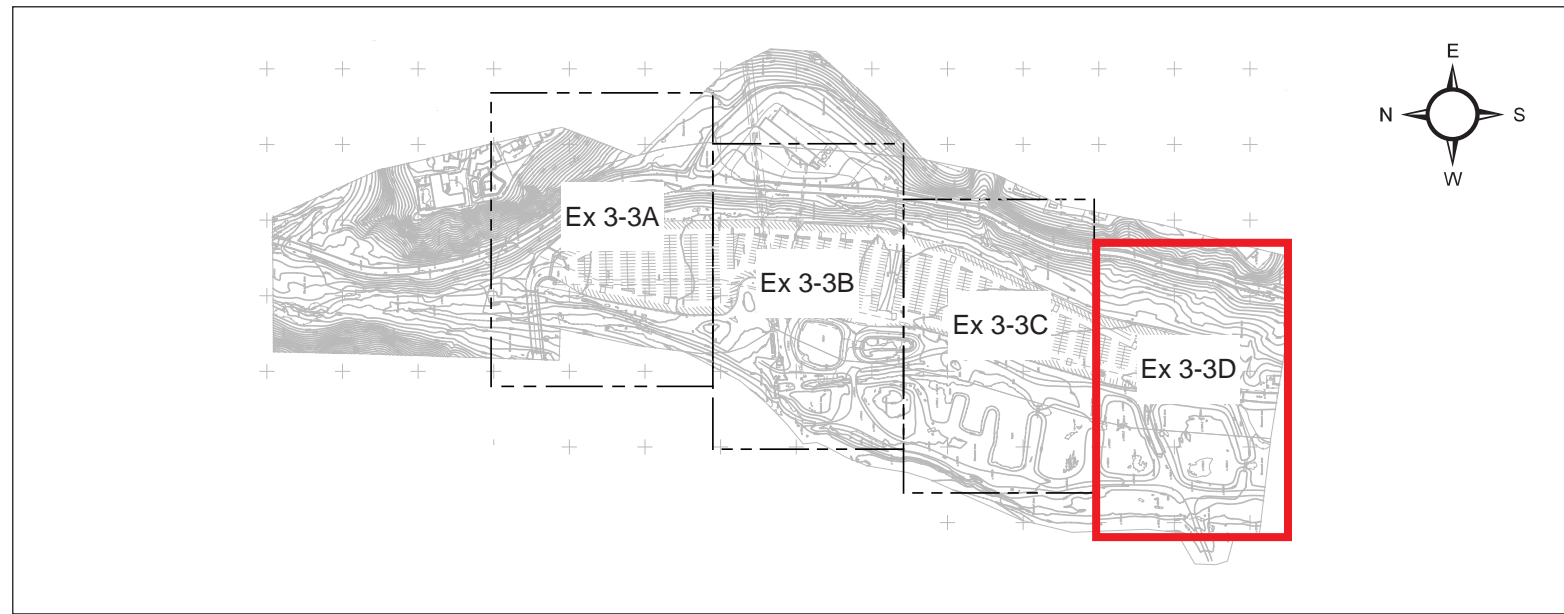
Area 3 – Basins F – I and Piping Plan

Arroyo Seco Canyon Project

Source: Carollo 2014

Exhibit 3-3c





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Source: Carollo 2014

Area 3 – Basin J and Piping Plan

Arroyo Seco Canyon Project

Exhibit 3-3d



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**TABLE 3.1-1
AREA 3 IMPROVEMENTS**

Area 3 Improvements	Description of Improvements		
	Hahamongna Watershed Park Master Plan	Final Master EIR for Arroyo Seco Master Plan* (Master EIR section)	Arroyo Seco Canyon Project
JPL East Parking Lot	Relocate JPL parking, remove southern ¾ of parking lot and convert northern ¼ into public parking.	6-story, 1,200-space parking structure on JPL west parking lot (2.3.1.11.1 and 3.1.4.1.1).	<i>(Note: This parking structure is under construction by JPL and is not part of the Project.)</i>
		Convert JPL parking to 200-space public parking (2.3.1.15.1).	Up to 100-space decomposed granite recreational parking lot. <i>(Note: This is 100 parking spaces fewer than the parking lot analyzed in the Master EIR.)</i>
New public restroom	New restroom (with 1 urinal and 1 stall for men and 2 stalls for women) at northern end of parking lot, with storage area, public telephone, underground power connection, and sewage lift station and force main leading to the JPL line across the JPL bridge.	New restroom (with 1 urinal and 1 stall for men and 2 stalls for women) at northern end of parking lot, with storage area, trash enclosure, emergency phone, sewage lift station, and force main leading to the sewer line at the JPL campus through JPL bridge (2.3.1.15.2).	New restroom at northern end of parking lot with 2 gender-neutral stalls and sewage lift station and sewer connection leading to the JPL sewer line across JPL bridge. <i>(Note: This is 1 urinal and 1 stall fewer than the restroom analyzed in the Master EIR.)</i>
Bridge Crossing	New bridge crossing for the North Perimeter Trail, vehicles, and utilities.	Northern Bridge Crossing across Arroyo Seco that is 12 feet wide and 150 feet long (2.3.1.16.3).	Not proposed, but the existing pedestrian access path across the JPL bridge will be maintained and will connect to the new parking lot.
Spreading Basins	Expand 4 existing basins.	Expand 4 existing basins into the JPL parking lot (2.3.1.4.5).	Expand 4 existing basins.
	Relocate 2 sludge ponds.	Relocate and expand 2 sludge basins (2.3.1.4.5).	Replace 2 sludge ponds with 2 new spreading basins.
	Build 2 new basins.	Build 2 new basins (2.3.1.4.5).	Construct 2 sedimentation basins and 2 spreading basins. <i>(Note: This is 2 basins more than analyzed in the Master EIR. While the basins would be located in the same area, the area would have a different basin configuration.)</i>
		Convert 2 basins into a lake (2.3.1.4.5 and 2.3.1.13).	Not proposed.

**TABLE 3.1-1
AREA 3 IMPROVEMENTS**

Area 3 Improvements	Description of Improvements		
	Hahamongna Watershed Park Master Plan	Final Master EIR for Arroyo Seco Master Plan* (Master EIR section)	Arroyo Seco Canyon Project
Trails	New trail that runs from the north end of the JPL parking lot to the Gabrielino Trail.	4 trail connections from East Rim Trail to Perimeter Trail, including a new trail at the north end of the parking lot (2.3.1.16.5).	Potential future pedestrian pathway from the north end of the parking lot through the slope area to Gabrielino Trail
	Extend East Rim Trail from Arroyo Well to VOC Water Treatment Plant and from Arroyo Well to both the Altadena Crest Trail and the Gabrielino Trail (along back of JPL parking lot).	East Rim Trail is approximately 2,600 linear feet of new trail that runs from the VOC Water Treatment Plant through Johnson Field to the Arroyo Well before ending at the Altacrest Trail on backside of the existing parking lot (2.3.1.16.4).	Pedestrian pathway/trail along the eastern edge of the parking lot, with a potential future extension north to join the Gabrielino Trail north of Area 3.
	Relocate existing trail to the maintenance road.	Relocate the existing trail to the maintenance road (2.3.1.18.2).	Proposed maintenance roads around new spreading basins will be open for public use.
Trailhead	Gabrielino Trailhead area with a new restroom, picnic tables, public parking, and interpretive signage.	Interpretive and picnic area at the intersection of the Arroyo Well and Johnson Field Road, with parking spaces (2.3.1.12.7).	Restroom, pet waste station, and signage proposed at the Gabrielino Trailhead area.
Habitat restoration	Realign stream corridor and restore habitat on banks west of the parking lot and basins.	Move, expand, and restore the stream corridor by the Altadena drain (2.3.1.18.1.1).	No improvements are proposed on the banks west of the parking lot.
	Establish habitat at spreading basins.	Habitat establishment at spreading basins (2.3.1.18.1.3).	Not proposed.
	Establish habitat at the East Entrance.	Habitat establishment at the East Entrance and at Sunset Overlook (2.3.1.18.1.5).	Not proposed.
Pipeline Relocation and Demolition	None specified.	None specified.	Replace and realign Hume line from the north end of parking lot to the spreading basins.
			Relocate the JPL water line to the new access road.
			Demolish a portion of the influent and effluent line from the Behner Water Treatment Plant
			Relocate the 12-inch diameter Arroyo Booster pipeline to the new access road.
			Remove sludge lines.

**TABLE 3.1-1
AREA 3 IMPROVEMENTS**

Area 3 Improvements	Description of Improvements		
	Hahamongna Watershed Park Master Plan	Final Master EIR for Arroyo Seco Master Plan* (Master EIR section)	Arroyo Seco Canyon Project
Storm Drain Improvements	Shorten the Altadena storm drain and armor embankment to reduce erosion and restore habitat.	Shorten the Altadena drain and restore the stream corridor (2.3.1.4.6).	Not proposed.
	Extend the Altacrest storm drain as an underground pipe into the stream with inlets from the access road and the parking lot.	Extend the Altacrest drain as an underground drain between basins and that empties into the stream, with inlets to receive runoff from the parking lot (2.3.1.4.7).	Altacrest drain extension is not proposed County Storm Drain remains in place.
Overlook	Construct Sunset Overlook with interpretive signage and park amenities north of the East entrance.	Construct Sunset Overlook with picnic tables, seating, signage, and parking near east park entrance (2.3.1.14).	Not proposed.
Park Entrance	Relocate and improve the park entrance at Windsor/Explorer/Ventura intersection to Windsor/Mountain View.	Relocate the park entrance to Windsor/Mountain View, add a retaining wall, and restore habitat (2.3.1.3.1).	Not proposed.
	Relocate the parking area south of the entrance to the JPL parking lot	Relocate the parking area to the northern end of the JPL parking lot (2.3.1.3.1).	Not proposed.
		Reconstruct Windsor/Ventura intersection; add an interpretive area and a parking area (2.3.1.3.3)	Not proposed.
Access Road	Realign to the east side of the basins.	Realign along eastern edge of the parking lot (2.3.1.3.2).	Realign along eastern side of the basins and south and west of the new parking lot.
	Widen the road to Johnson Field.	Widen the Johnson Field Road to 2 lanes (2.3.1.3.3).	Not proposed.
Pump-Back system	Inlet at dam; pipe at the bottom eastern slope; and outlet at the highest east side basin and across the new bridge to the west side basins	Inlet, pump, and pipes to basins and lakes (2.3.1.4.2).	Not proposed.
Water line	Water line connections to new restrooms, campsite sinks, drinking fountains, and buildings.	None specified.	Connect the restroom and parking lot irrigation system to a metered service from the relocated JPL water main.

**TABLE 3.1-1
AREA 3 IMPROVEMENTS**

Area 3 Improvements	Description of Improvements		
	Hahamongna Watershed Park Master Plan	Final Master EIR for Arroyo Seco Master Plan* (Master EIR section)	Arroyo Seco Canyon Project
Overhead power and communication lines	Relocate to the North Bridge crossing or within the utility easement.	Relocate power and communication lines.	Not proposed.
	Power connections to new restrooms and pump-back system.	None specified.	Connect the restroom, irrigation controls, and basin metering structure to a new service drop using an existing overhead line in Area 3 (where the biggest load will come from the lift station).
	Underground PWP overhead distribution lines from the VOC Water Treatment Plant to Arroyo Well and from the VOC Water Treatment Plant to Johnson Field.	Underground 3,000 feet of power and communication lines from the VOC Water Treatment Plant to Arroyo Well and from the VOC Water Treatment Plant to Johnson Field (2.3.1.19.1).	Not proposed.
	Relocate SCE lines running from the JPL substation to the Windsor/Ventura intersection.	Realign the SCE power line across the basins to the North Bridge, Gabrielino Trail, Ventura Street, and ultimately to the existing line on Altadena Drive (2.3.1.19.2).	Not proposed.
Septic Tanks and Sewer lines	Abandon all septic tanks and construct a sewer collection system.	Connect a new restroom near Johnson Field to the sewer line on Lehigh Street (2.3.1.12.3) and connect a new restroom at the JPL parking lot to the sewer line in JPL campus (2.3.1.15.2).	Connect a restroom to sewer line in JPL campus.
Security gates	Add security gates at all vehicular entries and at the tunnel from the dam parking lot.	Add gates and fencing at the East Entrance and along west side of Windsor Avenue (2.3.1.20).	Not proposed.
		Add fencing at end of Altadena Drive (2.3.1.20).	Not proposed.
			Add security gates at the north end of the parking lot, with a roundabout and a guard house

**TABLE 3.1-1
AREA 3 IMPROVEMENTS**

Area 3 Improvements	Description of Improvements		
	Hahamongna Watershed Park Master Plan	Final Master EIR for Arroyo Seco Master Plan* (Master EIR section)	Arroyo Seco Canyon Project
Lighting	Add lighting on built structures and at major park entrances only.	Add safety lights at the new parking lots and at the new restrooms (3.1.4.1.1).	Add restroom interior and exterior lighting.
Public telephones	Add near improved restrooms and recreation amenities.	Add at the new restroom at north end of the public parking lot (2.3.1.15.2).	Not proposed.
JPL: Jet Propulsion Laboratory; VOC: volatile organic compounds; PWP: City of Pasadena Water and Power; SCE: Southern California Edison. * Based on the Final Master EIR that includes Draft Master EIR and Clarifications and Revisions to Draft Master EIR (Section 12.0 of the Final Master EIR).			

As shown, the Project would implement some of the improvements proposed by the HWMP and analyzed in the Final Master EIR for the Arroyo Seco Master Plan. However, the Project proposes a recreational parking lot and a restroom that are smaller than those analyzed in the Final Master EIR. There is also a variation to the spreading basin configuration within the same location and area. Other proposed improvements in Area 3 (e.g., proposed trails, walkway, hume line relocation, JPL water line relocation, utility line demolition in the proposed basin area, water line connection, security gates, roundabout, and guard station at north end of parking lot) are not discussed in the HWMP or the Final Master EIR. At the same time, the Project does not preclude the future implementation of other improvements in Area 3 (e.g., storm drain improvements, trail relocation, pumpback system, and utility line relocations) as contained in the HWMP or analyzed by the Final Master EIR but not proposed by the Project. Accordingly, this IS/MND is a stand-alone document and does not tier off of the Master EIR.

3.2 PROJECT DEMOLITION AND CONSTRUCTION

Construction of the permanent Project improvements is anticipated to take approximately 16 months, starting in Summer 2015 with construction of the temporary bridges beginning one month before the start of construction activities in Areas 1 and 2. Designated staging areas will be fenced to prevent safety hazards, as well as deter to vandalism and theft. Project completion is expected by Fall 2016, with temporary bridge demolition occurring at the end of construction activities in Areas 1 and 2. Planned construction activities are broken out by Area below.

During grading activities in Area 3, a total of approximately 23,000 cy of cut materials is anticipated. In the interest of minimizing export from the Project site, the City may implement a mechanical shaker to sort and sift through excavated soils. The shaker would separate finer soils from larger rocks, thereby allowing for the beneficial reuse of the excavated soils as engineered fill materials during the construction of the spreading basins. The shaker would be in operation for 8-hour days over the last 2 months of grading activities. If the City utilizes the shaker option, approximately 23,000 cy of cut materials would be processed through the shaker, resulting in approximately 21,000 cy of material for fill (to be used on-site) and approximately 2,000 cy of larger rock materials. These 2,000 cy of rock materials may be used on-site for decorative/landscaping purposes throughout the Project study area, or may be exported off-site. For the sake of providing a conservative analysis, both the Air Quality, Noise and Traffic sections of the IS/MND assume export of these materials.

Table 3.2-1, Construction Activity Assumptions, summarizes the anticipated construction activities for each area.

**TABLE 3.2-1
CONSTRUCTION ACTIVITY ASSUMPTIONS**

	Area 1	Area 2	Area 3
Temporary Bridge Construction^a			
Start	Summer 2015	Summer 2015	N/A
Length of activity	4 weeks	4 weeks	N/A
Equipment in use ^b	1 crane, 1 welder, 1 forklift	1 crane, 1 welder, 1 forklift	
Number of truckloads	10 truckloads	10 truckloads	N/A
Disposal site	Scholl Canyon Landfill	Scholl Canyon Landfill	N/A

**TABLE 3.2-1
CONSTRUCTION ACTIVITY ASSUMPTIONS**

	Area 1	Area 2	Area 3
Site Preparation – Clearing and Grubbing			
Start	Summer 2015	Summer 2015	Summer 2015
Length of activity	3 weeks	2 weeks	1 month
Equipment in use ^b	1 dozer, 2 dump trucks	1 dump truck	1 dozer, 1 excavator, 2 dump trucks
Amount of export	80 cy of debris	80 cy of debris	2,400 cy of debris
Number of truckloads for export	10 truckloads (16 cy truck- half loads)	10 truckloads (16 cy truck- half loads)	150 truckloads (16 cy trucks)
Disposal site	Scholl Canyon Landfill	Scholl Canyon Landfill	Scholl Canyon Landfill
Demolition			
Start	Fall 2015	Fall 2015	Fall 2015
Structures to be demolished	Headworks structure (1,800 sf)	Portions of diversion and weir structures and the retaining wall (500 sf)	Maintenance shed (100 sf), concrete vaults, head gates (300 sf), and paving on temporary access road (a portion of the 7 ac. Parking lot)
Length of activity	1 month	1 month	2 weeks
Equipment in use ^b	2 saws, 1 excavator with hammer, 2 dump trucks	2 saws, 1 excavator with hammer, 2 dump trucks	2 saws, 1 excavator with hammer, 2 dump trucks
Cubic Yards of Export	64 cy Demo wastes	16 cy of Demo wastes	4,000 cy of Demo wastes
Number of truckloads for export	8 truckloads (16 cy truck- half loads)	2 truckloads (16 cy truck- half loads)	250 truckloads (16 cy trucks)
Disposal site	Scholl Canyon Landfill	Scholl Canyon Landfill	Scholl Canyon Landfill
Grading			
Start	Fall 2015	Fall 2015	Fall 2015
Length of activity	4 months	1 month	5 months
Area to be graded	8 ac	9,000 sf	20 ac
Cut and fill	0	180 cy cut (road base)	23,000 cy cut and 21,000 cy fill (net cut of 2,000 cy)
Equipment in use ^b	1 excavator, 1 dump truck	1 excavator, 1 dump truck	2 excavators, 2 front-end loaders, 2 dump trucks For 2 months: 1 shaker and 1 front-end loader
Amount of export	0	180 cy	2,000 cy (rocks)
Number of truckloads ^c	0	36 truckloads (10 cy trucks half-load)	210 truckloads (10 cy trucks)
Disposal site	Scholl Canyon Landfill	Scholl Canyon Landfill	Scholl Canyon Landfill
Length of hauling	0	3 days	4 weeks
Underground Infrastructure/Utilities			
Start	N/A	Winter 2015	Fall 2015
Length of activity	N/A	3 months	4 months
Equipment in use ^b	N/A	1 excavator, 1 concrete truck, 1 concrete pumper truck, 1 crane	1 excavator, 2 dump trucks, 1 plate compactor

**TABLE 3.2-1
CONSTRUCTION ACTIVITY ASSUMPTIONS**

	Area 1	Area 2	Area 3
Paving			
Start	N/A	Spring 2016	Spring 2016
Length of activity	N/A	1 month	2 months
Pavement	N/A	asphalt	asphalt and DG
Area to be paved	N/A	5,000 sf	67,000 sf asphalt and 72,000 sf DG
Equipment in use ^b	N/A	1 vibratory roller, 1 paver, 1 grader, 1 belly dump, 1 dump truck	1 vibratory roller, 1 curb builder, 1 paver, 1 grader, 1 road striping machine, 1 belly dump, 1 dump truck
Building Construction			
Start	N/A	Summer 2016	Summer 2016
Length of activity	N/A	1 month	3 months
Equipment in use ^b	N/A	1 crane, 1 concrete truck	1 crane, 1 concrete truck, 1 concrete pumper truck
Architectural Coatings			
Length of activity	N/A	1 day interior	5 days interior
Temporary Bridge Demolition^a			
Start	Fall 2016	Fall 2016	N/A
Length of activity	4 weeks	4 weeks	N/A
Equipment in use ^b	1 crane, 1 welder, 1 forklift	1 crane, 1 welder, 1 forklift	
Number of truckloads	10 truckloads	10 truckloads	N/A
Disposal site	Scholl Canyon Landfill	Scholl Canyon Landfill	N/A
sf: square feet; ac: acres; cy: cubic yards; N/A: not applicable.			
^a Assumes 2 temporary bridges will be built, with a temporary bridge over Bridge No. 1 and another temporary bridge over Bridge No. 3.			
^b In addition to the listed equipment, the following equipment would be shared among any 1 of the 3 work areas: medium-duty trucks (<10), all-terrain forklift (1), front-end loader (1), water truck, portable generator, and hand tools (e.g., grinders, drills, compressors).			
^c In order to provide a conservative assessment to account for the unknown variation in the amount of soil that could be re-used onsite for engineered fill versus exported off-site, the number of truck trips was increased by assuming the use of 10 cy trucks instead of the standard 16 cy trucks.			
Source: Carollo 2013.			

Trucks hauling soils and debris to Scholl Canyon Landfill are expected to come to the site from I-210 at the Windsor Avenue off-ramp and head north on Windsor Avenue to Explorer Road into Area 3. From Area 3, trucks would turn southeast and north to the access road (North Arroyo Boulevard) to reach Areas 1 and 2. From these areas, the trucks would head south and pass through Area 3, Explorer Road, Windsor Avenue, and onto the westbound on-ramp on I-210. From I-210, trucks would head west on SR-134; exit at the Figueroa Street/Scholl Canyon Road off-ramp; head north-northeast toward the landfill. Trucks would come back from the landfill entering the eastbound on-ramp on the SR-134 at Figueroa Street and head east; trucks would then go west on I-210 to Windsor Avenue to Explorer Road and, ultimately, to the site.

3.2.1 AREA 1 – ARROYO SECO HEADWORKS

Temporary bridges would be constructed in Summer 2015 over Bridge No. 3 across the Arroyo Seco and over Bridge No. 1 across Millard Creek to allow heavy equipment to reach Areas 1 and 2 during construction. These temporary bridges would accommodate construction vehicles and prevent any damage to Bridge No. 1 and Bridge No. 3. The assembly process will be executed in such a way to ensure that the bridges are set upon disturbed trail areas only and would not extend into the creek or adjacent vegetated areas. These bridges would be removed after construction of the proposed improvements in Areas 1 and 2.

At the start of construction, a temporary cofferdam (temporary enclosure to keep water out) would be placed across the stream at the upstream end of Area 1, with a sump pump that would convey water through a pipe along the western edge of Area 1 and discharge water downstream of Area 1, when necessary. Portions of the Headworks structure and an existing slab are proposed to be removed from the streambed and banks with the use of hammers and breakers. Some portions of the structure that are below the proposed finish grade or that extend into the regraded canyon walls may not be removed. The channel would be recontoured within the two- to five-year floodplain areas to allow the Arroyo Seco to flow naturally through the area.

Site preparation for Area 1 would start in Summer 2015, with clearing, grubbing, and demolition of the Headworks structure starting in Fall 2015. Grading activities on approximately eight acres would start in the Fall of the same year for two months of rough grading and two months of fine grading and embankment revetment; these activities would be completed by Winter 2016. The planting and seeding task in Area 1 could involve volunteers from the community through coordination with the ASF. For safety reasons, planting and seeding activities (which would be completed by volunteers) would be performed when construction equipment is not in operation.

3.2.2 AREA 2 – ARROYO SECO INTAKE

The temporary bridges that would be constructed across the Arroyo Seco and Millard Creek to allow heavy equipment to reach Area 1 would also be used during construction in Area 2. In addition, a temporary cofferdam would be installed in the Arroyo Seco upstream of Area 2 using on-site materials to divert flows away from the construction area and from construction equipment. A sump pump and temporary pipeline would allow water flows to temporarily bypass the stream in Area 2.

The Project would involve the removal of sediment and debris that has accumulated upstream and downstream of the existing weir and the demolition of the top two feet of the weir. In the same location and alignment, a new reinforced concrete sill would be cast with an integral cutoff wall on the downstream edge. The sill's upstream, downstream, and right and left abutments would be protected from erosion by a combination of heavy riprap stone and reinforced concrete. A pneumatic or electric operated spillway gate or a crest gate would be placed on the sill.

The existing concrete training wall on the east side of the streambed would remain in place but would be bolstered by the addition of riprap and concrete. In several locations, additional steel surfaces would be installed to protect the concrete from scour. The existing intake trash rack and gate slot guides would be removed and, as an option, the valve ahead of the pipeline may also be removed. A new trash rack with horizontal bars would be installed over the intake opening. The downstream end of the trash rack would be left partially open so that debris would have some opportunity to pass without requiring manual cleaning. Behind the trash rack would be a fine screen made of heavy wedge wire screen with 0.125- to 0.25-inch openings that are vertically oriented. The fine screen would be manually cleaned and would serve to keep all but the smallest debris out of the conveyance system. Immediately behind the screen would be an isolation gate

that can be automatically closed during high flow events. The gate would prevent the fine screen and downstream facilities from being filled with sediment.

Existing K-rails would be removed along an approximate 150-foot-long segment of the existing access road between Bridge No. 3 and the intake structure. The access road would be stabilized through reconstruction of the stream embankment and provision of riprap protection, with a rock wall extension above the road at the streamside to provide fall protection for users of the trail/access road. The road would be repaved with asphalt and would be sloped to direct surface runoff away from the stream towards the hillside.

Site preparation for Area 2 would also start in Summer 2015, with clearing, grubbing, and demolition of the diversion weir and retaining wall starting in Fall 2015. Grading activities on approximately 9,000 square feet of area near the diversion structure and on the access road would start in the Fall of the same year. Approximately 180 cubic yards (cy) of road base materials would be disposed of off-site (requiring a maximum of 36 truck trips with half loads). Infrastructure construction (e.g., formwork and concrete work, new weir gates, trash racks, valving, and embankment improvements) would occur for 3 months starting in Fall 2015. Construction of the control equipment enclosure would begin in Summer 2016, and access road paving would occur for 1 month starting in Spring 2016.

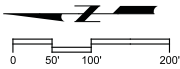
After Area 1 and Area 2 improvements are constructed, the temporary bridges would be demolished. This demolition work is expected to take approximately 4 weeks and a total of 20 truck trips in Fall 2016.

3.2.3 AREA 3 – JPL EAST PARKING LOT

Parking Lot Removal by JPL

As a part of the City's termination of the lease agreement for the JPL East Parking Lot, and not as a component of the proposed Project, JPL is required to remove all constructed improvements on the parking lot site, unless otherwise directed by the City (JPL 2012). As such, all existing facilities—including bus stops, fencing, bollards, signs, lighting, JPL overhead power lines, and the paved parking lot—are expected to be removed by JPL after completion of the JPL On-Site Parking Structure at the JPL campus in August 2014 as a part of this existing lease agreement. Of the 9.58 acres (417,305 square feet) that JPL is leasing from the City, approximately 357,347 square feet is currently paved. Of this, approximately 47,164 square feet of paving would remain in place for a 26-foot-wide temporary access roadway that would provide vehicle access for JPL employees to the new JPL On-Site Parking Structure. Dedicated access times during commuting hours may be enforced during construction activities in Area 3. JPL employees and visitors would have to use JPL's West Entrance during restricted access hours (i.e., outside peak commute hours).

JPL would remove all other paving and base materials and return the site to existing grade. As such, at the time that Project construction begins in Summer 2015, it is expected that the JPL East Parking Lot would no longer exist and is therefore not considered part of the baseline condition; only 47,164 square feet of paving on the temporary access road would remain as an existing, and therefore baseline, condition on the Project site. This temporary access road would be aligned and maintained in accordance with the Standard Specifications for Public Works Construction (Greenbook) and the City's Supplements and Modifications to the Greenbook (RR TRA-1) and, therefore, would not pose hazards to those using the road. Exhibit 3-4, Temporary Access Road Plan, shows the alignment of the temporary access road that will remain in place until the final roadway alignment is completed.



CURVE DATA TABLE				
MARK	RADIUS	DELTA	LENGTH	TANGENT
(1)	55	113°22'54"	108.8	83.70
(2)	100	67°04'50"	117.0	66.29
(3)	100	46°09'30"	84.05	44.69
(4)	100	34°35'31"	60.37	31.14
(5)	100	30°00'00"	52.38	26.79
(6)	255	13°36'36"	60.67	30.43
(7)	255	7°55'03"	35.24	17.65
(8)	345	10°43'59"	64.63	32.41
(9)	100	46°03'10"	80.38	42.50
(10)	100	54°38'25"	95.37	51.66

Source: Carollo 2014

Temporary Access Road Plan

Arroyo Seco Canyon Project

Exhibit 3-4



D:\Projects\Carollo\J041\Graphics\Ex_temp_access_rd.at

Construction Activities

Area 3 construction would begin with the removal of existing pipelines, except JPL's 12-inch-diameter potable main. This main would remain in place and in service until the new replacement main is installed, pressure tested, disinfected, and ready for connection to the existing water meter. The new JPL 12-inch-diameter potable water pipeline, the 12-inch-diameter JPL well line, the 16-inch-diameter utility service line, and the 12-inch-diameter Arroyo Booster line would be installed beneath the alignment of the new access road along the eastern edge of Area 3. The existing 30-inch-diameter hume line would stop at the northern section of Area 3 and would connect to the new 30-inch-diameter concrete, mortar-lined, and coated steel pipe along the eastern edge and across the new parking lot to sedimentation basins (Basins A and B); there would also be another direct connection to two spreading basins (Basins C and G). Portions of the Behner Water Treatment Plant's influent and effluent lines between the future access road and the existing 30-inch-diameter hume line would be removed, as these lines are not in use. The 8-inch-diameter sludge line from the Behner Water Treatment Plant would also be removed in Area 3. The County storm drain line would remain in place.

As the pipeline work is being completed, excavation for the new spreading basins would begin, especially in the areas abutting the new roadway alignment. The amount of excavated soils (from the spreading basin construction) to be hauled off site would be minimized by creating shallow embankments around proposed basins and raising the elevation of the access road and the new parking lot. This would consist of excavating approximately one foot below the existing grade and constructing two-foot-high berms around the basins. The electrical building near the sludge ponds would also be removed.

After the pipeline work, the new JPL access road would be built along the eastern edge of Area 3. When this road is completed, the temporary access road would be removed and construction of the spreading basins would continue. The decomposed granite parking lot would also be constructed at the northern end of Area 3 after the pipeline work. During these improvements, JPL employees and their visitors would have access through Area 3 to enter JPL using the temporary access road or the new access road (when it is completed) in Area 3.

Fencing, gates, a roundabout, a guard station, a restroom, a trail pathway, signs, and other improvements at the northern end of the parking lot would be constructed and/or installed. The proposed restroom would be constructed either on site or using a pre-fabricated building. The restroom would be connected to the relocated JPL potable line upstream of JPL's service meter.

Wastewater from the proposed restroom would be conveyed to an existing sewer line on the JPL campus through a new lift station and a new sewer line within the JPL Bridge. The sewer line will extend from the restroom; will be placed into the JPL Bridge's support structure; and will connect to the larger sewer trunk line within the JPL campus. A new lift station would be constructed in association with the restroom. Construction for the sewer line extension would involve trenching within the existing roadway on the eastside of the JPL Bridge and excavating through the existing asphalt approach to the bridge's sub-structure. There would be no access required from the creekbed or surrounding vegetated slopes. This temporary disturbance of the bridge would require detours for JPL employees to a single-lane crossing over the bridge.

Construction in Area 3 would also start in Summer 2015, with site preparation, clearing, and grubbing occurring in the same month. Approximately 150 truckloads of debris, dirt, and vegetation would be removed and disposed of at Scholl Canyon Landfill. Demolition activities for a maintenance shed, concrete vaults, head gates, and asphalt paving from the asphalt access road would begin in Fall 2015 and would extend for two weeks. Grading activities on approximately 20 acres for the spreading basins would continue for 5 months, with approximately

2,000 cubic yards of rock and/or excess soils requiring off-site disposal at Scholl Canyon Landfill. If the rocks are not beneficially reused on the Project site, a total of approximately 125 truck trips would be needed to haul the materials to Scholl Canyon Landfill, assuming use of a 16-cy truck. Because it is unknown exactly how much soils will be able to be beneficially reused on the Project site, and how much may be required for off-site disposal, a total of 210 truck trips was assumed in the Air Quality, Noise, and Traffic analyses within this IS/MND.

Infrastructure construction would occur for four months starting in Fall 2015. Building construction would start in Summer 2016. Access road paving (67,000 square feet) and parking lot paving with decomposed granite (72,000 square feet) would occur for approximately 2 months starting in Spring 2016. Project construction would be completed by Fall 2016.

3.3 LONG-TERM OPERATIONS

A 20 to 25 percent increase in the number of trail users and recreational visitors are conservatively anticipated with the Project, such that up to approximately 150 users per day on weekdays (an increase of 25 users per day) and 500 people per day on weekends (an increase of 100 users per weekend day) are expected to use the recreational facilities located in the Project area. As many as 1,000 people per day (an increase of 200 users per weekend day) may use the proposed improvements and nearby recreational facilities and trails during major holidays (e.g., Memorial Day weekend).

3.3.1 AREA 1 – ARROYO SECO HEADWORKS

The rest area/picnic area in Area 1 would serve users of the existing trail system. The picnic tables are expected to accommodate 4 persons per table (assuming a total of 3 proposed tables), or 12 people at any time. Therefore, there could be a slight increase in the number of people using recreational facilities in Area 1 due to the proposed picnic amenities. Trash collection would be conducted at least once a week by existing City personnel.

3.3.2 AREA 2 – ARROYO SECO INTAKE

The PWP typically does not divert water for recharge during large storm events (when flows are greater than 25 cfs) due to high total suspended solids (TSS) in the water. If water with high TSS levels is used for recharge, the ground surface in the basins can be “blinded” or plugged by fine material such as clays and silts. This would then reduce recharge rates and require removal of the top layer of fine material in order to recover the basins’ original recharge rates. Letting water with high TSS levels bypass without recharge is not preferred from a water supply perspective, but helps reduce maintenance issues associated with excessive cleanup of the basins.

The new diversion structure would capture all flows during small storm events and dry weather flows in the Arroyo Seco and up to 25 cfs during large storm. During larger storm events when the water is too turbid, the stream (with its associated sediment load) will bypass the structure. Operation during high flows would be facilitated by the adjustable height weir or crest gate. At low flows, the gate would start in the ‘up’ position and as flows increase, the gate would be lowered to maintain a constant water surface level in the diversion pool.

The existing intake is protected by a trash rack that withstands approach velocities of approximately 2.1 ft/sec and has openings of approximately 2 inches. This current arrangement does little to protect fish. The improved intake would have an approach velocity of 1.4 ft/sec and fine screens with openings of 3/32-inches. This proposed arrangement is expected to reduce the potential for fish to enter the intake. Additionally, the new intake is designed to be easily cleaned to prevent regions of high velocity on portions of the intake associated with debris build-up. Lastly,

the removal of the headworks in Area 1 would eliminate an impediment to fish movement and would re-establish the feasibility of fish passage through this area. As a result, Project effects on fish species are expected to be potentially beneficial.

City personnel would continue to provide maintenance of the diversion and intake structures as occurs under existing conditions.

3.3.3 AREA 3 – JPL EAST PARKING LOT

Once the parking structure on the JPL campus is completed and in use, JPL will no longer be running the shuttle buses from Area 3 to the JPL campus. Parking in Area 3 would be reduced from 1,132 spaces to a maximum of 100 spaces for recreational users in the Arroyo Seco Canyon area. Prior to the start of Project construction, no JPL employee or JPL visitor parking would occur in Area 3. JPL employees and JPL visitors would pass through Area 3 (through an access easement from the City) and over the JPL Bridge to access the new JPL On-Site Parking Structure at the JPL campus (on the west side of the Arroyo Seco). Thus, no change in JPL traffic volumes would occur in Area 3.

With the Project, vehicle access to the recreational parking lot and to the JPL Bridge would be provided from the south by the new two-lane asphalt road that would be located east of the new spreading basins. The road would then run northerly and divert to the western edge of the new recreational parking lot and connect to the new JPL security guardhouse before providing access across the bridge by JPL employees and visitors. A roundabout would be provided at the JPL guardhouse for vehicles not cleared for entry into the JPL property to allow vehicles to turn around and return to Windsor Avenue.

The new recreational parking lot, pet waste station, and restroom in Area 3 would be available for use by visitors of the Hahamongna Watershed Park and the ANF. Approximately 2,000 gallons per day of wastewater from the proposed restroom would be directed into the JPL sewer line. Restroom cleaning would be provided at least twice a week and trash would be collected at least once a week by existing City personnel.

The upper two new sedimentation basins (Basins A and B) would be operated independently or in parallel as surface water flows into the sedimentation basins prior to entering the spreading basins. The sedimentation basins would only be operated during storm events or when the water is too turbid to bypass the sedimentation basins. However, if one of the sedimentation basins is taken offline for maintenance, the entire flow would be received by the other basin. Sediments in Basins A and B would be periodically removed and hauled off to a disposal site, with the amount of sediment varying based on hydrology. The sediment volume is estimated to require off-site disposal at approximately 100 truckloads per year. This would replace the majority of sediment removal in the existing and new spreading basins.

Under normal operations when the water is clear, the sedimentation basins would be bypassed and surface water would be directed into the first spreading basin (Basin C). The new spreading basins would operate in series by filling the top-most basin and having water cascade down to the lower basin as each upper basin reaches its operating level. Approximately 3.1 acres of recharge area within the existing 4 spreading basins would be replaced with 8 spreading basins with 7.2 acres of recharge area. The increase in the recharge area by 4.1 acres would supplement the existing 2,300 acre-feet per year (afy) of recharge by an estimated additional 1,100 afy.

The frequency in which the spreading basins are cleaned would depend on the rate at which percolation degrades due to silts and clays in the diverted water. The City typically scrapes and tills the existing basins about once per year so the incremental maintenance needs for the

additional recharge area would not be significantly more, considering the benefit of the new sedimentation basins. When necessary, cleaning of the basins would continue to be accomplished by mechanically scraping the top layer of soil using front-end loaders, graders, or scrapers. Following removal, the surface would be disked or harrowed to loosen any soil compaction caused by cleaning. An estimated 100 truckloads of soil from the existing and proposed spreading basins would have to be disposed of off-site every 5 years.

3.4 FUNDING

The City of Pasadena and the ASF obtained a Proposition 84 grant in the amount of \$3.271 million from the California Department of Water Resources for the Hahamongna Multi-Use Basin Project. The funds were awarded through an Integrated Regional Water Management Program Implementation Grant to the Greater Los Angeles Region. The Project is one of a suite of projects that were rolled up into a single grant agreement for the region that is being managed by the Los Angeles County Flood Control District. This grant would be used for the replacement of the intake structure to increase its capacity and for the construction of recreational amenities in the HWP.

The PWP would be funding the rest of the proposed improvements (i.e., Headworks removal, habitat restoration, and expansion of spreading basins).

3.5 AGENCY APPROVALS AND PERMITS

This IS/MND is intended to serve as the primary environmental document pursuant to CEQA for the Arroyo Seco Canyon Project, including discretionary approvals requested or required to implement the Project. In addition, this is the primary reference document for the formulation and implementation of a mitigation monitoring program for the Project.

As the Lead Agency, the Hearing Officer may adopt the IS/MND if it finds, on the basis of the whole record, that there is no substantial evidence that the Project would have a significant effect on the environment.

The Arroyo Seco is under the jurisdiction of various resource agencies, including the United States Army Corps of Engineers (USACE), the Los Angeles RWQCB, and the California Department of Fish and Wildlife (CDFW). Additionally, Area 1 includes land located within the ANF on property owned by the City of Pasadena. Also, the JPL campus is located on federal land in the City of La Cañada Flintridge.

Table 3.5-1 lists all the agencies that are known or expected to have permit or approval authority over the Project. Moreover, this IS/MND covers all federal, state, local government, and quasi-government approvals that may be needed to construct, implement, or operate the project, whether or not they are specifically identified in Table 3.5-1 or elsewhere in this IS/MND.

**TABLE 3.5-1
AGENCY APPROVALS AND REQUIREMENTS**

Agency	Approval/Permit Required	Purpose	Notes
City of Pasadena	Project approval	Approve the proposed Project and allocate City funds.	Including use of Proposition 84 grant funds.
	Easement	Authorize easement for JPL use of City land for vehicle access, guard shack, security fencing, utilities, and roundabout in Area 3	JPL access through Area 3 and use of access road, guard shack and roundabout
	Easement Amendment	Allow public access and utilities across JPL Bridge	Including public access on the JPL bridge sidewalk and allowing for sewer, electrical, and communications utilities and other public utility purposes in the JPL bridge
	Other agreement(s) to convey interest	Allow for agreement(s) with JPL as needed to construct and/or implement project	Agreement(s) may be needed for maintenance, right of entry, etc. to construct and/or operate project components
	Design Review	Approve the design of the proposed restroom building	In compliance with the Arroyo Seco Design Guidelines
	Conditional Use Permit	Allow for park and recreational facilities in the Open Space zone	In compliance with the City's Zoning Code
	Tree removal authorization	Allow removal of trees in areas to be disturbed.	In compliance with City Trees and Tree Protection Ordinance
USACE	Section 404 Nationwide Permit	Allow the discharge of dredge and fill material into "waters of the U.S."	Nationwide Permit (NWP) required for stream and wetland restoration in Areas 1 and 2, and for maintenance of existing water diversion facilities in Area 2.
Los Angeles RWQCB	Section 401 Water Quality Certification	Protect water quality within "waters of the U.S."	Water Quality Certification required for discharges to the Arroyo Seco associated with construction activities in Areas 1 and 2 and maintenance activities in Area 2.
CDFW	Section 1600 Streambed Alteration Agreement	Authorize changes to the natural flow or the bed, channel, or bank of any river, stream, or lake and associated impacts to biological resources.	Streambed Alteration Agreement required for habitat restoration in Area 1, disturbance of the stream channel during construction, and maintenance in Area 2 (existing permit expired in 2005).
USFS	Agreement	Allow water line connection	Water line connection from USFS Ranger Station to horse water trough and temporary irrigation system in Area 1
ASF	Approval	Use of Proposition 84 grant.	Must approve project as a Proposition 84 co-grantee with the City of Pasadena.

**TABLE 3.5-1
AGENCY APPROVALS AND REQUIREMENTS**

Agency	Approval/Permit Required	Purpose	Notes
JPL/NASA	Agreement(s) to convey interest	Allow for agreement(s) with City of Pasadena as needed to construct and/or implement project	Agreement(s) may be needed for maintenance, right of entry, etc. to construct and/or operate project components
	Easement Amendment	Allow public access and utilities across JPL Bridge	Including public access on the JPL bridge sidewalk and allowing for sewer, electrical, and communications utilities and other public utility purposes in the JPL bridge
	Easement Acceptance	Accept easement from City for JPL use of City land for vehicle access, guard shack, security fencing, utilities for power and communication, and roundabout in Area 3	JPL access through Area 3 and use of access road, guard shack and roundabout
Los Angeles County Sanitation Districts	Sewer Service Connection	Allow for the discharge of wastewater into the Sanitation District's wastewater treatment system.	The City or JPL shall consult with the District to determine if sewer service to the restroom in Area 3 requires a permit; payment of a connection fee; and/or an annual service fee.
<p>USACE: U.S. Army Corps of Engineers; NWP: Nationwide Permit; Los Angeles RWQCB: Los Angeles Regional Water Quality Control Board; CDFW: California Department of Fish and Wildlife; USFS: United States Forest Service; ASF: Arroyo Seco Foundation; JPL: Jet Propulsion Laboratory; NASA: National Aeronautics and Space Administration.</p>			

SECTION 4.0 ENVIRONMENTAL ASSESSMENT

This section includes the completed CEQA environmental checklist form, as provided in Appendix G of the State CEQA Guidelines, as well as substantiation and clarification for each checklist response. The checklist form is used to assist in evaluating the potential environmental impacts of the Arroyo Seco Canyon Project and identifies whether the Project is expected to have potentially significant adverse impacts.

1. Project Title: **ARROYO SECO CANYON PROJECT**
2. Lead Agency Name and Address: City of Pasadena
Planning and Community Development
175 North Garfield Avenue
Pasadena California 91101-1704
3. Contact Person and Phone Number: Jose Daniel Jimenez
(626) 744-7137
4. Project Location: In and along the Upper Arroyo Seco, upstream of Devil's Gate Dam and north of the intersection of Windsor Avenue and Ventura Street in Pasadena, Los Angeles County, CA: Area 1 – Arroyo Seco Headworks; Area 2 – Arroyo Seco Intake; and Area 3 – JPL East Parking Lot
5. Project Sponsor's Name and Address: City of Pasadena
Department of Water and Power
150 South Los Robles Avenue, Suite 200
Pasadena, California 91101
6. General Plan Designation/Zoning: Open Space/Open Space and Planned Development-16
7. Description of Project: Restoration of a portion of the Arroyo Seco, reconstruction of surface water diversion facilities; expansion of spreading basins; and construction of recreational and educational amenities. See Section 3.0 for details.
8. Surrounding land uses and setting: The areas included in the Arroyo Seco Canyon Project are bound by residential uses in Pasadena and the community of Altadena to the east and south; open spaces in the ANF to the north; Devil's Gate Dam and Reservoir to the southwest; and the Arroyo Seco stream corridor, Oak Grove Park, and other recreational areas, the JPL campus, and residential areas in the City of La Cañada Flintridge on the west.
9. Other public agencies whose approval is required: USACE; Los Angeles RWQCB; CDFW; USFS; ASF; JPL; and Los Angeles County Sanitation Districts (See Table 3.5-1 above)

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

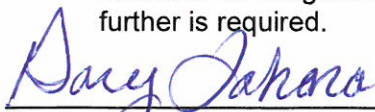
The environmental factors checked below would be potentially affected by this Project, involving at least one impact that requires mitigation, as indicated on the following pages.

- | | |
|--|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forest Resources |
| <input type="checkbox"/> Air Quality | <input checked="" type="checkbox"/> Biological Resources |
| <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input type="checkbox"/> Geology and Soils | <input type="checkbox"/> Greenhouse Gas Emissions |
| <input checked="" type="checkbox"/> Hazards and Hazardous Materials | <input type="checkbox"/> Hydrology and Water Quality |
| <input type="checkbox"/> Land Use and Planning | <input type="checkbox"/> Mineral Resources |
| <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population and Housing |
| <input type="checkbox"/> Public Services | <input checked="" type="checkbox"/> Recreation |
| <input checked="" type="checkbox"/> Transportation/Traffic | <input type="checkbox"/> Utilities and Service Systems |
| <input checked="" type="checkbox"/> Mandatory Findings of Significance | |

DETERMINATION:

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.


Signature of Lead Agency Representative

GARY TAKARA
Printed name

10/07/2014
Date

Pasadena Water and Power Department
Agency

Negative Declaration/Mitigated Negative Declaration adopted on: _____

Adoption attested to by: _____
Printed name/Signature Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

- 1) A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect is significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
- 4) “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Unless Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less than Significant Impact.” The Lead Agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section 21, “Earlier Analysis,” may be cross-referenced).
- 5) Earlier analysis may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. See CEQA Guidelines Section 15063(c)(3)(D). Earlier analyses are discussed in Section 21 at the end of the checklist.
 - a) Earlier Analysis Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are “less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier documents and the extent to which address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8) The explanation of each issue should identify:
 - a) The significance criteria or threshold, if any, used to evaluate each question; and
 - b) The mitigation measure identified, if any, to reduce the impact to less than significant

4.1 AESTHETICS	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.1.1 EXISTING CONDITIONS

General Visual Character

The Project site is in an area that offers views of the San Gabriel Mountains and Arroyo Seco. The Upper Arroyo Seco is an open space area that features developed (mostly passive) recreational areas and a reservoir just north of Devil's Gate Dam and within the HWP. The area upstream of the dam transitions into a more natural environment, with the Arroyo Seco flowing through the canyon near the base of the San Gabriel Mountains. Water is perennial in the braided stream, with a large amount of cobbles and boulders. The Project site has views of the Arroyo Seco and is part of the natural landscape of the Upper Arroyo Seco.

Area 1 is defined by a bend in the stream channel with a damaged Headworks structure across the channel; a slightly raised terrace where the sedimentation basins were once located; and a paved/dirt Gabrielino Trail/access road along the eastern edge of the terrace. This area is flanked by vegetated hillsides to the east and west; and the USFS Ranger Station with three residences to the southeast.

Area 2 is a portion of the Arroyo Seco with a diversion structure across the channel; a training wall along the east side of the stream, upstream of the diversion structure; an intake structure at the southern end of the training wall; the Gabrielino Trail/access road along the eastern edge; and a bridge crossing the stream at the southern end. This area is also flanked by vegetated hillsides to the east and west. Two historic bridges (Bridge No. 2 and Bridge No. 3) cross the Arroyo Seco at the southern end of Area 2.

Area 3 is an elongated paved parking lot surrounded by a chain-link fence, with a rising slope to the east and large open sludge ponds/spreading basins to the west. Dirt roads surround the ponds/basins. The Arroyo Seco stream channel is west of the ponds/basins and is not within the Area 3 boundary. There are overhead power and communication lines that cross Area 3 to serve the various developments in the surrounding area and the light poles in the parking lot. A concrete bridge goes over the Arroyo Seco at the northern end of Area 3, leading into the JPL campus. An access road (Explorer Road) extends south from the southern end of Area 3 along a slope and ends at the intersection of Windsor Avenue and Ventura Street.

Due to the minimal amount of aboveground structures, views of the areas where improvements are proposed are generally confined to viewers on nearby roads and trails. These viewers include hikers; bicyclists; equestrians; maintenance personnel; public service responders; residents near Area 1; employees and visitors of JPL that park in Area 3; and other visitors that specifically go to these areas.

Scenic Resources

Several freeways and highways have been included in the California Scenic Highway System as “Officially Designated Scenic Highways” or “Eligible State Scenic Highways”. The nearest Officially Designated Scenic Highway is SR-2, which runs through the San Gabriel Mountains from I-210 in La Cañada Flintridge to the San Bernardino County line (Caltrans 2013a). SR-2 is located approximately 1.2 miles northwest of Area 1 at its nearest point, but does not have views of the Arroyo Seco Canyon or HWP due to distance, slopes, and intervening vegetation.

The California Scenic Highway Program also designates I-210 as an Eligible Scenic Highway from the I-5 to the SR-134 (Caltrans 2013a). This freeway runs along the southern edge of Devil’s Gate Dam. Travelers on the I-210 can see some of the vegetation within the Devil’s Gate Reservoir and the distant mountains, but the spreading basins and parking lot in Area 3 and the more distant Arroyo Seco Canyon are not visible to travelers on I-210.

The Pasadena Comprehensive General Plan includes a Scenic Highways Element that seeks to provide an aesthetic visual experience for travelers on the City’s street system. It includes objectives and policies to preserve the aesthetic qualities of streets and highways in Pasadena. The Scenic Highways Element does not designate any roads or highways in the City as Scenic Highways or Scenic Corridors. The Element provides guidelines for the development of a scenic corridor plan and includes a map that shows a portion of the Angeles Crest Highway (in the City) as an Official State Scenic Highway and two “Los Angeles County Recommended Scenic Highways (Unofficial): Linda Vista Avenue and Highland Drive (south of the I-210) and Huntington Drive (from Fremont Street to I-210).³ These roads do not offer views of the Upper Arroyo Seco.

4.1.2 IMPACT ANALYSIS

Project Design Features

PDF AES-1 Public improvements in Areas 1 and 2 will be designed to comply with the Arroyo Seco Design Guidelines that address habitat restoration and landscaping using high value native plant species that would contribute to the genetic material of the Arroyo Seco, walls, signs, and site furnishings that are consistent with those found in the Hahamongna Watershed Park (HWP), subject to design review and approval by the City’s Planning Division.

Regulatory Requirements

RR AES-1 The proposed improvements in Area 3 are required to be designed to comply with applicable criteria in the Arroyo Seco Design Guidelines, subject to design review and approval by the City’s Planning Division.

³ These roads are designated in the 1974 Los Angeles County Scenic Highways Element as Second Priority Routes proposed for further study. The Scenic Highways map in the 2014 Draft Conservation and Natural Resources Element no longer shows these roads as adopted or eligible Scenic Highways.

Impact Discussion

- a) **Would the project have a substantial adverse effect on a scenic vista?**
- c) **Would the project substantially degrade the existing visual character or quality of the site and its surroundings?**

Less Than Significant Impact.

Area 1 and Area 2 Impacts. Views of the Arroyo Seco and surrounding natural areas from the Gabrielino Trail can be considered a scenic vista. The visual character of the area can generally be described as including a relatively undisturbed natural stream and associated vegetation in a heavily-wooded canyon setting. The beauty of the area provides an important amenity for many recreational users. The Project proposes to restore a portion of the Upper Arroyo Seco in Area 1 in order to provide a more natural riparian corridor with native vegetation and natural elements. A nature trail through the riparian corridor would be provided, leading to a rest area/picnic area that would be constructed beside the stream. The Project would not involve the removal of any unique natural features. However, the Project would disturb vegetative cover, including riparian thickets and oak and sycamore woodlands. A total of 17 trees that are protected by the City's Tree Ordinance and the California Fish and Game Code are also expected to be removed. Removal of vegetation and trees is discussed further in Section 4.4, Biological Resources.

The proposed revegetation efforts and preliminary planting palette include four main restoration areas: Riparian Floodplain, Natural Uplands, Irrigated Picnic Area, and Willow Baffles. The trees to be planted would include coast live oak, California sycamore, Fremont cottonwood, California bay laurel, or other suitable native trees, with an associated irrigation system to support the tree establishment. The picnic tables, benches, signs, and horse water trough would utilize natural materials and/or be designed to blend with the landscape in accordance with the Arroyo Seco Design Guidelines (see PDF AES-1) and would not degrade the visual quality of the Arroyo Seco Canyon. The proposed improvements would create a more natural landscape for Area 1 and would provide greater opportunities to enjoy the area's natural open space. Aesthetic impacts related to long-term operations in Area 1 would be less than significant.

A new weir/slucice gate would span the width of the stream in Area 2, along with wing walls; riprap on both sides of the weir/slucice gate; and a control equipment enclosure near the Gabrielino Trail. The eroded portion of the Gabrielino Trail/access road would also be rebuilt to include riprap protection and a rock wall. While these structures would not complement the surrounding landscape, the man-made training wall, intake structure, diversion structure, chain-link fence, and control equipment enclosure in Area 2 have been in place for a long time. The new facilities are replacements for existing damaged infrastructure and are not new structures in a pristine setting. As such, flood control facilities are a component of the existing setting in Area 2 and the proposed Project would not result in an impact that could adversely affect a scenic vista or substantially degrade the visual character of the area. Additionally, the Project would reconstruct and improve these facilities, and the public facilities (e.g., signs, walls, fences, etc.) would be designed in accordance with the Arroyo Seco Design Guidelines (see PDF AES-1). Aesthetic impacts related to long-term operations within Area 2 would be less than significant.

Construction activities would detract from the natural setting, albeit not pristine, as construction equipment, staging areas, excavation, grading activities, demolition, and construction work would be visible to persons near the disturbed areas during the construction phase. Construction equipment and activities are a temporary visual nuisance that are commonplace; however, this impact is more noticeable in the context of the natural setting in Area 1, which is visited by people wishing to experience a natural non-urban setting. Construction activities would temporarily

diminish the visual quality of the areas being disturbed, and possibly the scenic vistas from portions of the Gabrielino Trail. However, this impact would be a short-term visual nuisance. Also, security fencing that may be provided around construction work areas would shield views of construction activities. The security fencing would also be located around equipment staging areas, which includes parking for vehicles/equipment when not in use and stockpiled materials. Impacts would be less than significant.

Views of the historic bridges along the Gabrielino Trail (Bridge No. 2 and Bridge No. 3) would also be affected during construction. These bridges would be protected during construction activities through the construction of a temporary bridge over Bridge No. 3 and the placement of plywood along the railing and balustrades of Bridge No. 2. The temporary bridge and plywood cover would protect and preserve these bridges from damage from passing construction equipment and trucks and would be removed at the end of construction activities. Short-term impacts on views of the bridges would be less than significant. No long-term impacts related to views of the historic bridges would occur.

The visual impacts of construction activities in Area 1 and Area 2 would be short-term and less than significant.

Area 3 Impacts. Area 3 is not considered a scenic vista or a scenic resource. This area consists of a developed parking lot, sludge ponds and spreading basins. However, the area does allow for views of the surrounding scenic areas, including the reservoir behind Devil's Gate, the Arroyo Seco, and the foothills of the San Gabriel Mountains. The creation of a small parking lot for recreational users, a restroom, and a JPL security guard house, as well as expansion of the spreading basins, would lead to a change in visual quality of Area 3.

As stated above in Section 3.2, Project Demolition and Construction, at the time that Project construction begins in Summer 2015, it is anticipated that the JPL East Parking Lot would no longer exist; only 47,164 square feet of paving on the temporary access road would remain as an existing condition on the Project site. The ground surface would be scraped clear of the parking lot and substrate, leaving exposed soils upon removal of the JPL East Parking Lot. The creation of the spreading basins would expand views of open ground and open water, which would be more natural than the existing paved parking lot or the base ground that would remain after JPL removes the parking lot pavement. This could be interpreted by some to be a beneficial visual impact, as there may be the potential for increased use of the open water by waterfowl.

The proposed restroom would feature wood, stone, and earth-tone colors to match its natural surroundings. As required under RR AES-1, the proposed improvements, including trails, would be designed to comply with the Arroyo Seco Design Guidelines. Although these would be new facilities, they would be relatively small, and compliance with RR AES-1 would reduce the potential for visual conflict between proposed structures and the natural setting by reflecting the natural surroundings and cultural heritage of the Arroyo Seco. Aesthetic impacts related to long-term operations within Area 3 would be less than significant.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified significant adverse impacts related to aesthetics in the HWP due to the increase in parking areas, parking lot lighting, new restrooms, active recreation areas, and the equestrian refuse disposal area. The Master EIR stated that planned park entrance improvements, widening of the spreading basins, flood management, lakes, overlooks, trails, bicycle routes, habitat conservation, utility improvements, security fencing, and gates are not expected to degrade the visual qualities of the site.

The Project does not propose an expansion of parking areas, parking lot lighting, or active recreation areas, but does include the construction of a new restroom at the northern end of Area 3.

The Master EIR provided mitigation measures to reduce significant adverse aesthetic impacts. The mitigation measures for construction sites from the Master EIR (Measure Aesthetic-1 and Measure Aesthetic-2) are similar to the proposed screening of construction areas and the maintenance of staging areas for safety and security reasons. The mitigation measures in the Master EIR related to new structures and improvements (Measure Aesthetic-6 and Measure Aesthetic-7) are similar to RR AES-1, which would be implemented by the Project. The Master EIR stated that impacts on aesthetics would be less than significant after mitigation.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less Than Significant Impact.

Areas 1, 2 and 3 Impacts. The proposed improvements in Areas 1, 2, and 3 would not be visible from SR-2 (an Officially Designated Scenic Highway) or I-210 (an Eligible Scenic Highway). The Project site is not located within the viewsheds of SR-2 or I-210. Thus, no impacts on scenic resources along these scenic highways would occur.

There are no City-designated Scenic Corridors, and the unofficial Scenic Corridors on Huntington Drive, Highland Drive, and Linda Vista Avenue do not offer views of the Upper Arroyo Seco or the Project site. The Project does not propose a scenic corridor plan and would not affect unofficial scenic corridors or the City's traditional urban design form and historic character.

As discussed above, the Arroyo Seco would be disturbed by construction activities. However, improvements in Area 1 would improve the riparian corridor and natural setting of stream. While a number of mature trees would be removed as part of Project construction, which would affect views of the natural landscape along the Upper Arroyo Seco, replacement of these trees would be provided under PDF BIO-1 and RR BIO-2 (see Section 4.4, Biological Resources).

Views of the historic bridges along the Gabrielino Trail would also be affected during construction as temporary bridges are built over Bridge No. 1 and Bridge No. 3 and as plywood is placed along the railings and balustrades of Bridge No. 2. This impact would be short term and less than significant.

Thus, impacts on scenic resources in the Upper Arroyo Seco would be temporary and less than significant. No mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that no impacts to scenic vistas and scenic highways would occur with implementation of the Arroyo Seco Master Plan, including the HWMP.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. No new lighting is proposed in Areas 1 or 2. In Area 3, the existing JPL East Parking Lot is lighted; however, JPL would remove the parking lot improvements, including the light poles prior to the start of construction activities for the Project analyzed herein.

No lighting is proposed in the new recreational parking lot, along the access road, or near the spreading basins or trails; also, there would not be any reflective surfaces that could result in glare. The proposed guard station and restroom in Area 3 would have interior and exterior lighting, but these structures are relatively small and would be surrounded by the access road, the new parking lot, the existing slopes, and the trails. In compliance with the Arroyo Seco Design Guidelines (RR AES-1), no lighting is proposed in natural areas; all proposed lighting fixtures would be focused downward and include appropriate shields; and proposed lights would serve both safety and aesthetic purposes. Also, no construction activities are proposed during the nighttime hours. Therefore, there would be less than significant impacts related to light and glare and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that parking lot lighting would result in significant adverse impacts. The Master EIR included mitigation measures (Measure Aesthetic-3 and Measure Aesthetic-4) to reduce significant impacts related to new sources of light. With compliance with the design standards for lighting in the Arroyo Seco Design Guidelines, Measure Aesthetic-3 and Measure Aesthetic-4 would not be necessary to further reduce the impacts of proposed lighting in Area 3 to below a level of significance.

4.1.3 MITIGATION MEASURE

Impacts on aesthetics would be less than significant; therefore, no mitigation measures are required.

4.2	<u>AGRICULTURE AND FOREST RESOURCES</u>	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:					
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104[g])?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.2.1 EXISTING CONDITIONS

The California Department of Conservation administers the Farmland Mapping and Monitoring Program (FMMP) pursuant to Section 65570 of the *California Government Code*. Due to the predominance of urban development in the southern and central sections of Los Angeles County (which includes the City of Pasadena), this area was not included in the mapping effort by the FMMP (FMMP 2011). As such, there are no designated farmlands in or near the Arroyo Seco Canyon. Also, there are no existing or ongoing agricultural activities in or near the Arroyo Seco Canyon.

The Upper Arroyo Seco is designated and zoned as Open Space and a portion of Area 3 is zoned Planned Development – 16 in the City of Pasadena’s Land Use Plan and Zoning Map (Pasadena 2009, 2012b). The Arroyo Seco originates in the ANF, and Area 1 is located within the boundaries of the ANF, while Areas 2 and 3 are located just south of the ANF. Area 1 is designated in the USFS Land Management Plan as Non-Forest System Land (USFS 2005a).

4.2.2 IMPACT ANALYSIS

Impact Discussion

- a) **Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?**

- b) **Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?**
- e) **Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?**

No Impact.

Areas 1, 2 and 3 Impacts. As discussed above, there is no designated Farmland or Farmland Soils within or near the Upper Arroyo Seco where the Project is proposed. Thus, no impacts on Farmland or Farmland Soils would occur. The Arroyo Seco Canyon and the surrounding area are not zoned for agricultural use, and there are no Williamson Act contracts in the City. Therefore, the Project would not conflict with an agricultural zone or Williamson Act contract. Also, there are no agricultural activities in or near the Upper Arroyo Seco, and no farmland conversion or impacts to agricultural uses would accompany the Project. Therefore, no impacts on agricultural resources would occur and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not address impacts on agricultural resources since the Initial Study for the Arroyo Seco Master Plan had determined earlier that no significant impacts to agricultural resources are anticipated.

- c) **Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code, Section 12220[g]), timberland (as defined by Public Resources Code, Section 4526), or timberland zoned Timberland Production (as defined by Government Code, Section 51104[g])?**
- d) **Would the project result in the loss of forest land or conversion of forest land to non-forest use?**
- e) **Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?**

No Impact.

Areas 1, 2 and 3 Impacts. There are no timberland or timberland production zones in the City. The Open Space designation and zone for the Upper Arroyo Seco applies to active and passive public recreational facilities and natural open spaces that are environmentally and ecologically significant, while the Planned Development zone applies to sites developed with a particular mix of uses, appearance, land use compatibility, or special sensitivity to neighborhood character (Pasadena 2004). The proposed improvements would occur along the Arroyo Seco, where no forest or timberland resources have been identified in the City of Pasadena Comprehensive General Plan.

While Area 1 is located within the ANF, it is designated as Non-Forest System Land. The Project would not conflict with the adjacent Low Density Residential (LD) or the Open Space-National Forest (O-NF) designation of unincorporated County land to the north and east of Area 1 (LACDRP 2009). The Project would not conflict with the Back Country Motorized Use Restricted (BCMUR) zone north of Area 1, as designated in the ANF's Land Management Plan. The BCMUR zone considers the restoration of vegetation condition as a suitable activity or use and supports non-motorized dispersed recreational opportunities, including camping, hiking, biking, hunting and fishing (USFS 2005b).

No loss of forest resources or conversion of forest land to non-forest use will occur with the Project as the improvements in Area 1 would restore the riparian habitats to protect native plant and animal species and would provide recreational amenities to support recreational uses in the area. Long-term recreational activities in the Arroyo Seco Canyon and operation and maintenance activities on the PWP facilities would not adversely affect nearby forest resources. No impact on forest resources would occur with the Project and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not address impacts on forest resources.

4.2.3 MITIGATION MEASURES

There would be no impacts on agriculture and forest resources; therefore, no mitigation measures are required.

4.3 <u>AIR QUALITY</u>	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.3.1 EXISTING CONDITIONS

The Project site is located in the Los Angeles County portion of the South Coast Air Basin (SoCAB) and, for air quality regulation and permitting, is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Both the State of California (State) and the U.S. Environmental Protection Agency (USEPA) have established health-based Ambient Air Quality Standards (AAQS) for air pollutants, which are known as “criteria pollutants”. The AAQS are designed to protect the health and welfare of the populace within a reasonable margin of safety.

The AAQS for ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), inhalable particulate matter with a diameter of 10 microns or less (PM₁₀), fine particulate matter with a diameter of 2.5 microns or less (PM_{2.5}), and lead are shown in Table 4.3-1.

**TABLE 4.3-1
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	California Standards	Federal Standards	
			Primary ^a	Secondary ^b
O ₃	1 Hour	0.09 ppm (180 µg/m ³)	–	–
	8 Hour	0.070 ppm (137 µg/m ³)	0.075 ppm (147 µg/m ³)	Same as Primary
PM ₁₀	24 Hour	50 µg/m ³	150 µg/m ³	Same as Primary
	AAM	20 µg/m ³	–	Same as Primary
PM _{2.5}	24 Hour	–	35 µg/m ³	Same as Primary
	AAM	12 µg/m ³	12.0 µg/m ³	Same as Primary
CO	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	–
	8 Hour	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)	–
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)	–	–
NO ₂	AAM	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)	Same as Primary
	1 Hour	0.18 ppm (339 µg/m ³)	0.100 ppm (188 µg/m ³)	–
SO ₂	24 Hour	0.04 ppm (105 µg/m ³)	–	–
	3 Hour	–	–	0.5 ppm (1,300 µg/m ³)
	1 Hour	0.25 ppm (655 µg/m ³)	0.075 ppm (196 µg/m ³)	–
Lead	30-day Avg.	1.5 µg/m ³	–	–
	Calendar Quarter	–	1.5 µg/m ³	Same as Primary
	Rolling 3-month Avg.	–	0.15 µg/m ³	
Visibility Reducing Particles	8 hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	No Federal Standards	
Sulfates	24 Hour	25 µg/m ³		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m ³)		

O₃: ozone; µg/m³: micrograms per cubic meter; PM₁₀: large particulate matter; AAM: Annual Arithmetic Mean; PM_{2.5}: fine particulate matter; CO: carbon monoxide; mg/m³: milligrams per cubic meter; NO₂: nitrogen dioxide; SO₂: sulfur dioxide; ppm: parts per million; km: kilometer; –: No Standard.

^a *National Primary Standards*: The levels of air quality necessary, within an adequate margin of safety, to protect the public health.

^b *National Secondary Standards*: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

Note: More detailed information in the data presented in this table can be found at the CARB website (www.arb.ca.gov).

Source: CARB 2013b.

Regional air quality is defined by whether the area has attained State and federal air quality standards, as determined by air quality data from various monitoring stations. Areas that are considered in “nonattainment” are required to prepare plans and implement measures that will bring the region into “attainment”. When an area has been reclassified from nonattainment to attainment for a federal standard, the status is identified as “maintenance”, and there must be a plan and measures established that will keep the region in attainment for the next ten years.

For the California Air Resources Board (CARB), an “unclassified” designation indicates that the air quality data for the area are incomplete and there are no standards to support a designation of attainment or nonattainment. Table 4.3-2 summarizes the attainment status of the SoCAB for the criteria pollutants.

**TABLE 4.3-2
DESIGNATIONS OF CRITERIA POLLUTANTS IN THE SOUTH COAST AIR BASIN**

Pollutant	State	Federal
O ₃ (1-hour)	Nonattainment	No Standard
O ₃ (8-hour)		Extreme Nonattainment
PM10	Nonattainment	Attainment/Maintenance
PM2.5	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO ₂	Nonattainment ^a	Attainment/Maintenance
SO ₂	Attainment	Attainment
Lead	Nonattainment/Attainment ^{a,b}	Nonattainment/Attainment
All others	Attainment/Unclassified	No Standards
O ₃ : ozone; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; CO: carbon monoxide; NO ₂ : nitrogen dioxide; SO ₂ : sulfur dioxide. ^a CARB Executive Order R-14-001 (February 25, 2014) reclassifies the SoCAB to Attainment for NO ₂ and Lead. The redesignation will become effective July 1, 2014. ^b Los Angeles County is classified as nonattainment for lead; the remainder of the SoCAB is in attainment of the State and federal standards. Sources: CARB 2014a, 2014b; USEPA 2013c.		

The nearest sensitive receptors (i.e., residential homes) to the Project site include the USFS Ranger Station, which includes three dwelling units providing housing for USFS Rangers; these are located just east of the Gabrielino Trail in Area 1. The nearest sensitive receptors to Area 2 include single-family residences located along Canyon Dell Drive and Aralia Road approximately 800 feet to the east in the community of Altadena. The nearest sensitive receptors to Area 3 include single-family residences located along Ridgeview Drive, approximately 225 feet to the east in the community of Altadena.

4.3.2 IMPACT ANALYSIS

Regulatory Requirements

RR AQ-1 During construction, the Contractor is required to comply with the South Coast Air Quality Management District’s (SCAQMD’s) Rule 403, Fugitive Dust, which requires the implementation of best available control measures (BACM) for any activity or man-made condition capable of generating fugitive dust including, but not limited to, earth-moving activities, construction/demolition activities, disturbed surface area, or heavy- and light-duty vehicular movement. The BACMs include stabilizing soil; watering surface soils and crushed materials; covering hauls or providing freeboard; preventing track-out; and limiting vehicle speeds and wind barriers, among others.

RR AQ-2 In accordance with Section 2449(d)(3) of the California Air Resources Board’s (CARB’s) Regulation for In-Use Off-Road Diesel-Fueled Fleets, construction equipment and vehicles are required to limit idling times to no more than five consecutive minutes.

Impact Discussion

- a) **Would the project conflict with or obstruct implementation of the applicable air quality plan?**

No Impact.

Areas 1, 2 and 3 Impacts. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary. It is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources and has prepared an Air Quality Management Plans (AQMP) that establishes a program of rules and regulations directed at attaining the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS).

On December 7, 2012, the SCAQMD adopted the 2012 AQMP, which is a regional and multi-agency effort (SCAQMD, CARB, Southern California Association of Governments [SCAG], and USEPA). The 2012 AQMP incorporates the latest scientific and technical information and planning assumptions, including the 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS); updated emission inventory methodologies for various source categories; and SCAG's latest growth forecasts. On December 20, 2012, the 2012 AQMP was submitted to CARB and the USEPA for concurrent review and approval for inclusion in the SIP (SCAQMD 2013a). The 2012 AQMP was approved by the CARB on January 25, 2013 (CARB 2014c).

The main purpose of an AQMP is to bring an area into compliance with the requirements of federal and State air quality standards. For a project to be consistent with the AQMP, the pollutants emitted from the project should not (1) exceed the SCAQMD CEQA air quality significance thresholds or (2) conflict with or exceed the assumptions in the AQMP. As shown in Threshold 4.3(b) below, pollutant emissions from the proposed Project would be less than the SCAQMD thresholds and would not result in a significant impact. The Project is consistent with the Zoning and General Plan Land Use designations for the site and is therefore consistent with the growth expectations for the region. Further, the proposed Project would not result in development or new land uses that have not been anticipated in the AQMP. No conflict with the 2012 AQMP would occur with the proposed Project. No impact is expected and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not identify a potential conflict with the AQMP.

- b) **Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?**

Less Than Significant Impact.

Areas 1, 2 and 3 Impacts. The SCAQMD has adopted significance thresholds to assess the regional impact of air pollutant emissions in the SoCAB. Table 4.3-3, SCAQMD Criteria Pollutant Mass Emissions Significance Thresholds, summarizes the SCAQMD's mass emissions thresholds, which are presented for both short-term construction and long-term operational emissions. A project with emissions rates below these thresholds is considered to have a less than significant effect on air quality.

**TABLE 4.3-3
SCAQMD CRITERIA POLLUTANT SIGNIFICANT MASS EMISSIONS
SIGNIFICANCE THRESHOLDS (LBS/DAY)**

Criteria Pollutant	Construction	Operation
VOC	75	55
NOx	100	55
CO	550	550
SOx	150	150
PM10	150	150
PM2.5	55	55
SCAQMD: South Coast Air Quality Management District; lbs/day: pounds per day; VOC: volatile organic compounds; NOx: oxides of nitrogen; CO: carbon monoxide; SOx: oxides of sulfur; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less. Source: SCAQMD 2011.		

Regional Construction Impacts

The SCAQMD has established methodologies to quantify air pollutant emissions associated with construction activities, such as air pollutant emissions generated by operation of on-site construction equipment; fugitive dust emissions related to trenching and earthwork activities; and mobile (tailpipe) emissions from construction worker vehicles and haul/delivery truck trips. Emissions would vary from day to day, depending on the level of activity; the specific type of construction activity occurring; and, for fugitive dust, prevailing weather conditions.

A construction-period mass emissions inventory was compiled based on an estimate of construction equipment as well as scheduling and Project phasing assumptions. More specifically, the mass emissions analysis takes into account the following:

- Combustion emissions from operating on-site stationary and mobile construction equipment.
- Fugitive dust emissions from demolition, site preparation, and grading phases.
- Mobile-source combustion emissions and fugitive dust from worker commute and truck travel.

For the purposes of estimating emissions associated with construction activities, a conservative timeframe of March 2015 through April 2016 was applied to the modelling (as later dates would generally result in less emissions). Emissions were calculated using the California Emissions Estimator Model (CalEEMod) emissions inventory model (SCAQMD 2013b). CalEEMod is a computer program accepted by the SCAQMD that can be used to estimate anticipated emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts, and the Los Angeles County database was used for the proposed Project. Consistent with the requirements of SCAQMD Rule 403 (RR AQ-1), watering for dust control is assumed in the emissions calculations.

The mass emissions thresholds (see Table 4.3-3) are based on the rate of emissions (i.e., pounds of pollutants emitted per day). Therefore, the quantity, duration, and the intensity of construction activities are important in ensuring analysis of worst-case (i.e., maximum daily emissions) scenarios. Project activities (e.g., demolition, grading, building construction) are identified by start date and duration, as described in Table 3.2-1. Each activity has associated off-road equipment (e.g., dozers, backhoes, cranes) and on-road vehicles (e.g., haul trucks, concrete trucks, worker

commute vehicles). The City may choose to add a shaker during the grading of Area 3 to separate excavated aggregate and an additional front-end loader to support the shaker. The emissions calculations assume the shaker and loader would be operating. Detailed construction assumptions and CalEEMod inputs and outputs can be found in Appendix A.

Maximum daily emissions during the peak work day are shown in Table 4.3-4, Estimated Maximum Daily Construction Emissions. Actual emissions could be less than those forecasted due to the conservative nature of the assumptions incorporated into the CalEEMod program regarding phasing. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner-burning construction equipment fleet mix and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval). As shown, all criteria pollutant emissions from Project construction would be less than their respective thresholds. Thus, impacts would be less than significant and no mitigation is required.

**TABLE 4.3-4
ESTIMATED MAXIMUM DAILY CONSTRUCTION EMISSIONS
(LBS/DAY)**

	VOC	NOx	CO	SOx	PM10	PM2.5
Maximum daily emissions in 2015	8	53	68	<0.5	7	4
Maximum daily emissions in 2016	7	60	48	<0.5	5	3
SCAQMD Daily Thresholds	75	100	550	150	150	55
Exceeds SCAQMD Thresholds?	No	No	No	No	No	No
lbs/day: pounds per day; VOC: volatile organic compound(s); NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District.						
Source: SCAQMD 2011 (thresholds).						

Localized Construction Impacts

The localized effects from the on-site portion of daily emissions were evaluated at sensitive receptor locations that would be potentially impacted by the Project; these were evaluated according to the SCAQMD’s localized significance threshold (LST) methodology, which utilizes on-site mass emissions rate look up tables and Project-specific modeling, where appropriate. LSTs are applicable to the following criteria pollutants: NO₂, CO, PM10, and PM2.5.⁴ LSTs represent the maximum emissions from a project that are not expected to cause or contribute substantially to an exceedance of the most stringent applicable federal or State ambient air quality standard. These are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor. For PM10 and PM2.5, LSTs were derived based on requirements in SCAQMD’s Rule 403 regarding Fugitive Dust (RR AQ-1). The mass rate look-up tables were developed for each source receptor area and can be used to determine whether or not a project may generate significant adverse localized air quality impacts. The SCAQMD provides LST mass rate look-up tables for projects that are less than or equal to five acres. For projects that exceed five acres, the five-acre LST look-up values can be used as a screening tool to determine which pollutants require detailed analysis. This approach is conservative as it assumes that all on-site emissions would occur within a five-acre area and over-predicts potential localized impacts (i.e., more pollutant emissions occurring within a smaller area and within closer proximity to potential sensitive receptors).

⁴ NO₂ impacts are addressed by evaluating nitrogen oxide (NOx) emissions.

When quantifying mass emissions for localized analysis, only emissions that occur on site are considered. Consistent with the SCAQMD’s LST methodology guidelines, emissions related to off-site delivery/haul truck activity and employee trips are not considered in the evaluation of localized impacts.

As shown in Table 4.3-5, localized construction emissions for all criteria pollutants would be less than their respective SCAQMD LST significance thresholds. Thus, impacts would be less than significant and no mitigation is required.

**TABLE 4.3-5
MAXIMUM LOCALIZED CONSTRUCTION POLLUTANT EMISSIONS
(LBS/DAY)**

	NOx	CO	PM10	PM2.5
Area 1	15	11	3	2
SCAQMD LSTs^a	148	1,540	12	7
Exceeds SCAQMD Thresholds?	No	No	No	No
Area 2	22	12	1	1
SCAQMD LSTs^b	104	2,229	58	18
Exceeds SCAQMD Thresholds?	No	No	No	No
Area 3	28	15	5	2
SCAQMD LSTs^c	141	1,921	37	9
Exceeds SCAQMD Thresholds?	No	No	No	No

lbs/day: pounds per day; NOx: nitrogen oxides; CO: carbon monoxide; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; LST: Local Significance Threshold; SRA: Source Receptor Area.

^a Thresholds are for 5-acre site with receptors located within 25 meters in SRA 8.
^b Thresholds are for 1-acre site with receptors located within 200 meters.
^c Thresholds are for 5-acre site with receptors located within 50 meters in SRA 8.

Source: SCAQMD 2009 (LSTs).

Toxic Air Contaminants Impacts

The greatest potential for toxic air contaminant (TAC) emissions during construction would be related to diesel particulate emissions associated with heavy equipment operations during site grading activities. The SCAQMD does not consider diesel-related cancer risks from construction equipment to be an issue due to the short-term nature of construction activities. Construction activities associated with the proposed Project would be short term (14 months at Area 3, less at Areas 1 and 2). The assessment of cancer risk is typically based on a 70-year exposure period. Because exposure to diesel exhaust would be well below the 70-year exposure period, construction of the proposed Project is not anticipated to result in an elevated cancer risk to exposed persons. As such, Project-related TAC impacts during construction would be less than significant and no mitigation is required.

Long-Term Operational Impacts

Operational emissions are comprised of area, energy, and mobile (i.e., vehicle) source emissions. The primary source of operational criteria pollutant emissions from the proposed Project would be vehicles used by the increased number of trail users and visitors to the Arroyo Seco Canyon that would utilize the improvements associated with the Project. In order to estimate vehicle emissions, it was assumed that trail users and visitors would increase by up to 25 vehicles on weekdays and 200 vehicles on holiday weekends. Other mobile sources include haul truck trips

for the regular removal of sediment from the sedimentation and spreading basins (estimated at 100 truckloads every year for sedimentation basin cleanup and 100 truckloads every 5 years for spreading basins cleanup) and trips for maintenance of the restrooms, trash cans, and pet waste stations (assumed to be at least weekly removal of trash and twice weekly cleaning of the restroom). Energy consumption for the Project was based on data for the same activity in city parks land use. Area source emissions include reapplication of architectural coatings and landscaping activities. Emissions were calculated with the CalEEMod model, as discussed above.

Estimated peak daily operational emissions from the Project, as shown in Table 4.3-6, would be substantially below the SCAQMD regional thresholds of significance. Therefore, the impact would be less than significant.

**TABLE 4.3-6
PEAK DAILY OPERATIONAL EMISSIONS**

Emissions Source	Emissions (lbs/day)				
	VOC	NOx	CO	PM10	PM2.5
Area sources	<0.5	<0.5	<0.5	<0.5	<0.5
Energy sources	<0.5	<0.5	<0.5	<0.5	<0.5
Mobile sources	1	2	8	1	<0.5
Total Operational Emissions	1	2	8	1	<0.5
SCAQMD Significance Thresholds	55	55	550	150	55
Exceeds Threshold?	No	No	No	No	No

lbs/day: pounds per day; VOC: volatile organic compounds; NOx: nitrogen oxides; CO: carbon monoxide; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less.

Totals may not add due to rounding

Notes: Emissions are higher of summer or winter seasons.
SOx and lead emissions are not shown; these emissions would be negligible for the Project.
CalEEMod model data sheets are included in Appendix A.

Source: SCAQMD 2011 (thresholds).

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that no significant air quality impacts from regional or local operational emissions would occur, but NOx and PM10 emissions during construction activities would be significant and unavoidable during the peak day and the peak quarter. The Master EIR identified 11 mitigation measures to reduce these impacts but determined that peak day and peak quarter NOx and PM10 emissions would still exceed SCAQMD thresholds and would remain significant even after mitigation.

The Project would implement RR AQ-1, which requires the implementation of the same best available control measures (BACMs) outlined in Measures Air-1 to Air-9 of the Master EIR. Measure Air-10 is not applicable since the Project would not exceed SCAQMD thresholds and the Project would implement RR AQ-2, which is similar to Measure Air-11. However, no mitigation measures are required to reduce these impacts to below a level of significance.

- c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?**

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. The SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the Federal and State Clean Air Acts. As discussed earlier in Threshold 4.3(a), the proposed Project would be consistent with the AQMP, which is intended to bring the SoCAB into attainment for all criteria pollutants.⁵ In addition, the mass regional emissions calculated for the proposed Project (Tables 4.3-5 and 4.3-6) would be less than SCAQMD's daily significance thresholds that are designed to assist the region in attaining the applicable CAAQS and NAAQS.

Short-term cumulative impacts related to air quality could occur if Project construction and nearby construction activities were to be near or exceed the thresholds for significance and would occur simultaneously. In particular, with respect to local impacts, cumulative construction particulate (i.e., fugitive dust) impacts are considered when projects are located within a few hundred yards of each other. As described in Section 4.18, Mandatory Findings of Significance, there is one project, sediment removal at the Devil's Gate Reservoir, which could have overlapping construction with the Project. However, as shown in Table 4.3-4, Project construction emissions would be well below the SCAQMD regional significance thresholds; particularly, particulate matter emissions would be less than ten percent of the thresholds. The Project's relatively minor contribution to short-term air quality emissions would not result in a cumulatively considerable net increase of any criteria pollutant. Therefore, the incremental effect of Project-related construction emissions of nonattainment pollutants would not be cumulatively considerable and Project impacts would be less than significant.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that no significant air quality impacts from regional or local operational emissions would occur, but NO_x and PM₁₀ emissions during construction activities would be significant and unavoidable during the peak day and the peak quarter. The Master EIR identified 11 mitigation measures to reduce these impacts, but determined that peak day and peak quarter NO_x and PM₁₀ emissions during construction would still exceed SCAQMD thresholds and would remain significant even after mitigation.

As stated above, the Project would implement RR AQ-1, which requires the implementation of the same BACMs outlined in Measures Air-1 to Air-9, and RR AQ-2, which is similar to Measure Air-11. However, no mitigation measures are required to reduce these impacts to below a level of significance.

⁵ Section 15064(h)(3) of the State CEQA Guidelines states "A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency".

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. As described in Threshold 4.3(b), the proposed Project would not result in any substantial TAC air pollution impacts, and construction criteria pollutant emissions would be less than the conservative LSTs. Therefore, Project construction would not expose any nearby sensitive receptors to substantial pollutant concentrations.

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. If a project increases average delay at signalized intersections that are operating at level of service (LOS) E or F or causes an intersection that would operate at LOS D or better without the project to operate at LOS E or F with the project, there is a potential for a CO hotspot.

As discussed in Section 4.16, Transportation and Traffic, under Threshold a), the Project is expected to generate relatively small amounts of new traffic in the long term, most of which will be generated during non-peak hours (for trail use and inspection and maintenance of the proposed improvements) and on weekends (for trail use). During construction, vehicle trips generated by the Project would also not create a CO hotspot since construction vehicle trips would be restricted to non-peak hours, as outlined in MM TRA-1. Therefore, the Project would not increase congestion at major signalized intersections.

There would be no impact and no exposure of sensitive receptors to Project-generated local CO emissions. As such, the proposed Project would have a less than significant impact and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that no significant impact to local CO concentrations would occur and that traffic increases would not be sufficient to increase CO levels above SCAQMD's allowable increase.

e) Would the project create objectionable odors affecting a substantial number of people?

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. According to the SCAQMD's *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The proposed Project does not propose any of these land uses and would not otherwise produce objectionable long-term operational odors.

Short-term construction equipment and activities would generate odors, such as diesel exhaust emissions from construction equipment and paving activities. There may be situations where construction activity odors would be noticeable by persons on the Gabrielino Trail, but these odors would not be unfamiliar or necessarily objectionable. The odors would be temporary and would dissipate rapidly from the source with an increase in distance. Therefore, the impacts would be short-term; would not be objectionable to a substantial number of people; and would be less than significant. All Project-related odors are construction related and short term in nature; no long-term operational odors would be created. As such, the proposed Project would have no impact in regards to objectionable odors.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that there are no known sources of odors in the Project area that will be released during construction.

4.3.3 MITIGATION MEASURES

There would be no significant adverse impacts related to air quality with compliance with RR AQ-1 and RR AQ-2; therefore, no mitigation measures are required.

4.4 <u>BIOLOGICAL RESOURCES</u>	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Vegetation mapping, general plant and wildlife surveys, habitat assessments for special status species, focused surveys, a tree report, and a jurisdictional delineation have been completed to determine the presence of biological resources that may be impacted by the Project. The findings of these studies are summarized below and the studies are provided in Appendix B.

4.4.1 EXISTING CONDITIONS

The Project site is located within Arroyo Seco Canyon on the southern front of the San Gabriel Mountains. This Canyon represents one of the largest in the area and drains a large portion of the Angeles National Forest north of the Project site. The Canyon has a north-south alignment with steep east and west facing slopes. Chaparral and coastal sage scrub/sumac scrub are the dominant vegetation types on these steep slopes, although there are pockets of coast-live oak woodlands on the east facing slopes. A perennial stream with pool and riffles meanders through the canyon bottom and supports a dense riparian woodland before exiting the Canyon and crossing alluvial flats towards the Devil's Gate Dam.

The survey area included four locations: Area 1 – Arroyo Seco Headworks; Area 2 – Arroyo Seco Intake; Area 3 – JPL East Parking Lot; and a Temporary Staging Site. These four locations are connected together by the Gabrielino Trail, which serves as a recreational trail, as well as a

vehicular access road to the Arroyo Seco Canyon for the City of Pasadena and the USFS. This area supports a variety of plant and wildlife species.

Twenty-two vegetation types and other areas (i.e., unvegetated areas) occur in the Project's study area and are depicted in the Vegetation Map included in Exhibits 4-1a, 4-1b, 4-1c, and 4-1d. Where one vegetation type overlaps another type of mapping unit (e.g., a tree canopy over water or roads), the area was mapped according to the uppermost canopy of vegetation. 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*.

Vegetation types within the project site disturbance limits include California buckwheat scrub, California buckwheat scrub/annual brome grasslands, California buckwheat scrub/laurel sumac scrub, coast-live oak woodland, California sagebrush scrub/laurel sumac scrub, California sagebrush scrub/California buckwheat scrub, disturbed, disturbed/annual brome grasslands, mule fat thickets, annual brome grasslands, coast live oak/California sycamore woodland, poison oak scrub, riparian herb, riparian herb/unvegetated wash, scrub oak chaparral, arroyo willow thickets, laurel sumac scrub, California sycamore woodland; white alder grove/California sycamore woodland, and arroyo willow thickets/mule fat thickets. Area 1 is dominated by arroyo willow thicket and white alder grove/California sycamore woodlands; Area 2 is dominated by white alder grove/California sycamore woodland, Area 3 is dominated by developed and disturbed/annual brome grasslands; and the temporary staging site is dominated by California sagebrush scrub/California buckwheat scrub. Vegetation on the project site primarily consists of native trees and plants (as indicated by the vegetation types above), though minimal amounts of non-native vegetation such as eupatory (*Ageratina adenophora*), giant reed (*Arundo donax*), cape ivy (*Delairea oderata*), and tree tobacco (*Nicotiana glauca*) were observed in the disturbed portions of Area 1.

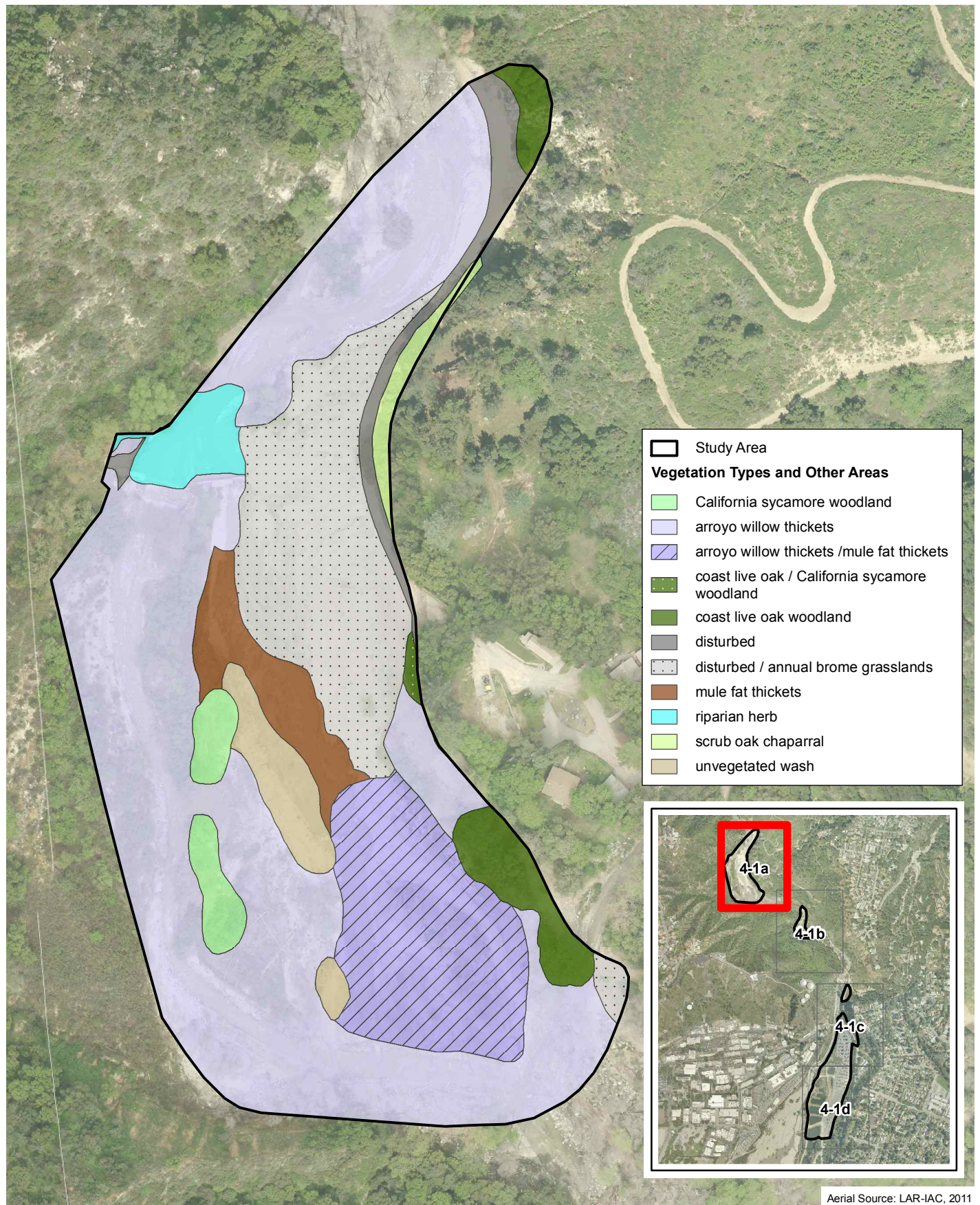
Wildlife

The native vegetation types discussed above combined with the presence of naturally occurring pooled and running water give the site potential to support many wildlife species. The following discussion is intended to provide a general description of wildlife species observed or expected to occur on the Project site.

Fish within the Project area are predominantly non-native mosquito fish (*Gambusia affinis*). One native fish, rainbow trout (*Oncorhynchus mykiss*) is known to occur in upstream and downstream pockets, although its genetic origin is unclear due to stocking which occurred for many years in the Arroyo Seco. One other native fish, arroyo chub (*Gila orcuttii*), was recently reintroduced within the Devil's Gate Dam area and may persist at that location. Although habitat is potentially suitable, with pooling and flowing water in portions of the site year-round, native species have largely been extirpated from the project area. Post-Project conditions are expected to enhance suitability for fish occupation as a result of removing structures and diversions in Area 1 and the new weir design will reduce potential fish mortality and increase potential for passage throughout the area when and where flows are sufficient.

Amphibians spend at least part of their life cycle in water. Amphibians are expected on the Project site due to the presence of water. Amphibians observed or expected to occur on the Project site include the coast range newt (*Taricha torosa torosa*), California chorus frog (*Pseudacris cadaverina*), Pacific chorus frog (*Pseudacris regilla*), and western toad (*Anaxyrus boreas*).

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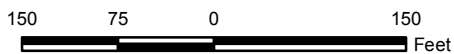


Aerial Source: LAR-IAC, 2011

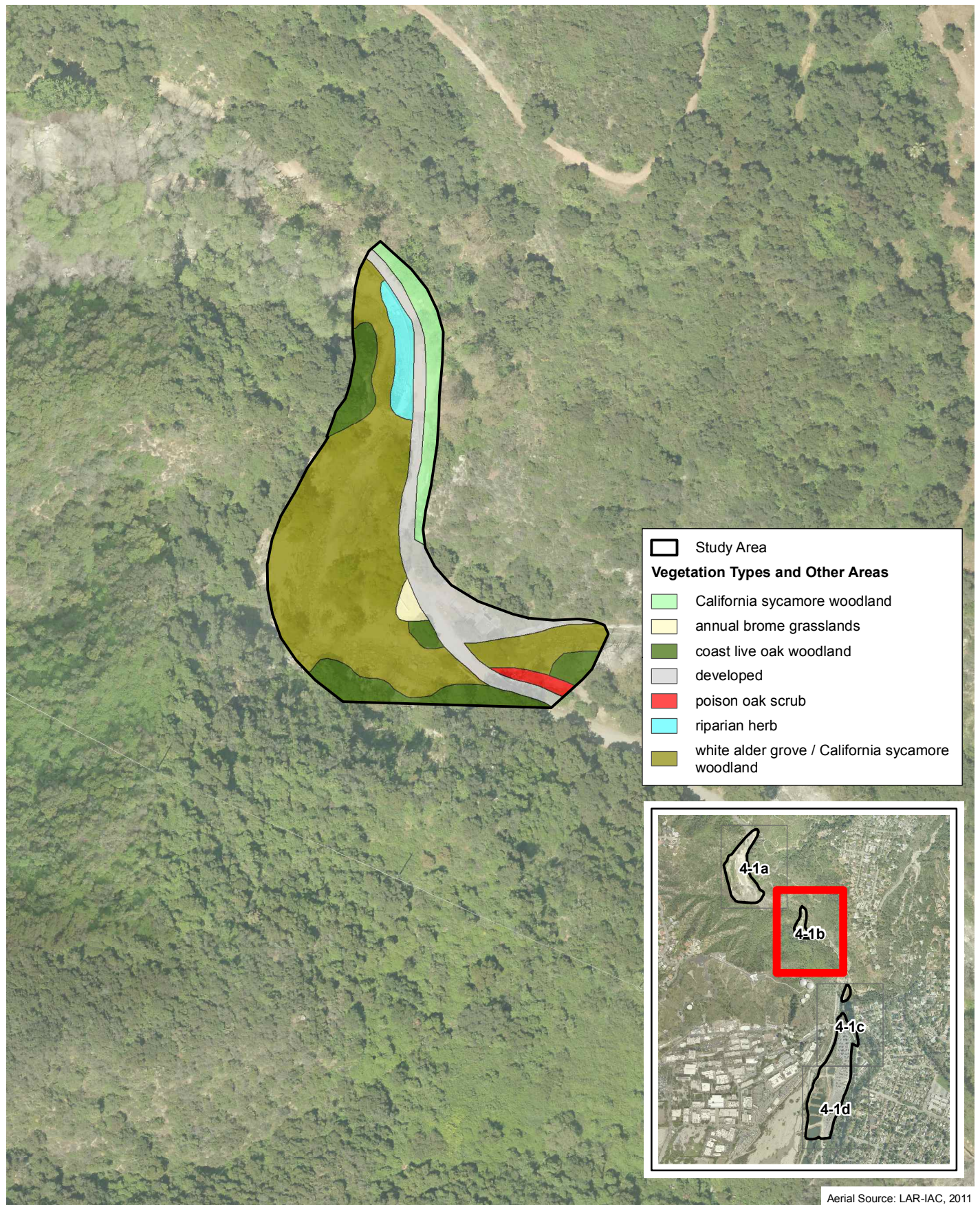
Area 1 Existing Vegetation

Exhibit 4-1a

Arroyo Seco Canyon Project



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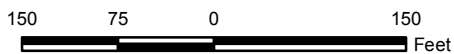


Aerial Source: LAR-IAC, 2011

Area 2 Existing Vegetation

Exhibit 4-1b

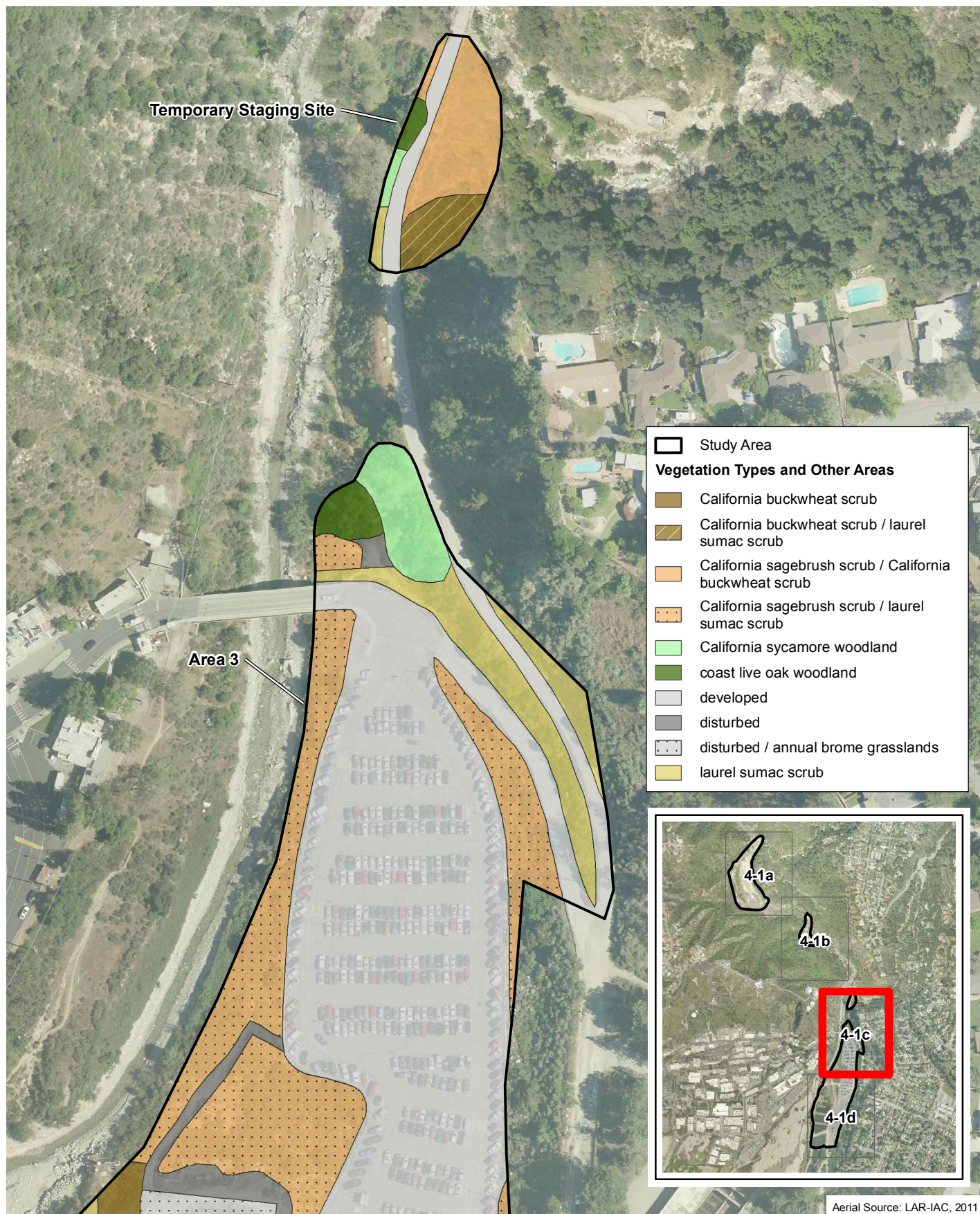
Arroyo Seco Canyon Project



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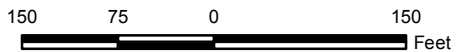
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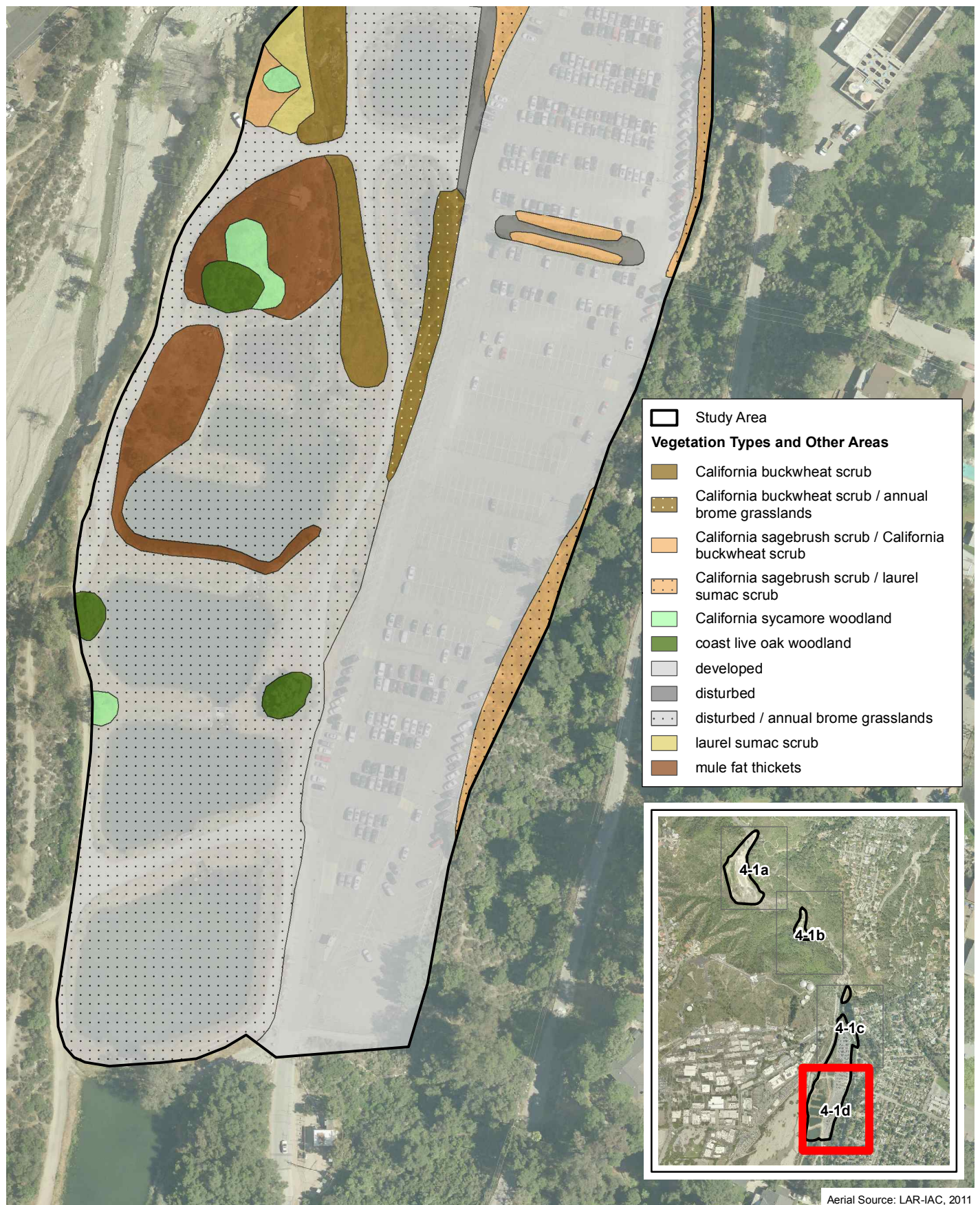
Area 3 Existing Vegetation

Exhibit 4-1c

Arroyo Seco Canyon Project



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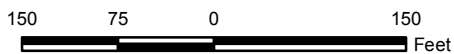


Aerial Source: LAR-IAC, 2011

Area 3 Existing Vegetation

Exhibit 4-1d

Arroyo Seco Canyon Project



Reptiles generally favor habitats with boulders, rocks, cobble and sand. These elements offer protection from predators and thermal insulation. The Project site contains these elements in the upland areas and the unvegetated portions of the stream. Reptiles observed or expected to occur on the Project site include western fence lizard (*Sceloporus occidentalis*), Western whiptail (*Cnemidophorus tigris*), side-blotched lizard (*Uta stansburiana*), gopher snake (*Pituophis catenifer*), and western rattlesnake (*Crotalus oreganus*).

The Project site contains and is contiguous with a large open space area. This association with a large open space area and a perennial source of water on the Project site is expected to draw a multitude of bird species (residents and migrants). Bird species that were observed or expected to occur on the Project site include residents such as the California quail (*Callipepla californica*), western screech-owl (*Megascops kennicottii*), great horned owl (*Bubo virginianus*), Anna's hummingbird (*Calypte anna*) acorn woodpecker (*Melanerpes formicivorus*), western scrub-jay (*Aphelocoma californica*), oak titmouse (*Baeolophus inornatus*), bushtit (*Psaltriparus minimus*), house wren (*Troglodytes aedon*), California towhee (*Melospiza crissalis*), lesser goldfinch (*Spinus psaltria*), and migrants such as black-chinned hummingbird (*Archilochus alexandri*), western wood-pewee (*Contopus sordidulus*), Pacific-slope flycatcher (*Empidonax difficilis*), cliff swallow (*Petrochelidon pyrrhonota*), black-throated gray warbler (*Setophaga nigrescens*), Wilson's warbler (*Cardellina pusilla*), white-crowned sparrow (*Zonotrichia leucophrys*), and Bullock's oriole (*Icterus bullockii*).

Mammals are also expected to utilize the Project site for the same reasons mentioned above. The Project site is expected to have a high abundance of small and large mammals. Mammals observed or expected to occur on the Project site include large mammals such as the mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), mountain lion (*Puma concolor*), American black bear (*Ursus americanus*), bobcat (*Lynx rufus*), small mesopredators such as striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and Virginia opossum (*Didelphis virginiana*); and small herbivores like the desert cottontail (*Sylvilagus auduboni*), California ground squirrel (*Otospermophilus beecheyi*), and Botta's pocket gopher (*Thomomys bottae*). A variety of bats are also expected to occur on the Project site including the California bat (*Myotis californicus*), hoary bat (*Lasiurus cinereus*), big brown bat (*Eptesicus fuscus*), and Brazilian free-tailed bat (*Tadarida brasiliensis*).

Special Status Resources

A number of special status resources have the potential to occur on the Project site. These include the least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), California red-legged frog (*Rana draytonii*), arroyo toad (*Bufo californicus*), special status plants, regulated trees, jurisdictional waters and their associated habitats, and nesting birds. Other special status species are known to occur or may potentially occur but are not expected to be impacted by the Project.

Least Bell's Vireo/Willow Flycatcher

The least Bell's vireo and willow flycatcher are Endangered species that have the potential to occur in the willow riparian woodlands along the Arroyo Seco drainage. Historically, the breeding habitat of the least Bell's vireo and southwestern willow flycatcher is primarily riparian dominated by willows with dense understory vegetation. The southwestern willow flycatcher differs from least Bell's vireo in that it shows a stronger dependency on willow thickets and surface water for all its requirements. According to findings by the U.S. Fish and Wildlife Service, the Project site is not located in designated critical habitat for the least Bell's vireo or southwestern willow flycatcher.

Protocol surveys for the least Bell's vireo and the southwestern willow flycatcher indicated that no breeding least Bell's vireos or southwestern willow flycatchers were present on or near the Project site. Also, no migrant least Bell's vireo or willow flycatchers were observed during the surveys. The survey report is provided in Attachment F of Appendix B.

California Red-Legged Frog

The California red-legged frog is an Endangered species that has the potential to occur in the open water of the Arroyo Creek that runs through the Project site. The California red-legged frog was a common native frog in parts of Los Angeles, San Bernardino, Orange, Riverside, and San Diego Counties. This frog historically occurred in the San Gabriel Wilderness Area of the ANF; until 1999, there were no post-1970 observations in this area or nearby parts of the ANF. In 1999, a population of California red-legged frogs was located on the ANF in the San Francisquito Drainage in the Santa Clarita area. Current population estimates suggest that there are between 15 and 25 adults. This population, however, is threatened by non-native predators, disease, and parasites. The nearest recorded population is located on the north side of the San Gabriel Mountains approximately 15 miles away from the Project site. The Project site is not located within designated critical habitat for this species.

Focused surveys for the California red-legged frog indicated that no red-legged frog was present on or near the Project site. The survey report is provided in Attachment E of Appendix B.

Arroyo Toad

The arroyo toad is a federally Endangered species that has the potential to occur in the open water of the Arroyo Seco stream that runs through the project site. The arroyo toad is found from northern San Luis Obispo County south to Baja California, with an elevational range that extends up to 1,950 meters. This species is found in semi-arid regions near washes or intermittent streams. Habitats used include valley-foothill and desert riparian as well as a variety of more arid habitats including desert wash, palm oasis, and Joshua tree, mixed chaparral, and sagebrush. Adults are active from March to July. Arroyo toads are found near rivers with sandy banks, willows, cottonwoods, and sycamores in valley-foothill areas, desert riparian habitats, and in loose gravelly areas of streams in drier portions of its range. The nearest recorded population is located near the center of the Angeles National Forest, over 12 miles away from the Project site.

Focused surveys for the arroyo toad indicated that no arroyo toad was present on or near the Project site. The survey report is provided in Attachment E of Appendix B.

Special Status Plants

Special status plants have the potential to occur in many of the Project site's activity areas. Various plants are considered to be special status by State and federal resource agencies, academic institutions, and various conservation groups. Determination of the sensitivity level is based on the Nature Conservancy Heritage Program Status Ranks, which ranks special status plants on a global and statewide basis according to the number and size of remaining occurrences and recognized threats.

Botanical surveys conducted in and near the Project site indicate that no special status plants were observed on site. Two special status plants listed on the California Rare Plant Rank (CRPR) Watch List (i.e. Southern California black walnut [*Juglans californica*] trees), were recorded near the site. One is adjacent to the Area 3 boundaries (slope to the east of the impact area) and the other is adjacent to the staging area. These two trees are not located within the Project's disturbance limits and would not be impacted by Project implementation.

The special status plant survey report is provided in Attachment C of Appendix B.

Jurisdictional Waters and Associated Habitats

Vegetation types found in the Project area may be subject to permit requirements, as regulated by the USACE, the CDFW, and the RWQCB pursuant to Section 404 of the Clean Water Act and Sections 1600 et seq. of the *California Fish and Game Code*. The USACE takes jurisdiction over areas considered “waters of the U.S.”, which can consist of wetland and non-wetland areas. Non-wetland jurisdictional waters (identified in the table below as open water and other non-wetland “waters of the U.S.”) are typically defined by the ordinary high water mark and other specific criteria. Wetlands, a subset of jurisdictional “waters of the U.S.”, are defined as those that possess the following three parameters: (1) hydrology that provides permanent or periodic inundation by groundwater or surface water; (2) hydric soils; and (3) hydrophytic vegetation. RWQCB jurisdictional limits equal those of the USACE, but can also include “isolated waters” that do not have a connection to a traditional navigable waterway. CDFW jurisdictional limits extend to the top of bank and generally exceed the USACE jurisdictional limits. CDFW jurisdictional areas also include riparian habitat supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. The limits of CDFW jurisdiction are often defined by riparian vegetation.

Table 4.4-1 shows the amount of jurisdictional resources that occur within Project study area. The jurisdictional report is provided in Attachment G of Appendix B.

**TABLE 4.4-1
JURISDICTIONAL RESOURCES FOR EACH PROJECT AREA**

	Jurisdictional Resources (acres)					
	USACE Jurisdiction			Isolated Waters	Total RWQCB Jurisdiction ^a	Total CDFW Jurisdiction
	Open Water	Other Non-Wetland “Waters of the U.S.”	Total			
Area 1	0.52	5.26	5.78	0.00	5.78	6.90
Area 2	0.17	0.40	0.57	0.00	0.57	1.32
Area 3	0.00	0.00	0.00	3.87	3.87	3.87
Total	0.69	5.66	6.35	3.87	10.22	12.09

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

^a RWQCB jurisdiction generally matches that of the USACE, but also includes “isolated waters”.

Source: BonTerra Psomas 2014a.

Nesting Birds

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 and raptors are also protected by Fish and Game Code. A variety of birds were observed during biological surveys and nesting birds have potential to occur in vegetation throughout the Project area.

Regulated Trees

Various trees are protected by the City of Pasadena's City Trees and Tree Protection Ordinance, as well as State resource agencies in conjunction with jurisdictional waters regulatory permits. Regulated trees have the potential to occur in many of the project site activity areas. Areas 1 and 2 occur within wooded riparian areas and support many native trees while Area 3 is less wooded and has lower potential for regulated trees. A total of 147 trees were documented within the survey area that met the minimum size requirement described in the City Trees and Tree Protection Ordinance and/or the *California Fish and Game Code*. Of the 147 trees included in this survey, 122 trees are "native" trees and 2 are categorized as "specimen" trees as described in the Ordinance (described above in Section 1.2). None of the trees in the survey area are "landmark" trees as described in the Ordinance. The native tree survey report is provided in Attachment D of Appendix B.

4.4.2 IMPACT ANALYSIS

Project Design Features

PDF BIO-1 Habitat restoration in Area 1 will utilize native plant species, in accordance with the Plant Palettes set forth in Appendix A of the Arroyo Seco Design Guidelines, which allow for substitutions with the concurrence of the Project's biologist/restoration specialist.

Regulatory Requirements

RR BIO-1 The City of Pasadena Department of Water and Power is required to obtain all necessary permits for impacts to "waters of the United States" and "waters of the State" from applicable resource agencies, including the United States Army Corps of Engineers (USACE), the Los Angeles Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW).

RR BIO-2 Tree pruning, removal, relocation, and replacement is required to be made in compliance with the City of Pasadena "City Trees and Tree Protection Ordinance" (Section 8.52 of the Pasadena Municipal Code), which requires that mature, public, landmark, landmark-eligible, native and specimen trees be protected and preserved. Work on protected trees must be approved by the City Manager or his/her designated personnel.

Impact Discussion

For the purposes of the impact discussions below, all Project impacts are categorized as being either permanent or temporary. Permanent impact areas are defined as changes to or removal of an existing vegetation type or "other areas," including disturbed or developed (e.g. paved areas) that are permanent as a result of Project implementation. Temporary access/impact areas are defined as areas that may be subject to traversing vehicles or other mobile equipment, staging of equipment, stockpiles of soil, and minor soil disturbance where there is no permanent alteration to the existing grade (e.g. no permanent holes, trenches, or berms), and no vegetation or tree removal is proposed.

- a) **Would the project have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?**

Less Than Significant With Mitigation.

Areas 1, 2 and 3 Impacts. The Project area provides potentially suitable habitat for the following seven federally and/or State Threatened and Endangered species: Braunton's milkvetch (*Astragalus brauntonii*), Nevin's barberry (*Mahonia nevinii*), San Fernando Valley spineflower (*Chorizanthe parryi* var. *Fernandina*), arroyo toad (*Anaxyrus californicus*), California red-legged frog (*Rana draytonii*), southwestern willow flycatcher (*Empidonax traillii extimus*), and least Bell's vireo (*Vireo bellii pusillus*). The results of the 2013 focused surveys were negative for all seven species; therefore, Project implementation is not expected to impact these species (BonTerra Psomas 2014c; BonTerra Consulting 2013a, 2013b). The southwestern willow flycatcher and least Bell's vireo are migratory bird species, however, that have the potential to occur in each spring/summer breeding season. Project activities occurring during future breeding seasons for these two bird species have the potential for impacts that would be considered potentially significant. Implementation of MM BIO-1 and MM BIO-2 would reduce this potential impact to less than significant because if these species are found during the pre-clearing sweep, work will temporarily be halted within 200 feet of the detected occupied habitat until the City can consult with the USFWS and CDFW and the City shall comply with any approvals and/or conditions imposed by these agencies.

The 2013 focused surveys identified two individuals of one special status plant species, Southern California black walnut (*Juglans californica* var. *californica*), in the Project area (BonTerra Psomas 2014c). The two Southern California black walnuts trees are located outside the impact areas for the Project; therefore Project implementation would not impact this species or any other special status plant. No mitigation is required.

The 2013 focused surveys and constraints analysis survey observed three additional non-listed special status wildlife species: coast range newt (*Taricha torosa torosa*), two-striped garter snake (*Thamnophis hammondi*), and yellow warbler (*Setophaga petechia*) (BonTerra Consulting 2013a, 2013b). All three species potentially occur within impact areas and may be adversely affected by Project implementation. The coast range newt and two-striped garter snake are aquatic species that may incur direct mortality of one or more individuals during the course of Project activities. However, due to the regional population size and distribution, and the relatively small number expected to be present at the Project site, these impacts are considered less than significant. Although not significant, implementation of the pre-clearing sweeps under MM BIO-1 would further reduce the potential for impacts to unlisted special status species.

Other special status species, such as the silvery legless lizard, may also occur in the Project area. Similar to the impacts on special status species described above, impacts are expected to be less than significant due to the limited extent and duration of disturbance and the relative regional population of this species. Potential impacts would be further reduced by the pre-construction sweeps conducted as part of MM BIO-1.

Project implementation would not be expected to result in the loss of individual yellow warblers; however, active nests of this species as well as all other native bird species are protected by the Migratory Bird Treaty Act (MBTA) and *California Fish and Game Code* and the loss of an active nest would be considered a potentially significant impact. Implementation of MM BIO-2, which requires pre-construction nesting bird surveys, and avoidance if applicable, would reduce this impact to a less than significant level.

Special status bat species, including silver-haired bat (*Lasiorycteris noctivagans*), western red bat (*Lasiurus blossevillii*), and hoary bat (*Lasiurus cinereus*), potentially occur in the study area and may roost on the Project site. Potential roost sites for these species include tree cavities and exfoliating bark. Project construction has the potential for impacts to these species as a result of mortality of one or more individuals during tree removal activities. Due to the regional population size and distribution of these species, these impacts are considered less than significant. However, MM BIO-3, which requires a bat habitat assessment and a two-step tree removal process, will further minimize impacts on these species and ensure less than significant impacts.

Reduced Stream Flows

Project objectives include restoring the diversion capacity to its pre storm-damage level, as well as increasing diversions to capture an additional 1,100 acre-feet annually. As a result, Project flows downstream from the diversion point in Area 2 will be reduced to some degree relative to both current and historic conditions.

As described above, the Arroyo Seco stream continues downstream from the diversion as a mountainous boulder and riffle system shaded by a mixed riparian woodland canopy. Adjacent uplands are undeveloped and vegetated with native scrub and chaparral plant communities with dense oak woodlands on north- and northeast-facing slopes. Millard Canyon converges with the Arroyo Seco in this area, bringing additional flow throughout most of the year. Continuing downstream, the drainage exits the mouth of the canyon near the northern edge of Area 3. From this point moving south, the drainage changes dramatically as the creek flows across alluvial deposits with limited vegetation until reaching a large (0.25 mile by 0.40 mile) riparian woodland that occupies the occasionally flooded alluvial deposits in the reservoir behind Devil's Gate Dam in Hahamongna Watershed Park. The stream meanders through the willow woodland, creating braided channels that frequently shift as sediments fill the active channels. Large flood flows occasionally result in impounded water and filling of the reservoir. This occasional flooding is likely to be the primary source allowing for the large riparian woodland in the reservoir area. Low flows during most of the year persist on the surface for short distances beyond the canyon mouth before infiltrating the alluvium and flowing underground.

Plant and wildlife resources between the diversion point and the canyon mouth are expected to be very similar to those described for Areas 1 and 2. Due to the abundance of native vegetation, undeveloped lands, and riparian resources, the area is generally rich in native wildlife species diversity and abundance. A large portion of these species is likely to be dependent specifically on the stream and riparian habitat as a core resource. Exiting the canyon and crossing approximately 0.75 mile of mostly unvegetated sandy wash, plant and wildlife diversity is expected to drop off substantially as the area is suitable for fewer species and lower numbers of individuals. Reaching the riparian woodland of the reservoir, the species richness and population size is expected to increase substantially. Although the mostly developed surrounding area limits access of many species to only the more ubiquitous of the suburban setting, bird species are likely to be highly diverse as such a large riparian woodland area is rare in the region.

Continuing further downstream beyond Devil's Gate Dam, the Arroyo Seco stream flows through an urban landscape and is channelized for nearly the entire length to the Los Angeles River flood-control channel. Due to the lack of riparian habitat and difficulty of access, the lower Arroyo Seco is not expected to support riparian-dependent communities and is likely to be occupied by common wildlife in suburban environments in the region.

Based on a review of USGS gauging station data upstream of the Project site, City of Pasadena diversion records, and the Project Conceptual Design Report (Carollo 2013), diversion amounts have been highly variable through the years. Many factors appear to contribute to this variability,

such as available stream flows, season of availability, recharge basin saturation, flow volume, water rights thresholds, and others. As a result, consistent patterns in diversion are difficult to glean from the data. Adding to the complexity is the Station Fire sediment flows in late fall and winter of 2009, which damaged the diversion structure and altered the diversion regime due to the loss of design capacity. As a result, no water was diverted for many consecutive months in 2010. In general, diversions are highest, if available, from late fall through winter and into early spring. This corresponds with what is typically Southern California's wet season and highest stream flows. Due to the higher flows, the diversions represent a smaller percentage of the total stream flow compared with other times of the year. Conversely, stream flows taper off in early spring through summer and early fall. Although the diversion quantities appear to be generally lower at this time of the year, they represent a greater portion of the stream total. The average diversion is approximately 50 acre-feet per month for this period, which results in the diversion of 100 percent of stream flows in most months historically and rarely goes below 70 percent.

The post-Project diversions are expected to be similar in variation and complexity of factors involved in water management. The new diversion structure would allow for diverting up to 25 cfs (same as existing conditions). At the start of the rainy season, larger storm events have resulted in water that was too turbid and City staff avoided diverting stream flow to minimize transporting fine sediment into the spreading basins. Typically these stream flows were greater than the City's surface water rights of 25 cfs. When the water became less turbid, it was diverted and historically averaged 2,532 acre-feet per year (Table 2.2, Carollo 2013).

With the proposed improvements, post-Project diversions are estimated to result in an average increase of 17 percent under average year hydrologic conditions. Over a 10-year hydrologic period, the Project is estimated to divert on average an additional 1,100 acre-feet per year, which would reduce flows below the diversion point to some extent. It is assumed that the diversions would occur in a manner consistent with past diversions but with a greater amount of water diverted when available. Given that the late spring through early winter often resulted in high diversion percentages of the total stream flow, including many 100 percent diversions, it is probable that additional diversion would be experienced to a greater extent within the late Fall through mid-Spring months when greater flows are available. However, major storm flows exceeding 25 cfs would only allow up to 25 cfs of diversion with the Project, where major flows were historically passed through without diversion during the rainy season (Carollo 2013).

The effect of these reduced flows on biological communities downstream is difficult to measure. Reduced flows in general can cause shorter distances of available surface water; shorter duration of pooling; reduced extent of moist soils moving away from the streambed; and reduced stream velocities resulting in reduced sediment transport. These and other effects may impact species and vegetation communities dependent on such resources and processes.

Based on the Project's increased future diversions, reduced flows are expected as described. Although the damaged diversion structure has limited diversion in recent years, diversions have occurred historically prior to 1914 and it is expected that resources downstream have adapted to the flow regime with these diversions. However, the effects of a 17 percent increase in diversions above historical practice are uncertain. Given the uncertainty in the Project's level of effect, the impact on biological resources, including vegetation types and special status species potentially occurring, is considered potentially significant. Implementation of MM BIO-6, which requires monitoring the Arroyo Seco stream and associated riparian habitat from the intake structure (i.e. diversion point) downstream to Devil's Gate Dam and subsequent compensatory mitigation or corrective action to avoid or reduce any identified downstream impacts of the Project, would reduce this impact to a level considered less than significant.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potentially significant impacts to sensitive plant species, riparian habitats, wetlands, and the arroyo southwestern toad. The Master EIR included mitigation measures to reduce significant impacts related to sensitive biological resources. Measure Biological-1 requires surveys to be conducted to determine the presence of sensitive plant species. (BonTerra Psomas 2014c). Also, directed surveys of the Arroyo toad (Measure Biological-3) have been implemented and the Arroyo toad was not observed and is not expected to be present in the areas proposed for disturbance (BonTerra Consulting 2013a). Measure Biological-4 requires surveys for the Nevin’s barberry in the Central Arroyo Seco and is not applicable to the Project.

- b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?**

Less Than Significant With Mitigation.

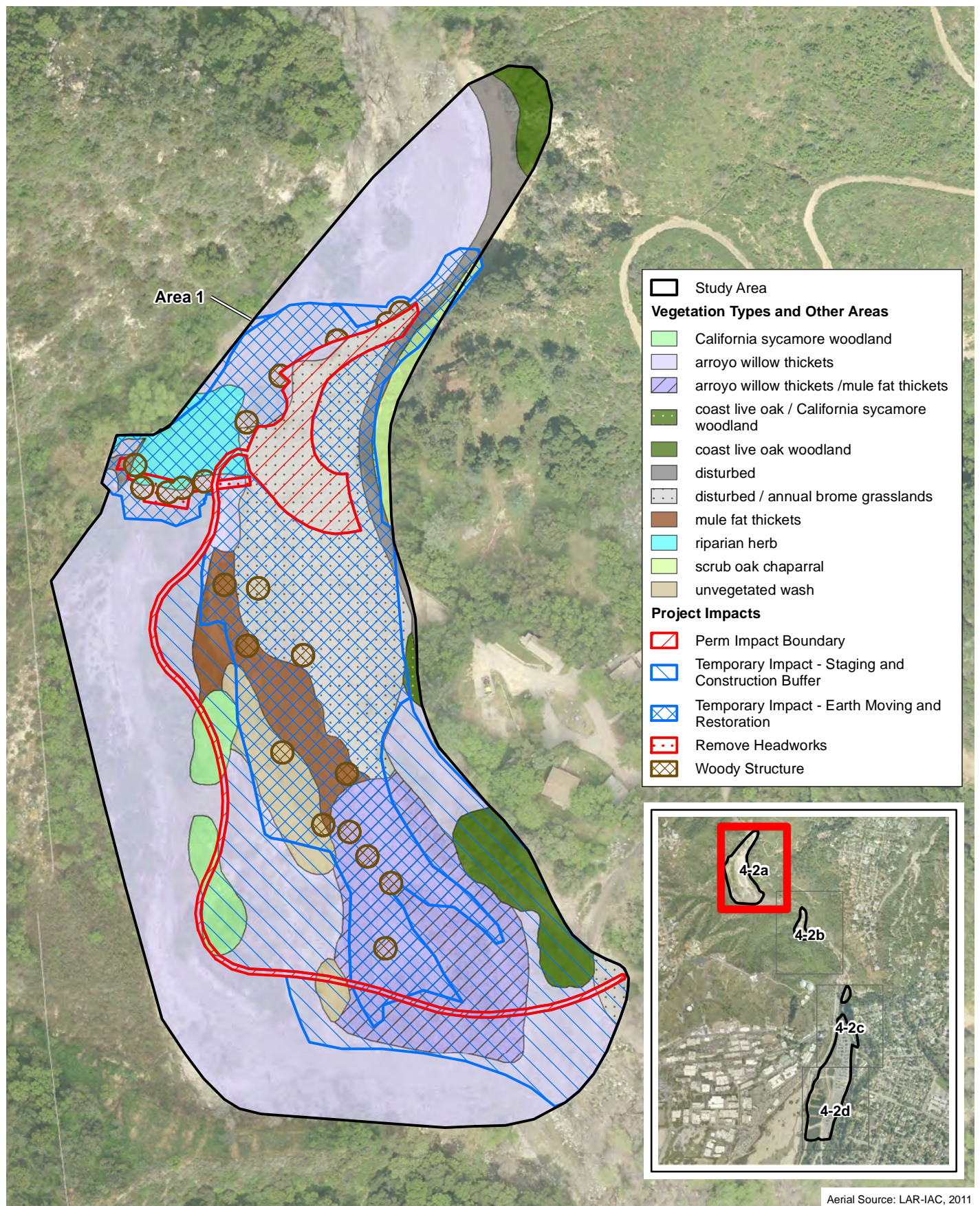
Areas 1, 2 and 3 Impacts. Project implementation would result in a total impact of 24.95 acres (permanent impact of 18.17 acres and temporary impact of 6.77 acres) of riparian habitat, as summarized in Table 4.4-2 below and shown in Exhibits 4-2a, 4-2b, 4-2c, and 4-2d. Riparian and other special status vegetation types are italicized in Table 4.4-2 and are discussed below.

**TABLE 4.4-2
VEGETATION IMPACTS (ACRES)**

Vegetation Type	Not Impacted	Impacted		Total Area
		Temp	Perm	
<i>California sagebrush scrub / California buckwheat scrub</i>	0.01	0.28	0.13	0.43
California sagebrush scrub / laurel sumac scrub	0.59	0.20	0.94	1.73
<i>California buckwheat scrub</i>	0.01	0.00	0.39	0.40
California buckwheat scrub / laurel sumac scrub	0.00	0.12	0.00	0.12
<i>California buckwheat scrub / annual brome grasslands</i>		0.00	0.18	0.18
laurel sumac scrub	0.42	0.03	0.11	0.56
scrub oak chaparral	0.07	0.04	0.00	0.12
<i>California sycamore woodland</i>	0.38	0.19	0.16	0.73
<i>white alder grove / California sycamore woodland</i>	0.97	0.11	0.08	1.17
<i>coast live oak / California sycamore woodland</i>	0.02	0.00	0.00	0.02
<i>mule fat thickets</i>		0.39	0.76	1.15
<i>arroyo willow thickets</i>	2.97	1.60	0.13	4.69
<i>arroyo willow thickets/mule fat thickets</i>		1.18	0.03	1.21
<i>riparian herb</i>	0.04	0.25	0.02	0.31
<i>coast live oak woodland</i>	0.41	0.29	0.20	0.90
poison oak scrub	0.03	0.00	0.00	0.03
annual brome grasslands	0.01	0.01	0.00	0.02
disturbed / annual brome grasslands	0.02	1.13	6.41	7.56
unvegetated wash		0.31	0.00	0.31
disturbed	0.19	0.14	0.32	0.65
developed	0.75	0.48	8.32	9.55
Total	6.89	6.77	18.17	31.83

Notes: ***Italicized and bold text*** indicates special status vegetation types.
Source: BonTerra Psomas 2014d.

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Study Area

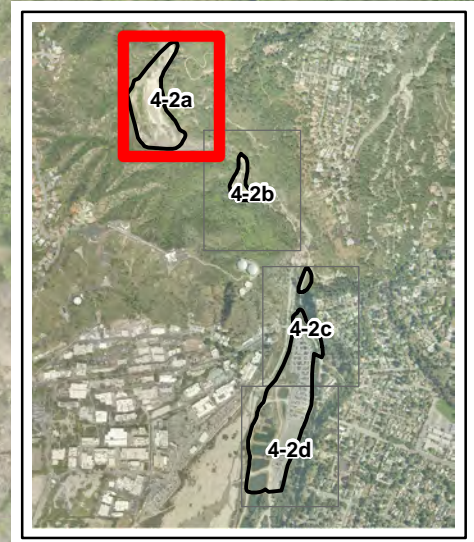
- Study Area

Vegetation Types and Other Areas

- California sycamore woodland
- arroyo willow thickets
- arroyo willow thickets /mule fat thickets
- coast live oak / California sycamore woodland
- coast live oak woodland
- disturbed
- disturbed / annual brome grasslands
- mule fat thickets
- riparian herb
- scrub oak chaparral
- unvegetated wash

Project Impacts

- Perm Impact Boundary
- Temporary Impact - Staging and Construction Buffer
- Temporary Impact - Earth Moving and Restoration
- Remove Headworks
- Woody Structure

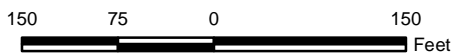


Aerial Source: LAR-IAC, 2011

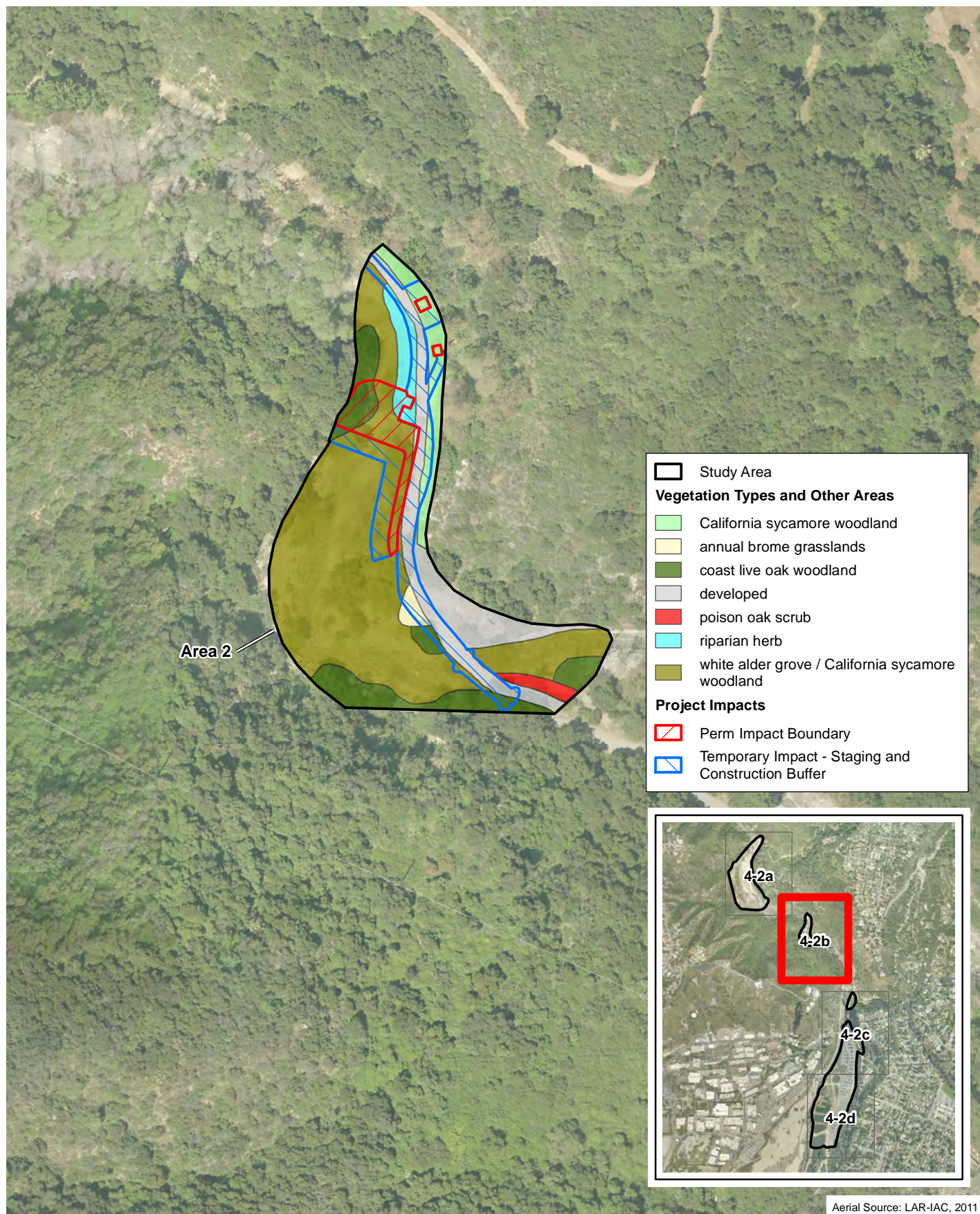
Vegetation Impacts

Arroyo Seco Canyon Project

Exhibit 4-2a



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Vegetation Impacts

Arroyo Seco Canyon Project

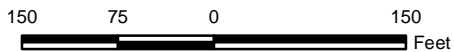


Exhibit 4-2b













Temporary Staging Site




Area 3

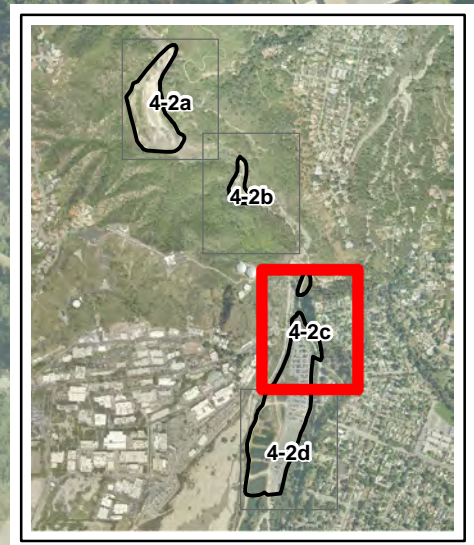
Study Area

Vegetation Types and Other Areas

-  California buckwheat scrub
-  California buckwheat scrub / laurel sumac scrub
-  California sagebrush scrub / California buckwheat scrub
-  California sagebrush scrub / laurel sumac scrub
-  California sycamore woodland
-  coast live oak woodland
-  developed
-  disturbed
-  disturbed / annual brome grasslands
-  laurel sumac scrub

Project Impacts

-  Perm Impact Boundary
-  Temporary Impact - Staging and Construction Buffer
-  Spreading Basins

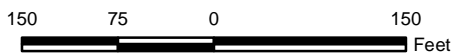


Aerial Source: LAR-IAC, 2011

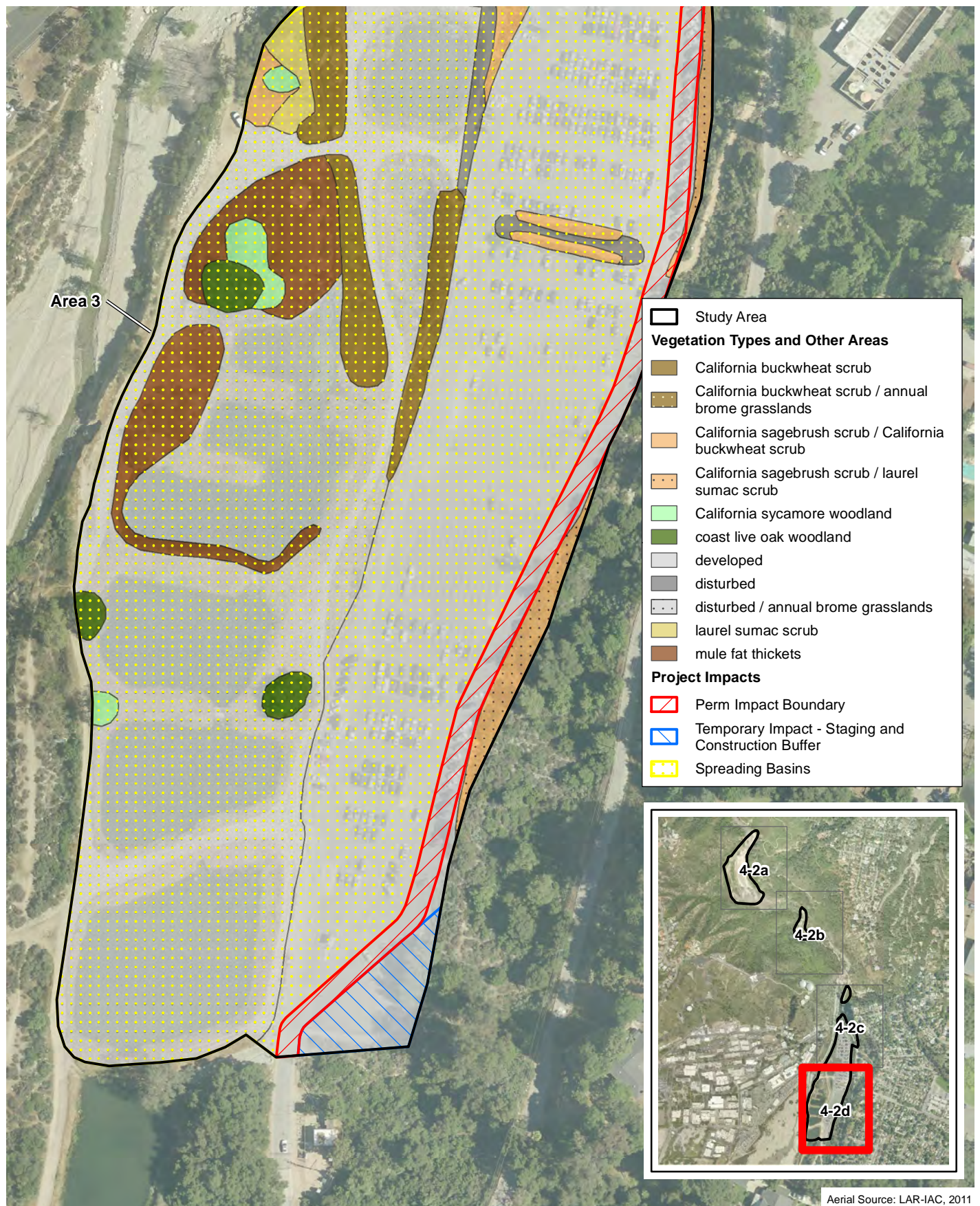
Vegetation Impacts

Arroyo Seco Canyon Project

Exhibit 4-2c



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Vegetation Impacts

Arroyo Seco Canyon Project

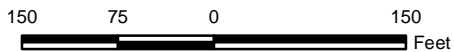


Exhibit 4-2d



The proposed Project would affect 6.37 acres (4.30 acres temporary; 2.07 acres permanent) of sensitive natural communities (or vegetation types) consisting of arroyo willow thickets, arroyo willow thickets/mule fat thickets, California sycamore woodland, coast live oak woodland, and white alder grove/California sycamore woodland. These vegetation types have been significantly reduced in acreage and are threatened by additional loss. Impacts on these vegetation types are considered potentially significant because of their high biological value. Impacts on these vegetation types would be reduced to less than significant levels with implementation of MM BIO-4, which requires restoration or replacement of sensitive natural communities.

Additionally, riparian vegetation may potentially be regulated as components of the streambed and riparian areas which are regulated by California Department of Fish and Wildlife (CDFW) per the *California Fish and Game Code* (§§1600–1616). Impacts to vegetation types in this regard are addressed under Threshold 4.3(c) below, which deals with impacts to federally protected wetlands.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potentially significant impacts to riparian habitats: southern willow scrub and mule fat scrub. Proposed restoration projects would mitigate impacts to southern sycamore riparian woodland and streambed riparian plant communities and would be beneficial to wildlife for food and shelter. The Master EIR included Measure Biological-2 to prevent significant impacts associated with the loss of wetlands and riparian habitats. As discussed above, a Jurisdictional Delineation has been completed to identify riparian habitats and wetlands that would be affected by the Project. Permits would be obtained from resource agencies and compensatory mitigation provided, as required under MM BIO-5, which is similar to Measure Biological-2.

- c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?**

Less Than Significant With Mitigation.

Areas 1, 2 and 3 Impacts. Approximately 6.35 acres of non-wetland “waters of the U.S.”, 10.22 acres of RWQCB jurisdictional “waters of the State”, and 12.09 acres of CDFW jurisdictional waters exist on the Project site. As summarized in Table 4.4-3, the proposed Project would permanently impact a total of 0.48 acre of non-wetland “waters of the U.S.”, (of which 0.02 acre is open water) as well as 0.60 acre of CDFW jurisdiction. In addition, the proposed Project would impact 3.87 acres of spreading basins that are considered “isolated waters”, which are under the jurisdiction of the RWQCB but not the USACE.

Approximately 3.67 acres of non-wetland “waters of the U.S.” would be temporarily impacted during construction activities associated with the removal of the Headworks structure, streambed restoration activities, and replacement of the diversion weir and inlet structure. Approximately 7.54 acres of RWQCB “waters of the State” and 7.88 acres of CDFW jurisdictional waters will be similarly impacted on a temporary basis during construction. Table 4.4-3 shows the amount of temporary and permanent impacts to jurisdictional resources that would occur with Project implementation.

**TABLE 4.4-3
JURISDICTIONAL RESOURCES IMPACTED FOR EACH PROJECT
IMPROVEMENT**

	Jurisdictional Resources					
	USACE Jurisdiction			Isolated Waters	Total RWQCB Jurisdiction ^a	Total CDFW Jurisdiction
	Open Water	Other Non-Wetland "Waters of the U.S."	Total			
Existing Jurisdictional Resources (acres)						
Area 1	0.52	5.26	5.78	0.00	5.78	6.90
Area 2	0.17	0.40	0.57	0.00	0.57	1.32
Area 3	0.00	0.00	0.00	3.87	3.87	3.87
Total	0.69	5.66	6.35	3.87	10.22	12.09
Permanent Impacts (acres)						
Removal of headworks structure (Area 1)	-	0.02	0.02 ^b	-	0.02 ^b	0.02 ^b
Bank stabilization for picnic area (Area 1)	-	0.04	0.04	-	0.04	0.11
Trail construction (Area 1)	-	0.15	0.15 ^b	-	0.15 ^b	0.16
Placement of woody structures (Area 1)	-	0.20	0.20 ^b	-	0.20 ^b	0.20 ^b
Construction of new diversion weir/inlet structure (Area 2)	0.02	0.05	0.07	-	0.07	0.08
Construction of rip-rap bank stabilization (Area 2)	-	-	-	-	-	0.03
Total Permanent Impacts	0.02	0.46	0.48	0.00	0.48	0.60
Temporary Impacts (acres)						
Streambed restoration (Area 1)	-	1.52	1.52	-	1.52	1.52
Construction buffer for headworks removal, streambed restoration, bank stabilization (Area 1)	0.07	2.05	2.12	-	2.12	2.40
Place sand bags for streambed diversion (Areas 1 and 2)	0.01	-	0.01	-	0.01	0.01
Construction buffer for new diversion weir/inlet structure and bank stabilization (Area 2)	0.01	0.01	0.02	-	0.02	0.08
Expansion of Spreading Basins (Area 3)	-	-	-	3.87	3.87	3.87
Total Temporary Impacts	0.09	3.58	3.67	3.87	7.54	7.88
USACE: U.S. Army Corps of Engineers; RWQCB: Regional Water Quality Control Board; CDFW: California Department of Fish and Wildlife.						
^a RWQCB jurisdiction generally matches that of the USACE, but also includes "isolated waters".						
^b These impacts should not result in a loss of ecological/hydrological functioning of the streambed and should not require compensatory mitigation.						
Source: BonTerra Psomas 2014a						

It is worthwhile to note that three of the proposed activities (removal of the Headworks structure, placement of woody structures, and trail construction) are considered permanent impacts but are self-mitigating aspects of the Project. This is because the jurisdictional areas will benefit from these proposed activities and compensatory mitigation is not required. The establishment of an at-grade pedestrian trail within Area 1 also does not require compensatory mitigation because it is not expected to affect the ecological or hydrological functioning of the area. Similarly, the temporary impact areas will be restored to their original condition at the conclusion of the Project and will not require compensatory mitigation.

Therefore, the permanent impacts to “waters of the U.S.” that will negatively affect these resources is confined to the bank stabilization for the establishment of the picnic area in Area 1 and the construction of a new diversion weir and inlet structure in Area 2. These permanent impacts total 0.11 acre of USACE/RWQCB jurisdiction.

Aspects of the Project that will permanently impact CDFW jurisdiction and will require compensatory mitigation include the picnic area bank stabilization in Area 1 and the diversion weir/inlet structure and roadway/stream embankment construction in Area 2. Additionally, the proposed trail in Area 1 will be maintained free of vegetation on an ongoing basis. Therefore, this is considered to be a permanent impact on the riparian vegetation in the area. In all, a total of 0.38 acre of impacts to CDFW jurisdiction will likely require mitigation.

Compliance with RR BIO-1 requires obtaining the necessary permits for impacts to jurisdictional resources. Implementation of MM BIO-5—which requires obtaining regulatory permits from agencies, including a Section 404 Permit from the USACE, a Section 401 Permit from the Los Angeles RWQCB, and a Section 1600 Streambed Alteration Agreement from the CDFW and complying with the permits requirements for mitigating for the loss of jurisdictional resources—would reduce impacts to wetlands to less than significant levels.

As part of the Project, the PWP proposes to create an additional low-flow channel and restore riparian habitat in Area 1. As described in Section 3.1.1, this aspect of the Project will restore approximately 0.98 acre of riparian habitat and is expected to fully mitigate Project impacts to jurisdictional waters.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potentially significant impacts to wetlands. The Master EIR included Measure Biological-2 to prevent significant impacts associated with the loss of wetlands and riparian habitats. As discussed above, permits would be obtained from resource agencies and compensatory mitigation provided, as required under MM BIO-5, which is similar to Measure Biological-2.

- d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

Less Than Significant Impact.

Areas 1, 2 and 3 Impacts. The Project site is located just south of the southern edge of the Angeles National Forest. Development is located to the east, west, and south. Therefore wildlife is expected to move relatively freely between the Project site and open space areas to the north, but are not expected to move regularly into the developed areas west, east, or south of the Project site (with the exception of urban-tolerant species such as coyotes and striped skunks). For species that travel along riparian corridors, development to the south (JPL campus, Devil’s Gate Dam, and the I-210) is a barrier to movement between the Upper Arroyo Seco and the Lower

Arroyo Seco. As a result, the Project site is not expected to serve as a regional corridor link between regional open space areas. It is expected, however, to support a relatively large amount of the local wildlife movement due to the existing topography, including the presence of a perennial creek.

Arroyo Seco Canyon is naturally very steep sided and restricts many species to traveling either up the canyon bottom or along the ridgelines. Local movement on the Project site is expected to include wildlife species with low mobility (e.g., amphibians, reptiles) and those with high mobility (e.g., birds, large mammals). Project implementation may affect movement of these wildlife species differently. The more mobile species would be expected to move through upland areas or along the periphery of the Project site through habitats not impacted by Project activities. Most mammalian wildlife movement occurs at night when construction would not be active; therefore, these species would still be expected to use the Gabrielino Trail for movement at night, and they would still be able to use the ridgelines that would not be affected by the Project. Species with lower mobility may be adversely affected by Project implementation. These impacts, however, are expected to be short-term and not significant. Therefore, no mitigation would be required. Furthermore, Project implementation will restore native riparian habitat in the upstream portion of the Project area (PDF BIO-1), which is expected to have a beneficial effect on wildlife by creating an increase in native vegetation cover and habitats. Therefore, any adverse impacts on local wildlife movement would be further reduced by this PDF. Impacts on wildlife movement are considered less than significant and no mitigation is required.

In addition, the new diversion weir would be operated such that the pool level at the intake would be at a constant level of approximately 4 ft in depth, except during flooding conditions. This higher pool level would provide cover and refuge areas for existing fish populations and for potential re-established native fish populations. The deeper pool would also reduce water temperatures and increase the diversity of food supply. The upper end of the pool may also create a modest increase in spawning habitat as the stream changes from high gradient to low gradient over a short reach. The new weir design would also allow for a more gradual change in stream depth, which would be less harmful to fish when water is available.

The existing intake is protected by a trash rack that withstands approach velocities of approximately 2.1 ft/sec and has openings of approximately 2 inches. This current arrangement does little to protect fish. The improved intake would have an approach velocity of 1.4 ft/sec and fine screens with openings of 3/32-inches. In addition, the new screen consists of two screens – an outer and inner whereby the inner is smaller openings to avoid smaller fishes from becoming trapped. This proposed arrangement is expected to reduce the potential for fish to enter the intake. Additionally, the new intake is designed to be easily cleaned, which prevents regions of high velocity on portions of the intake associated with debris build-up. Lastly, the removal of the headworks in Area 1 would eliminate an impediment to fish movement and would re-establish the feasibility of fish passage through this area. As a result, project effects on fish species are expected to be potentially beneficial and no mitigation would be required.

The federal 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 and raptors have the potential to occur in vegetation throughout the Project area. Besides the MBTA, Sections 3503 and 3503.5 of the *California Fish and Game Code* protect nesting migratory birds and raptors. As described by MM BIO-2—surveys for nesting birds—vegetation removal should be planned during the non-breeding season if possible. If vegetation removal would occur during the breeding season, a pre-construction nesting bird/raptor survey would be required prior to clearing to ensure compliance with the MBTA, in compliance with MM BIO-2.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan indicated that improvements proposed in the HWP would not impact the movement of native migratory fish and wildlife species and no significant impacts to known migratory wildlife corridors would occur. As discussed, Project impacts on wildlife movement would also be less than significant.

- e) **Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

Less Than Significant Impact.

Areas 1, 2 and 3 Impacts. A tree survey was conducted to identify trees within the project area that are potentially regulated by the City of Pasadena's City Trees and Tree Protection Ordinance (Chapter 8.52 of the Pasadena Municipal Code). Of the 147 trees included in this survey, 122 trees are "native" trees and 2 are categorized as "specimen" trees as described in the Ordinance (described above in Section 1.2). None of the trees in the survey area are "landmark" trees as described in the Ordinance. Of these 124 trees covered by the City Ordinance, a total of 17 are expected to be removed in order to construct the project. These consist of 13 white alders, 1 coast live oak, and 3 arroyo willows.

Of the 147 trees documented within the Project's study area, a total of 102 meet the requirements for protection by the CDFW. A total of 16 of these trees are expected to be removed to construct the project. These include 13 white alders and 3 arroyo willows.

In all, a total of 17 trees are expected to be removed. Of these 17 trees that are proposed for removal, 16 of them meet the requirements for protection under both the City Tree Ordinance and the *Fish and Game Code*. One coast live oak occurs in the middle of the parking lot in Area 3 that qualifies for protection under the City Tree Ordinance but not the *Fish and Game Code*. A summary of trees included in the survey that are regulated by the City Tree Ordinance and the *Fish and Game Code* is provided in Tables 4.4-4 and 4.4-5. The quantity of trees within each survey area is shown with the number of expected removals represented in parentheses.

**TABLE 4.4-4
TREES WITHIN SURVEY AREA REGULATED UNDER PASADENA
TREE ORDINANCE**

Species	Quantity of Trees (Expected Removals)				
	Area 1	Area 2	Area 3	Temp Staging Area	Total
Native Trees					
<i>Alnus rhombifolia</i> white alder	5 (5)	30 (8)	-	5 (0)	40 (13)
<i>Juglans californica</i> southern California black walnut	-	-	1 (0)	-	1 (0)
<i>Platanus racemosa</i> western sycamore	18 (0)	5 (0)	6 (0)	3 (0)	32 (0)
<i>Populus trichocarpa</i> black cottonwood	6 (0)	-	-	-	6 (0)
<i>Quercus agrifolia</i> coast live oak	16 (0)	3 (0)	8 (1)	4 (0)	31 (1)
<i>Quercus berberidifolia</i> scrub oak	1 (0)	-	-	-	1 (0)
<i>Quercus chrysolepis</i> canyon live oak	-	1 (0)	-	-	1 (0)
<i>Salix lasiolepis</i> arroyo willow	8 (3)	1 (0)	-	-	9 (3)
<i>Umbellularia californica</i> California bay laurel	-	-	-	1 (0)	1 (0)
Specimen Trees					
<i>Pinus sp.</i> pine	2 (0)	-	-	-	2 (0)
Total	56 (8)	40 (8)	15 (1)	13 (0)	124 (17)
Source: BonTerra Psomas 2014a.					

**TABLE 4.4-5
TREES WITHIN SURVEY AREA REGULATED BY CDFW**

Species	Quantity of Trees (Expected Removals)				
	Area 1	Area 2	Area 3	Temp Staging Area	Total
<i>Alnus rhombifolia</i> white alder	5 (5)	37 (8)	-	5 (0)	47 (13)
<i>Platanus racemosa</i> western sycamore	19 (0)	5 (0)	1 (0)	3 (0)	28 (0)
<i>Populus trichocarpa</i> black cottonwood	2 (0)	-	-	-	2 (0)
<i>Quercus agrifolia</i> coast live oak	8 (0)	2 (0)	1 (0)	-	11 (0)
<i>Quercus chrysolepis</i> canyon live oak	-	1 (0)	-	-	1 (0)
<i>Salix gooddingii</i> black willow	1 (0)	-	-	-	1 (0)
<i>Salix lasiolepis</i> arroyo willow	10 (3)	1 (0)	-	-	11 (3)
<i>Umbellularia californica</i> California bay laurel	-	-	-	1 (0)	1 (0)
Total	45 (8)	46 (8)	2 (0)	9 (0)	102 (16)

Source: BonTerra Psomas 2014a.

As a result of Project construction, it is anticipated that a total of 17 trees would be removed. All of these trees are regulated by the City Tree Ordinance and 16 are regulated under Section 1602 of the *California Fish and Game Code*. It is possible that construction activity may be able to avoid a portion of these trees, thus lowering the overall impacts. However, because the removal of these trees is a clear possibility, they should be included in all tree removal permits that are acquired. If project construction is able to avoid some of these trees, project approvals and regulatory permits could later be amended and the overall mitigation/replacement requirements would be reduced accordingly.

According to guidelines adopted by the City of Pasadena in January 2010 (Pasadena 2010), tree replacement ratios are determined based on the size of the tree to be removed (i.e., larger trees require a higher replacement ratio). However use of larger sized replacement trees will, in turn, reduce the required number of replacement trees.

Removal of public trees require review and advice by the Urban Forestry Advisory Committee. Compliance with RR BIO-2 requires tree pruning, removal, relocation, and replacement to be made in compliance with the City of Pasadena “City Trees and Tree Protection Ordinance” (Section 8.52 of the Pasadena Municipal Code), which requires that mature, public, landmark, landmark-eligible, native and specimen trees be protected and preserved. Work on protected trees must be approved by the City Manager or his/her designated personnel.

A total of 13 trees were documented in the vicinity of the temporary staging site though none are located within the boundaries of that area. Because none of these trees are located within the boundaries of the temporary staging site, no impacts to these trees are anticipated. Additionally, there are several trees that appear to be located within or immediately adjacent to impact areas that are not included in the impact assessment. Such trees include those located adjacent to features whose footprint that can be adjusted shortly before and during construction in order to

avoid these trees. Impacts to trees that are not considered in accordance with RR BIO-2 and/or CDFW permit requirements, would be significant. In order to protect trees that are not anticipated to be impacted, MM BIO-7 requires that protective fencing be erected outside of the outer canopy of any tree whose root zone may be indirectly affected by construction activities, including soil stockpiles or equipment storage. Additionally, during Project construction, a biological monitor will be periodically present to record the number of trees actually impacted. If project construction can avoid impacting oak trees, the number of replacement trees will be reduced accordingly. Compliance with MM BIO-7, which requires tree protection during construction, would ensure that impacts to trees would be less than significant.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan indicated that projects that incorporate tree replacements are considered to be mitigated below the threshold of significance. The Project would comply with the City Trees and Tree Protection Ordinance, as RR BIO-2.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact.

Areas 1, 2 and 3 Impacts. There is no adopted Habitat Conservation Plan (HCP); Natural Community Conservation Plan (NCCP); or other approved local, regional, or State habitat conservation plan in the City of Pasadena.

There are two NCCPs in Los Angeles County. The Palos Verdes Peninsula NCCP covers 8,661 acres and provides a reserve system of 1,428 acres at the southwestern end of the County (nearly 30 miles southwest of Area 3) (CDFW 2013b). The West Mojave Plan covers 9.3 million acres of the western portion of the Mojave Desert, which includes the Antelope Valley area of Los Angeles County (northeastern section of Los Angeles County and nearly 20 miles northeast of Area 1) (BLM 2012). There are several HCPs in Los Angeles County but the HCP that is located nearest the HWP is the Newhall HCP along the Santa Clara River, west of I-5 (San Marino Environmental Associates 2004). Area 1 is located over 30 miles southeast of the Newhall HCP area.

The Project would not affect these conservation plans. Therefore, the Project would not conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or State habitat conservation plan. No impact would occur and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that the Arroyo Seco Master Plan would not conflict with any habitat conservation plan, natural community conservation plan, or other local or regional habitat conservation plan; that the HWP is not included in any habitat conservation plan; and the HWP is not located in a designated sensitive ecological area.

4.4.3 MITIGATION MEASURES

MM BIO-1 A Biological Monitor shall be on site during vegetation clearing activities in Project work areas (i.e., areas of disturbance). Prior to the start of activities, the Biological Monitor shall confirm that the limits of Project work areas are clearly marked. In addition, the Biological Monitor shall conduct a pre-clearing sweep of the Project work area and shall flush and/or move common and unlisted special status wildlife to nearby suitable habitat outside the Project work area to the extent practicable.

The Biological Monitor shall also be familiar with least Bell's vireo and shall conduct pre-clearing non-protocol surveys for this species while onsite. If a least Bell's vireo or other State of federally listed species is detected, work activity within 200 feet of the detected occupied habitat will be temporarily halted and the City will consult with the USFWS and CDFW. With authorization from these agencies, which may include a 'take' permit, the project will proceed in accordance with conditions developed in the consultation. Conditions will include avoidance and minimization measures to prevent or minimize impacts on the listed species(s) occurring on or adjacent to the site.

MM BIO-2 Project construction shall be conducted in compliance with the conditions set forth in the Migratory Bird Treaty Act (MBTA) and *California Fish and Game Code* with methods approved by the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) to protect active bird/raptor nests. To the maximum extent feasible, vegetation removal shall occur during the non-breeding season for nesting birds (generally late September to early March) and nesting raptors (generally early July to late January) to avoid impacts to nesting birds and raptors. If the Project requires that work be initiated during the breeding season for nesting birds (March 1–September 30) and nesting raptors (February 1–June 30), in order to avoid direct impacts on active nests, a pre-construction survey shall be conducted by a qualified Biologist for nesting birds and/or raptors within 3 days prior to clearing of any vegetation and/or any work near existing structures (i.e., within 300 feet for nesting birds and within 500 feet for nesting raptors). If the Biologist does not find any active nests within or immediately adjacent to the impact areas, the vegetation clearing/construction work shall be allowed to proceed.

If the Biologist finds an active nest within or immediately adjacent to the construction area and determines that the nest may be impacted or breeding activities substantially disrupted, the Biologist shall delineate an appropriate buffer zone around the nest depending on the sensitivity of the species and the nature of the construction activity. Any nest found during survey efforts shall be mapped on the construction plans. The active nest shall be protected until nesting activity has ended. To protect any nest site, the following restrictions to construction activities shall be required until nests are no longer active, as determined by a qualified Biologist: (1) clearing limits shall be established within a buffer around any occupied nest (the buffer shall be 100–300 feet for nesting birds and 300–500 feet for nesting raptors), unless otherwise determined by a qualified Biologist and (2) access and surveying shall be restricted within the buffer of any occupied nest, unless otherwise determined by a qualified Biologist. Encroachment into the buffer area around a known nest shall only be allowed if the Biologist determines that the proposed activity would not disturb the nest occupants. Construction can proceed when the qualified Biologist has determined that fledglings have left the nest or the nest has failed.

MM BIO-3 A Biological Monitor shall conduct a pre-construction bat habitat assessment of the trees marked for potential removal. Potential for roosting shall be categorized by 1) potential for solitary roost sites 2) potential for colonial roost sites (10 bats or more). If the potential for colonial roosting is determined, those trees shall not be removed during the bat maternity roost season (March 1 – July 31). Trees potentially supporting colonial roosts outside of maternity roost season, and trees potentially supporting solitary roosts may be removed via a two-step removal process, whereby some level of disturbance (such as trimming of lower branches)

(at the direction of the Biological Monitor) is applied to the tree on day one to allow bats to escape during the darker hours, and the roost tree shall be removed the following day (i.e., there shall be no less or more than one night between initial disturbance and the grading or tree removal).

MM BIO-4

Prior to habitat disturbing activities of any Project component, a detailed restoration program shall be developed and implemented for any special status vegetation type identified within the Project disturbance limits that is removed. These special status vegetation types shall be restored within the project disturbance limits at a ratio of not less than 1:1, or as agreed to by the City of Pasadena in consultation with the CDFW. If the 1:1 ratio cannot be achieved within the project disturbance limits, then the balance shall be achieved by identifying additional areas for restoration or conservation within the Arroyo Seco or adjacent watersheds. Restoration shall consist of seeding and container plantings of appropriate species. A Restoration Program shall be submitted to the City of Pasadena for review by a qualified Biologist and approval by the resource agencies (USACE, RWQCB, CDFW) prior to issuance of grading permits. The Restoration Program shall include, at a minimum, the following elements:

- a. Responsibilities and qualifications of the personnel to implement and supervise the plan.** The responsibilities of the landowner, specialists, and maintenance personnel that will supervise and implement the plan shall be specified.
- b. Site selection.** The site(s) for mitigation shall be determined in coordination with the City of Pasadena and the resource agencies. Restoration required outside the Project disturbance limits shall be located in dedicated open space areas (i.e. preserved in perpetuity as open space) and shall be contiguous with other natural open space areas.
- c. Site preparation and planting implementation.** The site preparation shall include (1) protection of existing native species; (2) trash and invasive non-natives removal; (3) native species salvage and reuse (i.e., duff); (4) soil treatments (i.e., imprinting, decompacting); (5) erosion-control measures (i.e., rice or willow wattles); and (6) native seed mix application and plantings.
- d. Schedule.** Establishment of restoration/revegetation sites shall be conducted between October 1 and January 30. Seeding and planting of container plants shall take place immediately after preparation of the restoration sites.
- e. Maintenance plan/guidelines.** The maintenance plan shall include (1) invasive non-natives control, (2) herbivory control, (3) trash removal, (4) irrigation system maintenance, (5) maintenance training, and (6) replacement seeding and/or planting.
- f. Monitoring Plan.** The monitoring plan shall include (1) site preparation and implementation activities; (2) performance criteria as approved by the City of Pasadena and resource agencies; (3) long-term monitoring requirements and methods to determine compliance with performance criteria; (4) goals and methods of site maintenance (e.g., weed removal, erosion control); (5) preparation of regular progress reports to document site progress; and (6) preparation of annual reports which shall be submitted to the City of Pasadena and resources agencies for three to five years. The monitoring shall be conducted for three to five years, depending upon the performance standard requirements for the vegetation type at the mitigation site.

- g. Long-term preservation.** Long-term preservation of the restoration site shall be outlined in the conceptual mitigation plan to ensure the mitigation site is not impacted by future development.
- h. Performance standards will be identified and will apply for each special status vegetation type.** Revegetation shall be considered successful at three years if the percent cover and species diversity of the restored and/or created habitat areas are similar to percent cover and species diversity of adjacent existing habitats, as determined by quantitative testing of existing, restored, and created habitat areas.

In addition, earth-moving equipment shall avoid maneuvering in areas outside the construction limits in order to avoid disturbing adjacent habitats. Prior to grading, the construction limits shall be identified on the grading plan and established at the Project site with appropriate staking and flagging materials. The Contractor shall submit a letter to the City of Pasadena verifying that the construction limits have been staked and flagged at the Project site.

MM BIO-5 Mitigation for the loss of jurisdictional resources shall be negotiated with the resource agencies during the regulatory permitting process (see RR BIO-1) and shall ensure that mitigation to compensate for permanent impacts on jurisdictional resources is equivalent or superior to biological functions and values impacted by the Project. Potential mitigation options may include: (1) removal of exotic species from the Arroyo Seco Canyon or Hahamongna Watershed Park; (2) payment to a mitigation bank or regional riparian enhancement program (e.g., invasive plant or wildlife species removal); and/or (3) restoration of riparian habitat either on site or off site at a ratio of no less than 1:1, determined through consultation with the USACE, the RWQCB, and the CDFW. The restoration plan shall detail the methodology and performance standards, which shall be prepared in accordance with requirements specified in permits/agreements issued by the USACE, the RWQCB, and the CDFW.

MM BIO-6 A team of qualified specialists in hydrology and plant and wildlife biology will monitor the Arroyo Seco stream and associated riparian habitat from the intake structure (i.e. diversion point) downstream to Devil's Gate Dam. The extent of the riparian habitat will be defined based on field observations during the initial site visit. Monitoring will begin with an initial baseline assessment to be conducted within six months prior to start of increased diversions. Thereafter, monitoring shall continue quarterly for a duration of five years. Data will be gathered at fixed points along the stream, and general descriptive notes and photos will be taken of the entire stretch. Data will include surface flow measurements; surface water extent mapping; vegetation mapping; a vegetation health assessment; active channel location mapping; and a plant and wildlife habitat suitability assessment. Data from four quarterly visits will be compiled in an annual report. Annual reports will also include U.S. Geological Survey (USGS) stream gauge data from the Arroyo Seco (upstream of the Project site) and City of Pasadena data on diversion amounts within the year. These reports will consider all potential contributing factors, including precipitation and hydrologic conditions, flows from other managed tributaries, as well as potential maintenance and sediment removal activities behind the Devil's Gate Dam, and focus the reports on that which is attributable to the Project to the maximum extent feasible. Annual reports will conclude with an assessment on the effects of increased diversion and will provide recommendations for corrective actions, if deemed necessary to avoid or reduce

downstream impacts attributable to the Project. Reports will be submitted to the City of Pasadena for review and approval of recommended corrective measures, if any.

Alternatively, if the City chooses not to take corrective measures, the City may mitigate for any loss of vegetation at a minimum 1:1 replacement ratio. The City shall only be required to mitigate for those impacts attributable to the City's increased diversions. Replacement vegetation shall be in kind; shall be equal to or greater than biological value prior to diversion; and shall be located within the Arroyo Seco watershed. Vegetation replacement shall mitigate for plant and wildlife impacts of the impacted community. Re-vegetated riparian communities within Area 1 established as part of the Project may potentially qualify towards credit for reduced flow impacts, if credit is available.

MM BIO-7 Prior to commencement of construction activities, trees not expected to be impacted by construction shall be enclosed by barriers such as chain-link fencing or orange snow fencing. At a minimum, the barriers will be placed at the outer canopy of each tree to be protected in place, and no grade changes will be made within the barriers without prior approval by the City. During Project construction, a biological monitor will be periodically present to record the number of trees actually impacted. If project construction can avoid impacting oak trees, the number of replacement trees will be reduced accordingly.

4.5	<u>CULTURAL RESOURCES</u>	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:					
a)	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d)	Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

A Phase I Cultural Resources Assessment was prepared for the Project, which is summarized below and provided in its entirety in Appendix C.

4.5.1 EXISTING CONDITIONS

Prehistory

At the time of Spanish contact, the Arroyo Seco Canyon area is believed to have been inhabited by the Gabrielino, or *Tongva*. The name “Gabrielino” identifies those people who came under the control of Mission San Gabriel Arcángel and included the inhabitants of most of current-day Los Angeles and Orange counties and portions of Riverside and San Bernardino counties. McCawley reports that the Arroyo Seco was known to the Gabrielino as *M'kat*. The name means “rocky or something like that”. According to McCawley, no people lived in Pasadena during late Prehistoric times, as the area was prairie (BonTerra Psomas 2014b).

History

Over 20 years before a group of settlers met at Reservoir Hill near the Arroyo Seco to create the Pasadena colony north of the Los Angeles settlement, gold miners had searched the headwaters of that seasonal creek in the San Gabriel Mountains. In 1853, gold was found in the placer diggings of miners exploring the Arroyo Seco Canyon, and quartz mines in the San Gabriel Mountains continued to be mined up to 1883.

El Prieto Canyon, which feeds into the Arroyo Seco Canyon in Section 32 of Township 2 North, Range 12 West, had originally been known as Negro Canyon or Negro Creek, so named after an African-American freeman by the name of Robert Owen, who sold firewood harvested off the hillsides of the lands held by the U.S. Government in the 1850s and 1860s to residents of the Los Angeles settlement.

Millard Canyon had originally been known by the Mexican residents of the area as Blanco Canyon because of the geology of the canyon walls in some places. Millard, whose first name is unknown, established a homesite at the mouth of the canyon in 1862. He was an illegal squatter on the land in Section 5 of Township 1 North, Range 12 West, who is said to have made his income by raising bees and hauling wood to Los Angeles. Millard lived in the canyon until 1872 when he moved to the Downey settlement after his wife and a child died.

In the 1880s, the U.S. Government opened up a limited amount of land in Sections 31 and 32 of Township 2 North, Range 12 West of the San Gabriel Mountain foothills for private ownership. John Hartwell, Eugene and Clara Giddings, and Jason and Owen Brown all received patents for acreage in Section 32 wherein lay Fern Canyon, El Prieto Canyon, and Millard Canyon, from 1883 to 1891. The eastern half of the southeast quarter of Section 31 was owned primarily by Will D. and Mary L. Gould, a lawyer and his wife from Los Angeles.

The Giddings settled into a residence at the mouth of Millard Canyon and reported to local historian Hiram Reid, that they would find evidence of pre-historic peoples in the canyon when they worked the land with plows and hoes. The Giddings had constructed a wagon toll-road up to the falls on Millard Creek, creating a destination for persons seeking out-of-doors entertainment by hiking and picnicking. Owen and Jason Brown, descendants of the Kansas abolitionist John Brown, constructed a homestead in a canyon named after them located just south of El Prieto Canyon in 1886.

The most ambitious operation on the Arroyo Seco in the San Gabriel Mountains was that of C. Perry Switzer. The "Commodore", as he was known, built a tourist-resort camp far into the mountains that was accessible from a trail that followed the Arroyo Seco. An improved road ran up the canyon from Millard Creek to a halfway house, and then the remaining six miles to Switzer's Camp would be reached by riding burros.

The location of Commodore Switzer's camp is still accessible on the Gabrielino Trail. Some of the cabins were destroyed in a fire in the late 1890s, and the great flood of 1938 removed over a mile of the road that connected the camp to the Angeles Crest Highway. The owner of the camp in the 1950s was not able to keep the camp operating, and the site fell into ruins. The USFS removed the stone chapel that had been designed by the architect Arthur Benton due to its deteriorating condition.

The Altadena topographic map of the area in 1924 shows that a large number of buildings, most probably small, recreational cabins, were situated along the Arroyo road north of where Millard Creek joins the Arroyo Seco. By 1939, there were still scattered buildings situated along the Arroyo Road to Oak Wilde, where the road connected by dirt road with the Angeles Crest Highway. With the completion of the Angeles Crest Highway in 1956, the Arroyo Boulevard (Highway) became obsolete and fell into disrepair.

Archaeological Resources

A cultural resources survey was conducted by Patrick O. Maxon, M.A., RPA and Mark A. Roeder on May 1, 2013, and completed by Mr. Maxon alone on November 21, 2013. The survey did not identify any archaeological resources on the Project site. While it is likely that native populations used the Arroyo Seco Canyon area in prehistoric times; previous disturbance of the ground surface and the creek's dynamic, fluvial environment have resulted in much of the area being disturbed. Any archaeological resources that may have been present have likely been washed away or buried by alluvial processes.

Eighteen cultural resources studies have been conducted within a one-mile radius of the Project site, with two of the studies including a portion of the Project site. These studies did not identify any resources on the Project site. However, eight previously recorded resources are located within one mile of the Project site. Table 4.5-1 lists these known cultural resources.

**TABLE 4.5-1
CULTURAL RESOURCES WITHIN
ONE MILE OF THE PROJECT SITE**

Site Number	Recorder (Year)	Comment
19-342	Cowper (1965)	Cogstone and millingstones
19-2189	McKenna (1993)	Jet Propulsion Laboratory
19-3086	Romani (2002)	Teddy's Outpost Picnic Area
19-3090	McIntyre (1998)	Lower Sam Merrill Trail
19-186870	Schmidt and Schmidt (2003)	Southern California Edison Eagle Rock-Laguna Bell Transmission Line Corridor
19-189942	McKenna (2012)	Hahamongna Watershed Park
19-150023	Stone (1992)	Arroyo Seco Ranger Station No. 1
19-150024	Stone (1992)	Arroyo Seco Ranger Station No. 2
Source: BonTerra Psomas 2014b.		

Paleontological Resources

The Project area is underlain by several geological rock units with varying paleontological sensitivity. Quartz Diorite (qd), found in the eastern edge of Area 1 and between Areas 2 and 3, has no potential to yield paleontological resources. Leucocratic Granitic Rocks (gr) that are present west of Area 1 and west and east of Area 2 have no potential to yield paleontological resources. Quaternary Older Alluvium Fan Deposits (Qoa) east of Area 1 and south of Area 2 have moderate potential to yield paleontological resources. Quaternary Older Alluvial Fan Sediments (Qof) east of Area 3 have low potential to yield paleontological resources. Quaternary Stream Deposits (Qg) in the stream course of the Arroyo Seco in Areas 1 and 2 and found in Area 3 have low potential to yield paleontological resources.

Native American Sacred Lands File Review

On March 20, 2013, an inquiry was made of the Native American Heritage Commission (NAHC) in Sacramento to request a review of the Sacred Lands File database regarding the possibility of Native American cultural resources and/or sacred places in the Project vicinity that are not documented on other databases. The NAHC responded on March 21, 2013, with its Sacred Lands File Search and contacts list of Native American groups and individuals who may have knowledge regarding Native American cultural resources not formally listed on any database. Each of these groups and individuals were mailed an informational letter March 21, 2013, describing the Project and requesting any information regarding resources that may exist on or near the Project site.

One response has been received to date. Robert Dorame, Tribal Chair/Cultural Resources for the Gabrielino Tongva Indians of California Tribal Council, replied via email that (1) several Indian villages were present along the Arroyo Seco in 1769, when Spanish occupation of California began; (2) the Sheldon Reservoir site, located south of Devil's Gate Dam on the east side of Arroyo Seco, contained 53 sets of human remains associated with a prehistoric village site; (3) the ethnohistoric village of *Hahamongna* is located one mile due north of JPL; and (4) Mr. Dorame's grandmother and great-grandmother lived in the San Pasqual Rancho beginning in the late 19th Century. The Rancho is located adjacent to the site (BonTerra Psomas 2014b).

Historical Resources

There are no structures on the Project site that are currently listed, individually or collectively, in either the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). In assessing the historical significance of built-environment structures located in Areas 1, 2, and 3, as evaluated in the Historic Resources Assessment Report prepared by Daly & Associates (see Appendix C), federal, State, and local significance criteria were applied.

The PWP had water rights to the Arroyo Seco prior to 1914. Water diversion and control structures (e.g., the Headworks, water diversion structure, intake system, debris basins) began to be constructed in the canyon in 1914. Bridges No. 1 and 2 appear to date from the 1920s when Arroyo Boulevard was paved for use as a county highway, while Bridge No. 3 was constructed in 1939 by the Civilian Conservation Corps (CCC) to replace an earlier bridge destroyed in the flood of 1938. Over the years, floods and other high water events have caused permanent damage to water diversion structures in the canyon, and some were replaced as needed. Resources in and near the Project site include:

Area 1. The configuration of the Headworks in Area 1 has been in use for many years. The fact that this headwork has been manually operated for over 50 years points to its design longevity and ease of operation. The headworks facility is not a significant engineering or technological structure.

Area 2. Due to the extensive damage suffered by the diversion dam and intake system, the water diversion and control structures in Area 2 have lost their physical integrity of design, workmanship, and materials. Water diversion systems such as these have been in use for many years and usually do not present significant engineering or technological innovation.

Bridge No. 3. This bridge was constructed in 1939 by the CCC Company 903 assigned to the USFS, a team from the local CCC that had been working on various projects in the Arroyo Seco Canyon and San Gabriel Mountains since 1933. Besides this bridge, the Arroyo Seco through this section and south to Bridge No. 2 is lined with river rock masonry walls, which were most probably constructed by the CCC at the same time as Bridge No 3. Bridge No. 3 was designed using one of the oldest truss-bridge forms; is constructed of wood timbers; and was constructed by a group that is associated with events that made a significant contribution to the history of the United States and California. Bridge No. 3 appears to be a property that meets the criterion to be listed in the NRHP and in the CRHR.

Bridge No. 2. This bridge is situated on the Gabrielino Trail/Arroyo Boulevard, between Areas 2 and 3. This reinforced, poured-concrete arch bridge may have been constructed in the 1920s when Arroyo Boulevard was paved for use as a county highway. It has distinctive decorative elements (e.g., the urn-shaped cast concrete balustrade railings, bas-relief panels below the balusters on the stream sides of the bridge, and the arched support structure) that would not be found on a utility road for service vehicles. The bridge appears to have been constructed to provide a formal entrance to the Upper Arroyo Seco Forest and Arroyo Boulevard. Stone masonry walls that line the east side of the creek at Bridge No. 3 continue downstream and are present at Bridge No. 2. Bridge No. 2 appears to be a property that meets the criterion to be listed as a historical resource in the CRHR and in the City of Pasadena as a landmark.

Bridge No. 1. This bridge is situated on the Gabrielino Trail/Arroyo Boulevard, between Areas 2 and 3. Bridge No. 1 was constructed in 1939 to carry Arroyo Boulevard over the runoff from Millard Canyon Creek, before the creek intersects with the Arroyo Seco creek. The bridge slab was replaced in 1979 with a similar reinforced concrete span. Bridge No. 1 does not appear eligible for listing in the NRHP, CRHR, or as a City of Pasadena landmark.

Area 3. The sludge and spreading basins, water diversion structures, and water conduits situated in Area 3 were all designed using common engineering techniques for moving, diverting, and controlling water. In an effort to protect lives and property and to capture runoff from the western slopes of the San Gabriel Mountains, many water diversion structures are located not only in the Upper Arroyo Seco, but throughout the canyons in Los Angeles County. The spreading basins, sludge basins, and water diversion structures in Area 3 are not significant engineering or technically innovative structures.

4.5.2 IMPACT ANALYSIS

Project Design Features

PDF CUL-1 A temporary bridge will be constructed over Bridge No. 3 prior to the start of construction activities in Areas 1 and 2. The temporary bridge will be used for all construction vehicles and equipment and will be removed after construction activities are completed.

Regulatory Requirements

RR CUL-1 If human remains are encountered during excavation activities, all work is required to halt in the immediate vicinity of the discovery and the County Coroner must be notified (*California Public Resources Code* §5097.98). The Coroner is required to determine whether the remains are of forensic interest. If the Coroner, with the aid of an Archaeologist, determines that the remains are prehistoric, s/he is required to contact the Native American Heritage Commission (NAHC). The NAHC is responsible for designating the most likely descendant (MLD), who is responsible for the ultimate disposition of the remains, as required by Section 7050.5 of the *California Health and Safety Code*. The MLD is required to make his/her recommendation within 48 hours of being granted access to the site. The MLD's recommendation is required to be followed if feasible, and may include scientific removal and non-destructive analysis of the human remains and any items associated with Native American burials (*California Health and Safety Code* §7050.5). If the landowner rejects the MLD's recommendations, the landowner is required to rebury the remains with appropriate dignity on the property in a location that will not be subject to further subsurface disturbance (*California Public Resources Code* §5097.98).

Impact Discussion

a) **Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?**

Less Than Significant Impact with Mitigation.

Areas 1, 2, and 3 Impacts. There are no historic resources in the Areas 1 or 3 that will be substantially changed as a result of the Project. Bridge No. 3 is situated within the boundary of Area 2, and Bridge No. 2 is located on the Gabrielino Trail (Arroyo Boulevard) between Areas 2 and 3. Project construction vehicles would cross/utilize Bridge No. 2 and have the potential to damage the structure and result in substantial changes/alterations of historic character-defining features that are components of Bridge No. 2. Additionally, the proposed Project has the potential to substantially change/alter a historic resource with the construction of a temporary bridge to

protect Bridge No. 3 and its associated features such as concrete abutments, railings, and stone walls.

PDF CUL-1 proposes a temporary bridge over Bridge No. 3 for use during construction. This will avoid use of the existing bridge and prevent damage from construction vehicles, equipment, and haul trucks. However, construction of the temporary bridge may affect the concrete abutments, railings, and stone walls. The design and construction (and eventual removal) of the temporary bridge will need to be prepared in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (MM CUL-1) so that the character defining features of any affected portions of the bridge remain intact after construction.

In addition, potential damage to the baluster railing of Bridge No. 2 could occur from construction equipment and trucks passing on the bridge. Each baluster railing, from the bridge deck to the top of the railing, will be protected by solid plywood panels secured without damaging the balusters or railing (MM CUL-2). The design and construction of the protective barriers will be prepared in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (MM CUL-2). Accordingly, the railings would not be adversely affected by construction traffic.

Impacts on historical resources would be less than significant after implementation of MM CUL-1 and MM CUL-2.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potential impacts to historic resources and their settings and included mitigation measures to reduce significant impacts to historical resources. Measure Cultural-6 for impacts to Devil's Gate Dam, Measure Cultural-7 for impacts to features in the Central Arroyo Seco, and Measure Cultural-8 for impacts to the casting pond in the Lower Arroyo Seco are not applicable to the Project.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less Than Significant Impact with Mitigation.

Areas 1, 2, and 3 Impacts. Several cultural resources have been recorded near the Project site. Teddy's Outpost picnic area (LAN-3086) is located just north of the Headworks near Area 1. Buildings 1015 and 1016 of the Arroyo Seco Ranger Station (19-150023 and 19-150024) are located just east of Area 1. JPL (LAN-2189) is located west of the Arroyo Seco and Area 3. The Hahamongna Watershed Park (19-189942) lies south of JPL and north of the I-210 Freeway on both sides of the Arroyo Seco. Area 3 is located within this park. A significant prehistoric site (LAN-342) was recorded at Millard Canyon, in the neighborhood north and east of the site, but was likely destroyed by development. No disturbance is proposed by the Project at these recorded resources.

It is likely that native populations used the Arroyo Seco Canyon area in prehistoric times. However, the dynamic, fluvial nature of the creek and surrounding floodplain have likely washed away archaeological resources or buried them by alluvial and colluvial processes. Previous disturbance during construction activities of existing facilities (e.g., Headworks, diversion and intake structures, Gabrielino Trail/access road, bridges, parking lot, and spreading basins) makes it unlikely that significant cultural resources are present in these areas. While unlikely, buried resources could exist in the Project site and be damaged by excavation and grading activities for Project construction, which would be a significant impact. As stated under MM CUL-3, a qualified Archaeologist must be retained to monitor earthmoving activities and to evaluate and develop a

mitigation plan for any discovered unique archaeological resource or historical resource. Impacts on archaeological resources would be less than significant with implementation of MM CUL-3.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potentially significant impacts to known and unknown archaeological resources and included mitigation measures (Measure Cultural-2 and Measure Cultural-3) to reduce significant impacts to these resources. Measure Cultural-2 calls for monitoring around CA-LAN-26, which is located in the Central Arroyo Seco, and thus, this measure would not be applicable to the Project. Measure Cultural-3 requires archaeological monitoring during grading of native soils during construction of the surface parking areas, restrooms, Johnson Field expansion, and new trails in the HWP. Since the parking lot in Area 3 would have been removed before construction of the new parking lot occurs, no monitoring is proposed. However, MM CUL-3 will be implemented for improvements in Area 3 and this MM is similar to and therefore replaces Measure Cultural-3.

The Master EIR for the Arroyo Seco Master Plan also identified potential impacts to unknown Native American resources from grading activities associated with construction of the surface parking areas, restrooms, and Johnson Field expansion in the HWP. The Master EIR included Measure Cultural-4 for a Native American Monitor to observe grading activities. The Phase I Cultural Resources Assessment for this Project indicates that the Project site is highly disturbed due to continuous flows in the Arroyo Seco and past disturbance of adjacent areas; the field survey did not uncover archaeological resources; but due to cultural sensitivity within the area, archeological monitoring is recommended. Consultation with Native American tribes was conducted as part of the Phase I Cultural Resources Assessment and the response from the Gabrielino Tongva Indians of California Tribal Council did not express the need for a Native American Monitor. However, MM CUL-3 is recommended and requires monitoring of earthmoving activities for archaeological resources. The City has the option to have a Native American Monitor observe grading and excavation activities in Area 3, if local tribes express a need or deem it appropriate.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact with Mitigation.

Areas 1, 2 and 3 Impacts. Ground disturbance would occur at the stream bottom, which is overlain by recent alluvial material deposited by stream flows and generally does not contain fossil resources. The areas underlain by granitic bedrock also have no paleontological sensitivity. At the edges of the stream is older alluvium that may have limited potential for paleontological resources.

While no paleontological resources were observed on the surface of the Project site, underlying older Quaternary fluvial deposits may well contain significant vertebrate fossils. Thus, while excavation less than five feet in depth is not likely to disturb paleontological resources, deeper excavations (over five feet in depth), which are associated with excavation of the spreading basins, could expose paleontological resources that have the potential to be damaged by heavy equipment, which would be a significant impact. In order to avoid impacts to paleontological resources, MM CUL-4 requires that a qualified Paleontologist (one with training in the recognition of paleontological resources) shall be retained to observe grading activities in paleontologically sensitive sediments and conduct salvage excavation of paleontological resources as necessary. Any discovered resources would be evaluated for significance and appropriate exploration, salvage, and curation. Impacts on paleontological resources would be less than significant after mitigation.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potentially significant impacts to cultural resources and included Measure Cultural-1 to reduce significant impacts to paleontological resources from construction of the Flint Wash Bridge, the north bridge, and public restrooms in the HWP. While the Project does not propose Flint Wash bridge or the north bridge, it includes construction of a restroom in Area 3. MM CUL-4 will be implemented during construction activities and includes the same requirements outlined in Measure Cultural-1.

- d) **Would the project disturb any human remains, including those interred outside of formal cemeteries?**

Less Than Significant Impact.

Areas 1, 2, and 3 Impacts. While human remains have been found in the Project area, the records search and field survey indicate no evidence of human remains on or near the Arroyo Seco. In the unlikely event of an unanticipated encounter with human remains, the *California Health and Safety Code* and the *California Public Resources Code* require that any activity in the area of a potential find be halted and the Los Angeles County Coroner be notified, as described in RR CUL-1. There would be less than significant adverse impacts to human remains with compliance with RR CUL-1. No mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potential impacts to human remains during construction activities for surface parking areas, public restrooms, and Johnson Field expansion in the HWP. The Master EIR included Measure Cultural-5 for the construction briefing of the foreman and all personnel regarding the need to notify the County Coroner and stop excavation and disturbance of the site in accordance with Section 5097.98 of the *California Public Resources Code*. As discussed above, the Project would comply with RR CUL-1, which is equivalent to Measure Cultural-5.

4.5.3 MITIGATION MEASURES

MM CUL-1 Prior to the start of construction activities in Areas 1 and 2, the cast concrete baluster railing of Bridge No. 2 shall be protected from construction activities that include the movement of heavy and large motor vehicles and machinery over it to gain access to Areas 1 and 2. Each baluster railing, from the bridge deck to the top of the railing, shall be clad with solid plywood panels, with a minimum thickness of $\frac{3}{4}$ inches (or equally effective measures shall be installed) to protect against unintentional impacts from passing over the bridge. The plywood barriers shall be secured without damaging the balusters or railing.

The design and construction (and eventual removal) of the protective barriers at Bridge No. 2 shall be prepared in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties. The plans for the temporary barriers shall be reviewed by an architectural historian, historic architect, and structural or civil engineer who has experience with the physical components of historic bridges. A qualified architectural historian (who meets the Secretary of Interior's Professional Qualification Standards) shall be retained to monitor the proposed installation and removal of the protective barriers on Bridge No. 2, prior to construction. An installation/construction/repair methodology to protect the historic resources shall be developed prior to construction activities to ensure that the protective measures adequately safeguard Bridge No. 2.

A pre-construction and a post-construction survey shall be prepared to ensure that adverse effects or significant impacts have not occurred to the bridge. The installation/construction methodology and post-construction survey shall be submitted to the City of Pasadena Department of Planning – Historic Preservation.

MM CUL-2 Prior to commencement of construction activities within Areas 1 and 2, the design and construction (and eventual removal) of the temporary bridge over Bridge No. 3 shall be prepared in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties. The plans for temporary bridge shall be reviewed by an architectural historian, historic architect, and structural or civil engineer who has experience with the physical components of historic bridges and stone walls. A qualified architectural historian (who meets the Secretary of Interior's Professional Qualification Standards) shall be retained to monitor the proposed installation/construction and removal plan documents for the temporary bridge on Bridge No. 3, prior to the start of construction activities.

A pre-construction and a post-construction survey shall be prepared to ensure that adverse effects or significant impacts have not occurred to the bridge. The installation/construction methodology and post-construction survey shall be submitted to the City of Pasadena Department of Planning and Community Development, Design and Historic Preservation.

MM CUL-3 Prior to commencement of earthmoving activities, the City shall retain a qualified Archaeologist to observe grading activities. The Archaeologist shall be present at the pre-grade conference; shall establish procedures for archaeological resource surveillance; and shall establish, in cooperation with the Contractor, procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of the artifacts, as appropriate. Should archaeological resources be found during ground-disturbing activities for the Project, the Archaeologist shall first determine whether it is a "unique archaeological resource" pursuant to the California Environmental Quality Act (CEQA, i.e., Section 21083.2[g] of the *California Public Resources Code*) or a "historical resource" pursuant to Section 15064.5(a) of the State CEQA Guidelines. If the archaeological resource is determined to be a "unique archaeological resource" or a "historical resource", the Archaeologist shall formulate a mitigation plan in consultation with the City of Pasadena that satisfies the requirements of the above-referenced sections. The Archaeologist shall prepare a report of the results of any study prepared as part of a testing or mitigation plan, following guidelines of the California Office of Historic Preservation, and s/he shall record the site and submit the recordation form to the City of Pasadena and the California Historic Resources Information System (CHRIS) at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton. Work may proceed in other areas of the site, subject to the direction of the Archaeologist.

MM CUL-4 Prior to commencement of earthmoving activities, a qualified Paleontologist shall be retained to observe grading activities in native soils that are 5 feet below the ground surface or deeper, in paleontologically sensitive sediments, and to conduct salvage excavation of paleontological resources, as necessary. The Paleontologist shall be present at the pre-grading conference; shall establish procedures for paleontological resources surveillance; and shall establish, in cooperation with the Contractor, procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of any fossils discovered, as appropriate. If paleontological resources are discovered, the Paleontologist shall report such

findings to the City of Pasadena. If paleontological resources are found to be significant, the Paleontologist shall determine appropriate actions, in cooperation with the City, for exploration and/or salvage. These actions, as well as final mitigation and disposition of the resources, shall be subject to the approval of the City. All recovered fossils shall be deposited in an accredited institution or museum, such as the Natural History Museum of Los Angeles County.

4.6 ENERGY	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Conflict with adopted energy conservation plans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Use non-renewable resources in a wasteful and inefficient manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.6.1 EXISTING CONDITIONS

The Project site currently uses minimal energy, with no energy use in Areas 1 and 2. Area 3 is developed with the JPL East Parking Lot and lights at the parking lot utilize electrical energy when in use during the nighttime hours. There is also an electrical charging station in Area 3 for electric vehicles. However, JPL will be removing these lights and all on-site improvements as part of their lease termination, except for the asphalt on a temporary access road through Area 3. Electrical energy is also used for the basin metering in the spreading basins.

4.6.2 IMPACT ANALYSIS

Impact Discussion

a) Would the project conflict with adopted energy conservation plans?

No Impact.

Areas 1, 2 and 3 Impacts. The Project would have minimal demand for electrical energy. Sources of new energy demands resulting from Project implementation include the proposed control equipment enclosure and weir in Area 2 and the proposed restroom, guard station, irrigation system for planters within the parking lot, and basin metering in Area 3. Electricity would be provided to Area 2 via an existing electrical connection at an existing equipment building, so no new infrastructure is required. Electricity would be provided to Area 3 via the existing electrical infrastructure formerly used to power the parking lot lighting, and no new infrastructure is required. The temporary irrigation system in Area 1 would utilize a battery system. No demand for natural gas would be created by the Project. The elimination of the existing JPL East Parking Lot lighting and reductions in demand for State Water Project water deliveries due to increased groundwater recharge would help partially off-set new Project-related electrical demand. Therefore, although the Project would result in a slight increase in overall electrical usage, no new infrastructure would be required and any new electrical connections would be constructed in accordance with the City's Building Code (RR GEO-1). There would be no conflict with an adopted energy conservation plan would occur and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not address impacts related to Energy.

b) Would the project use non-renewable resources in a wasteful and inefficient manner?

No Impact.

Areas 1, 2 and 3 Impacts. Energy use during construction would include the use of fossil fuels for construction equipment, material deliveries, demolition waste disposal, and construction crew travel. Also, maintenance and inspection activities will generate vehicle trips that would utilize fossil fuels. This would be minimal when compared to fossil fuel use from total vehicle miles travelled in the City on a daily basis and would be short-term for construction activities and intermittent for maintenance activities. Also, this energy use would not be considered wasteful or inefficient.

Energy use in Area 1 for the temporary irrigation system would be provided by a battery system. Electrical energy would be needed in Area 2 for the proposed control equipment enclosure and weir. Electrical energy use in Area 3 would be needed for the proposed guard station, restroom, and irrigation system and the basin metering. The proposed Project will not create a high enough demand for energy to require development of new energy sources. With the relatively small sizes of the proposed facilities, energy needs would also be limited and would not be considered wasteful or inefficient. The Project would utilize surface water resources in the Arroyo Seco to increase groundwater recharge and, in turn, would have beneficial impacts on the PWP's water supply, including decreased demand for State Water Project water deliveries. The increase in groundwater recharge due to the Project will require an incremental increase in energy use for groundwater well pumping. However, with decreased reliance upon imported water sources, the net effect would be a reduction in boosting and conveying imported water to the City's water system. No adverse impact on non-renewable resources would occur and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not address impacts related to Energy.

4.6.3 MITIGATION MEASURES

There would be no significant adverse impacts on energy; therefore, no mitigation measures are required.

4.7 <u>GEOLOGY AND SOILS</u>	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

A Geotechnical Feasibility Study Report was prepared for the Project in August 2013 by Converse Consultants. The findings of this report are summarized below, with the report provided in Appendix D.

4.7.1 EXISTING CONDITIONS

The Arroyo Seco Canyon is located on the south-facing slopes of the San Gabriel Mountains. The San Gabriel Mountains are part of the Transverse Ranges physiographic province of Southern California. After the Devil's Gate Dam was constructed in 1920, sediments from the canyon accumulated behind the dam and raised the ground surface between the canyon walls. The areas around the dam and reservoir are relatively flat, but areas to the north feature moderately steep foothills. The lower hills north of the JPL campus rise to 1,560 feet above mean sea level (msl), but the San Gabriel Mountains rise up to heights of 6,200 to 8,400 feet above msl.

The Sierra Madre Fault is a 47-mile zone of deformation close to the base of the San Gabriel Mountains; it extends from the San Fernando Pass to the San Antonio Canyon in the eastern San Gabriel Mountains. Trenching at a site in Altadena indicated that the most recent earthquake on the fault segment near the Arroyo Seco occurred in the past 10,000 years. Peak ground

accelerations of between 0.47 gravity (g) and 0.75g are estimated in the City as a result of a magnitude 7.0 earthquake along the Sierra Madre Fault.

Ground elevations in Area 1 range from 1,210 to 1,260 feet above msl. The Headworks structure crosses where the stream elevation is approximately 1,222 feet above msl in Area 1, with slopes to the east rising to 1,231 feet above msl. This area is overlain by stream deposits and older alluvium consisting of primarily light brown silty sand, underlain by cobbles and boulders. The stream deposits and older alluvium are generally moderately dense to very dense. Based on the large amount of cobbles and boulders encountered during exploratory borings, difficult drilling conditions are expected during construction. Water was not encountered at a depth of seven feet but seasonal high groundwater is anticipated to be shallow. Soils are not corrosive to metal or concrete.

Ground elevations in Area 2 range from 1,170 to 1,200 feet above msl. The diversion structure in Area 2 is located in the stream at an elevation of 1,176 feet above msl. The eroded scarp along the access road in Area 2 is approximately 12 feet higher and has exposed older alluvium consisting of brown silty sand with cobbles and boulders that is underlain by very hard, massive granitic rock. The older alluvial soil is three feet thick over granitic bedrock. The upper one foot of bedrock is highly weathered but, below one foot, the bedrock is very hard and massive. Water was not encountered at a depth of 3.5 feet but, with the roadway adjacent to the stream channel, seasonal high groundwater is anticipated to be shallow.

Ground elevations in Area 3 range from 1,100 feet above msl at the southern end to 1,130 feet above msl at the northern end. The former parking lot in Area 3 was overlain by four to five inches of asphalt over a seven- to eight-inch-thick base over stream deposits. The spreading basins are underlain by stream deposits and terrace deposits, both consisting of primarily light brown silty sand, underlain by numerous cobbles and boulders. The stream deposits and terrace deposits are both moderately dense to very dense. Groundwater was not encountered in exploratory borings to a maximum depth of 21 feet.

The California Geological Survey's (CGS's) Inventory of Landslide Areas shows that the HWP, Areas 1 and 2, and adjacent areas have not been subject to landslides (CGS 2007).

4.7.2 IMPACT ANALYSIS

Regulatory Requirements

RR GEO-1 Grading, excavation, and construction is required to comply with the City's Building Code (Title 14 of the Pasadena Municipal Code, which incorporates the 2010 California Building Code), as they relate to site preparation and construction; alteration; moving; demolition; repair; use and occupancy of buildings; structures and building service equipment within the City. The California Building Code requires the preparation of engineering geologic reports, supplemental ground-response reports, and/or geotechnical reports for all new construction; new structures on existing sites; and alterations to existing buildings. It also includes seismic design criteria and requirements for use in the structural design of buildings (i.e., based on seismic hazard maps and the seismic design category) and specifies building components that require special seismic certification.

RR GEO-2 Proposed improvements must be designed and constructed in accordance with the recommendations of the Geotechnical Feasibility Report that has been prepared for the Project, as required by the City's Building Code.

Impact Discussion

- a) **Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:**
- i) **Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.**
 - ii) **Strong seismic ground shaking?**
 - iii) **Seismic-related ground failure, including liquefaction?**
 - iv) **Landslides?**

Less Than Significant Impact.

Areas 1, 2 and 3 Impacts. The Sierra Madre Fault (Tujunga segment) crosses the Arroyo Seco, north of the JPL Bridge. However, there is no designated Alquist-Priolo Special Studies Zone for the fault in the Upper Arroyo Seco.

Area 1 is not located within a designated Earthquake Fault Zone, but as shown in Exhibit 4-3, Faults, a splay of the Sierra Madre Fault runs through the center of Area 1. The stream is located within a Seismic Hazard Zone for liquefaction, with adjacent steep slopes susceptible to landslides. However, the Geotechnical Feasibility Study Report states that Area 1 has very dense gravelly sand with cobbles and boulders, and the site is not susceptible to liquefaction. Seismically induced settlement is also expected to be negligible.

Area 2 is not located within a designated Earthquake Fault Zone, but as shown in Exhibit 4-3, the traces of the Sierra Madre Fault are located approximately 1,000 feet south and approximately 1,000 feet north of Area 2. The stream is located within a Seismic Hazard Zone for liquefaction, with adjacent steep slopes susceptible to landslides. The Geotechnical Feasibility Study Report states that the presence of shallow granitic bedrock along the access road indicates that it is not susceptible to liquefaction hazards and seismically induced settlement would be negligible. While the slope just east of the access road is stable, small rock fall hazards are expected.

Area 3 is not located within a designated Earthquake Fault Zone, but as shown in Exhibit 4-3, a section of the Sierra Madre Fault runs through the northern portion of Area 3. Area 3 is located within a Seismic Hazard Zone for liquefaction.

Since portions of the Sierra Madre fault run through two of the three Project areas, the Project would be potentially exposed to fault rupture hazards. While structures sitting directly on top of the ruptured fault could be damaged in an earthquake event along the fault, the Project does not include any habitable structures or structures that are critical for public safety. Additionally, seismic shaking could be significant during an earthquake along other earthquake faults in the region. Ground shaking would not pose major safety hazards to the habitat restoration area and rest area/picnic area in Area 1. The new diversion and weir structures and the reconstructed access road in Area 2 could sustain damage during an earthquake event. Ground shaking would not pose major safety hazards to the spreading basins and parking lot in Area 3 but could damage the restroom, guardhouse, and pipelines proposed in this area. Design and construction in compliance with pertinent building code regulations (RR GEO-1) and in accordance with the recommendations of the Geotechnical Feasibility Report, including seismic design parameters (RR GEO-2), would ensure that the structural integrity of the proposed structures and improvements can withstand seismic shaking. The potential for liquefaction of bedrock is low, but



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Faults

Arroyo Seco Canyon Project



Exhibit 4-3



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liquefaction in the stream channel is expected to be high. The restored habitat area in Area 1 and the diversion structure in Area 2 would be located within the stream and may be exposed to liquefaction hazards. Slopes in Areas 1 and 2 have a potential for small rock fall hazards, and slopes that would be created could be unstable. The proposed parking lot, access road, restroom, guardhouse, and pipelines in Area 3 could also be exposed to liquefaction hazards that may lead to ground settlement and foundation cracks. Design and construction of the proposed improvements would have to address liquefaction and slope stability in accordance with the recommendations of the Geotechnical Feasibility Report (RR GEO-2).

The temporary bridges in and near Area 2 would also have to be designed and constructed in accordance with the City's Building Code and the recommendations of the geotechnical investigation that would be prepared for the bridges (RR GEO-1). This will prevent the creation of risks associated with seismic and geologic hazards in the area.

Through compliance with RR GEO-1 and RR GEO-2, impacts related to seismic hazards would be less than significant. No mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potential impacts related to strong ground motion and liquefaction on the Flint Wash Bridge, the north bridge, Sunset Overlook, and embankments in the HWP. Measure Geology-1, Measure Geology-4, and Measure Geology-5 call for compliance with existing building codes and regulations by the Flint Wash Bridge, the north bridge, Sunset Overlook, and embankments. The Project does not propose the construction of these facilities and thus, these measures are not applicable.

Proposed improvements would be built in accordance with existing building codes and regulations (RR GEO-1), which would reduce seismic hazards.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. Erosion within the Arroyo Seco has occurred due to loose soils in upstream areas, especially after the 2009 Station Fire. The proposed habitat restoration in Area 1 is expected to create a more natural riparian corridor that would reduce stream bank erosion through native planting, bank stabilization, woody debris clusters, and a meandering stream. The area around the diversion structure and the slopes along the access road in Area 2 would be stabilized with riprap protection. The new recreational parking lot in Area 3 would be covered in decomposed granite and the spreading basins would have compacted earth slope sides to reduce erosion. Therefore, the Project would reduce erosion in the long term.

During construction, erosion-control measures would be implemented as part of the Storm Water Pollution Prevention Plan (SWPPP) for the Project (RR HYD-1). Implementation of the erosion control best management practices (BMPs) in the SWPPP would reduce erosion, and impacts would be less than significant. No mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified the potential risk of damage from geologic hazards, including erosion. The Master EIR included mitigation measures to reduce geologic hazards to proposed improvements in the HWP. Measures Geology-1, Geology-4, and Geology-5 are for improvements that are not proposed by the Project and Measures Geology-6, Geology-7, and Geology-8 are for improvements in the Central or Lower Arroyo Seco; thus, these measures would not be applicable to the Project. The Master EIR stated that minor improvements (e.g., minor improvements to

existing structures, restrooms, surface parking areas, passive recreation facilities, and habitat restoration projects) would not expose people or property to significant risk for geologic hazards.

- c) **Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?**
- d) **Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?**

Less Than Significant Impact.

Areas 1, 2 and 3 Impacts. The Project site may contain collapsible soils due to its location within and near the Arroyo Seco stream channel. Groundwater extraction wells in the general vicinity of Area 3 may also make this area susceptible to subsidence, although no significant regional subsidence has occurred in the City. The proposed spreading basins in Area 3 would increase recharge of the Monk Hill Subbasin of the Raymond Groundwater Basin. With only 60 percent of the recharge water pumped out, the Project would decrease the potential for subsidence.

To determine geologic hazards at the Project site, soil borings were made at the three areas to identify surface and subsurface soils and their characteristics. The Geotechnical Feasibility Study Report summarizes the findings of the soil analyses, which include geologic, seismic, and flood hazards, percolation testing, and slope stability. The report states that near surface soils in Areas 1 and 3 have a "Very Low" expansion potential (no soil expansion analysis was made for near surface soils in Area 2). The report includes seismic design parameters and recommendations for retaining walls, foundations, slabs-on-grade, soil corrosivity, site drainage, earthwork and site grading, pipeline backfill, temporary excavations, pavements, and other geotechnical considerations. Compliance with these recommendations (RR GEO-2) would address the geologic hazards that are present on the site.

The temporary bridges in and near Area 2 are required to be designed and constructed in accordance with the City's Building Code (RR GEO-1) and the recommendations of the geotechnical investigation that would be prepared for the bridges (RR GEO-2). This would avoid hazards associated with unstable soils, collapsible soils, expansive soils and/or other geologic hazards. Impacts would be less than significant and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified geologic hazards, including liquefaction, that may affect the water conservation pool, spreading basins, lakes, and utility line replacement and relocation proposed in the HWP. Measure Geology-2 called for the conservation pool, spreading basins, and lakes in the HWP to comply with all existing pertinent building codes and regulations; for geologic and geotechnical investigations for these improvements; and for remediation measures to minimize risks. Measure Geology-3 called for the replacement and relocation of utilities in the HWP to comply with all existing pertinent building codes and regulations; for geologic and geotechnical investigations for these improvements; and for remediation measures to minimize risks. RR GEO-1 and RR GEO-2 (similar to Measure Geology-2 and Measure Geology-3) would be implemented as part of the proposed spreading basins and utility improvements in Area 3.

- e) **Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?**

No Impact.

Areas 1, 2 and 3 Impacts. The proposed restroom in Area 3 would not include the construction of septic tanks or seepage pits/fields. Instead, the restroom would be connected to an existing sewer line on the JPL campus. The construction crew would be served by portable toilets that would be brought to the site at the start of Project construction. These portable toilets would be regularly cleaned out and removed at the end of construction. Therefore, no impacts related to the use of septic tanks or alternative wastewater disposal systems would occur with the Project and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan included mitigation that called for the construction of a wastewater system to serve the HWP to be completed prior to the construction and renovation of restrooms. However, the Master EIR considered the connection of the new restroom in Area 3 to the sewer line at the JPL campus, which is being proposed by the Project.

4.7.3 MITIGATION MEASURES

There would be no significant adverse impacts related to geology and soils with compliance with RR GEO-1 and RR GEO-2; therefore, no mitigation measures are required.

4.8 <u>GREENHOUSE GAS EMISSIONS</u>	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.8.1 EXISTING CONDITIONS

Climate change refers to any significant change in temperature, precipitation, or wind patterns over a period of time. Climate change may result from natural factors, natural processes, and human activities that change the composition of the atmosphere and alter the surface and features of the land. Significant changes in global climate patterns have recently been associated with global warming, which is an average increase in the temperature of the atmosphere near the Earth’s surface; this is attributed to an accumulation of greenhouse gas (GHG) emissions in the atmosphere. GHGs trap heat in the atmosphere which, in turn, increases the Earth’s surface temperature. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through fossil fuel combustion in conjunction with other human activities appears to be closely associated with global warming.

GHGs, as defined under California’s Assembly Bill (AB) 32, include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). General discussions on climate change often include water vapor, ozone, and aerosols in the GHG category. Water vapor and atmospheric ozone are not gases that are formed directly in the construction or operation of development projects, nor can they be controlled in these projects. Aerosols are not gases. While these elements have a role in climate change, they are not considered by either regulatory bodies, such as CARB, or climate change groups, such as the Climate Registry, as gases to be reported or analyzed for control. Therefore, no further discussion of water vapor, ozone, or aerosols is provided.

GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO₂. For example, since CH₄ and N₂O are approximately 25 and 298 times more powerful than CO₂, respectively, in their ability to trap heat in the atmosphere, they have GWPs of 25 and 298, respectively (CO₂ has a GWP of 1). Carbon dioxide equivalent (CO₂e) is a quantity that enables all GHG emissions to be considered as a group despite their varying GWPs. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO₂e. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 4.8-1, Global Warming Potentials and Atmospheric Lifetimes.

**TABLE 4.8-1
GLOBAL WARMING POTENTIALS AND ATMOSPHERIC LIFETIMES**

Greenhouse Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO ₂)	50.0–200.0	1
Methane (CH ₄)	12.0	25
Nitrous Oxide (N ₂ O)	114.0	298
HFC-134a	14	1,430
PFC: Tetrafluoromethane (CF ₄)	50,000.0	7,390
PFC: Hexafluoroethane (C ₂ F ₆)	10,000.0	12,200
Sulfur Hexafluoride (SF ₆)	3,200.0	22,800
HFC: hydrofluorocarbons; PFC: perfluorocarbons		
Source: IPCC 2007.		

Assembly Bill 32 – the California Global Warming Solutions Act of 2006

AB 32, the California Global Warming Solutions Act of 2006, recognizes that California is the source of substantial amounts of GHG emissions. The statute states that:

Global warming poses a serious threat to the economic well being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

In order to avert these consequences, AB 32 establishes a State goal of reducing GHG emissions to 1990 levels by the year 2020, which is a reduction of approximately 16 percent from forecasted emission levels, with further reductions to follow (CARB 2011).

City of Pasadena General Plan

The City is in the process of updating its General Plan, and adopted the Open Space and Conservation Element in January 2012. The Open Space and Conservation Element summarizes greenhouse gas issues and outlines goals and policies that will reduce greenhouse gas emissions. It states, “In the City of Pasadena, the primary tool to address greenhouse gases is the Mobility Element of the General Plan. The City is in the midst of a major update to the Mobility Element. The updated plan will introduce sustainable transportation and circulation goals and policies to encourage non-automotive alternatives for residents and visitors to move about the City” (City of Pasadena 2012a).

4.8.2 IMPACT ANALYSIS

Impact Discussion

- a) **Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. In developing methods for GHG impact analysis, there have been suggestions of quantitative thresholds, often referred to as screening levels, which define an emissions level below which it may be presumed that climate change impacts would be less than significant. Neither the SCAQMD, the City of Pasadena, nor the County of Los Angeles has adopted a significance threshold for the GHG emissions from non-industrial development projects. Consequently, the City of Pasadena has determined, pursuant to the discretion afforded by Sections 15064.4(a) and 15064.4(b) of the State CEQA Guidelines, that the impact of the Project's GHG emissions be assessed based on the methodologies proposed by SCAQMD's GHG CEQA Significance Threshold Working Group.

On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for a tiered threshold approach wherein Tier 1 determines if a project qualifies for an applicable CEQA exemption; Tier 2 determines consistency with GHG reduction plans; and Tier 3 proposes a numerical screening value as a threshold. At their September 28, 2010, meeting, the Working Group suggested a Tier 3 threshold of 3,000 metric tons of carbon dioxide equivalent (MTCO_{2e}) per year for all land use types. Although the Project is not a residential or commercial development, in the absence of adopted thresholds, the City of Pasadena has decided to assess the significance of the Project's GHG emissions using this SCAQMD proposed Tier 3 screening threshold (SCAQMD 2010). It is noted that the use of the Tier 3 threshold was selected for the proposed Project because it is located in the South Coast Air Basin and these thresholds are based on the best available information and data at the time of preparation of this document. The development of project-level thresholds in accordance with CEQA is an ongoing effort at the State, regional, and County levels, and significance thresholds may differ for future projects based on new or additional data and information that may be available at that time for consideration.

Construction

Construction GHG emissions are generated by vehicle engine exhaust from construction equipment, on-road hauling trucks, vendor trips, and worker commuting trips. Construction GHG emissions were calculated by using CalEEMod. The model and construction assumptions are described in Section 4.3, Air Quality, and are included in Appendix A. The results are output in MTCO_{2e} for each year of construction. The estimated construction GHG emissions for the Project are shown in Table 4.8-2.

GHG emissions generated from construction activities are finite and occur for a relatively short-term period of time. Unlike the numerous opportunities available to reduce a project's long-term GHG emissions through design features, operational restrictions, use of green-building materials, or other methods, GHG-reduction measures for construction equipment are relatively limited. Therefore, SCAQMD staff recommends that construction emissions be amortized over a 30-year project lifetime so that GHG-reduction measures will address construction GHG emissions as part of the operational GHG-reduction strategies (SCAQMD 2008). As shown in Table 4.8-2, Estimated GHG Emissions From Construction, the 30-year amortized construction emissions of the Project would be 22 MTCO_{2e}/yr.

**TABLE 4.8-2
ESTIMATED ANNUAL GHG EMISSIONS FROM CONSTRUCTION**

Year	Emissions (MTCO ₂ e)
2015	587
2016	85
Total	672
Annual Emissions*	22
MTCO ₂ e: metric tons of carbon dioxide equivalent	
* Combined total amortized over 30 years.	

Operations

Operational GHG emissions for the proposed Project are estimated by including purchased electricity; the energy associated with solid waste disposal; and mobile source emissions. CalEEMod incorporates local energy emission factors and mitigation measures based on the California Air Pollution Control Officers Association's (CAPCOA's) publication *Quantifying Greenhouse Gas Mitigation Measures* (CAPCOA 2010) and the *California Climate Action Registry General Reporting Protocol* (CCAR 2009). Estimated annual CO₂e emissions are presented in Table 4.8-3.

**TABLE 4.8-3
ESTIMATED ANNUAL GHG EMISSIONS**

Year	Emissions MTCO ₂ e
Operational Emissions	
Area	<0.5
Energy	<0.5
Mobile	100
Waste	1
Water	3
Total	104
Amortized Construction Emissions (Table 4-13)	22
Annual Emissions	126
MTCO ₂ e: metric tons of carbon dioxide equivalent	
Note: totals may not add due to rounding.	

As shown in Table 4.8-3, the estimated increase in annual GHG emissions, including amortized construction emissions, would be 126 MTCO₂e/yr. This value may be compared with and is less than the proposed SCAQMD Tier 3 screening threshold of 3,000 MTCO₂e/yr for all land use types. It is very unlikely that any individual development project would have GHG emissions of a magnitude to directly impact global climate change; therefore, any impact would be considered on a cumulative basis. Because the proposed Project's GHG emissions would be less than 3,000 MTCO₂e/yr, the emissions would not be cumulatively considerable. This impact would be less than significant; no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not address GHG emissions.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

No Impact.

Areas 1, 2 and 3 Impacts. As discussed above, the principal State plan and policy adopted for the purpose of reducing GHG emissions is AB 32. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020. Plans and regulations (e.g., GHG emissions standards for vehicles and the Low Carbon Fuel Standard) are being implemented at the statewide level, and compliance at the project level is not addressed. The proposed Project does not conflict with these plans and regulations.

As previously discussed, the increase in GHG emissions would be much less than SCAQMD's recommended significance threshold for all land use projects. The Project would result in a slight increase in electrical use for increased groundwater well pumping to recover the water infiltrated through the spreading basins; however, this would be entirely offset by the corresponding reduced need for Colorado River Aqueduct (CRA) and State Water Project (SWP) water, which requires electricity for conveyance and boosting. Implementation of the proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. There would be no impact.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not address GHG emissions.

4.8.3 MITIGATION MEASURES

There would be no significant adverse impacts related to GHG emissions; therefore, no mitigation measures are required.

4.9 <u>HAZARDS/HAZARDOUS MATERIALS</u>	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter-mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.9.1 EXISTING CONDITIONS

The Project site includes Area 1 where the Headworks structure and sedimentation basins are located; Area 2 where the diversion and weir structures, intake structure, access road, and Bridge No. 3 are located; and Area 3 where the JPL East Parking Lot and spreading basins are located. No hazardous material use, storage, or generation occurs in these three areas.

The California Department of Toxic Substance Control (DTSC) maintains the EnviroStor Database, which compiles hazardous material sites and generators that have been identified for clean up or that are permitted to handle hazardous materials by various regulatory agencies. Hazardous material sites or generators in and near the HWP, as listed in the EnviroStor Database, include the JPL, Flintridge Riding Club, and Oak Grove Ranger Station (DTSC 2007). These facilities are located on the west side of the Arroyo Seco and would not be affected by the Project.

The USEPA maintains the Envirofacts Database, which compiles lists of facilities subject to permitting for their potential environmental hazards to air, water, waste, land, toxics, radiation, facility, regulatory compliance, and other. Facilities on the Envirofacts Database that are located in or near the HWP, include JPL, LA Steelcraft Products, Pacific Bell, Audubon Elementary School, Rite Cleaners, and several industrial and commercial uses south of Area 3 (USEPA 2013b).

The facility with the highest potential to affect the Project site is JPL, a 181.2-acre federally funded research and development center operated by the California Institute of Technology (Caltech) under a contract with NASA. JPL is involved in planning, advocacy, and execution of unmanned exploratory scientific flight through the solar system. The campus has 138 buildings and ancillary structures, including 19 underground storage tanks, immediately west of the Arroyo Seco in the City of La Cañada Flintridge. JPL generates laboratory chemical wastes that are brought to the Hazardous Waste Accumulation Facility (Building 305) for off-site disposal. Over 1,000 kilograms (kg, i.e., 2,204 pounds) of hazardous wastes are generated at JPL per year and this facility is considered a large quantity generator. Hazards material and waste handling at JPL is currently made in accordance with its Pollution Prevention Plan and applicable State and federal hazardous waste regulations (JPL 2012).

Past waste handling activities at JPL involved the disposal of waste solvents, solid rocket fuel propellants, cooling tower chemicals, sulfuric acid, freon, mercury, and chemical laboratory wastes into on-site seepage pits, settling chambers, and dumps. These waste-handling activities have led to soil and groundwater contamination, such that volatile organic compounds (VOCs) and perchlorate, which have been detected in local wells east and southeast of the JPL campus. The groundwater contamination is located beneath a portion of the JPL campus and has travelled east and southeast of the campus. This contamination has affected four water wells of the PWP in the Monk Hill Subbasin and two water wells of the Lincoln Avenue Water Company (LAWC) (USEPA 2013a). The nearest groundwater monitoring wells to Area 3 of the Project site include MW-3 (deep multi-port monitoring well) and MW-9 (shallow monitoring well). The depths to groundwater contamination at MW-3 are over 200 feet below the ground surface (NASA 2013a).

A number of studies and investigations under a Work Plan have been completed and a Removal Action Plan is being implemented that includes three water treatment facilities to remove perchlorate and VOCs from the groundwater. The Monk Hill Treatment System (located southeast of Area 3) removes VOCs and perchlorate from four City wells (Arroyo Well, Well 52, Ventura Well, and Windsor Well) located in and near Area 3 (JPL 2011).

The Arroyo Seco Canyon and adjacent areas are designated as a Very High Fire Hazard Severity Zone by the California Department of Forestry and Fire Protection (CalFire 2011). In August 2009, the Station Fire burned nearly 252 square miles in the ANF. This included a fire station, administration buildings, lookout tower, campgrounds, picnic areas, water systems, communication sites, roads, and trails. Subsequent to the fire, the USFS has implemented a restoration strategy that includes tree planting, invasive species removal, trail repair, and recreation sites clean up (USFS 2011).

Several Southern California Edison (SCE) and PWP power lines run through the HWP. However, there are no gas transmission pipelines or hazardous liquid pipelines running in or near the HWP, as mapped by the National Pipeline Mapping System (PHMSA 2012).

4.9.2 IMPACT ANALYSIS

Regulatory Requirements

RR HAZ-1 Construction activities are required to comply with existing federal, State, and local regulations regarding hazardous material use, storage, disposal, and transport to prevent risks to public health and safety. Construction wastes that meet hazardous waste criteria must be stored, manifested, transported, and disposed of in accordance with the *California Code of Regulations* (Title 22) and to the satisfaction of the Los Angeles County Fire Department, which serves as the local Certified Unified Program Agency (CUPA).

RR HAZ-2 The City shall continue to implement its Emergency Operations Plan, which outlines the City's responses to emergencies associated with natural disasters, technological incidents, and national security emergencies.

Impact Discussion

a) **Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. No manufacturing or industrial activities are proposed by the Project and no aboveground storage tanks, underground storage tanks, natural gas transmission lines, or other hazardous material storage facilities/conduits would be built as part of the Project. No hazardous materials use, storage, waste generation, or disposal would occur during long-term use and operation of the proposed improvements.

Construction activities would utilize hazardous materials on a short-term basis, and compliance with RR HAZ-1 would prevent the creation of significant hazards to the public or the environment. Impacts would be less than significant and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potential hazards associated with the release of hazardous materials (e.g., asbestos-containing materials and lead-based paint) into the environment. RR HAZ-1 (similar to Measure Hazards-1 and Measure Hazards-2) would be implemented for the proper handling and disposal of hazardous materials and wastes as part of construction activities for the Project.

b) **Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?**

Less than Significant With Mitigation.

Areas 1, 2 and 3 Impacts. JPL currently utilizes hazardous materials and generates hazardous wastes, but its compliance with existing regulations would prevent the creation of hazards to adjacent land uses, including Area 3.

No long-term hazardous materials use or generation would occur with the Project, as discussed above. During construction, hazardous materials that would be in use would include oil and grease, solvents, diesel gasoline, and other chemicals in vehicles, trucks, and heavy equipment. These hazardous materials could pose risks to construction workers or lead to soil and water

contamination, if not properly stored, used, or disposed. Due to the presence of surface water in construction sites on the Arroyo Seco, the potential for water contamination and the likelihood that accidentally contaminated soils would enter the Arroyo Seco may create a public health and safety hazard. This would be considered a significant adverse impact.

To prevent environmental hazards, the handling of hazardous materials used in equipment would have to be made in accordance with existing regulations (RR HAZ-1) with regard to the transport of hazardous materials; on-site storage and use of hazardous materials; and procedures to implement in the event of a spill. In addition, under RR HYD-1, the Project would implement a SWPPP, as discussed in Section 4.9, Hydrology and Water Quality, which would include hazardous waste management BMPs and a sampling and analysis plan, which require the contractor to report and mitigate any hazardous material discharges that may contaminate the soil, surface water, and/or groundwater.

In addition, MM HAZ-1 includes specific measures to avoid impacts associated with hazardous material spills and accidents in and near the Arroyo Seco. These include inspecting trucks for oil, gasoline, or other vehicle fluid leaks; locating fueling areas and storage of hazardous materials away from water bodies and drainages; creating a plan for refueling; removing hazardous material spills and contaminated soils; controlling and containing hazardous materials spills; and ensuring cleanup kits are available. Implementation of MM HAZ-1 would reduce potential impacts associated with the use and reasonably foreseeable upset of hazardous materials to a less than significant level.

There is groundwater contamination beneath Area 3. Construction activities within Area 3 would involve excavations into native soils to create the spreading basins. However, construction activities are not anticipated to encounter any contaminated groundwater due to the depths of the contamination, which is over 200 feet below the ground surface. Dewatering of any groundwater within the construction areas may be required and would result in the need to discharge and dispose of the recovered water. RR HYD-3 requires compliance with Los Angeles RWQCB Order No. R4-2013-0095 for discharges of treated or untreated groundwater into surface waters. The order requires dischargers to file a Notice of Intent with the Los Angeles RWQCB prior to discharging into surface waters; to complete water sampling and analysis; to implement BMPs to prevent water quality degradation; and/or to treat groundwater prior to discharge. Coverage under the permit requires compliance with effluent limitations, discharge prohibitions, receiving water limitations, and other conditions/provisions in the permit, along with implementation of a monitoring and reporting program.

Due to the presence of contaminated groundwater in the Project area, there is the potential for earthmoving activities to disturb contaminated soils. Should discolored or odorous soils be encountered, MM HAZ-2 requires the soils be sampled and analyzed for contamination and remediated and/or disposed of in accordance with existing regulations, as necessary.

Compliance with applicable regulations (RR HAZ-1, RR HAZ-2, RR HYD-1, and RR HYD-3) and implementation of MM HAZ-1 and MM HAZ-2 would ensure that the use, storage, transport, and disposal of hazardous materials would not create hazards to public health and safety. Impacts would be less than significant after mitigation.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potential hazards associated with the release of hazardous materials into the environment and discussed hazards associated with contaminated soils and groundwater from historic uses at the JPL campus. MM HAZ-2 (which is similar to Measure Hazards-3) would be implemented during excavation activities in Area 3. The Master EIR stated that construction activities would not require grading below 1,040.5 feet above msl (e.g., the east side park access,

east side parking area, sunset overlook, trails, bicycle routes and fencing) and would not expose people to contaminated soil or groundwater.

- c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter-mile of an existing or proposed school?**

Less than Significant Impact.

Areas 1 and 2 Impacts There are no schools within 0.25 mile of Areas 1 and 2. The proposed rest area/picnic area and restored habitat in Area 1 and the new diversion and weir structures and improved access road in Area 2 would not generate toxic emissions that may affect nearby trail users and residents. Construction activities would utilize hazardous materials in the short-term, but these would be handled in accordance with existing regulations (RR HAZ-1).

Area 3 Impacts. Sycamores School, located at 2933 El Nido Drive, is located approximately 600 feet southeast of Area 3. Odyssey Charter School, located at 725 Altadena Drive, is located 0.25 mile east of Area 3. Franklin Elementary School, located at 527 West Ventura Street, is located 0.5 mile southeast of Area 3. A number of other schools are located in Altadena east of the Arroyo Seco and in La Cañada Flintridge west of the Arroyo Seco.

The proposed spreading basins and the recreational parking lot in Area 3 would not generate toxic emissions that may affect students at nearby schools. Construction equipment and trucks coming to and from the Project site would utilize Windsor Avenue and I-210, and would not pass along area schools. Construction activities would utilize hazardous materials, but these would be handled in accordance with existing regulations (RR HAZ-1). No hazards to the construction crew or to nearby residents, students, or employees would occur from hazardous materials use on the site. Section 4.3, Air Quality, also discusses toxic air contaminants and determined that the Project would not expose any nearby sensitive receptors to substantial pollutant concentrations.

Impacts would be less than significant and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified schools as sensitive receptors that may be exposed to air contaminants, but no specific discussion of hazards to schools is provided in the Master EIR.

- d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

Less than Significant With Mitigation.

Areas 1 and 2 Impacts Areas 1 and 2 are not located on or near a site included in the list of hazardous material sites. Land uses utilizing hazardous materials are located downstream of Areas 1 and 2. The proposed rest area/picnic area and restored habitat in Area 1 would not pose hazards to adjacent land uses. Similarly, the new diversion and weir structures in Area 2 would not pose hazards.

Area 3 Impacts. The JPL campus, west of Area 3 and the Arroyo Seco, has been designated as a Superfund site pursuant to the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and has been listed on the National Priority List (NPL) (USEPA 2013a). While the HWP is not a source of hazardous material contamination, past waste

handling activities at the JPL campus has led to groundwater contamination that has migrated to the east and southeast beneath the HWP, including Area 3.

The spreading basins and recreational parking lot proposed in Area 3 would not utilize hazardous materials or pose hazards to adjacent land uses. These improvements would not add to the underlying groundwater contamination. Also, contaminated groundwater has been found more than 200 to 300 feet beneath Area 3 (JPL 2013a) and, thus, would not be disturbed by excavation activities associated with construction of the sedimentation basins and expansion of the spreading basins. Impacts would be less than significant.

The increase in spreading area would increase percolation by as much as 1,100 afy of water into the ground, increasing the groundwater resources beneath Area 3. Modeling simulations conducted in 2005 using the NASA JPL's groundwater flow model for the Monk Hill Subarea were conducted to assess the potential impacts on existing groundwater contamination from increased groundwater recharge from the spreading basins anticipated in the Arroyo Seco Master Plan. The analysis assumed an increase in the spreading area from 13.1 acres to 21 acres; increasing recharge by 2,443 afy; and pumping from local production wells and JPL's extraction and injection wells. The simulations suggest that increased spreading would have the most significant effect on the uppermost aquifer layer, where an additional 5 to 10 feet of mounding could occur beneath the new spreading area. No significant change in flow patterns would occur. Also, only a minor change would occur in the capture zone of the deeper aquifer layers, where existing groundwater contamination is present. The modeling indicated that groundwater cleanup would not be significantly impacted by the expanded spreading grounds. With less groundwater recharge proposed by the Project (1,100 afy), impacts on the contaminated groundwater would likely be less than the 2005 modeling results.

As discussed above, compliance with RR HYD-3 would require implementation of water sampling and analysis; implementation of BMPs to prevent water quality degradation; and/or treatment of groundwater prior to discharge. A monitoring and reporting program would also have to be implemented to ensure that dewatering activities do not affect water quality in surface waters. In addition, compliance with MM HAZ-2 would ensure that encounters with potentially contaminated soils are remediated and/or disposed of in accordance with existing regulations.

Compliance with applicable regulations (RR HAZ-2 and RR HYD-1) and implementation of MM HAZ-2 would ensure that existing groundwater contamination in Area 3 does not pose hazards to public health and safety. Impacts would be less than significant after mitigation.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan discussed hazards associated with contaminated soils and groundwater from historic uses at the JPL campus, located west of Area 3. It indicated that water conservation and flood management activities, proposed lakes, Gabrielino Trail area, habitat conservation, and relocation/replacement of utilities that involve grading below 1040.5 feet above msl may expose contaminated soils and require mitigation. MM HAZ-2 (which is similar to Measure Hazards-3) would be implemented during excavation activities in Area 3.

The Master EIR stated that construction activities that would not require grading below 1,040.5 feet above msl (e.g., the east side park access, east side parking area, sunset overlook, trails, bicycle routes and fencing) would not expose people to contaminated soil or groundwater.

- e) **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?**

- f) **For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?**

No Impact.

Areas 1, 2 and 3 Impacts. There are no airports or airstrips within two miles of the Arroyo Seco Canyon. The nearest airports are the Burbank Bob Hope Airport and the El Monte Airport, which are both approximately 11 miles from the site. There is a heliport and a helipad near the Arroyo Seco. The Project would not involve the construction of high-rise structures or involve activities that could pose a safety hazard to helicopter or aircraft operations or airport activities, nor would it conflict with an airport land use plan. There would be no impact to airports or airstrips from the Project.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that the HWP is not located within an airport land use plan or within two miles of a public airport or private airstrip. Therefore, no hazards related to airport or aircraft operations would occur and no mitigation is required.

- g) **Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

Less than Significant With Mitigation.

Areas 1 and 2 Impacts. No improvements are proposed on the Gabrielino Trail/access road in Area 1, except for removal of a section of the chain-link fencing along its western edge. Improvement of the Gabrielino Trail/access road in Area 2 would result in a temporary partial obstruction of this road, which may affect emergency response and evacuation of the USFS Ranger Station and other areas in the ANF farther north. Compliance with the Standard Specifications for Public Works Construction (Greenbook) and the City's Supplements and Modifications to the Greenbook (RR TRA-1 in Section 4.16, Transportation/Traffic) regarding maintenance of access at all times would mean closure of only half of the access road; the use of a flagperson to direct traffic, as necessary; and allowing for the public use of the Gabrielino Trail/access road at times when construction is not ongoing. This RR also requires that the Gabrielino Trail/access road be made passable at the end of each workday. Thus, access to Areas 1 and 2 (including the USFS Ranger Station) would be made available during construction activities, but short-term closures may occur.

The process of assembling the temporary bridges over Bridge No. 1 near Area 1 and over Bridge No. 3 in Area 2 would block access across the bridges and areas farther north when the access road is connected to temporary bridges. Similarly, RR TRA-1 would ensure that access would be available to the USFS Ranger Station and the ANF during bridge construction, as required by the Greenbook.

Access would be maintained for vehicles coming to and from the USFS Ranger Station in accordance with the Greenbook (as discussed above); however, there would be short time periods during the day when both the temporary bridge and Bridge No. 1 or the other temporary bridge and Bridge No. 3 are closed. There would also be times when construction equipment and vehicles would be on the access road and would slow down other vehicles that need to pass through the area. While the bridges and access road do not provide access to a hospital, fire or police station, emergency operations center, communications center, emergency shelter or other critical or essential facilities, they do serve as the only access to the USFS Ranger Station and the ANF to the north. Temporary bridge closure would be considered a significant adverse impact on emergency access and evacuation.

MM HAZ-3 requires the Contractor to shorten the closures of the access road and bridges to the extent feasible and to inform the PWP, Pasadena Fire Department, Pasadena Police Department, Los Angeles County Fire Department, and the USFS at least one week prior to the start of construction of the times when work on the access road is planned; and when both Bridge No. 1 and the temporary bridge or Bridge No. 3 and the temporary bridge would be closed off. This will facilitate emergency response and evacuation that may be necessary when the bridges are not accessible or when the access road is partially blocked.

Compliance with RR TRA-1 and implementation of MM HAZ-3 would reduce impacts to emergency access and evacuation to less than significant levels after mitigation.

Area 3 Impacts. A temporary access road would be retained through Area 3 while construction of the new access road is ongoing. Also, the Gabrielino Trail to the east of Area 3 may serve as an additional emergency access road during construction activities. Thus, emergency access through Area 3 would be maintained at all times. Continued implementation of the City's Emergency Operations Plan (RR HAZ-2) would provide emergency access and evacuation in the HWP, as necessary. Impacts would be less than significant.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated no changes to the existing fire camp operated by the Los Angeles County Fire Department (located west of the Arroyo Seco) and the helicopter landing area operated by the Pasadena Police Department (south of Oak Grove Avenue and west of Windsor Avenue) would occur. Also, no encroachment into support areas for emergency evacuation plans was anticipated. Therefore, no increase in exposure to hazards related to emergency evacuation and air support operations and no impacts to emergency access would occur.

h) Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Less than Significant with Mitigation.

Areas 1, 2 and 3 Impacts. The Arroyo Seco Canyon is located in an area designated as a Very High Fire Hazard Severity Zone, which includes Areas 1 and 2 (CalFire 2011). The proposed habitat restoration and increased water diversion would not increase fire hazards in the Arroyo Seco Canyon and surrounding areas. The proposed recreational amenities would encourage the increase in trail users and visitors, who may accidentally cause fires in the canyon. While native plants would be combustible, they would not present fire hazards.

The proposed restroom would have fire-retardant shingles. The guard station, picnic table, benches, pet waste stations, trash receptacles, fencing, and signs would not utilize explosive or flammable materials; however, woody debris clusters, picnic tables and benches, and other improvements that utilize wood would be combustible. In the absence of a fire source, these improvements would not increase the potential for wildfire in the area.

The proposed control equipment enclosure, guard station and restroom would have electrical systems that may lead to fire. However, compliance with the City's Fire Prevention Code (RR PS-1 from Section 4.14, Public Services) would prevent the creation of a fire hazard. Also, the Project would not involve construction or operation of habitable structures that may expose people to wildfire hazards in the area. Users of the recreational facilities and maintenance workers that would come to the area would be in the area for limited time periods (from a few minutes to a few hours during each visit) and could readily avoid the area in the event of wildfires. Residents

of the USFS Ranger Station are exposed to wildfire hazards due to their employment, but this exposure would not increase with the Project.

Construction workers would be exposed to potential injury in the event of wildfire or an accidental fire at the construction sites. Potential sources of fire from the Project include sparks from construction equipment and vehicles and from electrical systems at the control equipment enclosure, guard station, and restroom. The City's Fire Prevention Code includes fire safety measures that need to be followed during construction and demolition. The use of various construction equipment with combustion engines could also increase the potential for fire at the Project sites. MM HAZ-4 requires the use of spark arrestors and other measures to prevent accidental fires. Compliance with MM HAZ-4 and RR PS-1 from Section 4.14, Public Services, would reduce the potential for fire. Therefore, wildfire hazards during construction would be less than significant.

With compliance with RR PS-1 from Section 4.14, Public Services, impacts related to wildfires would be less than significant and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan indicated that recreational improvements would not increase fire hazards or change the potential for fire hazard.

4.9.3 MITIGATION MEASURES

MM HAZ-1 The City shall require the Construction Contractors to implement the following measures:

- Trucks and equipment entering the site shall be inspected to be free from oil, gasoline, or other vehicle fluid leaks.
- Equipment fueling areas shall be located outside jurisdictional waters as identified by the USACE and CDFW.
- Hazardous materials shall not be stored within the 50-year floodplain for the Arroyo Seco. Instead, hazardous materials shall be stored within staging areas located away from the Arroyo Seco and shall be removed prior to the start of the storm season.
- All hazardous material spills and contaminated soils shall be excavated immediately upon discovery to minimize soil and water contamination and the potential of wildlife being poisoned or otherwise harmed.
- The Contractor shall maintain hazardous materials spill control, containment, and cleanup kits of adequate size and materials for potential accidental instream spills and releases.

MM HAZ-2 Should discolored or odorous soils be encountered during grading and excavation activities in Area 3, the Contractor shall have a sample of the soils analyzed for the presence of contamination. If the results of the testing show that chemical levels are present below regulatory levels, grading and excavation activities may proceed accordingly. Otherwise, remediation and/or removal of the contaminated soils shall be completed prior to continued ground disturbance if chemical levels are above regulatory standards. Remediation and/or disposal shall be conducted with the oversight of applicable regulatory agencies such as the Los Angeles County Fire Department [operating as the CUPA], the South Coast Air Quality Management District (SCAQMD), the California Department of Toxic Substances Control

(DTSC), and/or the U.S. Environmental Protection Agency in compliance with established maximum contaminant levels (MCLs).

MM HAZ-3 The Contractor shall schedule the temporary bridge construction and the access road reconstruction in Area 2 so as to shorten the necessary closures of the bridges and access road to the extent feasible. The Contractor shall also inform the Pasadena Department of Water and Power (PWP), the Pasadena Fire Department, the Pasadena Police Department, the Los Angeles County Fire Department, and the United States Forest Service (USFS) at least one week in advance of the start of construction of the times when work on Bridge No. 1/temporary bridge; Bridge No. 3/temporary bridge; and the Gabrielino Trail/access road are planned. Any major changes to the schedule shall be forwarded to these agencies at least one week prior to the bridge or trail closures.

MM HAZ-4 The Contractor shall not use, operate, or cause to be operated any internal combustion engine that uses hydrocarbon fuel, unless the engine is equipped with a spark arrestor and is maintained in effective working order, or the engine is constructed, equipped and maintained for the prevention of fire.

4.10 <u>HYDROLOGY AND WATER QUALITY</u>	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of pollutant runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.10.1 EXISTING CONDITIONS

The Upper Arroyo Seco is located on the south-facing slopes of the San Gabriel Mountains. The watershed for the Upper Arroyo Seco (north of the Devil's Gate Dam) covers 32 square miles of the San Gabriel Mountains and surrounding areas. Several drainage streams (flows from canyons) and storm drains convey runoff into the Arroyo Seco. Stream flows depend on rainfall in the mountains during the winter and spring seasons, with urban runoff from local storm drains contributing very limited flows.

Devil's Gate Dam is a flood control facility owned and operated by the Los Angeles County Department of Public Works on land owned by the City of Pasadena. The County has an easement for the area upstream of the dam to the 1,075-foot elevation. This facility was built in 1920 for flood control and water conservation purposes. In 1948, the County constructed the spreading basins, which were subsequently transferred to the City of Pasadena for operation.

The Raymond Basin underlies an alluvial valley that covers approximately 40 square miles and that is bordered by the San Gabriel Mountains on the north; the San Rafael Hills on the west; and the Raymond Fault on the south and east. The general east-west trend of the San Gabriel Mountains, the north-south trend of the San Rafael Hills, and northeast trend of the Raymond Fault result in the basin having a triangular form. The basin is divided into the Monk Hill Subbasin to the west, the Santa Anita Subbasin to the east, and the Pasadena Subbasin in the central portion; these designations are based on differences in elevation and groundwater flow. Groundwater elevation east of the Arroyo Seco was estimated at 1,000 feet above msl in 2005 (MWD 2007).

The California Department of Water Resources estimates the Raymond Basin's storage capacity at about 1,450,000 acre-feet (af), with about 1,000,000 af of water remaining in storage in 1970. The Raymond Basin is recharged by the Arroyo Seco, a tributary to the Los Angeles River, and by Eaton Wash, Santa Anita Wash, and other streams in the watershed (DWR 2004).

Pumping rights to the Raymond Basin are adjudicated and the Raymond Basin Management Board administers the provisions of the adjudication decree. The Board coordinates the pumping rights and the groundwater storage accounts of public and private water agencies, including the PWP.

The spreading basins in Area 3 overlie the Monk Hill Subbasin, which has a natural safe yield of 7,489 afy. The MWD estimates that 11 wells in this subbasin provided 17,500 afy of water in 2004/2005. Valley Water Company has two aquifer storage and recovery (ASR) wells and PWP has no ASR wells in the Monk Hill Subbasin. The wells injected 10,500 afy of water in 2005. The Arroyo Seco spreading basins cover approximately 24 acres, with 12 acres of wetted area and a recharge capacity of 18 cfs and 13,000 afy (MWD 2007 and PWP 2014).

Groundwater quality is hard (high levels of calcium bicarbonate) and fluoride levels are occasionally high. Nitrate, perchlorate, and VOCs have been detected in wells in the Monk Hill Subbasin and along the Arroyo Seco (MWD 2007). The Monk Hill Treatment System (located on Windsor Avenue southeast of Area 3) removes VOCs and perchlorate from four City wells (Arroyo Well, Well 52, Ventura Well, and Windsor Well) located in and near Area 3 (NASA JPL 2011).

The floodplains for the 50-, 100- and 500-year storm events are generally confined to the stream channel in Areas 1 and 2. While the floodplains include portions of the access road in Area 1, the USFS Ranger Station is outside the 500-year floodplain (Carollo 2013). The Flood Insurance Rate Maps of the Federal Emergency Management Agency (FEMA) show that Areas 1 and 2 are located in Zone D (areas in which flood hazards are undetermined, but possible) and Area 3 is located in Zone X (areas determined to be outside the 0.2 percent annual chance floodplain) (FEMA 2008).

The Upper Arroyo Seco is not listed as an impaired water body under Section 303(d) of the Clean Water Act (SWRCB 2012).

4.10.2 IMPACT ANALYSIS

Project Design Features

- PDF HYD-1** Habitat restoration proposed in Area 1 will create a more natural riparian corridor for the Arroyo Seco and will include recontouring the stream channel; stabilizing the bank; revegetating with native plants; creating planting islands; and placing woody debris clusters at scattered locations.
- PDF HYD-2** Replacement of the diversion and weir structures in Area 2 and additional spreading basins and expansion of the spreading basins in Area 3 will increase groundwater recharge using the City's surface water rights from the Arroyo Seco.
- PDF HYD-3** The proposed restroom in Area 3 will be located outside the 50-year floodplain and would be connected to the public sewer system. In addition, trash cans and pet waste stations will be provided in Areas 1 and 3 to reduce pollutants that may enter the Arroyo Seco.

Regulatory Requirements

- RR HYD-1** Prior to the start of construction activities, the Contractor is required to file a Permit Registration Document (PRD) with the State Water Resources Control Board (SWRCB) in order to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with the Construction and Land Disturbance Activities (Order No 2009-009-DWQ, NPDES No. CAS000002) or the latest approved general permit. This permit is required for construction activities (including demolition, clearing, grading, and excavation) and other land disturbance activities that result in the disturbance of one acre or more of total land area. The PRD consists of a Notice of Intent (NOI); a Risk Assessment; a Site Map; a Storm Water Pollution Prevention Program (SWPPP); an annual fee; and a signed certification statement. Pursuant to permit requirements, the Contractor must implement Best Management Practices (BMPs) in the SWPPP into the Project to reduce or eliminate construction-related pollutants in the runoff.
- RR HYD -2** The Contractor is required to comply with SWRCB Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification", which requires compliance with all conditions of the Water Quality Certification issued by the Regional Water Quality Control Board (RWQCB). Compliance with the Water Quality Certification issued by the RWQCB would ensure that any discharge does not conflict with the applicable provisions of Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), or 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act, or any other applicable requirements of State law.
- RR HYD-3** Construction activities that will result in discharges of groundwater and dewatering that could result in discharges to surface waters are required to comply with the effluent limitations, discharge prohibitions, receiving water limitations, and other provisions outlined in the Los Angeles RWQCB Order No. R4-2013-0095. This Order requires that an NOI be filed with the Los Angeles RWQCB prior to dewatering activities and discharge into surface waters; water sampling and

analysis; implementation of BMPs to prevent water quality degradation; and/or treatment of groundwater prior to discharge. The Los Angeles RWQCB reviews the NOI and the proposed discharge; authorizes the discharge subject to the requirements in the Order; and prescribes an appropriate monitoring and reporting program.

RR HYD-4 The Contractor is required to comply with the City's Stormwater Management and Discharge Control Ordinance (Chapter 8.7 of the Pasadena Municipal Code), which prohibits illicit discharges and connections to the municipal storm water system; requires that storm water pollutants be reduced through litter control, natural water course protection, and containment of spills; and calls for the implementation of BMPs during construction through SWPPPs and standard urban storm water mitigation plans (SUSMPs) for new development and major redevelopment.

RR HYD-5 All new construction and improvements in flood-prone areas are required by the City's Floodplain Management Regulations Ordinance (Chapter 14.27 of the Pasadena Municipal Code) to be adequately anchored to prevent flotation, collapse, or lateral movement; to be constructed with materials and equipment resistant to flood damage; to have utility and service facilities designed and located to prevent water from entering; and to provide adequate drainage to reduce exposure to flood hazards.

Impact Discussion

- a) **Would the project violate any water quality standards or waste discharge requirements?**
- f) **Would the project otherwise substantially degrade water quality?**

Less than Significant with Mitigation.

Areas 1, 2 and 3 Impacts. The restoration of riparian habitat in Area 1 would reduce pollutants in the stream channel (PDF HYD-1) by diverting flows in the Arroyo Seco through a meandering high-flow channel featuring seasonal wetlands, planting islands, and sandbars that would allow for the settlement of soils and sediments. The improvements in Area 2 include a diversion structure and screens in the intake structure that would prevent sediments from entering into the diverted water. In addition, the sedimentation basins proposed in Area 3 (PDF HYD-2) would also allow for the settlement of silts and fine sediments, preventing these from entering the spreading basins. Since overflows from the high-flow channel and spreading basins would go back into the Arroyo Seco, these PDFs would have beneficial impacts on water quality in the Arroyo Seco.

Pollutants that may impact storm water quality and water quality in the Arroyo Seco would be reduced by the Project. The recreational parking lot in Area 3 would be constructed of decomposed granite and would not generate runoff pollutants that may enter the Arroyo Seco. Oil, grease, and other vehicle fluids that may leak from parked vehicles in the proposed recreational parking lot would be absorbed into the ground surface and would be in limited amounts. The proposed trash receptacles and pet waste stations (PDF HYD-3) would allow trail users and visitors to properly dispose of these wastes; this would discourage others from throwing wastes on the ground, thereby preventing their potential conveyance by runoff into the Arroyo Seco. The proposed restroom would also provide a convenience to trail users and visitors, thereby reducing the occurrence for human waste and contact in the streambed or canyon and improving the water quality in the Arroyo Seco. The restroom is estimated to generate 2,000 gallons of

wastewater per day that would be conveyed to an existing sewer line at the JPL campus (PDF HYD-3); this sewer line, in turn, would convey wastewater to the Los Angeles County Sanitation Districts' Whittier Narrows Water Reclamation Plant or the Joint Water Pollution Control Plant. No wastewater would be directed into the Arroyo Seco. Thus, the proposed restroom would reduce water pollutants in the Arroyo Seco. No long-term storm water pollutant generation would occur with the Project.

While the Upper Arroyo Seco is not an impaired water body, construction activities within and near the Arroyo Seco in Areas 1 and 2 would temporarily result in pollutants in the stream that may degrade water quality. Compliance with RR HYD-1 and RR HYD-4, which require implementation of BMPs during construction, would reduce the amount of these pollutants that enter the Arroyo Seco. In addition, the Project requires a Water Quality Certification from the Los Angeles RWQCB (MM BIO-5 from Section 4.4, Biological Resources), and implementation of the Waste Discharge Requirements (WDRs) and other conditions of the Water Quality Certification (RR HYD-2) would reduce pollutants in the stream.

Dewatering activities associated with excavation of the spreading basins in Area 3 may also lead to the temporary discharge of water into the Arroyo Seco that may affect water quality in the stream. Compliance with the provisions outlined in the Los Angeles RWQCB Order No. R4-2013-0095 relating to the discharge of groundwater into surface water (RR HYD-3) would reduce adverse impacts to water quality.

As discussed earlier, hazardous materials use, storage, and disposal (i.e., equipment and refueling activities) may lead to hazardous materials entering or being washed down into the Arroyo Seco. Compliance with MM HAZ-1 from Section 4.8, Hazards and Hazardous Materials, regarding hazardous materials handling at the construction sites would prevent these impacts.

Impacts on water quality would be less than significant during construction with compliance RR HYD-1, RR HYD-2, RR HYD-3, RR HYD-4, MM BIO-5 from Section 4.4, Biological Resources, and MM HAZ-1 from Section 4.8, Hazards and Hazardous Materials. No other mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potential impacts to water quality from construction activities and increases in vehicles, horses, and park and trail users at the HWP. The Project would comply with RR HYD-1 and RR HYD-4 for the implementation of BMPs during construction as part of the SWPPP. These RRs are similar to the Master EIR's Measure Hydro-1. The Project's proposed trash cans and decomposed granite parking lot are comparable to BMPs called out in Measure Hydro-2.

The Master EIR also discussed potential microbial contamination of surface water from waterfowl and the use of wetlands for filtration. The Project does not propose habitat restoration in Area 3, which is located within the HWP and was analyzed in the Master EIR. However, the Project proposes wetland and habitat restoration in Area 1, which would provide filtration of water in the Arroyo Seco.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. The Project does not involve direct extraction of groundwater from the Raymond Groundwater Basin's underlying Monk Hill Subbasin. The PWP owns the rights to divert up to 25 cfs of stream flow from the Arroyo Seco, but currently only utilizes up to 18 cfs for spreading at existing basins. The LAWC has surface water rights to 6.59 cfs of surface water flows on Millard Creek.

The new diversion and weir structures in Area 2 and the expanded spreading basins in Area 3 (PDF HYD-2) would allow for the capture and recharge of as much as 25 cfs. With the increased ability to divert water during storm events and the larger recharge area provided by additional spreading basins, the Project would allow for the recharge of an additional 1,100 af of water annually, which would supplement the PWP's local water supplies. This is a beneficial impact on PWP's water resources.

With the improved diversion, less surface water would flow in the portion of the Arroyo Seco downstream of Area 2 and towards the Devil's Gate Reservoir and more surface water would be conveyed to the spreading basins for groundwater recharge. The Upper Arroyo Seco, Devil's Gate Reservoir, and the spreading basins are underlain by the same Monk Hill Subbasin of the Raymond Groundwater Basin. Where surface water now percolates in Devil's Gate Reservoir to reach the groundwater or is released through the dam by the County prior to storm events, the Project would divert an estimated 1,100 afy into spreading basins, allowing for a 60 percent extraction (i.e., 660 afy) of the amount of groundwater infiltrated. Depending on the amount of surface water currently percolating at Devil's Gate Reservoir, the Project could alter the amount of water percolating into the underlying groundwater subbasin, as well as the amount of groundwater extraction. The Raymond Basin Management Board adjudicates water resources in this groundwater basin by setting the pumping rights and managing the groundwater storage accounts of public and private water agencies, including the PWP. Continued management of the Raymond groundwater basin would prevent adverse impacts to underlying groundwater resources, and impacts would be less than significant.

Construction activities would require water for dust control, equipment cleaning, and incidental uses, but this water demand would be provided by water trucks and would not directly impact underlying groundwater supplies. While recharge at existing spreading basins may be temporarily disrupted during the construction phases of the diversion and weir structures, the intake structure, and the spreading basins, and the long-term increase in recharge brought on by the Project would have a beneficial impact on groundwater supplies. Impacts on the spreading basins would be short-term and less than significant; no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that the improvement of spreading basins would have positive impacts on the Raymond groundwater basin.

- c) **Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?**

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. Recontouring of Area 1 would change stream flows in the Arroyo Seco; however, the proposed flow diversion, floodplain islands, riparian planting, and woody debris clusters in Area 1 would reduce flow velocities in the Upper Arroyo Seco, while the bank stabilization (e.g., rock revetment and coconut fiber bundles) would reduce erosion and scour.

The addition of woody structures and revetment would slightly alter the course of the Arroyo Seco within Area 1; however, this portion of the creek is subject to variations in flows through the braided stream area.

Flows over the ten-year base flow may go into the proposed rest area/picnic area. Improvements in this area would be bolted into concrete foundations to withstand flooding and erosion hazards. If the proposed nature trail is submerged in flows and wiped out, it is anticipated that trail users would create a new trail alignment. Erosion due to changes in stream flows would be less than significant.

Increases in surface water diversion at Area 2 would not change drainage patterns, but would redirect some of the surface water flows currently entering the Devil's Gate Reservoir to the new spreading basins in Area 3. The area around the diversion structure and the slopes along the access road in Area 2 would also be stabilized with riprap protection to reduce erosion. The new recreational parking lot in Area 3 would be covered in decomposed granite, and the maintenance roadway around the spreading basins would be compacted to reduce erosion. Therefore, the Project would reduce erosion in the long term. No major change in drainage patterns or erosion and siltation would occur with the Project.

During construction, erosion control measures would be implemented as part of the Project's SWPPP (as RR HYD-1). BMPs proposed include cofferdams that would be placed at the upstream ends of Areas 1 and 2, with a sump pump to direct water through a pipeline to the downstream ends of the construction areas. This alteration of flows would be temporary, but would avoid construction materials and debris from entering the stream flow. A silt fence would also be installed around Area 1 to reduce erosion and sedimentation into the construction area. Compliance with the BMPs in the SWPPP would reduce erosion, and impacts would be less than significant. No mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that storm drain improvements, channel widening, and habitat establishment would reduce erosion along the Arroyo Seco. Erosion and sedimentation controls were called out for the water conservation pool, spreading basins, lakes, bridges, and utility relocation/replacement (Measures Geology-1 through Geology-5). Measures Geology-1, Geology-3, and Geology-4 are not applicable to the Project. The Project would comply with RR HYD-1, which includes implementation of erosion-control measures as part of the SWPPP for the Project. This is similar to Measures Geology-2 and Geology-5.

- d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?**

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. The proposed improvements would not change drainage patterns in a way that could cause flooding. The Project does not involve the construction of new impervious cover that would impede storm water absorption into soils, or cause new sheetflow runoff. In Area 1, the footings and legs for the proposed picnic tables, benches, horse water trough, pet waste stations, trash cans, and signs would be relatively small and scattered, and would have no impact on floodwater flows. These recreational and educational amenities in Area 1 will be placed outside the five-year floodplain to minimize the amount of maintenance or repair needed following storm events. Bank revetment and the addition of woody debris clusters and a high flow channel

would slightly alter the course of the Arroyo Seco within Area 1; however, they would not alter flows in such a way that could increase flooding.

The diversion and weir structures in Area 2 would be placed above the existing diversion sill, and no changes to existing drainage patterns would occur. Flooding in Area 2 would not change, although water impoundment during high flows would be greater.

The area near Area 3 that is most frequently inundated is located behind the Devil's Gate Dam, below the elevation of the spillway (at 1,040.5 feet above msl). When the water level reaches the top of the dam at an elevation 1,075 feet above msl, water flows downstream and does not rise further. Since Area 3 is above this downstream elevation (at 1,100 to 1,130 feet above msl), it is not subject to flooding. Flooding of the proposed spreading basins, which may be excavated below 1,100 feet above msl, would not present an adverse impact. Since the proposed recreational parking lot and restroom would be at an elevation near 1,130 feet above msl and above the height of the dam, these facilities would not be subject to flooding.

Changes in drainage patterns due to Project implementation would be confined to small areas and would not cause flooding. Impacts would be less than significant and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that floodplain features and flood water elevations would not be impacted significantly since no significant fill or dredging activities are planned and no major structures that may affect flow resistance and conveyance are proposed. Minor encroachments would not cause significant changes to flood water stages or erosion/sedimentation trends.

- e) **Would the project create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of pollutant runoff?**

No Impact.

Areas 1, 2 and 3 Impacts. There are no storm drain systems that receive storm water flows from Areas 1 and 2. All storm water flows enter the Arroyo Seco. In Area 3, storm water flows will be reduced when compared to the existing condition due to the elimination of the JPL East Parking Lot and the expansion of the spreading basins. There would be no impact to storm water drainage systems. No long-term storm water pollutants would be generated by the Project, as previously discussed under Thresholds a) and f).

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potential impacts to water quality from construction activities and increases in vehicles, horses, and park and trail users at the HWP. The Project would comply with RR HYD-1 and RR HYD-4 for the implementation of BMPs during construction as part of the SWPPP. These RRs are similar to the Master EIR's Measure Hydro-1. The Project's proposed trash cans and decomposed granite parking lot are comparable to BMPs called out in Measure Hydro-2.

- g) **Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?**
- h) **Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?**

No Impact.

Areas 1, 2 and 3 Impacts. The proposed Project would not involve the construction of any permanent housing that may be exposed to flood hazards. The improvements in Area 1 (e.g., habitat restoration, nature trail, and rest area/picnic area) would be located within the 100-year floodplain for the Arroyo Seco, but would be built to withstand flooding (RR HYD-5). Their small and scattered locations would not impede flood flows.

The proposed diversion and weir structures in Area 2 would impede low flows for diversion into the spreading basins in Area 3, but this is not considered an adverse impact. During extremely high-flow rain events, the proposed diversion and weir structures may be partially or fully bypassed, depending on streamflow turbidity or the potential for large debris damaging the weir, thus allowing flows to continue downstream. Area 3 is located outside the floodplain, and improvements in Area 3 would not impede flood flows.

An increase in the number of trail users in the Arroyo Seco Canyon may occur but, as in the existing condition, signage would be posted regarding the hazards associated with stream flows. No impacts related to flooding would occur and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that floodplain features and flood water elevations would not be impacted significantly since no significant fill or dredging activities are planned and no major structure that may affect flow resistance and conveyance is proposed. Minor encroachments would not cause significant changes to flood water stages or erosion/sedimentation trends.

- i) **Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?**

No Impact.

Areas 1, 2 and 3 Impacts. The proposed improvements would be located upstream of Devil's Gate Dam. The top of this dam is at an elevation of 1,075 feet above msl. The lowest ground elevation is at Area 3 and is 1,100 feet above msl. Thus, when waters behind the dam reach 1,075 feet above msl, they will overtop the dam and would not affect areas at higher elevations, including Area 3. Also, failure of the dam will release waters downstream into the Central and Lower Arroyo Seco (Pasadena 2011) and would not affect the proposed improvements in Areas 1, 2, or 3.

There are reservoirs on the ridge north of JPL and failure of these reservoirs may release waters into Areas 2 and 3. The new diversion and weir structures, the improved access road in Area 2, and the proposed parking lot and spreading basins in Area 3 would not be damaged by waters from these reservoirs. Also, the proposed restroom and guard station in Area 3 are unlikely to sustain any significant damage from reservoir failure and are not habitable structures with a permanent population.

The proposed diversion structure would impound low flows, but would allow flows above 25 cfs to pass through; thus, it would not lead to flooding of Area 2. Overflows in the spreading basins in Area 3 would flow back into the Arroyo Seco. The Project would not expose people or structures to flooding due to levee failure or dam inundation. No impacts would occur and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not identify inundation hazards in the HWP.

j) Would the project cause inundation by seiche, tsunami, or mudflow?

No Impact.

Areas 1, 2 and 3 Impacts. The City of Pasadena is located inland and is not subject to tsunami (sea waves) hazards. The Project would not expose people or structures to tsunami hazards due to distance from the Pacific Ocean. There is no large open water body near the Arroyo Seco that may pose seiche hazards. The existing and proposed spreading basins would not hold water for long periods, but would allow water to percolate into the ground within several hours. The basins would also have at least two feet of freeboard; spillways, pipes and outlets for water to flow into lower basins; and overflow pipes to direct water back into the Arroyo Seco. Thus, no seiche hazards would be created by the Project, and the Project would not be exposed to seiche hazards.

Mudflows in the Arroyo Seco Canyon occur during large storm events, with large amounts of debris and sediment deposited in the Devil's Gate Reservoir. The proposed flow diversion, floodplain islands, riparian planting, and woody debris clusters in Area 1 would reduce flow velocities in the Upper Arroyo Seco, while bank stabilization (e.g., rock revetment and coconut fiber bundles) would reduce erosion and scour. The diversion structure that would be rebuilt in Area 2 would allow large flows to pass through to prevent sediment build up behind the weir and intake structure; it would also slow down flow velocities and reduce downstream erosion and the potential for mudflows. In addition, stabilizing the roadway slope with riprap will reduce erosion that could add to sediment loads in the stream flow. The proposed sedimentation basins in Area 3 would remove fine sediments from the diverted water. Thus, the Project would reduce sediment loads and mudflow hazards in the Arroyo Seco. No adverse impacts related to tsunami, seiche, or mudflow would occur.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not identify hazards associated with tsunamis or mudflows. It did indicate that the Devil's Gate Reservoir poses seiche hazards, although no seiches have been reported and the dam does not impound water on a continuous basis.

4.10.3 MITIGATION MEASURES

Implementation of PDF HYD-1 and PDF HYD-2 and compliance with RRs HYD-1 to HYD-5 would reduce impacts to hydrology and water quality to less than significant levels; therefore, no mitigation measures are required.

4.11 LAND USE AND PLANNING	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.11.1 EXISTING CONDITIONS

The Arroyo Seco Canyon Project proposes improvements at three separate areas along the Upper Arroyo Seco. Existing improvements in each area are discussed in Section 2.2 of this IS/MND.

The Upper Arroyo Seco and adjacent lands are designated and zoned as Open Space and Planned Development in the City of Pasadena’s Land Use Plan and Zoning Map (Pasadena 2009, 2012b). The Open Space designation and zone applies to City-owned land with active and passive public recreational facilities and natural open spaces and the Planned Development zone applies to sites developed with a particular mix of uses, appearance, land use compatibility, or special sensitivity to neighborhood character (Pasadena 2004). The area north and east of Area 1, within the unincorporated community of Altadena, is designated as Low Density Residential and Open Space-National Forest (LACDRP 2009).

As discussed in Section 2.2, the Hahamongna Watershed Park Master Plan (HWMP) is a land use plan for approximately 330 acres of Hahamongna Watershed Park (HWP), which extends northward from the Devil’s Gate Dam to the mouth of the Arroyo Seco Canyon. A number of improvements proposed for Area 3 are in the HWMP.

The ANF is managed by the USFS for the protection of open space and natural resources within the San Gabriel Mountains. Area 1 is located within the boundaries of the ANF and is designated in the USFS Land Management Plan as Non-Forest System Land (USFS 2005a) and is located on land owned by the City. Land farther north of Area 1 is designated as Back Country, Motorized Use Restricted (BCMUR). The BCMUR zone considers the restoration of vegetation condition as a suitable activity or use and supports non-motorized dispersed recreational opportunities, including camping, hiking, biking, hunting, and fishing (USFS 2005b).

4.11.2 IMPACT ANALYSIS

Regulatory Requirements

RR LU-1 The proposed improvements in Area 3 must be designed and constructed in compliance with the *Hahamongna Watershed Park Master Plan* (HWMP) and the proposed restroom building will require Design Review Approval.

RR LU-2 The proposed Project will require a Conditional Use Permit (CUP) for developing/improving recreational facilities in the Open Space zone.

Impact Discussion

a) Would the project physically divide an established community?

No Impact.

Areas 1, 2 and 3 Impacts. The proposed Arroyo Seco Canyon Project does not involve the displacement of existing residences or the construction of barriers through the developed areas located east and west of the Arroyo Seco. Therefore, the Project would not divide an established community. No impacts would occur and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not address impacts on land use and planning since the Initial Study for the Arroyo Seco Master Plan had determined earlier that no division or disruption of an established community would occur.

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Less Than Significant Impact.

Areas 1, 2 and 3 Impacts. The Project would not conflict with the City's Open Space designation and zone for the area since the restored habitat areas, improved water diversion facilities, expanded spreading basins, and new recreational amenities would be consistent with the Open Space designation. However, recreational elements in the Open Space zone require a conditional use permit (CUP) from the City. Therefore, the Project includes obtaining a CUP for developing/improving recreational facilities in the Open Space zone. The proposed recharge basins in Area 3 would not conflict with the Planned Development zone.

Chapter 3.32 of the City's Municipal Code is the Arroyo Seco Public Lands Ordinance, which outlines the City's regulations for publicly owned lands within the Arroyo Seco. This ordinance only applies to the Central and Lower Arroyo Seco and does not pertain to the Upper Arroyo Seco. The Project would not conflict with the Arroyo Seco Public Lands Ordinance, as the proposed improvements would be located north of the Devil's Gate Dam as defined in the ordinance.

The proposed improvements include the recreational parking lot at the northern end of Area 3; construction of spreading basins; expansion of the spreading basins; and the provision of a restroom, interpretive signs, and potential future trail connection at the north end of Area 3. These are consistent with the HWMP, which proposes the spreading basin expansion and a new trailhead north of the JPL East Parking Lot. The HWMP proposes other facilities in or near Area 3 (e.g., a sunset overlook, bridge for North Perimeter Trail, East park entrance, East Rim Trail, Johnson Field improvements, pumpback system, storm drain improvements, utility line relocation and undergrounding) that would not be implemented by the Project but, at the same time, would not be precluded from future implementation. No conflict with the HWMP would occur. Thus, the Project would comply with RR LU-1.

The habitat restoration, water diversion, and recreational amenities that would be provided by the Project in Area 1 would not conflict with the goals of the USFS for the protection of open space and natural resources within the San Gabriel Mountains. The Project would also not conflict with the BCMUR zone to the north, which considers the restoration of vegetation condition as a suitable activity or use and supports non-motorized dispersed recreational opportunities, including camping, hiking, biking, hunting and fishing.

Since no urban development is proposed and no change to the open space use of the land would occur with the Project, no conflict or inconsistency with regional plans (i.e., SCAG's Regional Comprehensive Plan, Regional Housing Needs Assessment, Regional Transportation Plan/Sustainable Communities Strategy, and Compass Blueprint) or with the growth forecasts used in the development of these regional plans would occur. Impacts would be less than significant.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not address impacts on land use and planning since the Initial Study for the Arroyo Seco Master Plan had determined earlier that no significant impact on applicable land use plan or policies would occur and no significant impacts to land use and planning are anticipated.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact.

Areas 1, 2 and 3 Impacts. As discussed under Section 4.4, Biological Resources, there is no adopted habitat conservation plan or natural community conservation plan in the City of Pasadena or near the City and the Arroyo Seco. The Arroyo Seco Canyon is located in the Altadena Foothills and Arroyos Significant Ecological Area (SEA) under the County's SEA program (LACDRP 2011). The Project site is not subject to the SEA Program because it is not located within an unincorporated County area. Still, the Project consists of habitat restoration, water diversion, and recreational amenities that would not conflict with the objectives of the SEA for species conservation, biotic diversity, or habitat linkages. Impacts on biological resources are discussed in Section 4.4 above. No impacts related to habitat conservation plans or natural community conservation plans would occur with the Project. No mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not address impacts on land use and planning since the Initial Study for the Arroyo Seco Master Plan had determined earlier that no habitat conservation plans or natural community conservation plans are applicable to the Arroyo Seco Master Plan since no such plans exist in the area.

4.11.3 MITIGATION MEASURES

There would be no significant adverse impacts related to land use and planning with compliance with RR LU-1 and RR LU-2; therefore, no mitigation measures are required.

4.12 MINERAL RESOURCES	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.12.1 EXISTING CONDITIONS

Mineral resources are naturally occurring chemicals, elements, or compounds such as bituminous rock, gold, sand, gravel, clay, crushed stone, limestone, diatomite, salt, borate, potash, geothermal, petroleum, and natural gas resources. Construction aggregate refers to sand and gravel (natural aggregates) and crushed stone (rock) that are used as Portland-cement-concrete aggregate, asphaltic-concrete aggregate, road base, railroad ballast, riprap, fill, and the production of other construction materials.

The California Geological Survey (CGS) has identified deposits of regionally significant aggregate resources in the State in accordance with the Surface Mining and Reclamation Act (SMARA). Clusters or belts of mineral deposits are designated as Mineral Resources Zone 2 (MRZ-2), which include areas that require special management due to the presence of mineral resources important to the State. The Devil’s Gate Reservoir is designated as an MRZ-2 zone. The reservoir was mined by eight operators and by the County for channel maintenance until 1994. The MRZ-2 zone in the reservoir covers 204 acres and contains sand and gravel deposits up to 100 feet below the ground surface. This zone encompasses Area 3. However, there is no active mining operation in this MRZ-2 zone (CDOC 2010).

Review of maps prepared by the California Department of Conservation shows that there are no oil, gas or geothermal fields in or near the Upper Arroyo Seco (CDOC 2001). Additionally, there are no active or idle oil wells in or near the canyon. The nearest well is a plugged and inactive well located approximately six miles southwest of Area 3 (DOGGR 2013).

4.12.2 IMPACT ANALYSIS

Project Design Features

PDF MIN-1 Large cobbles and boulders exposed in Area 2 will be collected and stockpiled at a designated area for future use as trail markers, signs, and other decorative purposes.

Regulatory Requirements

RR MIN-1 Excavation activities in Area 3 is required to include the collection of arroyo stone for use in structures, signs, walls, and other improvements in accordance with the Arroyo Seco Design Guidelines, subject to design review and approval by the City’s Planning Division.

Impact Discussion

- a) **Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?**

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. The sand and gravel resources within Devil's Gate Reservoir, as identified by CGS (CDOC 2010), would not be affected by the Project, since no excavation, grading, or paving is proposed within the reservoir.

The proposed improvements in Areas 1 and 2, upstream of the reservoir, would restore habitat and increase water diversion, but would not affect the availability of sand and gravel resources in the reservoir. However, there are large cobbles and boulders in these areas that would be disturbed by the Project. Improvements in Area 1 would place these boulders along the edges of the stream and the nature trail, and in the proposed rest area/picnic area. Improvements in Area 2 may use boulders depending on integrity, shapes, and sizes for the rock wall and riprap protection. Improvements in Area 3 may also utilize cobbles and boulders (e.g., structure facades, walkway/trail edges, signs, etc.). In addition, as stated in PDF MIN-1, large cobbles and boulders in Area 2 would be moved away from active construction areas and stockpiled for future decorative uses, to conserve these resources.

The CGS has identified sand and gravel resources in Area 3 (CDOC 2010). The improvements in Area 3 would not extract the underlying sand, gravel, or arroyo stone resources, but may expose these resources during utility line excavation and as part of grading activities for the sedimentation basins and expansion of the spreading basins. The amount of excavated soils requiring off-site disposal would be minimized by creating shallow embankments around the proposed basins and raising the elevation of the access road and the new parking lot. Still, approximately 2,000 cubic yards of excess soils would be disposed of offsite. The HWMP and Arroyo Seco Design Guidelines call for the use of local arroyo stone in structures, walls, fences, signs, entries, and along trails to reflect the culture and style that is present along the Arroyo Seco. In compliance with the HWMP and Arroyo Seco Design Guidelines, RR MIN-1 requires the collection of arroyo stones during excavation activities in Area 3. This would allow for the reuse of the stones for the restroom, trail, drinking fountain, signs, or other site improvements, as well as to reduce the off-site disposal of excavated soils and materials.

The improvements for Area 3 would include some impervious surfaces (e.g., foundations for restroom, access road, and guard station), but the majority of the area would remain pervious as a decomposed granite parking lot and open sedimentation and spreading basins. Thus, the Project would maintain the availability of these mineral resources and would not preclude future mining operations in this area.

Impacts on regionally important mineral resources would be less than significant, and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan acknowledged the presence of mineral resources, such as arroyo stone, behind Devil's Gate Dam and includes a mitigation measure for the collection of the arroyo stone for use in other areas of the HWP. To allow for continued collection and reuse of the arroyo stone in the HWP, RR MIN-1 (similar to Measure Minerals-1) would be implemented in Area 3.

- b) Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?**

No Impact.

Areas 1, 2 and 3 Impacts. There are no identified oil, gas, or geothermal resources or ongoing mining/extraction activities in the Upper Arroyo Seco. The City of Pasadena Comprehensive General Plan does not identify any mineral resources in the City (Pasadena 2004). The HWMP talks about the removal of sand and gravel from the Devil's Gate Reservoir in the past but does not identify aggregate or other mineral resources in and around the reservoir that should be protected or preserved (Pasadena 2003a).

The Project would not require mineral resources, nor would it change the availability of resources within Devil's Gate Reservoir. The diversion of water into the spreading basins would not affect sand and gravel resources in the reservoir. Additionally, no new structures or facilities would be constructed as part of the Project that could potentially restrict or obstruct future mineral resource recovery activities within Devil's Gate Reservoir. As discussed above, construction activities in Areas 2 and 3 would include collection of arroyo stones (PDF MIN-1 and RR MIN-1). Long-term recreational activities in the Arroyo Seco Canyon and operation and maintenance activities on the PWP facilities would not require mineral resources. Thus, there would be no impacts to locally important mineral resources. No mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan acknowledged the presence of mineral resources, such as arroyo stone, behind Devil's Gate Dam and includes a mitigation measure for the collection of the arroyo stone for use in structures, walls, fences, signs, entries, and along trails. The Project would implement RR MIN-1 in Area 3, which is similar to Measure Minerals-1 in the Master EIR.

4.12.3 MITIGATION MEASURES

There would be no significant adverse impacts related to mineral resources, with implementation of PDF MIN-1 and RR MIN-1. No mitigation is required.

4.13 NOISE	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.13.1 EXISTING CONDITIONS

Noise-Sensitive Receptors

Noise-sensitive receptors include land uses where an excessive amount of noise would interfere with normal operations or activities and where a high degree of noise control may be necessary. Examples include schools, hospitals, and residential areas. Recreational areas may be considered noise-sensitive where quiet and solitude may be an important aspect of the specific recreational experience (Pasadena 2004).

Area 1. The USFS Ranger Station, which includes three dwelling units providing housing for USFS Rangers, is located just east of the trail in Area 1 (See aerial photograph of Area 1 in Exhibit 2-3a). The USFS Ranger Station is located in the City of Pasadena. The closest residences to the west in La Cañada Flintridge are on Gleneagles Place, approximately 0.2 mile west of Area 1. Residential neighborhoods to the east in Altadena are approximately 0.25 mile from Area 1.

Area 2. The closest homes to Area 2 are approximately 0.15 mile to the east on Canyon Dell Drive in Altadena. Residential neighborhoods to the west in La Cañada Flintridge are more than 0.25 mile from Area 2.

Area 3. There are single-family residential neighborhoods to the east of Area 3. Some homes are in the City of Pasadena and others are in Altadena. The closest homes to Area 3 are on Ridgeview Drive in Altadena, approximately 225 feet from the eastern edge of the JPL parking lot, and are approximately 100 feet higher in elevation than the parking lot.

North Windsor Avenue, between I-210 and Explorer Drive, would be used by traffic generated by the proposed Project. There are homes adjacent to North Windsor Avenue in the City of Pasadena and in the community of Altadena.

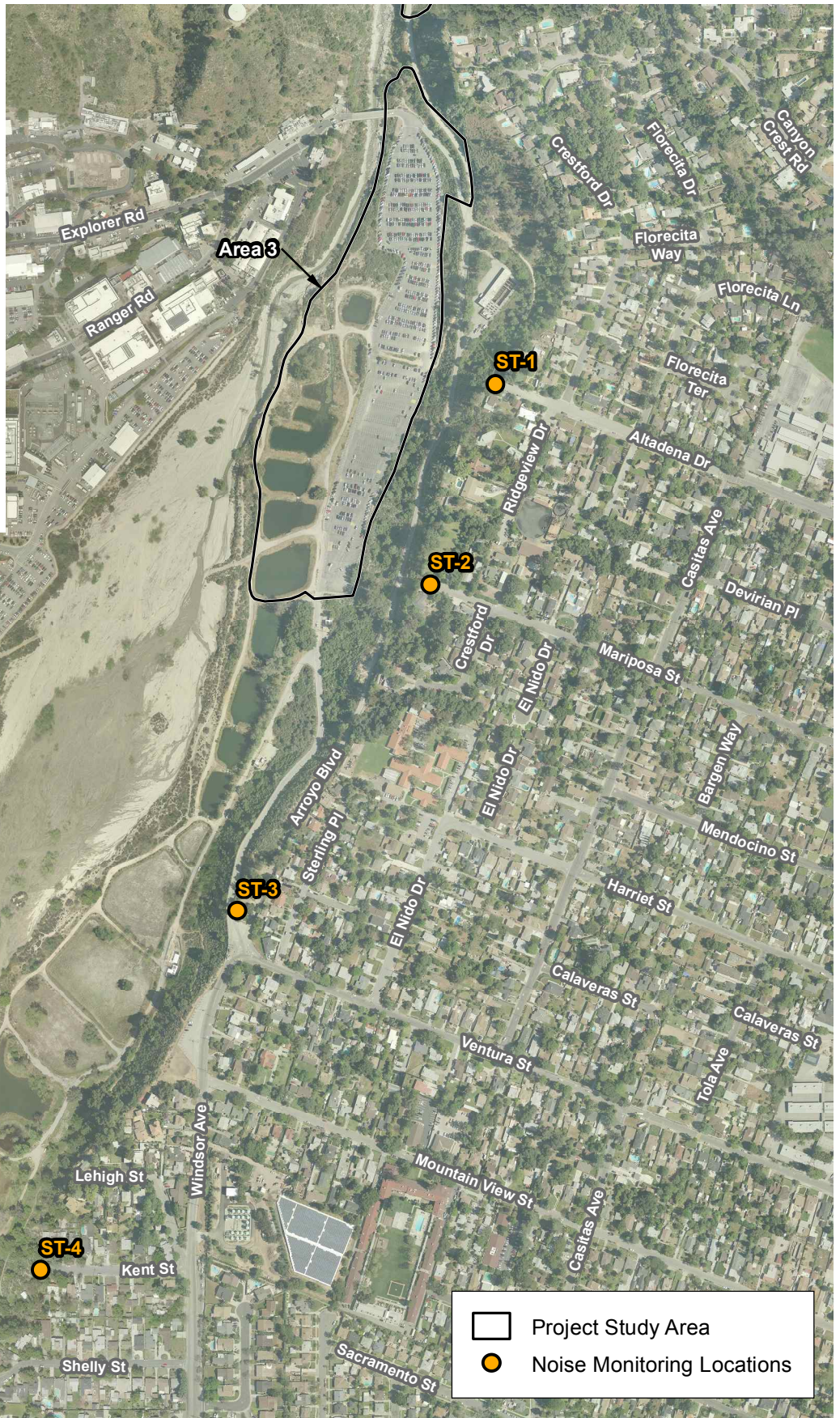
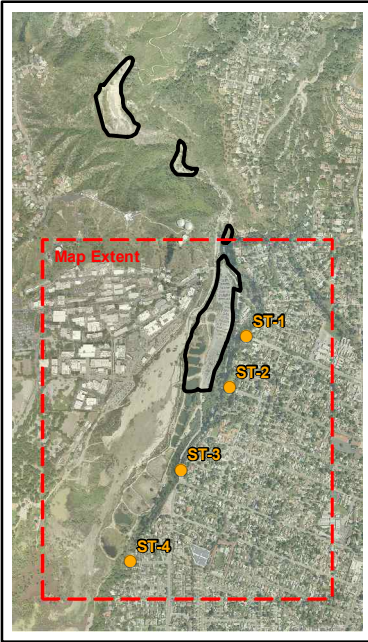
Passive and active recreational areas, including the Gabrielino Trail, are near all Project areas and are described in Section 4.15, Recreation.

Existing Noise Levels

Areas 1 and 2 are located in rural settings approximately 0.25 mile from suburban development. Local noise sources include occasional vehicles, recreational visitors, wind, and other natural sounds. Average hourly daytime noise levels (L_{eq}) are estimated to be 40 to 45 A-weighted decibels (dBA) L_{eq} .

Area 3 is located within a developed area and includes the JPL East Parking Lot. The principal local noise sources in the surrounding area are (1) industrial activities, including material handling equipment at the JPL campus to the west and (2) vehicles coming to, using, and leaving the parking lot. Average hourly daytime noise levels are estimated to be 50 to 55 dBA L_{eq} .

Ambient noise level measurements were taken near the residential receptors east of Area 3 on November 14, 2013, using a Larson Davis Laboratories Model 831 integrating sound level meter (LD 831). The LD 831 sound level meter and microphone was mounted on a tripod four to five feet above the ground and equipped with a windscreen during all measurements. The LD 831 was calibrated before and after use. Four short-term noise level measurements were made. The monitoring locations are shown in Exhibit 4-4, Noise Monitoring Locations. Each short-term measurement was taken for a period of 20 minutes to provide representative average daytime noise levels. The average, maximum, and minimum (L_{eq} , L_{max} , and L_{min}) values taken at each noise measurement location are shown in Table 4.13-1, Ambient Noise Level Measurements. The complete noise monitoring results are included in Appendix E.

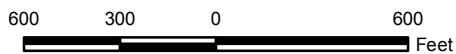


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Noise Monitoring Locations

Arroyo Seco Canyon Project

Exhibit 4-4



**TABLE 4.13-1
AMBIENT NOISE LEVEL MEASUREMENTS**

Location No.	Location	Start Time (Duration)	Noise Levels (dBA)			Primary Noise Source(s)	Notes
			L _{eq}	L _{max}	L _{min}		
1	West end of Altadena Dr	12:01 PM (20 min)	46	55	41	Hum and material handling equipment at JPL. Occasional traffic.	Occasional hikers and their dogs.
2	West end of Mariposa St	12:32 PM (20 min)	45	60	40	Hum and material handling equipment at JPL.	One helicopter pass. Occasional dog bark.
3	Intersection of N Windsor Ave and Ventura St	1:07 PM (20 min)	53	65	44	Traffic on Windsor Ave and Ventura St	JPL noise; 105 cars on Windsor Ave and Ventura St; 35 cars on JPL access road.
4	West end of Kent St	1:59 PM (20 min)	47	56	42	Residential sounds. Traffic on Windsor Ave.	I-210 traffic noise audible.

dBA: A-weighted decibel; L_{eq}: average noise level over a period of minutes or hours expressed as the equivalent noise level for that time period; L_{max} and L_{min}: the highest and lowest (respectively) A-weighted sound level that occurs during that noise event; min: minutes; JPL-Jet Propulsion Laboratory; I: Interstate

As shown in Table 4.13-1, the daytime noise levels in the residential area east of Area 3 ranged from an average noise level of 45 to 53 dBA. The existing background noise environment (i.e., ambient noise) in the Project area is primarily influenced by occasional vehicle traffic on the roads adjacent to the Project site.

The area in the City of La Cañada Flintridge west of Areas 1 and 2 includes developed residential areas, but no major roadways. Average hourly daytime noise levels are estimated to be 45 to 50 dBA L_{eq}.

Applicable Noise Standards

While the Project would be located in the City of Pasadena, there are nearby noise-sensitive receptors in Cities of Pasadena and La Cañada Flintridge and the unincorporated community of Altadena. The applicable noise standards of all three jurisdictions are provided below.

City of Pasadena

The City of Pasadena has established guidelines and standards in its General Plan and Municipal Code. The Noise Element recognizes that construction activity is a source of occasional temporary nuisance noise throughout the City and that these and other such nuisance noises are common to cities and, because of their unpredictable nature, must be addressed on a case-by-case basis.

The following policies are applicable to the Project:

Policy 7b: The City will encourage limitations on construction activities adjacent to sensitive noise receptors.

Policy 7c: The City will encourage construction and landscaping activities that employ techniques to minimize noise.

The City Municipal Code (Title 9, article IV, Chapter 9.36, Noise Restrictions) is the City's Noise Ordinance. It is the City's policy ". . . to prohibit unnecessary, excessive and annoying noises from all sources . . . Noise at certain levels is detrimental to the health and welfare of the general public". The following sections of the Noise Ordinance are applicable to the Project:

Section 9.36.050 – General Noise Sources

This is applicable for long-term, operational noise and states "It is unlawful for any person to create, cause, make or continue to make or permit to be made or continued any noise or sound which exceeds the ambient noise level at the property line of any property by more than 5 decibels". In accordance with Section 9.36.040, adjustments are made to the allowable noise level for steady audible tones, repeated impulsive noise, and noise occurring for limited time periods.

Section 9.36.070 – Construction Projects

This section is applicable for Construction Projects and states:

- A. No person shall operate any pile driver, power shovel, pneumatic hammer, derrick power hoist, forklift, cement mixer or any other similar construction equipment within a residential district or within a radius of 500 feet therefrom at any time other than as listed below:
 - 1. From 7:00 AM to 7:00 PM Monday through Friday;
 - 2. From 8:00 AM to 5:00 PM on Saturday; and
 - 3. Operation of any of the listed construction equipment is prohibited on Sundays and holidays.

- B. No person shall perform any construction or repair work on buildings, structures or projects within a residential district or within a radius of 500 feet there from in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance at any time other than as listed below:
 - 1. From 7:00 AM to 7:00 PM Monday through Friday;
 - 2. From 8:00 AM to 5:00 PM on Saturday; and
 - 3. Performance of construction or repair work is prohibited on Sundays and holidays.

- C. For purposes of this section, holidays are New Year's Day, Martin Luther King Jr. Day, Lincoln's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Day after Thanksgiving, and Christmas.

Section 9.36.080 – Construction Equipment.

This section states that “It is unlawful for any person to operate any powered construction equipment if the operation of such equipment emits noise at a level in excess of 85 dBA when measured within a radius of 100 feet from such equipment”.

Los Angeles County

The Los Angeles County noise restrictions are applicable to the properties within the Altadena community. Section 12.08 of the County of Los Angeles Code (County Code) contains the County Noise Ordinance. The County sets maximum construction noise levels “at residential structures.” As shown in Table 4.13-2 below, the daytime noise level limit at single-family residences for mobile construction equipment is 75 dBA.

**TABLE 4.13-2
COUNTY OF LOS ANGELES CONSTRUCTION EQUIPMENT NOISE LIMITS**

Time Interval	Single-Family Residential (dBA)	Multi-Family Residential (dBA)	Semi-Residential or Commercial (dBA)
Mobile Equipment			
Daily, except Sundays and legal holidays, 7:00 AM to 8:00 PM	75	80	85
Daily, 8:00 PM to 7:00 AM, and all day Sunday and legal holidays	60	64	70
Stationary Equipment			
Daily, except Sundays and legal holidays, 7:00 AM to 8:00 PM	60	65	70
Daily, 8:00 PM to 7:00 AM, and all day Sunday and legal holidays	50	55	60
dBA: A-weighted decibels			
Source: Los Angeles County 2013b.			

The County’s Noise Ordinance requirements are not applicable to mobile noise sources such as automobiles or heavy trucks when traveling in a legal manner on public roadways or on private property. Mobile noise source control is preempted by federal and State laws.

City of La Cañada Flintridge

The City of La Cañada Flintridge does not have quantitative standards for construction noise.

Applicable Vibration Standards

Neither the City of Pasadena nor the City of La Cañada Flintridge has vibration standards. Section 12.08.560 of the Los Angeles County Code states, “Operating or permitting the operation of any device that creates vibration which is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way is prohibited. The perception threshold shall be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz”.

4.13.2 IMPACT ANALYSIS

Regulatory Requirements

RR NOI-1 In accordance with Section 9.36.070 of the City of Pasadena Municipal Code, the Contractor is required to limit noise-generating construction activities to between the hours of 7:00 AM and 7:00 PM Monday through Friday and between the hours of 8:00 AM and 5:00 PM Saturday in or within 500 feet of a residential district. No noise-generating construction activities shall be conducted on Sundays and federal holidays.

Impact Discussion

- a) **Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

- d) **Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?**

Less than Significant Impact.

Noise impacts associated with the proposed Project would be largely limited to the construction phase. The primary noise sources during construction of a project are the diesel engines of construction equipment and noise from operations such as pile driving, blasting, and jackhammering. No pile driving or blasting activities are proposed; jackhammering, hoe-rams, and concrete saws may be used for some demolition work.

Construction noise is related primarily to the use of heavy equipment. Construction equipment can be considered to operate in two modes: stationary and mobile. Stationary equipment operates in one location for one or more days at a time, with either a fixed-power operation (such as pumps, generators and compressors) or a variable noise operation (such as rock drills and pavement breakers). Mobile equipment moves around the construction site with power applied in cyclic fashion, such as bulldozers, graders, and loaders. Noise impacts from stationary equipment are assessed from the location of the specific equipment, while noise impacts from mobile construction equipment are assessed from the center of the equipment activity or construction site. The noise level at a receptor is dependent on the distance from the source to the receptor and the intervening topography and groundcover.

Variation in power is also a factor in characterizing the noise source levels from construction equipment. Power variation is accounted for by describing the noise at a reference distance from equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the L_{eq} of the operation.⁶ Typical duty cycles and noise levels generated by representative pieces of equipment are listed in Table 4.13-3, Typical Maximum Construction Equipment Noise Levels.

⁶ The duty cycle is the percentage of time that the equipment is typically at full power.

**TABLE 4.13-3
TYPICAL MAXIMUM CONSTRUCTION
EQUIPMENT NOISE LEVELS**

Equipment	Noise Level (dBA) at 50 ft	Typical Duty Cycle
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 KVA or less)	70	50%
Generator (more than 25 KVA)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
In situ Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%
Pile Driver, Impact (diesel or pneumatic)	95	20%
Pile Driver, Vibratory	95	20%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%
dBA: A-weighted decibels; ft: feet; KVA: kilovolt amps		
Source: Thalheimer 2000.		

Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some would have higher continuous noise levels than others, and some have high-impact noise levels. The L_{eq} of each phase is determined by combining the L_{eq} contributions from each piece of equipment used in that phase. Construction of the Project is anticipated to start in Summer 2015.

Typical heavy construction equipment would include bulldozers, excavators, dump trucks, front-end loaders, graders, and industrial/concrete saws. Because of the effects of noise attenuation, the distance from the noise source to a receptor is a primary consideration in determining the noise level experienced at the receptor. Because different construction stages involve different pieces of equipment and may involve only localized portions of a site, each construction stage can result in different noise levels being generated depending on the distance to sensitive receptors.

Area 1 Impacts. The noisiest construction work in Area 1 would be the demolition of the Headworks structure, which is located at the north end of Area 1, approximately 500 feet from the nearest Ranger Station residence. Assuming that a concrete saw or a hoe-ram has a maximum noise level of 90 dBA at 50 feet and a 20 percent duty cycle (as shown in Table 4.13-3), the maximum noise level at the Ranger Station more than 500 feet, which would occur intermittently, would be approximately 65 dBA. The average noise level would be less than 60 dBA L_{eq} . Grading in Area 1 would occur at distances of approximately 100 to 500 feet from the closest Ranger Station residence. Because equipment would move around the site, average noise levels are calculated for the average distance of 250 feet. Assuming the simultaneous operation of two pieces of equipment (e.g., an excavator and dump truck), average noise levels at the nearest receptor would be approximately 67 dBA L_{eq} . The noise would be audible at the Ranger Station and could occasionally interfere with normal speech of persons outside and close to the construction work. The duration of the demolition and grading phases would be relatively short at approximately four months; noise levels would vary throughout the day and from day to day. The Contractor shall also comply with construction time limits in the City's Noise Ordinance (RR NOI-1). This impact would be less than significant.

Residential neighborhoods to the east in Altadena and to the west in La Cañada Flintridge would experience noise levels at 51 dBA L_{eq} because of distance; there likely would also be additional noise reduction because of topographical features. The noise may be heard occasionally, but would not be substantial or significant. The City of Pasadena's Noise Ordinance is also more restrictive than the County's noise regulations and the City of La Canada Flintridge has no standards for construction noise. Thus, Project construction will comply with the City's Noise Ordinance (RR NOI-1).

Although no mitigation is required, MM NOI-1 would be incorporated into the Project to minimize noise impacts and to support Policies 7b and 7c of the Pasadena Comprehensive General Plan's Noise Element. MM NOI-1 specifies noise-control measures to minimize noise effects upon sensitive receptors.

Area 2 Impacts. The noisiest construction work in Area 2 would be the demolition of a portion of the diversion weir. Assuming that a concrete saw or a hoe-ram has a maximum noise level of 90 dBA at 50 feet and a 20 percent duty cycle (as shown in Table 4.13-3), the maximum noise level at the closest homes on Canyon Dell Drive in Altadena (approximately 800 feet to the east), which would occur intermittently, would be approximately 60 dBA; this is less than the County standard of 75 dBA. The average noise level would be less than 60 dBA L_{eq} . During grading in Area 2, assuming the simultaneous operation of two pieces of equipment, such as an excavator and dump truck, average noise levels at the nearest receptor in Altadena would be approximately 54 dBA L_{eq} . The noise may be occasionally audible, but would not interfere with normal speech of persons outside. This impact would be less than significant.

Construction noise from Area 2 to residential neighborhoods to the west in La Cañada Flintridge would be reduced to less than 55 dBA L_{eq} because of distance, with additional noise reduction likely occurring because of topographical features. The noise may be heard occasionally but

would not be substantial or significant; no mitigation is required. However, RR NOI-1 and MM NOI-1 would be implemented during construction activities.

Area 3 Impacts. The noisiest construction work in Area 3 would be the demolition of paved areas, concrete vaults, and other structures. Assuming that a concrete saw or a hoe-ram has a maximum noise level of 90 dBA at 50 feet and a 20 percent duty cycle (as shown in Table 4.13-3), the maximum noise level at the closest homes on Ridgeview Drive in Altadena, which would occur intermittently, would be approximately 73 dBA, which is less than the County standard of 75 dBA. The closest homes to Area 3 are located on a bluff approximately 100 feet above the elevation of Area 3. The noise from Area 3 to the closest homes would be reduced by distance and by the bluff edge, which would break the line of sight between the noise sources and the receptors. The average noise level would be approximately 65 dBA L_{eq} . During grading in Area 3, assuming the simultaneous operation of two pieces of equipment, such as an excavator and dump truck, average noise levels at the nearest Altadena receptors would be approximately 67 dBA L_{eq} . The noise would be audible and could occasionally interfere with normal speech of persons outside.

Project construction would not require pile driving or blasting. All equipment planned for use on the Project site would be anticipated to have noise levels not exceeding 90 dBA at a distance of 50 feet, which would be 84 dBA at a distance of 100 feet. This noise level would be less than the limit of 85 dBA at 100 feet stated in Section 9.36.080 of the City of Pasadena Noise Ordinance. All construction activities would also be limited to between the hours of 7:00 AM and 7:00 PM Monday through Friday and between 8:00 AM and 5:00 PM on Saturday, as required by the City's Noise Ordinance (RR NOI-1). As stated above, MM NOI-1 would also be implemented by the Contractor.

Roadway Noise

The Project would generate construction traffic on North Windsor Avenue. Traffic would include workers commuting to and from Areas 1, 2, and 3; vendors bringing materials; and haul trucks removing demolished structural and vegetative materials from the three site areas. The existing average daily weekday traffic volumes (ADT) in 2011 on North Windsor Avenue ranged from 6,361 to 10,097 ADT between Ventura Street and Figueroa Drive and from 10,258 to 13,928 south of Figueroa Drive to Oak Grove Avenue (Los Angeles County 2013a). CalEEMod assumptions for the mix of construction equipment assumed during construction activities result in an estimated maximum number of daily workers during Project construction of 366 ADT. Since a doubling of traffic volume is needed to increase noise levels by 3 dBA and since it takes a 5-dBA increase for noise level changes to become discernible, the increase in roadway noise would not be discernible and would be considered less than significant.

Truck passbys would be heard at residences adjacent to the roads used; the noise would be similar to the occasional noise of waste collection trucks, which would be approximately 73 to 77 dBA at a distance of 50 feet from the road centerline, depending on the speed of the truck. The maximum number of heavy truck trips would occur during demolition activities in Area 3. There would be approximately 52 passbys (26 round trips per day), which is fewer than 7 passbys per hour. During this period, the hourly average noise increase would be less than 2 dBA. During other Project phases, the number of heavy truck trips would be considerably less. This noise impact would not be substantial and impacts would be less than significant.

Hikers, bicyclists, and equestrians could come near construction activities in Areas 1, 2, and 3 while using the Gabrielino Trail. However, these recreational users would have the option of modifying their activities to avoid exposure to undesirable noise levels. Impacts on trail users and visitors would be less than significant.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that noise from operational and construction activities at the HWP would not create significant noise impacts. The Master EIR identified potential noise impacts from short-term construction activities in the Central Arroyo Seco and Lower Arroyo Seco and included mitigation measures to reduce construction noise. The Project would comply with RR NOI-1 for the scheduling of construction activities in accordance with City regulations. This RR is similar to Measure Noise-1. Although Measure Noise-2 and Measure Noise-3 are not applicable to the Project, these mitigation measures call for similar noise-control measures as those outlined in MM NOI-1.

- b) Would the project result in exposure of persons to or generate excessive groundborne vibration or groundborne noise levels?**

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. Vibration affects structures and persons located relatively close to the source of the vibration. For heavy construction equipment operations, vibration would not be perceptible and would be less than the 0.1 inch per second (in/sec) threshold of perception defined by Los Angeles County at distances of 200 feet and greater. There are no residential neighborhoods in Altadena/Los Angeles County within 200 feet of construction areas. At Area 1, heavy equipment may occasionally work at distances within 100 to 200 feet of a USFS Ranger Station residence, and vibration may be perceptible. However, neither the frequency, the duration of vibration, nor the magnitude of vibration would be substantial. The impact would be less than significant and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not identify any vibration impacts from proposed improvements or facilities in the HWP.

- c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?**

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. Permanent increases in noise associated with operations and maintenance of the proposed improvements would come from new vehicles trips from trail users and visitors and from maintenance crews.

Visitors. Existing maximum visitor use is estimated at 125 persons on weekdays and 800 persons on holiday weekend days, with fewer visitors on non-holiday weekend days. The proposed Project could increase visitor use by 25 persons on weekdays and 200 persons on holiday weekend days. A very conservative analysis assumes each visitor drives separately, resulting in an additional 50 one-way trips (25 round trips) on weekdays and 400 one-way trips (200 round trips) on holiday weekend days. As discussed previously, weekday traffic volumes on North Windsor Avenue north of Oak Grove Avenue ranged from 6,361 to 13,928 ADT. Weekend volumes are less, ranging from 4,680 to 9,044 ADT (Los Angeles County 2013a). The increase in weekday traffic would increase traffic noise levels by less than 0.1 dBA; the increase in weekend traffic would increase traffic noise levels by less than 0.5 dBA. These increases in noise levels would not be discernible; would be less than the City of Pasadena's 5-dBA standard; and would be less than significant. No mitigation is required.

Maintenance. There would be no substantial long-term changes to maintenance activities. Maintenance in Area 1 would be the same due to the elimination of maintenance for the Headworks and sedimentation basins but the need to maintain the proposed rest area/picnic area

and collect wastes from the pet waste station and trash cans. Maintenance in Area 2 would be reduced by automation of the diversion structure and the improved Gabrielino Trail/access road. Maintenance of the restroom, pet waste station, and trash can in Area 3 would require restroom cleaning twice per week and waste collection once a week. The reduced size of the parking lot would require less maintenance. The expanded spreading basins are expected to have the same maintenance needs due to the use of sedimentation basins, which would reduce the need for sediment removal in the spreading basins. Changes in noise resulting from maintenance activities would be negligible and less than significant; no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that operational components and recreational uses at the HWP would not create significant noise impacts.

- e) **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?**
- f) **For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?**

No Impact.

Areas 1, 2 and 3 Impacts. There are no airports or airstrips within two miles of the Arroyo Seco Canyon. The nearest airports are the Burbank Bob Hope Airport and the El Monte Airport, which are both approximately 11 miles from the site. The Project would not subject persons in the area to noise from public or private airports, nor would the Project generate aircraft noise. There is a heliport and a helipad near the Arroyo Seco but no change in helicopter noise would occur with the Project. There would be no impact.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that the HWP is not located within two miles of a public airport or private airstrip. Therefore, users of the HWP are not exposed to noise from airport or aircraft operations.

4.13.3 MITIGATION MEASURES

There would be no significant adverse impacts related to noise with compliance with RR NOI-1. However, MM NOI-1 would be implemented to further minimize noise impacts on adjacent land uses.

MM NOI-1 The Contractor shall implement the following noise reduction measures during all construction activities:

- Equip all construction equipment (fixed or mobile) with properly operating and maintained mufflers, consistent with or exceeding manufacturers' standards.
- Ensure that construction equipment engine enclosures and covers as provided by manufacturers shall be in place during operation.
- Place all stationary construction equipment so that the equipment is as far as feasible from noise-sensitive receptors and so that the emitted noise is directed away from the noise-sensitive receptors.

- Locate equipment and materials staging in areas that will create the greatest distance between staging area noise sources and noise-sensitive receptors during Project construction.
- Ensure that construction equipment is shut down when not in use.
- Limit haul truck deliveries to the same hours specified for the operation of construction equipment.

4.14 POPULATION AND HOUSING	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through the extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

4.14.1 EXISTING CONDITIONS

The Arroyo Seco Canyon does not support a residential community nor contain residential land uses, except for the USFS Ranger Station near Area 1, which is developed with three dwelling units that are occupied by three households of USFS Rangers. There are nearby residential uses to the east of the Arroyo Seco, within the community of Altadena; to the east and southeast in the City of Pasadena; and to the west in the City of La Cañada Flintridge.

4.14.2 IMPACT ANALYSIS

Impact Discussion

- a) **Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through the extension of roads or other infrastructure)?**

No Impact.

Areas 1, 2 and 3 Impacts. The Project does not propose the construction of new homes or businesses that may induce population growth in the area. Also, no extension of infrastructure to unserved areas is proposed. The presence of the construction crew would be temporary and would not generate a measurable demand for housing, goods, or services in the area.

No major change in the PWP's operational or maintenance activities would occur that would lead to new employees or which would induce growth and development in the area. The Project would improve the PWP's surface water diversion facilities and increase groundwater recharge. This would, in turn, reduce the PWP's reliance on imported water resources and would reduce its operating costs, but would not promote development in the City or the surrounding area.

The increase in the number of trail users/visitors due to the proposed recreational parking lot and the recreational and educational amenities that would be provided by the Project would not lead to a permanent population in the area. These trail users and visitors would be present in the Arroyo Seco Canyon for a few hours during each visit and would not create a permanent demand for housing, goods, or services in the area.

No growth-inducing impacts would occur and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not address impacts on population and housing since the Initial Study for the Arroyo Seco Master Plan had determined earlier that no new residential homes are planned and no significant impacts to population and housing are anticipated.

- b) **Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?**
- c) **Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?**

No Impact.

Areas 1, 2 and 3 Impacts. Construction activities for the Project would be confined to the parcels owned by the City of Pasadena and located within the City. These activities would not affect the residences located within the USFS Ranger Station near Area 1 or the single-family residences to the east and west of the Arroyo Seco. No housing demolition or household displacement is proposed with the Project as the USFS Ranger Station near Area 1 would not be displaced, demolished, or rehabilitated. Long-term recreational activities in the Arroyo Seco Canyon and operation and maintenance activities on the PWP facilities would not displace existing housing or households. Thus, no displacement impacts would occur and no replacement housing is needed. No mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not address impacts on population and housing since the Initial Study for the Arroyo Seco Master Plan had determined earlier that no housing displacement or demand for additional housing would occur.

4.14.3 MITIGATION MEASURES

There would be no impacts related to population and housing; therefore, no mitigation measures are necessary.

4.15 PUBLIC SERVICES	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.15.1 EXISTING CONDITIONS

Public services in the Upper Arroyo Seco area are provided by the Pasadena Fire Department, the Pasadena Police Department, the Pasadena Unified School District, the City of Pasadena Parks and Natural Resources Division, the Pasadena Library, and other City departments. The Los Angeles County Fire Department and the USFS also provide wildfire protection services, particularly related to the ANF.

Fire Protection Services

The Pasadena Fire Department provides fire protection services to the City and operates eight fire stations. Pasadena Fire Station 38 at 1150 Linda Vista is located 2.4 miles south of Area 3. However, the Los Angeles County Fire Station #12 at 2760 North Lincoln Avenue in Altadena is located only 0.6 mile east of Area 3. County Fire Camp #2 is located southwest of the JPL campus and is a helicopter standby location during the fire season, with a crew of ten firefighters. County Fire Station #82 is located one mile southwest of Area 3 but is on the west side of the Arroyo Seco.

The Los Angeles County Fire Department has automatic aid agreements with 33 cities in the County, including the City of Pasadena, to provide fire protection services during a fire or medical emergency regardless of territory. Thus, City and County firefighters would provide emergency response to the Upper Arroyo Seco in the event of a fire incident.

In the ANF, the USFS provides fire prevention and preparedness; hazardous fuels reduction; wildfire suppression; and emergency support. Under the California Fire Assistance Agreement, local fire departments provide fire protection and suppression services to State and federal agencies. Under the Cooperative Fire Protection Agreement, the California Department of Forestry and Fire Protection (CalFire) and federal agencies (e.g., the USFS, the National Parks Service) assist each other to suppress wildland fires on lands adjacent to each other (Firescope 2009).

Police Protection Services

The Pasadena Police Department provides police protection and law enforcement services in the City. The Police Department has a Park Safety Specialist Team that is assigned to patrol City parks, including Hahamongna Watershed Park. In addition, the Police Department has a Volunteer Mounted Unit that consists of volunteers on horses who provide patrol services in the remote park areas of the City, such as Hahamongna Watershed Park (Pasadena 2013b).

The Pasadena Police Department also participates in the California Law Enforcement Mutual Aid Plan and the California Disaster and Civil Defense Master Mutual Aid Agreement, which allow the City to request mutual aid from and to provide mutual aid to adjacent police protection and law enforcement agencies.

The USFS provides law enforcement of federal laws within the ANF. The Pasadena Police Department is responsible for the enforcement of State and local laws on City lands (within the ANF) and at PWP facilities.

School Services

The Pasadena Unified School District (PUSD) provides school services to the Upper Arroyo Seco area through Franklin Elementary School, Eliot Middle School, and Muir High School (PUSD 2005, 2006, 2010).

Parks

The Upper Arroyo Seco provides recreational opportunities for area residents and visitors. Area 1 is located within the ANF and the Gabrielino Trail runs along the east side of Areas 1 and 2. Area 3 is located within Hahamongna Watershed Park, which is developed with a variety of active and passive recreational facilities. This park is maintained by the Pasadena Parks and Natural Resources Division.

Other Public Facilities

There are ten City libraries, with the Linda Vista Branch Library located nearest the Upper Arroyo Seco at 1281 Bryant Street, approximately two miles south of Area 3.

The Headworks structure in Area 1, the diversion and intake structures in Area 2, and the spreading basins in Area 3 are subject to inspection and maintenance by PWP personnel.

4.15.2 IMPACT ANALYSIS

Regulatory Requirements

RR PS-1 Proposed improvements are required to be designed and constructed in accordance with the Pasadena Fire Prevention Code (Chapter 14.28 of the City's Municipal Code), which adopts the California Fire Code with changes and additions to the adopted code.

Impact Discussion

- a) **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:**
- **Fire protection?**
 - **Police protection?**
 - **Schools?**
 - **Parks?**
 - **Other public facilities?**

Fire Protection

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. The proposed habitat restoration, increased water diversion, and new recreational and educational amenities would not introduce habitable structures, operational activities, or people into the area that could generate a long-term demand for fire protection services. Also, the Project does not propose any new land uses in or near the Arroyo Seco. Thus, the Project would not result in a need for new or physically altered fire protection facilities.

The restored habitat area, new diversion and intake structures, improved access road, new sedimentation/spreading basins, and new decomposed granite parking lot would not be susceptible to fire. The proposed restroom would have fire-retardant shingles. The woody structures proposed in Area 1 would be located along the water's edge and would be damp much of the time, substantially reducing any fire hazards. The proposed picnic tables and benches would be made of heavy duty wood with weatherproofing and would not be highly flammable. MM HAZ-4 would reduce the potential for fire from combustion engines used during construction. Project improvements would be constructed in accordance with the Pasadena Fire Prevention Code (Chapter 14.28 of the City's Municipal Code) as RR PS-1. The improved access road in Area 2 and the new access road in Area 3 would also be constructed in accordance with the emergency access requirements in the City's Fire Prevention Code (RR PS-1). Compliance with MM HAZ-4 and RR PS-1 will minimize the potential for fire and, therefore, the Project's demand for fire protection services.

Construction activities would temporarily create an increased demand for fire-protection services due to the use of equipment, electricity, fuels, and other fire sources that may ignite flammable and combustible materials. As discussed under Section 4.8, Hazards and Hazardous Materials, the Project has the potential to increase the risks associated with wildfires due to the presence of heavy construction equipment, including the use of flammable liquids and the presence of combustion engines, which could result in accidental fire.

During construction, emergency response by the Pasadena Fire Department to the HWP, the USFS Ranger Station, and the Upper Arroyo Seco may be affected while construction on or near the access road and at the Gabrielino Trail is ongoing. The existing trail/access road may be partially closed while improvements in Areas 1 and 2 are under construction. The existing bridges may also be closed while the temporary bridges over them are under construction. Since the Gabrielino Trail/access road to Areas 1 and 2 provide access to three households and a number

of hikers, bicyclists, equestrians and maintenance personnel, access would have to be maintained at all times in accordance with the Standard Specifications for Public Works Construction (Greenbook) (RR TRA-1 in Section 4.17, Transportation/Traffic). Also, MM HAZ-3 from Section 4.8, Hazards and Hazardous Materials, requires the contractor to inform public service agencies of the construction schedule and times when Bridge No. 3 and the access road would be closed. This will facilitate emergency response to the area in the event of a fire.

A temporary access road would be maintained in Area 3 while the new two-lane access road is under construction to provide continued access to the JPL campus through the JPL Bridge and to areas farther north (e.g., USFS Ranger Station). In addition, the Gabrielino Trail/North Arroyo Boulevard east of Area 3 may serve as an alternate emergency access to the JPL Bridge and ANF while improvements in Area 3 are under construction.

The City also implements an Emergency Operations Plan (RR HAZ-2 from Section 4.8, Hazards and Hazardous Materials) that outlines emergency procedures that would be followed in the event of a local, regional or national emergency.

Compliance with RR PS-1 and RR TRA-1 from Section 4.17, Transportation and Traffic, and RR HAZ-2 from Section 4.8, Hazards and Hazardous Materials would also facilitate fire protection services to the Project. No new or physically altered fire protection facilities would be needed to serve the Project and, thus, impacts on fire protection services would be less than significant and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified significant impacts on police, fire and emergency services during construction and operation of game fields, lakes, equestrian facilities, restrooms, and parking areas. Several mitigation measures were provided to reduce impacts on public services. The Arroyo Seco Canyon Project would comply with the City's Fire Prevention Code as RR PS-1, which is similar to Measure Public Services-3 and Measure Public Services-5. Implementation of MM HAZ-3, which is similar to Measure Public Services-1, would inform the Pasadena Fire Department of the construction schedule and the potential need to use alternative routes for emergency response.

Police Protection

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. The Project does not involve the development of habitable structures or operational activities that could increase demands for long-term police protection services. The restored habitat area, new diversion and intake structures, improved access road, new sedimentation basins, and expanded spreading basins are not new land uses that could attract criminal elements or criminal activities into the area. However, the new recreational parking lot, picnic tables, benches, signage and restroom may increase trail users/visitors and provide greater opportunities for vandalism, graffiti, littering, and theft.

The Park Safety Specialist Team and the Volunteer Mounted Unit of the Pasadena Police Department would continue to patrol the area and provide police protection services in the Upper Arroyo Seco, and PWP personnel would continue inspection and maintenance activities at the diversion structures and spreading basins. If any additional resources are required to patrol the area, the City of Pasadena can adjust staffing accordingly. Any increase in demand for police protection services would be less than significant and would not result in a need for new or physically altered police facilities.

Construction activities may provide opportunities for crime (e.g., theft and vandalism). However, construction areas and staging areas would be screened/fenced, which would prevent theft and vandalism during the construction phase. During construction, emergency response by the Pasadena Police Department to the HWP, USFS Ranger Station, and Upper Arroyo Seco may be affected when construction on or near the access road and at the Gabrielino Trail is ongoing. Similar to fire protection services, this impact would be temporary and less than significant since no new or physically altered police facilities would be needed or required. In addition, impacts on police services are further reduced with compliance with the Greenbook (see RR TRA-1 from Section 4.16, Transportation and Traffic) and advance notification of service providers under MM HAZ-3 (see Section 4.8, Hazards and Hazardous Materials).

Impacts on police protection services would be less than significant and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified significant impacts on police, fire and emergency services during construction and operation of various facilities in the HWP. The Arroyo Seco Canyon Project would implement MM HAZ-3, which is similar to Measure Public Services-1, to inform the Pasadena Police Department of the construction schedule and the potential need to use alternative routes for emergency response.

The Master EIR included Measure Public Services-2, which calls for additional sworn and non-sworn officers commensurate with the increase in park attendees. The majority of the anticipated increase in trail users (20 to 25 percent or as many as 200 additional trail users/visitors per day during a holiday weekend) would likely be using facilities in Areas 1 and 2 and would not be in Area 3 or the HWP. The improvements in Area 3 alone are not expected to require additional sworn and non-sworn officers.

Since the City regularly evaluates the need for police officers as part of its annual budgeting process, this mitigation is being implemented by the City. Also, emergency response and evacuation plans under Measure Public Services-4 have been established for the City for various types of emergencies and incidents (RR HAZ-2 from Section 4.8, Hazards and Hazardous Materials), and is implemented by the City and its various departments and personnel.

Schools

No Impact.

Areas 1, 2 and 3 Impacts. The Project would be located in areas designated as Open Space. The proposed habitat restoration, increased water diversion, and new recreational amenities would not induce residential development. Also, the Project would not generate a demand for school services because no residential land uses that may be occupied by households with school-aged children are proposed. Long-term recreational activities in the Arroyo Seco Canyon and operation and maintenance activities on the PWP facilities would not create a demand for school services. No impact on schools would occur with the Project and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that positive impacts on students would be provided by the HWP as an extended recreational, educational and cultural venue for area residents.

Parks

No Impact.

Areas 1, 2 and 3 Impacts. The Project would not generate a demand for parks or recreational facilities because the Project does not propose residential development that may be occupied by households that would utilize local parks and recreational areas. Rather, the Project includes the construction of recreational amenities along the Gabrielino Trail to serve the existing and future users of the HWP and the ANF. The Project would provide greater opportunities for recreation in Area 1 and would improve the recreational experience in the area with the rest area/picnic area, interpretive signage, trash can, horse water trough, and pet waste station. The proposed restroom, potential future trail connection, pet waste station, signage, and recreational parking lot in Area 3 would also improve the recreational experience. These amenities would not result in adverse impacts on parks and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that the expansion and improvement of existing active and passive recreational facilities in the HWP would accommodate additional visitors and would not have impacts on other parks in the area.

Other Public Facilities

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. The Project would not generate a demand for libraries because the Project does not propose residential development that may be occupied by households, nor would the Project bring in other land uses that may require library services or facilities. No impact on existing library services would occur with the Project.

Long-term operation and maintenance for the proposed recreational amenities and improved PWP facilities would be largely similar to existing services. Maintenance of the proposed restroom, trash cans, and pet waste stations would slightly increase over existing levels, but would be provided by the same City personnel. The improved surface water diversion and intake facilities would reduce maintenance activities from the PWP. The larger area for spreading basins may increase inspection and maintenance needs, but the proposed sedimentation basins would reduce the need for maintenance of the downstream spreading basins. The needed maintenance would not require new PWP personnel or new public facilities. Impacts related to park maintenance and groundwater recharge maintenance services would be less than significant. No mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that increases in public facility maintenance, landscape maintenance, public transportation, and park operation services to the HWP would be needed from the City Department of Public Works and Transportation. The Project would increase maintenance activities for the proposed recreational amenities but this impact is considered less than significant.

4.15.3 MITIGATION MEASURES

There would be no significant adverse impacts related to public services, with compliance with RR PS-1; therefore no mitigation measures are required.

4.16 RECREATION	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would/does the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.16.1 EXISTING CONDITIONS

The Hahamongna Watershed Park is developed with active and passive recreational areas on both sides of the Arroyo Seco, upstream of Devil’s Gate Dam. East of the Arroyo Seco are several trails and Johnson Field (a softball field with picnic tables, a barbecue pit, and a restroom that have not been in use) that has been used by the County to temporarily stockpile sediments that were removed from the reservoir since 2011. The City’s spreading basins and the JPL East Parking Lot in Area 3 are also located east of the Arroyo Seco. The parking lot was leased by the City to JPL until June 2013, with an extension until a new JPL On-Site Parking Structure is built on the JPL campus (expected to be completed in August 2014). West of the Arroyo Seco are multi-purpose play fields, picnic areas, an equestrian facility, an equestrian staging area, trails, trailheads, an overlook, a disc golf course, a fire camp, an amphitheater, a youth camp, restrooms, a maintenance yard, and parking lots.

The Arroyo Seco Trail runs along both sides of the Arroyo Seco and is part of the Rim of the Valley Trail Corridor that connects the Santa Monica Mountains and the San Gabriel Mountains through trails in the San Fernando and La Crescenta Valleys. This trail also continues south along the Central and Lower Arroyo Seco to connect with the Los Angeles River Trail. North of Devil’s Gate Dam, there are several local trails on both sides of the Arroyo Seco, including the East Rim Trail, the West Rim Trail, the Mountain View Trail, the Flint Wash Trail, the Gould Canyon Trail, the Altadena Crest Trail, and the Gabrielino Trail.

North Arroyo Seco Road shares its alignment with the Gabrielino Trail, which is an easement from the City to the USFS that begins at the intersection Windsor Avenue and Ventura Street and extends 1.5 miles north along the eastern edge of the JPL parking lot toward the Arroyo Seco Canyon and the ANF. An existing dirt path runs east-west through the middle of the parking lot connecting the spreading basins on the west to the Gabrielino Trail on the east. This pathway is currently used by both pedestrians and equestrians.

4.16.2 IMPACT ANALYSIS

Impact Discussion

- a) **Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?**

Less Than Significant With Mitigation.

Areas 1, 2 and 3 Impacts. The Project would not induce population growth directly or indirectly, which could generate a need for or increase the use of parks and recreational facilities. Rather, the Project includes a rest area/picnic area and nature trail in Area 1; an improved Gabrielino Trail/access road in Area 2; and a potential future trail connection and restroom in Area 3. These recreational amenities would add to existing recreational facilities at the HWP and in the ANF to serve existing and future trail users and recreational visitors. These amenities would improve the recreational experience of existing users (through the provision of a restroom, picnic tables, benches, trash cans, pet waste stations, potential future trail connection, a drinking fountain, and signage along the existing trail) and may increase use of the adjacent trails. This increase is not expected to be large enough to attract a large number of new users into the area. Rather, it is anticipated that a 20 to 25 percent increase in use may occur, such that approximately 150 people would use the trail and adjacent recreational facilities on the weekdays (or 25 people more than existing) and 500 to 1,000 trail users/visitors would use them on weekends (as many as 200 users more per day during a holiday weekend). This increase in use is not expected to result in the deterioration of existing and proposed recreational facilities.

However, during construction within Areas 1, 2, and 3, there may be times when portions of the Arroyo Seco Trail, Altacrest Trail and Gabrielino Trail/access road would be closed to the public. While the trails would be kept open during construction to the extent possible, there would be days when equipment and construction activities would be on and/or near the trails, making recreational trail use hazardous for the general public. During these times, the trails would be closed.

Without proper noticing, it is possible that trail users would go into the HWP or the canyon only to find that the trails are closed. They would then have to turn back and find a nearby trail or move to another location (e.g., west side of the Arroyo Seco), while others may forego their planned recreational activity. Since the Gabrielino Trail is heavily used (estimated at 125 current trail users per weekday; 400 trail users on weekends; and 800 trail users on holiday weekends), intermittent closure of this and other nearby trails during the construction period would inconvenience a number of trail users. This would be a potentially significant but mitigable impact on recreation, especially during holiday weekends when trail use is highest.

MM REC-1 requires advanced notification to trail users of closures dates and alternative trails prior to the closure of the trails in and near the Project site. Periods of closure would be restricted to no more than 5 consecutive days during non-emergency closures, and notices would be posted at the parking lots and trail entrance stating the closure times and dates. There are a number of other existing trails and recreation areas in the vicinity of the Project that could be used during any trail closures. The southern segments of the Arroyo Seco Trail that run through Hahamongna Watershed Park and the Central and Lower Arroyo Seco would not be affected by Project construction and would be available for recreational use. In addition, there are a number of other access points that provide connections to regional trailheads that run through the ANF, including the Gould Canyon, Cross Town Trail, and the Lukens Connection Trail, which have trailheads off the Angeles Crest Highway in the City of La Canada Flintridge, as well as nearby Eaton Canyon and Loma Alta trails.

Use of alternative nearby trails on the days when the Arroyo Seco Trail, Altacrest Trail and Gabrielino Trail/access road are closed would be temporary and would not lead to any significant deterioration of these other trails. Impacts on nearby trails associated with the partial and temporary closure of trails near Areas 1, 2 and 3 would be short-term and less than significant. No mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified significant impacts on existing recreational facilities during construction activities and provided several mitigation measures. The Arroyo Seco Canyon Project would not require the closure of existing recreational facilities, appurtenant facilities (such as restrooms), playfields, or parking spaces.⁷ Thus, mitigation measures (Measure Recreation-1 through Recreation-4) for the temporary closure of these facilities are not applicable. However, the Arroyo Seco Canyon Project would require the temporary closure of trails, and thus, would implement MM REC-1, which is similar to Measure Recreation-5.

- b) **Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?**

Less Than Significant Impact.

Areas 1, 2 and 3 Impacts. The proposed recreational amenities in Areas 1 and 3 would add to existing recreational facilities in the Hahamongna Watershed Park to serve existing and future trail users and recreational visitors in the park but is not anticipated to increase the use of other recreational facilities in the City nor require the construction of other facilities. The proposed amenities include a new recreational parking lot, restroom, picnic tables, benches, trash cans, pet waste stations, and signage along an existing trail. These would improve the recreational experience of existing users and may increase the use of the adjacent trails although they are not expected to attract a large number of new users into the area. As discussed earlier, the Project is anticipated to lead to a 20 to 25 percent increase in use, such that 25 new trail users/visitors per weekday (over the current 125 trail users/visitors) and 100 to 200 new trail users/visitors on weekends (over the estimated 500 to 1,000 trail users/visitors) may be present per day. This increase in trail use is not expected to result in significant impacts on other recreational facilities in the HWP.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified significant impacts on trails during construction activities and provided several mitigation measures. The Arroyo Seco Canyon Project would require temporary closure of trails and would implement MM REC-1 (which is similar to Measure Recreation-5) to reduce impacts related to the unavailability of trails in the HWP. The Master EIR stated that play fields, new park entrances, lakes, security fencing and utility improvements would not affect recreation.

4.16.3 MITIGATION MEASURES

MM REC-1 Prior to the closure of recreational trails for public use, the Construction Contractor shall post signs at the parking lots and trail entrances providing at least one week of advanced notice of the dates and times of planned trail closures. The trails shall be closed no more than 5 consecutive days in non-emergency circumstances. In addition to the closure notice, the Contractor shall provide directions to the nearest trails in the surrounding areas that would be open for public use at the times when the trails are closed.

⁷ It is anticipated that the new JPL parking structure would be in use by the time construction in Area 3 occurs.

4.17 TRANSPORTATION/TRAFFIC	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system. Including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.17.1 EXISTING CONDITIONS

Regional Access

The Foothill Freeway (I-210) starts at the Golden State Freeway (I-5) in the northern portion of the San Fernando Valley, and generally runs in a southeasterly and easterly direction near the southern base of the San Gabriel and San Bernardino Mountains to the I-10 in Redlands. The I-210 has eight travel lanes as it passes along the southern edge of Devil’s Gate Dam. Caltrans estimates the 2012 traffic volumes on the I-210 in this area (between Berkshire Place and Arroyo Boulevard) during the peak hour at 10,600 vehicles, with a peak month volume of 122,000 vehicles per day and an average daily traffic volume of 118,000 vehicles (Caltrans 2013b).

Local Roadway Network

Access to the Arroyo Seco Canyon is provided by the I-210’s Arroyo Boulevard/Windsor Avenue off-ramp. Windsor Avenue is a two-lane road that runs north and ends at its intersection with Ventura Street and Explorer Road. Explorer Road continues northerly toward the JPL East Parking Lot and turns west across the Arroyo Seco (onto the JPL Bridge) and southwesterly onto the JPL campus. Oak Grove Drive is a four-lane road extending westerly from Windsor Avenue,

just north of the I-210, and passing along Devil's Gate Dam and the southwest edge of the reservoir before turning north toward the JPL campus.

In 2011, the average daily traffic (ADT) volumes on North Windsor Avenue from Ventura Street to Figueroa Drive ranged from 6,361 to 10,097 ADT on weekdays and from 4,680 to 6,458 ADT on the weekends. Farther south (between Figueroa Drive and Oak Grove Avenue), 2011 ADT ranged from 10,258 to 13,928 ADT on weekdays and 7,965 to 9,044 ADT on weekends (Los Angeles County 2013a).

Most of the existing vehicle trips on Windsor Avenue and Explorer Road in Area 3 are associated with employee travel to and from the JPL East Parking Lot during the morning and afternoon peak hours. In addition, there are paved and unpaved access roads that are also used by visitors to the HWP and maintenance workers to access the spreading basins, reservoir, and dam.

The Gabrielino Trail/access road is a paved road that runs on top of the slope east of the JPL East Parking Lot and goes into the Arroyo Seco Canyon, crossing the stream at several locations as it heads into the ANF. It becomes unpaved in Area 1 and farther north. This trail is used by hikers, bicyclists, and equestrians going into Arroyo Seco Canyon; it is also used by City, County, and USFS inspection and maintenance vehicles.

Transit Services

The Los Angeles County Metropolitan Transportation Authority (Metro) provides regional bus and passenger train services in the County. Metro Bus routes 177 and 268 run along Oak Grove Avenue and into the JPL campus, south and west of Area 3. The Glendale Beeline Route 3 also runs from Downtown Glendale to JPL (Metro 2013).

The Pasadena Area Rapid Transit System (ARTS) provides local bus services within the City. Route 52 goes into the JPL campus three times daily on weekdays from as far south as the intersection of Glenarm Street and Raymond Avenue (Pasadena 2013a). JPL also operates a shuttle from 7:00 AM to 9:00 AM and 3:00 PM to 5:00 PM that stops in the JPL East Parking Lot and at internal streets within the JPL campus (JPL 2012).

4.17.2 IMPACT ANALYSIS

Project Design Features

PDF TRA-1 During the construction phase, a temporary access road will be maintained in Area 3 prior to the availability of the permanent access road, to provide continued vehicle access to the Jet Propulsion Laboratory (JPL) campus via the JPL Bridge. During construction activities in Area 3, the temporary access road will be available for use by JPL employees and visitors during working weekdays, but the access road will be restricted at other times.

Regulatory Requirements

RR TRA-1 Construction activities are required to be conducted in accordance with the Standard Specifications for Public Works Construction (Greenbook) and the City's Supplements and Modifications to the Greenbook to maintain access to all parcels in and near the construction sites. This includes notification of residents and businesses affected by the road work; utility agencies with facilities in the area; the Pasadena Fire and Police Departments; and other emergency service providers.

The Greenbook also requires that access be made available at the end of each workday.

- RR TRA-2** Temporary traffic control devices and methods used during construction are required to conform to the requirements of the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD) and the California Supplement to the MUTCD. The contractor shall provide traffic tapers, traffic control devices, barricading, and signs necessary to ensure driver awareness and safety in construction areas and to assist fire and law enforcement personnel.

Impact Discussion

- a) **Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?**

Less than Significant Impact with Mitigation.

Areas 1, 2 and 3 Impacts. Visitors to the Project site are expected to increase by a maximum of 20 to 25 percent with the Project. Weekday use at a current estimated average of 125 visitors could increase by 25 visitors to 150 visitors per weekday. These trips will be scattered throughout the day and would likely be outside peak hours. Weekly trash collection and twice weekly restroom cleaning would add minimal trips on a daily basis in the long-term. Intermittent sedimentation basin maintenance is estimated to generate approximately 100 truck trips every year and spreading basin maintenance would generate approximately 100 truck trips once every five years. While these truck trips can be spread out during the day and extended over several days, increases in AM and PM peak traffic volumes may occur.

Construction activities will also generate new vehicle trips from construction equipment and construction crews coming to the site; trucks bringing in building materials; trucks taking out excavated soils and other debris for off-site disposal; and construction equipment leaving the site after each construction phase. As shown in Table 3.2-1, Construction Assumptions, between 10 to 210 truckloads from one area would be hauling soils and debris to Scholl Canyon Landfill during each phase of construction.

Trucks would come to the site off I-210 at the Windsor Avenue off-ramp and head north on Windsor Avenue and on Explorer Road into Areas 3, 2, and 1. From the site, the trucks would head south on Windsor Avenue and onto the westbound on-ramp on I-210. From the I-210, trucks would head west on SR-134 and exit using the Figueroa Street/Scholl Canyon Road off-ramp before heading north-northeast toward the landfill. Trucks would come back from the landfill by entering the eastbound on-ramp on the SR-134 at Figueroa Street and heading east and then west on I-210 to Windsor Avenue, Explorer Road, and, ultimately, the site.

Roadway network performance is generally measured by the capacity of roadway intersections, including the ability of each leg of the intersection to handle traffic volumes and the average wait times of vehicles. Since AM and PM peak hours during weekdays handle the greatest amount of traffic at most intersections, the level of service (LOS) at intersections during the AM and PM peak hours is primarily used to evaluate the efficiency of the roadway system.

Project-related vehicle trips could increase AM and PM traffic volumes on Windsor Avenue, I-210, and other streets. Although construction-related vehicle trips are relatively small and not expected to significantly impact traffic or the circulation system along the truck route, restrictions on Project site construction activities to avoid adding new construction truck trips to local roads, arterials, and freeways during the AM and PM peak hours would further minimize impacts. MM TRA-1 would require Contractors to schedule the arrival and departure of the construction equipment and construction trucks outside the AM peak hours of 7:30 AM to 8:30 AM and the PM peak hours of 4:30 PM to 5:30 PM. In addition, trucks transporting debris from the site would be required to travel to and from the site outside the AM and PM peak hours. This would avoid adverse impacts to the peak hour operation of streets and intersections near the Project site.

There would be no impact on the use of mass transit systems with the Project because the Project site is not directly served by a public transportation system and is too far from public streets to encourage bicycle use or walking to the site by construction workers. Increase in trail users and visitors to the HWP and ANF will occur with the Project, which would be mainly recreational in nature. Impacts on non-motorized travel or pedestrian and bicycle paths are discussed under Section 4.15, Recreation, above. Impacts on the AM and PM peak hour operations of streets and intersections would be less than significant after mitigation.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan anticipated significant impacts on transportation and traffic and identified a number of intersection improvements as mitigation measures. The restriping of the I-210 westbound off-ramp at Windsor Avenue (Measure Transportation-1) has been implemented. Measures Transportation-2 and Transportation-3 call for a traffic control officer during large special events. The Arroyo Seco Canyon Project would result in approximately 25 additional visitors on weekdays and 100 additional visitors on weekends, with as much as 200 additional visitors on holiday weekends. These mitigation measures, when deemed appropriate by the City, are necessary for large special events, and the Project would not interfere with the implementation of these measures. Measure Transportation-4 calls for a wayfinding program for the Central Arroyo Seco and is not applicable to the Project.

- b) Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand established by the county congestion management agency for designated roads or highways?**

Less Than Significant Impact.

Areas 1, 2 and 3 Impacts. The Los Angeles County Congestion Management Program (CMP) calls for monitoring of the highway and roadway system in the County and a multi-modal system performance analysis. It sets a Level of Service (LOS) standard of E for the CMP Highway System. The program also promotes alternative modes of transportation; requires monitoring of land use and roadway performance by individual jurisdictions; and provides guidelines for conducting a Traffic Impact Analysis (TIA). The CMP TIA guidelines require analysis of freeway segments, ramps, and intersections if a proposed project would add 50 or more trips to a CMP arterial intersection or 150 or more trips (in either direction) during either the AM or PM weekday peak periods at a mainline freeway monitoring location.

The 2010 CMP includes I-210 as part of the CMP Highway System. The segment of I-210 between SR 134 and SR 2 operated at LOS D or better northbound during the AM peak hour and at LOS F southbound during the AM peak hour in 2009. During the PM peak hour, it operated at LOS D or better in both directions (MTA 2010). Caltrans does not identify this segment of I-210 as being a “Congested Urban Area” (Caltrans 2010).

The Project would not generate 50 or more trips that would be added to any one intersection during the AM or PM peak hours on weekdays, as only 25 additional visitors per day are anticipated; therefore, no TIA is required. During the weekends, approximately 100 to 200 visitors per day would be added by the Project when the traffic volumes on local roads, arterials, and freeways are less (e.g., weekend daily traffic volumes are 1,681 to 3,636 vehicles less on Windsor Avenue north of Figueroa Drive and 2,293 to 4,884 vehicles less south of Figueroa Drive). The addition of weekend trips is not expected to adversely affect the CMP Highway System; conflict with CMP LOS standards; or require a TIA.

During construction, the I-210 freeway and major roadways in the County's CMP would be utilized by trucks and vehicles coming to and from the Project site. These vehicle trips would be highly variable depending on the construction phase, with 20 to 30 pieces of construction equipment coming to the site during each stage (e.g., clearing/grubbing, demolition, grading, infrastructure, and paving stages). With the addition of the construction crew and trucks traveling to and from the site to dispose of debris at Scholl Canyon Landfill, more than 50 vehicle trips may be generated daily during Project construction.

Implementation of MM TRA-1, as discussed above, would avoid adding 50 or more trips to local roads, arterials, and freeways during the AM and PM peak hours. Therefore, traffic increases from the Project during peak hours would be less than 50 trips; would not affect peak hour LOS; and thus, no TIA is needed. Impacts on the Los Angeles County CMP would be less than significant and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan included a traffic impact analysis and a transit impact review in accordance with the CMP guidelines.

- c) **Would the project result in a change in air traffic patterns, including either an increase in traffic levels or change in location that results in substantial safety risks?**

No Impact.

Areas 1, 2 and 3 Impacts. There are no airports or airstrips within two miles of the Upper Arroyo Seco. The nearest airports are the Burbank Bob Hope Airport and the El Monte Airport, which are both approximately 11 miles from Area 3. There is a heliport and a helipad near the Arroyo Seco but the Project would not affect nearby helicopter operations at the helipad or heliport. The Project would have no impact on air traffic patterns, because the proposed habitat restoration, increased surface water diversion and groundwater recharge, and recreational and educational amenities would not generate a demand for air transportation. No impacts on air traffic patterns would occur with the Project.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not identify any adverse impacts to air traffic patterns or air transportation.

- d) **Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

Less than Significant Impact with Mitigation.

Areas 1, 2 and 3 Impacts. The Project would not result in any new roadway features or alignments, with the exception of the temporary and final access road through Area 3 (PDF TRA-1). As a part of the termination of the lease agreement with the City for the JPL East

Parking Lot, and not as a component of the proposed Project, JPL is required to remove all constructed improvements on the parking lot site. It is anticipated that the City will request approximately 47,164 square feet of paving to remain in place for a 26-foot wide temporary access roadway that would provide vehicle access for JPL employees to the new JPL Parking Structure on the JPL property. Dedicated access times during commuting hours may be enforced during construction activities in Area 3, and JPL employees and visitors would have to use JPL's West Entrance during restricted access hours (outside peak commute hours). This temporary access road would remain in place during construction activities in Area 3 until the completion of the permanent access road. This temporary access road would be aligned and maintained in accordance with the Standard Specifications for Public Works Construction (Greenbook) and the City's Supplements and Modifications to the Greenbook (RR TRA-1) and would not increase hazards for users of the road.

Temporary bridges would be constructed over Bridge No. 1 and Bridge No. 3 in and near Area 2 to provide access for construction equipment and vehicles to reach Areas 1 and 2. The Gabrielino Trail/access road in Area 2 would also be reconstructed to prevent further slope erosion. During construction, there may be hazards from construction activities and the use of construction equipment near trail users and vehicles passing through construction areas. In Area 1, fencing around the construction area would prevent public access into Area 1, but would maintain public access on the Gabrielino Trail/access road adjacent to Area 1. Construction of the new diversion and weir structures in Area 2 would be located away from the Gabrielino Trail/access road. However, construction of the temporary bridges and access road reconstruction would be on or near the Gabrielino Trail/access road and could create temporary safety hazards to hikers, bicyclists, and equestrians. Because of the high number of recreational users on the Gabrielino Trail, any potential hazards along the trail would be a significant impact.

In order to protect the safety of trail users, MM TRA-2 requires that non-vehicular access, including hikers, bicyclists and equestrians, shall be limited or prohibited when work on the bridge and Gabrielino Trail/access road in Area 2 is ongoing, and that flagpersons shall be used as necessary to ensure the safety of recreational users.

An increase in the number of construction vehicles and trucks on Windsor Avenue during Project implementation would increase opportunities for traffic hazards. Flagpersons, signs, and traffic control devices would be provided at the intersection of Ventura Street and Windsor Avenue in accordance with the Greenbook (RR TRA-1) and MUTCD (RR TRA-2) to prevent hazards associated with construction vehicles merging with or diverging from vehicle traffic on Windsor Avenue. Compliance with RR TRA-1 and RR TRA-2 and with MM TRA-2 would reduce impacts to less than significant levels.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not identify any adverse impacts related to traffic hazards or incompatible uses.

e) Would the project result in inadequate emergency access?

Less than Significant Impact with Mitigation.

Areas 1 and 2 Impacts. The existing Gabrielino Trail/access road in Area 1 would be maintained, while portions of the access road in Area 2 would be improved. Thus, beneficial impacts on emergency access would occur in the long-term.

Construction activities on the Gabrielino Trail/access road would affect access to Areas 1 and 2, adjacent areas (including the USFS Ranger Station), and areas farther north in the ANF. Improvements to the Gabrielino Trail/access road, movement of heavy equipment, and the

installation of temporary bridges over Bridge No. 1 and Bridge No. 3 would result in short-term and partial obstruction of vehicular access, which would affect the ability of emergency responders to access the area.

Compliance with the Standard Specifications for Public Works Construction (Greenbook) and the City's Supplements and Modifications to the Greenbook (RR TRA-1) regarding maintenance of emergency access at all times would mean closure of only half of the access; the use of a flagperson to direct traffic, as necessary; and allowing for the public use of the Gabrielino Trail/access road at times when construction is not ongoing. Temporary traffic control devices are also required to be provided in conformance with the MUTCD and the California Supplement to the MUTCD (RR TRA-2).

However, there would still be times during the construction workday when very short-term closures of the temporary bridges and/or the access road would occur. Examples of temporary road closures include times when large equipment is in motion, requiring the full width of the Gabrielino Trail/access road, and when temporary bridges are being installed. If these activities would hinder emergency access to the USFS Ranger Station, impacts would be significant.

MM TRA-3 requires that prior to the start of construction, the Construction Contractor must provide written notice to the USFS and residences at the Ranger Station of the anticipated construction schedule, stating that access may be temporarily obstructed on an intermittent basis and providing a schedule of anticipated closures. In order to ensure that emergency vehicles would not be obstructed at any time, the measure also requires that any temporary obstructions to the Gabrielino Trail/access road that could hinder emergency vehicular access be mobile and able to be removed from the roadway immediately upon notice from emergency responders.

As discussed in Section 4.8, Hazards and Hazardous Materials, MM HAZ-3 requires that closures of the access road and bridge be shortened to the extent feasible and that the contractor inform the PWP, the Pasadena Fire Department, the Pasadena Police Department, the Los Angeles County Fire Department, and the USFS of the construction schedule and planned closures. This will allow for timely emergency response and evacuation of the USFS Ranger Station and areas farther to the north. Compliance with RR TRA-1, RR TRA-2, MM TRA-3, and MM HAZ-3 (from Section 4.8) would reduce impacts to emergency access to less than significant levels after mitigation.

Area 3 Impacts. Emergency access to the HWP and Devil's Gate Dam and Reservoir would not be affected by improvements in Area 3. Emergency access to the JPL campus would be provided by Oak Grove Avenue from the west. Secondary access from the east would continue to be provided by the temporary access road through Area 3 (PDF TRA-1) and by the Gabrielino Trail during construction activities in Area 3. Access to the existing spreading basins would also remain available from roads south of Area 3. Access to Areas 1 and 2 would remain available through the Gabrielino Trail along the east side of Area 3. Impacts on emergency access in Area 3 would be less than significant.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not identify any adverse impacts related to emergency access.

- f) **Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?**

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. Proposed habitat restoration, increased water diversion and groundwater recharge, and additional recreational and educational amenities would not affect existing public transit services, policies, plans, or programs.

The proposed nature trail, rest area/picnic area, horse water trough, and other improvements would provide beneficial recreational amenities that would support hiking, biking, and equestrian use on the Gabrielino Trail and in the ANF. The reconstruction/improvement of the access road in Area 2 would increase public safety for users of the access road, which would also benefit hikers, bicyclists, and equestrians using this Gabrielino Trail/access road. The proposed parking lot, restroom, signs, and potential future trail connection at the north end of Area 3 would improve facilities available to hikers, pedestrians, equestrians or bicyclists visiting the Arroyo Seco Canyon.

Shuttle service from the JPL East Parking Lot to the JPL campus will be discontinued when the new JPL On-Site Parking Structure is completed (JPL 2012). This impact is not related to the proposed Project but is a result of the new JPL On-Site Parking Structure that is currently under construction.

During construction, use of the Gabrielino Trail in Areas 1 and 2 may be temporarily restricted as recreational amenities are constructed in Area 1 and the access road is reconstructed in Area 2. Similarly, use of the existing trail that crosses Area 3 may be temporarily obstructed during excavation of the spreading basins. As discussed in Section 4.15, Recreation, temporary trail closure would occur during construction. MM REC-1 from Section 4.15, Recreation, requires the contractor to post signs to provide advanced notice of the dates and times of planned trail closures, along with directions to the nearest trails in the surrounding areas.

After construction, the trails will become available for long-term use at the same locations. Therefore, the Project would have less than significant impacts on public transit, bicycle, and pedestrian facilities and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not identify any adverse impacts related to alternative transportation policies, plans, or programs.

4.17.3 MITIGATION MEASURES

MM TRA-1 During construction activities in Areas 1, 2 and 3, all Contractors shall schedule the arrival and departure of the construction equipment, and construction trucks outside the AM peak hours of 7:30 AM to 8:30 AM and the PM peak hours of 4:30 PM to 5:30 PM. In addition, trucks transporting sediment and debris from the site shall travel to and from the site outside the AM and PM peak hours.

MM TRA-2 During construction activities in Areas 1 and 2, use of Bridge No. 1, Bridge No. 3, and the Gabrielino Trail/access road by hikers, bicyclists and equestrians shall be limited or prohibited when work on the temporary bridges and Gabrielino Trail/access road is ongoing. Flagpersons and/or other safety procedures shall be used as necessary to ensure the safety of recreational users.

MM TRA-3 Prior to the start of construction, the Construction Contractor shall provide written notice to the USFS and residences at the Ranger Station of the anticipated construction schedule, stating that access may be temporarily obstructed on an intermittent basis and providing a schedule of anticipated closures. In order to ensure that emergency vehicles would not be obstructed at any time, any temporary obstructions to the Gabrielino Trail/access road that could hinder emergency vehicular access shall be mobile and able to be removed from the roadway immediately upon notice from emergency responders.

4.18 UTILITIES AND SERVICE SYSTEMS	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4.18.1 EXISTING CONDITIONS

There are several groundwater wells owned by PWP in and near Area 3. The Arroyo Well is located beside Basin 5 (at the southern end of Area 3) and Well 52 is located beside Basin 7. The Ventura Well is located beside Basin 10 (south of Area 3). PWP also has three water lines crossing Area 3. There are two 24-inch pipelines (influent and effluent) from the Behner Water Treatment Plant to the 30-inch hume line in Area 3. This water treatment plant was previously used to treat surface water as part of PWP's domestic supply but is no longer in use. A 30-inch diameter hume line conveys surface water from the intake structure in Area 2 to the spreading basins in Area 3. Another water line extends from the Calaveras pressure zone at Kent Street and runs north across Area 3 to the JPL Bridge and into the JPL campus. In addition, there are two monitoring wells owned by JPL located east of Area 3.

A number of storm drain lines from Altadena, La Cañada Flintridge, JPL and the HWP discharge into the Arroyo Seco. The outfalls of three lines are located east of Area 3 and cross the JPL parking lot and spreading basins toward the Arroyo Seco (Pasadena 2003a).

There are no sewer lines serving Areas 1, 2 or 3. Wastewater in the area is conveyed to the main trunks of the Los Angeles County Sanitation Districts (LACSD) for treatment at various treatment plants.

A Southern California Edison (SCE) overhead transmission line runs across the HWP to Ventura Street. There are PWP power and communication lines that serve PWP's wells near Area 3; along Johnson Field Road; and along the Gabrielino Trail.

4.18.2 IMPACT ANALYSIS

Regulatory Requirements

RR UTIL-1 The Contractor shall comply with the City's Construction and Demolition Waste Management Ordinance (Chapter 8.62 of the Pasadena Municipal Code), which requires preparation and implementation of a Waste Management Plan that shows how at least 50 percent of construction and demolition debris would be diverted away from landfills. The Waste Management Plan shall be subject to City approval prior to the start of construction activities, and the Contractor shall provide monthly reports to demonstrate compliance during the construction phase.

Impact Discussion

- a) **Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?**
- b) **Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**
- e) **Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?**

Less Than Significant Impact.

Areas 1, 2 and 3 Impacts. No restroom or other wastewater generating facilities are proposed in Areas 1 or 2. The restroom proposed in Area 3 would generate wastewater that would be conveyed into an existing sewer line at the JPL campus for treatment and disposal at the Whittier Narrows Water Reclamation Plant (WNWRP) or the Joint Water Pollution Control Plant (JWPCP) of the LACSD. Based on an assumption of 20 gallons per day per parking stall, an estimated 2,000 gallons per day of wastewater would be generated by the restroom, which is a minimal amount. This wastewater generation would come from the toilets and sink in the restroom. The majority of this wastewater generation would occur during the weekend when visitors to the Project area are highest. JPL operations are limited on the weekends and capacity of the existing trunk sewer line in JPL would be adequate to accommodate the additional flows. Wastewater discharges from the proposed restroom would increase the amount of wastewater, but would be similar to wastewater from other common restroom and bathroom facilities. This wastewater would not exceed wastewater treatment requirements of the LACSD or the Los Angeles RWQCB. The WNWRP has capacity to treat 12 million gallons per day (mgd) of wastewater, with excess flows directed to the JWPCP, which has capacity to treat 280 mgd. The JWPCP treated 265 mgd of wastewater in 2012; thus, there is as much as 15 mgd of available wastewater treatment capacity to serve the proposed restroom in Area 3.

During construction, portable toilets would be provided at the site for the construction crew, and these portable toilets would be regularly cleaned and their contents disposed of off-site by an outside company. Wastewater from these portable toilets would not exceed Los Angeles RWQCB treatment requirements. Also, an insignificant amount of wastewater would be generated by these portable toilets, and the Project would not need new or expanded treatment facilities. Capacity at existing wastewater treatment plants would not be exceeded during construction or operation of the proposed Project. Impacts related to wastewater facilities would be less than significant. No mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potential impacts to wastewater and included Measure Utilities and Service Systems-1 for the construction of a sewage collection system to serve the HWP prior to the renovation and construction of restrooms. The Master EIR considered the connection of the new restroom in Area 3 to the sewer line at the JPL campus, which is being proposed by the Project. Thus, Measure Utilities and Service Systems-1 is not applicable to the Project.

- b) **Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**
- d) **Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?**

Less than Significant Impact.

Areas 1, 2 and 3 Impacts. Temporary irrigation of the landscaping at the rest area/picnic area in Area 1 would be provided until native plants are established. Irrigation and horse water trough in Area 1 would be served by the water line at the USFS Ranger Station. The proposed restroom, drinking fountain, and parking lot landscaping in Area 3 would be served by the relocated water line in Area 3. As estimated above, approximately 2,000 gallons per day (gpd) would be used by the restroom.

The new diversion and weir structures in Area 2 and the expanded spreading basins in Area 3 would increase the PWP groundwater recharge by approximately 1,100 acre-feet per year (afy). With the PWP allowed to extract 60 percent this volume, its water supply could increase by over 580,000 gpd. Water use by the Project (associated with the proposed restroom, landscape irrigation, drinking fountain, and horse water trough) is expected to be minimal and would be substantially less than the projected increase in PWP supplies due to the Project.

The proposed Project would require water for the control of fugitive dust during grading and excavation activities. A water truck would come to the construction sites, with water obtained from off-site sources, as needed. This water demand would be short-term and minimal.

Surface water flows in the Arroyo Seco in Area 1 would be diverted away from the construction area when grading activities occur in the stream channel. Surface water in the Arroyo Seco in Area 2 would also be diverted from the diversion and weir structures and may be directed into the intake structure for conveyance into the spreading basins if basin excavation in Area 3 has not started. Stream flows in the Arroyo Seco would be uninterrupted during construction in Area 3. However, the spreading basins would be decommissioned while the new basins are being excavated and existing basins are expanded. During these times, the intake structure would be closed and PWP would not be recharging surface waters. Instead, stream flows in Area 2 would be diverted away from the construction area and discharged into the Arroyo Seco downstream of Area 2. However, PWP maintains a groundwater storage reserve and is capable of making up

the temporary interruption in spreading. Therefore, PWP would not require more imported water sources during Project construction.

The Project would not affect water wells located near Area 3, but it would be necessary to relocate the JPL water line that crosses Area 3. The new relocated line would be installed prior to removing the existing line to avoid disruption in water service to the JPL campus. Once the new water line is ready for use, the existing line would be removed. The hume line would be relocated and water conveyance would be disrupted during construction of the new line and the spreading basins. This impact would be temporary and would not cut off water services to existing PWP customers.

After construction, as much as 1,100 afy more water would be diverted and recharged due to the expanded basins and the improved diversion structure. This would allow the PWP to use less imported water sources in the long term. Impacts on water supplies would be temporary and less than significant. No mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan did not identify any adverse impacts on water supplies or services.

- c) **Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

No Impact.

Areas 1, 2 and 3 Impacts. The Project does not propose impervious areas that would increase runoff volumes and/or require new or expanded storm drainage. Improvements in Area 1 would retain storm water flows in the Arroyo Seco. Improvements in Area 2 would impound more water behind the new diversion and weir structures but would not affect the capacity of the Arroyo Seco. Instead, less surface water would flow in the Arroyo Seco downstream of the diversion structure and towards the Devil's Gate Reservoir. This would not require new storm drainage facilities and impacts on storm drainage would be less than significant.

The direction of drainage on the improved access road in Area 2 would not change from the existing as it would flow away from the stream and toward the eastern slope for discharge to the south. This would only affect the drainage pattern on the road but flows would still enter the Arroyo Seco downstream. Improvements in Area 3 would direct runoff into the spreading basins for recharge; and runoff from area storm drains would continue to discharge into the Arroyo Seco. The Project would not require any storm drainage facilities. Impacts on storm drainage would be less than significant, and no mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan stated that storm drain improvements would have beneficial impacts on storm runoff control but construction of these improvements would result in temporary impacts requiring mitigation. The Project does not proposed any of the storm drain improvements outlined in the Master Plan.

- f) **Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?**

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

Less Than Significant Impact.

Areas 1, 2 and 3 Impacts. Trash cans and pet waste stations in Areas 1 and 3 would be subject to weekly maintenance and waste removal by City personnel. Solid wastes in these receptacles are expected to be minimal, although disposal is expected to slightly increase over existing conditions due to the presence of picnic tables in Area 1 and additional trail users, as discussed in Section 4.16, Recreation. The types of wastes generated would not change, but the amount would be slightly increased. Recycling bins at the restroom would also reduce demand for landfill space. Disposal of trash would continue through the City's current waste disposal and would not affect landfill capacity. Long-term impacts would be less than significant.

Temporary construction activities would generate solid wastes. Construction in Area 1 is estimated to generate 80 cubic yards (cy) of debris from clearing and grubbing activities and 64 cy of demolition wastes (with no excess cut soils) requiring disposal at Scholl Canyon Landfill.

Construction activities in Area 2 are estimated to generate 80 cy of debris from clearing and grubbing activities; 16 cy of demolition wastes; and 180 cy of cut soils requiring disposal at Scholl Canyon Landfill. Construction activities in Area 3 are estimated to generate 2,400 cy of debris from clearing and grubbing activities; 4,000 cy of demolition wastes; and 2,000 cy of excess cut soils requiring disposal at Scholl Canyon Landfill. It is anticipated that the 2,000 cy of excess cut soils would consist of larger rocks recovered through the use of an on-site shaker. It is the City's intention to utilize this recovered material on-site rather than disposing of the materials. However, in order to provide a conservative assessment of impacts, disposal at Scholl Canyon is considered. As such, a total of approximately 8,820 cy of soils and debris from Project construction would require off-site disposal.

The City's Construction and Demolition Waste Management Ordinance requires diversion of at least 50 percent of the total weight of construction and demolition debris away from landfills (RR UTIL-1). Compliance with this RR will reduce landfill demand from the Project.

The Scholl Canyon Landfill has a daily allowance to accept 3,400 tons per day and has 4.8 million tons of remaining capacity as of December 2010, and at current rates of disposal per day (approximately 1,400 tons/day), the landfill would reach its currently permitted capacity in the year 2021 (LACSD 2014). Additionally, the City of Glendale is currently considering ways to expand the capacity of the landfill, thereby extending its useful life by 13 to 19 years (LACSD 2014). There is adequate capacity (4.8 million tons) at Scholl Canyon Landfill to serve construction waste disposal needs (8,820 cy) of Project construction.

Hazardous materials would be disposed of in accordance with existing regulations (RR HAZ-1), as discussed in Section 4.8, Hazards and Hazardous Materials. Impacts related to landfill capacity and solid waste regulations would be less than significant. No mitigation is required.

Impact Comparison with Arroyo Seco Master EIR. The Master EIR for the Arroyo Seco Master Plan identified potential impacts on solid waste disposal capacity due to construction activities and additional park use; it included Measure Utilities and Service Systems-2 for the implementation of waste minimizing and recycling measures during construction activities. The Project would comply with RR UTIL-1, which is similar to Measure Utilities and Service Systems-2, for the recycling of construction wastes and debris. The Project would also comply with PDF MIN-1 and RR MIN-1 from Section 4.12, Mineral Resources, for the collection of arroyo stone

during excavation activities, which would reduce the need for solid waste disposal during construction.

The Project does not propose to relocate or replace electrical and communication lines. Thus, Measure Utilities and Service Systems-4, which calls for the undergrounding of utility lines, is not applicable.

4.18.3 MITIGATION MEASURES

There would be no significant impacts related to utilities and service systems with compliance with RR UTIL-1; therefore, no mitigation measures are required.

4.19 <u>MANDATORY FINDINGS OF SIGNIFICANCE</u>	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
Does the project:				
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.19.1 MANDATORY FINDINGS OF SIGNIFICANCE ANALYSIS

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Less than Significant With Mitigation. As discussed above in Section 4.4, Biological Resources, and Section 4.5, Cultural Resources, the Project would lead to the disturbance of existing plant, aquatic, and animal habitats on and near the Arroyo Seco, as well as have potential impacts to cultural resources in the Project area. Mitigation measures have been developed to reduce potential environmental impacts on biological and cultural resources to less than significant levels.

Implementation of the mitigation measures would ensure that the Project does not degrade the quality of the environment; does not substantially reduce the habitat of fish or wildlife species; does not cause a fish or wildlife population to drop below self-sustaining levels; does not threaten to eliminate a plant or animal community; does not reduce the number or restrict the range of Rare or Endangered plant or animal; and does not eliminate important examples of the major periods of California history or prehistory. Impacts would be less than significant after mitigation.

In addition, beneficial impacts on biological resources would occur through the proposed restoration and revegetation of Area 1 and compliance with the Arroyo Seco Design Guidelines would promote the cultural heritage of the area.

- b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?**

Less than Significant Impact After Mitigation. A number of projects are ongoing and are proposed in the Hahamongna Watershed Park and adjacent areas. These cumulative projects include, but are not limited to those listed and described below.

1. The Los Angeles County Department of Public Works is planning to implement sediment removal activities in the Devil’s Gate Reservoir. Temporary stockpiling at Johnson’s Field occurred in 2011, 2012, and 2013, and the permanent sediment removal activities are currently being finalized. Sediment would be excavated and disposed off-site, including approximately 2.9 million cubic yards (cy) of sediment from a 120.42-acre area behind the dam; approximately 15,725 cy at the Johnson’s Field stockpile; and additional sediment received by the dam during sediment removal. Sediment will be disposed at the Waste Management Facility in Azusa, the Vulcan Materials Reliance Facility in Irwindale, the Manning Pit Sediment Placement Site in Irwindale, and other secondary sites in Sun Valley. Vegetation and organic materials will be hauled to Scholl Canyon Landfill in Glendale. Sediment removal is expected to occur between Fall 2015 and Fall 2020, with annual reservoir management after 2020.
2. A new JPL On-Site Parking Structure is currently under construction on the west side of the Arroyo Seco, within the JPL campus, to replace the parking spaces in Area 3. When the City notified JPL of its intent not to renew the lease for the parking lot, JPL started to plan for a new parking structure and requested that its lease not be terminated until the JPL On-Site Parking Structure is built (expected to be completed in 2014). Removal of the existing parking pavement and associated improvements (e.g., bus stop, signs, light poles, fencing) at Area 3 is part of JPL’s parking structure project. This project is anticipated to be completed before the Arroyo Seco Canyon Project begins construction.
3. The HWMP outlines the improvements for the HWP that include habitat establishment and restoration areas, spreading basins, an overnight camping area, park facilities, picnic areas, improved and new trails, restrooms, parking areas, overlooks, bicycle routes, storm drain improvements, flood management and water conservation facilities, trailheads, and bridges. None of the improvements proposed on the east side of the Arroyo Seco are planned for construction at the same time as the Project.
4. The HWMP Addendum for the Hahamongna Annex proposes improvements to a 30-acre site formerly owned by the Metropolitan Water District of Southern California that is developed with an abandoned USFS station, equestrian facilities, a fire camp, and open space. This site is west of the Arroyo Seco and south of the JPL campus. The HWMP Addendum calls for an education and conference facility, an equestrian facility, park offices, a fire camp (existing), passive recreational facilities, and open space. No timeline for construction of these improvements has been finalized.
5. The Hahamongna Multi-Benefit/Multi-Use Project proposes improvements at the Hahamongna Watershed Park on the west side of the Arroyo Seco, including: Westside Perimeter Trail; restoration of Berkshire Creek; Oak Grove Field restroom; Foothill drain improvements; and habitat restoration.

6. The Los Angeles County Flood Control District is planning a water conservation project at Devil's Gate Dam that involves the installation of a pump and intake structure at the upstream face of the dam, along with a five-mile pipeline from the pump easterly to Eaton Wash. This project will divert water from the dam for recharge at Eaton Wash and is in the conceptual design phase.
7. Pasadena Water and Power is currently planning for a recycled water project which would take recycled water from the Los Angeles Glendale Water Reclamation Plant (LAG). The proposed point of connection is at Scholl Canyon. The project proposes a pipeline from Scholl Canyon to the City near the intersection of Washington Blvd. and West Drive. The primary customers would be the Art Center College, Brookside Golf Course, Brookside Park, and Rose Bowl Stadium. PWP is currently preparing the environmental impact report. The goal is to begin construction in early 2016.

The Project would not lead to any significant long-term adverse impacts due to the type and size of the proposed improvements. The Project's environmental impacts would mainly be associated with construction activities and would be mitigated to levels considered less than significant, which would reduce the Project's contribution to cumulative impacts.

Construction of the Project would not contribute to cumulatively significant adverse impacts with the cumulative projects that would generally be located on the west side of the Arroyo Seco in the HWP or that would be constructed before the Project (e.g., JPL On-Site Parking Structure) or after the Project's construction schedule (e.g., Hahamongna Annex and Hahamongna Multi-Benefit/Multi-Use Project), or those that have not been specifically scheduled for construction (e.g., some HWMP improvements and Devil's Gate Dam/Eaton Wash water conservation project). However, the sediment removal activities in the Devil's Gate Reservoir are anticipated to begin in the Fall of 2015, during which the Project would have started construction. This construction schedule overlap would occur from Fall 2015 until Fall 2016, when Project construction would be completed (except for 5 months between December 2015 and April 2016 when the sediment removal project would not be ongoing). Thus, the Project's construction-related impacts (i.e., aesthetics, construction emissions, noise, recreation, and traffic) could cumulatively add to construction-related impacts of proposed sediment removal activities for approximately 8 months, assuming all projects move forward on their anticipated schedules. (The Draft EIR for the sediment removal activities considers the Arroyo Seco Canyon Project as a cumulative project and analyzes the cumulative impacts of both projects and other projects proposed in the surrounding area.)

Cumulative Impact Analysis

Aesthetics. As discussed in Section 4.1, Aesthetics, the Project would have no impacts on scenic highways and less than significant impacts related to new sources light and glare. Thus, the Project would not contribute to cumulative impacts on these issues. The Project would not lead to major permanent changes in the visual quality of the Arroyo Seco Canyon and the HWP with the design of public improvements in Areas 1 and 2 in accordance with the Arroyo Seco Design Guidelines (PDF AES-1) and the design of improvements in Area 3 in compliance with the Arroyo Seco Design Guidelines (RR AES-1). However, temporary changes in visual quality and scenic views would occur during the construction phase. Construction areas and staging areas would provide views of construction equipment, construction activities, disturbed soils, and building material stockpiles that would be visible to residents, employees and visitors in the area. The screening of construction sites and staging areas would limit these views.

Construction activities within Areas 1 and 2 would not be within the same viewshed as the sediment removal activities associated with the Devil's Gate Sediment Removal Project because they are upstream and obscured from view by topography and vegetation. However, construction activities within Area 3 would be within the same viewshed. Additionally, some truck traffic for the two projects would be using similar haul routes (i.e., Windsor Avenue for incoming trucks and I-210, SR 134, Scholl Canyon Road for outgoing trucks) when trees, vegetation and other organic materials from the reservoir are disposed of at the Scholl Canyon Landfill⁸. Therefore, cumulative projects in other areas of the HWP and sediment removal activities in the Devil's Gate Reservoir would expand views of construction equipment and activities that would detract from views of the natural open space and recreational areas in the HWP. This cumulative impact would be temporary and Project screening of construction areas and staging areas and MM TRA-1 (restrictions to non-peak hours) would reduce its contribution to cumulative short-term construction impacts on aesthetics to less than significant levels.

Agriculture and Forest Resources. As discussed in Section 4.2, Agriculture and Forest Resources, the Project would have no impact on agriculture and forest resources. Thus, the Project would not contribute to cumulative impacts on these resources.

Air Quality. As discussed in Section 4.3, the SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the Federal and State Clean Air Acts. As discussed earlier in Threshold 4.3(a), the proposed Project would be consistent with the AQMP, which is intended to bring the SoCAB into attainment for all criteria pollutants. In addition, the mass regional emissions calculated for the proposed Project (Tables 4.3–4 and 4.3–6) would be less than SCAQMD's daily significance thresholds that are designed to assist the region in attaining the applicable State and national ambient air quality standards.

Short-term cumulative impacts related to air quality could occur if Project construction and nearby construction activities were to occur simultaneously. In particular, with respect to local impacts, cumulative construction particulate (i.e., fugitive dust) impacts are considered when projects are located within a few hundred yards of each other. As described above, sediment removal at the Devil's Gate Reservoir could have overlapping construction schedules with the Project. However, as shown in Table 4.3–5, Project construction emissions would be below the SCAQMD regional significance thresholds; particularly, particulate matter emissions would be less than ten percent of the thresholds. Therefore, the incremental effect of Project-related construction emissions of nonattainment pollutants would not be cumulatively considerable and Project impacts would be less than significant.

Biological Resources. As discussed in Section 4.4, Biological Resources, the Project would have potentially significant adverse impacts on biological resources. Several mitigation measures (MM BIO-1 through MM BIO-6) would be implemented to avoid and/or reduce these impacts to less than significant levels. The cumulative projects listed above would also have impacts on biological resources in the HWP and the Upper Arroyo Seco that could adversely change biodiversity and affect a number of sensitive species and their habitats; however, mitigation by individual projects and compliance with the permit conditions imposed by resource agencies are expected to mitigate project-specific impacts. Because all biological resources that would be impacted by the cumulative projects would be subject to mitigation to the satisfaction of the resource agencies and the lead agencies, and because the proposed Project would also mitigate all impacts to less than significant and would not alter the availability of open space or biological

⁸ The proposed sediment removal activities at Devil's Gate Reservoir would utilize a number of disposal sites in the Cities of Azusa and Irwindale and other sites east and west of the reservoir, in addition to the Scholl Canyon Landfill.

resources in the Project area, incremental impacts would not be cumulatively considerable and no additional mitigation is required.

Cultural Resources. As discussed in Section 4.5, Cultural Resources, the Project would have potentially significant adverse impacts on historical resources, archaeological resources, and paleontological resources that are present within or near the construction sites. Mitigation measures (MMs CUL-1 through MM CUL-4) would be implemented to avoid and/or reduce these impacts to less than significant levels. The Project would also comply with RR CUL-1 in the event of discovery of human remains.

Since cultural resources are site-specific and since the Project site is not located within a historic district, no cumulative significant adverse impacts are expected from the Project with implementation of site-level surveys and mitigation outlined as part of cultural resource studies for individual development projects. Implementation of the proposed Project and the mitigation measures outlined above would prevent adverse impacts on cultural resources on the site. Thus, the Project would not have a cumulative contribution to the disturbance and/or destruction of cultural resources in the surrounding area.

Energy. The proposed Project would have a limited demand for energy when compared to the energy demand of the cumulative projects listed above or to the existing energy supplies that PWP provides to existing development in the City. The elimination of the existing JPL East Parking Lot lighting and reductions in demand for State Water Project water deliveries due to increased groundwater recharge would help partially off-set new Project-related electrical demand. Therefore, although the Project would result in a slight increase in overall electrical usage, no new infrastructure would be required and any new electrical connections would be constructed in accordance with the City's Building Code (RR GEO-1). Energy use by the Project would not be cumulatively considerable and cumulative impacts would be less than significant.

Geology and Soils. As discussed in Section 4.6, Geology and Soils, Project impacts associated with seismic and geologic hazards in the area would be less than significant with compliance with the City's Building Code (RR GEO-1) and the recommendations of the Project's Geotechnical Feasibility Report (RR GEO-2). Similarly, the cumulative projects would have to comply with the City's Building Code and the recommendations of geotechnical investigations prepared for individual projects. Geology and soils impacts are generally site specific and there is typically little, if any, cumulative relationship between the development of a proposed Project and development within a larger cumulative area. For example, development at the Project site would not alter geologic events or soil features/characteristics (such as ground shaking, seismic intensity, or soil expansion) at other locations; therefore, the Project would not result in cumulatively considerable impacts.

Greenhouse Gas (GHG) Emissions. As discussed in Section 4.7, Greenhouse Gas Emissions, it is very unlikely that any individual development project would have GHG emissions of a magnitude to directly impact global climate change; therefore, any impact would be considered on a cumulative basis. Because the proposed project's GHG emissions would be 126 MTCO₂e/yr and considerably less than 3,000 MTCO₂e/yr screening threshold recommended by SCAQMD, the Project's GHG emissions would not be cumulatively considerable. Cumulative impacts would be less than significant.

Hazards/Hazardous Materials. As discussed in Section 4.8, Hazards and Hazardous Materials, the Project's use, storage, transport, and disposal of hazardous materials will be made in accordance with existing regulations (RR HAZ-1). Similarly, the cumulative projects would have to comply with pertinent hazardous materials regulations. Compliance with existing regulations would reduce hazards to nearby schools, residences, and other land uses.

The Project would also implement MM HAZ-1, which includes measures to avoid adding to existing groundwater contamination, and MM HAZ-2, which requires sampling and remediation of discolored or odorous soils, as necessary, to avoid the dispersion of existing groundwater contamination. Neither the Project nor the cumulative projects are expected to interfere with the existing groundwater contamination, assuming compliance with existing regulations and applicable mitigation measures. Additionally, JPL's ongoing groundwater remediation and monitoring would continue to reduce these existing hazards over time.

There are no airports or airstrips within two miles of the Arroyo Seco Canyon, and the Project would not contribute to cumulative impacts on airport and aircraft operations. The Project and cumulative projects would be exposed to wildfire hazards present to the north, west, and south of the Reservoir, but with compliance with the City's Fire Prevention Code (RR PS-1), Project impacts would be less than significant. Thus, it would not contribute to cumulative impacts related to wildfire hazards.

The Project may affect emergency response and evacuation due to temporary closure of the Gabrielino Trail/access road to the USFS Ranger Station and the ANF. Compliance with the Greenbook (RR TRA-1) and implementation of MM HAZ-3 (notification of public service agencies) would reduce the Project's contribution of cumulative impacts related to emergency response and evacuation. Continued implementation of the City's Emergency Operations Plan (RR HAZ-2) would also provide emergency access and evacuation in the HWP, as necessary. Cumulative impacts would be less than significant.

Hydrology and Water Quality. As discussed in Section 4.9, Hydrology and Water Quality, the Project would have beneficial impacts on hydrology and water quality by improving the riparian habitat in the Arroyo Seco (PDF HYD-1); increasing groundwater recharge (PDF HYD-1); and providing trash cans, pet waste stations, and a restroom (PDF HYD-3). Construction activities would result in pollutants in storm water and in the Arroyo Seco that would be reduced by compliance with the NPDES General Construction Permit (RR HYD-1), the City's Stormwater Management and Discharge Control Ordinance (RR HYD-4), and the SWRCB's Waste Discharge Requirements (RR HYD-2). Dewatering may also lead to the release of contaminated groundwater and would require compliance with the Los Angeles RWQCB's dewatering regulations (RR HYD-3). Cumulative projects would also have to comply with these regulations, as needed. Thus, cumulative impacts on storm water quality during the construction of individual projects would be less than significant.

Changes in drainage patterns due to habitat restoration in Area 1; surface water diversion in Area 2; and changes in drainage patterns in Area 3 would be less than significant. Changes in drainage patterns from cumulative projects are also expected to be confined to individual sites and would maintain flows into and in the Arroyo Seco. Cumulative impacts would be less than significant. No inundation hazards from dam or levee failure, seiche, tsunami, or mudflow would affect the Project, nor would they be created by the Project. Thus, no cumulative impacts related to these issues would occur.

Land Use and Planning. As discussed in Section 4.10, Land Use and Planning, the Project would not divide an established community and would not conflict with the City's Open Space designation and zoning. The Project would also comply with the HWMP (RR LU-1) and Arroyo Seco Design Guidelines (RR AES-1). Thus, the Project would not contribute to cumulative impacts related to land use and planning.

Mineral Resources. As discussed in Section 4.11, Mineral Resources, sand and gravel resources exist within the Devil's Gate Reservoir (although there are no active mining operations in the area), but the Project would not affect these resources. However, large cobbles and

boulders in and near the Arroyo Seco would be disturbed by the Project. These boulders would be reused for improvements in Areas 1, 2, and 3, and large cobbles and boulders in Area 2 would be stockpiled for future decorative uses (PDF MIN-1). Also, the Arroyo Seco Design Guidelines require the collection of arroyo stones during excavation activities in Area 3 (RR MIN-1). These would maintain the availability of local mineral resources. Improvements in Area 3 would not preclude future mining operations in this area. Also, long-term recreational activities in Arroyo Seco Canyon and operation and maintenance of the PWP facilities would not require mineral resources. Thus, the Project would not have a significant cumulative adverse impact on mineral resources.

Noise. As discussed in Section 4.12, Noise, changes in noise levels from Project construction and operation would be less than significant. The Project would comply with the City's Noise Ordinance (RR NOI-1) and would implement noise-control measures (MM NOI-1) to further reduce noise on adjacent land uses. While construction noise would be added to the construction noise impacts of the cumulative projects that are under construction at the same time (such as the sediment removal activities), noise levels generally dissipate rapidly from the source and would affect different receptors due to different construction site locations. Traffic noise impacts would occur on roadways used by construction equipment and haul trucks, but changes in noise levels would be intermittent and are not expected to increase by 5 dBA such that they will become discernible (since it would take a doubling of traffic volumes to increase noise levels by 3 dBA) and the Project would not lead to traffic increases equal to existing traffic volumes on Windsor Avenue, which ranged from 6,361 to 10,097 ADT on weekdays and from 4,680 to 6,458 ADT on the weekends in 2011. Additionally, MM TRA-1 requires construction equipment, construction vehicles, and the construction crew to avoid arrivals and departures during the AM peak hours (7:30 AM to 8:30 AM) and the PM peak hours (4:30 PM to 5:30 PM). Impacts on noise would be temporary and would not be cumulatively significant.

Population and Housing. As discussed in Section 4.13, Population and Housing, the Project would not introduce households or businesses, nor would it extend infrastructure that may induce growth in the area. It would also not displace existing housing or households in the area. Thus, the Project would not have cumulative impacts related to Population and Housing.

Public Services. As discussed in Section 4.14, Public Services, the Project would not create demands for school, library, or park services. Demands for fire and police protection services would be limited to the construction phase, and compliance with the City's Fire Prevention Code (RR PS-1) would reduce the incidence of fire and its associated demand for fire protection services. Similarly, the cumulative projects would comply with these City regulations and would not result in significant cumulative adverse impacts.

The Project's demand for police protection services would be reduced by screening construction areas and staging areas; complying with the Greenbook (RR TRA-1); and notifying public service providers (MM HAZ-3). While the Project would contribute to the cumulative demand for police protection services, its contribution would be minimal and would not be cumulatively considerable requiring new facilities. Long-term operation and maintenance for the proposed recreational amenities and improved PWP facilities would be largely similar to existing services. These impacts would be less than significant and would not be cumulatively considerable requiring new facilities.

Recreation. As discussed in Section 4.15, Recreation, the Project would improve recreational facilities in the Arroyo Seco Canyon, the ANF, and the HWP. This would result in beneficial impacts on Recreation in the long-term.

Concurrent construction of the Project and the cumulative projects would lead to the closure of some trails in the HWP and the ANF. Specifically, the sediment removal project would lead to the short-term closure of portions of the Altadena Crest Trail, Arroyo Seco Trail, and West Rim Trail. These closures may occur concurrent with closures of portions of the Gabrielino Trail, Altadena Crest Trail, and Arroyo Seco Trail that would occur during construction of the Project. MM REC-1 requires the Contractor to post signs at the parking lots and trail entrances providing at least one week of advanced notice of the dates and times of planned trail closures, along with directions to the nearest trails in the surrounding areas. To avoid directing trail users to nearby trails that would be closed due to other cumulative projects, this mitigation includes a provision that alternative trails be those that are not closed at the same times as the trails that would be closed by the Project. Impacts would be temporary and less than significant after mitigation. Thus, the Project would not contribute to significant cumulative impacts on Recreation.

Transportation/Traffic. As discussed in Section 4.16, Transportation and Traffic, the long-term increase in the number of vehicle trips associated with increases in trail users and visitors and maintenance vehicles would contribute to cumulative increases in existing traffic volumes on local streets and freeways. However, this increase is not considered cumulatively significant due to the limited number of trips expected during the AM and PM peak hours on weekdays.

During construction of the Project (Summer 2015 to Fall 2016), sediment removal activities at the Devil's Gate Reservoir would also be ongoing south of Area 3. While other cumulative projects may also be under construction at the same time, they are located on the other side of the Arroyo Seco and are likely to use a different set of roadways.

The I-210 off-ramps at Windsor Avenue and the segment of Windsor Avenue north to Oak Grove Drive would be used by construction equipment and trucks for the reservoir sediment removal and the Arroyo Seco Canyon Project. Sediment-removal trucks would turn left on Oak Grove Drive to enter the reservoir, while Arroyo Seco Canyon Project trucks would continue farther north. Departing trucks from the reservoir would use Oak Grove Drive and the Berkshire Place on-ramps to the I-210, while trucks departing from the Project would use Windsor Avenue south to the I-210 on-ramps.

Since arriving trucks from both the proposed Project and the Devil's Gate Project would use the same I-210 off-ramp and the segment of Windsor Avenue to Oak Grove Avenue throughout the work day, cumulative traffic impacts could occur. With the implementation of MM TRA-1 (which would restrict construction vehicles, construction equipment, and truck trips from the Project site to hours outside the AM and PM peak hours), the Project would not contribute to the significant adverse impacts of sediment removal haul trucks going to and from Devil's Gate Reservoir during the AM and PM peak hours. This would avoid cumulative impacts during AM and PM peak hours from the Project.

The sediment-removal activities at the Reservoir would also dispose of vegetation and organic materials at the Scholl Canyon Landfill, similar to the Project. Thus, the same route would be affected: I-210 east to SR-134 west and exit on Figueroa Street, north to Scholl Canyon Road. A maximum of 425 truck round trips per day (or 50 truck round trips per hour) are expected for sediment removal, with approximately 50 percent of the total going to Scholl Canyon Landfill during the first 3 weeks; and the remaining 50 percent to the other disposal sites. In subsequent years, 25 percent of the total trucks will go to Scholl Canyon Landfill during the first week; and the remaining 75 percent will go to other disposal sites.

In addition to MM TRA-1, the following mitigation is recommended to reduce cumulative impacts related to truck traffic near Scholl Canyon Landfill:

MM CUM-1 The Contractor for the Arroyo Seco Canyon Project shall coordinate with the Los Angeles County Department of Public Works and their contractor for the sediment removal activities at Devil's Gate Reservoir on the schedule of trucks coming to and from Scholl Canyon Landfill, such that the Project's truck traffic avoids the AM and PM peak hours to reduce conflict with local traffic and so that truck arrival times are staggered between the two projects to avoid queuing on Figueroa Street and on the State Route 134 on- and off-ramps.

The Project's contribution to cumulative traffic impacts would be temporary and less than significant after mitigation.

Utilities and Service Systems. As discussed in Section 4.17, Utilities and Service Systems, wastewater generation from the proposed restroom in Area 3 could be accommodated by wastewater treatment plants that would serve the Project. Cumulative impacts would be mitigated by the payment of connection and service fees by individual projects.

Long-term water use for the horse water trough, drinking fountain, restroom, and landscape irrigation and short-term construction site watering for dust control would be minimal and would not require new water supplies. Interruption of water diversion and groundwater recharge during construction would be temporary and would be compensated by the permanent increase in water diversion and recharge that would be provided by the improved diversion and weir structures in Area 2 and the expanded spreading basins in Area 3. No cumulative adverse impacts on water services and supplies would occur with the Project.

No storm drainage facilities are required by the Project; thus, no cumulative impacts on storm drainage would occur. Solid waste generation would be minimal in the long term and would be reduced during construction through compliance with the City's Construction and Demolition Waste Management Ordinance (RR UTIL-1). Cumulative projects would also have to comply with this ordinance during construction, and the Project's cumulative impacts on landfill capacity and solid waste regulations would be less than significant.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant With Mitigation. The proposed Project would have environmental effects that could cause substantial adverse effects on human beings, either directly or indirectly, as they relate to Aesthetics, Air Quality, Hazards and Hazardous Materials, Recreation, and Transportation/Traffic (as previously discussed under these environmental issues). Mitigation measures have been provided to reduce these impacts to less than significant levels. The Project's significant adverse effects on human beings would be less than significant after mitigation. Implementation of the Project would also have beneficial impacts on Hydrology and Water Quality by restoring riparian habitat along the Arroyo Seco and by increasing groundwater recharge; there would also be beneficial impacts on Recreation since additional recreational and educational facilities would be provided in the HWP and the Arroyo Seco Canyon.

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