Murphy Reservoir Replacement Project

Mitigation Monitoring and Reporting Program

Final Initial Study – Mitigated Negative Declaration

prepared by

City of Whittier
13230 Penn Street
Whittier, California 90602
Contact: Kimberly Badescu, Civil Engineer Assistant

prepared with the assistance of

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May 2022

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Mitigation Monitoring and Reporting Program

CEQA requires a reporting or monitoring program be adopted for the conditions of project approval necessary to mitigate or avoid significant effects on the environment (Public Resources Code 21081.6). This Mitigation Monitoring and Reporting Program (MMRP) is provided to satisfy that requirement, and to facilitate compliance with adopted mitigation measures during project implementation. For each mitigation measure recommended in the CEQA document for the project, specifications are made herein that identify the action required, the monitoring that must occur, and the agency or department responsible for oversight.

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible for Monitoring / Responsible Agency	Verified Date / Initials
Biological Resources					
BIO-1 Worker Environmental Awareness Program					
Prior to initiation of all construction activities (including staging and mobilization), all personnel associated with project construction shall attend a Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to assist workers in recognizing special status biological resources which may occur in the study area. This training will include information about nesting birds and the special status species potentially occurring in the study area. The specifics of this program shall include identification of special status species and habitats, a description of the regulatory status and general ecological characteristics of special status resources, and review of the limits of construction and measures required to avoid and/or minimize impacts to biological resources within the work area. A fact sheet conveying this information shall also be prepared for distribution to all contractors, their employees, and other personnel involved with construction of the project. All employees shall sign a form provided by the trainer documenting they have attended the WEAP and understand the information presented to them. The crew foreman shall be responsible for ensuring crew members adhere to the guidelines and restrictions designed to avoid impacts to special status	1. Retain qualified biologist to conduct a WEAP 2. Verify implementation of Worker Environmental Awareness training and personnel attendance.	1. Prior to the WEAP training 2. Prior to the start of construction	1. Once 2. Once	Whittier Public Works Department, Contractor and Lead Biologist	

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species. If new construction personnel are added to the project, the crew foreman shall confirm the new personnel receive the WEAP training before starting work. The subsequent training of personnel can include a video recording of the initial training and/or the use of written materials rather than in-person training by a biologist.					
BIO-2 Native Habitat Fencing					
Prior to project mobilization, where the project is adjacent to native habitat, temporary construction fencing shall be erected by the contractor at the edge of the temporary construction area to avoid impacts to the habitat throughout the duration of construction. If complete avoidance is not feasible, impacts shall be minimized as described in Mitigation Measure BIO-3.	1. Installation of temporary fencing adjacent to where the project borders native habitat 2. If complete avoidance of the native habitat is not feasible, Mitigation Measure BIO-3 shall be implemented	1. Prior to construction 2. Prior to construction and during construction	1. Once 2. As needed during construction	Whittier Public Works Department, Contractor and Lead Biologist	
BIO-3 Minimization of Native Habitat Impacts					
If encroachment into coastal sage scrub habitat on Habitat Authority land cannot be avoided, particularly during fence replacement, areas of temporary disturbance within it shall be coordinated with the Habitat Authority and minimized to the extent practicable. Staging and parking areas shall be limited to the project's staging area located in an entirely paved and fenced area where Ocean View Avenue terminates at the Murphy Pump Station. If removal of coastal sage scrub vegetation is necessary	1. If Native Habitat cannot be avoided, areas of disturbance shall be coordinated with the Habitat Authority. 2. Staging and parking areas shall be limited to the project's staging area located in an entirely paved and fenced area where Ocean View Avenue terminates at the Murphy Pump Station. 3. If removal of coastal sage scrub vegetation is necessary during excavation and/or grading, the	1. As needed, prior to disturbing areas 2. Throughout construction 3. During construction and after completion of excavation / grading activities.	1. Once 2. Throughout construction 3. Throughout construction 4. Once 5. Throughout construction	Whittier Public Works Department, Contractor and Lead Biologist	

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible for Monitoring / Responsible Agency	Verified Date / Initials
during excavation and/or grading, the topsoil (top six inches) shall be salvaged and stored in temporary stockpiles and replaced following completion of excavation/grading activities. The impact area will also be planted with locally-sourced native vegetation and/or a native seed mix to restore the site, in coordination with Habitat Authority staff. Restoration shall follow policies found on HabitatAuthority.org or as otherwise agreed to. Coordination with the California Department of Fish and Wildlife may also be conducted.	topsoil (top six inches) shall be salvaged and stored in temporary stockpiles and replaced following completion of excavation/grading activities. 4. The impact area shall be planted with locally sourced native vegetation and/or a native seed mix to restore the site, in coordination with Habitat Authority staff. 5. Restoration shall follow policies found on HabitatAuthority.org or as otherwise agreed to. Coordination with the California Department of Fish and Wildlife may also be conducted.	4. After completion of excavation grading activities 5. Throughout construction and after ground disturbing activities			
BIO-4 Construction Material Storage to Prevent Leaks and Spills					
Materials and equipment (when not in use) shall be stored on impervious surfaces or plastic ground covers to prevent spills or leakage. Material storage and material/spoils from project activities shall be located and stored 100 feet from waterways. Adequate spill prevention and response equipment shall be maintained on site and readily available to implement to minimize impacts to native habitats. Construction materials and spoils shall be protected from stormwater runoff using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.	1. Field-verify the storage of materials and equipment on impervious surfaces or plastic ground covers when not in use 2. Field-verify the storage of materials and material/spoils 100 feet from waterways 3. Field-verify spill prevention and response equipment is maintained on site and readily available 4. Field-verify temporary the implementation of perimeter sediment barriers to protect construction materials and spoils from stormwater runoff	1. During construction 2. During construction 3. During construction 4. During construction	1. Periodically 2. Periodically 3. Periodically 4. Periodically	Whittier Public Works Department, Contractor and Lead Biologist	

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BIO-5 Construction Best Management Practices					
To avoid and/or minimize potential direct and indirect impacts to special status species and native habitats on or adjacent to the project site, the following Best Management Practices (BMPs) shall be implemented: a. Prior to project mobilization, all limits of construction work shall be clearly delineated with orange construction fencing or similar highly visible material and maintained throughout the duration of construction. b. Off-site tracking of loose construction and landscape materials shall be prevented by implementing street sweeping, vacuuming, and rumble plates, as appropriate. c. Site washout areas shall be at least 100 feet from a storm drain, open ditch, or surface water and prevent runoff flows from such activities from entering receiving water bodies. d. All vehicles and equipment shall be in good working condition and free of leaks. The contractor shall prevent oil, petroleum products, or any other pollutants from contaminating the soil or entering a watercourse (dry or otherwise). When vehicles or equipment are stationary, mats or drip pans shall be placed below vehicles to contain fluid leaks. e. Fugitive dust from ground disturbance activities shall be minimized using water trucks and covering of soil stockpiles.	1. Provide all project personnel with handout of listed BMPs 2. Field-verify implementation of listed BMPs	1. Prior to project activities 2. During project activities	1. Once 2. Daily during the initial construction phase and then as needed to be determined at the City's discretion	Whittier Public Works Department, Contractor and Lead Biologist	

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f. A speed limit of 15 mph for construction vehicles shall be implemented on unpaved non-public roads. g. Engine idling will be avoided to minimize noise. h. All food related trash shall be disposed of in closed containers and removed from the project site each day during the construction period. Construction personnel shall not feed or otherwise attract wildlife to the construction area. At project completion, all project-generated debris, vehicles, building materials, and rubbish shall be removed from the project site. i. Pets and firearms shall not be allowed on the project site during construction. j. Sound walls shall be implemented to minimize impacts to sensitive species on site or in the buffer area.					
BIO-6 Pre-Construction Nesting Bird Surveys					
To avoid disturbance of nesting and special status birds, including raptor species, protected by the MBTA and CFGC 3503, activities related to the project including, but not limited to, vegetation removal, ground disturbance, and construction and demolition shall occur outside of the bird breeding season (typically February 15 through August 30, and as early as January 1 for raptors, though dependent upon annual climatic factors), if practicable. If construction must begin during the breeding season, then a pre-construction	1. Review and approve survey results 2. Field-verify compliance with any avoidance requirements, as needed 3. Provide results of the pre-construction survey(s) and any monitoring in a report to the City.	1. Prior to the commencement of project activities between February 1 and August 30, no more than seven days before. 2. During project activities 3. Upon completion of	1. Once 2. Periodically 3. Once	Whittier Public Works Department, Contractor and Lead Biologist	

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible for Monitoring / Responsible Agency	Verified Date / Initials
nesting bird survey shall be conducted no more than seven days prior to initiation of ground disturbance and vegetation removal activities. The nesting bird pre-construction survey shall be conducted on foot inside the project footprint, including a 100-foot buffer (300 feet for raptors), and in inaccessible areas (e.g., private lands) from afar using binoculars to the extent practicable. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in southern California coastal communities, including coastal California gnatcatcher. If nests are found, an avoidance buffer (dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site) shall be determined and demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground-disturbing activities shall occur inside this buffer until the avian biologist has confirmed breeding/nesting is completed, and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist. Results of the pre-construction survey(s) and any monitoring shall be documented in a report provided to the City.		surveys and/or monitoring.			

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BIO-7 Pre-Construction Presence/Absence Survey for Special Status Species					
Within seven days prior to the commencement of ground disturbing activities, a qualified biologist shall be retained to perform a survey for special status species within the project footprint and a 500-foot buffer to determine the presence/absence of these species. The qualified biologist shall temporarily move any identified special status species outside of the construction area, and temporary barriers shall be placed around the construction area, as practicable, to prevent ingress. Construction shall not proceed until the work area is determined to be free of special status species. The results of these surveys shall be documented in a technical memorandum provided to the City.	1. Retain a qualified biologist to conduct special status species survey 2. If any special status species are identified, the qualified biologist will move the species outside of the construction area and construction shall not proceed until the species is removed from the work area 3. Verify the City has been provided the results of these surveys in a technical memorandum	1. Prior to the commencement of construction, no more than seven days before 2. During surveys, if needed 3. After completion of the surveys	1. Once 2. As needed 3. Once	Whittier Public Works Department, Contractor and Lead Biologist	
BIO-8 Biological Construction Monitoring					
A qualified biological monitor shall be present during initial ground disturbing activities, vegetation removal, and construction perimeter fence installation to confirm impacts to special status wildlife species are avoided. The monitor shall have the authority to halt construction activities to avoid potential impacts to special status species. The results of biological monitoring shall be documented in daily logs and a technical memorandum to be provided to the City at project completion.	1. Retain a qualified biological monitor 2. Field-verify the monitor is present during initial ground disturbing activities, vegetation removal, and construction perimeter fence installation to confirm impacts to special status wildlife species are avoided 3. Construction shall be halted if the monitor determined any potential impacts to special status species	1. Prior to construction 2. During initial ground disturbing activities, vegetation removal, and construction perimeter fence installation 3. As needed	1. Once 2. During initial ground disturbing activities, vegetation removal, and construction perimeter fence installation 3. As needed 4. During the identified phase	Whittier Public Works Department, Contractor and Lead Biologist	

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible for Monitoring / Responsible Agency	Verified Date / Initials
	4. Field-verify monitoring is being conducted and daily logs are being completed. 5. Verify a technical memorandum has been provided to the City at project completion by the monitor	4. During the identified phase 5. Upon completion of the project	5. Once		
BIO-9 Night Construction and Night Lighting					
Night-time construction shall be avoided and is currently not anticipated. If construction must occur at night for safety reasons (between dusk and dawn), all lighting will be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties and to reduce impacts on local wildlife.	1. If night construction is necessary, field verify lighting is shielded and directed downward	1. During nighttime construction	1. Periodically as needed	Whittier Public Works Department, Contractor and Lead Biologist	

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Cultural Resources					
CR-1 Unanticipated Find of Archaeological Resources					
In the event that unanticipated cultural resources are encountered during ground-disturbing activities associated with the project, work in the immediate area must halt and appropriate evaluation and treatment procedures implemented. An archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) must be contacted immediately to evaluate the find. If the discovery proves to be eligible for listing in the NRHP or the CRHR, additional work may be warranted, such as data recovery excavation and Native American consultation to treat the find.	1. In the event that archaeological resources are unexpectedly encountered during ground-disturbing activities, stop work in the immediate area and contact a qualified archaeologist immediately to evaluate the find. 2. If the find is prehistoric, contact a Native American representative to participate in the evaluation of the find. 3. Field-verify required evaluation of the identified resource. 4. If necessary, review and approve additional work for evaluation efforts and to mitigate any significant impacts.	During ground-disturbing activities, as needed and if archaeological resource is identified	As needed	Whittier Public Works Department, Contractor, and Lead Archeologist	
CR-2 Unanticipated Find of Human Remains					
If human remains are unexpectedly encountered during project implementation, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the unlikely event of an unanticipated discovery of human remains, the County Coroner must be	1. In the event human remains are unexpectedly encountered during ground-disturbing activities, stop work in the immediate area and contact the County Coroner immediately to evaluate the find and determine if it is prehistoric. 2. If the find is prehistoric, contact the NAHC who will determine who is the MLD and will notify the MLD.	During ground-disturbing activities, as needed and if human remains are identified	As needed	Whittier Public Works Department, Contractor, and Lead Archeologist	

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible for Monitoring / Responsible Agency	Verified Date / Initials
notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance.	3. If the MLD does not make recommendations within 48 hours, confirm the landowner has reinterred the remains in an area of the property secure from subsequent disturbance.				
Geology and Soils					
GEO-1 Paleontological Resources Mitigation and Monitoring Program					
Prior to the commencement of project construction, a qualified paleontological monitor (i.e., a paleontologist who meets the SVP [2010] standards as a Paleontological Resource Monitor) shall be retained to conduct paleontological monitoring during ground-disturbing activities (including, but not limited to site preparation, grading, excavation, and trenching) of native (i.e., previously undisturbed) Pliocene Fernando Formation (Tfs, Tf). Monitoring shall be supervised by a Qualified Paleontologist (i.e., a paleontologist who meets the SVP [2010] standards as a Qualified Professional Paleontologist). Full-time monitoring shall be conducted for all ground-disturbing activities (e.g., trenching, grading, and excavations) exceeding depths of five feet. These	1. Retain a qualified paleontological monitor who meets the SVP (2010) standards as a Paleontological Resource Monitor 2. Field-verify monitoring is being conducted for all ground-disturbing activities (e.g., trenching, grading, and excavations) exceeding depths of five feet	1. Prior to construction 2. During project-related ground disturbance exceeding 5 feet	1. Once 2. Periodically	Whittier Public Works Department, Contractor and Lead Paleontologist	

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible for Monitoring / Responsible Agency	Verified Date / Initials
project activities have a high potential of disturbing native (previously undisturbed) paleontologically sensitive deposits (i.e., Pliocene Fernando Formation [Tfs, Tf]). If sedimentary deposits of Pliocene Fernando Formation (Tfs, Tf) are not observed at the full depth of excavations associated with the replacement reservoir, monitoring can be discontinued. Ground-disturbing activities that impact previously disturbed sediments (i.e., undocumented fill) do not require paleontological monitoring. The duration and timing of the monitoring shall be determined by the Qualified Paleontologist. If the Qualified Paleontologist determines that full-time or part-time monitoring is no longer warranted based on observed geology, he or she may recommend reducing monitoring to periodic spot-checking or may recommend that monitoring cease entirely. Monitoring shall be reinstated if any new ground disturbances of previously undisturbed areas are required, and reduction or suspension shall be reconsidered by the Qualified Paleontologist at that time. If a paleontological resource is discovered, the monitor shall have the authority to temporarily divert construction equipment around the find until it is assessed for scientific significance and collected. Once salvaged, significant fossils shall be prepared to a curation-ready condition and curated in a scientific institution with a permanent paleontological collection (such as the NHMLAC or UCMP). Curation					

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible for Monitoring / Responsible Agency	Verified Date / Initials
fees are the responsibility of the project owner.					
Hydrology and Water Quality					
HWQ-1 Erosion Control and Stormwater Pollution Prevention					
The best management practices (BMPs) listed below shall be implemented as part of the project construction activities. It is anticipated that the project's disturbance area would exceed one acre, such that the project is subject to the NPDES Construction General Permit's requirement to implement a project specific Stormwater Pollution Prevention Plan (SWPPP), then this mitigation measure would not be necessary, as the SWPPP would require implementation of comparable BMPs. The purpose of this mitigation measure is to ensure that erosion and stormwater control BMPs are implemented regardless of whether the project's disturbance area exceeds one acre. ▪ Excavation shall be avoided during the rainy season to the extent practicable. ▪ Silt fencing, straw bales composed of rice straw (that are certified to be free of weed seed), fiber rolls, gravel bags, mulching erosion control blankets, soil stabilizers, and/or storm drain filters shall be used, in conjunction with other methods, to prevent erosion and siltation. ▪ Temporary stormwater berms and basins, if applicable, shall be	1. Provide all project personnel with handout of listed BMPs 2. Prepare a SWPPP if the project's disturbance exceeds one acre 3. Field-verify implementation of listed BMPs or SWPPP BMPs	1. Prior to project activities 2. Prior to project activities 3. During project activities	1. Once 2. Once 3. Periodically	Whittier Public Works Department and Contractor	

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible for Monitoring / Responsible Agency	Verified Date / Initials
implemented and maintained during construction to control the flow of stormwater runoff from leaving the site. ▪ Temporary stockpiling of excavated material shall be minimized. Excavated material shall be stockpiled in areas where it cannot enter the storm drain system. Available stockpiling sites at the project sites shall be determined prior to the start of construction. ▪ Upon completion of project construction, all exposed soils present in and around the project site shall be stabilized within seven days. Exposed soils shall be mulched to prevent sediment runoff and transport. All mulches, except hydro-mulch, shall be applied in a layer not less than two inches deep. All exposed soils and fills shall be revegetated with deep-rooted, native, drought-tolerant species to minimize erosion potential. Geotextile binding fabrics shall be used, if necessary, to hold slope soils until vegetation is established. ▪ An adequate supply of erosion control materials (gravel, straw bales, shovels, etc.) shall be maintained on site to facilitate a quick response to unanticipated storm events or emergencies. Construction equipment shall be inspected daily for leaks of oil, lubricants, or other potential stormwater pollutants. Plastic shall be placed over any ground surface where fueling or equipment maintenance					

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible for Monitoring / Responsible Agency	Verified Date / Initials
is to occur. Drip pans shall be placed under equipment parked on site.					
Tribal Cultural Resources					
TCR-1 Retain a Native American monitor prior to commencement of ground-disturbing activities					
A. A qualified Native American monitor shall be retained prior to the commencement of any ground-disturbing activity for the project. B. The monitor shall complete daily logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to tribal cultural resources (TCRs). C. The monitor shall maintain monitoring logs and will identify and describe any discovered TCRs such as but not limited to Native American cultural and historical artifacts, remains, places of significance, and any discovered Native American (ancestral) human remains and burial goods. D. On-site tribal monitoring shall conclude upon the completion of all ground-disturbing activities and phases that may involve ground-disturbing activities associated with project construction.	1. Retain a qualified Native American monitor 2. Field-verify monitoring is being conducted and daily logs are being completed 3. Halt construction upon the discovery of any tribal cultural resources (TCRs) until monitor has assessed the resource	1. Prior to the commencement of any ground-disturbing activity for the project 2. During ground-disturbing activity for the project 3. During construction, as needed	1. Once 2. Periodically 3. As needed	Whittier Public Works Department and Lead Native American Monitor	

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible for Monitoring / Responsible Agency	Verified Date / Initials
E. Upon discovery of any TCRs, all construction activities within approximately 50 feet of the discovery shall cease and shall not resume until the discovered TCR has been fully assessed by the qualified monitor.					

Murphy Reservoir Replacement Project

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Initial Study

1. Project Title

Murphy Reservoirs Replacement Project

2. Lead Agency Name and Address

City of Whittier, Public Works Department

13230 Penn Street

Whittier, California 90602

3. Contact Person and Phone Number

Kyle Cason, Director of Public Works

Phone: (562) 567-9500

Email: kcason@cityofwhittier.org

4. Project Location

The project site is located at 7900 Ocean View Avenue on City-owned property in the city of Whittier, within Los Angeles County, California. Please see Figure 1 for regional project location.

The city of Whittier is situated south of State Route 60, east of Interstate 605, and north of State Route 90 (Imperial Highway). Whittier is bounded by the cities of La Habra, Santa Fe Springs, Pico Rivera, City of Industry, La Habra Heights, and unincorporated areas of Los Angeles County. The site is surrounded by designated open space lands within the Core Habitat Zone of the Puente Hills Preserve ("Preserve"), adjacent to La Cañada Verde Canyon, which is managed by the Puente Hills Habitat Preservation Authority ("Habitat Authority"). The total size of the Puente Hills Preserve is approximately 3,880 acres.

The proposed project's infrastructure improvements would be limited to the Murphy Reservoirs site, which serves Pressure Zone 577, as shown on Figure 2 and discussed under "City of Whittier Water Supply". Other facilities serving Pressure Zone 577 include Painter Reservoir, which is powered by Greenleaf Pump Station. Under the proposed project, a temporary Automatic Transfer Switch (ATS) would be installed at Greenleaf Pump Station, and at Murphy Pump Station, to connect portable generators and allow each pump station to continue functioning should a loss of power occur; this would ensure water supply service to residents in Zone 577 would be continued via Painter Reservoir while the Murphy Reservoirs are under construction and reliant on smaller, temporary storage reservoirs. The installation of a new ATS would be a simple electrical upgrade and would not involve any ground disturbance; the location of Greenleaf Pump Station is shown on Figure 3 in relation to Murphy Pump Station and the Murphy Reservoirs to provide context as to the location of other facilities serving Pressure Zone 577. As shown on the aforementioned figures, the Murphy Reservoirs project site is in the eastern-most portion of the City's water service area.

Figure 1 Project Location

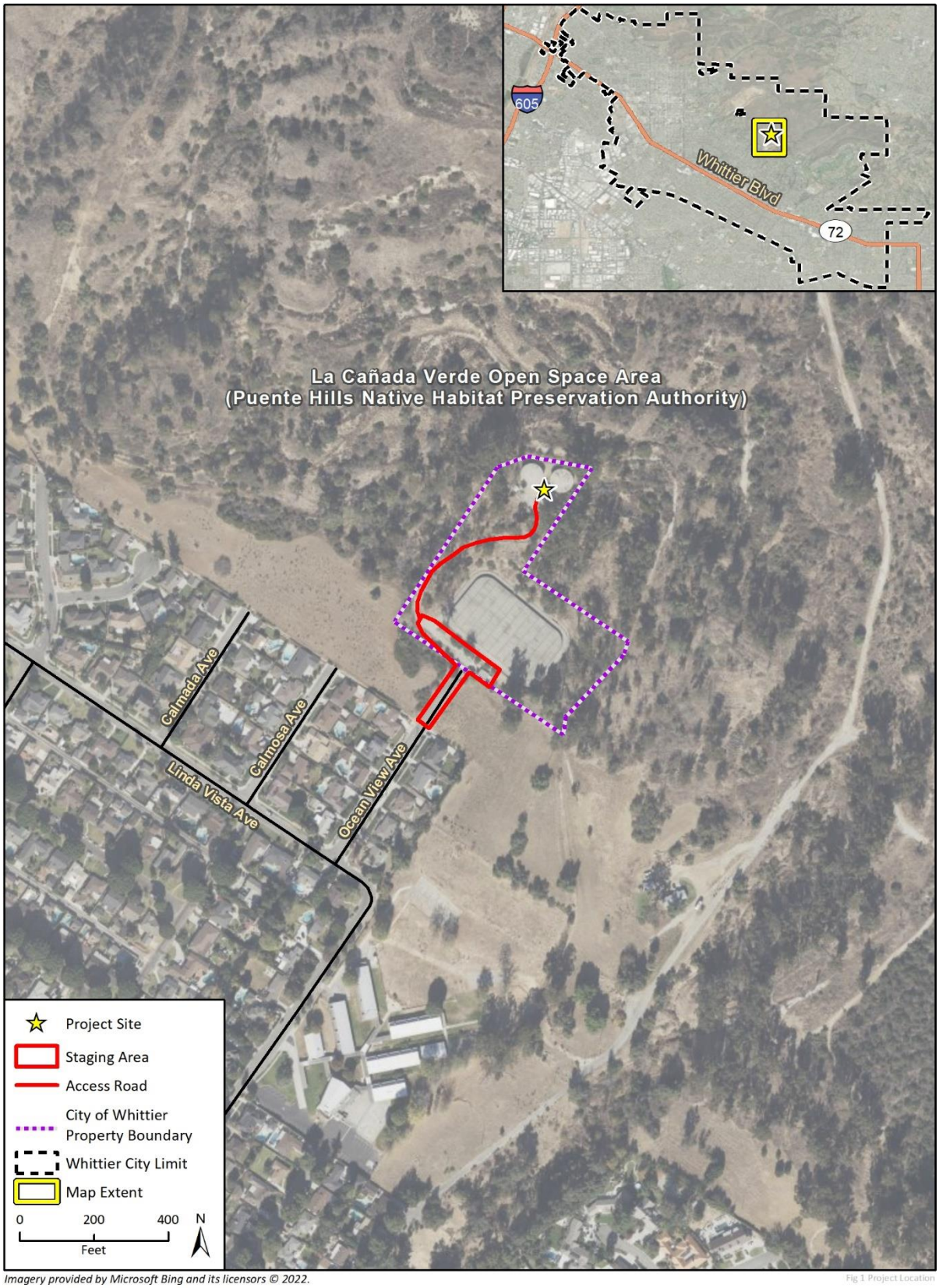

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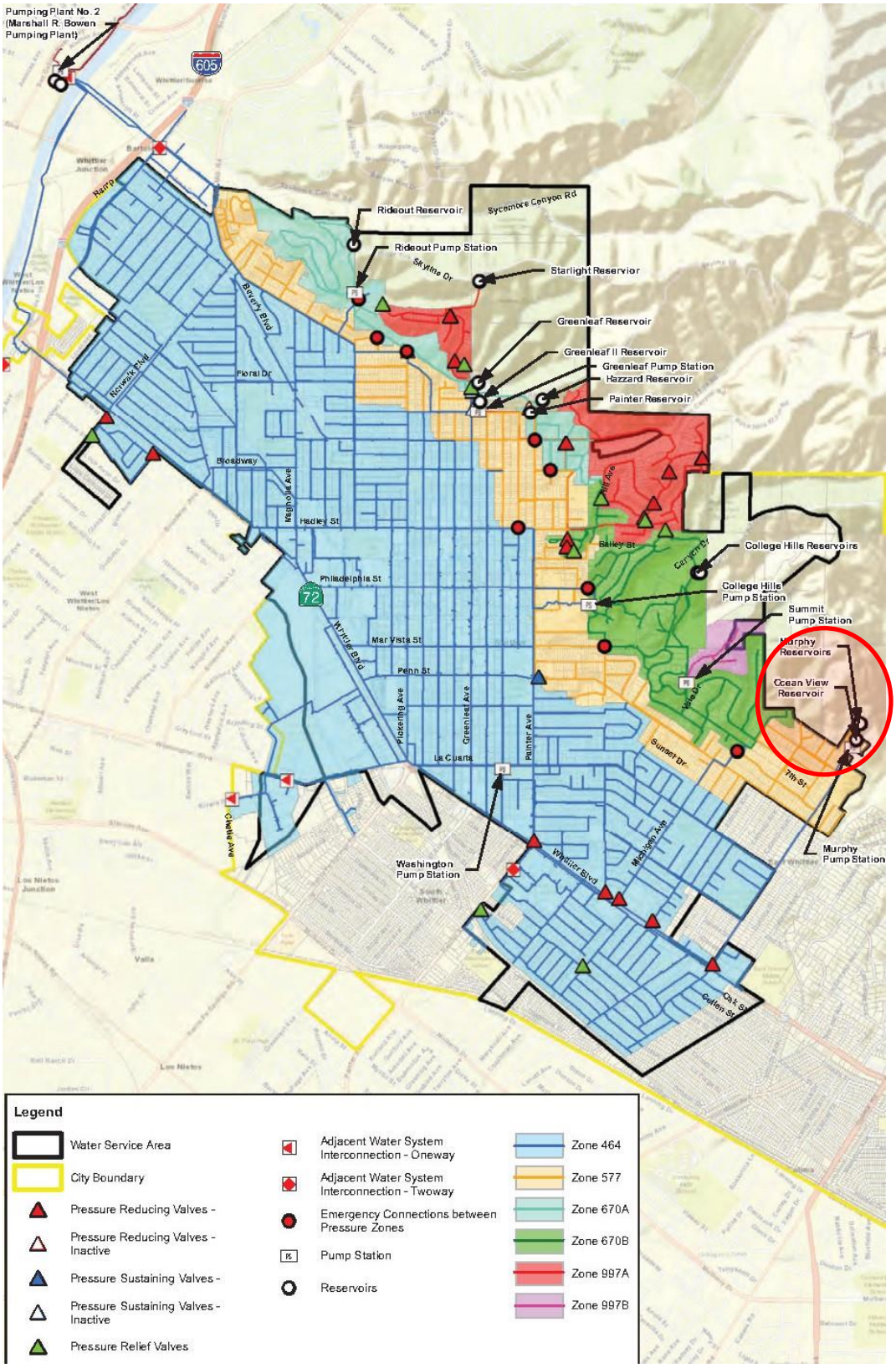
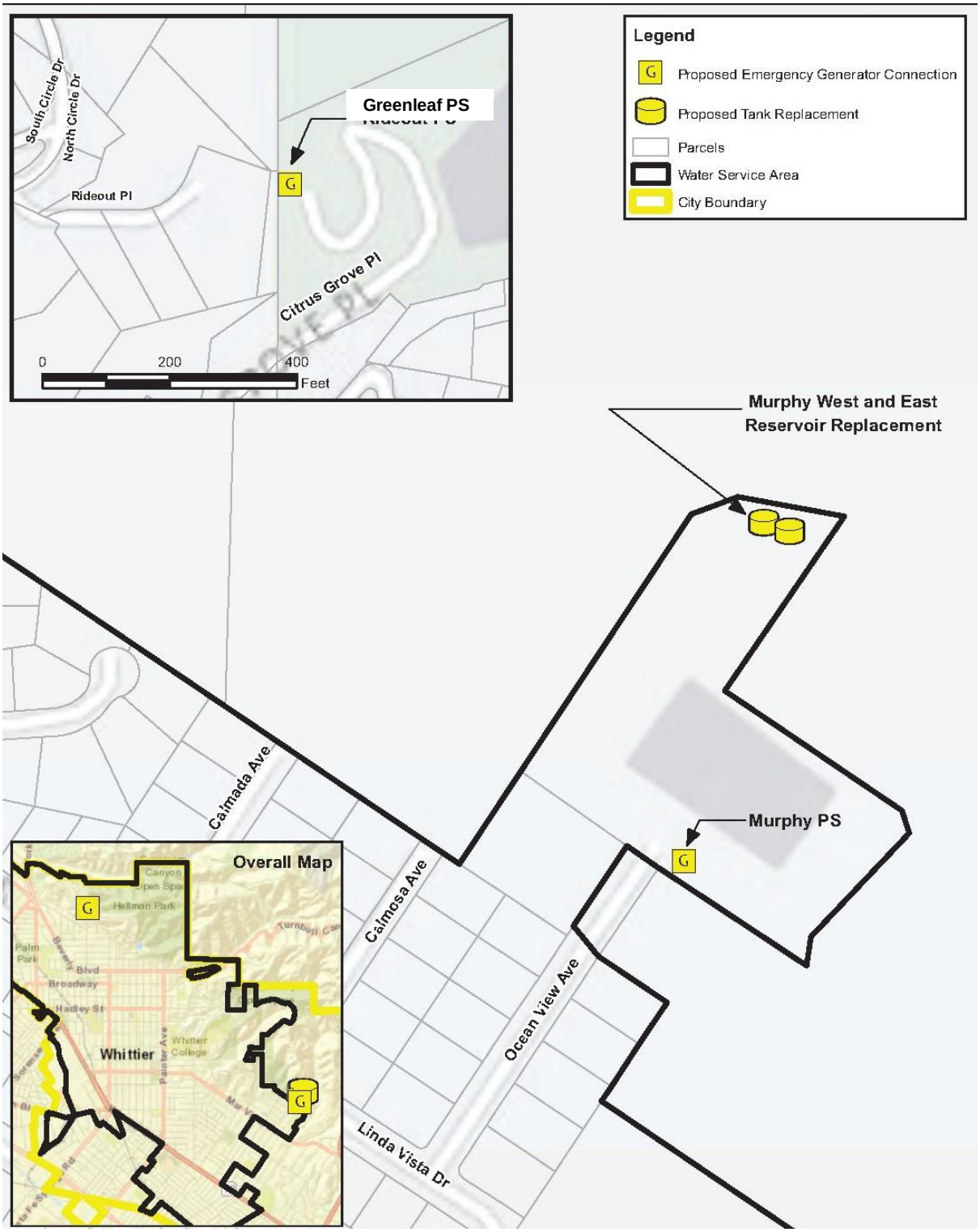
Fig 1 Project Location

Figure 2 City of Whittier Water Facilities and Pressure Zones



Source: City of Whittier 2018 (Exhibit 4-3)

Figure 3 Murphy Twin Reservoirs and Pump Stations



Source: City of Whittier 2018 (Exhibit WF-01)

5. Project Sponsor's Name and Address

Whittier Utility Authority

13230 Penn Street

Whittier, California 90602

6. General Plan Designation

The current City of Whittier General Plan land use designation for the project site is OS, for Open Space (City of Whittier 2021a). The OS designation includes unimproved open space areas established for the purposes of natural resources, managed protection of resources, outdoor recreation, health and safety, and scenic landscape protection. Development is generally limited to trails, trailheads, and related support buildings, as well as utilities and telecommunication infrastructure.

7. Zoning

The zoning of the project site is H-R for Hillside-Residential (City of Whittier 2021a). This zone allows for the preservation for future generations the unique heritage of open space, and a natural environment in hillside areas within the city and its sphere of influence. Land uses that are conditionally permitted in all zones, including H-R, include public utility facilities and utilities operated by mutual companies, except any public facility for which a building permit is not required pursuant to the city's building regulations.

8. Description of Project

The Murphy Reservoir Replacement Project ("proposed project") is proposed by the City of Whittier to respond to necessary repairs and improvements to the existing Murphy West Reservoir and Murphy East Reservoir, collectively referred to as the Murphy Reservoirs. The purpose of the proposed project is to restore the integrity and storage capacity for the existing Murphy Reservoirs, thereby facilitating the City's ability to continue providing a clean, reliable water supply to its residents. Both Murphy Reservoirs were constructed in 1955 with a storage capacity of 500,000 gallons per reservoir. The existing reservoirs are both cylindrical concrete reservoirs with a diameter of 60 feet and height of 24 feet. The floors, walls, and roof of each reservoir are made of conventionally reinforced cast-in-place concrete, and a single concrete column supports the roof deck of each tank (City of Whittier 2016). The City has determined through previous analyses and feasibility investigations that the recommended course of action at this time is to replace both reservoirs. Under the proposed project, the two existing reservoirs would be replaced by one new reservoir, located on the same site as the existing reservoirs.

The replacement of the Murphy West and Murphy East Reservoirs (i.e., the proposed project) is included in the City's Capital Improvement Program (CIP), based upon a condition assessment conducted in November 2016 and the City's Water Master Plan (WMP) Update of 2018. The CIP identifies the proposed project as CIP No. WF-01, *Murphy West and East Reservoirs Replacement* (City of Whittier 2018). The CIP describes that the replacement reservoirs would be built with a capacity of 1.0 million gallons (MG) for in-kind replacement of the existing reservoirs' capacity;

however, the WMP Update states that under existing conditions, Zone 577 has a deficiency in water storage capacity of 1.81 MG (City of Whittier 2018). Therefore, the proposed project has been designed to provide a water storage capacity of 2.31 MG, which includes the Zone 577 deficiency of 1.81 MG plus the capacity of Murphy West Reservoir (0.5 MG) due to its being out of service and in need of replacement. Accordingly, the proposed project is designed to address the water storage requirements described in the City's *Water Master Plan Update* (City of Whittier 2018) and the City's *Urban Water Management Plan* (City of Whittier 2021b), by providing a replacement reservoir with storage capacity of 2.31 MG.

Implementation of the proposed project would include demolishing the existing reservoirs, constructing a new reservoir, and replacing all other site infrastructure. To ensure a continuous supply of water to Zone 577, City-owned portable generators would be delivered to Murphy Pump Station and Greenleaf Pump Station, for use in ensuring continuous power to Painter Reservoir while the Murphy Reservoirs are under construction; Painter Reservoir provides water supply service to the same pressure zone (577) as the Murphy Reservoirs, and would remain in operation throughout construction of the proposed project. Figure 3, provided in Section 4, *Project Location*, portrays the location of the existing Murphy Reservoirs in relation to the existing Murphy Pump Station and Greenleaf Pump Station. The portable generators would be provided on trailers for easy transport, and to avoid the need to install foundations on site; no concrete pad or site preparation is needed to install the generators. In addition, as discussed in Section 4, *Project Location,* the City would rent two ATS components for temporary use at Murphy and Greenleaf Pump Stations, respectively, to ensure continuous power supply to the portable generators, should a power outage occur during construction of the proposed project. This would ensure uninterrupted water supply service to Zone 577 while Murphy Reservoirs are reliant upon smaller, temporary storage reservoirs during the construction period. Installation of the ATS components would be a simple electrical upgrade and would involve no ground disturbance. Additional improvements to Murphy Pump Station would be implemented under CIP No. WR-04, *Murphy Pump Station Improvements*; however, such additional improvements are separate and independent of the proposed project.

The replacement reservoir would be comprised of pre-stressed concrete and would be situated partially below-ground, whereas the existing reservoirs are entirely above-ground and cast in place concrete. The new reservoir and all appurtenances will be certified as meeting the specifications of National Sanitation Foundation International/American National Standards Institute (NSF/ANSI) Standard 61 for drinking water contact. The purpose of this design is to provide geotechnical integrity and stability while accommodating the replacement reservoir's storage capacity of 2.31 MG. As mentioned above, the existing reservoirs' combined capacity is 1.0 MG, although the existing reservoirs are currently only providing 0.5 MG of storage, as the Murphy West Reservoir has been out of commission since 2015. The replacement reservoir's capacity of 2.31 MG is designed to fully address the current water storage deficiency in Zone 577 of 1.81 MG plus the capacity of the Murphy West Reservoir of 0.5 MG.

Project Background

The Murphy West Reservoir was taken out of service in 2015; at least two attempts were made to repair the reservoir without success before the reservoir was taken out of service. Since 2015, the Murphy East Reservoir has been the only water supply storage facility serving Zone 577. The City of Whittier WMP Update specifically recommends replacement of both the Murphy West and Murphy East Reservoirs, based upon the condition assessment conducted in 2016 (City of Whittier 2016).

City of Whittier Water Supply

The City of Whittier's water supply distribution system consists of the following features: 12 reservoirs; six pump station facilities; 143 miles of pipeline ranging from four to 36 inches in diameter; 23 pressure reducing valves; 10 pressure relief valves; three pressure sustaining valves; and 11 emergency connections between pressure zones. The City's distribution system is divided into six main pressure zones including: Zone 464, Zone 577, Zone 670A, Zone 670B, Zone 997A, and Zone 997B. The Murphy Reservoirs serve Zone 577 and the new reservoir included under the proposed project would continue to serve Zone 577.

Zone 577 receives all of its water supply from Zone 464 through the Murphy and Greenleaf Booster Pump Stations. Murphy Booster Pump Station has a firm capacity of 1,250 gpm and provides supply to the southern portion of Zone 577. Greenleaf Booster Pump Station has a firm capacity of 2,300 gpm and provides water to the northern and central portions of Zone 577. Water supplies conveyed by these booster pump stations are stored in the Painter Reservoir, with capacity of 1.0 million gallons (MG), and the Murphy Reservoirs, with combined capacity of 1.0 MG. However, as mentioned above, the Murphy West Reservoir has been out of service since 2015; therefore, the current available storage capacity of the Murphy Reservoirs is limited to the capacity of the Murphy East Reservoir (0.5 MG). (City of Whittier 2018)

The maximum daily demand for Zone 577 is 1,444 gpm, while the total firm capacity for Zone 577 is 3,550 gpm, provided by the Murphy Pump Station (1,250 gpm) and the Greenleaf (Painter) Pump Station (2,300 gpm). As such, Zone 577 has a surplus water supply pumping capacity of 1,384 gpm. Sufficient fire flow requires the distribution system to be capable of providing the maximum daily demand plus the minimum required fire flow with a minimum residual pressure of 20 pounds per square inch (psi) in the system (City of Whittier 2018). Replacement of the existing Murphy Reservoirs under the proposed project would provide the storage capacity required to maintain service throughout Zone 577 (City of Whittier 2018).

The City's water supply is sourced from local groundwater basins underlying Whittier. One hundred percent of its water supply is pumped from groundwater wells located in the Main San Gabriel Groundwater Basin ("Main San Gabriel Basin") and the Central Groundwater Basin ("Central Basin"). Both of these groundwater basins are adjudicated and managed in accordance with Adjudication Judgements administered and enforced by designated Watermasters. The analysis provided in this IS-MND includes discussion of the applicable Adjudication Judgements and the associated Watermasters, as relevant to potential impacts of the proposed project.

Water conveyance pipelines, also referred to as transmission mains, deliver water supply pumped from the Main San Gabriel and Central Basins to the City's Pumping Plant No. 2 (PP2), also known as the Marshall R. Bowen Pumping Plant (City of Whittier 2018). The PP2 has a firm capacity of 13,700 gallons per minute (gpm) and is the primary pumping facility that conveys all water supply into the City's distribution system (City of Whittier 2018).

Construction

Construction of the proposed project would include site preparation, demolition of the existing reservoirs, placement of temporary storage reservoirs within the Murphy Reservoir Site, construction of the new replacement reservoir, improvement to the existing access road between Ocean View Avenue and the Murphy Reservoir, and site restoration to existing conditions. Site preparation would include demolition of the existing Murphy West Reservoir followed by demolition of the Murphy East Reservoir. The temporary storage reservoirs would be used during

the demolition period. The site would be contoured in preparation for construction of the replacement reservoir after the existing reservoir infrastructure has been removed. Best Management Practices (BMPs) are listed below, under "Project Design Features" and would be implemented as part of the project design. As such, BMPs are not considered mitigation measures for CEQA purposes; BMPs are referenced throughout the impact analysis as applicable.

Construction of the proposed project is anticipated to occur between mid-2022 and late-2023, although heavy equipment usage would not be required for the full duration of the construction timeline; heavy ground construction activities would initiate in Summer 2022 and are estimated to be complete prior to January 2023. Between January and June of 2023, on-site activities would consist of constructing the replacement reservoir, which would not include the heavy equipment usage associated with demolition, which would be complete prior to January. The project construction schedule would avoid heavy equipment usage activities during the typical bird nesting season between February 15 and August 30, or as early as January 1 for raptors, including the peak nesting period of the federally threatened coastal California gnatcatcher (*Polioptila californica californica*; "gnatcatcher") between approximately mid-March and mid-May.

Although heavy equipment usage is not anticipated to occur during the bird nesting season, construction activities would continue through June, and it is possible that schedule delays could occur and result in some heavy equipment usage during the nesting season. Therefore, project-specific BMPs would be implemented to minimize or avoid the potential for direct and indirect construction impacts to occur. These project-specific BMPs, which are detailed in the Biological Resources analysis provided in the Environmental Checklist section below, include conducting pre-construction surveys for nesting birds, as well as identifying and avoiding any nesting sites identified during the pre-construction surveys, under the guidance of a biological monitor.

Staging Area

During the project's temporary construction period, construction vehicles, machinery, equipment, and materials would be stored in designated staging areas. The construction personnel vehicles will also be parked in designated staging areas. The primary staging area will be located where Ocean View Avenue terminates at the Murphy Pump Station. The City will maintain a blockade on Ocean View Avenue to prevent access by the public into the project's staging area. Construction staging could also occur at the Murphy Reservoir site, particularly as demolition of the existing reservoirs progresses, thereby creating space at the project site for the staging of materials and equipment.

The staging areas will be used for stockpiling demolished materials prior to transport to an off-site landfill for disposal, unless such materials are loaded directly onto transport trucks as they are removed from the site. The staging areas will also be used for the preparation of demolition materials for disposal or reuse/recycling, as necessary, which may include breaking down large pieces of concrete and bedrock to smaller sizes. Similarly, materials for construction of the replacement reservoir will be temporarily stored in the staging areas, unless the transport trucks carrying such materials are able to offload the materials directly at the new reservoir site.

Following completion of the construction period, the staging areas will be cleared of all construction materials and restored to pre-construction conditions, which may include surfacing improvements for consistency with the access road improvements described below.

Access Road

The primary public road to the project site is Ocean View Avenue, identified on Figure 1, which provides a nearly direct route between the project site and State Route (SR) 72. From the gated entrance to the Murphy Pump Station, Ocean View Avenue continues for approximately 450 feet to Linda Vista Drive, where it jogs to the southeast for approximately 150 feet, then southwest for approximately 5,238 feet (approximately one mile) to Whittier Boulevard / SR 72, which connects SR 39 in La Habra to Interstate 605 in Whittier. The nearest residences to the project site are located on Ocean View Avenue, approximately 250 feet from the gated entrance to the Murphy Pump Station.

From the Murphy Pump Station at the terminus of Ocean View Avenue, a private access road continues for approximately 750 feet to the reservoir site. This private access road will provide site access during the construction period, as well as during operation and maintenance activities, consistent with existing conditions. The existing road is paved, and consistent use of the road has resulted in cracking and potholing in the pavement. Therefore, following completion of project construction and associated use of the private access road for construction purposes, the City will resurface the road to a width of 15 feet (approximately) and install a curb and gutter to facilitate stormwater conveyance away from the replacement reservoir. The existing alignment and overall footprint of the secondary access road will be maintained under the proposed project.

Cell Tower

There is an existing T-Mobile cell tower and wireless equipment shelter on the project site that provides telecommunications service to T-Mobile customers within the city. During construction of the proposed project, the cell tower would be protected in place, in coordination between the City and the cell tower owner. No ground disturbance would occur to protect the cell tower and wireless equipment during project construction.

Temporary Reservoirs

As described above under "Project Background," the Murphy Reservoirs store water supply for conveyance into Zone 577 of the City's water service area. During construction of the proposed project, temporary reservoirs will be used at the project site to maintain storage for conveyance into Zone 577. The temporary reservoirs will consist of high-density polyethylene (HDPE) tanks that will be purchased by the City for the proposed project. These tanks and all their appurtenances are certified as meeting the specifications of NSF/ANSI Standard 61 for drinking water contact.

The Murphy West Reservoir is not currently in use; therefore, the Murphy West Reservoir will be demolished before the Murphy East Reservoir, which does contain water. The temporary reservoirs will then be placed either within the footprint area of the demolished Murphy West Reservoir or on pavement adjacent to the west of the replacement reservoir. The temporary reservoirs will be filled with water prior to emptying the Murphy East Reservoir in preparation for demolition, such that service to Zone 577 will remain uninterrupted through project construction.

Following completion of the project's construction period, the temporary reservoirs will be drained of water, into the distribution system, and removed from the project site. Depending on the duration of the project construction period, if the conclusion of construction activities coincides with the bird nesting season (typically February 15 through August 30, and as early as January 1 for raptors, with peak gnatcatcher nesting season from mid-March through mid-May), the temporary reservoirs may be left in place until the end of the nesting season, to avoid disruptions to nesting birds. If this situation occurs, the temporary reservoirs would be emptied of water and protected in

place with BMPs implemented to avoid erosion from precipitation events; such BMPs may include but would not be limited to the application of straw wattles or silt fencing around the temporary reservoirs to prevent erosion and sedimentation.

Perimeter Fence

There is an existing chain linked fence that surrounds the Murphy Reservoirs site and was originally installed along the property line between the City and the Habitat Authority, as shown on Figure 1. Due to deterioration and migration over time, the existing fence line no longer marks the correct property line, and will be replaced under the proposed project. Based upon coordination between the Habitat Authority and the City, it was confirmed that the existing fence was originally constructed by the City and is owned by the City. Therefore, the City will replace the existing fence as part of the proposed project. In addition, the replacement fence will be installed on top of a subterranean retaining wall, which is described below.

Activities associated with fence replacement will be conducted on City property, and BMPs will be implemented to minimize or avoid temporary impacts to the Puente Hills Preserve during the temporary construction period. Such BMPs include but are not limited to those discussed below under "Surrounding Land Uses and Setting."

Retaining Wall

A largely subterranean retaining wall will be installed along the property line between the Habitat Authority and the City. The retaining wall will be drilled into place under the Habitat Authority property using soil nails (described below), and no surface disturbance will occur on the Habitat Authority property during installation of the retaining wall. During construction activities, the contractor may encroach up to five feet onto the Habitat Authority property, as measured from the alignment of the retaining wall. This buffer area will only be used for limited foot access and will not be used for the staging of equipment. In addition, this area will be clearly indicated prior to the commencement of construction activities, with a four-foot-high orange barricade fence, which will remain in place for the duration of construction. The retaining wall will consist of a shotcrete wall and concrete masonry unit (CMU) walls, secured in place using soil nails, as defined below.

- **Soil nails** consist of passive reinforcement in the ground by installing closely spaced sections ("nails") comprised of a material such as steel or concrete, and placing a support on the face of the wall into which the nails are installed.
- **Shotcrete** consists of standard concrete, which is conveyed through a hose and projected at a high velocity onto a wall face, typically from the bottom up to provide compaction and consolidation during installation.
- **CMU walls** consist of standard-size rectangular blocks commonly referred to as cinder blocks, which are stacked and grouted together and secured in place.

The proposed project's soil nails will consist of reinforced concrete, with diameter of six inches each, and length of up to 40 feet. The soil nails will be drilled into place under the Habitat Authority land, from the City property; as noted above, no surface disturbance will occur on the Preserve. Once the soil nails are in place in the subsurface, the face of the wall will be secured using shotcrete applied to the existing soil face into which the soil nails were drilled. The shotcrete wall will be up to approximately 25 feet at the highest point, reinforcing the subsurface soils along the property line behind the replacement reservoir. Once the replacement reservoir is installed and the ground

surface improved to the design elevation, a CMU wall will be installed along the exposed portion of the shotcrete wall; the CMU wall will be up to approximately six feet at its highest point.

Project Design Features

Project-specific BMPs have been identified to minimize or avoid potential impacts of the project. These BMPs, as listed below and referenced as applicable throughout the impact analysis, would be implemented as part of the proposed project design, and do not constitute mitigation measures for CEQA purposes. These BMPs are bolstered by mitigation measures identified as necessary in the impact analysis below, and largely address the close proximity of project activities to Habitat Authority land. It is possible that construction workers may inadvertently access Habitat Authority land by foot, or that indirect impacts such as dust and noise may affect the Preserve; therefore, the following BMPs would be implemented as part of the project design:

- Provide perimeter fencing and clear signage around the active work area to deter foot traffic on Habitat Authority land.
- Avoid damage to and removal of existing vegetation, and coordinate any necessary vegetation trimming with the Habitat Authority.
- Avoid engine idling to minimize noise.
- Conduct dust abatement such as applying water to disturbed soils.
- Protect stockpiles of excavated soils to prevent erosion and sedimentation.
- Avoid project activities during the peak gnatcatcher nesting season of approximately mid-March through mid-May, and conduct pre-construction nesting bird surveys prior to project activities occurring between January 1 and August 30.
- If the conclusion of construction activities coincides with the bird nesting season (typically February 15 through August 30, and as early as January 1 for raptors, with peak gnatcatcher nesting season from mid-March through mid-May), the temporary reservoirs used during construction may be left in place until the end of the nesting season, to avoid disruptions to nesting birds.

As mentioned above, BMPs included as project design features do not constitute mitigation measures for CEQA purposes, but would be bolstered by mitigation measures, as applicable, such as Mitigation Measure BIO-5, *Construction Best Management Practices,* in the biological resources analysis, and Mitigation Measure HWQ-1, *Erosion Control and Stormwater Pollution Prevention*, in the hydrology and water quality analysis.

Operation and Maintenance

Operation and maintenance activities for the proposed project will be consistent with operation and maintenance activities for the existing Murphy West and East Reservoirs. As such, operation and maintenance activities would include regular visual inspections of the reservoir, with repair and maintenance activities conducted on an as-needed basis. The same existing access road to Ocean View Avenue will continue to provide access to and from the project site. No additional City personnel would be required to conduct operations and maintenance activities, and no increase in water demands would occur as a result of the project. In addition, following construction of the project, the replacement Murphy Reservoir will provide the planned storage capacity for this location of 2.31 MG, and will serve Zone 577 with improved reliability, due to the improved capacity associated with replacement of the existing reservoirs.

9. Surrounding Land Uses and Setting

Land uses surrounding the project site are characterized by open space of the Puente Hills Preserve ("Preserve"), which is managed by the Puente Hills Habitat Preservation Authority ("Habitat Authority"). The Habitat Authority is a public agency and Joint Powers Authority with a Board of Directors consisting of the City of Whittier, County of Los Angeles, Sanitation Districts of Los Angeles County, and the Hacienda Heights Improvement Association (Habitat Authority 2013). Formation of the Habitat Authority was a condition of approval from the County of Los Angeles for closure of the Puente Hills Landfill, which is located approximately 0.75 mile north-northwest of the project site. The landfill closed in 2013 and remains a primary funding source for the Habitat Authority.

The Preserve is primarily characterized as undeveloped open space, with limited development in the form of trails used for recreational walking, hiking, wildlife viewing, and general outdoor enjoyment. The open space adjacent to the project site is within the Preserve's Core Habitat Zone, which was documented in the Habitat Authority's 2007 RMP as providing habitat for wildlife and native vegetation (Habitat Authority 2007). Approximately 40 feet to the north of the existing Murphy West Reservoir, on Habitat Authority land, is a defunct vehicle access road where vegetation including coastal sage scrub has established over the road in the absence of disturbance. Coastal sage scrub may be used as breeding habitat by protected species, as discussed in detail in the analysis for Biological Resources; therefore, the road will not be used for proposed project access.

Other land uses in the vicinity of the project site include the Murphy Pump Station, which is located at the terminus of Ocean View Avenue, approximately 200 feet (0.04 mile) from the closest residence to the site. The pump station is located at the entrance to the City-owned road that provides access to the Murphy Reservoirs site, approximately 750 feet (0.14 mile) from the existing Murphy Reservoirs. The Murphy Reservoirs are located approximately 950 feet (0.18 mile) from the nearest residences.

10. Other Public Agencies Whose Approval is Required

The City of Whittier is the lead agency under CEQA with responsibility for approving the proposed project.

The State Water Resources Control Board (SWRCB)'s Division of Drinking Water (DDW), which regulates public drinking water systems, requires the City to submit an amendment to its domestic water supply permit.

The Puente Hills Habitat Preservation Authority, which manages the Preserve that surrounds the project site, has approval authority for any access and temporary uses of the Preserve. Although the proposed project does not include activities within the Preserve, the City is working in coordination with the Habitat Authority to minimize or avoid potential construction-related impacts, including indirect impacts associated with dust and noise.

11. Have California Native American Tribes Traditionally and Culturally Affiliated with the Project Area Requested Consultation Pursuant to Public Resources Code Section 21080.3.1?

The City of Whittier provided notification of the proposed project to Native American tribes by conducting Assembly Bill (AB) 52 consultation. This included distributing letters to tribes with known traditional and cultural affiliations with the project area to request review and input from the tribes on the proposed project. The City received one request for consultation from the Kizh Nation, which is a Native American tribe traditionally and culturally affiliated with the project area. The City conducted formal consultation with the Kizh, as discussed below, in *Tribal Cultural Resources*. The City's compliance with AB 52 for the proposed project is discussed in the impact analysis for Tribal Cultural Resources, and the AB 52 letters are provided as Appendix D to this IS-MND.

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Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact that is "Potentially Significant" or "Less than Significant with Mitigation Incorporated" as indicated by the checklist on the following pages.

□	Aesthetics	□	Agriculture and Forestry Resources	□	Air Quality
■	Biological Resources	■	Cultural Resources	□	Energy
■	Geology and Soils	□	Greenhouse Gas Emissions	□	Hazards and Hazardous Materials
■	Hydrology and Water Quality	□	Land Use and Planning	□	Mineral Resources
□	Noise	□	Population and Housing	□	Public Services
□	Recreation	□	Transportation	■	Tribal Cultural Resources
□	Utilities and Service Systems	□	Wildfire	□	Mandatory Findings of Significance

Determination

Based on 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 to 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 "less than significant with mitigation incorporated" 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 potential 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

05/23/22

Date

Kyle Cason

Printed Name

Director

Title

Environmental Checklist

1 Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	■	☐
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	■
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	■	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	■	☐

a. Would the project have a substantial adverse effect on a scenic vista?

c. Would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The City of Whittier General Plan, *Envision Whittier*, was adopted in 2021 (October), and evaluated in an Environmental Impact Report (EIR) for potential environmental impacts, including to scenic vistas. It defines scenic vistas as natural landscapes that provide views of unique flora, geologic or other natural features that are generally free from urban intrusions, and scenic resources occurrences of aesthetically pleasing features, such as rock outcroppings, trees, prominent ridgelines, slopes and hilltops (City of Whitter 2021a; City of Whittier 2021b). The project site is located within the foothills of the Puente Hills, on City-owned property which is inaccessible to the general public. Public views of the reservoirs from within the adjacent open space area would

continue to be obscured by vegetation surrounding the site, which would be maintained through project construction and only trimmed as needed to provide construction access. Views of the reservoirs from public roadways are and would continue to be obscured by distance and elevation. The reservoirs are not visible from the nearest residences, which are separated in elevation from the reservoirs site by approximately 550 feet.

Based on the discussion above, the proposed project is not anticipated to result in substantial effects on a scenic vista, or substantially degrade the existing visual character or quality of public views of the site and its surroundings. However, due to the project site being located in the foothills of the Puente Hills, which are considered to characterize scenic amenities in the city, the presence of construction vehicles and equipment during the construction period would have potential to temporarily impact scenic resources and the visual character of the area. During operation and maintenance of the project, there would be no visual impact, because the proposed project improvements would be visually consistent with the existing project site. Due to temporary construction-related presence of vehicles, equipment, and activities, construction-related impacts to the visual character or quality of the site would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

According to the California Department of Transportation (Caltrans), there are no officially designated state scenic highways within the vicinity of the project site (Caltrans 2018). The nearest eligible state scenic highway is SR 57 near Brea, California, and is located approximately eight miles southeast of the project site. The nearest officially designated scenic highway is Route 91 near Anaheim, California, and is located approximately 13 miles southeast of the project site. Neither the project site nor the off-site staging area is visible from the nearest eligible state scenic highway. No impact to scenic resources within a state scenic highway would occur.

NO IMPACT

d. Would the project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

Construction would occur during the daytime hours and would generally not require the use of lighting. However, construction lighting may be required during the early morning hours in the late fall and early winter months. In this case, lights may be visible from surrounding roadways and residential and other land uses. The lighting would not face toward adjacent uses and would be directed down towards construction activities. Furthermore, this timing would be short-term. Therefore, construction activities would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the vicinity of the project site. Upon completion of construction, the project site would return to pre-construction operational conditions. Therefore, project operations would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views. Due to the potential need for temporary lighting during the construction period, potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	■
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	■
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))?	☐	☐	☐	■
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	■
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?	☐	☐	☐	■

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on 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?

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?

The project site, including the off-site staging area, is not zoned for agricultural use and is not located on or near land mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance under the California Department of Conservation's (CDOC) Farmland Mapping and Monitoring Program (CDOC 2016). Furthermore, the proposed project involves demolition and replacement of the existing water storage infrastructure and would not change the land uses on the project site. As the proposed project would not convert important farmland to non-agricultural use or conflict with existing zoning, no impact to agricultural resources would occur.

The project site and surrounding area is also not designated or zoned for forest land (Public Resources Code [PRC] Section 12220(g)), timberland (PRC Section 4526), or timberland zoned Timberland Production (Government Code Section 51104(g)). The proposed project involves demolition and replacement of the existing water storage infrastructure and would not change the land uses on the project site or facilitate off-site loss of forest land or conversion of forest land to non-forest use. Therefore, implementation of the proposed project would not convert any forest land to non-forest use, nor would it conflict with existing zoning for such lands. No impact would occur.

Finally, the project would not 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 would occur.

NO IMPACT

3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	■	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	■	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	■	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	■	☐

Overview of Air Pollution

The federal Clean Air Act (CAA) and State of California CAA mandate the control and reduction of certain air pollutants. These laws are administered by the United States Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB), respectively, which have established the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) for "criteria pollutants" and other pollutants. Some pollutants are emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory, etc.) into the atmosphere, including carbon monoxide, volatile organic compounds (VOCs) and reactive organic gases (ROG)[1], nitrogen oxide (NO_X), particulate matter (PM) with diameter of ten microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), sulfur dioxide, and lead. Other pollutants are created indirectly through chemical reactions in the atmosphere, such as ozone, which is created by atmospheric chemical and photochemical reactions primarily between VOC and NO_X. Secondary pollutants include oxidants and ozone, as well as sulfate and nitrate particulates (smog).

Air pollutant emissions are generated by stationary and mobile sources. Stationary sources can be divided into two major subcategories:

- Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat.

[1] CARB defines VOC and ROG similarly as, "any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate," with the exception that VOC are compounds that participate in atmospheric photochemical reactions. For the purposes of this analysis, ROG and VOC are considered comparable in terms of mass emissions, and the term ROG is used in this IS-MND.

- Area sources are widely distributed and include such sources as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products.

Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and can also be divided into two major subcategories:

- On-road sources that may be legally operated on roadways and highways.
- Off-road sources include aircraft, ships, trains, and self-propelled construction equipment.

Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles.

Air Quality Standards and Attainment

The project site is located in the South Coast Air Basin (SCAB), which is under the jurisdiction of South Coast Air Quality Management District (SCAQMD), and includes the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, as well as all of Orange County. As the local air quality management agency, SCAQMD is required to monitor air pollutant levels to ensure that State and federal air quality standards are met and, if they are not met, to develop strategies to meet the standards.

Depending on whether the standards are met or exceeded, the SCAB is classified as being in "attainment" or "nonattainment." Under State law, air districts are required to prepare a plan for air quality improvement for pollutants for which the district is in non-compliance. SCAQMD is in non-attainment for the federal standards for ozone and $PM_{2.5}$ and the state standards for ozone, PM_{10}, and $PM_{2.5}$. The Los Angeles County portion of the SCAB is also designated non-attainment for lead (SCAQMD 2016). The SCAB is designated unclassifiable or in attainment for all other federal and state standards. The health effects associated with criteria pollutants for which the Basin is in non-attainment are described in Table 1.

Table 1 Health Effects Associated with Non-Attainment Criteria Pollutants

Pollutant	Adverse Effects
Ozone	(1) Short-term exposures: (a) pulmonary function decrements and localized lung edema in humans and animals and (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (3) vegetation damage; and (4) property damage.
Suspended particulate matter (PM_{10})	(1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma).[a]
Suspended particulate matter ($PM_{2.5}$)	(1) Excess deaths from short- and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes, including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children, such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease, including asthma.[a]

Pollutant	Adverse Effects
Lead	(1) Short-term overexposures: lead poisoning can cause (a) anemia, (b) weakness, (c) kidney damage, and (d) brain damage; (2) long-term exposures: long-term exposure to lead increases risk for (a) high blood pressure, (b) heart disease, (c) kidney failure, and (d) reduced fertility

[a] More detailed discussions on the health effects associated with exposure to suspended particulate matter can be found in the following document: United States Environmental Protection Agency (USEPA), Air Quality Criteria for Particulate Matter, October 2004.

Sources: USEPA 2021

Air Quality Management

Under State law, the SCAQMD is required to prepare a plan for air quality improvement for pollutants for which the district is in non-compliance. The SCAQMD administers the Air Quality Management Plan (AQMP) for the SCAB, which is a comprehensive document outlining an air pollution control program for attaining all State (CAAQS) and federal (NAAQS) standards. The current AQMP (2016) for the SCAB was adopted by the SCAQMD Governing Board on March 3, 2017 (SCAQMD 2017). The 2016 AQMP represents a new approach, focusing on available, proven, and cost-effective alternatives to traditional strategies while seeking to achieve multiple goals in partnership with other entities promoting reductions in greenhouse gases (GHGs) and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2017). The 2016 AQMP incorporates new scientific data and notable regulatory actions that have occurred since adoption of the 2012 AQMP, including the approval of the new federal 8-hour ozone standard of 0.070 parts per million (ppm) that was finalized in 2015.

The Final 2016 AQMP addresses several state and federal planning requirements and incorporates new scientific information, primarily in the form of updated emissions inventories, ambient measurements, and meteorological air quality models. The Southern California Association of Governments (SCAG) projections for socio-economic data (e.g., population, housing, employment by industry) and transportation activities from the 2016 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS) are integrated into the 2016 AQMP. The AQMP builds upon the 2012 AQMP for the attainment of federal PM and ozone standards and highlights the significant amount of reductions to be achieved. It emphasizes the need for interagency planning to identify additional strategies to achieve reductions within the timeframes allowed under the federal Clean Air Act, especially in the area of mobile sources. The 2016 AQMP also includes a discussion of emerging issues and opportunities, such as fugitive toxic particulate emissions, zero-emission mobile source control strategies, and the interacting dynamics among climate, energy, and air pollution. The Plan also demonstrates strategies for attainment of the new federal eight-hour ozone standard and vehicle miles travelled (VMT) emissions offsets, pursuant to recent USEPA requirements (SCAQMD 2017).

Air Pollutant Emission Thresholds

The *State CEQA Guidelines* (Section 15064.7) provide that, when available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make determinations of significance. These thresholds are designed such that a project that would not exceed the adopted thresholds would not have an individually or cumulatively significant impact on the Basin's air quality. Thus, a project that does not exceed these SCAQMD thresholds would have a less than significant impact. This Initial Study conforms to the methodologies recommended in the *CEQA Air Quality Handbook* (SCAQMD 1993) and supplemental

guidance provided by the SCAQMD, including recommended thresholds for emissions associated with both construction and operation of the project (SCAQMD 2019).

Table 2 presents the significance thresholds for construction and operational-related criteria air pollutant and precursor emissions being used for the purposes of this analysis. These represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. For the purposes of this analysis, the proposed project would result in a significant impact if construction or operational emissions would exceed any of the thresholds shown in Table 2.

Table 2 SCAQMD Regional Significance Thresholds

Construction Thresholds	Operational Thresholds
75 pounds per day of VOC	55 pounds per day of VOC
100 pounds per day of NO_X	55 pounds per day of NO_X
550 pounds per day of CO	550 pounds per day of CO
150 pounds per day of SO_X	150 pounds per day of SO_X
150 pounds per day of PM_{10}	150 pounds per day of PM_{10}
55 pounds per day of $PM_{2.5}$	55 pounds per day of $PM_{2.5}$

VOC = volatile organic compounds, NO_X = nitrogen oxides, CO = carbon monoxide, SO_x = sulfur oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

Source: SCAQMD 2019

Localized Significance Thresholds

In addition to the regional thresholds, the SCAQMD has developed Localized Significance Thresholds (LSTs) in response to the Governing Board's Environmental Justice Enhancement Initiative (1-4), which was prepared to update the *CEQA Air Quality Handbook* (SCAQMD 1993). LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities and have been developed for NO_X, carbon monoxide (CO), PM_{10}, and $PM_{2.5}$. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), distance to the sensitive receptor, and project size. LST screening thresholds have been developed for emissions generated in areas up to five acres in size. Of note, LSTs only apply to emissions in a fixed stationary location and are not applicable to mobile sources, such as cars on a roadway (SCAQMD 2009). As such, LSTs are typically applied only to construction emissions because most operational emissions are associated with project-generated vehicle trips.

The project site is located in Source Receptor Area 11 (SRA-11, South San Gabriel Valley) and is 5.4 acres (SCAQMD 2009). As described above, the sensitive receptors closest to the project site are residential units to the south of the project site. The SCAQMD's publication *Final Localized Significant (LST) Thresholds Methodology* (SCAQMD 2009) provides LST screening thresholds for receptors at a distance of 82 to 1,640 feet (25 to 500 meters) from the project site boundary. Allowable emissions (pounds per day) are categorized by project acreage of one, two, and five acres or more. At its nearest point, the perimeter of the project site is located within approximately 250 feet (76 meters) of the nearest receptor. Interpolation between the 50- and 100-meter allowable emissions in SCAQMD's LST Thresholds Methodology was used to calculate LST for a 5.4-acre site. Table 3, provided below, summarizes the LST screening thresholds for a 5.4-acre site in SRA 11 with sensitive receptors located at a distance of 250 feet.

Table 3 SCAQMD LST Screening Thresholds for Construction (SRA-11)

Pollutant	Allowable Emissions from a 5.4-acre site in SRA-11 with a Receptor Distance of 250-ft (lbs/day)
Gradual conversion of NO_X to NO_2	180
CO	2,278
PM_{10}	51
$PM_{2.5}$	16

NO_X = nitrogen oxides, NO_2 = nitrogen dioxide, CO = carbon monoxide, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

Source: SCAQMD 2019

SCAQMD has developed significance thresholds for the emissions of TACs based on health risks associated with elevated exposure to such compounds. For carcinogenic compounds, cancer risk is assessed in terms of incremental excess cancer risk. A project would result in a potentially significant impact if it would generate an incremental excess cancer risk of 10 in 1 million (1×10^{-6}) or a cancer burden of 0.5 excess cancer cases in areas exceeding 1 in 1 million risk. Additionally, non-carcinogenic health risks are assessed in terms of a hazard index. A project would result in a potentially significant impact if it would result in a chronic and acute hazard index greater than 1.0 (SCAQMD 2019).

Methodology

The analysis reflects construction of the project as described under Section **Error! Reference source not found.**. Operational emissions were not quantified because the project would not result in changes to existing operation and maintenance activities conducted by the City; therefore, no net new operational emissions would be generated by the project.

Air pollutant emissions generated by project construction were estimated using the California Emissions Estimator Model (CalEEMod), version 2020.4.0. CalEEMod uses project-specific information, including the project's land uses and lot acreage. Modeled construction emissions include emissions generated by construction equipment used on-site and emissions generated by vehicle trips, such as worker and vendor trips. CalEEMod estimates construction emissions by multiplying the amount of time equipment is in operation by emission factors. Construction of the proposed project was analyzed based on the anticipated construction start and end schedule, construction equipment list, demolition debris quantity, and concrete import quantity for the reservoir. To capture the construction area, 5.4-acres were modeled as "Other Non-Asphalt Surfaces" in CalEEMod. Construction of the project would occur between approximately mid-2022 and late-2023, during which time approximately 4,000 cubic yards of material would be exported from the site. CalEEMod's total days default for building construction was adjusted to meet the anticipated end date of the project. It is assumed that all construction equipment used would be diesel-powered. The construction equipment was adjusted from CalEEMod default setting to meet project specific equipment. This analysis assumes that the project would comply with all applicable regulatory standards. In particular, the project would comply with SCAQMD Rule 403 (Fugitive Dust Control) and Rule 1113 (Architectural Coating).

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

The purpose of a consistency finding is to determine if a project is inconsistent with the assumptions and objectives of the regional air quality plans and, thus, if it would interfere with the region's ability to achieve attainment with federal and state air quality standards. The SCAQMD has established criteria for determining consistency with the currently applicable AQMP in Chapter 12, Sections 12.2 and 12.3, in the SCAQMD CEQA Air Quality Handbook. The criteria are as follows (SCAQMD 1993):

- Whether the project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the ambient air quality standards or interim emission reductions in the AQMP.
- Whether the project would exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

To address the first criterion regarding the project's potential to result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the ambient air quality standards or interim emission reductions in the AQMP, project-generated criteria air pollutant emissions were estimated and analyzed for significance. Detailed results of this analysis are included in Appendix A. As discussed under threshold (b) of this section, project construction would not generate criteria air pollutant emissions that would exceed the SCAQMD thresholds and would therefore not generate a considerable increase in air quality violations or affect the region's attainment of air quality standards.

The second criterion regarding the project's potential to exceed the assumptions in the AQMP or increments based on the year of project buildout and phase is primarily assessed by determining consistency between the project's land use designations and potential to generate population growth. In general, projects are considered consistent with, and would not conflict with or obstruct implementation of, the AQMP if the growth in socioeconomic factors is consistent with the underlying regional plans used to develop the AQMP (per Consistency Criterion No. 2 of the SCAQMD *CEQA Air Quality Handbook*). The 2016 AQMP incorporates local city general plans and the SCAG 2016 RTP/SCS socioeconomic forecast projections of regional population, housing and employment growth. The proposed project would not directly increase the City's population as it does not involve the construction of housing, nor create jobs that would create new residents in Whitter.

Since there would be no population and employment growth with the proposed project, and the project construction would not conflict with the AQMP, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The SCAB has been designated as a federal nonattainment area for ozone and $PM_{2.5}$ and a state nonattainment area for ozone, PM_{10}, and $PM_{2.5}$. The Los Angeles County portion of the SCAB is designated in nonattainment for lead, as well. The SCAB is designated unclassifiable or in attainment for all other federal and state standards. The proposed project does not include any stationary sources of lead emissions. Therefore, implementation of the project would not result in substantial emissions of lead and this pollutant is not discussed further in this analysis.

Construction Emissions

Table 4 summarizes the estimated maximum daily emissions of pollutants associated with construction of the proposed project. Emissions modeling accounts for compliance with SCAQMD Rule 403 and Rule 1113. Rule 403 regulates fugitive dust emissions during the project's demolition, grading, and construction activities to minimize emissions of PM_{10} and $PM_{2.5}$ by requiring provisions such as twice daily watering of exposed soils, reduced vehicle speeds on unpaved soils, and covering of soils during transport. SCAQMD Rule 1113 regulates the VOC content of architectural coatings to minimize emissions of VOC during construction activities.

As shown in Table 4, VOC, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$ emissions would not exceed SCAQMD regional thresholds or the LST screening thresholds. Therefore, project construction emissions would be adequately controlled by existing regulations, and the project would not result in substantial air pollutant emissions. Because air pollutant emissions generated by project construction would not exceed SCAQMD's regional significance thresholds or LST screening thresholds, project construction would not contribute substantially to an existing or projected air quality violation for which the region is in nonattainment. Impacts from construction emissions would be less than significant.

Table 4 Estimated Maximum Daily Construction Emissions (lbs/day)[1]

	Maximum Emissions (lbs/day)					
Construction Year	**VOC**	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
2022	3	30	24	<1	5	3
2023	5	18	22	<1	2	1
Maximum Emissions (lbs/day)	**5**	**30**	**24**	**<1**	**5**	**3**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Maximum On-site Emissions (lbs/day)	**5**	**29**	**23**	**<1**	**4**	**2**
SCAQMD LST Screening Thresholds[2]	N/A	180	2,278	N/A	51	16
Threshold Exceeded?	**N/A**	**No**	**No**	**N/A**	**No**	**No**

Notes:

All emissions modeling was completed using the California Emissions Estimator Model (CalEEMod). See Appendix A for modeling results. Some numbers may not add up due to rounding. Emission data is pulled from CalEEMod's "mitigated" results, which is a term of art for the modeling output and is not equivalent to mitigation measures that may apply to the CEQA impact analysis. The CalEEMod "mitigated" results account for compliance with regulations and project design features. Emissions presented are the highest of the winter modeled emissions.

LST screening thresholds are for a 5.4-acre project site in SRA-11 within 250 feet from the site boundary.

NOX = nitrogen oxides, NO2 = nitrogen dioxide, CO = carbon monoxide, PM10 = particulate matter 10 microns in diameter or less, PM2.5 = particulate matter 2.5 microns or less in diameter

Operational Emissions

As detailed under Section **Error! Reference source not found.**, ***Error! Reference source not found.***, the existing operational activities would resume upon completion of construction. The operational activities would not change because of the repairs and improvements of the Murphy Reservoirs. Thus, there would be no net new air pollutant emissions associated with operational activities. Therefore, project operation would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. No impact would occur.

LESS THAN SIGNIFICANT IMPACT

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Sensitive Receptors

Sensitive receptors are those individuals more susceptible to the effects of air pollution than the population at large. People most likely to be affected by air pollution include children, the elderly, and people with cardiovascular and chronic respiratory diseases. According to the SCAQMD, sensitive receptor locations include residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993). Residential land uses are located to the south of the project. The closest off-site sensitive receptors are the residences south of the site approximately 250 feet.

Local Carbon Monoxide Hotspots

A CO hotspot is a localized concentration of CO that is above a CO ambient air quality standard. Localized CO hotspots can occur at intersections with heavy peak hour traffic. Specifically, hotspots can be created at intersections where traffic levels are sufficiently high such that the local CO concentration exceeds the federal one-hour standard of 35.0 ppm or the federal and state eight-hour standard of 9.0 ppm (CARB 2021a).

The project would not generate CO hotspots since the project would not generate new daily trips during operation. The existing conditions would remain the same. Therefore, the project would not expose sensitive receptors to substantial CO concentrations, and no localized air quality impacts related to CO hot spots would occur.

Toxic Air Contaminants

Toxic air contaminants (TACs) are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SCAQMD recommends an incremental cancer risk threshold of 10 in 1 million. “Incremental cancer risk” is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period will contract cancer. In addition, some TACs have noncarcinogenic effects. The SCAQMD recommends a Hazard Index of 1 or more for acute (short-term) and chronic (long-term) non-carcinogenic effects.

Construction

The greatest potential for TAC emissions associated with the proposed project would occur during construction, and would be from diesel particulate emissions associated with heavy equipment operations. Diesel particulate matter emissions would be emitted from heavy equipment operations and heavy-duty trucks. Heavy-duty construction equipment is subject to a CARB Airborne Toxics Control Measure for in-use diesel construction equipment to reduce diesel particulate emissions. As shown in Table 4, total PM_{10} emissions, which includes exhaust PM_{10} (representative of diesel particulate matter) and fugitive dust PM_{10}, would be minimal. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period for the maximally exposed individual resident; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2012). Thus, the duration of the

proposed construction activities would only constitute approximately one percent of the total 30-year exposure period.

Construction of the proposed project is anticipated to occur over the period between approximately mid-2022 and late-2023, although heavy equipment usage would not be required for the full duration of the construction timeline; additionally, upon the completion of project implementation, TAC emissions from heavy equipment operation would cease. Due to this relatively short period of exposure and minimal emissions on site, TACs generated during construction would not result in concentrations causing health risks. Furthermore, SCAQMD CEQA guidance does not recommend preparation of a health risk assessment for short-term construction emissions. Therefore, it is not necessary to evaluate long-term cancer impacts from construction activities that occur over a relatively short duration. Impacts would be less than significant.

Operation

CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) provides recommendations regarding the siting of new sensitive land uses near potential sources of air toxic emissions (e.g., freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities). The CARB guidelines recommend siting distances both for the development of sensitive land uses in proximity to TAC sources and for the addition of new TAC sources in proximity to existing sensitive land uses. Water infrastructure is not a land use that would generate substantial TAC emissions based on review of the air toxic sources listed in the CARB guidelines. Furthermore, the nature of operation and maintenance activities at the reservoirs would remain generally the same as under existing conditions. Therefore, project operation would not result in the exposure of sensitive receptors to substantial concentrations of TAC emissions. No impact would occur.

LESS THAN SIGNIFICANT IMPACT

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of the receiving location, each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, and architectural coatings. Such odors would disperse rapidly from the project site, generally occur at magnitudes that would not affect substantial numbers of people and would be limited to the construction period. In addition, project construction would be required to comply with SCAQMD Rule 402, which specifies that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. Impacts associated with odors during construction would be temporary and less than significant.

With respect to operation, the SCAQMD's *CEQA Air Quality Handbook* (1993) identifies land uses associated with odor complaints to be agricultural uses, wastewater treatment plants, chemical and

food processing plants, composting, refineries, landfills, dairies, and fiberglass molding. Water infrastructure is not a land use that would generate odor in the project vicinity. Therefore, the proposed project would not generate objectionable odors affecting a substantial number of people. No operational impact would occur.

LESS THAN SIGNIFICANT IMPACT

4 Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, 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?	☐	■	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	■
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	■
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?	☐	■	☐	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	■
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?	☐	☐	☐	■

The analysis presented in this section is based on Rincon Consultants' review of available technical information on biological resources in the project vicinity and a reconnaissance-level biological

survey of the project site. The literature review included a five-mile radius search of the California Natural Diversity Database (CNDDB); a nine-quad search of the California Native Plant Society [CNPS] online inventory; California Department of Fish and Wildlife (CDFW) special status species list, and the United State Fish and Wildlife Service (USFWS) Information for Planning and Consultation. In addition, the Habitat Authority's 2007 *Resource Management Plan* (RMP) (Habitat Authority 2007) was thoroughly reviewed and compared to current conditions on the project site and in the Preserve. The RMP contains general information regarding biological resources of the broader Puente Hills in which the project site is located. Given the time that has elapsed since the preparation of that plan and the studies it draws from, and the broad coverage of the plan, this analysis is primarily based on the database search and reconnaissance survey conducted by Rincon.

A Rincon biologist conducted the reconnaissance field survey for the proposed project location and 500-foot buffer (hereinafter, study area) on June 4, 2021. The purpose of the field survey was to document the existing biological conditions in the study area, including plant and wildlife species, vegetation communities, and potential jurisdictional waters and wetlands. Rincon evaluated the potential for presence of special status species, jurisdictional waters and/or sensitive vegetation communities in the study area, and assessed the potential for significant impacts to these resources under CEQA. The results of the reconnaissance survey, review of scientific databases, and review of previous mapping and documentation were used to inform the baseline environmental setting and the following impact analysis, as presented below.

Regional and Project Site Setting

The project site occurs in eastern portion of Whittier at the terminus of Ocean View Avenue. It is situated adjacent to the Puente Hills Preserve managed by the Puente Hills Habitat Preservation Authority for habitat conservation and recreational purposes. The project site encompasses approximately 5.4 acres on a south-facing hillside in the eastern portion of Whittier. Elevations on the project site range from 438 feet above mean sea level (amsl) along Ocean View Avenue to 567 feet amsl at the site's northern boundary. The site itself is a developed water storage facility. The existing water tanks are located on a graded area that is regularly weed abated with an asphalt driveway that leads to the tanks. The site perimeter is enclosed within a chain link fence topped with barbed wire. As stated in the Project Description, the primary staging area will be located in an entirely paved and fenced area where Ocean View Avenue terminates at the Murphy Pump Station. The surrounding 500-foot buffer area contains mostly non-native eucalyptus woodland, ruderal coastal scrub, residential development south of Ocean View Avenue, and remnant concrete and asphalt road in the Preserve.

Soils

The project site and buffer area are mapped by the Web Soil Survey (USDA 2021) as having loam soils in the Zaca-Apollo, warm complex, 20-55 percent slopes series. This soil series is not hydric, is well-drained, and is drier due to higher levels of sun exposure on southern slopes.

Vegetation

The project site is developed and disturbed without vegetation, whereas the buffer area contains a mix of non-native and native vegetation that has been historically disturbed and the residential developments south of Ocean View Avenue. The habitat immediately surrounding the project site is a eucalyptus woodland consisting primarily of red gum (*Eucalyptus camaldulensis* Groves) (Sawyer et al. 2009) with an understory of invasive ripgut brome (*Bromus diandrus*). The eucalyptus grove is

approximately 200-feet wide to the east and west of the site and thins to a single tree line approaching Ocean View Avenue and along the northernmost portion of the project site. The grove's outer perimeter transitions to disturbed coastal sage scrub (*Artemisia californica* Shrubland Alliance) that is primarily non-native (70 percent cover) with fragmented native patches throughout.

The disturbed coastal scrub consists of some native species (30 percent cover) including California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), goldenbush (*Ericameria* ssp.), prickly pear (*Opuntia spp.*), cholla (*Cylindropuntia spp.*) and coyotebush (*Baccharis pilularis*) and non-native species including castor bean (*Ricinus communis*), purple fountain grass (*Pennisetum setaceum*), ripgut brome, red gum, black mustard (*Brassica nigra*), and Russian thistle (*Salsola tragus*).

Wildlife

The project site and surrounding area provide habitat for wildlife species that occur in eucalyptus groves and coastal scrub habitat. Wildlife species detected during the survey included Bewick's wren (*Thryomanes bewickii*), house finch (*Haemorhous mexicanus*), northern mockingbird (*Mimus polyglottos*), bushtit (*Psaltriparus minimus*), mourning dove (*Zenaida macroura*), common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), European starling (*Sturnus vulgaris*), Pacific slope flycatcher (*Empidonax difficilis*), coastal California gnatcatcher (*Polioptila californica californica*; federally threatened, California Species of Special Concern), blue-gray gnatcatcher (*Polioptila caerulea*), barn swallow (*Hirundo rustica*), lesser goldfinch (*Spinus psaltria*), American goldfinch (*Spinus tristis*), parrot (*Amazona* sp), red-tailed hawk (*Buteo jamaicensis*), Anna's hummingbird (*Calypte anna*), phainopepla (*Phainopepla nitens*), Cassin's kingbird (*Tyrannus vociferans*), rufous-crowned sparrow (*Aimophila ruficeps canascens*; CDFW Watch List), wrentit (*Chamaea fasciata*), Bullock's oriole (*Icterus bullockii*), hooded oriole (*Icterus cucullatus*), brown-headed cowbird (*Molothrus ater*), house wren (*Troglodytes aedon*), house sparrow (*Passer domesticus*), California towhee (*Melozone crissalis*), spotted towhee (*Pipilo maculatus*), California quail (*Callipepla californica*), coyote (*Canis latrans*), and mule deer (*Odocoileus hemionus*).

Federally threatened coastal California gnatcatcher was observed foraging in disturbed sage scrub approximately 55 feet northwest of the project site. The individual was a solitary female, and no nesting or territorial behavior was observed.

Regulatory Setting

Regulatory authority over biological resources is shared by federal, state, and local authorities under a variety of statutes and guidelines. Primary authority for general biological resources lies with the land use control and planning authority of local jurisdictions. The CDFW is a trustee agency for biological resources throughout the state under CEQA and also has direct jurisdiction under the Fish and Game Code of California. Under the State and Federal Endangered Species Acts, the CDFW and the USFWS also have direct regulatory authority over species formally listed as Threatened or Endangered. The U.S. Department of Army Corps of Engineers (USACE) has regulatory authority over specific biological resources, namely wetlands and waters of the United States, under Section 404 of the Federal Clean Water Act.

Special status species are those plants and wildlife listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS under the Federal Endangered Species Act (FESA); those listed or candidates for listing as Threatened or Endangered by the CDFW under the California Endangered Species Act (CESA) or Rare under the Native Plant Protection Act; animals

designated as "Fully Protected" by the California Fish and Game Code (CFGC); wildlife listed as "Species of Special Concern" (SSC) by the CDFW; and CDFW Special Plants, specifically those with California Rare Plant Ranks (CRPR) of 1 (Presumed endangered/extinct in California and endangered/extinct elsewhere) and 2 (Presumed endangered/extinct in California but common elsewhere) in the CNPS's Inventory of Rare and Endangered Vascular Plants of California (CNPS 2021a). A list of special status plant and wildlife species with potential to occur on site was developed based on a review of a 5-mile search of the CNDDB (CDFW 2021) and a 9-quad search of the CNPS's online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2021). The potential for each special status species to occur on the project site was evaluated according to the following criteria.

- **Not Expected.** Habitat on and adjacent to the project site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the project site is unsuitable or of very poor quality. The species is not likely to be found on the project site.
- **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the project site is unsuitable. The species has a moderate probability of being found on the project site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the project site is highly suitable. The species has a high probability of being found on the project site.
- **Present.** Species is observed or has been recorded (e.g., CNDDB, other reports) on the project site recently (within the last 5 years).

While common birds are not designated as special status species, destruction of their eggs, nests, and nestlings is prohibited by federal and state law. Section 3503.5 of the Fish and Game Code of California specifically protects birds of prey, and their nests and eggs against take, possession, or destruction. Sections 3503 and 3513 of the CFGC incorporates restrictions imposed by the federal Migratory Bird Treaty Act (MBTA) with respect to migratory birds (which includes most native bird species).

Impact Analysis

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

The CNDDB and CNPS database search yielded 30 special status plant and 13 special status wildlife species. Of these, most were not expected to occur on site or in the adjacent buffer area due to unsuitable habitat conditions, geographic range, elevation, and disturbance level of the site. As a result, no special status plant species have a moderate or higher potential to occur on site or in the buffer area, and five special status wildlife species have a moderate or higher potential to occur on site or in the buffer area (see Appendix B for the full list).

Field reconnaissance and survey of the project site was scheduled to occur during the blooming period for species that have potential to occur in the area, as this is the period during which species

would be apparent. However, no special status plants were observed on site or in the buffer area. The project site itself is a developed facility with paved road and regular maintenance and does not have the suitable habitat characteristics needed for special status plants. While the buffer area contains some habitat characteristics for three special status plant species, the project occurs outside the range of Lyon's pentachaeta (*Pentachaeta lyonii*) and the soils are not considered suitable for intermediate mariposa-lily (*Calochortus weedii* var. *intermedius*) or many-stemmed dudleya (*Dudleya multicaulis*). The latter two species have been documented in the Puente Hills Preserve, but soil conditions in the buffer area are not clay or rocky soils required for these species. These species were also not detected during field reconnaissance, which occurred during their blooming period; therefore, their potential for occurrence on the site is low.

The project footprint is limited to existing development with encroachment into the buffer area limited to incidental pedestrian traffic during construction activities. Direct impacts are anticipated to be minimal and would be less than significant Indirect impacts may occur in the form of dust, noise, or runoff from project activities should these species be present in the immediate vicinity of the project site, and mitigation measures are recommended as necessary to minimize potential impacts. The project site itself is fully developed and previously disturbed, such that it offers little habitat value for special status wildlife species relative to the surrounding buffer area. Of the special status wildlife species, five are either present in the surrounding buffer area or have a moderate or high potential to occur in the buffer area, particularly given the disturbed coastal scrub habitat and database records within five miles of the project site within the last 50 years. These species, each of which are discussed below, include coastal California gnatcatcher, American badger (*Taxidea taxus*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), coast horned lizard (*Phrynosoma blainvillii*), and coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*). In addition, mountain lion (*Puma concolor*) and several bat species are also discussed considering the mountain lion's regional importance in the Puente Hills and detection of bats in the general vicinity of the study area during surveys in 2004 and 2011 (Remington 2011).

- **Coastal California gnatcatcher**. One solitary female coastal California gnatcatcher was detected foraging in disturbed coastal scrub approximately 55 feet northwest of the project site during the reconnaissance survey. The site and buffer area occur within USFWS-designated critical habitat (Unit 9) for this species (USFWS 2021a, 2021b), which encompasses the Montebello Hills, Puente-Chino Hills, and West Coyote Hills areas. The USFWS (2007) defines the primary constituent elements (PCEs) of coastal California gnatcatcher critical habitat as:

  (i) Dynamic and successional sage scrub habitats: Venturan coastal sage scrub, Diegan coastal sage scrub, Riversidean sage scrub, maritime succulent scrub, Riversidean alluvial fan scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub in Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties that provide space for individual and population growth, normal behavior, breeding, reproduction, nesting, dispersal and foraging; and

  (ii) Non-sage scrub habitats such as chaparral, grassland, riparian areas, in proximity to sage scrub habitats as described for PCE 1 above that provide space for dispersal, foraging, and nesting.

The USFWS further clarifies that critical habitat does not include manmade structures (such as buildings, aqueducts, airports, roads, and other paved areas) and the land on which they are located existing on the effective date of this rule and not containing one or more of the PCEs. Based on this definition, the project site does not contain PCEs because it is graded, developed and kept devoid of

vegetation. In contrast, the adjacent buffer area to the north of the site does contain suitable habitat because it contains relatively intact coastal sage scrub vegetation. As a result, the species is not expected to occur within the project site itself but is expected to occur, and was observed, in the adjacent buffer to the north. Work activities are expected to occur predominantly on the site, but replacement of the perimeter fencing may necessitate pedestrian work using hand tools within the buffer. Activities in the buffer area would be limited to temporary fence work; no vegetation removal or clearing is anticipated.

Direct impacts to gnatcatchers using the disturbed coastal scrub in the buffer area could occur if individuals are nesting near the fence. Human presence and noise could cause gnatcatchers to abandon their nests, leading to failed nesting attempts or mortality of chicks or nestlings. These direct impacts would be potentially significant without mitigation.

In addition to direct impacts, indirect impacts (e.g., noise, dust) could result from project activities and would be considered potentially significant if occurring adjacent to a nest during the California gnatcatcher nesting season. This would include impacts from work occurring in the project site, but proximate to off-site nests in the adjacent buffer.

Outside the nesting season, gnatcatchers would not be burdened by the obligation to care for eggs or nestlings and would be able to avoid areas of human presence if they became irritated by construction noise. As no vegetation would be removed, impacts outside the nesting season would be temporary and less than significant.

- **American badger**. This species was documented in the Puente Hills Preserve in 2006 near Colima Road. It is designated as a Species of Special Concern by CDFW and is known to utilize open habitats with friable soils. Habitat for this species is suitable in the buffer area and while it has a high potential to occur in the buffer area, the project site itself is paved or has highly compressed soil that is not conducive to digging and is surrounded by a chain link fence that would hinder (but not prevent) the species from getting on site. Direct impacts to this species due to utilizing the buffer area are not expected as project activities would be limited to the developed and disturbed project site with minimal incursion into the buffer area only if absolutely necessary. Potential impacts would be less than significant.
- **Bats (multiple species).** Acoustic bat surveys conducted in 2004 and 2011 detected eleven species of bats in the Puente Hills Preserve in the vicinity of the study area (Remington, 2011). These species include western mastiff bat (*Eumops perotis*, California Species of Special Concern), pocketed free-tailed bat (*Nyctinomops macrotis*, California Species of Special Concern), big free-tailed bat (*Nyctinomops macrotis*, California Species of Special Concern), Mexican free-tailed bat (*Tadarida* brasiliensis), pallid bat (*Antrozous pallidus*, California Species of Special Concern), big brown bat (*Eptesicus fuscus pallidus*), western red bat (*Lasiurus blossevillii*, California Species of Special Concern), hoary bat (*Lasiurus cinereus*), southern yellow bat (*Lasiurus xanthinus*, California Species of Special Concern), California myotis (*Myotis californicus*), yuma myotis (*Myotis yumanensis*), and western pipistrelle (*Parastrellus hesperus*). Species that utilize rock crevices and cavities (western mastiff, all free-tailed bats, pallid bat, western pipistrelle, and both myotis species) are not likely to occur in the site due to the lack of suitable roosting habitat. Tree-roosting species (big brown bat and *Lasiurus* species) may utilize the eucalyptus in the buffer area, but these species have multiple roosts and are often transient in roost occupation. No eucalyptus is anticipated to be directly impacted by project activities and noise is unlikely to affect any of the eleven species given the current levels of human presence at the site due to utilization by staff. Potential impacts would be less than significant.

- **Mountain lion**. The California Fish and Game Commission received a petition on June 25, 2019 to list an evolutionarily significant unit (ESU), comprised of six populations of mountain lion in southern and central California, as threatened or endangered under the CESA. The California Fish and Game Commission's determination on the status of the species is currently pending. Until the determination is made, the mountain lion is granted "candidate" status, and receives protection as though it were listed under the CESA. Mountain lions require large areas of relatively undisturbed habitats with adequate connectivity. They have large home ranges that include heterogenous habitats that often consist of pine forests, riparian and oak woodlands, streams, chaparral, and grasslands. Typical home ranges for mountain lions in southern and central California are approximately 150 square miles for adult males and 65 square miles for adult females. Potential direct impacts to mountain lions are not expected. The project site is developed and occurs close to residential areas. Potential impacts to native habitat surrounding the project site that could be part of a mountain lion home range would be avoided or minimal and temporary, and would therefore be less than significant.
- **Coastal whiptail**. This species is identified by CDFW as SSC. It is found in arid habitats with sparse vegetation and was documented in the buffer area in 2017 approximately 50 feet northwest of the project site. Habitat for this species is suitable in the buffer area and the chain link fence that surrounds the site would not preclude this species from traveling across the site during construction activities, but the site itself is unsuitable for anything but transient use. Incidental impacts could occur during construction activities to individuals that cross the project site, or if the surrounding buffer area is encroached upon during activities. Potential impacts would be less than significant.
- **Coast horned lizard**. This species is found in a variety of habitats and utilizes loose soil for burrowing, open areas for sunning, shrubs for cover, and ants and other insects for foraging. This species was documented in Sycamore Canyon in 1960 approximately 2.5 miles northwest of the site. Habitat for this species is suitable in the buffer area and the chain link fence that surrounds the site would not preclude this species from traveling across the site during construction activities, but the site itself is unsuitable for anything but transient use. Incidental impacts could occur during construction activities to individuals that cross the project site, or if the surrounding buffer area is encroached upon during activities. Potential impacts would be less than significant.
- **Coastal cactus wren**. This species is found in coastal scrub communities through southern California, requiring *Opuntia* and other spiny plant species for nesting habitat. While this species was not detected during field reconnaissance and has not been documented in the buffer area, habitat in the buffer area is marginally suitable for this species whereas habitat on site is not suitable. As a result, it has moderate potential to occur in the buffer area only and is not expected to occur within the project site. Direct impacts to individuals using the disturbed coastal scrub in the buffer area are not expected as project activities would occur outside of the nesting season, and be limited to the developed and disturbed project site, with minimal incursion into the buffer area. Indirect impacts (e.g., noise, dust) could result from project activities and would be considered significant if occurring during the nesting season.

  While common birds are not designated as special status species, destruction of their eggs, nests, and nestlings is prohibited by federal and state law. The vegetation present adjacent to the project site could provide nesting habitat for common resident birds that were observed during the field survey. Typical bird nesting season is generally February 15 through August 30, though starting as early as January 1 for raptors. Raptor nesting potential does not occur within the project site; outside of the project footprint, the project could indirectly (e.g., construction

noise and motion) affect nesting of these species, and potential impacts, due to being indirect and temporary, would be less than significant.

The mitigation measures for biological resources are applicable to all of the species discussed above, as follows:

- Mitigation Measure BIO-1, *Worker Environmental Awareness Program*, would educate workers on the sensitive wildlife species and their respective habitat, including coastal scrub habitat in the buffer area.
- Mitigation Measure BIO-2, *Native Habitat Fencing*, requires temporary construction fencing be installed between the project work area and native habitat in the adjacent areas, and maintained for the duration of construction, to avoid direct impacts to habitat from construction activities, including but not limited to incidental pedestrian traffic.
- Mitigation Measure BIO-3, *Minimization of Native Habitat Impacts*, would be implemented as necessary to address construction activities that unavoidably encroach into coastal sage scrub habitat on Habitat Authority land adjacent to the project work area, and requires coordination with the Habitat Authority to minimize temporary disturbance within coastal sage scrub habitat. This mitigation measure is most applicable to replacement of the existing perimeter fence around the project site, as portions of the existing fence are within coastal sage scrub habitat.
- Mitigation Measure BIO-4, *Construction Material Storage to Prevent Leaks and Spills,* includes requirements for the handling, use, and storage of potentially hazardous materials to prevent accidental spills or leaks that could result in direct or indirect impacts to biological resources.
- Mitigation Measure BIO-5, *Construction Best Management Practices,* identifies a suite of BMPs that are required during construction activities, and include requirements to delineate the work area, minimize fugitive dust, avoid accidental spills, minimize noise and emissions from engine idling, and avoid direct and direct impacts to biological resources during construction.
- Mitigation Measure BIO-6, *Pre-Construction Nesting Bird Surveys,* requires that to the extent practicable, project activities would not occur during the migratory bird breeding season between January and September, and that if project activities during that timeframe are unavoidable, a pre-construction nesting bird survey will be performed, and the result of the pre-construction survey will inform construction monitoring activities to minimize potential conflicts with the MBTA and CFGC.
- Mitigation Measure BIO-7, *Pre-Construction Presence/Absence Survey for Special Status Species,* requires that a pre-construction survey is conducted of the project site and a 500-foot buffer area around the project site prior to any ground-disturbing activities, to determine the presence/absence of special status species, and temporarily move individuals outside of the work area, as needed. In addition, temporary barriers would be established around the work area to prevent individuals from entering the work area, and to avoid construction workers inadvertently entering protected habitat areas.
- Mitigation Measure BIO-8, *Biological Construction Monitoring,* requires that a biological monitor is present during all project-related ground-disturbing activities, including site preparation, vegetation trimming, fence replacement, and project implementation, as well as post-construction activities to repair the access road and return the site surfaces to pre-construction conditions. The biological monitor would have the authority to halt project activities as needed to avoid direct impacts to special status species.

- Mitigation Measure BIO-9, *Night Construction and Lighting,* requires that, should nighttime construction become necessary, any associated lighting would be positioned to avoid glare or spillover onto adjacent properties, thereby avoiding nighttime light nuisance to local wildlife.

Mitigation Measures

The mitigation measures summarized above are presented in full below, and would be implemented to reduce or avoid potential direct and indirect impacts of the proposed project to species identified as candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

BIO-1 Worker Environmental Awareness Program

Prior to initiation of all construction activities (including staging and mobilization), all personnel associated with project construction shall attend a Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to assist workers in recognizing special status biological resources which may occur in the study area. This training will include information about nesting birds and the special status species potentially occurring in the study area.

The specifics of this program shall include identification of special status species and habitats, a description of the regulatory status and general ecological characteristics of special status resources, and review of the limits of construction and measures required to avoid and/or minimize impacts to biological resources within the work area. A fact sheet conveying this information shall also be prepared for distribution to all contractors, their employees, and other personnel involved with construction of the project. All employees shall sign a form provided by the trainer documenting they have attended the WEAP and understand the information presented to them. The crew foreman shall be responsible for ensuring crew members adhere to the guidelines and restrictions designed to avoid impacts to special status species. If new construction personnel are added to the project, the crew foreman shall confirm the new personnel receive the WEAP training before starting work. The subsequent training of personnel can include a video recording of the initial training and/or the use of written materials rather than in-person training by a biologist.

BIO-2 Native Habitat Fencing

Prior to project mobilization, where the project is adjacent to native habitat, temporary construction fencing shall be erected by the contractor at the edge of the temporary construction area to avoid impacts to the habitat throughout the duration of construction. If complete avoidance is not feasible, impacts shall be minimized as described in Mitigation Measure BIO-3.

BIO-3 Minimization of Native Habitat Impacts

If encroachment into coastal sage scrub habitat on Habitat Authority land cannot be avoided, particularly during fence replacement, areas of temporary disturbance within it shall be coordinated with the Habitat Authority and minimized to the extent practicable. Staging and parking areas shall be limited to the project's staging area located in an entirely paved and fenced area where Ocean View Avenue terminates at the Murphy Pump Station. If removal of coastal sage scrub vegetation is necessary during excavation and/or grading, the topsoil (top six inches) shall be salvaged and stored in temporary stockpiles and replaced following completion of excavation/grading activities. The impact area will also be planted with locally-sourced native vegetation and/or a native seed mix to restore the site, in coordination with Habitat Authority staff. Restoration shall follow policies found

on HabitatAuthority.org or as otherwise agreed to. Coordination with the California Department of Fish and Wildlife may also be conducted.

BIO-4 Construction Material Storage to Prevent Leaks and Spills

Materials and equipment (when not in use) shall be stored on impervious surfaces or plastic ground covers to prevent spills or leakage. Material storage and material/spoils from project activities shall be located and stored 100 feet from waterways. Adequate spill prevention and response equipment shall be maintained on site and readily available to implement to minimize impacts to native habitats. Construction materials and spoils shall be protected from stormwater runoff using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.

BIO-5 Construction Best Management Practices

To avoid and/or minimize potential direct and indirect impacts to special status species and native habitats on or adjacent to the project site, the following Best Management Practices (BMPs) shall be implemented:

a. Prior to project mobilization, all limits of construction work shall be clearly delineated with orange construction fencing or similar highly visible material and maintained throughout the duration of construction.
b. Off-site tracking of loose construction and landscape materials shall be prevented by implementing street sweeping, vacuuming, and rumble plates, as appropriate.
c. Site washout areas shall be at least 100 feet from a storm drain, open ditch, or surface water and prevent runoff flows from such activities from entering receiving water bodies.
d. All vehicles and equipment shall be in good working condition and free of leaks. The contractor shall prevent oil, petroleum products, or any other pollutants from contaminating the soil or entering a watercourse (dry or otherwise). When vehicles or equipment are stationary, mats or drip pans shall be placed below vehicles to contain fluid leaks.
e. Fugitive dust from ground disturbance activities shall be minimized using water trucks and covering of soil stockpiles.
f. A speed limit of 15 mph for construction vehicles shall be implemented on unpaved non-public roads.
g. Engine idling will be avoided to minimize noise.
h. All food related trash shall be disposed of in closed containers and removed from the project site each day during the construction period. Construction personnel shall not feed or otherwise attract wildlife to the construction area. At project completion, all project-generated debris, vehicles, building materials, and rubbish shall be removed from the project site.
i. Pets and firearms shall not be allowed on the project site during construction.
j. Sound walls shall be implemented to minimize impacts to sensitive species on site or in the buffer area

BIO-6 Pre-Construction Nesting Bird Surveys

To avoid disturbance of nesting and special status birds, including raptor species, protected by the MBTA and CFGC 3503, activities related to the project including, but not limited to, vegetation removal, ground disturbance, and construction and demolition shall occur outside of the bird

breeding season (typically February 15 through August 30, and as early as January 1 for raptors, though dependent upon annual climatic factors), if practicable.

If construction must begin during the breeding season, then a pre-construction nesting bird survey shall be conducted no more than seven days prior to initiation of ground disturbance and vegetation removal activities. The nesting bird pre-construction survey shall be conducted on foot inside the project footprint, including a 100-foot buffer (300 feet for raptors), and in inaccessible areas (e.g., private lands) from afar using binoculars to the extent practicable. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in southern California coastal communities, including coastal California gnatcatcher. If nests are found, an avoidance buffer (dependent upon the species, the proposed work activity, and existing disturbances associated with land uses outside of the site) shall be determined and demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground-disturbing activities shall occur inside this buffer until the avian biologist has confirmed breeding/nesting is completed, and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist.

Results of the pre-construction survey(s) and any monitoring shall be documented in a report provided to the City.

BIO-7 Pre-Construction Presence/Absence Survey for Special Status Species

Within seven days prior to the commencement of ground disturbing activities, a qualified biologist shall be retained to perform a survey for special status species within the project footprint and a 500-foot buffer to determine the presence/absence of these species. The qualified biologist shall temporarily move any identified special status species outside of the construction area, and temporary barriers shall be placed around the construction area, as practicable, to prevent ingress. Construction shall not proceed until the work area is determined to be free of special status species. The results of these surveys shall be documented in a technical memorandum provided to the City.

BIO-8 Biological Construction Monitoring

A qualified biological monitor shall be present during initial ground disturbing activities, vegetation removal, and construction perimeter fence installation to confirm impacts to special status wildlife species are avoided. The monitor shall have the authority to halt construction activities to avoid potential impacts to special status species. The results of biological monitoring shall be documented in daily logs and a technical memorandum to be provided to the City at project completion.

BIO-9 Night Construction and Night Lighting

Night-time construction shall be avoided and is currently not anticipated. If construction must occur at night for safety reasons (between dusk and dawn), all lighting will be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties and to reduce impacts on local wildlife.

Significance after Mitigation

With implementation of Mitigation Measures BIO-1 through BIO-9, potential impacts of the proposed project to special status species would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Plant communities are considered sensitive biological resources if they have limited distributions, have high wildlife value, include sensitive species, or are particularly susceptible to disturbance. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences. The project site does not support vegetation and does not contain riparian habitat or other sensitive natural communities. The buffer area surrounding the project footprint contains coastal scrub habitat that is previously disturbed and not considered a sensitive natural community by CDFW, although it is a native habitat on Habitat Authority land and provides suitable habitat for coastal California gnatcatcher (as discussed above). The buffer area would be avoided during construction activities to minimize potential for disturbance and is not anticipated to be impacted by construction. The project would have no impact on sensitive natural communities and no mitigation is required.

NO IMPACT

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No state or federally protected wetlands or other water features that may be considered jurisdictional by the CDFW, USACE, or Regional Water Quality Control Board (RWQCB) are mapped (USFWS 2021c) or were documented on the site or in the 500-foot buffer area during the reconnaissance survey. Therefore, the project would have no impact on state or federally protected wetlands, or other jurisdictional waters and no mitigation is required.

NO IMPACT

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?

The project site is located in the Puente Hills Preserve which is mapped by the California Essential Habitat Connectivity project as a Natural Landscape Block but is not mapped as an essential connectivity area. However, the Puente Hills Preserve forms a part of the locally recognized Puente-Chino Hills wildlife corridor that provides connectivity across the Puente and Chino Hills and into the Santa Ana Mountains. The areas surrounding the project site are permeable to wildlife, but the project site is located in a developed facility and would not expand the current developed footprint. Staging and parking areas are located on the existing driveway and Ocean View Avenue and are fenced in. During construction, it is possible that wildlife may avoid the project site due to increased noise and human presence; however, the surrounding open space and existing fencing already facilitates wildlife movement around the project site. Given the existing fencing surrounding the site and staging areas, which limits use of the site by wildlife, the site does not significantly contribute to a wildlife corridor or linkage and does not function as a native wildlife nursery site. Therefore, potential impacts to wildlife movement would be less than significant and no mitigation is required.

LESS THAN SIGNIFICANT IMPACT

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

The following policies from the City of Whittier General Plan (City of Whittier 2021) are relevant for biological resources and the project:

- Resource Management (RM) 1.1: Preserve open space with a diversity of habitats and plants native to Whittier while balancing the community's recreational, scientific, economic, educational, and scenic needs;
- RM 1.2: Promote native habitat preservation within the Puente Hills Preserve, including efforts to restore native vegetation damaged due to overuse or wildfire;
- RM 1.3: Control invasive and non-native vegetation in natural open space areas;
- RM 1.4: Encourage preservation of continuous open space that promotes movement of wildlife, such that wildlife corridors are maintained and/or reestablished;
- RM 1.5: Team with landowners and wildlife agencies to promote sustainable land use and reduce impacts to the environment and wildlife habitats;
- RM 1.7: Continue collaborations with Los Angeles County and natural resource agencies for evaluating proposed developments in areas adjacent to and within sensitive habitats of Whittier, including the Puente Hills, with an aim to reduce impacts to ecosystem services and wildlife habitat.

The project does not propose to expand the current facility's footprint into the Puente Hills Preserve open space that is preserved and managed by the Habitat Authority and so would not adversely impact preservation of important ecological resources. Coordination with the Habitat Authority as the adjacent landowner has occurred as part of project design and will continue during implementation. Therefore, the project would not conflict with local policies or ordinances. No impacts related to local policies or ordinances are anticipated.

NO IMPACT

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?

The project site and the City of Whittier are not subject to any Habitat Conservation or Natural Community Conservation Plans or approved local, regional, or state habitat conservation plans. Therefore, the project would not conflict with any adopted plans and no mitigation is required.

NO IMPACT

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5 Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	■
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	■	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	■	☐

A Cultural Resources Technical Report was prepared for the proposed project and is included as Appendix C to this document. This report, which was used to inform the impact analysis provided below, provides detailed background information regarding eligibility of the existing reservoirs for listing in the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR), or as a City of Whittier Landmark, including the criteria used to consider eligibility. The technical report also documents the results of an intensive pedestrian field survey of the project site that was conducted on August 19, 2021 and used to inform the analysis provided herein.

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Initially developed in 1955, the Murphy Reservoirs site consists of a series of utilitarian reservoir structures and an associated building; the Murphy Reservoirs are recommended as ineligible for listing in the NRHP, the CRHR, or as a City of Whittier Landmark under any applicable criteria.

Generally, water conveyance-related properties may be considered eligible under NRHP Criterion A/CRHR Criterion 1 if they are associated specific important events (e.g., first long-distance transmission of hydroelectric power) or important patterns of events (e.g., development of irrigated farming) (JRP Historical Consulting Services and Caltrans 2000:93). Archival research indicates the Murphy Reservoirs were one of at least five projects completed as a result of the 1953 bond measure passed by the City to update its water systems, indicating the Murphy Reservoirs is not a unique project. Development of the existing Murphy Reservoirs was part of the gradual expansion of the city's water infrastructure system since its inception at the turn of the twentieth century; as such, this expansion was due to population growth within the community and the increasing need for a reliable water system. The existing Murphy Reservoirs do not appear to be significant within the context of water conveyance systems, or any other event or pattern of events in the history of the county, region, state, or nation (NRHP Criterion A/CRHR Criterion 1/City of Whittier Criterion E).

Archival research failed to identify any individuals associated with the Murphy Reservoirs which can be considered important within the history of the county, region, state, or nation (NRHP Criterion B/CRHR Criterion 2/City of Whittier Criterion B).

Furthermore, water conveyance features may be considered eligible under NRHP Criterion C/CRHR Criterion 3 if they are determined to consist of the earliest, sole surviving, largest, or best-preserved example of a particular type of water conveyance system or a property which introduced a design innovation or evolutionary trend in engineering (JRP Historical Consulting Services and Caltrans 2000:94). The Murphy Reservoirs do not meet these criteria because water storage and distribution reservoirs are of common design, and there is no evidence suggesting the Murphy Reservoirs represented any particular engineering achievement at the time it was constructed. In addition, the reservoirs' design as simple concrete-lined structures does not represent an example of a master's work. Therefore, the existing Murphy Reservoirs are not significant for architecture (NRHP Criterion C/CRHR Criterion 3/City of Whittier Criteria A, C-D, and F-I).

Lastly, the results of the cultural resources records search or research conducted as part of this evaluation did not reveal anything suggesting the Murphy Reservoirs has the potential to yield important information (NRHP Criterion D/CRHR Criterion 4). The proposed project would not result in impacts resulting from a substantial adverse change in the significance of a historical resource pursuant to §15064.5.

NO IMPACT

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

As discussed in the Cultural Resources Technical Report (Appendix C), if it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. PRC Section 21083.2(g) defines "unique archaeological resource" as an artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Criterion 1: Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
- Criterion 2: Has a special and particular quality such as being the oldest of its type or the best available example of its type
- Criterion 3: Is directly associated with a scientifically recognized important prehistoric or historic event or person

The project site is previously disturbed and fully developed, which minimizes potential to encounter previously undisturbed archaeological resources. Rincon contacted the NAHC on June 23, 2021, to request a SLF search and a contact list of Native Americans culturally affiliated with the project site. Staff at the South Central Coastal Information Center (SCCIC) completed the CHRIS records search on June 22, 2021. A pedestrian field survey of the project site was completed on August 19, 2021, and included evaluation of the potential for previously undisturbed resources to be present. Based on this evaluation, including the results of the SCCIC records search, negative SLF search, background research, and archaeological field survey, there are no known archaeological resources in the project site, and due to the existing site development, there is no visibility of undisturbed ground surface on the project site.

As discussed in the technical report included as Appendix C, one cultural resource identified as Resource P-19-003341 (Fulton and Fulton 2004) exists in the project area, and consists of oil well pads, pipeline remnants, well markers, and access roads associated with the Whittier Oil Field. The Primary Record for resource P-19-003341 does not have the resource features locations mapped, so the exact locations of the features in relation to the project site are unknown. Recent and historical aerial photographs reveal there are multiple graded dirt roads in the vicinity of the project site, but it is unknown if these are associated with P-19-003341. No components as described in the Primary Record for resource P-19-003341 were observed within or immediately adjacent to the project site, and it appears that the small portion of the boundary for P-19-003341 that overlaps with the project site was arbitrarily drawn, and the actual oilfield and associated features are not actually located within the project site. Furthermore, the project consists of upgrading and existing water conveyance system and will not alter the existing setting or have any impact on features associated with resource P-19-03341.

In the event that unanticipated cultural resources or human remains are encountered during ground-disturbing activities associated with the project, work in the immediate area must halt and appropriate evaluation and treatment procedures implemented. The mitigation presented below is recommended, to require that evaluation and procedures are implemented appropriately, if necessary, such that potential impacts would be minimized or avoided. However, as discussed above, and due to previous disturbance at the project site and the characteristics of subsurface material including bedrock, it is highly unlikely that previously undisturbed resources or human remains would be encountered during project construction.

Mitigation Measures

CR-1 Unanticipated Find of Archaeological Resources

In the event that unanticipated cultural resources are encountered during ground-disturbing activities associated with the project, work in the immediate area must halt and appropriate evaluation and treatment procedures implemented. An archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) must be contacted immediately to evaluate the find. If the discovery proves to be eligible for listing in the NRHP or the CRHR, additional work may be warranted, such as data recovery excavation and Native American consultation to treat the find.

CR-2 Unanticipated Find of Human Remains

If human remains are unexpectedly encountered during project implementation, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the unlikely event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance.

Significance after Mitigation

With implementation of Mitigation Measure CR-1 to address unanticipated find(s) of archaeological resources, and Mitigation Measure CR-2 to address unanticipated find(s) of human remains, potential impacts of the proposed project associated with archaeological resources would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Would the project disturb any human remains, including those interred outside of formal cemeteries?

There are no formal cemeteries on or near the project site, and the project would not disturb any human remains within a formal cemetery. Outside of formal cemeteries, human remains may exist nearly anywhere characterized by undisturbed conditions, or areas undisturbed by previous or existing development. The project site is developed with the existing Murphy Reservoirs, and substantial ground disturbance occurred to implement the existing development, including excavations for the access road and foundations. Due to this previous ground disturbance, and the fact that the project would occur within the existing disturbance area, it is considered highly unlikely that project activities would disturb human remains.

However, if human remains are unexpectedly encountered, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the unlikely event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance. These procedures are regulatory requirements, and do not constitute mitigation for the proposed project. As mentioned, it is considered highly unlikely that the project would disturb human remains; however, if such remains are encountered, the project would be conducted in compliance with existing regulatory requirements, and potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

6 Energy

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	■	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	■

California is one of the lowest per capita energy users in the United States, ranked 50th in the nation, due to its energy efficiency programs and mild climate. California consumed 279,402 gigawatt-hours (GWh) of electricity and 13,158 million therms of natural gas in 2019 (California Energy Commission [CEC] 2021a). The single largest end-use sector for energy consumption in California is transportation (39 percent), followed by industry (23 percent), commercial (19 percent), and residential (19 percent) (United States Energy Information System [USEIA] 2019). Most of California's electricity is generated in-state with approximately 30 percent imported from the northwest and southwest in 2017. In addition, approximately 30 percent of California's electricity supply comes from renewable energy sources, such as wind, solar photovoltaic, geothermal, and biomass (CEC 2021a).

To reduce statewide vehicle emissions, California requires that all motorists use California Reformulated Gasoline, which is sourced almost exclusively from in-state refineries. Gasoline is the most used transportation fuel in California with 12.6 billion gallons sold in 2020 and is used by light-duty cars, pickup trucks, and sport utility vehicles (CEC 2021b). Diesel is the second most-used fuel in California with 1.7 billion gallons sold in 2020 and is used primarily by heavy duty-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm equipment, and heavy-duty construction and military vehicles (CEC 2021b). Both gasoline and diesel are primarily petroleum-based, and their consumption releases GHG emissions, including CO_2 and N_2O. The transportation sector is the single largest source of GHG emissions in California, accounting for 40 percent of all inventoried emissions in 2019 (CARB [California Air Resources Board] 2021). Table 5**Error! Not a valid bookmark self-reference.** summarizes the electricity and natural gas consumption for Los Angeles County, in which the project site would be located, and for Southern California Edison (SCE), as compared to statewide consumption.

Table 5 2019 Electricity and Natural Gas Consumption

Energy Type	Los Angeles County	SCE	California	Proportion of SCE Consumption	Proportion of Statewide Consumption[1]
Electricity (GWh)	66,119	80,913	279,401	29%	24%
Natural Gas (millions of therms)	3,048	5,425	13,158	41%	23%

GWh = gigawatt-hours. SCE = Southern California Edison,

[1] For reference, the population of Los Angeles County (10,044,458 persons) is approximately 25 percent of the population of California (39,466,855 persons).

Source: CEC (California Energy Commission) 2021c; CDF (California Department of Finance) 2021

Petroleum fuels are primarily consumed by on-road and off-road equipment in addition to some industrial processes, with California being one of the top petroleum-producing states in the nation (CEC 2021d). Gasoline, which is used by light-duty cars, pickup trucks, and sport utility vehicles, is the most used transportation fuel in California with 15.4 billion gallons sold in 2019 (CEC 2020). Diesel, which is used primarily by heavy duty-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm equipment, and heavy-duty construction and military vehicles, is the second most used fuel in California with 1.8 billion gallons sold in 2019 (CEC 2020).

Table 6 summarizes the petroleum fuel consumption for Los Angeles County, in which the project site would be located, as compared to statewide consumption.

Table 6 2020 Annual Gasoline and Diesel Consumption

Fuel Type	Los Angeles County (gallons)	California (gallons)	Proportion of Statewide Consumption[1]
Gasoline	2,770	12,572	22%
Diesel	299	1,744	17%

[1] For reference, the population of Los Angeles County (10,044,458 persons) is approximately 25 percent of the population of California (39,466,855 persons) (California Department of Finance 2021).

Source: CEC 2021c

Energy consumption is directly related to environmental quality in that the consumption of nonrenewable energy resources releases criteria air pollutant and GHG emissions into the atmosphere. The environmental impacts of air pollutant and GHG emissions associated with the project's energy consumption are discussed in detail in Section 3, **Error! Reference source not found.**, and Section 8, **Error! Reference source not found.**, respectively.

a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

The proposed project would use nonrenewable resources as detailed in the following subsections. Project-specific information and the CalEEMod outputs for the air pollutant and GHG emissions modeling (Appendix A) were used to estimate energy consumption associated with the proposed project.

Construction Energy Demand

The project would require various construction activities, including demolition, site preparation, grading, reservoir modifications, and site restoration. During project construction, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, and vehicles used to deliver materials to the site. As shown in Table 7, project construction would require approximately 3,778 gallons of gasoline and approximately 24,372 gallons of diesel fuel. These construction energy estimates are conservative because they assume that the construction equipment used in each phase of construction is operating every day of construction.

Table 7 Estimated Fuel Consumption during Construction

	Fuel Consumption (gallons)	
Source	**Gasoline**	**Diesel**
Construction Equipment and Hauling Trips	–	24,372
Construction Worker Vehicle Trips	3,778	–

See Appendix D for energy calculation sheets.

Energy use during construction would be temporary in nature, and construction equipment used would be typical of similar-sized construction projects in the region. In addition, construction contractors would be required to comply with the provisions of California Code of Regulations Title 13 Sections 2449 and 2485, which prohibit diesel-fueled commercial motor vehicles and off-road diesel vehicles from idling for more than five minutes and would minimize unnecessary fuel consumption. Construction equipment would be subject to the USEPA Construction Equipment Fuel Efficiency Standard, which would also minimize inefficient, wasteful, or unnecessary fuel consumption. These practices would result in efficient use of energy necessary to construct the project. In the interest of cost-efficiency, construction contractors also would not utilize fuel in a manner that is wasteful or unnecessary. Overall, construction of the project would be temporary and typical of similar projects. Therefore, the project would not involve the inefficient, wasteful, and unnecessary use of energy during construction, and the construction-phase impact related to energy consumption would be less than significant.

Operational Energy Demand

Operational activities at the project site would resume per existing conditions upon completion of construction. The proposed project would increase the existing storage capacity of the Murphy Reservoirs from 1.0 MG to 2.31 MG, although it would have no effect on water demands or the rate of groundwater production; groundwater would continue to be produced from existing groundwater wells at rates required to satisfy local demands while remaining in compliance with the Adjudication Judgement for the San Gabriel Valley Groundwater Basin (discussed further under threshold (b)). Furthermore, as under existing conditions, water would be released from Murphy Reservoirs and conveyed to customer connections in the city via gravity flow to the maximum extent feasible, thereby minimizing the energy required for water conveyance. Therefore, there would be no net new energy consumption associated with operational activities, and project operation would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources. No impact would occur.

LESS THAN SIGNIFICANT IMPACTLESS THAN SIGNIFICANT IMPACT

b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The City does not have any specific renewable energy or energy efficiency plans with which the project could comply. Therefore, no impact would occur.

NO IMPACT

7 Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. 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?	☐	☐	☐	■
2. Strong seismic ground shaking?	☐	☐	☐	■
3. Seismic-related ground failure, including liquefaction?	☐	☐	☐	■
4. Landslides?	☐	☐	☐	■
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	■	☐
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 on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	■
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	■
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	■
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	■	☐	☐

a. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

a.1. 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?

a.2. Strong seismic ground shaking?

a.3. Seismic-related ground failure, including liquefaction?

a.4. Landslides?

The project site is located in southern California, and is therefore inherently subject to seismic activity and strong ground shaking associated with active and/or potentially active faults. The nearest Alquist-Priolo Fault Zone to the project site is the Elsinore fault zone, located at its closest approximately 0.6 mile to the northeast of the project site (CDOC 2021). The project site is not unusually subject to seismic activity, and the project would not cause or contribute to existing hazards associated with seismic activity and seismic ground shaking.

Seismic-related ground failure including liquefaction, which occurs when the strength of a soil is reduced by intense ground shaking, is typically associated with earthquake events in areas with shallow depth to groundwater. The 2021 EIR for the City of Whittier's General Plan Update (City of Whittier 2021) indicates that the project site is located in area designated as very low susceptibility to liquefaction hazards due to the underlying bedrock. A geotechnical evaluation was prepared for the proposed project (Ninyo & Moore 2021), and confirmed that the site is not located in an area mapped as a potential liquefaction hazard zone. In addition, the geotechnical evaluation documented that the historical high groundwater level at the project site is more than approximately 100 feet below the ground surface, and this depth combined with the fact that the project site is generally underlain by bedrock indicate that liquefaction and liquefaction-related seismic hazards (e.g., dynamic settlement, ground subsidence, and/or lateral spreading) are not design considerations for the project (Ninyo & Moore 2021).

Similarly due to the underlying bedrock, the project site is not designated as a landslide hazard area; the nearest landslide hazard areas to the project site are approximately 1,782 feet to the northwest and approximately 3,172 feet northeast, respectively (CDOC 2021a).

The project would replace existing water supply infrastructure with improved replacement infrastructure; the project is designed and would be constructed in accordance with state and local building codes to reduce the potential for exposure of structures to seismic risks. The project would also be implemented in compliance with the seismic safety requirements in the latest California Building Code (CBC). As reported in the project's geotechnical evaluation (Ninyo & Moore 2021), the replacement reservoir would be supported on a shallow ring foundation founded on bedrock and two-sack cement slurry where needed to transfer the tank's foundation load to the bedrock, and the project will be implemented in accordance with the requirements of governing jurisdictions and applicable codes (Ninyo & Moore 2021). Therefore, the project would not have potential to cause substantial adverse effects, and no impact would occur.

NO IMPACT

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

The project site is previously disturbed and fully developed, such that topsoil is not present and would not be lost as a result of the project. Ground-disturbing activities would occur during project construction, and substantial excavation would occur during removal of the below-grade portions of the existing tanks, and preparation of the bedrock for placement of the replacement tanks. BMPs would be implemented during all ground-disturbing activities, including standard construction BMPs to avoid or minimize soil erosion associated with ground-disturbing activities, such as adherence to requirements provided in the National Pollutant Discharge Elimination System (NPDES) program. Implementation of such BMPs, as discussed further in Section 10, *Hydrology and Water Quality*, would minimize or avoid the potential for soil erosion to occur. Potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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 on- or off-site 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 direct or indirect risks to life or property?

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

As discussed under threshold (a) above, the project site is underlain by bedrock, and is not susceptible to liquefaction or landslide events. Bedrock is not expansive soils, which are clay-based soils that expand as they absorb water and shrink as water is drawn away. The project is a replacement of existing infrastructure, which is not located on unstable soils, and would not cause areas to become unstable. No septic tanks or wastewater disposal systems are included in the proposed project. No impact would occur.

NO IMPACT

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The paleontological sensitivities of the geologic units underlying the project site were evaluated to determine if the proposed project could result in significant impacts to paleontological resources. The analysis was based on the results of an online paleontological locality search and review of existing information in the scientific literature concerning known fossils within geologic units mapped within the project site. Fossil collections records from the Paleobiology Database and University of California Museum of Paleontology (UCMP) online database were reviewed for known fossil localities in Los Angeles County (Paleobiology Database 2021; UCMP 2021). In addition, a request for a list of known fossil localities from the project site and immediate vicinity (i.e., localities recorded on the United States Geological Survey Whittier, 7.5-minute topographic quadrangle) was submitted to the Natural History Museum of Los Angeles County (NHMLAC). Based on the NHMLAC records search and available information contained within existing scientific literature and the UCMP database, paleontological sensitivities were assigned to the geologic units underlying the project site. The potential for impacts to scientifically important paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units.

The Society of Vertebrate Paleontology (SVP) has developed a system for assessing paleontological sensitivity and describes sedimentary rock units as having high, low, undetermined, or no potential for containing scientifically significant nonrenewable paleontological resources (SVP 2010). This system is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present.

The project site is within the "petroliferous" Los Angeles Basin, a northwest-trending lowland plain at the northern end of the Peninsular Ranges Province (California Geological Survey 2002). The site is underlain by Pliocene-age Fernando Formation, including a sandstone facies (Tfs) and a siltstone to claystone facies (Tf); the sandstone facies (Tfs) consists of bedded, fossiliferous, light gray to light brown, fine to coarse grained sandstone with pebble conglomerate and minor gray siltstone, and the siltstone to claystone facies (Tf) is composed of gray, vaguely bedded, commonly finely sandy, micaceous siltstone to clay, with locally think layers of sandstone (Dibblee and Ehrenspeck 2001).

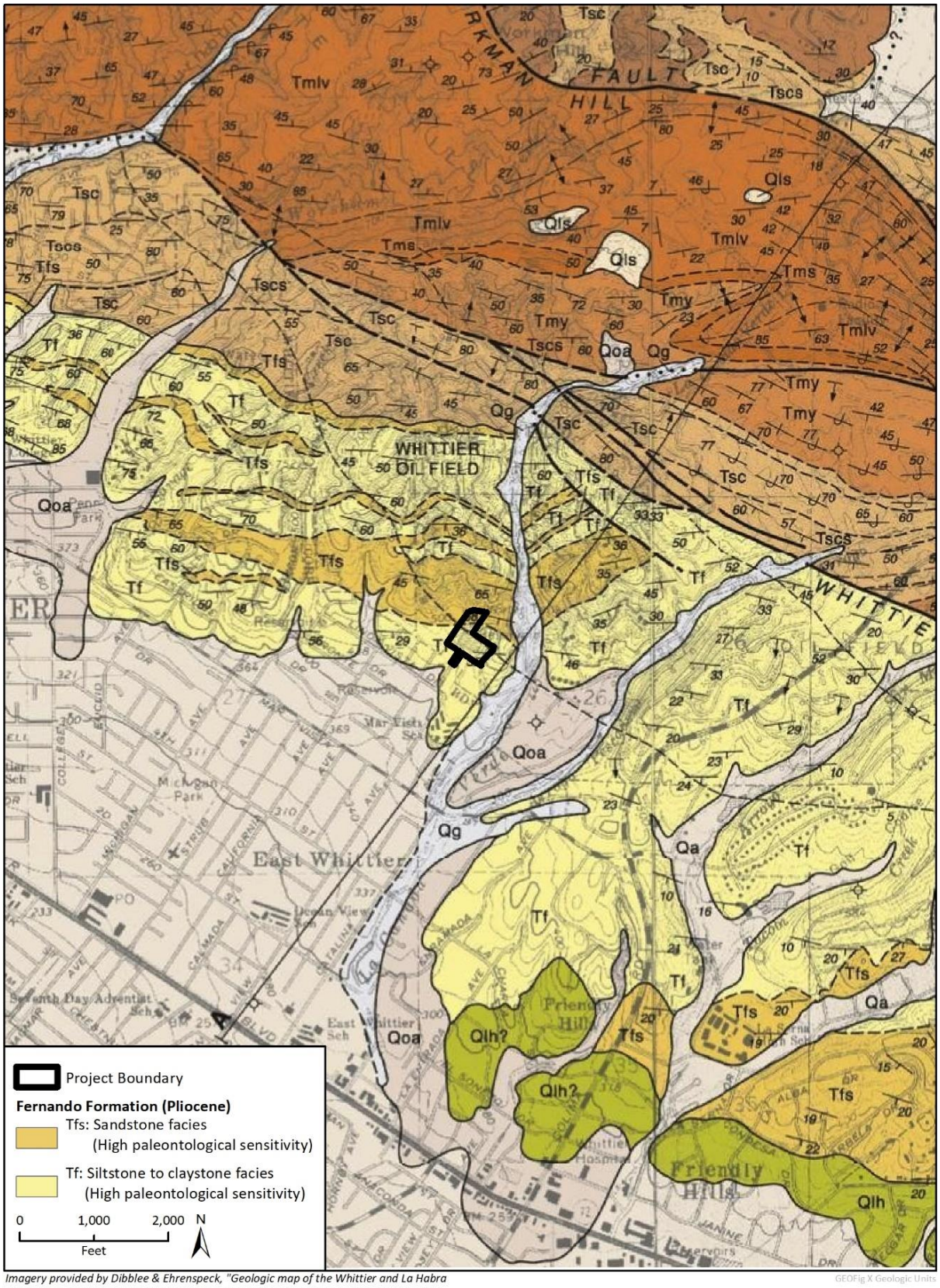
Figure 4 depicts the geologic units mapped within the project site. The project site is underlain by undocumented fill consisting of dark brown, dry to damp, firm, silty clay, to depths of approximately five feet below ground surface. Additionally, Pliocene-age siltstone and claystone facies of the Fernando Formation (Tf); described as light yellowish brown, moist, moderately indurated, oxide staining with white mineral deposits along few surfaces; was documented at depths of approximately five feet below the surface to the bottom of the test pit (10 feet below ground surface) (Tetra Tech, Inc. 2016).

A search of the paleontological locality records at the NHMLAC resulted in no previously recorded fossil localities within the project site. However, several vertebrate fossil localities, which produced specimens from Pliocene Fernando Formation (Tfs, Tf), were recorded less than five miles from the project site. The nearest fossil locality (LACM VP 1897), located approximately 1.5 miles west of the project site, yielded a fossil specimen of toothed whale (Odontceti) at an unspecified depth. In addition, LACM 6350-6362 and 16968-16991, situated approximately four miles north of the project site, yielded fossil specimens of herring (*Ganolytes*), hake (*Merluccius*), rattail (*Coelorhynctus*, *Diaphus*), white shark (*Charcharodon carcharias*), marine mammals (Cetacea), and various invertebrates at depths ranging from 40 to 80 feet below ground surface (Bell 2021).

Pliocene-age sediments from the Fernando Formation have a well-documented record of abundant and diverse vertebrate fauna throughout California. Localities have produced fossil specimens of bird, tapir, camel, and whale in Los Angeles County (Beyer 1995; Paleobiology Database 2021; UCMP 2021). Therefore, Pliocene Fernando Formation (Tfs, Tf) is assigned a high paleontological sensitivity, in accordance with SVP guidelines (2010).

The project site is in an urban area and has been previously developed. However, extensive excavations associated with the replacement reservoir would extend below the boundary between undocumented fill (i.e., previously disturbed sediments) and native (i.e., previously undisturbed) sedimentary deposits of Pliocene-age (i.e., Tfs, Tf). If native/intact sediments or geologic units with a high paleontological sensitivity (i.e., Tf, Tfs) at the shallow subsurface are disturbed, impacts to paleontological resources could occur. Construction activities may result in the destruction, damage, or loss of undiscovered paleontological resources. Potential impacts to paleontological resources would be considered significant under CEQA. Implementation of Mitigation Measure GEO-1 during project construction would reduce potential impacts related to paleontological resources to a less than significant level by providing for the recovery, identification, and curation of previously unrecovered fossils. Impacts would be less than significant with mitigation measures, as presented following Figure 4.

Figure 4 Mapped Geologic Units in the Project Site



Imagery provided by Dibblee & Ehrenspeck, "Geologic map of the Whittier and La Habra quadrangles (western Puente Hills) Los Angeles and Orange Counties, California," 2001.

GEOFig X Geologic Units

Mitigation Measure

GEO-1 Paleontological Resources Mitigation and Monitoring Program

Prior to the commencement of project construction, a qualified paleontological monitor (i.e., a paleontologist who meets the SVP [2010] standards as a Paleontological Resource Monitor) shall be retained to conduct paleontological monitoring during ground-disturbing activities (including, but not limited to site preparation, grading, excavation, and trenching) of native (i.e., previously undisturbed) Pliocene Fernando Formation (Tfs, Tf). Monitoring shall be supervised by a Qualified Paleontologist (i.e., a paleontologist who meets the SVP [2010] standards as a Qualified Professional Paleontologist).

Full-time monitoring shall be conducted for all ground-disturbing activities (e.g., trenching, grading, and excavations) exceeding depths of five feet. These project activities have a high potential of disturbing native (previously undisturbed) paleontologically sensitive deposits (i.e., Pliocene Fernando Formation [Tfs, Tf]). If sedimentary deposits of Pliocene Fernando Formation (Tfs, Tf) are not observed at the full depth of excavations associated with the replacement reservoir, monitoring can be discontinued. Ground-disturbing activities that impact previously disturbed sediments (i.e., undocumented fill) do not require paleontological monitoring.

The duration and timing of the monitoring shall be determined by the Qualified Paleontologist. If the Qualified Paleontologist determines that full-time or part-time monitoring is no longer warranted based on observed geology, he or she may recommend reducing monitoring to periodic spot-checking or may recommend that monitoring cease entirely. Monitoring shall be reinstated if any new ground disturbances of previously undisturbed areas are required, and reduction or suspension shall be reconsidered by the Qualified Paleontologist at that time.

If a paleontological resource is discovered, the monitor shall have the authority to temporarily divert construction equipment around the find until it is assessed for scientific significance and collected. Once salvaged, significant fossils shall be prepared to a curation-ready condition and curated in a scientific institution with a permanent paleontological collection (such as the NHMLAC or UCMP). Curation fees are the responsibility of the project owner.

Significance after Mitigation

With implementation of Mitigation Measure GEO-1, potential impacts of the proposed project associated with paleontological resources would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	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?	☐	☐	■	☐
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	■

Overview of Climate Change and Greenhouse Gases

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. The term "climate change" is often used interchangeably with the term "global warming," but "climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures. The baseline against which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. The global climate is continuously changing, as evidenced by repeated episodes of substantial warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming during the past 150 years.

The United Nations Intergovernmental Panel on Climate Change (IPCC) expressed that the rise and continued growth of atmospheric CO_2 concentrations is unequivocally due to human activities in the IPCC's Sixth Assessment Report (2021). Human influence has warmed the atmosphere, ocean, and land, which has led the climate to warm at an unprecedented rate in the last 2,000 years. It is estimated that between the period of 1850 through 2019, that a total of 2,390 gigatonnes of anthropogenic CO_2 was emitted. It is likely that anthropogenic activities have increased the global surface temperature by approximately 1.07 degrees Celsius between the years 2010 through 2019 (IPCC 2021).

GHGs are gases that absorb and re-emit infrared radiation in the atmosphere. The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Observations of CO_2 concentrations, average global temperature, and sea level rise are generally well within the range of the extent of the earlier IPCC projections. The recently observed increases in CH_4 and N_2O concentrations are smaller than those assumed in the scenarios in the previous assessments. Each IPCC assessment has used new projections of future climate change that have become more detailed as the models have become more advanced.

Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and SF_6 (CalEPA 2006). Different types of GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emitted, referred to as "carbon dioxide equivalent" (CO_2e), which is the amount of GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, CH_4 has a GWP of 30, meaning its global warming effect is 30 times greater than CO_2 on a molecule per molecule basis. N_2O has a GWP of 273 (IPCC 2021).[2]

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHGs, Earth's surface would be about 34° C cooler (CalEPA 2006). However, it is believed that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Some of the potential impacts in California of global warming may include loss of snowpack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CalEPA 2010). While these potential impacts identify the possible effects of climate change at a global and potentially statewide level, in general, scientific modeling tools are currently unable to predict what impacts would occur locally.

Regulatory Framework

In response to climate change, California implemented Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006." AB 32 required the reduction of statewide GHG emissions to 1990 emissions levels (essentially a 15 percent reduction below 2005 emission levels) by 2020 and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. On September 8, 2016, the Governor signed Senate Bill (SB) 32 into law, extending AB 32 by requiring the state to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, the California Air Resources Board (CARB) adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program and the Low Carbon Fuel Standard, and implementation of recently adopted policies and legislation, such as SB 1383 (aimed at reducing short-lived climate pollutants including methane, hydrofluorocarbon gases,

[2] The GWPs from the 2021 IPCC Sixth Assessment Report are provided for informational purposes. CalEEMod and the CARB 2017 Scoping Plan use the 2007 IPCC Fourth Assessment Report GWPs.

and anthropogenic black carbon) and SB 100 (discussed further below). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends local governments adopt policies and locally-appropriate quantitative thresholds consistent with a statewide per capita goal of six metric tons (MT) of carbon dioxide equivalents (CO_2e) by 2030 and two MT of CO_2e by 2050 (CARB 2017).

Methodology

Calculations of carbon dioxide, methane, and nitrous oxide emissions are provided to identify the magnitude of potential project effects. GHG emissions associated with project construction were estimated using CalEEMod, version 2020.4.0, with the assumptions described under Section 3, **Error! Reference source not found.**. In addition, in accordance with the SCAQMD methodology, GHG emissions from construction of the proposed project were amortized over a 30-year period and added to annual operational emissions to determine the project's total annual GHG emissions. Operational emissions were not quantified because, as detailed under ***Error! Reference source not found.***, the project would not result in changes to existing operation and maintenance activities conducted by the District; therefore, no net new operational emissions would be generated by the project.

Significance Thresholds

The majority of individual projects do not generate sufficient GHG emissions to create significant project-specific environmental effects. However, the environmental effects of a project's GHG emissions can contribute incrementally to cumulative environmental effects that are significant, contributing to climate change, even if an individual project's environmental effects are limited (CEQA Guidelines Section 15064[h][1]). The issue of a project's environmental effects and contribution towards climate change typically involves an analysis of whether or not a project's contribution towards climate change is cumulatively considerable. Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines Section 15064[h][1]). According to *CEQA Guidelines* Section 15183.5, projects can tier off of a qualified GHG reduction plan, which allows for project-level evaluation of GHG emissions through the comparison of the project's consistency with the GHG reduction policies included in a qualified GHG reduction plan. This approach is considered by the Association of Environmental Professionals (AEP) in their white paper, *Beyond Newhall and 2020*, to be the most defensible approach presently available under CEQA to determine the significance of a project's GHG emissions (AEP 2016). The City does not have a qualified climate action plan that can be used for project tiering. The next best approach would be to use a quantitative threshold from the local air district. Thus, for the purposes of this analysis, thresholds developed by the SCAQMD are considered to determine the significance of GHG emissions

In guidance provided by the SCAQMD's GHG CEQA Significance Threshold Working Group in September 2010, the SCAQMD's GHG CEQA Significance Threshold Working Group considered a tiered approach to determine the significance of residential and commercial projects. The draft tiered approach is outlined in meeting minutes dated September 28, 2010 (SCAQMD 2010):

- **Tier 1.** If the project is exempt from further environmental analysis under existing statutory or categorical exemptions, there is a presumption of less than significant impacts with respect to climate change. If not, then the Tier 2 threshold should be considered.
- **Tier 2.** Consists of determining whether the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing concept of consistency in CEQA Guidelines Section 15064(h)(3), 15125(d) or 15152(a). Under this Tier, if the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If there is not an adopted plan, then a Tier 3 approach would be appropriate.
- **Tier 3.** Establishes a screening significance threshold level to determine significance. The Working Group has provided a recommendation of 10,000 MT CO_2e per year for industrial projects and 3,000 MT of CO_2e per year for all non-industrial projects
- **Tier 4.** Establishes a service population threshold to determine significance. The Working Group has provided a recommendation of 4.8 MT CO_2e per year for land use projects.

The project would not be statutory or categorically exempt, and therefore Tier 1 does not apply. The City of Whittier does not have a local, qualified GHG reduction plan for the project to tier off, thus Tier 2 would not apply. Therefore, for a project-specific threshold, the City has selected SCAQMD's 3,000 MT CO_2e per year threshold for non-industrial projects as the applicable project-specific threshold, in accordance with Tier 3. The SCAQMD's 3,000 MT CO_2e per year threshold was determined based upon a 90 percent capture rate of GHG emissions (i.e., 90 percent of emissions would occur for projects that exceed the 3,000 MT CO_2e per year threshold, and therefore mitigation is focused upon those projects). In addition, the threshold is frequently used by jurisdictions across southern California to determine GHG emissions impacts from all non-industrial projects.

a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

The SCAQMD has recommended amortizing construction-related emissions over a 30-year period in conjunction with the proposed project's operational emissions.

Construction of the project would result in GHG emissions primarily associated with the use of off-road construction equipment, on-road trucks, and worker vehicles. CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 3, **Error! Reference source not found.**. A detailed depiction of expected construction schedules (including information regarding phasing, equipment used during each phase, truck trips, and worker vehicle trips) assumed for the purposes of emissions estimation is provided in Appendix A. On-site sources of GHG emissions include off-road equipment; off-site sources include trucks and worker vehicles. Table 8 presents construction GHG emissions for the project from on-site and off-site emissions sources.

Table 8 Estimated Construction GHG Emissions

Year	Project Emissions (MT/yr CO_2e)
2022	223
2023	31
Total	254
Total Amortized over 30 Years	**9**
Screening Threshold	3,000
Threshold Exceeded?	**No**

Notes: Emissions modeling was completed using CalEEMod. See Appendix A for modeling results.
MT= metric tons, CO2e = Carbon Dioxide Equivalent, Yr = Year

As shown in Table 8, the estimated total GHG emissions during construction of would be approximately 223 MT CO_2e in 2022 and 31 MT CO_2e in 2023, for a total of 254 MT CO_2e over the construction period. The total amortized construction GHG emission would be approximately 9 MT CO_2e per year. As with project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the project would be short-term in nature, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions.

As detailed under **Error! Reference source not found.** operational activities at the reservoir site would resume per existing conditions upon completion of construction. As stated in Section 6, **Error! Reference source not found.**, the project's energy consumption would not increase during operation and maintenance activities, therefore, GHG emissions wouldn't increase, nor would the project generate new mobile trips. There would be no net new GHG emissions associated with operational activities, either directly or indirectly, that may have a significant impact on the environment.

Therefore, estimated project-generated GHG emissions would be 9 MT CO_2e per year (i.e. new construction emissions amortized over 30 years) and would be below the screening threshold of 3,000 MT of CO_2e per year. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

Several plans and policies have been adopted to reduce GHG emissions in the southern California region, including the State's 2017 Scoping Plan and SCAG's 2020-2045 RTP/SCS. However, these plans are not applicable to the proposed project because the project would not result in changes to existing operation and maintenance activities. Because the proposed project would not result in a significant increase in GHG emissions, it would not conflict with any applicable plans, policies or regulations for the purpose of reducing GHG emissions. Therefore, no impact would occur.

NO IMPACT

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9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	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?	☐	☐	■	☐
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?	☐	☐	■	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☐	☐	■
d. Be located on a site that is included on a list of hazardous material 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?	☐	☐	☐	■
e. For a project located in 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 or excessive noise for people residing or working in the project area?	☐	☐	☐	■
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	■	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	■	☐

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

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?

Construction of the proposed project would temporarily increase the transport and use of potentially hazardous materials associated with the operation of heavy equipment, machinery, and vehicles during project construction. Such materials include diesel fuel, oil, solvents, and other similar materials, which would be brought to the project site for use and staging only in the quantities required to facilitate project construction. These materials are not unusual to the project site or surrounding area, as they are typically associated with common construction equipment and activities such as would occur under the proposed project. In addition, all materials associated with project activities would be transported, handled, used, stored, and disposed of (as applicable) in compliance with applicable laws and regulations, as discussed below.

If an accidental upset or accident condition were to occur during project construction, it is possible that a release of hazardous or potentially hazardous materials into the environment could occur, potentially resulting in adverse impacts. The transport, use, and storage of hazardous materials during construction would be conducted in accordance with applicable federal and State laws, such as the Hazardous Materials Transportation Act, California Hazardous Material Management Act, and California Code of Regulations, Title 22. In addition, these materials would be disposed off-site in accordance with applicable laws pertaining to the handling and disposal of hazardous waste. Due to compliance with applicable laws and regulations, as well the proposed construction materials (including potentially hazardous materials) being common, and only associated with the project's temporary construction period, the potential for an accident or upset condition to occur would be less than significant.

The proposed project would not include the routine transport, use, or disposal of hazardous materials. Upon completion of construction, operational activities at the project site would resume per existing conditions. The existing water storage facilities do not store hazardous materials and there are no plans to store hazardous materials at the site during operation of the new reservoir. As such, operation of the proposed project would not introduce 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 IMPACT

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

The nearest school to the project site is Ocean View Elementary, which is located approximately 0.8 mile to the southwest, in Whittier. Therefore, the project site and off-site staging area are not within 0.25 mile of an existing or proposed school.

As discussed above for thresholds (a) and (b), the types of potentially hazardous materials that would be used during project construction are typical of the proposed construction activities, and are not unusual to the area; the proposed project would not include the use or handling of acutely hazardous materials. In addition, project construction would not emit hazardous emissions, as the only emissions associated with project activities would come from the operation of vehicles and equipment needed to complete construction of the project, which are common to the area and not

considered hazardous or acutely hazardous. In addition, as previously discussed in items (a) and (b), project operation would not involve the storage of hazardous materials. Neither project construction nor operation would adversely impact schools due to the handling of hazardous materials. No impact would occur.

NO IMPACT

d. Would the project be located on a site that is included on a list of hazardous material 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?

Government Code Section 65962.5 requires the California Environmental Protection Agency to develop an updated Cortese List. The California Department of Toxic Substance Control (DTSC) is responsible for a portion of the information contained in the Cortese List. Other state and local government agencies are required to provide additional hazardous material release information for the Cortese List. Based upon review of the SWRCB's GeoTracker database (SWRCB 2021) and the DTSC's EnviroStor database (DTSC 2021), the project site is not included on existing lists of hazardous materials sites compiled pursuant to Government Code Section 65962.5. No impact would occur.

NO IMPACT

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 or excessive noise for people residing or working in the project area?

The airports closest to the project site include the Fullerton Municipal Airport, located approximately seven miles to the south, and the San Gabriel Valley Airport, located approximately eight miles to the northwest. Therefore, the project would not be located in an area covered by an airport land use plan and within two miles of a public or public-use airport. No impact would occur.

NO IMPACT

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Traffic associated with the proposed project is discussed in Section 17, *Transportation,* where potential impacts associated with adequate emergency access are discussed under threshold (d). As discussed therein, all traffic associated with project activities would comply with existing laws and regulations regarding traffic safety and emergency access. As discussed therein, it is possible that temporary lane closures may occur on Ocean View Avenue during construction of the project, if needed to maintain public safety. The project would not impair or interfere with an adopted emergency response or evacuation plan; to the contrary, the project would be implemented in coordination with local agencies and with consideration to the need for maintaining public safety. Potential impacts associated with emergency access and evacuation would be less than significant.

LESS THAN SIGNIFICANT IMPACT

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Wildfire hazards are discussed in Section 20, *Wildfire*. The project would comply with applicable regulations relating to construction in vegetated and forested landscapes, including mandatory use of spark arrestors (Public Resources Code [PRC] Section 4442), maintenance of fire suppression equipment during the highest fire danger period (PRC Section 4428), and adherence to standards for conducting construction activities on days when a burning permit is required (PRC Sections 4427 and 4431). With adherence to these regulatory requirements, construction-related wildfire risks would be less than significant. During operation and maintenance of the project, potential hazards associated with wildland fires would be the same as under existing conditions, as the activities associated with operation and maintenance of the replacement reservoir would be the same as existing conditions. The project would not include housing or other structures which could accommodate occupants, and would not expose people or structures to risk of loss, injury, or death involving wildland fires. Impacts related to wildland fires would be less than significant.

LESS THAN SIGNIFICANT IMPACT

10 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	■	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	■
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) Result in substantial erosion or siltation on- or off-site;	☐	☐	■	☐
(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	■	☐
(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	■	☐
(iv) Impede or redirect flood flows?	☐	☐	■	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	■
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	■

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Water quality may be affected by project activities if project-related ground disturbance and construction activities cause erosion and the conveyance of disturbed soils to receiving waters, or if project activities cause the discharge of pollutants such as equipment fluids and fuels, construction trash, or demolition debris, such that surface water or groundwater quality is directly or indirectly affected. Construction of the proposed project would include substantial ground disturbance to demolish and remove the existing reservoirs, which would be conducted in phases to maintain fire flow service to Zone 577 during construction. This ground disturbance would result in looser, exposed soils, which are more susceptible to erosion. Additionally, spills, leakage, or improper handling and storage of substances such as oils, fuels, chemicals, metals, and other substances from vehicles, equipment, and materials used during project construction could contribute to water quality degradation, particularly if stormwater is allowed to flow across the active construction site.

The federal Clean Water Act authorizes the National Pollutant Discharge Elimination System (NPDES) Program, under which the Construction General Permit is executed by the SWRCB and administered by the nine RWQCBs. In accordance with the Construction General Permit, any construction activity disturbing more than one acre of land is required to comply with a project-specific Stormwater Pollution Prevention Plan (SWPPP) which specifies BMPs to minimize or avoid potentially adverse effects associated with stormwater runoff. Such BMPs may include but are not limited to requirements for equipment inspections, use of designated staging areas for refueling and maintenance, and implementation of erosion control measures such as straw wattles and silt fences to stabilize disturbed soils. It is anticipated ground disturbance associated with project construction will exceed one acre in area, and compliance with the NPDES Program and Construction General Permit Order 2009-0009-DWQ will be required. Accordingly, the proposed project will include a project-specific SWPPP, which the City will file with the SWRCB prior to the start of construction activities. As required, BMPs contained in the SWPPP would serve to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation, and BMPs would be regularly inspected. In addition, Mitigation Measure HWQ-1, presented below, identifies specific BMPs that will be implemented as part of the project's SWPPP, to minimize or avoid potential impacts associated with stormwater runoff and erosion.

Prior to demolition of the existing reservoirs, all water existing in the tanks would be emptied out and discharged into the existing distribution system and/or to Oceanview Reservoir. Similarly, when use of the temporary reservoirs is complete, they will also be emptied into the distribution system prior to removing them. All water contained in the existing reservoirs, the temporary construction reservoirs, and the future replacement reservoir, is chlorinated; no additional permits are needed to empty-out these tanks or discharge the chlorinated water into the existing discharge system (or to Oceanview Reservoir). If chlorinated water stored on site would be used for dust suppression during construction, it will be dechlorinated and discharged pursuant to the Construction General Permit.

Upon completion of construction of the replacement reservoir under the proposed project, the access road from Ocean View Avenue would be improved with drainage control features such as curbs and culverts to guide the flow of surface runoff to the existing drainage system. The access road may be resurfaced as part of this effort; however, the overall footprint of the road would not be revised, such that the road itself would not increase stormwater runoff from the site. Furthermore, following construction of the project, operation and maintenance activities would be the same as under existing conditions, and would not introduce new or revised potential for water quality impacts to occur. As with existing conditions, project operation would not involve storage of

hazardous materials that could infiltrate or degrade surface and groundwater. Therefore, project operation would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

Mitigation Measure

HWQ-1 Erosion Control and Stormwater Pollution Prevention

The best management practices (BMPs) listed below shall be implemented as part of the project construction activities. It is anticipated that the project's disturbance area would exceed one acre, such that the project is subject to the NPDES Construction General Permit's requirement to implement a project specific Stormwater Pollution Prevention Plan (SWPPP), then this mitigation measure would not be necessary, as the SWPPP would require implementation of comparable BMPs. The purpose of this mitigation measure is to ensure that erosion and stormwater control BMPs are implemented regardless of whether the project's disturbance area exceeds one acre.

- Excavation shall be avoided during the rainy season to the extent practicable.
- Silt fencing, straw bales composed of rice straw (that are certified to be free of weed seed), fiber rolls, gravel bags, mulching erosion control blankets, soil stabilizers, and/or storm drain filters shall be used, in conjunction with other methods, to prevent erosion and siltation.
- Temporary stormwater berms and basins, if applicable, shall be implemented and maintained during construction to control the flow of stormwater runoff from leaving the site.
- Temporary stockpiling of excavated material shall be minimized. Excavated material shall be stockpiled in areas where it cannot enter the storm drain system. Available stockpiling sites at the project sites shall be determined prior to the start of construction.
- Upon completion of project construction, all exposed soils present in and around the project site shall be stabilized within seven days. Exposed soils shall be mulched to prevent sediment runoff and transport. All mulches, except hydro-mulch, shall be applied in a layer not less than two inches deep. All exposed soils and fills shall be revegetated with deep-rooted, native, drought-tolerant species to minimize erosion potential. Geotextile binding fabrics shall be used, if necessary, to hold slope soils until vegetation is established.
- An adequate supply of erosion control materials (gravel, straw bales, shovels, etc.) shall be maintained on site to facilitate a quick response to unanticipated storm events or emergencies.

Construction equipment shall be inspected daily for leaks of oil, lubricants, or other potential stormwater pollutants. Plastic shall be placed over any ground surface where fueling or equipment maintenance is to occur. Drip pans shall be placed under equipment parked on site.

Significance after Mitigation

With implementation of Mitigation Measure HWQ-1, potential impacts of the proposed project associated with water quality would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The project site does not overlie a defined groundwater basin, but is located approximately 0.25 mile north of the Central Subbasin of the Coastal Plan of Los Angeles (DWR Groundwater Basin No. 4-011.04). The project would require a water supply during construction, primarily for dust suppression; this temporary water supply would be provided by the City, from existing sources, and would not affect sustainable groundwater management. In addition, the project site is previously disturbed and fully developed by the existing Murphy Reservoirs, such that the site is already characterized by impervious surfaces, and replacement of the existing reservoirs would not substantially alter existing infiltration patterns.

Water to fill the new 2.31-MG reservoir will not affect the wells nearby, or interfere with groundwater recharge. When the replacement reservoir is filled, other City reservoirs connected in Zone 577 (Painter Reservoir) and Zone 464 (Oceanview Reservoir) will initially experience momentary volume adjustments, until the water system equalizes. The City will work closely with the construction contractor to ensure the pressures needed for each zone are met and maintained for the initial filling. A phasing plan will be used to allow for filling of the new reservoir while temporarily shutting off (valving off) the temporary tanks to test and ensure the new reservoir is prepared for operation upon approval by the Division of Drinking Water (DDW).

As discussed in the description of the proposed project, as well as in Section 14, *Population and Housing*, the proposed project is designed to provide a water storage capacity of 2.31 MG, which includes the Zone 577 deficiency of 1.81 MG plus the capacity of Murphy West Reservoir (0.5 MG) due to its being out of service and in need of replacement. Therefore, the proposed project would increase the storage capacity of the existing reservoirs from 1.0 MG to approximately 2.31 MG; however, this increase would not result in increased pumping quantities or intensities. In addition, the project is specifically designed to address the water storage requirements described in the City's WMP Update (City of Whittier 2018) and UWMP (City of Whittier 2021), by providing a replacement reservoir with storage capacity of 2.31 MG. This water would be conveyed by the City from existing sources; the project would not directly consume groundwater.

In addition, as discussed in Section 7, *Geology and Soils,* a geotechnical evaluation was prepared for the project, and documented that the historical high groundwater level at the project site is more than approximately 100 feet below the ground surface (Ninyo & Moore 2021). At this depth, site-specific drainage pattern alterations at the surface would not have potential to affect groundwater resources below the surface, which are also separated from the surface by impermeable bedrock. Furthermore, the site is already fully developed, and the overall footprint of the project site would not be substantially altered. The proposed project would not interfere with groundwater recharge due to changes in infiltration rates or patterns, and would have no effect on sustainable groundwater management of the basin.

The project would not substantially decrease groundwater supplies, and would result in no adverse impact to groundwater supply. No impact would occur.

NO IMPACT

c.(i) 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 through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site?

c.(ii) 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 through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

c.(iii) 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 through the addition of impervious surfaces, in a manner that would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

c.(iv) 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 through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?

The project would not alter the course of any stream or river.

Construction of the project would include ground disturbance to demolish and remove the existing reservoirs, and to install the proposed 2.31-MG replacement reservoir. The project site has previously been entirely disturbed, and is currently fully developed, such that implementation of the proposed project would not substantially increase the overall area of impermeable surface. Project implementation would include drainage control improvements around the replacement reservoir, to guide stormwater flows away from the reservoir foundation thereby avoiding stormwater damage and protecting structural integrity. As discussed above for threshold (a), drainage control improvements would also be installed along the access road from Ocean View Avenue. Also as discussed above for threshold (a), the project would include implementation of BMPs to protect water quality and avoid potentially adverse water quality impacts from project construction.

Although the proposed project would result in site-specific drainage pattern alterations, the project would also include stormwater control features and BMPs to avoid or minimize potentially adverse impacts associated with drainage and stormwater runoff. As mentioned above, the project would not alter the course of any stream or river, and would not substantially increase the extent of impervious surfaces on the project site. Therefore, the project would not impede or redirect flood flows in comparison with existing conditions. Following the completion of construction activities, operation and maintenance of the project would be consistent with existing operation and maintenance activities, and would not introduce new or revised potential for drainage-related impacts to occur. Because the project would not increase stormwater runoff from the site, it also would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems. Potential impacts from the proposed project associated with drainage patterns alterations would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

The project is located in a hilly area and the site is not within a flood hazard area as delineated by the Federal Emergency Management Agency (FEMA). Similarly, the project site is not subject to inundation by a tsunami, and is not located near an enclosed body of water that could result in inundation of the site from a seiche event. The project site is not subject to inundation by flood hazard including from a tsunami or seiche, and the project therefore would not risk release of pollutants due to inundation. No impact would occur.

NO IMPACT

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The project site is located within the jurisdiction of the Los Angeles Region RWQCB, which adopted a combined Water Quality Control Plan ("Basin Plan") for the Santa Clara and Los Angeles Rivers of the Los Angeles Region in 1994 (Los Angeles Region RWQCB 1994). The Los Angeles Region RWQCB conducts triennial (every three years) review of the region's compliance with the Basin Plan, to review water quality standards and solicit public comment on issues the Los Angeles Region RWQCB should address through the Basin Plan amendment process (Los Angeles Region RWQCB 2020). In accordance with SWRCB requirements, the Basin Plan designates beneficial uses of water in the region and establishes narrative and numerical water quality objectives. In addition, the SWRCB has developed total maximum daily load (TMDL) requirements, which are a calculation of the maximum amount of a pollutant a water body can have and still meet water quality objectives established by the region.

The *2020-2022 Triennial Review* of the Los Angeles Region Basin Plan, as informed by the status of the previous triennial review priority projects, stakeholder input, the RWQCB program needs, and available resources, recommended the following list of priority projects for the Los Angeles Region RWQCB (Los Angeles Region RWQCB 2020):

- Complete work on updating the freshwater quality objectives for copper consistent with the Clean Water Act (CWA) Section 303(c) recommended water quality criteria
- Update the Basin Plan's ammonia objectives consistent with the CWA Section 303(c) recommended water quality criteria
- Evaluate the application of sites-specific objectives for lead developed using the USEPA Recalculation Procedure to waterbodies in the region
- Incorporate the tribal and subsistence fishing beneficial use definitions, adopted by the SWRCB through Resolution 2017-0027, into the Basin Plan
- Initiate tribal outreach efforts for potential waterbody-specific designations of the tribal beneficial uses
- Initiate re-evaluation of the Basin Plan's temperature water quality objectives
- Consider any amendments to the Basin Plan's toxicity objectives that may be necessary in response to the Statewide Toxicity Provisions
- Provide support for efforts towards developing region-specific bio-objectives
- Continue to coordinate the development of Salt and Nutrient Management Plans (SNMPs), per the *Statewide Water Quality Control Policy for Recycled Water*, including the incorporation of management measures from the SNMPs into the Basin Plan
- Continue work on developing implementation tools to address natural sources of pollutants

As discussed under threshold (a) above, the proposed project would implement BMPs to avoid or minimize potential temporary, construction-related water quality impacts. The project also includes implementation of site-specific drainage improvements, to facilitate stormwater drainage across and around the project site without resulting in adverse impacts such as erosion and sedimentation that could affect water quality. Operation and maintenance of the project would involve the same activities as present conductions, and would not involve ground disturbance that could contribute to runoff of sediment or sediment-bound pollutants. Therefore, the proposed project would not conflict with or obstruct implementation of a water quality control plan. In addition, as discussed under threshold (b) above, the proposed project would not directly or indirectly impact groundwater supplies; the proposed project would therefore not conflict with or interfere with implementation of a sustainable groundwater management plan. No impact would occur.

NO IMPACT

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11 Land Use and Planning

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	■
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	■	☐

a. Would the project physically divide an established community?

The project includes demolition and replacement of the existing Murphy Reservoirs, and would not alter or physically divide an established community. Existing residential developments within Whittier are located near the project site, but no new or expanded facilities would occur.

NO IMPACT

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Although the City's General Plan does not contain an explicit goal or policy regarding critical facilities such as utilities, the 2021 General Plan Update as well as its 2021 EIR do address geologic hazards associated with the Whittier fault trace. As discussed therein, geologic investigations should be performed for projects within one-half mile of the Whittier fault trace; facilities should be designed for earthquake resistance and to remain fully operational in the event of an earthquake on the Whittier Fault; critical facilities should not be located on areas with high potential for landslide, erosion, liquefaction, flooding, or wildfire; and facilities should be equipped to function independent of other critical facilities (City of Whittier 2021a, City of Whittier 2021b).

The project site is located within approximately 0.55 mile of Whittier Fault which is northeast of the project site within the Elsinore Fault Zone (CDOC 2021b). The project site is also located within a very high fire hazard severity zone (CALFIRE 2020). However, new critical facilities would not be introduced under the project; rather, implementation of the project would include seismic upgrades that are currently lacking in the existing reservoirs. In addition, as discussed in Section 7, *Geology and Soils*, the project would not be located within an area that has been designated as having a high potential for landslide, erosion, or liquefaction. Portions of the project site are located within Zone D, Area of Undetermined Flood Hazard, while the remainder of the project site is not designated as having the potential to flood (FEMA 2008). Therefore, the impact related to conflict with applicable land use plans is less than significant.

LESS THAN SIGNIFICANT IMPACT

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12 Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	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?	☐	☐	☐	■
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?	☐	☐	☐	■

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?

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?

The City's 2021 General Plan Update and associated 2021 EIR state that there is insufficient data to determine if deposits of sandstone and siltstone within the Puente Hills are significant and can be economically mined (City of Whittier 2021a, 2021b). Additionally, the California Geological Survey has not identified significant aggregate resources within the city (City of Whittier 2021b). As there are no known mineral resources within the region, the proposed project would not result in the loss of locally available or important mineral resource recovery. Therefore, no impact to mineral resources would occur.

NO IMPACT

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13 Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	■	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	■	☐
c. For a project located within the vicinity of a private airstrip or 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?	☐	☐	☐	■

Overview of Noise and Vibration

Noise

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (Caltrans [California Department of Transportation] 2013).

HUMAN PERCEPTION OF SOUND

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response. Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; dividing the energy in half would result in a 3 dB decrease (Caltrans 2013).

Human perception of noise has no simple correlation with sound energy: the perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not "sound twice as loud" as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible (8 times the sound energy); and that an increase (or decrease) of 10 dBA sounds twice (half) as loud (10.5 times the sound energy) (Caltrans 2013).

SOUND PROPAGATION AND SHIELDING

Sound changes in both level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in the noise level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line), the path the sound will travel, site conditions, and obstructions.

Sound levels are described as either a "sound power level" or a "sound pressure level," which are two distinct characteristics of sound. Both share the same unit of measurement, the dB. However, sound power (expressed as L_{pw}) is the energy converted into sound by the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers, such as an eardrum or microphone, which is the sound pressure level. Sound measurement instruments only measure sound pressure, and noise level limits are typically expressed as sound pressure levels.

Noise levels from a point source (e.g., construction, industrial machinery, air conditioning units) typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance. Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this "shielding" depends on the size of the object and the frequencies of the noise levels. Natural terrain features, such as hills and dense woods, and man-made features, such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receiver (FHWA [Federal Highway Administration] 2011). Structures can substantially reduce exposure to noise as well. The FHWA's guidance indicates that modern building construction generally provides an exterior-to-interior noise level reduction of 10 dBA with open windows and an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows (FHWA 2011).

DESCRIPTORS

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important factors of project noise impact. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. The noise descriptors used for this study is the equivalent noise level (L_{eq}).

L_{eq} is one of the most frequently used noise metrics; it considers both duration and sound power level. The L_{eq} is defined as the single steady-state A-weighted sound level equal to the average sound energy over a time period. When no time period is specified, a 1-hour period is assumed. The L_{max} is the highest noise level within the sampling period, and the L_{min} is the lowest noise level within the measuring period. Normal conversational levels are in the 60 to 65-dBA L_{eq} range; ambient noise levels greater than 65 dBA L_{eq} can interrupt conversations (FTA [Federal Transit Administration] 2018).

Groundborne Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent buildings or structures and vibration energy may propagate through the buildings or structures. Vibration may be felt, may manifest as an audible low-frequency rumbling noise (referred to as groundborne noise), and may cause windows, items on shelves, and pictures on walls to rattle. Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants at vibration-sensitive land uses and may cause structural damage.

Typically, ground-borne vibration generated by manmade activities attenuates rapidly as distance from the source of the vibration increases. Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared (RMS) vibration velocity. The PPV and RMS velocity are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used as it corresponds to the stresses that are experienced by buildings (Caltrans 2020).

High levels of groundborne vibration may cause damage to nearby building or structures; at lower levels, groundborne vibration may cause minor cosmetic (i.e., non-structural damage) such as cracks. These vibration levels are nearly exclusively associated with high impact activities such as blasting, pile-driving, vibratory compaction, demolition, drilling, or excavation. The American Association of State Highway and Transportation Officials (AASHTO) has determined vibration levels with potential to damage nearby buildings and structures; these levels are identified in Table 9.

Table 9 AASHTO Maximum Vibration Levels for Preventing Damage

Type of Situation	Limiting Velocity (in/sec)
Historic sites or other critical locations	0.1
Residential buildings, plastered walls	0.2–0.3
Residential buildings in good repair with gypsum board walls	0.4–0.5
Engineered structures, without plaster	1.0–1.5

Source: Caltrans 2020

Numerous studies have been conducted to characterize human response to vibration. The vibration annoyance potential criteria recommended by Caltrans are described in Table 10.

Table 10 Vibration Annoyance Potential Criteria

	Vibration Level (in/sec PPV)	
Human Response	Transient Sources	Continuous/Frequent Intermittent Sources[1]
Severe	2.0	0.4
Strongly perceptible	0.9	0.10
Distinctly perceptible	0.25	0.04
Barely perceptible	0.04	0.01

[1] Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

in/sec = inches per second; PPV = peak particle velocity

Source: Caltrans 2020

Project Noise Setting

The reservoirs are located in the city of Whittier within Los Angeles County, south of California State Route 60, east of Interstate 605, and north of State Route 90 (Imperial Highway). The site is surrounded by designated open space lands of the Puente Hills Preserve, which is managed by the Habitat Authority. Figure 1 in the *Project Description* shows the location of the proposed project components, including with respect to the Preserve.

SENSITIVE RECEIVERS

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. According to the SCAQMD, sensitive receptor locations include residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993). Residential land uses are located to the south of the project. The nearest noise-sensitive receivers are single-family homes located approximately 250 feet south of the project site.

Regulatory Setting

Whittier General Plan

The goals and polices of the City's 2021 General Plan Update focus on land use compatibility as it relates to the noise environment. The topic of noise is addressed in the Public Safety, Noise, and Health (PSNH) Element, the purpose of which is to identify and minimize risks associated with natural and human-generated hazards through land use decisions and allocation of City resources (City of Whittier 2021a, 2021b). The PSNH Element acknowledges the need to provide buffering between noise-sensitive land uses and busy roadways and identifies the following goal and policies, which are applicable to the proposed project:

Goal 10: Noise levels community-wide allow residents to enjoy quiet neighborhoods and outdoor activities.

Policy PSNH – 10.3: Control, at their sources, any sounds which exceed accepted community noise levels.

Policy PSNH – 10.6: Enforce Municipal Code noise controls for construction projects.

The PSNH Element of the City's 2021 General Plan Update also includes a figure identified as Figure PSNH-11 (Noise and Land Use Compatibility Guidelines), which highlights the acceptability of noise exposure levels for different land uses; these guidelines are provided in Figure 5, on the following page. The Noise Element indicates projects should incorporate noise mitigation measures if they will exceed normally acceptable levels as defined by the guidelines.

Whittier Municipal Code

To implement the City's noise policies, the City adopted Chapter 8.32 of the City of Whittier Municipal Code that regulates control of noise and vibration. This Chapter was updated in January 2010 and replaced text that prescribed specific noise limits. The current City Municipal Code is more general in nature and does not prescribe specific noise limits.

The City's Municipal Code Section 8.32.040 discusses loud, annoying, and unnecessary noises, and specifically defines horns and signaling devices (section F), erection or demolition of buildings, the grading and excavation of land, the startup and use of heavy equipment (e.g., dump trucks and

graders), and the use of jack hammers. These noises would be in violation of the Municipal Code except on weekdays between the hours of 7:00 a.m. and 6:00 p.m. and on Saturdays 8:00 a.m. to 5:00 p.m. (Section L).

Figure 5 Noise and Land Use Compatibility Guidelines

Land Use Category	Community Noise Exposure Limit (CNEL or DNL, dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential - Low-Density Single-Family, Duplex, Mobile Homes	60	70	75	75+
Residential - Multi-Family	65	70	75	75+
Transient Lodging - Motels, Hotels	65	70	80	80+
Schools, Libraries, Churches, Hospitals, Nursing Homes	70	70	80	80+
Auditoriums, Concert Halls, Amphitheaters	N/A	70	N/A	70+
Sports Arenas, Outdoor Spectator Sports	N/A	N/A	75	75+
Playgrounds, Neighborhood Parks	70	70	75	75+
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75	N/A	80	80+
Office Buildings, Business Commercial and Professional	70	77.5	77.5+	N/A
Industrial, Manufacturing, Utilities, Agriculture	75	80	80+	N/A

Source: City of Whittier 2021a

FTA Transit and Noise Vibration Impact Assessment Manual

The FTA construction noise criteria will be utilized in this project since the City of Whittier does not have a quantitative construction noise threshold. For residential uses, the daytime noise threshold is 80 dBA Leq for an 8-hour period. Table 11 below shows FTA construction noise criteria by land use.

Table 11 Construction Noise Criteria

Land Use	$L_{eq.equip(8hr)}$ Day	dBA Night	$L_{dn\ equip(30day)}$ dBA 30-day Average
Residential	80	70	75
Commercial	85	85	80[1]
Industrial	90	90	85[1]

[1] Use a 24-hour $L_{eq(24hr)}$ instead of $L_{dn.equip(30day)}$.

Source: FTA 2018

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction activity would generate temporary noise in the project site vicinity, exposing surrounding sensitive receivers to increased noise levels. Project construction noise would be generated by heavy-duty diesel construction equipment used for site preparation, grading, building construction, paving activities, and architectural coating. Each phase of construction has a specific equipment mix and associated noise characteristics, depending on the equipment used during that phase. Construction noise would typically be higher during the more equipment-intensive phases of initial construction (i.e., site preparation, and grading work) and would be lower during the later construction phases (i.e., building construction, paving, and architectural coating). Construction noise was estimated using reference noise levels and equipment use factors from the FHWA Roadway Construction Noise Model (RCNM).

Pursuant to the City of Whittier Municipal Code, noise generated by construction activities is exempt from the noise level limits contained in Section 8.32.040 except on weekdays between the hours of 7 a.m. and 6 p.m. and on Saturdays 8 a.m. to 5 p.m. (section L). However, for purposes of analyzing impacts from this project, the FTA *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) criteria were used. The FTA provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction. For residential uses, the daytime noise threshold is 80 dBA L_{eq} for an 8-hour period (FTA 2018).

Noise impacts from construction equipment are typically assessed from the center of the equipment activity area over the time period of a construction day (e.g., construction site, grading area, etc.). The closest sensitive receivers to project construction would be residences approximately 250 feet south of the project site. Due to the size of the project site, modeling conservatively assumes simultaneous operation of a compactor, dozer, and an excavator operating simultaneously during the grading phase. Over the course of a typical construction day, the construction equipment would be mobile and is estimated to operate at an average distance of 560 feet from the nearest sensitive receivers. Therefore, construction noise levels would be approximately 61 dBA L_{eq} at the nearest sensitive receivers, which would not exceed the daytime construction noise threshold of 80 dBA L_{eq} (RCNM calculations are included in Appendix E). Construction noise levels at other nearby sensitive receivers would be less than the noise levels at the nearest sensitive receiver due to distance attenuation. Therefore, construction noise impacts would be less than significant.

Operational noise levels were not evaluated because, as detailed under *Project Description*, the project would not result in changes to existing operation and maintenance activities conducted by the District. As such, no new operational noise levels would be generated by the project. Due to noise from construction activities, potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Project construction would not involve activities typically associated with excessive groundborne vibration such as pile driving or blasting. The equipment utilized during project construction that would generate the highest levels of vibration would include rollers, loaded trucks, and bulldozers. The City of Whittier has not adopted standards to assess vibration impacts during construction and operation. However, Caltrans has developed limits for the assessment of vibrations from transportation and construction sources. The Caltrans vibration limits are reflective of standard practice for analyzing vibration impacts on structures from continuous and intermittent sources. The thresholds of significance used in this analysis to evaluate vibration impacts are based on these impact criteria, as summarized in Table 9 and Table 10.

Project construction may require operation of vibratory equipment such as vibratory rollers and bulldozers within 250 feet of the residential homes during the construction phase. As shown in Table 12, vibration levels from individual pieces of construction equipment would not exceed the threshold at which damage can occur to residential structures, 0.20 PPV, or the threshold at which transient vibration sources would be distinctly perceptible to 0.25 PPV. Construction vibration levels at all other buildings in the immediate vicinity, including residences to the south, would be less than the levels shown in Table 12 because vibration levels would attenuate with distance. Furthermore, in accordance with Whittier Municipal Code Section 8.32.040, project construction would be required to occur during daytime hours and would not disturb residences to the south during sensitive hours of sleep. Therefore, construction vibration impacts would be less than significant.

Table 12 Vibration Levels at Sensitive Receivers

Equipment	Estimated PPV at Nearest Building (250 feet)
Vibratory Roller	0.017
Large Bulldozer	0.007
Threshold	**0.2**
Threshold Exceeded?	No

See Appendix E for vibration analysis worksheets.

After construction, the proposed project would not include significant stationary sources of vibration, such heavy equipment operations, and no operational vibration impacts would occur. Due to potential vibration associated with project construction activities, potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. For a project located within the vicinity of a private airstrip or 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?

The airports closest to the project site include the Fullerton Municipal Airport, located approximately seven miles to the south, and the San Gabriel Valley Airport, located approximately eight miles to the northwest. The project site is not located within noise contours shown in Exhibit D2 of the Airport Environs Land Use Plan for Fullerton Municipal Airport (Airport Land Use Commission 2019). Therefore, the project would not expose people residing or working in the project area to excessive noise levels from airport noise. No impact would occur.

NO IMPACT

14 Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	■
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	■

a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The proposed project would not directly or indirectly induce unplanned population growth. The existing Murphy Reservoirs were designed to provide 500,000 gallons of storage each, for a total of 1.0 MG of storage capacity. However, Murphy West Reservoir has been out of commission since 2015, limiting the total current storage capacity of the combined reservoirs to 0.5 MG in Murphy East Reservoir. The proposed project would increase the original capacity of the combined reservoirs (when Murphy West and Murphy East were both in service) from 1.0 MG to 2.31 MG, for a total increase in storage capacity of approximately 1.31 MG. As discussed under *Description of Project*, the City's WMP Update states that Zone 577 is currently limited by a 1.81-MG deficiency in available water supply storage capacity; this deficiency accounts for Murphy West Reservoir's capacity of 0.5 MG. If Murphy West Reservoir were in use as designed, providing storage to Zone 577 in the amount of 0.5 MG, the storage deficiency in Zone 577 would be approximately 1.31 MG, which is the amount of increased storage capacity that would be provided by the proposed project.

Therefore, the 2.31 MG of storage capacity that would be provided by the proposed project accounts for the existing Zone 577 deficiency of 1.81 MG, as well as the Murphy West Reservoir's deficiency of 0.5 MG, to provide the City and specifically Zone 577 with the water storage capacity required to meet existing and foreseeable demands, as described in the City's WMP Update (City of Whittier 2018) and the City's UWMP (City of Whittier 2021). The proposed project would not cause increased development, but rather, it is necessary to support the current and anticipated population within Whittier. Therefore, no impact would occur.

NO IMPACT

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The project would provide water supply reliability for residents of Whittier, particularly in Zone 577, and would not displace existing people or housing. The proposed project would not necessitate the construction of replacement housing. No impact would occur.

NO IMPACT

15 Public Services

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a.	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental 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:				
	1 Fire protection?	☐	☐	☐	■
	2 Police protection?	☐	☐	☐	■
	3 Schools?	☐	☐	☐	■
	4 Parks?	☐	☐	☐	■
	5 Other public facilities?	☐	☐	☐	■

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental 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:

a.1. Fire protection?

a.2. Police protection?

a.3. Schools?

a.4. Parks?

a.5. Other public facilities?

As listed above, for the purposes of this analysis, public services include fire and police protection, as well as schools, parks, and other public facilities such as libraries and community-based resources. As discussed in Section 14, *Population and Housing*, the proposed project would not directly or indirectly induce population growth. In turn, because the project would not increase population, it also would not increase existing demands for public facilities including parks and schools. Fire and police protection for the project site are provided by the Los Angeles County Fire Department (LACFD) and Whittier Police Department, respectively. The nearest fire station is LACFD

Station 59, located at 10021 Scott Avenue in Whittier, approximately 1.7 miles to the south-southeast of the project site. The nearest police station is located at 13200 Penn Street in Whittier, approximately 1.4 miles west-northwest of the project site.

The proposed project would not change existing demand for fire protection services because population growth would not result from construction or operation of the proposed project. During construction, temporary storage reservoirs, made of high density linear polyethylene (HDLP) and NSF 61 certified for drinking water use, would be placed on-site to maintain fire flow to Zone 577 while the project is being implemented. After construction, the temporary reservoirs would be dismantled and removed. As such, construction of the project would not interrupt or otherwise adversely affect existing fire flow service to Zone 577.

The project site is adjacent to the Puente Hills Preserve, which is characterized by undeveloped open space and is therefore not a developed recreational resource such as a park. In addition, the area of the Preserve adjacent to the project site is considered the Core Habitat Zone, as stated by the Habitat Authority in its 2007 RMP (Habitat Authority 2007), and is therefore closed to public access. The closest designated recreational trails within the Preserve are Arroyo Pescadero, Deer Loop, and Arroyo San Miguel trails, accessed via the Arroyo Pescadero Trailhead on Colima; however, this trail network does not connect to roads near the project site including Workman Hill or Worsham Canyon, as those roads are for authorized access and use only. Therefore, the project would have no effect on parks or associated recreational opportunities. The project would not result in a need to provide additional or expanded parks or other public recreation facilities.

During construction of the proposed project, the City of Whittier would comply with required fire safety setbacks and clearances, and the City is actively coordinating with the LACFD to ensure such compliance. The City would also comply with all fire safety requirements for construction vehicles and equipment, including but not limited to ensuring that all applicable engines are equipped with spark protectors, and that engine idling time is limited during construction. Therefore, potential fire safety hazards associated with construction activities would be minimized, and the existing fire protection resources would be sufficient to meet fire protection needs at the project site.

Following construction of the proposed project, operation and maintenance activities at the project site would be consistent with existing conditions, and would not introduce a new or increased need for fire or police protection. Public access to the project site would continue to be restricted by a security gate at the access road on Ocean View Avenue, as well as security fencing around the reservoirs site, including between the project site and the Open Space area, and security fencing with a locked gate on the stairs providing access to the top of the replacement reservoir. These security features serve to discourage trespassing and intentional destruction of the facilities, such as graffiti and littering, as well as to minimize the potential for unintentional injury resulting from unauthorized access to the facilities. The proposed project would replace the existing perimeter fencing around the project site, thereby improving security, and reducing the potential need for emergency police or fire response associated with intentional damage or unintentional injury resulting from unauthorized access of the site by members of the public.

The proposed project would not result in substantial adverse physical impacts or require the provision of new or physically altered public services or facilities; as discussed above, no impact to public services would occur as a result of the project.

NO IMPACT

16 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	■
a. 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?	☐	☐	☐	■

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?

As discussed in Section 15, *Public Services,* the project site is adjacent to the Puente Hills Preserve, which is characterized by undeveloped open space and is therefore not a developed recreational resource. The area of the Preserve adjacent to the project site is considered the Core Habitat Zone, as stated by the Habitat Authority in its 2007 RMP (Habitat Authority 2007), and is therefore closed to public access. The closest designated recreational trails within the Preserve are Arroyo Pescadero, Deer Loop, and Arroyo San Miguel trails, accessed via the Arroyo Pescadero Trailhead on Colima; however, this trail network does not connect to roads near the project site including Workman Hill or Worsham Canyon, as those roads are for authorized access and use only.

During construction of the proposed project, there would be temporary and short-term dust and noise associated with ground-disturbing activities and the use of construction vehicles and equipment, which would likely be perceptible from areas within the open space area of the Preserve. However, as noted above, the portion of the Preserve adjacent to the project site is not open to the public and therefore does not constitute regional recreational facilities or resources. Additionally, such effects of the project would be limited to the construction period, and would not persist during project operation and maintenance; operational use of the proposed project would return to existing conditions such that no impacts from dust or noise would occur. The project would not result in physical deterioration of any parks or other recreational facilities.

In addition, as discussed in Section 14, *Population and Housing,* the proposed project would neither directly nor indirectly support population growth; as such, the project would not introduce or facilitate the movement of new residents to the local area, such that use of existing recreational resources or opportunities would increase, resulting in substantial physical deterioration to such resources or opportunities. No impacts to neighborhood or regional parks associated with physical deterioration from increased use would occur as a result of the project.

NO IMPACT

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?

The proposed project does not include recreational facilities. The project site is located adjacent to the existing Puente Hills Preserve, and during the temporary construction period, encroachment onto the open space area lands would be avoided to the maximum extent feasible. Following completion of the construction period, operation and maintenance activities would be consistent with existing operation and maintenance activities on the project site; the project would not result in long-term disruptions to the existing recreational resources or opportunities such that new or replacement facilities or opportunities would be necessary. No impact would occur.

NO IMPACT

17 Transportation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	■	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	■
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	☐	☐	■	☐
d. Result in inadequate emergency access?	☐	☐	■	☐

a. Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The project site is located in Whittier, and access to the project site is controlled by an access gate that is closed to the general public. Construction traffic associated with the proposed project would travel to and from the project site on public roadways, and would generate temporary vehicle and truck trips to support demolition and construction activities. Construction workers would travel to and from the site in passenger vehicles, which would be parked on the project site during working hours. Heavy-duty equipment needed during construction activities would be transported to the site as needed, and staged at the project site when needed for multiple days of use, thereby reducing daily truck trips associated with transporting such equipment. During demolition of the existing facilities, removed materials would be transported to an off-site landfill with sufficient capacity for disposal. In addition, concrete and bedrock would be removed from the subsurface after removal of the existing reservoirs and during preparation of a level foundation for the replacement reservoir; these concrete and bedrock materials would be broken down on-site using a rock crusher or similar type of machinery, then either reused on-site or transported off-site for reuse, if possible, or disposal in a landfill with sufficient capacity. These activities would also require truck trips between the project site and the selected landfill site(s).

Construction-related traffic would be short-term and would cease upon completion of construction activities. Upon completion of construction, operation and maintenance of the proposed project would be a continuation of operation and maintenance activities conducted for the existing reservoirs, and would not introduce new or increased traffic on the local roadways. Traffic associated with proposed project activities would comply with traffic laws and regulations, and is not anticipated to conflict with a program, plan, ordinance, or policy addressing the circulation

system. Due to temporary traffic increases associated with the project's temporary construction activities, potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

CEQA Guidelines Section 15064.3(b) identifies criteria for evaluating transportation impacts. Specifically, the guidelines state vehicle miles traveled (VMT) exceeding an applicable threshold of significance may indicate a significant impact. A VMT calculation is typically conducted on a daily or annual basis to determine operational usage of a project; however, according to Section 15064.3(b)(3) of the State CEQA Guidelines, a lead agency's analysis of traffic impacts may also be qualitative. Construction of the proposed project would result in a short-term increase in local traffic as a result of construction-related worker traffic (personal vehicles traveling to and from the project site during construction), material and equipment deliveries (on-site staging area would minimize the number of trips associated with deliveries), and construction activities (including hauling demolition debris to local landfills with sufficient capacity, as applicable). Vehicle miles generated from the proposed project's construction and demolition activities would be temporary and short-term, limited to the active construction period; once the replacement reservoir is operational, VMT associated with operation and maintenance of the project would be the same as existing conditions. The proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b), and no impacts associated with VMT would occur.

NO IMPACT

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?

The proposed project would not alter any existing road alignments, and would not introduce incompatible uses to local roadways. However, the existing road that provides access to the reservoirs from Ocean View Avenue, a public roadway at the base of the hill atop which the Murphy Reservoirs are sited, is in need of repair and would be resurfaced upon completion of project construction. The existing alignment of the access road would be maintained, with drainage improvements installed to facilitate improved structural integrity and longevity. The proposed project is not an incompatible use with the existing road alignment, as the existing Murphy Reservoirs were installed using the existing road for access.

Although the project would not introduce hazardous geometric design features or sharp curves to existing roads, including the on-site access road, the existing access road is already characterized by sharp turns, which would be navigated by project-related traffic. If necessary to maintain safe conditions, demolition debris may be transported from the demolition area to the construction staging area at the base of the access road prior to being loaded onto trucks for transportation to a local recycling or disposal facility. Similarly, if needed during construction of the replacement reservoir, including but not limited to placement of a temporary reservoir(s), the flat staging area at the base of the access road would be used as needed to maintain safe roadway conditions. Potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project result in inadequate emergency access?

No changes to the existing street system would occur as a result of the proposed project. However, as discussed above, during the project's temporary construction period, increased traffic would occur as a result of construction workers traveling to and from the project site, as well as trucks transporting equipment and machinery to and from the site. All traffic associated with project activities would comply with existing laws and regulations regarding traffic safety and emergency access. In addition, the staging area at the project site would be used to minimize vehicle and truck trips. Construction and staging of the proposed project would occur within City-owned property. If necessary to provide access and maintain safety, temporary lane closures may occur on Ocean View Avenue for short periods during construction, and would be controlled by traffic flaggers to ensure that such activities would not impede emergency response access. Proposed project activities would not result in inadequate emergency access post-construction, nor would project operation introduce new activities or substantial operational traffic with the potential to result in inadequate emergency access. Potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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18 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code Section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	☐	☐	☐	■
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	■	☐	☐

California Assembly Bill 52 of 2014 (AB 52) was enacted on July 1, 2015, and expands CEQA by defining a new resource category, "tribal cultural resources." AB 52 states, "A project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (PRC Section 21084.2). It further states the lead agency shall establish measures to avoid impacts altering the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and is:

1) Listed or eligible for listing in the CRHR or in a local register of historical resources as defined in PRC section 5020.1(k), or

2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified or adopted. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those having requested notice of projects proposed in the jurisdiction of the lead agency.

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?

On June 23, 2021, Rincon requested a records search of the Sacred Lands File (SLF) from the NAHC to identify the potential for cultural resources within the reservoir sites and to obtain contact information for Native American groups or individuals who may have knowledge of cultural resources within the reservoir sites. On July 15, 2021, the NAHC provided a response stating the SLF search was completed with negative results, indicating the NAHC has no knowledge of sacred sites in the vicinity of the project area. In addition, no evidence of cultural materials was identified during the pedestrian field survey conducted on August 19, 2021, as discussed in Section 5, *Cultural Resources*, and in the Cultural Resources Technical Report provided as Appendix C to this IS-MND.

On July 7, 2021, the City of Whittier distributed AB 52 consultation letters via Certified Mail to individuals representing two Native American Tribes, including Andrew Salas, Chairperson for the Gabrieleño Band of Mission Indians – Kizh Nation, and Joseph Ontiveros, Tribal Historic Preservation Officer for the Soboba Band of Luiseño Indians. The AB 52 letters included a description of the proposed project, relevant maps, and contact information for the City. Under AB 52, Native American tribes have 30 days to respond and request further project information and formal consultation. On July 14, 2021, the Gabrieleño Band of Mission Indians – Kizh Nation responded that the Murphy Reservoir project site was in their Ancestral Tribal Territory and that they requested formal consultation. On September 15, 2021, the City distributed follow-up letters to the Native American contacts to acknowledge that the AB 52-required 30-day consultation period was expired, and the City has intent to proceed with the proposed project. The original and the follow-up AB 52 letters for the project are provided as Appendix D to this IS-MND.

The City received a letter dated November 5, 2021, from Andrew Salas, Chairman of the Gabrieleño Band of Mission Indians, Kizh Nation. Mr. Salas requested the City include and adopt TCR mitigation measures with requirements associated with the monitoring, identification, recording, handling, and treatment of TCRs, including but not limited to those associated with any human remains that may be discovered during construction of the project. In response to this input from Mr. Salas and the Kizh Nation, the City has included Mitigation Measure TCR-1, *Retain a Native American Monitor*

Prior to Commencement of Ground-Disturbing Activities, presented under "Mitigation Measures" below. The consultation with the Gabrieleño Band of Mission Indians – Kizh Nation was concluded on November 22, 2021, with the acceptance of the TCR mitigation measure.

The potential for tribal cultural resources to be present on or near the project site is considered low, and the proposed project would have minimal if any potential to encounter or impact tribal cultural resources; this determination is made based upon the following :

- No evidence of cultural materials was identified during the pedestrian field survey conducted on August 19, 2021, as discussed in Section 5, *Cultural Resources*, and in the Cultural Resources Technical Report provided as Appendix C to this IS-MND
- No tribal cultural resources are expected to be encountered due to the hilltop nature of the project site, the substantial extent of previous ground-disturbing activities, and the lack of formal records available from the NAHC
- The project site is underlain by bedrock and concrete, as described in Section 7, *Geology and Soils,* on page 88 of this IS-MND; by nature of bedrock being an impermeable material, tribal cultural resources are not contained within it
- Also as described in Section 7, *Geology and Soils,* the ground-disturbing activities that would occur under the project include the removal of the existing steel reservoirs, and the removal of concrete and bedrock from beneath the existing reservoirs, to provide a level foundation for the replacement reservoir; the replacement reservoir would continue to be underlain by the existing impermeable bedrock

However, in an abundance of caution and with consideration to the local Native American tribes, Mitigation Measure TCR-1 would be implemented to provide a qualified Native American monitor on-site during ground disturbing activities.

Mitigation Measures

As presented in Section 5, *Cultural Resources*, on page 43 of this IS-MND, Mitigation Measures CR-1, *Unanticipated Find of Archaeological Resources,* and CR-2, *Unanticipated Find of Human Remains*, would be implemented to minimize or avoid potential for ground-disturbing activities during project implementation to impact cultural resources. These mitigation measures would also be implemented to minimize or avoid potential to impact tribal cultural resources, as noted below.

- **CR-1: Unanticipated Find of Archaeological Resources.** As specified in Mitigation Measure CR-1, if an unanticipated find of a resource occurs, it will be properly evaluated and, depending on the outcome of the required evaluation, additional work may be warranted. Such work may include data recovery excavation and Native American consultation to treat the find, as applicable.
- **CR-2: Unanticipated Find of Human Remain**s. As specified in Mitigation Measure CR-2, if human remains are unexpectedly encountered, California Health and Safety Code Section 7050.5 and PRC Section 5097.98 would be strictly adhered to, as required. The County Coroner will notify the NAHC, is applicable, for determination and notification of a MLD; the MLD may then make recommendations for the disposition of the remains.

In addition to Mitigation Measures CR-1 and CR-2, presented on page 43 and summarized above as relevant to tribal cultural resources, Mitigation Measure TCR-1, presented in full below, would be implemented to provide a qualified Native American monitor on-site to observe ground disturbing

activities for the potential presence of tribal cultural resources, and to guide the appropriate responses to any finds, should they occur. As noted above, the project site is primarily underlain by bedrock, which is impermeable.

TCR-1 Retain a Native American Monitor Prior to Commencement of Ground-Disturbing Activities

A. A qualified Native American monitor shall be retained prior to the commencement of any ground-disturbing activity for the project.

B. The monitor shall complete daily logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to tribal cultural resources (TCRs).

C. The monitor shall maintain monitoring logs will identify and describe any discovered TCRs such as but not limited to Native American cultural and historical artifacts, remains, places of significance, and any discovered Native American (ancestral) human remains and burial goods.

D. On-site tribal monitoring shall conclude upon the completion of all ground-disturbing activities and phases that may involve ground-disturbing activities associated with project construction.

E. Upon discovery of any TCRs, all construction activities within approximately 50 feet of the discovery shall cease and shall not resume until the discovered TCR has been fully assessed by the qualified monitor.

Significance after Mitigation

With implementation of Mitigation Measures CR-1, CR-2, and TCR-1, potential impacts of the proposed project associated with tribal cultural resources would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

19 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	■	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	■
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	■
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	■	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	■	☐

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

The proposed project would not introduce a new stream of wastewater or a new need to treat wastewater, and would have no impact associated with wastewater treatment. The proposed project is a water supply project, as it would replace existing water storage facilities with improved facilities to continue providing water supply storage for Whittier. As discussed in Section 14, *Population and Housing*, the proposed project would increase the original capacity of the combined reservoirs from 1.0 MG to 2.31 MG, for a total increase in storage capacity of 1.31 MG. As discussed

under *Description of Project*, the City's WMP Update states that Zone 577 is currently limited by a 1.81-MG deficiency in available water supply storage capacity; this deficiency accounts for Murphy West Reservoir's capacity of 0.5 MG, which is not currently available due to Murphy West Reservoir being out of commission. If Murphy West Reservoir were in use as designed, providing storage to Zone 577 in the amount of 0.5 MG, the storage deficiency in Zone 577 would be 1.31 MG, which is the amount of increased storage capacity provided by the project. This increase in capacity is necessary to provide consistency of the City's water storage infrastructure with the City's long-range planning documents, as discussed under *Description of Project* as well as in Section 10, *Hydrology and Water Quality*, and Section 15, *Public Services*. As such, the proposed project would not cause increased development, but rather, it is necessary to support the current and anticipated population within the city.

Stormwater drainage improvements would be implemented as part of the proposed project throughout the project site and along the access road. Improvements would include but would not be limited to ditches, culverts, and curbs, designed to convey stormwater flow towards existing drainage facilities. This would result in site-specific alterations to drainage patterns throughout the project site; however, the project site is previously disturbed and paved, and site-specific modifications to existing drainage would not affect drainage around the site. The drainage improvements would be sized appropriately to accommodate runoff from the site, and the project would not result in the relocation or expansion of existing stormwater drainage facilities.

As discussed in the project description, a new portable generator connection and portable electric generator would be installed at Murphy Pump Station, and an ATS would be added to the electrical components at both the Murphy and Greenleaf Pump Stations. The purpose of the new ATS at Greenleaf would be to sustain power supply to Painter Reservoir if a power outage should occur while the proposed project is under construction, as Painter and Murphy Reservoirs both serve Pressure Zone 577, and maintaining power to at least one reservoir during an outage would also maintain water supply service to Zone 577 during the outage. Use of the ATS would be limited to the project's construction period; they would not be used during normal operation and maintenance activities.

In addition, although the proposed project would increase the existing storage capacity of the Murphy Reservoirs from 1.0 MG to 2.31 MG, it would have no effect on water demands or the rate of groundwater production; groundwater would continue to be produced from existing groundwater wells at rates required to satisfy local demands while remaining in compliance with the Adjudication Judgement for the San Gabriel Valley Groundwater Basin (discussed further under threshold (b)). The increased storage capacity provided would improve water supply reliability, particularly during dry conditions. Furthermore, as under existing conditions, water would be released from Murphy Reservoirs and conveyed to customer connections in the city via gravity flow to the maximum extent feasible, thereby minimizing the energy required for water conveyance.

The City has an existing Supervisory Control and Data Acquisition (SCADA) system to remotely monitor and control the reservoirs, which it would continue to be used for monitoring the proposed project during operation. The proposed project would not require substantial changes to the existing SCADA system. The project would not require the construction, relocation, or expansion of telecommunication facilities. In addition, there is an existing T-Mobile cell tower and wireless equipment shelter within the project site that would be protected in place during the construction period, such that no impact related to telecommunications facilities would occur.

LESS THAN SIGNIFICANT IMPACT

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Project operation would increase the amount of water stored for conveyance to existing customers from 1.0 MG to 2.31 MG. As discussed above under threshold (a), the 2.31-MG design capacity is necessary to support the existing and anticipated population and associated water demands as reported in the City's WMP Update (City of Whittier 2018). As discussed therein as well as in the City's current (2020) UWMP, the proposed project is necessary to address existing water supply deficiencies within Zone 577 (City of Whittier 2021).

Project operation would not expand service beyond areas presently served by the Whittier Utility Authority. As under existing conditions, the water supply source for Zone 577, which would be stored in the Murphy Reservoirs for use as needed, would be produced from existing groundwater wells in the Main San Gabriel Groundwater Basin and Central Groundwater Basin. Each of these adjudicated basins has its own Watermaster; the Main San Gabriel Watermaster oversees the Main San Gabriel Basin and the WRD oversees the Central Basin. These groundwater basins are adjudicated and therefore each managed in accordance with an Adjudication Judgment administered by a court appointed Watermaster (City of Whittier 2021). By nature of being adjudicated, the groundwater basins are sustainably managed, and the proposed project would not have an adverse effect on water supply availability or reliability. Furthermore, the proposed project would provide storage of a portion of the City's existing water supply, and would not itself require a water supply. No impact would occur.

NO IMPACT

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

As discussed under item (a), the project would not generate sanitary wastewater or otherwise contribute to an increase in wastewater treatment requirements. Thus, no impact would occur.

NO IMPACT

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Construction of the proposed project would generate demolition debris in the form of metal from the reservoir, concrete and rebar from the foundation, bedrock from below the existing foundation, and soil material from the expanded footprint area. To the extent feasible, salvageable metal and rebar would be sorted from the solid waste on site for transport to an off-site recycling, reuse, or disposal facility. During excavation activities to expand the existing reservoir footprint, bedrock would be excavated from the footprint then broken down into smaller pieces using an on-site rock crusher, thereby preparing the excavated material for transport to an off-site reuse or disposal facility. Remaining solid waste would be removed from the site via truck and transported to either a landfill or recycling facility with sufficient capacity for off-site disposal.

Solid waste generated during project construction would be recycled or reused to the maximum extent feasible; however, depending upon demands for recycled demolition debris at the time of project construction, it may be necessary to dispose of otherwise recyclable materials in a landfill. The City of Whittier has a *Construction and Demolition Materials Recycling Program* which requires the recycling or reuse of 65 percent of construction and demolition debris (City of Whittier 2017); however, the City's program explicitly applies to residential and commercial projects, which the proposed project does not fall under. The County of Los Angeles also has a *Construction and Demolition Debris Recycling and Reuse Program* that requires the recycling or reuse of 65 percent of construction and demolition debris (Los Angeles County 2021); however, the County's program only applies to unincorporated county areas, whereas the proposed project is located within an incorporated area. Therefore, neither the City's nor the County's program for the reuse or recycling of construction demolition debris is applicable to the project; however, as stated above, solid waste from project construction would be recycled or reused to the maximum extent feasible.

It is anticipated that solid waste generated during construction of the proposed project would be disposed of at either the Savage Canyon Landfill, located approximately 0.8 mile northwest of the project site, or the Azusa Land Reclamation Landfill, located approximately 11 miles northeast of the project site. The Savage Canyon Landfill has a permitted capacity of 19.3 million cubic yards and a maximum permitted throughput of 3,350 tons per day. As currently reported, the remaining capacity at the landfill was approximately 9.5 million cubic yards. Savage Canyon Landfill accepts a variety of waste, including inert, green materials, industrial, construction/demolition, and mixed municipal (CalRecycle 2021a). The Azusa Land Reclamation Landfill has a permitted capacity of 80.5 million cubic yards and a maximum permitted throughput of 8,000 tons per day. As currently reported, the remaining capacity at the landfill was approximately 21.5 million cubic yards. Azusa Land Reclamation Landfill accepts a variety of waste, including tires, inert, contaminated soil, and asbestos (CalRecycle 2021b). Sufficient local landfill disposal capacity is therefore available to accommodate the proposed project's temporary solid waste disposal needs.

Operation and maintenance of the proposed project would not introduce a solid waste stream to or from the project site, and there is no existing solid waste stream at the project site. Therefore, the project's potential to result in solid waste impacts would be limited to the temporary construction period. The proposed project would not generate solid waste in excess of state or local standards, and would comply with all federal, State, and local management statutes and regulations. Potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

20 Wildfire

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	■
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	■	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	■	☐
d. Expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	■	☐

a. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

The California Department of Forestry and Fire Protection (CALFIRE) maps fire hazards by zones referred to as Fire Hazard Severity Zones (FHSZ). The three levels of fire hazard severity mapped by CALFIRE are Moderate, High, and Very High, which are defined based upon factors including fuel, slope, and weather (CALFIRE 2021). The purpose of FHSZ designations is to provide for public safety by considering the potential for wildfire to occur when implementing development. The project site is located within an area designated by CALFIRE as a Very High FHSZ (CALFIRE 2020). In accordance with Government Code 51182, a 100-foot-wide "defensible space" buffer area is required to be cleared around buildings located in a Very High FHSZ (CALFIRE 2021). However, although the project site is within a Very High FHSZ, it does not include any habitable structures such as would be protected by the aforementioned defensible space requirement. Furthermore, the proposed project would not introduce any new land uses, habitable structures, or facility types to the project site. As

discussed in Section 15, *Public Services*, the City of Whittier is actively coordinating with LACFD to ensure compliance of the proposed project design and site plan with all required fire safety setbacks and clearance requirements.

Emergency response and evacuation procedures for the project site and surrounding area are defined in the City of Whittier's *Natural Hazards Mitigation Plan* (City of Whittier 2015). Similarly, emergency response and evacuation procedures for Los Angeles County, which partially inform the local procedures, are defined in the County of Los Angeles' *All Hazard Mitigation Plan* (County of Los Angeles 2014). Each plan establishes, for its respective jurisdiction, the procedures and actions to implement in response to emergency scenarios, and include protocols for evacuation procedures when necessary. Ocean View Avenue, which provides primary access to the project site's private access road, is not designated as an evacuation route; the nearest evacuation routes to the project site are Whittier Boulevard and Colima Road, approximately 1.1 miles southwest and 0.5 mile southeast of the project site, respectively (City of Whittier 2021). During construction of the proposed project, temporary lane closures may be implemented along Ocean View Avenue; such activities would be temporary and short-term, and would not interfere with an emergency response or evacuation plan. No impact would occur.

NO IMPACT

b. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

As stated in the significance threshold above, factors influencing wildfire risk include slope and prevailing winds, among other factors. As discussed above, the project site is located within a Very High FHSZ; the project site is also located on a hill, adjacent to an open space area characterized by rolling terrain and vegetation. Inherent to this location, and as indicated by CALFIRE's designation of Very High FHSZ, the project site is subject to potential hazards associated with wildfire events. However, the proposed project would not change existing land uses on the project site; as such, the project would not introduce habitable structures or change activities at the project site such that new hazards associated with wildfire would be introduced.

During construction of the project, heavy duty equipment and machinery would be used to demolish the existing reservoirs, install the replacement reservoir, and implement drainage improvements along the access road from Ocean View Avenue. In accordance with PRC Section 4442, the use of spark arrestors is mandated on earth-moving and portable construction equipment with internal combustion engines operating on any forest-covered, brush-covered, or grass-covered land, to prevent the emission of flammable debris from exhaust. In addition, PRC Sections 4427 and 4431 specify standards for conducting construction activities on days when a burning permit is required, and PRC Section 4428 requires construction contractors to maintain fire suppression equipment during the highest fire danger period (April through November) when operating on or near any forest-covered, brush-covered, or grass-covered land, such as the nearby open space.

Construction activities for the proposed project would be strictly limited to the existing City-owned Murphy Reservoirs site, and no activities including pedestrian access by construction workers would occur on the surrounding open space area, where risk of wildfire is greater than it is on the paved project site. Furthermore, all construction activities would be conducted in compliance with applicable PRC provisions for fire safety. Following completion of the construction period, operation and maintenance activities would be the same as under existing conditions, and the project would

not alter existing wildfire hazards or introduce new wildfire hazards. Potential impacts associated with exacerbating wildfire risk or hazards would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

The project site is located within a Very High FHSZ, and the proposed project would not change existing land uses or potential for wildfire to occur. During construction activities, temporary water storage reservoirs would be placed on-stie and used to maintain fire flow to Zone 577. The exact placement and design of the temporary reservoirs will be determined based upon final engineering design of the project. The temporary reservoirs would likely be placed within or near the footprint of Murphy West Reservoir, after it is demolished and before Murphy East Reservoir is demolished; this phasing would provide for sufficient water in storage on-site to maintain fire flow to Zone 577 at all times throughout project implementation. The temporary storage reservoirs would require a level base pad, which would be removed with the temporary reservoirs upon completion of the construction period.

The proposed project itself would not require new or expanded infrastructure associated with its location within a Very High FHSZ. The City is coordinating with the LACFD regarding the fire protection setbacks at the existing Murphy Reservoirs, to provide fire hazard safety and wildfire safety during implementation of the project. Fire safety setbacks are existing LACFD requirements for land uses throughout the region. The proposed project would not change existing land uses at the project site, and would not change LACFD requirements for fire safety setbacks surrounding specific land uses. Additionally, the project access road between Murphy Pump Station and the Murphy Reservoirs would be improved following the completion of construction activities, to correct potholes and other construction-related road damage; as such, the project would ultimately provide improved emergency access to and from the project site. Potential impacts associated with wildfire risk would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

As discussed above, the project area is designated as a Very High FHSZ. However, as discussed in Section 10, *Hydrology and Water Quality*, the proposed project would not substantially alter drainage patterns in the project, as drainage pattern alterations would be site-specific and designed to be accommodated by existing drainage control features. In addition, the proposed project would not include disturbance on hillsides where ground disturbance could result in landslides or slope instability. Also as discussed in Section 10, *Hydrology and Water Quality*, stormwater BMPs would be implemented to minimize or avoid adverse impacts such as runoff and flooding associated with drainage changes. The proposed project would not expose people or structures to significant risks associated with drainage changes, and potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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21 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Does the project:				
a. Have the potential to substantially 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, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	■
b. 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)?	☐	☐	■	☐
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	■	☐

a. Does the project have the potential to substantially 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, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Potential impacts to biological resources are addressed in Section 4, *Biological Resources*. As described therein, there is low to high potential for certain special-status plant and wildlife species to occur on the reservoir sites. Implementation of Mitigation Measures BIO-1 through BIO-9 would mitigate direct and indirect impacts to special-status plant and wildlife species to a less-than-significant level. Therefore, the project would not substantially reduce the habitat of fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered

plant or animal. In addition, as discussed in Section 5, *Cultural Resources*, the project would not eliminate important examples of the major periods of California history or prehistory because none are known to be present in the project area. No impact would occur.

NO IMPACT

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)?

Cumulative impacts are defined as two or more individual project effects which, when considered together or in concert with other projects, combine to result in a significant impact within an identified geographic area. In order for a project to contribute to cumulative impacts, it must result in some level of impact on a project-specific level. As described in the discussion of environmental checklist Sections 1 through 20, with respect to all environmental issues, the proposed project would not result in significant and unmitigable impacts to the environment; all anticipated impacts associated with project construction and operation would be either less than significant or less than significant with mitigation incorporated. This is largely due to the fact that project construction activities would be temporary and limited to the short-term construction period, and project operational activities would be the same as existing operational activities, such that the environmental baseline condition would largely remain unchanged.

As described in the impact analyses provided in Sections 1 through 20 of this IS-MND, a number of the environmental topic areas would experience "No Impact" as a result of the proposed project; in other words, none of the significance criteria identified for these environmental topic areas would result in impacts. These environmental topics include the following: Agricultural and Forestry Resources; Mineral Resources; Public Services; and Recreation. These topic areas are not addressed further for cumulative impacts, because they would have no impact and therefore would not contribute to the cumulative scenario for cumulative impacts.

The following discussion addresses those effects for which some level of potential impact was identified, which includes topics for which a "Less than Significant Impact" was identified, as well as those for which the threshold question assumed some level of impact (i.e., those for which consideration of a potential "significant" effect was considered, per *CEQA Guidelines* Section 15382; in this case, threshold questions which assumed impacts would be "Less than Significant with Mitigation Incorporated"). Potential regional cumulative effects were considered for the environmental topics which would result in less than significant impacts from project implementation (without or with project mitigation).

- **Aesthetics.** Temporary aesthetic impacts associated with the presence and use of equipment and machinery at and around the reservoir site may be visible from public access points. As discussed in Section 1, *Aesthetics*, the areas around the reservoir site are not identified as scenic vistas or scenic resource areas. The proposed project would not conflict with applicable zoning and other regulations governing scenic quality or create a significant new source of light and glare when considered in tandem with other cumulative development. Therefore, no contribution to a cumulative impact would occur.
- **Air Quality.** Air pollutant and GHG emissions disperse from their original source and can affect the entire air basin (or, with global warming, potentially the entire Earth). For air quality, the baseline analysis addresses the cumulative condition, or the project's contribution to the larger

picture which is assessed in analyses of consistency with regional air quality strategies and pollutant dispersal. As discussed in Section 3, *Air Quality,* the proposed project's construction, and operational air quality emissions would be less than significant. Construction emissions would be adequately controlled by existing regulations, and the project's air quality impacts would not individually jeopardize attainment of the CAAQS or NAAQS and the project's contribution to cumulative impacts would not be considerable.

- **Biological Resources.** As described in Section 4, *Biological Resources*, implementation of Mitigation Measures BIO-1 through BIO-9 would reduce biological resources impacts to less-than-significant levels and impacts would be limited to the construction period. Therefore, the project's contribution to cumulative impacts, significant or otherwise, would not be considerable.
- **Cultural Resources.** As described in Section 5, *Cultural Resources*, no historical or archaeological resources are known to exist within the reservoir sites, and unanticipated discoveries are unlikely due to previous disturbance, and the fact that cultural resources impacts are inherently site-specific. Mitigation Measures CR-1 and CR-2 would be implemented to identify and appropriately handle any unanticipated cultural resources that may be discovered during project construction; potential impacts would be less than significant and would not have potential to combine with similar impacts of other projects, due to the site-specific nature of any potential finds. The project would not result in a substantial adverse change to a built environment resource listed or eligible for listing in the NRHP or the CRHR. No contribution to cumulative impacts, significant or otherwise, would occur.
- **Geology and Soils.** Impacts associated with geology and soils, including paleontological resources, are inherently restricted to the location of the project activities. Implementation of Mitigation Measure GEO-1 would reduce potential impacts associated with unanticipated discovery of paleontological resources to a less-than-significant level. Due to the site-specific nature of impacts and the implementation of appropriate mitigation, the proposed project would not contribute to cumulative impacts associated with other future developments.
- **GHG Emissions.** Refer to the discussion within the *Air Quality* bullet above. The SCAQMD's significance thresholds are intended to determine whether a project would individually or cumulatively contribute to global climate change. The project would not exceed the thresholds. Therefore, the project's GHG impacts would not be cumulatively considerable.
- **Hazards and Hazardous Materials.** With regard to hazards and hazardous materials, no regional concern is identified (i.e., no significant cumulative impact). The project would also comply with applicable federal, State, and local laws and regulations regarding hazardous materials. Therefore, no contribution to cumulative impacts, significant or otherwise, would occur.
- **Hydrology and Water Quality.** The project site is already fully developed with the existing Murphy Reservoirs, and the City of Whittier in general is also built-up. The proposed project would not create or contribute runoff that would exceed the capacity of the existing stormwater drainage system. In addition, implementation of BMPs as part of project conformance with NPDES permit conditions and/or Mitigation Measure HWQ-1 would effectively eliminate the potential for drainage- and water quality-related impacts. Therefore, no contribution to cumulative impacts, significant or otherwise, would occur.
- **Noise.** Noise levels at the reservoir sites are typical of low-density residential areas. The primary sources of noise are vehicular traffic along roadways including local streets and ambient sounds from local fauna. As discussed in Section 13, *Noise,* project construction would occur between the hours of 7:00 a.m. to 4:00 p.m., Monday through Friday, excluding holidays, and would not

exceed the FTA daytime noise threshold of 80 dBA L_{eq} for an 8-hour period. Therefore, project construction would not contribute to a cumulative noise impact. In addition, the proposed project would not generate additional operational noise levels. Future cumulative development would be subject to the County's noise ordinance. No contribution to a cumulative impact would occur.

- **Transportation.** No substantial long-term transportation impacts would occur as a result of the project. Given the temporary nature of construction-related traffic impacts and the fact the project would not generate new operational traffic, the contribution to cumulative transportation impact would not be cumulatively considerable.
- **Tribal Cultural Resources.** The project site is not expected to contain any TCRs under the ground surface, particularly where excavation for the project would occur, as the subsurface material consists of impermeable bedrock and concrete. However, Mitigation Measure TCR-1 has been introduced to require a qualified Native American monitor be present during ground-disturbing activities associated with project construction, to identify unanticipated TCRs and recommend appropriate actions.
- **Utilities and Service Systems.** The project would not induce population growth and therefore would not directly or indirectly result in a considerable contribution to cumulative impacts to utilities and service systems.
- **Wildfire.** As described in Section 20, *Wildfire*, potential wildfire impacts associated with the project would be less than significant. Given there would be no long-term operational wildfire impacts and the short-term nature of any construction-related wildfire impacts, the project's contribution to any cumulative impact would not be considerable.

As discussed above, the proposed project would not result in a considerable contribution to any cumulative effects, and potential impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

In general, impacts to human beings are associated with air quality, hazards and hazardous materials, and noise impacts. As detailed in the preceding sections, the project would not result, either directly or indirectly, in substantial adverse effects related to air quality, hazards and hazardous materials, or noise. Therefore, impacts to human beings would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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Rincon Consultants, Inc. prepared this IS-MND under contract to Cannon Corporation and the City of Whittier. Rincon staff involved in data gathering analysis, project management, and quality control are listed below.

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Appendix A

CalEEMod Results

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Murphy Reservoirs Project -AQ

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	5.40	Acre	5.40	235,224.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - provided by client

Construction Phase - Based on Client construction timeline

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Provided by client

Off-road Equipment - Provided by client

Off-road Equipment - Equipment provided by client.

Off-road Equipment - Provided by Client

Demolition - Client provided information that approximately 800 CY would be demolished. 1 CY of concrete = 2.03 tons.

Grading - Material exported provided by client

Architectural Coating - SCAQMD Rule 1113

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Area Coating - SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Area Mitigation - SCAQMD Rule 1113

Water Mitigation -

Stationary Sources - Emergency Generators and Fire Pumps -

Stationary Sources - User Defined -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	230.00	49.00
tblGrading	MaterialExported	0.00	4,000.00
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Other Material Handling Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1118	1.0278	0.9769	2.4500e-003	0.1241	0.0449	0.1690	0.0474	0.0418	0.0892	0.0000	219.7899	219.7899	0.0484	6.2800e-003	222.8739
2023	0.0483	0.1339	0.1978	3.5000e-004	5.1700e-003	6.6100e-003	0.0118	1.3800e-003	6.1600e-003	7.5400e-003	0.0000	30.6550	30.6550	7.6500e-003	2.0000e-004	30.9058
Maximum	**0.1118**	**1.0278**	**0.9769**	**2.4500e-003**	**0.1241**	**0.0449**	**0.1690**	**0.0474**	**0.0418**	**0.0892**	**0.0000**	**219.7899**	**219.7899**	**0.0484**	**6.2800e-003**	**222.8739**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1118	1.0278	0.9769	2.4500e-003	0.0784	0.0449	0.1233	0.0274	0.0418	0.0692	0.0000	219.7897	219.7897	0.0484	6.2800e-003	222.8737
2023	0.0483	0.1339	0.1978	3.5000e-004	5.1700e-003	6.6100e-003	0.0118	1.3800e-003	6.1600e-003	7.5400e-003	0.0000	30.6549	30.6549	7.6500e-003	2.0000e-004	30.9058
Maximum	**0.1118**	**1.0278**	**0.9769**	**2.4500e-003**	**0.0784**	**0.0449**	**0.1233**	**0.0274**	**0.0418**	**0.0692**	**0.0000**	**219.7897**	**219.7897**	**0.0484**	**6.2800e-003**	**222.8737**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**35.38**	**0.00**	**25.29**	**40.98**	**0.00**	**20.66**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2022**	**11-30-2022**	0.8903	0.8903
2	**12-1-2022**	**2-28-2023**	0.4336	0.4336
		Highest	0.8903	0.8903

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0185	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3000e-004	1.3000e-004	0.0000	0.0000	1.4000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0185**	**0.0000**	**7.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.0000**	**1.4000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0185	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3000e-004	1.3000e-004	0.0000	0.0000	1.4000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0185**	**0.0000**	**7.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.0000**	**1.4000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Demolition	9/1/2022	9/28/2022	5	20	
2	Grading	Grading	9/29/2022	10/26/2022	5	20	
3	Reservoir Construction	Building Construction	10/27/2022	1/3/2023	5	49	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Site Restoration	Paving	1/4/2023	1/31/2023	5	20	
5	Access Road	Architectural Coating	1/4/2023	1/31/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 5.4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 14,113 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	3	8.00	158	0.38
Site Preparation	Off-Highway Trucks	1	8.00	402	0.38
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Reservoir Construction	Aerial Lifts	1	8.00	63	0.31
Reservoir Construction	Air Compressors	1	6.00	78	0.48
Reservoir Construction	Cranes	1	7.00	231	0.29
Reservoir Construction	Forklifts	3	8.00	89	0.20
Reservoir Construction	Generator Sets	1	8.00	84	0.74
Reservoir Construction	Off-Highway Trucks	1	8.00	402	0.38
Reservoir Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Reservoir Construction	Welders	0	8.00	46	0.45

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Site Restoration	Pavers	2	8.00	130	0.42
Site Restoration	Paving Equipment	2	8.00	132	0.36
Site Restoration	Rollers	2	8.00	80	0.38
Access Road	Air Compressors	1	6.00	78	0.48
Reservoir Construction	Other Material Handling Equipment	1	8.00	168	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	161.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Reservoir Construction	9	99.00	39.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Access Road	1	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0174	0.0000	0.0174	2.6300e-003	0.0000	2.6300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0298	0.2861	0.2253	4.9000e-004		0.0133	0.0133		0.0122	0.0122	0.0000	42.9492	42.9492	0.0139	0.0000	43.2965
Total	**0.0298**	**0.2861**	**0.2253**	**4.9000e-004**	**0.0174**	**0.0133**	**0.0307**	**2.6300e-003**	**0.0122**	**0.0149**	**0.0000**	**42.9492**	**42.9492**	**0.0139**	**0.0000**	**43.2965**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4000e-004	0.0132	3.0200e-003	5.0000e-005	1.3900e-003	1.1000e-004	1.4900e-003	3.8000e-004	1.0000e-004	4.8000e-004	0.0000	4.8487	4.8487	2.6000e-004	7.7000e-004	5.0846
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.9000e-004	6.3900e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.6071	1.6071	4.0000e-005	4.0000e-005	1.6210
Total	**9.4000e-004**	**0.0137**	**9.4100e-003**	**7.0000e-005**	**3.3600e-003**	**1.2000e-004**	**3.4800e-003**	**9.0000e-004**	**1.1000e-004**	**1.0200e-003**	**0.0000**	**6.4558**	**6.4558**	**3.0000e-004**	**8.1000e-004**	**6.7056**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.8200e-003	0.0000	7.8200e-003	1.1800e-003	0.0000	1.1800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0298	0.2861	0.2253	4.9000e-004		0.0133	0.0133		0.0122	0.0122	0.0000	42.9492	42.9492	0.0139	0.0000	43.2964
Total	**0.0298**	**0.2861**	**0.2253**	**4.9000e-004**	**7.8200e-003**	**0.0133**	**0.0211**	**1.1800e-003**	**0.0122**	**0.0134**	**0.0000**	**42.9492**	**42.9492**	**0.0139**	**0.0000**	**43.2964**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4000e-004	0.0132	3.0200e-003	5.0000e-005	1.3900e-003	1.1000e-004	1.4900e-003	3.8000e-004	1.0000e-004	4.8000e-004	0.0000	4.8487	4.8487	2.6000e-004	7.7000e-004	5.0846
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.9000e-004	6.3900e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.6071	1.6071	4.0000e-005	4.0000e-005	1.6210
Total	**9.4000e-004**	**0.0137**	**9.4100e-003**	**7.0000e-005**	**3.3600e-003**	**1.2000e-004**	**3.4800e-003**	**9.0000e-004**	**1.1000e-004**	**1.0200e-003**	**0.0000**	**6.4558**	**6.4558**	**3.0000e-004**	**8.1000e-004**	**6.7056**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0658	0.0000	0.0658	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0223	0.2134	0.1877	3.9000e-004		0.0102	0.0102		9.3800e-003	9.3800e-003	0.0000	34.1451	34.1451	0.0110	0.0000	34.4212
Total	**0.0223**	**0.2134**	**0.1877**	**3.9000e-004**	**0.0658**	**0.0102**	**0.0759**	**0.0337**	**9.3800e-003**	**0.0431**	**0.0000**	**34.1451**	**34.1451**	**0.0110**	**0.0000**	**34.4212**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0400e-003	0.0411	9.3900e-003	1.5000e-004	4.3000e-003	3.3000e-004	4.6300e-003	1.1800e-003	3.1000e-004	1.4900e-003	0.0000	15.0580	15.0580	8.1000e-004	2.3900e-003	15.7906
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.9000e-004	6.3900e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.6071	1.6071	4.0000e-005	4.0000e-005	1.6210
Total	**1.6400e-003**	**0.0416**	**0.0158**	**1.7000e-004**	**6.2700e-003**	**3.4000e-004**	**6.6200e-003**	**1.7000e-003**	**3.2000e-004**	**2.0300e-003**	**0.0000**	**16.6651**	**16.6651**	**8.5000e-004**	**2.4300e-003**	**17.4116**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0296	0.0000	0.0296	0.0152	0.0000	0.0152	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0223	0.2134	0.1877	3.9000e-004		0.0102	0.0102		9.3800e-003	9.3800e-003	0.0000	34.1451	34.1451	0.0110	0.0000	34.4212
Total	**0.0223**	**0.2134**	**0.1877**	**3.9000e-004**	**0.0296**	**0.0102**	**0.0398**	**0.0152**	**9.3800e-003**	**0.0246**	**0.0000**	**34.1451**	**34.1451**	**0.0110**	**0.0000**	**34.4212**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0400e-003	0.0411	9.3900e-003	1.5000e-004	4.3000e-003	3.3000e-004	4.6300e-003	1.1800e-003	3.1000e-004	1.4900e-003	0.0000	15.0580	15.0580	8.1000e-004	2.3900e-003	15.7906
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.9000e-004	6.3900e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.6071	1.6071	4.0000e-005	4.0000e-005	1.6210
Total	**1.6400e-003**	**0.0416**	**0.0158**	**1.7000e-004**	**6.2700e-003**	**3.4000e-004**	**6.6200e-003**	**1.7000e-003**	**3.2000e-004**	**2.0300e-003**	**0.0000**	**16.6651**	**16.6651**	**8.5000e-004**	**2.4300e-003**	**17.4116**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Reservoir Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0477	0.4219	0.4413	9.4000e-004		0.0204	0.0204		0.0192	0.0192	0.0000	81.6993	81.6993	0.0212	0.0000	82.2295
Total	**0.0477**	**0.4219**	**0.4413**	**9.4000e-004**		**0.0204**	**0.0204**		**0.0192**	**0.0192**	**0.0000**	**81.6993**	**81.6993**	**0.0212**	**0.0000**	**82.2295**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6500e-003	0.0448	0.0149	1.8000e-004	5.7800e-003	4.5000e-004	6.2300e-003	1.6700e-003	4.3000e-004	2.1000e-003	0.0000	17.1037	17.1037	5.7000e-004	2.4800e-003	17.8576
Worker	7.8100e-003	6.3100e-003	0.0825	2.3000e-004	0.0255	1.6000e-004	0.0257	6.7800e-003	1.4000e-004	6.9200e-003	0.0000	20.7718	20.7718	5.7000e-004	5.6000e-004	20.9519
Total	**9.4600e-003**	**0.0511**	**0.0974**	**4.1000e-004**	**0.0313**	**6.1000e-004**	**0.0319**	**8.4500e-003**	**5.7000e-004**	**9.0200e-003**	**0.0000**	**37.8755**	**37.8755**	**1.1400e-003**	**3.0400e-003**	**38.8095**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Reservoir Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0477	0.4219	0.4413	9.4000e-004		0.0204	0.0204		0.0192	0.0192	0.0000	81.6992	81.6992	0.0212	0.0000	82.2294
Total	**0.0477**	**0.4219**	**0.4413**	**9.4000e-004**		**0.0204**	**0.0204**		**0.0192**	**0.0192**	**0.0000**	**81.6992**	**81.6992**	**0.0212**	**0.0000**	**82.2294**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6500e-003	0.0448	0.0149	1.8000e-004	5.7800e-003	4.5000e-004	6.2300e-003	1.6700e-003	4.3000e-004	2.1000e-003	0.0000	17.1037	17.1037	5.7000e-004	2.4800e-003	17.8576
Worker	7.8100e-003	6.3100e-003	0.0825	2.3000e-004	0.0255	1.6000e-004	0.0257	6.7800e-003	1.4000e-004	6.9200e-003	0.0000	20.7718	20.7718	5.7000e-004	5.6000e-004	20.9519
Total	**9.4600e-003**	**0.0511**	**0.0974**	**4.1000e-004**	**0.0313**	**6.1000e-004**	**0.0319**	**8.4500e-003**	**5.7000e-004**	**9.0200e-003**	**0.0000**	**37.8755**	**37.8755**	**1.1400e-003**	**3.0400e-003**	**38.8095**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Reservoir Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.9100e-003	0.0164	0.0186	4.0000e-005		7.7000e-004	7.7000e-004		7.2000e-004	7.2000e-004	0.0000	3.4774	3.4774	9.0000e-004	0.0000	3.4999
Total	**1.9100e-003**	**0.0164**	**0.0186**	**4.0000e-005**		**7.7000e-004**	**7.7000e-004**		**7.2000e-004**	**7.2000e-004**	**0.0000**	**3.4774**	**3.4774**	**9.0000e-004**	**0.0000**	**3.4999**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.4900e-003	5.7000e-004	1.0000e-005	2.5000e-004	1.0000e-005	2.5000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.6941	0.6941	2.0000e-005	1.0000e-004	0.7246
Worker	3.1000e-004	2.4000e-004	3.2400e-003	1.0000e-005	1.0900e-003	1.0000e-005	1.0900e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.8607	0.8607	2.0000e-005	2.0000e-005	0.8677
Total	**3.5000e-004**	**1.7300e-003**	**3.8100e-003**	**2.0000e-005**	**1.3400e-003**	**2.0000e-005**	**1.3400e-003**	**3.6000e-004**	**2.0000e-005**	**3.7000e-004**	**0.0000**	**1.5548**	**1.5548**	**4.0000e-005**	**1.2000e-004**	**1.5924**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Reservoir Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.9100e-003	0.0164	0.0186	4.0000e-005		7.7000e-004	7.7000e-004		7.2000e-004	7.2000e-004	0.0000	3.4774	3.4774	9.0000e-004	0.0000	3.4999
Total	**1.9100e-003**	**0.0164**	**0.0186**	**4.0000e-005**		**7.7000e-004**	**7.7000e-004**		**7.2000e-004**	**7.2000e-004**	**0.0000**	**3.4774**	**3.4774**	**9.0000e-004**	**0.0000**	**3.4999**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.4900e-003	5.7000e-004	1.0000e-005	2.5000e-004	1.0000e-005	2.5000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.6941	0.6941	2.0000e-005	1.0000e-004	0.7246
Worker	3.1000e-004	2.4000e-004	3.2400e-003	1.0000e-005	1.0900e-003	1.0000e-005	1.0900e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.8607	0.8607	2.0000e-005	2.0000e-005	0.8677
Total	**3.5000e-004**	**1.7300e-003**	**3.8100e-003**	**2.0000e-005**	**1.3400e-003**	**2.0000e-005**	**1.3400e-003**	**3.6000e-004**	**2.0000e-005**	**3.7000e-004**	**0.0000**	**1.5548**	**1.5548**	**4.0000e-005**	**1.2000e-004**	**1.5924**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Site Restoration - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.6000e-004	4.9100e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3040	1.3040	3.0000e-005	3.0000e-005	1.3147
Total	**4.7000e-004**	**3.6000e-004**	**4.9100e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3040**	**1.3040**	**3.0000e-005**	**3.0000e-005**	**1.3147**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Site Restoration - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.6000e-004	4.9100e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3040	1.3040	3.0000e-005	3.0000e-005	1.3147
Total	**4.7000e-004**	**3.6000e-004**	**4.9100e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3040**	**1.3040**	**3.0000e-005**	**3.0000e-005**	**1.3147**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Access Road - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0327					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.0346**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.8000e-004	6.5400e-003	2.0000e-005	2.1900e-003	1.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	5.9000e-004	0.0000	1.7387	1.7387	4.0000e-005	4.0000e-005	1.7530
Total	**6.2000e-004**	**4.8000e-004**	**6.5400e-003**	**2.0000e-005**	**2.1900e-003**	**1.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**1.7387**	**1.7387**	**4.0000e-005**	**4.0000e-005**	**1.7530**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Access Road - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0327					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.0346**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.8000e-004	6.5400e-003	2.0000e-005	2.1900e-003	1.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	5.9000e-004	0.0000	1.7387	1.7387	4.0000e-005	4.0000e-005	1.7530
Total	**6.2000e-004**	**4.8000e-004**	**6.5400e-003**	**2.0000e-005**	**2.1900e-003**	**1.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**1.7387**	**1.7387**	**4.0000e-005**	**4.0000e-005**	**1.7530**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0185	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3000e-004	1.3000e-004	0.0000	0.0000	1.4000e-004
Unmitigated	0.0185	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3000e-004	1.3000e-004	0.0000	0.0000	1.4000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0152					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3000e-004	1.3000e-004	0.0000	0.0000	1.4000e-004
Total	**0.0185**	**0.0000**	**7.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.0000**	**1.4000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0152					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3000e-004	1.3000e-004	0.0000	0.0000	1.4000e-004
Total	**0.0185**	**0.0000**	**7.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.0000**	**1.4000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Murphy Reservoirs Project -AQ

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	5.40	Acre	5.40	235,224.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - provided by client

Construction Phase - Based on Client construction timeline

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Provided by client

Off-road Equipment - Provided by client

Off-road Equipment - Equipment provided by client.

Off-road Equipment - Provided by Client

Demolition - Client provided information that approximately 800 CY would be demolished. 1 CY of concrete = 2.03 tons.

Grading - Material exported provided by client

Architectural Coating - SCAQMD Rule 1113

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Area Coating - SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Area Mitigation - SCAQMD Rule 1113

Water Mitigation -

Stationary Sources - Emergency Generators and Fire Pumps -

Stationary Sources - User Defined -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	230.00	49.00
tblGrading	MaterialExported	0.00	4,000.00
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Other Material Handling Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

2.0 Emissions Summary

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.0706	29.9072	23.5133	0.0573	7.2134	1.3403	8.2663	3.5441	1.2334	4.5140	0.0000	5,653.2235	5,653.2235	1.5647	0.2679	5,721.3090
2023	4.6069	18.0372	22.6537	0.0566	1.3563	0.7814	2.1378	0.3654	0.7352	1.1005	0.0000	5,589.6506	5,589.6506	1.0409	0.1331	5,655.3231
Maximum	**4.6069**	**29.9072**	**23.5133**	**0.0573**	**7.2134**	**1.3403**	**8.2663**	**3.5441**	**1.2334**	**4.5140**	**0.0000**	**5,653.2235**	**5,653.2235**	**1.5647**	**0.2679**	**5,721.3090**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.0706	29.9072	23.5133	0.0573	3.5972	1.3403	4.6501	1.6901	1.2334	2.6600	0.0000	5,653.2235	5,653.2235	1.5647	0.2679	5,721.3090
2023	4.6069	18.0372	22.6537	0.0566	1.3563	0.7814	2.1378	0.3654	0.7352	1.1005	0.0000	5,589.6506	5,589.6506	1.0409	0.1331	5,655.3231
Maximum	**4.6069**	**29.9072**	**23.5133**	**0.0573**	**3.5972**	**1.3403**	**4.6501**	**1.6901**	**1.2334**	**2.6600**	**0.0000**	**5,653.2235**	**5,653.2235**	**1.5647**	**0.2679**	**5,721.3090**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	42.20	0.00	34.76	47.42	0.00	33.02	0.00	0.00	0.00	0.00	0.00	0.00

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1013	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1013**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**	**0.0000**	**1.2600e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1013	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1013**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**	**0.0000**	**1.2600e-003**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Demolition	9/1/2022	9/28/2022	5	20	
2	Grading	Grading	9/29/2022	10/26/2022	5	20	
3	Reservoir Construction	Building Construction	10/27/2022	1/3/2023	5	49	
4	Site Restoration	Paving	1/4/2023	1/31/2023	5	20	
5	Access Road	Architectural Coating	1/4/2023	1/31/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 5.4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 14,113 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	3	8.00	158	0.38
Site Preparation	Off-Highway Trucks	1	8.00	402	0.38
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Reservoir Construction	Aerial Lifts	1	8.00	63	0.31
Reservoir Construction	Air Compressors	1	6.00	78	0.48
Reservoir Construction	Cranes	1	7.00	231	0.29
Reservoir Construction	Forklifts	3	8.00	89	0.20
Reservoir Construction	Generator Sets	1	8.00	84	0.74
Reservoir Construction	Off-Highway Trucks	1	8.00	402	0.38
Reservoir Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Reservoir Construction	Welders	0	8.00	46	0.45
Site Restoration	Pavers	2	8.00	130	0.42
Site Restoration	Paving Equipment	2	8.00	132	0.36
Site Restoration	Rollers	2	8.00	80	0.38
Access Road	Air Compressors	1	6.00	78	0.48
Reservoir Construction	Other Material Handling Equipment	1	8.00	168	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	161.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Reservoir Construction	9	99.00	39.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Access Road	1	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.7376	0.0000	1.7376	0.2631	0.0000	0.2631			0.0000			0.0000
Off-Road	2.9746	28.6076	22.5261	0.0489		1.3286	1.3286		1.2223	1.2223		4,734.3408	4,734.3408	1.5312		4,772.6203
Total	**2.9746**	**28.6076**	**22.5261**	**0.0489**	**1.7376**	**1.3286**	**3.0662**	**0.2631**	**1.2223**	**1.4854**		**4,734.3408**	**4,734.3408**	**1.5312**		**4,772.6203**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0340	1.2560	0.3002	4.8700e-003	0.1408	0.0105	0.1513	0.0386	0.0101	0.0486		534.3918	534.3918	0.0287	0.0848	560.3897
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0620	0.0436	0.6871	1.8200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		185.2465	185.2465	4.8100e-003	4.4000e-003	186.6790
Total	**0.0960**	**1.2996**	**0.9872**	**6.6900e-003**	**0.3420**	**0.0117**	**0.3537**	**0.0920**	**0.0112**	**0.1031**		**719.6383**	**719.6383**	**0.0335**	**0.0892**	**747.0687**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7819	0.0000	0.7819	0.1184	0.0000	0.1184			0.0000			0.0000
Off-Road	2.9746	28.6076	22.5261	0.0489		1.3286	1.3286		1.2223	1.2223	0.0000	4,734.3408	4,734.3408	1.5312		4,772.6203
Total	**2.9746**	**28.6076**	**22.5261**	**0.0489**	**0.7819**	**1.3286**	**2.1105**	**0.1184**	**1.2223**	**1.3407**	**0.0000**	**4,734.3408**	**4,734.3408**	**1.5312**		**4,772.6203**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0340	1.2560	0.3002	4.8700e-003	0.1408	0.0105	0.1513	0.0386	0.0101	0.0486		534.3918	534.3918	0.0287	0.0848	560.3897
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0620	0.0436	0.6871	1.8200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		185.2465	185.2465	4.8100e-003	4.4000e-003	186.6790
Total	**0.0960**	**1.2996**	**0.9872**	**6.6900e-003**	**0.3420**	**0.0117**	**0.3537**	**0.0920**	**0.0112**	**0.1031**		**719.6383**	**719.6383**	**0.0335**	**0.0892**	**747.0687**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5750	0.0000	6.5750	3.3709	0.0000	3.3709			0.0000			0.0000
Off-Road	2.2284	21.3372	18.7700	0.0389		1.0191	1.0191		0.9375	0.9375		3,763.8566	3,763.8566	1.2173		3,794.2893
Total	**2.2284**	**21.3372**	**18.7700**	**0.0389**	**6.5750**	**1.0191**	**7.5940**	**3.3709**	**0.9375**	**4.3084**		**3,763.8566**	**3,763.8566**	**1.2173**		**3,794.2893**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1056	3.9005	0.9322	0.0151	0.4373	0.0326	0.4699	0.1199	0.0312	0.1511		1,659.6018	1,659.6018	0.0891	0.2635	1,740.3407
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0620	0.0436	0.6871	1.8200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		185.2465	185.2465	4.8100e-003	4.4000e-003	186.6790
Total	**0.1676**	**3.9442**	**1.6192**	**0.0170**	**0.6385**	**0.0338**	**0.6723**	**0.1732**	**0.0323**	**0.2055**		**1,844.8483**	**1,844.8483**	**0.0940**	**0.2679**	**1,927.0197**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9587	0.0000	2.9587	1.5169	0.0000	1.5169			0.0000			0.0000
Off-Road	2.2284	21.3372	18.7700	0.0389		1.0191	1.0191		0.9375	0.9375	0.0000	3,763.8566	3,763.8566	1.2173		3,794.2893
Total	**2.2284**	**21.3372**	**18.7700**	**0.0389**	**2.9587**	**1.0191**	**3.9778**	**1.5169**	**0.9375**	**2.4544**	**0.0000**	**3,763.8566**	**3,763.8566**	**1.2173**		**3,794.2893**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1056	3.9005	0.9322	0.0151	0.4373	0.0326	0.4699	0.1199	0.0312	0.1511		1,659.6018	1,659.6018	0.0891	0.2635	1,740.3407
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0620	0.0436	0.6871	1.8200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		185.2465	185.2465	4.8100e-003	4.4000e-003	186.6790
Total	**0.1676**	**3.9442**	**1.6192**	**0.0170**	**0.6385**	**0.0338**	**0.6723**	**0.1732**	**0.0323**	**0.2055**		**1,844.8483**	**1,844.8483**	**0.0940**	**0.2679**	**1,927.0197**

3.4 Reservoir Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0304	17.9549	18.7793	0.0398		0.8670	0.8670		0.8159	0.8159		3,832.2574	3,832.2574	0.9948		3,857.1280
Total	**2.0304**	**17.9549**	**18.7793**	**0.0398**		**0.8670**	**0.8670**		**0.8159**	**0.8159**		**3,832.2574**	**3,832.2574**	**0.9948**		**3,857.1280**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Reservoir Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0711	1.8147	0.6222	7.4600e-003	0.2497	0.0190	0.2687	0.0719	0.0182	0.0901		802.1105	802.1105	0.0269	0.1163	837.4366
Worker	0.3410	0.2399	3.7789	0.0100	1.1066	6.6100e-003	1.1132	0.2935	6.0900e-003	0.2996		1,018.8557	1,018.8557	0.0265	0.0242	1,026.7346
Total	**0.4121**	**2.0546**	**4.4010**	**0.0175**	**1.3563**	**0.0256**	**1.3819**	**0.3654**	**0.0242**	**0.3896**		**1,820.9661**	**1,820.9661**	**0.0533**	**0.1405**	**1,864.1712**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0304	17.9549	18.7793	0.0398		0.8670	0.8670		0.8159	0.8159	0.0000	3,832.2573	3,832.2573	0.9948		3,857.1280
Total	**2.0304**	**17.9549**	**18.7793**	**0.0398**		**0.8670**	**0.8670**		**0.8159**	**0.8159**	**0.0000**	**3,832.2573**	**3,832.2573**	**0.9948**		**3,857.1280**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Reservoir Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0711	1.8147	0.6222	7.4600e-003	0.2497	0.0190	0.2687	0.0719	0.0182	0.0901		802.1105	802.1105	0.0269	0.1163	837.4366
Worker	0.3410	0.2399	3.7789	0.0100	1.1066	6.6100e-003	1.1132	0.2935	6.0900e-003	0.2996		1,018.8557	1,018.8557	0.0265	0.0242	1,026.7346
Total	**0.4121**	**2.0546**	**4.4010**	**0.0175**	**1.3563**	**0.0256**	**1.3819**	**0.3654**	**0.0242**	**0.3896**		**1,820.9661**	**1,820.9661**	**0.0533**	**0.1405**	**1,864.1712**

3.4 Reservoir Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9052	16.4093	18.6142	0.0398		0.7670	0.7670		0.7215	0.7215		3,833.1508	3,833.1508	0.9914		3,857.9368
Total	**1.9052**	**16.4093**	**18.6142**	**0.0398**		**0.7670**	**0.7670**		**0.7215**	**0.7215**		**3,833.1508**	**3,833.1508**	**0.9914**		**3,857.9368**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Reservoir Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0431	1.4157	0.5574	7.1000e-003	0.2497	8.2400e-003	0.2580	0.0719	7.8900e-003	0.0798		764.5206	764.5206	0.0257	0.1107	798.1453
Worker	0.3163	0.2123	3.4822	9.6900e-003	1.1066	6.2300e-003	1.1128	0.2935	5.7400e-003	0.2992		991.9792	991.9792	0.0238	0.0224	999.2411
Total	**0.3594**	**1.6280**	**4.0395**	**0.0168**	**1.3563**	**0.0145**	**1.3708**	**0.3654**	**0.0136**	**0.3790**		**1,756.4998**	**1,756.4998**	**0.0495**	**0.1331**	**1,797.3864**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9052	16.4093	18.6142	0.0398		0.7670	0.7670		0.7215	0.7215	0.0000	3,833.1508	3,833.1508	0.9914		3,857.9368
Total	**1.9052**	**16.4093**	**18.6142**	**0.0398**		**0.7670**	**0.7670**		**0.7215**	**0.7215**	**0.0000**	**3,833.1508**	**3,833.1508**	**0.9914**		**3,857.9368**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Reservoir Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0431	1.4157	0.5574	7.1000e-003	0.2497	8.2400e-003	0.2580	0.0719	7.8900e-003	0.0798		764.5206	764.5206	0.0257	0.1107	798.1453
Worker	0.3163	0.2123	3.4822	9.6900e-003	1.1066	6.2300e-003	1.1128	0.2935	5.7400e-003	0.2992		991.9792	991.9792	0.0238	0.0224	999.2411
Total	**0.3594**	**1.6280**	**4.0395**	**0.0168**	**1.3563**	**0.0145**	**1.3708**	**0.3654**	**0.0136**	**0.3790**		**1,756.4998**	**1,756.4998**	**0.0495**	**0.1331**	**1,797.3864**

3.5 Site Restoration - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Site Restoration - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0479	0.0322	0.5276	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		150.2999	150.2999	3.6000e-003	3.3900e-003	151.4002
Total	**0.0479**	**0.0322**	**0.5276**	**1.4700e-003**	**0.1677**	**9.4000e-004**	**0.1686**	**0.0445**	**8.7000e-004**	**0.0453**		**150.2999**	**150.2999**	**3.6000e-003**	**3.3900e-003**	**151.4002**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Site Restoration - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0479	0.0322	0.5276	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		150.2999	150.2999	3.6000e-003	3.3900e-003	151.4002
Total	**0.0479**	**0.0322**	**0.5276**	**1.4700e-003**	**0.1677**	**9.4000e-004**	**0.1686**	**0.0445**	**8.7000e-004**	**0.0453**		**150.2999**	**150.2999**	**3.6000e-003**	**3.3900e-003**	**151.4002**

3.6 Access Road - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.2707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**3.4624**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Access Road - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0639	0.0429	0.7035	1.9600e-003	0.2236	1.2600e-003	0.2248	0.0593	1.1600e-003	0.0605		200.3998	200.3998	4.8000e-003	4.5200e-003	201.8669
Total	**0.0639**	**0.0429**	**0.7035**	**1.9600e-003**	**0.2236**	**1.2600e-003**	**0.2248**	**0.0593**	**1.1600e-003**	**0.0605**		**200.3998**	**200.3998**	**4.8000e-003**	**4.5200e-003**	**201.8669**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.2707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**3.4624**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Access Road - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0639	0.0429	0.7035	1.9600e-003	0.2236	1.2600e-003	0.2248	0.0593	1.1600e-003	0.0605		200.3998	200.3998	4.8000e-003	4.5200e-003	201.8669
Total	**0.0639**	**0.0429**	**0.7035**	**1.9600e-003**	**0.2236**	**1.2600e-003**	**0.2248**	**0.0593**	**1.1600e-003**	**0.0605**		**200.3998**	**200.3998**	**4.8000e-003**	**4.5200e-003**	**201.8669**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1013	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Unmitigated	0.1013	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Total	**0.1013**	**1.0000e-005**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**		**1.2600e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Total	**0.1013**	**1.0000e-005**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**		**1.2600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Murphy Reservoirs Project -AQ

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	5.40	Acre	5.40	235,224.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - provided by client

Construction Phase - Based on Client construction timeline

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Provided by client

Off-road Equipment - Provided by client

Off-road Equipment - Equipment provided by client.

Off-road Equipment - Provided by Client

Demolition - Client provided information that approximately 800 CY would be demolished. 1 CY of concrete = 2.03 tons.

Grading - Material exported provided by client

Architectural Coating - SCAQMD Rule 1113

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Area Coating - SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Area Mitigation - SCAQMD Rule 1113

Water Mitigation -

Stationary Sources - Emergency Generators and Fire Pumps -

Stationary Sources - User Defined -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	230.00	49.00
tblGrading	MaterialExported	0.00	4,000.00
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Other Material Handling Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

2.0 Emissions Summary

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.0729	29.9665	23.4530	0.0567	7.2134	1.3403	8.2664	3.5441	1.2334	4.5140	0.0000	5,598.5447	5,598.5447	1.5647	0.2682	5,711.2572
2023	4.6131	18.1273	22.3408	0.0560	1.3563	0.7815	2.1378	0.3654	0.7352	1.1006	0.0000	5,533.4642	5,533.4642	1.0411	0.1347	5,599.6350
Maximum	**4.6131**	**29.9665**	**23.4530**	**0.0567**	**7.2134**	**1.3403**	**8.2664**	**3.5441**	**1.2334**	**4.5140**	**0.0000**	**5,598.5447**	**5,598.5447**	**1.5647**	**0.2682**	**5,711.2572**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.0729	29.9665	23.4530	0.0567	3.5972	1.3403	4.6502	1.6901	1.2334	2.6600	0.0000	5,598.5447	5,598.5447	1.5647	0.2682	5,711.2572
2023	4.6131	18.1273	22.3408	0.0560	1.3563	0.7815	2.1378	0.3654	0.7352	1.1006	0.0000	5,533.4642	5,533.4642	1.0411	0.1347	5,599.6350
Maximum	**4.6131**	**29.9665**	**23.4530**	**0.0567**	**3.5972**	**1.3403**	**4.6502**	**1.6901**	**1.2334**	**2.6600**	**0.0000**	**5,598.5447**	**5,598.5447**	**1.5647**	**0.2682**	**5,711.2572**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	42.20	0.00	34.76	47.42	0.00	33.02	0.00	0.00	0.00	0.00	0.00	0.00

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1013	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1013**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**	**0.0000**	**1.2600e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1013	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1013**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**	**0.0000**	**1.2600e-003**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Demolition	9/1/2022	9/28/2022	5	20	
2	Grading	Grading	9/29/2022	10/26/2022	5	20	
3	Reservoir Construction	Building Construction	10/27/2022	1/3/2023	5	49	
4	Site Restoration	Paving	1/4/2023	1/31/2023	5	20	
5	Access Road	Architectural Coating	1/4/2023	1/31/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 5.4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 14,113 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Excavators	3	8.00	158	0.38
Site Preparation	Off-Highway Trucks	1	8.00	402	0.38
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading	Off-Highway Trucks	1	8.00	402	0.38
Grading	Rollers	1	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Reservoir Construction	Aerial Lifts	1	8.00	63	0.31
Reservoir Construction	Air Compressors	1	6.00	78	0.48
Reservoir Construction	Cranes	1	7.00	231	0.29
Reservoir Construction	Forklifts	3	8.00	89	0.20
Reservoir Construction	Generator Sets	1	8.00	84	0.74
Reservoir Construction	Off-Highway Trucks	1	8.00	402	0.38
Reservoir Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Reservoir Construction	Welders	0	8.00	46	0.45
Site Restoration	Pavers	2	8.00	130	0.42
Site Restoration	Paving Equipment	2	8.00	132	0.36
Site Restoration	Rollers	2	8.00	80	0.38
Access Road	Air Compressors	1	6.00	78	0.48
Reservoir Construction	Other Material Handling Equipment	1	8.00	168	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	161.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Reservoir Construction	9	99.00	39.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Access Road	1	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.7376	0.0000	1.7376	0.2631	0.0000	0.2631			0.0000			0.0000
Off-Road	2.9746	28.6076	22.5261	0.0489		1.3286	1.3286		1.2223	1.2223		4,734.3408	4,734.3408	1.5312		4,772.6203
Total	**2.9746**	**28.6076**	**22.5261**	**0.0489**	**1.7376**	**1.3286**	**3.0662**	**0.2631**	**1.2223**	**1.4854**		**4,734.3408**	**4,734.3408**	**1.5312**		**4,772.6203**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0331	1.3112	0.3058	4.8700e-003	0.1408	0.0105	0.1513	0.0386	0.0101	0.0487		534.5886	534.5886	0.0287	0.0849	560.5952
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0652	0.0477	0.6211	1.7200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		174.4750	174.4750	4.8700e-003	4.6700e-003	175.9891
Total	**0.0983**	**1.3589**	**0.9269**	**6.5900e-003**	**0.3420**	**0.0117**	**0.3537**	**0.0920**	**0.0112**	**0.1031**		**709.0636**	**709.0636**	**0.0335**	**0.0895**	**736.5843**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7819	0.0000	0.7819	0.1184	0.0000	0.1184			0.0000			0.0000
Off-Road	2.9746	28.6076	22.5261	0.0489		1.3286	1.3286		1.2223	1.2223	0.0000	4,734.3408	4,734.3408	1.5312		4,772.6203
Total	**2.9746**	**28.6076**	**22.5261**	**0.0489**	**0.7819**	**1.3286**	**2.1105**	**0.1184**	**1.2223**	**1.3407**	**0.0000**	**4,734.3408**	**4,734.3408**	**1.5312**		**4,772.6203**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0331	1.3112	0.3058	4.8700e-003	0.1408	0.0105	0.1513	0.0386	0.0101	0.0487		534.5886	534.5886	0.0287	0.0849	560.5952
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0652	0.0477	0.6211	1.7200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		174.4750	174.4750	4.8700e-003	4.6700e-003	175.9891
Total	**0.0983**	**1.3589**	**0.9269**	**6.5900e-003**	**0.3420**	**0.0117**	**0.3537**	**0.0920**	**0.0112**	**0.1031**		**709.0636**	**709.0636**	**0.0335**	**0.0895**	**736.5843**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5750	0.0000	6.5750	3.3709	0.0000	3.3709			0.0000			0.0000
Off-Road	2.2284	21.3372	18.7700	0.0389		1.0191	1.0191		0.9375	0.9375		3,763.8566	3,763.8566	1.2173		3,794.2893
Total	**2.2284**	**21.3372**	**18.7700**	**0.0389**	**6.5750**	**1.0191**	**7.5940**	**3.3709**	**0.9375**	**4.3084**		**3,763.8566**	**3,763.8566**	**1.2173**		**3,794.2893**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1027	4.0719	0.9497	0.0151	0.4373	0.0327	0.4700	0.1199	0.0313	0.1511		1,660.2131	1,660.2131	0.0890	0.2636	1,740.9788
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0652	0.0477	0.6211	1.7200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		174.4750	174.4750	4.8700e-003	4.6700e-003	175.9891
Total	**0.1679**	**4.1196**	**1.5708**	**0.0169**	**0.6385**	**0.0339**	**0.6724**	**0.1732**	**0.0324**	**0.2056**		**1,834.6881**	**1,834.6881**	**0.0939**	**0.2682**	**1,916.9679**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9587	0.0000	2.9587	1.5169	0.0000	1.5169			0.0000			0.0000
Off-Road	2.2284	21.3372	18.7700	0.0389		1.0191	1.0191		0.9375	0.9375	0.0000	3,763.8566	3,763.8566	1.2173		3,794.2893
Total	**2.2284**	**21.3372**	**18.7700**	**0.0389**	**2.9587**	**1.0191**	**3.9778**	**1.5169**	**0.9375**	**2.4544**	**0.0000**	**3,763.8566**	**3,763.8566**	**1.2173**		**3,794.2893**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1027	4.0719	0.9497	0.0151	0.4373	0.0327	0.4700	0.1199	0.0313	0.1511		1,660.2131	1,660.2131	0.0890	0.2636	1,740.9788
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0652	0.0477	0.6211	1.7200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		174.4750	174.4750	4.8700e-003	4.6700e-003	175.9891
Total	**0.1679**	**4.1196**	**1.5708**	**0.0169**	**0.6385**	**0.0339**	**0.6724**	**0.1732**	**0.0324**	**0.2056**		**1,834.6881**	**1,834.6881**	**0.0939**	**0.2682**	**1,916.9679**

3.4 Reservoir Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0304	17.9549	18.7793	0.0398		0.8670	0.8670		0.8159	0.8159		3,832.2574	3,832.2574	0.9948		3,857.1280
Total	**2.0304**	**17.9549**	**18.7793**	**0.0398**		**0.8670**	**0.8670**		**0.8159**	**0.8159**		**3,832.2574**	**3,832.2574**	**0.9948**		**3,857.1280**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Reservoir Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0698	1.8939	0.6446	7.4600e-003	0.2497	0.0190	0.2688	0.0719	0.0182	0.0901		802.5120	802.5120	0.0268	0.1164	837.8809
Worker	0.3587	0.2624	3.4161	9.4300e-003	1.1066	6.6100e-003	1.1132	0.2935	6.0900e-003	0.2996		959.6123	959.6123	0.0268	0.0257	967.9402
Total	**0.4286**	**2.1563**	**4.0606**	**0.0169**	**1.3563**	**0.0257**	**1.3820**	**0.3654**	**0.0243**	**0.3897**		**1,762.1244**	**1,762.1244**	**0.0536**	**0.1421**	**1,805.8211**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0304	17.9549	18.7793	0.0398		0.8670	0.8670		0.8159	0.8159	0.0000	3,832.2573	3,832.2573	0.9948		3,857.1280
Total	**2.0304**	**17.9549**	**18.7793**	**0.0398**		**0.8670**	**0.8670**		**0.8159**	**0.8159**	**0.0000**	**3,832.2573**	**3,832.2573**	**0.9948**		**3,857.1280**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Reservoir Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0698	1.8939	0.6446	7.4600e-003	0.2497	0.0190	0.2688	0.0719	0.0182	0.0901		802.5120	802.5120	0.0268	0.1164	837.8809
Worker	0.3587	0.2624	3.4161	9.4300e-003	1.1066	6.6100e-003	1.1132	0.2935	6.0900e-003	0.2996		959.6123	959.6123	0.0268	0.0257	967.9402
Total	**0.4286**	**2.1563**	**4.0606**	**0.0169**	**1.3563**	**0.0257**	**1.3820**	**0.3654**	**0.0243**	**0.3897**		**1,762.1244**	**1,762.1244**	**0.0536**	**0.1421**	**1,805.8211**

3.4 Reservoir Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9052	16.4093	18.6142	0.0398		0.7670	0.7670		0.7215	0.7215		3,833.1508	3,833.1508	0.9914		3,857.9368
Total	**1.9052**	**16.4093**	**18.6142**	**0.0398**		**0.7670**	**0.7670**		**0.7215**	**0.7215**		**3,833.1508**	**3,833.1508**	**0.9914**		**3,857.9368**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Reservoir Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0413	1.4859	0.5753	7.1100e-003	0.2497	8.2900e-003	0.2580	0.0719	7.9300e-003	0.0798		765.9029	765.9029	0.0256	0.1110	799.6129
Worker	0.3338	0.2321	3.1513	9.1300e-003	1.1066	6.2300e-003	1.1128	0.2935	5.7400e-003	0.2992		934.4105	934.4105	0.0241	0.0237	942.0853
Total	**0.3751**	**1.7180**	**3.7266**	**0.0162**	**1.3563**	**0.0145**	**1.3708**	**0.3654**	**0.0137**	**0.3790**		**1,700.3134**	**1,700.3134**	**0.0497**	**0.1347**	**1,741.6983**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9052	16.4093	18.6142	0.0398		0.7670	0.7670		0.7215	0.7215	0.0000	3,833.1508	3,833.1508	0.9914		3,857.9368
Total	**1.9052**	**16.4093**	**18.6142**	**0.0398**		**0.7670**	**0.7670**		**0.7215**	**0.7215**	**0.0000**	**3,833.1508**	**3,833.1508**	**0.9914**		**3,857.9368**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Reservoir Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0413	1.4859	0.5753	7.1100e-003	0.2497	8.2900e-003	0.2580	0.0719	7.9300e-003	0.0798		765.9029	765.9029	0.0256	0.1110	799.6129
Worker	0.3338	0.2321	3.1513	9.1300e-003	1.1066	6.2300e-003	1.1128	0.2935	5.7400e-003	0.2992		934.4105	934.4105	0.0241	0.0237	942.0853
Total	**0.3751**	**1.7180**	**3.7266**	**0.0162**	**1.3563**	**0.0145**	**1.3708**	**0.3654**	**0.0137**	**0.3790**		**1,700.3134**	**1,700.3134**	**0.0497**	**0.1347**	**1,741.6983**

3.5 Site Restoration - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Site Restoration - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0506	0.0352	0.4775	1.3800e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		141.5774	141.5774	3.6500e-003	3.6000e-003	142.7402
Total	**0.0506**	**0.0352**	**0.4775**	**1.3800e-003**	**0.1677**	**9.4000e-004**	**0.1686**	**0.0445**	**8.7000e-004**	**0.0453**		**141.5774**	**141.5774**	**3.6500e-003**	**3.6000e-003**	**142.7402**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Site Restoration - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0506	0.0352	0.4775	1.3800e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		141.5774	141.5774	3.6500e-003	3.6000e-003	142.7402
Total	**0.0506**	**0.0352**	**0.4775**	**1.3800e-003**	**0.1677**	**9.4000e-004**	**0.1686**	**0.0445**	**8.7000e-004**	**0.0453**		**141.5774**	**141.5774**	**3.6500e-003**	**3.6000e-003**	**142.7402**

3.6 Access Road - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.2707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**3.4624**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Access Road - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0674	0.0469	0.6366	1.8400e-003	0.2236	1.2600e-003	0.2248	0.0593	1.1600e-003	0.0605		188.7698	188.7698	4.8600e-003	4.7900e-003	190.3203
Total	**0.0674**	**0.0469**	**0.6366**	**1.8400e-003**	**0.2236**	**1.2600e-003**	**0.2248**	**0.0593**	**1.1600e-003**	**0.0605**		**188.7698**	**188.7698**	**4.8600e-003**	**4.7900e-003**	**190.3203**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.2707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**3.4624**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Access Road - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0674	0.0469	0.6366	1.8400e-003	0.2236	1.2600e-003	0.2248	0.0593	1.1600e-003	0.0605		188.7698	188.7698	4.8600e-003	4.7900e-003	190.3203
Total	**0.0674**	**0.0469**	**0.6366**	**1.8400e-003**	**0.2236**	**1.2600e-003**	**0.2248**	**0.0593**	**1.1600e-003**	**0.0605**		**188.7698**	**188.7698**	**4.8600e-003**	**4.7900e-003**	**190.3203**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1013	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Unmitigated	0.1013	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003

Murphy Reservoirs Project -AQ - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Total	**0.1013**	**1.0000e-005**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**		**1.2600e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0179					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0833					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Total	**0.1013**	**1.0000e-005**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**		**1.2600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Sensitive Species Tables

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Plants and Lichens				
Abronia villosa var. *aurita* chaparral sand-verbena	--/-- G5T2?/S2 1B.1	Annual herb. Blooms Jan-Sept. Occurs in chaparral, coastal scrub. Sandy areas of the South Coast and Sonoran Desert Floristic Provinces. 80-1600m (260-5250ft).	**Not Expected**	Species has not been documented in Whittier and habitat in the buffer area is extremely disturbed without suitable sandy soils.
Astragalus hornii var. *hornii* Horn's milk-vetch	--/-- GUT1/S1 1B.1	Meadows and seeps, playas. Lake margins, alkaline sites. 75-350 m.	**Not Expected**	Lake margins, meadows, or seeps do not occur on site or in the buffer.
Atriplex coulteri Coulter's saltbush	--/-- G3/S1S2 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland. Ocean bluffs, ridgetops, as well as alkaline low places. Alkaline or clay soils. 2-460 m.	**Not Expected**	Soils conditions are not suitable on site or in the buffer area for this species.
Atriplex parishii Parish's brittlescale	--/-- G1G2/S1 1B.1	Vernal pools, chenopod scrub, playas. Usually on drying alkali flats with fine soils. 4-1420 m.	**Not Expected**	Soils conditions are not suitable on site or in the buffer for this species.
Atriplex serenana var. *davidsonii* Davidson's saltscale	--/-- G5T1/S1 1B.2	Annual herb. Blooms April to October. Coastal bluff scrub, coastal scrub. Alkaline soil. 3-250m (10-820ft).	**Not Expected**	Soils conditions are not suitable on site or in the buffer for this species.
Berberis nevinii Nevin's barberry	FE/SE G1/S1 1B.1	Chaparral, cismontane woodland, coastal scrub, riparian scrub. On steep, N-facing slopes or in low grade sandy washes. 90-1590 m.	**Not Expected**	Soils conditions are not suitable for this species on site or in the buffer. Slopes are south-facing.
Calochortus weedii var. *intermedius* intermediate mariposa-lily	--/-- G3G4T2/S2 1B.2	Perennial herb. Blooms May to July. Coastal scrub, chaparral, valley and foothill grassland. Dry, rocky calcareous slopes and rock outcrops. 60-1575 m.	**Low**	Habitat on site is very disturbed and soils are not suitable, but documented occurrences are within the same general open space area. The species was not observed during field reconnaissance.
Calystegia felix lucky morning-glory	--/-- G1Q/S1 1B.1	Meadows and seeps, riparian scrub. Sometimes alkaline, alluvial. 9-205 m.	**Not Expected**	Riparian habitat does not occur on site or in the buffer.
Centromadia parryi ssp. *australis* southern tarplant	--/-- G3T2/S2 1B.1	Marshes and swamps (margins), valley and foothill grassland, vernal pools. Often in disturbed sites near the coast at marsh edges; also in alkaline soils sometimes with saltgrass. Sometimes on vernal pool margins. 0-975 m.	**Not Expected**	Soils conditions are not suitable on site or in the buffer for this species.
Chloropyron maritimum ssp. *maritimum*	FE/SE G4?T1/S1 1B.2	Occurs in coastal dunes and coastal salt marshes and swamps. This species	**Not Expected**	Coastal dunes and salt marshes do not occur on site or in the buffer.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
salt marsh bird's-beak		blooms between May and October, and typically occurs at elevations ranging from 0-30 meters.		
Cuscuta obtusiflora var. *glandulosa* Peruvian dodder	--/-- G5T4?/SH 2B.2	Marshes and swamps (freshwater). Freshwater marsh. 15-280 m.	**Not Expected**	Marshes and swamps do not occur on site or in the buffer site.
Dudleya multicaulis many-stemmed dudleya	--/-- G2/S2 1B.2	Chaparral, coastal scrub, valley and foothill grassland. In heavy, often clayey soils or grassy slopes. 1-910 m.	**Low**	There is low potential for this species to occur in the coastal scrub within the buffer area. This species is a perennial herb that is visible year round and was not observed during field reconnaissance.
Helianthus nuttallii ssp. *parishii* Los Angeles sunflower	--/-- G5TX/SX 1A	Marshes and swamps (coastal salt and freshwater). 35-1525 m.	**Not Expected**	Marshes and swamps do not occur on site or in the buffer.
Horkelia cuneata var. *puberula* mesa horkelia	--/-- G4T1/S1 1B.1	Perennial herb. Blooms February to September. Chaparral, cismontane woodland, coastal scrub. Sandy or gravelly sites. 70-810m (230-2655ft).	**Not Expected**	Soil conditions on site or in the buffer are not suitable for this species.
Isocoma menziesii var. *decumbens* decumbent goldenbush	--/-- G3G5T2T3/S2 1B.2	Perennial shrub. Blooms April to November. Coastal scrub. Sandy soils; often in disturbed sites. 10-910m (30-2985ft).	**Not Expected**	Soils on site and in the buffer are not suitable and this species has only been documented near the coast.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	--/-- G4T2/S2 1B.1	Annual herb. Blooms February to June. Coastal salt marshes, playas, valley and foothill grassland, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. 1-1400m (3-4595ft).	**Not Expected**	Soil conditions on site and in the buffer are not suitable for this species.
Nama stenocarpa mud nama	--/-- G4G5/S1S2 2B.2	Marshes and swamps. Lake shores, river banks, intermittently wet areas. 15-815 m.	**Not Expected**	Marshes and swamps are not on site or in the buffer.
Nasturtium gambelii Gambel's water cress	FE/ST G1/S1 1B.1	Marshes and swamps. Freshwater and brackish marshes at the margins of lakes and along streams, in or just above the water level. 5-305 m.	**Not Expected**	Marshes and swamps are not on site or in the buffer.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
Navarretia prostrata prostrate vernal pool navarretia	--/-- G2/S2 1B.2	Coastal scrub, valley and foothill grassland, vernal pools, meadows and seeps. Alkaline soils in grassland, or in vernal pools. Mesic, alkaline sites. 3-1235 m.	**Not Expected**	Vernal pool habitat is not on site or in the buffer.
Nemacaulis denudata var. *denudata* coast woolly-heads	--/-- G3G4T2/S2 1B.2	Coastal dunes. 0-5 m.	**Not Expected**	Coastal dunes do not occur on site or in the buffer.
Orcuttia californica California Orcutt grass	FE/SE G1/S1 1B.1	Vernal pools. 10-660 m.	**Not Expected**	Vernal pool habitat is not on site or in the buffer.
Pentachaeta lyonii Lyon's pentachaeta	FE/SE G1/S1 1B.1	Annual herb. Blooms March to August. Chaparral, valley and foothill grassland, coastal scrub. Edges of clearing in chaparral, usually at the ecotone between grassland and chaparral or edges of firebreaks. 30-630m (100-2065ft).	**Low**	Habitat is suitable in the buffer area but this species has not been documented in or near Whittier.
Phacelia stellaris Brand's star phacelia	--/-- G1/S1 1B.1	Coastal scrub, coastal dunes. Open areas. 3-370 m.	**Not Expected**	Coastal dunes do not occur on site or in the buffer.
Pseudognaphalium leucocephalum white rabbit-tobacco	--/-- G4/S2 2B.2	Riparian woodland, cismontane woodland, coastal scrub, chaparral. Sandy, gravelly sites. 35-515 m.	**Not Expected**	Soils on site or in the buffer are not suitable for this species.
Ribes divaricatum var. parishii Parish's gooseberry	--/-- G5TX/SX 1A	Riparian woodland. Salix swales in riparian habitats. 65-300 m.	**Not Expected**	Riparian woodland does not occur on site or in the buffer.
Scutellaria bolanderi ssp. *austromontana* southern mountains skullcap	--/-- G4T3/S3 1B.2	Chaparral, cismontane woodland, lower montane coniferous forest. In gravelly soils on streambanks or in mesic sites in oak or pine woodland. 425-2000 m.	**Not Expected**	Soils on site and in the buffer are not suitable for this species.
Sidalcea neomexicana salt spring checkerbloom	--/-- G4/S2 2B.2	Playas, chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub. Alkali springs and marshes. 3-2380 m.	**Not Expected**	Springs and marshes are not on site or in the buffer.
Suaeda esteroa estuary seablite	--/-- G3/S2 1B.2	Marshes and swamps. Coastal salt marshes in clay, silt, and sand substrates. 0-80 m.	**Not Expected**	Marshes and swamps are not on site or in the buffer.
Symphyotrichum defoliatum San Bernardino aster	--/-- G2/S2 1B.2	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill	**Not Expected**	Wetland habitat does not occur on site or in the buffer.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
		grassland. Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 3-2045 m.		
Symphyotrichum greatae Greata's aster	--/-- G2/S2 1B.3	Chaparral, cismontane woodland, broadleafed upland forest, lower montane coniferous forest, riparian woodland. Mesic canyons. 335-2015 m.	**Not Expected**	Mesic canyons do not occur on site or in the buffer.
Invertebrates				
Bombus crotchii Crotch bumble bee	--/-- G3G4/S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	**Low**	Species has been historically documented in the City of Whittier's vicinity, but has not been documented since. Habitat in the buffer area is marginally suitable and has suitable food plant genera.
Amphibians				
Spea hammondii western spadefoot	--/-- G2G3/S3 SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	**Low**	Vernal pool habitat is not on site or in the buffer, though a CNDDB recorded sighting from 1998 is within the buffer area. However 2010 focused surveys of that same location were negative.
Reptiles				
Aspidoscelis tigris stejnegeri coastal whiptail	--/-- G5T5/S3 SSC	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland & riparian areas. Ground may be firm soil, sandy, or rocky.	**High**	Habitat in the buffer area is suitable and the species has been documented in the general open space area.
Emys marmorata western pond turtle	--/-- G3G4/S3 SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	**Not Expected**	Aquatic habitat does not occur on in the buffer to site.
Phrynosoma blainvillii coast horned lizard	--/-- G3G4/S3S4 SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes	**High**	Habitat in the buffer area is suitable and the species has been

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
		for cover, patches of loose soil for burial, and abundant supply of ants and other insects.		documented in the general open space area.
Birds				
Athene cunicularia burrowing owl	--/-- G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**Low**	Habitat on site and immediately adjacent is not suitable, but suitable habitat occurs at the further extent of the 500-foot buffer. Predators for this species were observed on site.
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren	--/-- G5T3Q/S3 SSC	Southern California coastal sage scrub. Wrens require tall opuntia cactus for nesting and roosting.	**Moderate**	Habitat in the buffer area is marginally suitable.
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE G5T2T3/S1	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	**Not Expected**	Riparian habitat does not occur on site or in the buffer.
Icteria virens yellow-breasted chat	--/-- G5/S3 SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	**Not Expected**	Riparian habitat does not occur on site or in the buffer.
Polioptila californica coastal California gnatcatcher	FT/-- G4G5T3Q/S2 SSC	Obligate, permanent resident of coastal sage scrub below 2500 ft in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	**Present**	Species was observed foraging among ruderal coastal scrub in the buffer area.
Riparia bank swallow	--/ST G5/S2	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**Not Expected**	Riparian habitat does not occur on site or in the buffer.
Vireo bellii pusillus least Bell's vireo	FE/SE G5T2/S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes	**Not Expected**	Riparian habitat does not occur on site or in the buffer.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Study Area	Habitat Suitability/ Observations
		or on twigs projecting into pathways, usually willow, Baccharis, mesquite.		
Mammals				
Taxidea taxus American badger	--/-- G5/S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**High**	Suitable habitat does not occur directly on site, but suitable habitat occurs in the buffer area. Friable soils with open areas occur throughout the buffer area. This species was documented in the general vicinity in 2008.
Sensitive Natural Communities				
California Walnut Woodland	--/-- G2/S2.1	Habitat is not on site.		Habitat is not on site.

Results are based on a 5-mile radius search of the California Natural Diversity Database and a 9-quad search of the California Native Plant Society online inventory.

Status (Federal/State)
FE = Federal Endangered
FT = Federal Threatened
FPE = Federal Proposed Endangered
FPT = Federal Proposed Threatened
FD = Federal Delisted
FC = Federal Candidate
SE = State Endangered
ST = State Threatened
SCE = State Candidate Endangered
SCT = State Candidate Threatened
SR = State Rare
SD = State Delisted
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List

CRPR (CNPS California Rare Plant Rank)
1A = Presumed extirpated in California, and rare or extinct elsewhere
1B = Rare, Threatened, or Endangered in California and elsewhere
2A = Presumed extirpated in California, but common elsewhere
2B= Rare, Threatened, or Endangered in California, but more common elsewhere
3 = Need more information (Review List)
4 = Limited Distribution (Watch List)

CRPR Threat Code Extension
.1 = Seriously endangered in California (>80% of occurrences threatened/ high degree and immediacy of threat)
.2 = Moderately threatened in California (20-80% of occurrences threatened/ moderate degree and immediacy of threat)
.3 = Not very endangered in California (<20% of occurrences threatened/ low degree and immediacy of threat)

Other Statuses
G1 or S1 Critically Imperiled Globally or Subnationally (state)
G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 Apparently secure, common and abundant
GH or SH Possibly Extirpated – missing; known from only historical occurrences but still some hope of rediscovery

Additional notations may be provided as follows
T – Intraspecific Taxon (subspecies, varieties, and other designations below the level of species)
Q – Questionable taxonomy that may reduce conservation priority
? – Inexact numeric rank

Murphy Reservoir Replacement Project

Cultural Resources Assessment

prepared for

City of Whittier
13230 Penn Street
Whittier, California 90602

prepared by

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April 2022

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Executive Summary

Purpose and Scope

The City of Whittier (City) retained Rincon Consultants, Inc. (Rincon) to conduct a cultural resources assessment for the Murphy Reservoir Replacement Project (project) located in the City of Whittier, Los Angeles County, California. The project is in response to necessary repairs and improvements to the existing Murphy West Reservoir and Murphy East Reservoir, collectively referred to as the Murphy Reservoirs.

This assessment was prepared to support compliance with the requirements of the California Environmental Quality Act (CEQA) and applicable local guidelines and regulations. The City is the lead agency under CEQA. The assessment was prepared in accordance with best professional practices and includes searches of the California Historical Resources Information System (CHRIS) and the Native American Heritage Commission (NAHC) Sacred Lands File (SLF), background and archival research, review of historical maps and aerial imagery, a pedestrian archaeological and built environment field survey of the project site, and preparation of this report.

Dates of Investigation

Rincon contacted the NAHC on June 23, 2021 to request a SLF search and to obtain contact information for Native American groups or individuals who may have knowledge of cultural resources within the reservoir sites. On July 15, 2021, the NAHC provided a response stating the SLF search was completed with negative results. A pedestrian field survey of the project site was completed on August 19, 2021.

Summary of Findings

The background research and survey confirmed the project site contains one site comprised of two reservoir tanks, a retention basin reservoir, and a booster pump station that are at least 45 years of age and serve as the Murphy Reservoirs, providing water for the City of Whittier. As a result of the current study, the Murphy Reservoirs (subject property) is recommended ineligible for listing in the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), or as a City of Whittier Landmark under any applicable criteria. The Murphy Reservoirs were constructed in 1955 as part of the city's expansion. The research conducted for this study demonstrated that although associated with the development of the city, it was part of an expected response to the increasing need for a reliable water system and is not significant to the city's history.

This study concluded that the property does not meet the requirements for listing in the NRHP, the CRHR, or a City of Whittier Landmark and, therefore, does not qualify as a historical resource under CEQA. Based on the findings of the current investigation, Rincon recommends a finding of ***no impact*** under CEQA.

The results of the SCCIC records search, negative SLF search, background research, and archaeological field survey indicate there are no known archaeological resources in the project site. In the event cultural resources are encountered during ground-disturbing activities, work in the

immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) must be contacted immediately to evaluate the find. If the discovery proves to be eligible for listing in the NRHP or the CRHR, additional work may be warranted, such as data recovery excavation and Native American consultation to treat the find.

If human remains are unexpectedly encountered, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the unlikely event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance. With adherence to these recommendations (presented in Section 6), Rincon recommends a finding of ***less than significant impact to archaeological resources with mitigation*** under CEQA.

1 Introduction

The City of Whittier (City) retained Rincon Consultants, Inc. (Rincon) to conduct a cultural resources assessment for the Murphy Reservoir Replacement Project (project) located in the City of Whittier, Los Angeles County, California. The project is in response to necessary repairs and improvements to the existing Murphy West Reservoir and Murphy East Reservoir, collectively referred to as the Murphy Reservoirs.

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1.1 Project Location

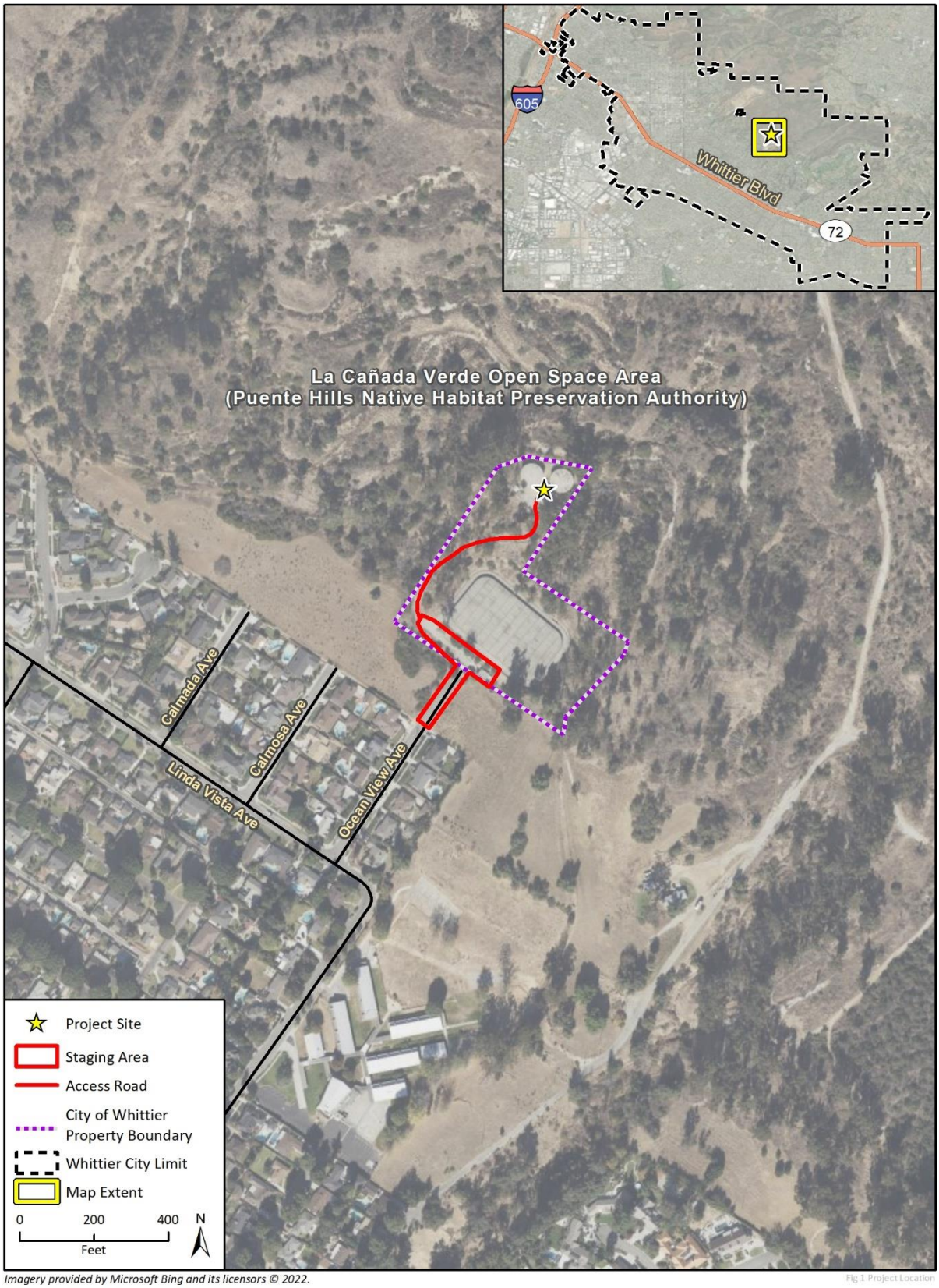
Located at 7900 Ocean View Avenue in Whittier, Los Angeles County, California (Figure 1), the project site is located on City-owned property. The project site is depicted on Township 02 South, Range 11 West, Section 26 of the United States Geological Survey (USGS) *Whittier* 7.5-minute quadrangle (Figure 2). The site is surrounded by designated open space lands within the La Cañada Verde Open Space Area ("Open Space Area"), which is managed by the Puente Hills Native Habitat Preservation Authority ("Habitat Authority").

1.2 Project Description

The purpose of the proposed project is to restore the integrity and storage capacity for the existing Murphy Reservoirs, thereby facilitating the City's ability to continue providing a clean, reliable water supply to its residents. Both Murphy Reservoirs were constructed in 1955 with a storage capacity of 500,000 gallons per reservoir. The existing reservoirs are both cylindrical concrete reservoirs with a diameter of 60 feet and height of 24 feet (City of Whittier 2016a). The City has determined through previous analyses and feasibility investigations that the recommended course of action at this time is to replace both reservoirs. Under the proposed project, the two existing reservoirs would be replaced by one new reservoir, located on the same site as the existing reservoirs.

The replacement of the existing Reservoirs is included in the City's Capital Improvement Program (CIP), based upon a condition assessment conducted in November 2016 and the City's Water Master Plan Update of 2018. The CIP identifies the proposed project as CIP No. WF-01, Murphy West and East Reservoirs Replacement (City of Whittier 2018). The CIP describes that the replacement reservoirs would be built with a capacity of 1.0 million gallons (MG) for in-kind replacement of the existing reservoirs' capacity; however, to address the water storage and conveyance requirements described in the City's Water Master Plan Update (City of Whittier 2016a) and the City's Urban Water Management Plan (City of Whittier 2016b), the replacement reservoir will have a storage capacity of approximately 2.31 MG.

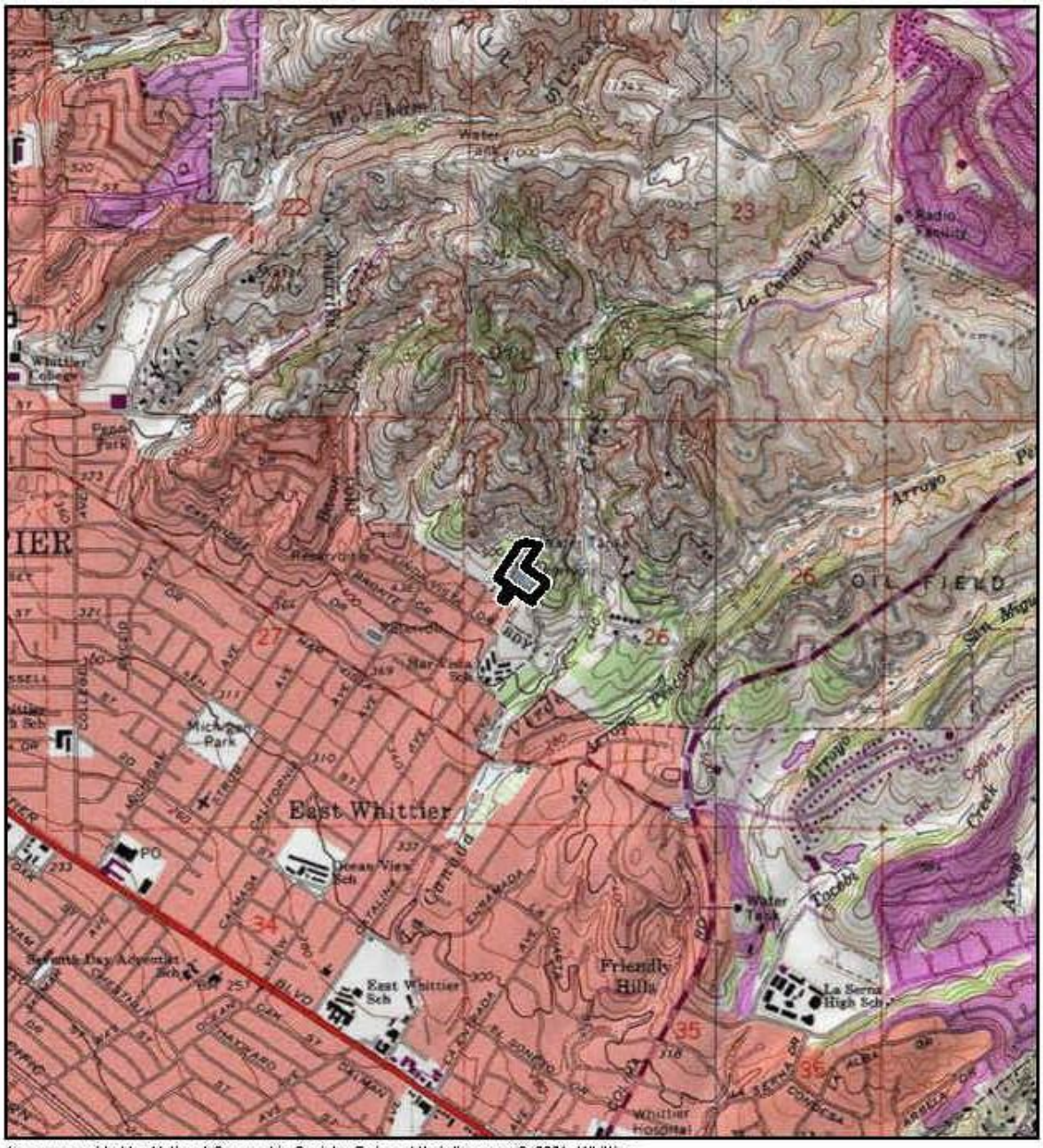
Figure 1 Vicinity Map



Imagery provided by Microsoft Bing and its licensors © 2022.

Fig 1 Project Location

Figure 2 Project Location Map



Imagery provided by National Geographic Society, Esri, and their licensors © 2021. Whittier Quadrangle. T02S R11W S26. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

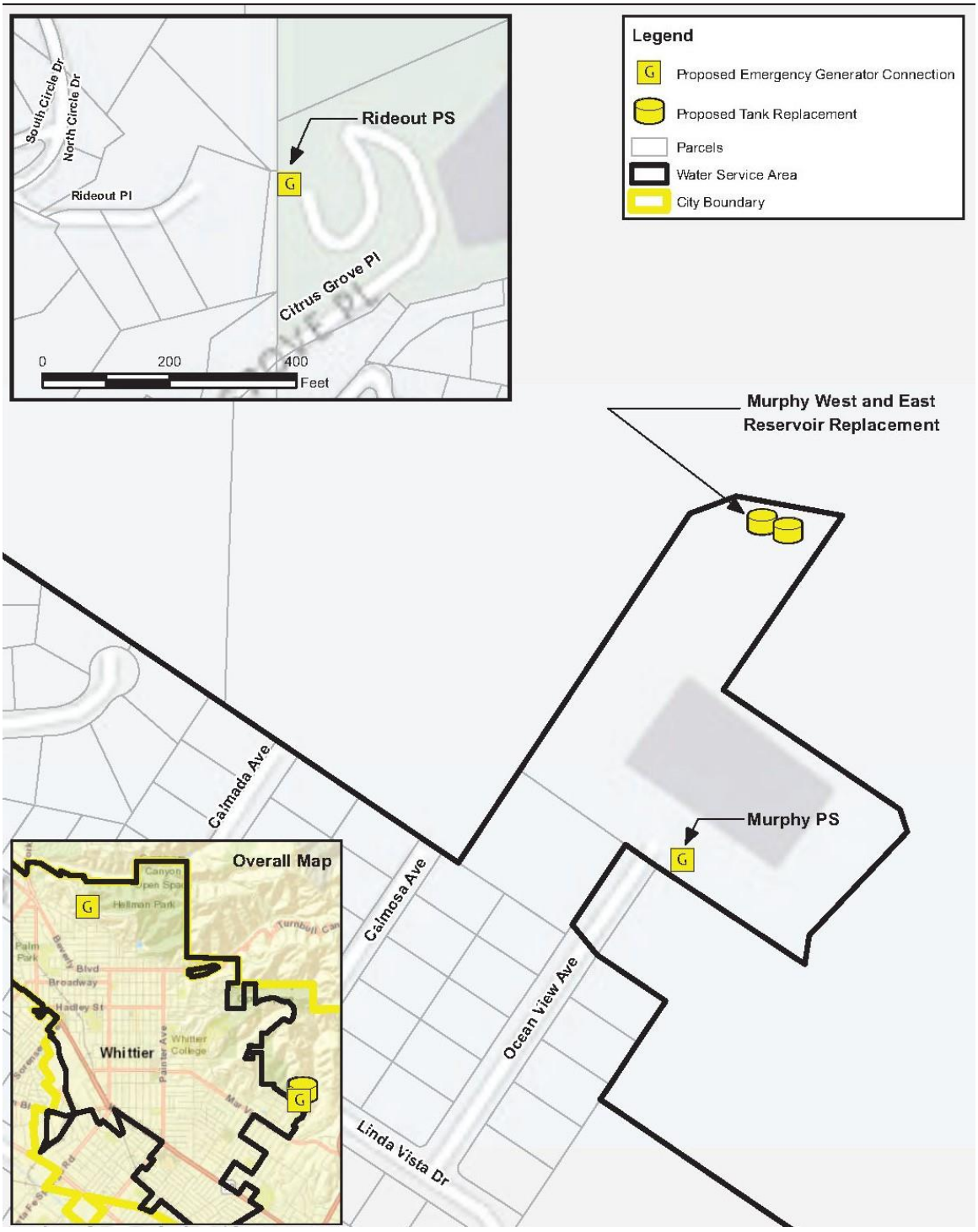
Implementation of the proposed project would include demolishing the existing reservoirs, constructing a new reservoir, and replacing all other site infrastructure. To ensure a continuous supply of water to Zone 577, City-owned portable generators would be delivered to Murphy Pump Station and Greenleaf Pump Station, for use in ensuring continuous power to Painter Reservoir while the Murphy Reservoirs are under construction; Painter Reservoir provides water supply service to the same pressure zone (577) as the Murphy Reservoirs, and would remain in operation throughout construction of the proposed project. In addition, the City will install an automatic transfer switch (ATS) at each pump station, to provide the continuous delivery of electric power from one of two power sources to electrical equipment. This would ensure uninterrupted water supply service to Zone 577 while Murphy Reservoirs are reliant upon smaller, temporary storage reservoirs during the construction period. Installation of the ATS components would be a simple electrical upgrade and would involve no ground disturbance. Figure 3 portrays the location of the existing Murphy Reservoirs in relation to the existing Murphy Pump Station and Greenleaf Pump Station. Additional improvements to Murphy Pump Station would be implemented under CIP No. WR-04, *Murphy Pump Station Improvements*; however, such additional improvements are separate and independent of the proposed project.

The replacement reservoir would be comprised of pre-stressed concrete and would be situated partially below-ground, whereas the existing reservoirs are entirely above-ground and cast in place concrete. The new reservoir and all appurtenances will be certified as meeting the specifications of National Sanitation Foundation International/American National Standards Institute (NSF/ANSI) Standard 61 for drinking water contact. The purpose of this design is to provide geotechnical integrity and stability while accommodating the replacement reservoir's storage capacity of 2.31 MG. As mentioned above, the existing reservoirs' combined capacity is 1.0 MG, although the existing reservoirs are currently only providing 0.5 MG of storage, as the Murphy West Reservoir has been out of commission since 2015. The replacement reservoir's capacity of 2.31 MG is designed to fully address the current water storage deficiency in Zone 577 of 1.81 MG plus the capacity of the Murphy West Reservoir of 0.5 MG.

1.3 Personnel

Cultural Resources Assistant Project Manager Pedro Gonzalez completed the cultural resources records search request, SLF request, and field survey for the project. Cultural Resources Project Manager Matthew Gonzalez and Architectural Historian Project Manager JulieAnn Murphy authored this report. Senior Architectural Historian Steven Treffers, MHP, provided senior oversight. Principal and Senior Archaeologist Christopher A. Duran, MA, RPA, managed the archaeological analysis summarized in this report and reviewed this report for quality assurance and quality control. GIS Analyst Allysen Valencia prepared the figures found in the report. Mr. Treffers and Mr. Duran both meet the Secretary of the Interior's Professional Qualification Standards in their respective fields (36 CFR, Part 61).

Figure 3 Murphy Reservoirs and Murphy Pump Station



Source: City of Whittier 2018 (Exhibit WF-01)

2 Regulatory Setting

This section includes a discussion of the applicable state and local laws, ordinances, regulations, and standards governing cultural resources that should be adhered to before and during implementation of the proposed project.

2.1 California Environmental Quality Act

California Public Resources Code (PRC) Section 21804.1 requires lead agencies determine if a project could have a significant impact on historical resources. As defined in PRC Section 21084.1, a historical resource is a resource listed in, or determined eligible for listing in, the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources or identified in a historical resources survey pursuant to PRC Section 5024.1(g); or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant. PRC Section 21084.1 also states a resource meeting any of the above criteria is generally considered historically or cultural significant unless the preponderance of evidence demonstrates otherwise. Resources listed in the National Register of Historic Places (NRHP) are automatically listed in the CRHR and are, therefore, historical resources under CEQA.

According to CEQA, an effect that results in a substantial adverse change in the significance of a historical resource is considered a significant effect on the environment. A substantial adverse change could result from physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired (CEQA Guidelines §15064.5 [b][1]). Material impairment is defined as demolition or alteration in an adverse manner [of] those characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR or a local register (CEQA Guidelines §15064.5[b][2][A]).

National Register of Historic Places

Although the project does not have a federal nexus, properties which are listed in or have been formally determined eligible for listing in the NRHP are automatically listed in the CRHR. The NRHP was established by the National Historic Preservation Act of 1966 as "an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation's cultural resources and indicate what properties should be considered for protection from destruction or impairment." (CFR 36 CFR 60.2) The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. A property is eligible for the NRHP if it meets one or more of the following criteria.

Criterion A Is associated with events that have made a significant contribution to the broad patterns of our history;

Criterion B Is associated with the lives of persons significant in our past;

Criterion C Embodies the distinctive characteristics of a type, period, or method of installation, or that represents the work of a master, or that possesses high artistic values, or

that represents a significant and distinguishable entity whose components may lack individual distinction;

Criterion D Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting at least one of the above designation criteria, resources must also retain integrity, or enough of their historic character or appearance to be "recognizable as historical resources and to convey the reasons for their significance" (California Office of Historic Preservation 2006). The National Park Service (NPS) recognizes seven aspects or qualities that, considered together, define historic integrity. To retain integrity, a property must possess several, if not all, of these seven qualities, defined in the following manner:

1) **Location.** The place where the historic property was constructed or the place where the historic event occurred;
2) **Design.** The combination of elements that create the form, plan, space, structure, and style of a property;
3) **Setting.** The physical environment of a historic property;
4) **Materials.** The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property;
5) **Workmanship.** The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
6) **Feeling.** The property's expression of the aesthetic or historic sense of a particular period of time and/or;
7) **Association.** The direct link between an important historic event or person and a historic property (NPS 2002).

California Register of Historical Resources

The CRHR was created by Assembly Bill 2881, which was established in 1992. The CRHR is an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change (Public Resources Code, 5024.1(a)). The criteria for eligibility for the CRHR are consistent with the National Register criteria but have been modified for state use in order to include a range of historical resources that better reflect the history of California (Public Resources Code, 5024.1(b)). Certain properties are determined by the statute to be automatically included in the CRHR by operation of law, including California properties formally determined eligible for, or listed in, the NRHP.

Properties are eligible for listing in the CRHR if they meet one of more of the following criteria:

Criterion 1: Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

Criterion 2: Is associated with the lives of persons important to our past

Criterion 3: Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values

Criterion 4: Has yielded, or may be likely to yield, information important in prehistory or history

In addition, if it can be demonstrated that a project will cause damage to a *unique archaeological resource*, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC §21083.2[a], [b]).

PRC Section 21083.2(g) defines a *unique archaeological resource* as an artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

Criterion 1: Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information

Criterion 2: Has a special and particular quality such as being the oldest of its type or the best available example of its type

Criterion 3: Is directly associated with a scientifically recognized important prehistoric or historic event or person

2.2 Local Regulations

City of Whittier

The historic preservation regulations in the City of Whittier Municipal Code (Section 18.84) establishes the procedures for identifying, designating, and preserving historic resources. A property may be listed as a City of Whittier Landmark if it meets the criteria for listing on the National Register of Historic Places or the California Register of Historical Resources; or if it meets one or more of the following criteria:

A. It is particularly representative of a distinct historical period, type, style, region or way of life;
B. It is connected with someone renowned, important, or a local personality;
C. It is connected with a use that was once common, but is now rare;
D. It represents the work of a master builder, engineer, designer, artist or architect whose individual genius influenced his/her age;
E. It is the site of an important historic event or is associated with events that have made a meaningful contribution to the nation, state or city;
F. It exemplifies a particular architectural style;
G. It exemplifies the best remaining architectural type of a neighborhood;
H. It embodies elements of outstanding attention to architectural or engineering design, detail, material or craftsmanship; or
I. It has a unique location, singular characteristic or is an established and familiar visual feature of a neighborhood, community or the city.

3 Natural and Cultural Setting

3.1 Environmental Setting

Located in the Los Angeles Basin with an elevation that ranges from approximately 450 to 575 feet above mean sea level, the project site is bounded by residences on Ocean View Ave to the southwest, and by vegetated hills of the Puente Hills Preserve on all other sides. The nearest water sources are season drainages located in canyons within the Preserve, and the San Gabriel River, which is located approximately 4.25 miles to the west. The sediments in the project site primarily consist of alluvial fan deposits on top of Sandstone, siltstone, shale, and conglomerate. (California Soil Resource Lab 2021).

3.2 Prehistoric Setting

During the twentieth century, many archaeologists developed chronological sequences to explain prehistoric cultural changes within all or portions of southern California (c.f., Jones and Klar 2007; Moratto 1984). Wallace (1955, 1978) devised a prehistoric chronology for the southern California coastal region that included four horizons: Early Man, Milling Stone, Intermediate, and Late Prehistoric. Wallace based his chronology on early studies but lacked the chronological precision of absolute dates (Moratto 1984). Since then, Wallace's (1955) synthesis has been modified and improved using thousands of radiocarbon dates obtained by southern California researchers over recent decades (Byrd and Raab 2007; Koerper and Drover 1983; Koerper et al. 2002; Mason and Peterson 1994). The prehistoric chronological sequence for southern California presented below is a composite based on Wallace (1955) and Warren (1968) as well as later studies, including Koerper and Drover (1983).

Early Man Horizon (ca. 10,000–6,000 BCE)

Numerous pre-8,000 BCE sites have been identified along the mainland coast and Channel Islands of southern California (c.f., Erlandson 1991; Johnson et al. 2002; Jones and Klar 2007; Moratto 1984; Rick et al. 2001). One of them, the Arlington Springs site on Santa Rosa Island, produced human remains dating to approximately 13,000 years ago (Arnold et al. 2004; Johnson et al. 2002). On San Miguel Island, human occupation at Daisy Cave (SMI-261) has also been dated to nearly 13,000 years ago. Some of the earliest examples of basketry on the Pacific Coast, dating to over 12,000 years old (Arnold et al. 2004), were found at the site.

Although few Clovis or Folsom style fluted points have been found in southern California (e.g., Dillon 2002; Erlandson et al. 1987), Early Man Horizon sites are generally associated with a greater emphasis on hunting than later horizons. Recent data indicate that the Early Man economy was a diverse mixture of hunting and gathering, including a significant focus on aquatic resources in coastal areas (e.g., Jones et al. 2002) and on inland Pleistocene lakeshores (Moratto 1984). A warm and dry 3,000-year period called the Altithermal began around 6,000 BCE. The conditions of the Altithermal are likely responsible for the change in human subsistence patterns at this time, including a greater emphasis on plant foods and small game.

Milling Stone Horizon (6,000–3,000 BCE)

Wallace (1955) defined the Milling Stone Horizon as "marked by extensive use of milling stones and mullers, a general lack of well-made projectile points, and burials with rock cairns." The predominance of such artifact types indicates a subsistence strategy oriented around collecting plant foods and small animals. A broad spectrum of food resources including small and large terrestrial mammals, sea mammals, birds, shellfish and other littoral and estuarine species, near-shore fishes, and seeds and other plant products was consumed (Kowta 1969; Reinman 1964). Variability in artifact assemblages over time and between coastal and inland sites indicates that Milling Stone Horizon subsistence strategies adapted to environmental conditions (Jones 1996; Byrd and Raab 2007). Locally available tool stone dominate Lithic artifacts associated with Milling Stone Horizon sites. Chopping, scraping, and cutting tools are very common along with ground stone tools such as manos and metates. The mortar and pestle, associated with acorns or other foods processed through pounding, were first used during the Milling Stone Horizon, and increased dramatically in later periods (Wallace 1955, 1978; Warren 1968).

Two types of artifacts considered diagnostic of the Milling Stone Horizon are the cogged stone and discoidal, most of which have been found in sites dating between 4,000 and 1,000 BCE (Moratto 1984), though possibly as far back as 5,500 BCE (Couch et al. 2009). The cogged stone is a ground stone object with gear-like teeth on the perimeter and produced from a variety of materials. The function of cogged stones is unknown, although ritualistic or ceremonial uses have been postulated (Eberhart 1961). Discoidals, although similar to cogged stones, are found in the archaeological record subsequent to the introduction of the cogged stone. Cogged stones and discoidals often purposefully were buried, or "cached." Cogged stones have been collected in Los Angeles County, although their distribution appears to center on the Santa Ana River basin (Eberhart 1961).

Intermediate Horizon (3,000 BCE–500 CE)

Wallace's Intermediate Horizon dates from approximately 3,000 BCE – Common Era (CE) 500 and is characterized by a shift toward a hunting and maritime subsistence strategy, as well as greater use of plant foods. A noticeable trend towards a greater adaptation to local resources including a broad variety of fish, land mammals, and sea mammals along the coast occurred during the Intermediate Horizon. Tool kits for hunting, fishing, and processing food and materials reflect this increased diversity, with flake scrapers, drills, various projectile points, and shell fishhooks being manufactured.

Mortars and pestles became more common during this transitional period, gradually replacing manos and metates as the dominant milling equipment. This change in milling stone technology is believed to signal a transition from the processing and consumption of hard seed resources to the increased reliance on acorns (Glassow et al. 1988; True 1993). Mortuary practices during the Intermediate Horizon typically included fully flexed burials oriented toward the west (Warren 1968).

Late Prehistoric Horizon (500 CE–Historic Contact)

During Wallace's (1955, 1978) Late Prehistoric Horizon, the diversity of plant food resources and land and sea mammal hunting increased even further than during the Intermediate Horizon. A greater variety of artifact types was observed during this period and high quality exotic lithic materials were used for small, finely worked projectile points associated with the bow and arrow. Steatite containers were made for cooking and storage, and an increased use of asphaltum for waterproofing is noted. More artistic artifacts were recovered from Late Prehistoric Horizon sites

and cremation became a common mortuary custom. Larger, more permanent villages supported an increased population size and social structure (Wallace 1955). This change in subsistence focus, material culture, and burial practices coincides with the westward migration of Uto-Aztecan language speakers from the Great Basin region to Los Angeles, Orange, and western Riverside counties (Sutton 2008; Potter and White 2009).

3.3 Ethnographic Context

Gabrielino – Tongva

The project site is located within the traditional territory of the Native American group known as the Gabrielino. The name Gabrielino was applied by the Spanish to those natives that were attached to Mission San Gabriel (Bean and Smith 1978). Today, most contemporary Gabrielino prefer to identify themselves as Tongva, a term that will be used throughout the remainder of this section (King 1994).

Tongva territory included the Los Angeles basin and southern Channel Islands as well as the coast from Aliso Creek in the south to Topanga Creek in the north. Their territory encompassed several biotic zones, including Coastal Marsh, Coastal Strand, Prairie, Chaparral, Oak Woodland, and Pine Forest (Bean and Smith 1978).

The Tongva language belongs to the Takic branch of the Uto-Aztecan language family, which can be traced to the Great Basin region (Mithun 2004). This language family includes dialects spoken by the nearby Juaneño and Luiseño but is considerably different from those of the Chumash people living to the north and the Diegueño (including Ipai, Tipai, and Kumeyaay) people living to the south.

Tongva society was organized along patrilineal non-localized clans, a common Takic pattern. Each clan had a ceremonial leader and contained several lineages. The Tongva established large permanent villages and smaller satellite camps throughout their territory. Recent ethnohistoric work (O'Neil 2002) suggests a total tribal population of nearly 10,000, considerably more than earlier estimates of around 5,000 people (Bean and Smith 1978).

Tongva subsistence was oriented around acorns supplemented by the roots, leaves, seeds, and fruits of a wide variety of plants. Meat sources included large and small mammals, freshwater and saltwater fish, shellfish, birds, reptiles, and insects. (Bean and Smith 1978; Langenwalter et al. 2001; Kroeber 1925; McCawley 1996). The Tongva employed a wide variety of tools and implements to gather and hunt food. The digging stick, used to extract roots and tubers, was frequently noted by early European explorers (Rawls 1984). Other tools included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Like the Chumash, the Tongva made oceangoing plank canoes (known as a ti'at) capable of holding six to 14 people and used for fishing, travel, and trade between the mainland and the Channel Islands. Tule reed canoes were employed for near-shore fishing (Blackburn 1963; McCawley 1996).

Chinigchinich, the last in a series of heroic mythological figures, was central to Tongva religious life at the time of Spanish contact (Kroeber 1925). The belief in Chinigchinich was spreading south among other Takic-speaking groups at the same time the Spanish were establishing Christian missions. Elements of Chinigchinich beliefs suggest it was a syncretic mixture of Christianity and native religious practices (McCawley 1996).

Prior to European contact, deceased Tongva were either buried or cremated, with burial more common on the Channel Islands and the adjacent mainland coast and cremation on the remainder

of the coast and in the interior (Harrington 1942; McCawley 1996). After pressure from Spanish missionaries, cremation essentially ceased during the post-contact period (McCawley 1996).

3.4 History

Post-European contact history for the state of California is generally divided into three periods: the Spanish Period (1769–1822), the Mexican Period (1822–1848), and the American Period (1848–present). Each of these periods is briefly described below. The subject property is located in Whittier, and a brief history of the city is included below.

Spanish Period (1769–1822)

Spanish exploration of California began when Juan Rodriguez Cabrillo led the first European expedition into the region in 1542. During this expedition, he anchored in Malibu Lagoon and named the area Pueblo de las Canoas for the Chumash canoes. For more than 200 years after his initial expedition, Spanish, Portuguese, British, and Russian explorers sailed the California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968; Rolle 2003). In 1769, Gaspar de Portolá and Franciscan Father Junipero Serra established the first Spanish settlement at Mission San Diego de Alcalá. This was the first of 21 missions erected by the Spanish in what was then known as Alta (upper) California between 1769 and 1823. Mission San Gabriel Arcángel was founded in 1771. It was during this time that initial Spanish settlement of the project vicinity began.

Mexican Period (1822–1848)

The Mexican Period commenced when news of the success of the Mexican Revolution (1810-1821) against the Spanish crown reached California in 1822. This period saw the privatization of mission lands in California with the passage of the Secularization Act of 1833. This Act enabled Mexican governors in California to distribute mission lands to individuals in the form of land grants. Successive Mexican governors made more than 700 land grants between 1822 and 1846, putting most of the state's lands into private ownership for the first time (Shumway 2007). About 45 land grants (ranchos) were located in Los Angeles County.

The Mexican Period for Los Angeles County and adjacent areas ended in early January 1847. Mexican forces fought combined US Army and Navy forces in the Battle of the San Gabriel River on January 8 and in the Battle of La Mesa on January 9 (Nevin 1978). American victory in both battles confirmed the capture of Los Angeles by American forces (Rolle 2003). On January 10, leaders of the Pueblo of Los Angeles surrendered peacefully after Mexican General Jose Maria Flores withdrew his forces. Shortly thereafter, newly appointed Mexican Military Commander of California Andrés Pico surrendered all of Alta California to US Army Lieutenant Colonel John C. Fremont in the Treaty of Cahuenga (Nevin 1978).

American Period (1848–Present)

The Mexican Period officially ended in early January 1848 with the signing of the Treaty of Guadalupe Hidalgo, formally concluding the Mexican-American War. Per the treaty, the United States agreed to pay Mexico $15 million for conquered territory, including California, Nevada, Utah, and parts of Colorado, Arizona, New Mexico, and Wyoming. California gained statehood in 1850, and this political shift set in motion a variety of factors that began to erode the rancho system.

In 1848, the discovery of gold in northern California led to the California Gold Rush, though the first gold was found in 1842 in San Francisquito, about 35 miles northwest of Los Angeles (Workman 1935; Guinn 1976). By 1853, the population of California exceeded 300,000. Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the southern California economy through the 1850s. A severe drought in the 1860s, however, decimated cattle herds and drastically affected rancheros' source of income. Thousands of settlers and immigrants continued to pour into the state, particularly after the completion of the transcontinental railroad in 1869. Property boundaries loosely established during the Mexican era led to disputes with new incoming settlers, problems with squatters, and lawsuits. The initiation of property taxes proved onerous for many southern California ranchers, given the size of their holdings. Rancheros were often encumbered by debt and the cost of legal fees to defend their property. As a result, much of the rancho lands were sold or otherwise acquired by Americans. Most of these ranchos were subdivided into agricultural parcels or towns (Dumke 1944).

In the 1880s, a dramatic boom fueled by various factors including increasingly accessible rail travel, agricultural development and improved shipment methods, and favorable advertisement occurred in southern California (Dumke 1994). In 1883, the California Immigration Commission designed an advertisement declaring the state as "the Cornucopia of the World" (Poole 2002:36). New southern Californian towns were promoted as havens for good health and economic opportunity.

City of Whittier

The City of Whittier was established in 1887 as a colony of the Religious Society of Friends, commonly known as Quakers, to create a community with distinctive bucolic character. Before the establishment of the city, it was purchased by Pio de Jesus Pico IV, who had served as Governor of Alta California Mexican territory from 1832 to 1846. He transformed the land from mostly livestock ranch to focus on other agricultural products including citrus, grapes, corn, and wheat.

In 1868 160 acres of Pico's land was granted to German immigrant Jacob F. Gerkins, through the Homestead Act of 1862. It was then transferred to John M. Thomas, who continued its agricultural use. In 1887 Aquilla H. Pickering, a Chicago businessman and Southern Pacific Railroad executive, traveled to California with a group of Quakers seeking to establish a West Coast colony for their religious community. Pickering purchased Thomas' land, attracted to its quality and its "beautiful situation."

Following Pickering's purchase, he collaborated with Quaker leaders Johnathan Bailey, John Painter, and William Coffin to establish the Pickering Land and Water Company to oversee the development of the colony. The development was named in honor of Quaker poet John Greenleaf Whittier. The city was developed with a grid plan oriented around the primary intersection of Greenleaf and Philadelphia Streets. The city developed around the core bounded by Hadley Street to the north, Painter Avenue to the east, Penn Street to the south, and Pickering Avenue to the west, with residential development focused north of Penn Street.

The development of Whittier coincided with a period of extensive growth throughout Southern California driven by large expanses of affordable fertile land for agricultural use and a newly constructed railroad infrastructure. The development of the colony was further spurred by the construction of a freshwater flume to the San Gabriel River, reservoir, and pumping station by Simon Murphy in 1891.

Whittier continued to grow and expand, and agricultural activities increased. In 1897 land in Puente Hills was sold to Central Oil Well Company and the city became an important oil industry center and

companies including the Murphy, Standard, Union, and Richfield Oil Companies constructed oil wells in nearby hills. The city was incorporated in 1898, thereby affirming its ability to sustain itself through its agricultural and oil-based economy.

After incorporation development continued. Typical of many Southern California communities, Whittier's greatest period of expansion followed World War II. In 1961 with City of Whittier annexed portions of Whittier Boulevard and East Whittier, significantly increasing Whittier's size and population (Chattel 2013). In the following years, Whittier's growth steadied, and the population has remained consistent for the past twenty years.

4 Background Research

4.1 Cultural Resources Records Search

On June 22, 2021, a CHRIS search was requested from the SCCIC at California State University, Fullerton. The results of the records search were received on July 28, 2021. The purpose of the records search was to identify all previously conducted cultural resources studies and previously recorded cultural resources in the project site and a 0.5-mile radius surrounding it. Rincon also reviewed the NRHP, the CRHR, the California Historical Landmarks list, and the Built Environment Resources Directory (BERD). Review of those records did not identify any cultural resources within the project site or immediate vicinity. Additionally, Rincon reviewed the Archaeological Determination of Eligibility list. Results of the records search can be found in Appendix A of this cultural resources assessment.

Previous Studies

The SCCIC records search identified four (4) previously conducted cultural resources studies in a 0.5-mile radius of the project site, three (LA-01776, LA-03737, LA-08248 of which included the project site (Table 1).

Table 1 Previous Cultural Resources Studies within 0.5-Mile of the Project Site

Report Number	Author(s)	Year	Title	Relationship to Project Site
LA-01776	Whitney-Desautels, Nancy A.	1989	Cultural Resource Survey Report on the Whittier Property.	Within
LA-03737	Dillon, Brian D.	1997	Archaeological Survey of the Colima Vegetation Management Plan (prescribed Burn) Los Angeles County, California.	Within
LA-04197	McLean, Deborah K.	1998	Archaeological Assessment for Pacific Bell Mobile Services Telecommunications Facility La 830-01, 7581u Colima Drive, City of Whittier, County of Los Angeles, California.	Outside
LA-08248	Fulton, Terri, and Deborah McLean	2006	Cultural Resource Assessment for the Puente Hills Landfill Native Habitat Preservation Authority, Los Angeles County, California.	Within

Source: South Central Coastal Information Center, 2021

Previously Recorded Resources

The SCCIC records search identified two (2) previously recorded cultural resources in a 0.5-mile radius of the project site, one (P-19-003341) of which has a boundary mapped partially within the project site. One (1) resource is a historic-era built resources (P-19-1785680) and the other is a historic-era archaeological sites (P-19-003341) (Table 2).

Table 2 Previously Recorded Resources within a 0.5-Mile Radius of the Project Site

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/ CRHR Status	Relationship to Project Site
P-19-003341	CA-LAN-003341H	Historic era Site	Whittier Oil Field	2004 (Terri Fulton, Phil Fulton, LSA Associates, Inc)	Eligible for listing in NRHP and CRHR under Criterion A/1	**Within**
P-19-178568	–	Historic-era Building	Swain House, Flor-Ada Villa	1977 (Pamela Lee Gray, Natural History Museum of Los Angeles)	Locally registered.	Outside

Source: South Central Coastal Information Center, 2021

Resource P-19-003341

Resource P-19-003341 (Fulton and Fulton 2004) consists of the oil well pads, pipeline remnants, well markers, and access roads associated with the Whittier Oil Field. However, the Primary Record for this resource does not have these features locations mapped, so their exact locations of the features in relation to the project site are unknown. The oil field was first developed in 1897 and was in production into the latter part of the 20th century. The oilfield was associated with the development of petroleum resources in the Los Angeles Basin, the development of Whittier as a center of the oil industry and as a commercial residential center supporting oil production, and was known for the production of high-quality petroleum. The Whittier Oil Field is eligible for listing on the NRHP and the CRHR under Criterion A/1 for its association with the development of the petroleum industry in southern California, and as the first oil field in the Los Angeles Basin. The oil field made the City of Whittier the base for oil development in the region.

4.2 Historic Resources in Whittier

The City of Whittier has 109 locally designated historic landmarks. A majority of the City's designated city landmarks were documented and evaluated as part a historic resources survey conducted in 2013. The survey focused on the City's residential architecture and the subject property was therefore not recorded during this previous effort. In addition, a search of the California Office of Historic Preservation's Building Environment Resource Directory revealed that the subject property was not subject to previous evaluation. None of the locally designated landmarks are within the APE.

In addition to local historic landmarks, the city has four local historic districts. The Central Park Historic District is a residential district of 45 houses that was designated by the City in 1990. The Hadley-Greenleaf Historic District, also designated in 1990, is comprised of over 190 largely residential properties. Both districts are in the City's historic downtown core, west of the subject property.

The College Hills Historic District is a residential historic district comprised of the city's first planned hillside development. It is was designated by the City of Whittier in 2002. The Earlham Historic District, designated in 2011, is a residential neighborhood that dates from 1903-1940 and many of the homes within the district were associated with Whittier College administrators and faculty. Both

districts are adjacent to the Whittier College campus and are west of the subject property (City of Whittier, 2021). None of the City's historic districts are within the project APE.

4.3 Archival and Background Research

Archival research was completed from July to August 2021 and focused on the review of a variety of primary and secondary source materials relating to the history and development of the project site and its surroundings. Sources included, but were not limited to, historic maps and aerial photographs, contemporary newspaper articles, and written histories of the area. The following is a list of sources consulted during research pertaining to the subject property.

- Historic aerial photographs accessed digitally via Nationwide Environmental Title Research (NETR) Online, Inc. and the University of California, Santa Barbara Map & Imagery Lab
- Historic topographic maps accessed digitally via United States Geologic Survey
- Historic maps accessed digitally via the Los Angeles Public Library
- Historic newspaper articles accessed digitally via newspapers.com
- Caltrans Historic Context Statement *Water Conveyance Systems in California*
- Additional sources as indicated in the References section

4.4 Sacred Lands File Search

Rincon contacted the NAHC on June 23, 2021, to request an SLF search and a contact list of Native Americans culturally affiliated with the project area. A response was received from the NAHC on July 15, 2021, stating the SLF search had been completed with "negative" results. Appendix B provides the SLF results provided by the NAHC.

4.5 Field Survey

On August 19, 2021, Rincon Cultural Resources Specialist Pedro Gonzalez conducted an intensive pedestrian field survey of the project site to identify archaeological and built environment resources. Mr. Gonzalez utilizing parallel transects spaced approximately 10-15 meters apart in open space areas. Areas of exposed ground were inspected for prehistoric artifacts (e.g., flaked stone tools, tool-making debris, ground stone milling tools), ecofacts (marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, and features that might suggest the potential for former structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows and drainages were also visually inspected.

Mr. Gonzalez also visually inspected all buildings, structures, and landscaped features located within and immediately adjacent to the project site, documenting their style, method of construction, and physical condition in detailed notes and digital photographs.

5 Results

As a result of the background research and field survey, one built environment resource, the Murphy Reservoirs, was identified within the project site. The property was recorded on California Department of Parks and Recreation (DPR) 523 Series forms and evaluated for listing in the NRHP and the CRHR. Described in greater detail below, the property is comprised of two reservoir tanks, a retention basin, and a pump house that are 45 years and older. Only permanent buildings were included in the evaluation of the property. The complete set of DPR 523 Series forms for the property can be found in Appendix C of this report.

5.1 Murphy Reservoirs

Architectural Description

Located within the City of Whittier at 7900 Ocean View Avenue, Los Angeles County, California the Murphy Reservoirs are located on the east side of a residential neighborhood and at the western boundary of the La Cañada Verde Open Space Area, which is managed by the Puente Hills Habitat Preservation Authority. The L-shaped lot is comprised of two reservoir tanks - Murphy West Reservoir (Reservoir 11) and Murphy East Reservoir (Reservoir 10) (1955), a retention basin - Reservoir No 9 (1955) and the Murphy Booster Pump House (1955).

The site is accessed via Ocean View Avenue, which terminates at the reservoir site and is protected by a metal access gate. Beyond the gate, a paved road continues to the eastern end of the site and terminates at two cylindrical reservoir tanks. The two cylindrical reservoirs - Murphy West Reservoir (Reservoir 11) and Murphy East Reservoir (Reservoir 10) are identical. Each reservoir tank is 60’ in diameter and is 24’ tall. Each cylindrical reservoir has a concrete exterior, that is 1’-2” thick and is topped with a convex concrete roof, with hatch access. Each roof has a pipe railing along the top. Each reservoir has a 500,000 gallon capacity. A footpath encircles the pair of reservoir tanks. The reservoirs are in fair condition with evidence of cracking and repairs at the exterior (Figure 4).

Figure 4 Murphy Reservoirs, Reservoir 11 (Left) and Reservoir 10 (Right), View North

The drive also provides access to the area of Reservoir No. 9, southwest of Reservoirs 10 and 11. Reservoir No. 9 is a subsurface, rectangular reservoir retention basin topped with concrete slab, with a short parapet above ground. The reservoir has a 4,000,000 gallon capacity and is encircled by a drive. The drive continues from Reservoir No. 9., connecting to the site's main drive (Figure 5).

Figure 5 Reservoir No. 9 Surface, View Southeast

The area to the west of Reservoir No. 9 includes the Murphy Booster Pump House, at the southern end of the drive. The Booster Pump House is a small, one-story concrete block building with a concrete foundation and a flat asphalt roof and is built at the site's natural grade, which slopes up at

the eastern end. The primary, west elevation features a central man entry door and is otherwise unadorned. The south elevation is void of openings and features projecting 8'x8" concrete blocks, the western portion of the elevation extends beyond the building, creating an enclosing wall adjacent to the building entry. The opposite, north elevation repeats the same configuration with a wall extending beyond the building's east end. The north elevation features ribbon hopper windows along the roofline. The east elevation is devoid of any openings. The building's roofline is topped with a painted copper fascia Figure 6).

Figure 6 Primary Elevation of Murphy Booster Pump House, view southeast

The area to the west of the reservoir tanks includes a monopole cell phone antenna and an associated shed facility. They are not associated with the water conveyance facilities and appear to have been added to the site c. 2009.

Property History and Construction Chronology

Historical aerial photographs suggest the site of Murphy Reservoirs remained largely undeveloped until the reservoir was constructed in 1955 (UCSB 1952; NETROnline 1954) (Figure 7). Before the reservoirs were constructed, the site was part of the Murphy Ranch. The Ranch, originally over 2000 acres and including oil wells for the Murphy Oil Company, sold the remaining 450 acres for further residential development in 1953 (*Whittier News* 1953).

Figure 7 Historic Aerials Showing Site Development – Construction 1954(L) and 1960(R)

In 1953, residents of the city voted on a bond measure to expand the city's existing water system to respond to growing consumption and development. The improvements proposed for the expanded system, as recommended by Los Angeles engineering firm Koebig & Koebig, included five reservoirs, a 2,500 gallon per minute booster pump, installation of a parallel pipe for emergency use, installation of additional pipe for new service to the central and eastern areas of the city, and a check system on all reservoirs to read levels (*Whittier News* March 1953). The bond measure passed, and construction of new water facilities followed shortly thereafter. The present-day L-shaped lot was purchased by the City for the construction of the reservoirs in October 1953 (*Whittier News* October 1953). Construction of the three reservoirs and the booster pump station were complete by 1955.

Los Angeles-based firm Koebig & Koebig designed the reservoir and pumping station (Koebig & Koebig, 1954). The site appears largely as it did historically save for the addition of the cellular monopole and wireless equipment shelter, added to the site in c. 2009 (NETROnline 2005, 2009).

Research for this study found no information suggesting the facility's original designers, Koebig & Koebig were significant in the field of engineering. The firm was founded in Los Angeles in 1909 by Adolph H. Koebig, an immigrant from Germany, and his son Adolph H. Koebig, Jr. (Notables of the Southwest 1912). Koebig & Koebig specialized in water projects and worked throughout Southern California. No information of consequence regarding Adolph Koebig, Sr. or Adolph Koebig, Jr. was uncovered as a result of research for this study.

Historic Evaluation

The Murphy Reservoirs is recommended ineligible for listing in the NRHP, the CRHR, or as a City of Whittier Landmark under any applicable criteria. Generally, water conveyance-related properties are generally eligible under NRHP Criterion A/CRHR Criterion 1 if they are associated specific important events (e.g., first long-distance transmission of hydroelectric power) or important patterns of events (e.g., development of irrigated farming) (JRP Historical Consulting Services and Caltrans 2000:93). Archival research indicates the Murphy Reservoirs was one of at least five projects completed as the result of the 1953 bond measure that the city passed to update its water systems. The development of the Murphy Reservoir facility was part of the gradual expansion of the city's system since its inception at the turn of the twentieth century. However, this expansion was due to what could be considered an expected response to the growth of the surrounding community and the increasing need for a reliable water system. The Murphy Reservoirs therefore

does not appear to be significant within the context of water conveyance systems, or any other event or pattern of events in the history of the county, region, state, or nation (NRHP Criterion A/CRHR Criterion 1/City of Whittier Criterion E).

Archival research failed to identify any individuals associated with the Murphy Reservoirs which can be considered important within the history of the county, region, state, or nation (NRHP Criterion B/CRHR Criterion 2/City of Whittier Criterion B).

Initially developed in 1955, the Murphy Reservoirs, comprised of Murphy West Reservoir (Reservoir 11), Murphy East Reservoir (Reservoir 10), Reservoir No. 9, and the Murphy Booster Pump House, are a series of utilitarian reservoir structures and an associated building. Water conveyance-features are generally found eligible under NRHP Criterion C/CRHR Criterion 3 as the earliest, sole surviving, largest, or best-preserved example of a particular type of water conveyance system or a property which introduced a design innovation or evolutionary trend in engineering (JRP Historical Consulting Services and Caltrans 2000:94). Water storage and distribution reservoirs are of common design, and there is no evidence suggesting the Murphy Reservoirs represented any particular engineering achievement at the time it was constructed. There is also no evidence indicating the associated engineers Koebig & Koebig can be considered masters, and regardless, as a simple concrete-lined reservoirs, the Murphy Reservoirs would not be considered an example of a master's work. The Murphy Reservoirs therefore does not appear to be significant for its architecture (NRHP Criterion C/CRHR Criterion 3/City of Whittier Criteria A,C,D,F,G,H,I).

Lastly, the results of the cultural resources records search or research conducted as part of this evaluation did not reveal anything suggesting the Murphy Reservoirs has the potential to yield important information (NRHP Criterion D/CRHR Criterion 4).

Archaeological Resources

Ground visibility throughout the project site was very poor (approximately 0 percent) in the developed areas, and fair to good (approximately 50-75 percent) in open areas adjacent to the developed areas. Ground obstructions outside of developed areas included vegetation (grass, weeds, bushes, and shrubs) and duff from the mature trees present within and adjacent to the project site (

Figure 8 and Figure 9). Undeveloped areas along the fence-line of the property and adjacent to development within the project site were subject to a systematic survey. The developed areas were subject to a windshield survey and photo documented. Where present, exposed native soil was a medium to dark brown, medium grained sandy silt, intermixed with fragments of sandstone and silt stone. The terrain in the property was slightly sloping upwards to the northeast. Approximately 90 percent of the project site is highly disturbed due to past development. Rodent burrow back dirt allowed visual inspection of subsurface soils. Modern debris in the form of windblown refuse was scattered throughout the site. In addition, the Primary Record for resource P-19-003341 does not have the resource features locations mapped, so their exact locations of the features in relation to the project site are unknown. Recent and historic aerial photographs reveal that there are quite a bit of graded dirt roads in the vicinity of the project site, but it is unknown if these are associated with P-19-003341. No components as described in the Primary Record for resource P-19-003341 were observed within or immediately adjacent to the project site, and it appears that the small portion of the boundary for P-19-003341 that overlaps with the project site was arbitrarily drawn, and the actual oilfield and associated features are not actually located within the project site. Lastly, the project consists of upgrading and existing water conveyance system and will not alter the existing setting or have any impact on and features associated with resource P-19-03341.

Figure 8 Access Road Near Entrance, Facing Northwest, August 2021

Figure 9 Access Roade Near Reservoirs, Facing Southwest, August 2021

6 Findings and Conclusions

The background research and survey confirmed the project site contains one site comprised of two reservoir tanks, a retention basin reservoir, and a booster pump station that are at least 45 years of age and serve as the Murphy Reservoirs, providing water for the City of Whittier. As a result of the current study, the Murphy Reservoirs (subject property) is recommended ineligible for listing in the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) under any applicable criteria. The Murphy Reservoirs were constructed in 1955 as part of the city's expansion. The research conducted for this study demonstrated that although associated with the development of the city, it was part of an expected response to the increasing need for a reliable water system and is not significant to the city's history.

This study concluded that the property does not meet the requirements for listing in the NRHP or CRHR and, therefore, does not qualify as a historical resource under CEQA. Based on the findings of the current investigation, Rincon recommends a finding of ***less than significant impact to historical resources*** under CEQA.

6.1 Unanticipated Discovery of Cultural Resources

In the event cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) must be contacted immediately to evaluate the find. If the discovery proves to be eligible for listing in the NRHP or the CRHR, additional work may be warranted, such as data recovery excavation and Native American consultation to treat the find.

6.2 Unanticipated Discovery of Human Remains

If human remains are unexpectedly encountered, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the unlikely event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance.

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Appendix A

CHRIS Records Search Results

South Central Coastal Information Center
California State University, Fullerton
Department of Anthropology MH-426
800 North State College Boulevard
Fullerton, CA 92834-6846
657.278.5395 / FAX 657.278.5542
sccic@fullerton.edu
California Historical Resources Information System
Orange, Los Angeles, and Ventura Counties

7/28/2021 Records Search File No.: 22572.8720

Pedro Gonzalez
Rincon Consultants, Inc
180 N Ashwood Avenue
Ventura CA 93003

Re: Records Search Results for the 20-10783, City of Whittier Murphy Reservoirs Project

The South Central Coastal Information Center received your records search request for the project area referenced above, located on the Whittier and La Habra, CA USGS 7.5' quadrangles. Due to the COVID-19 emergency, we have temporarily implemented new records search protocols. With the exception of some reports that have not yet been scanned, we are operationally digital for Los Angeles, Orange, and Ventura Counties. See attached document for your reference on what data is available in this format. The following reflects the results of the records search for the project area and a ½-mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☐ custom GIS maps ☒ shape files ☐ hand drawn maps

Resources within project area: 1	19-003341
Resources within ½-mile radius: 1	SEE ATTACHED LIST
Reports within project area: 3	LA-01776, LA-03737, LA-08248
Reports within ½-mile radius: 1	SEE ATTACHED LIST

Resource Database Printout (list): ☒ enclosed ☐ not requested ☐ nothing listed
Resource Database Printout (details): ☒ enclosed ☐ not requested ☐ nothing listed
Resource Digital Database (spreadsheet): ☒ enclosed ☐ not requested ☐ nothing listed
Report Database Printout (list): ☒ enclosed ☐ not requested ☐ nothing listed
Report Database Printout (details): ☒ enclosed ☐ not requested ☐ nothing listed
Report Digital Database (spreadsheet): ☒ enclosed ☐ not requested ☐ nothing listed
Resource Record Copies: ☒ enclosed ☐ not requested ☐ nothing listed
Report Copies: ☒ not scanned ☐ not requested ☐ nothing listed
OHP Built Environment Resources Directory (BERD) 2019: ☒ available online; please go to https://ohp.parks.ca.gov/?page_id=30338
Archaeo Determinations of Eligibility 2012: ☐ enclosed ☐ not requested ☒ nothing listed
Los Angeles Historic-Cultural Monuments ☐ enclosed ☐ not requested ☒ nothing listed

Historical Maps: ☒ enclosed ☐ not requested ☐ nothing listed
Ethnographic Information: ☒ not available at SCCIC
Historical Literature: ☒ not available at SCCIC
GLO and/or Rancho Plat Maps: ☒ not available at SCCIC
Caltrans Bridge Survey: ☒ not available at SCCIC; please go to http://www.dot.ca.gov/hq/structur/strmaint/historic.htm
Shipwreck Inventory: ☒ not available at SCCIC; please go to http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp
Soil Survey Maps: (see below) ☒ not available at SCCIC; please go to http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System,

Michelle Galaz
Assistant Coordinator

Enclosures:

(X) Emergency Protocols for LA, Orange, and Ventura County BULK Processing Standards – 2 pages

(X) GIS Shapefiles – 6 shapes

(X) Resource Database Printout (list) – 1 page

(X) Resource Database Printout (details) – 2 pages

(X) Resource Digital Database (spreadsheet) – 2 lines

(X) Report Database Printout (list) – 1 page

(X) Report Database Printout (details) – 4 pages

(X) Report Digital Database (spreadsheet) – 4 lines

(X) Resource Record Copies – (within project area) – 4 pages

(X) Historical Maps – 10 pages

(X) Invoice # 22572.8720

Appendix B

Sacred Lands File Results

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

July 15, 2021

Kyle Cason
City of Whittier

Via Email to: kcason@cityofwhittier.org

Re: City of Whittier Murphy Reservoirs Project, Los Angeles County

Dear Mr. Cason:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Los Angeles County
7/15/2021

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393 — Gabrieleno
Covina, CA, 91723
Phone: (626) 926 - 4131
admin@gabrielenoindians.org

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 — Gabrieleno
San Gabriel, CA, 91778
Phone: (626) 483 - 3564
Fax: (626) 286-1262
GTTribalcouncil@aol.com

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231 — Gabrielino
Los Angeles, CA, 90012
Phone: (951) 807 - 0479
sgoad@gabrielino-tongva.com

Gabrielino Tongva Indians of California Tribal Council
Christina Conley, Tribal Consultant and Administrator
P.O. Box 941078 — Gabrielino
Simi Valley, CA, 93094
Phone: (626) 407 - 8761
christina.marsden@alumni.usc.edu

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490 — Gabrielino
Bellflower, CA, 90707
Phone: (562) 761 - 6417
Fax: (562) 761-6417
gtongva@gmail.com

Gabrielino-Tongva Tribe
Charles Alvarez,
23454 Vanowen Street — Gabrielino
West Hills, CA, 91307
Phone: (310) 403 - 6048
roadkingcharles@aol.com

Santa Rosa Band of Cahuilla Indians
Lovina Redner, Tribal Chair
P.O. Box 391820 — Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
lsaul@santarosa-nsn.gov

Soboba Band of Luiseno Indians
Isaiah Vivanco, Chairperson
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 654 - 5544
Fax: (951) 654-4198
ivivanco@soboba-nsn.gov

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed City of Whittier Murphy Reservoirs Project, Los Angeles County.

Appendix C

California DPR Series 523 Forms

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code **Reviewer** **Date**

 ***Resource Name or #:** Murphy Reservoirs

P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted** ***a. County:** Los Angeles

***b. USGS 7.5' Quad:** Whittier **Date:** 1984

c. Address: No address City: Whittier Zip: 90602

d. UTM: Zone: mE/ mN (G.P.S.)

e. Other Locational Data: APN: 8289-021-900

***P3a. Description:**

Located within the City of Whittier at 7900 Ocean View Avenue, Los Angeles County, California the Murphy Reservoirs are located on the east side of a residential neighborhood and at the western boundary of the La Cañada Verde Open Space Area, which is managed by the Puente Hills Habitat Preservation Authority. The L-shaped lot is comprised of two reservoir tanks - Murphy West Reservoir (Reservoir 11) and Murphy East Reservoir (Reservoir 10) (1955), a retention basin - Reservoir No 9 (1955) and the Murphy Booster Pump House (1955).

The site is accessed via Ocean View Avenue, which terminates at the reservoir site and is protected by a metal access gate. Beyond the gate, a paved road continues to the eastern end of the site and terminates at two cylindrical reservoir tanks. The two cylindrical reservoirs - Murphy West Reservoir (Reservoir 11) and Murphy East Reservoir (Reservoir 10) are identical. Each reservoir tank is 60' in diameter and is 24' tall. Each cylindrical reservoir has a concrete exterior, that is 1'-2" thick and is topped with a convex concrete roof, with hatch access. Each roof has a pipe railing along the top. Each reservoir has a 500,000 gallon capacity. A footpath encircles the pair of reservoir tanks. The reservoirs are in fair condition with evidence of cracking and repairs at the exterior.

See continuation sheet, p. 4.

***P3b. Resource Attributes:** HP39. Other (Distribution reservoir; water tank); HP9. Public utility building; HP4. Ancillary building

***P4. Resources Present:** ■ Building ■ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo or Drawing

P5b. Description of Photo:
View of Murphy Reservoirs 10 and 11, View north

***P6. Date Constructed/Age and Sources:**
■ Historic ☐ Prehistoric ☐ Both

See B6. Construction History.

***P7. Owner and Address:**
City of Whittier
Whittier Utility Authority
13230 Penn Street
Whittier, CA 90602

***P8. Recorded by:**
Pedro Gonzalez
Rincon Consultants
250 East 1st St, Suite 1400
Los Angeles, CA 90012

***P9. Date Recorded:** August 19, 2021

***P10. Survey Type:** Intensive

***P11. Report Citation:**
Gonzalez, Matthew, JulieAnn Murphy, Steven Treffers, and Chris Duran
Murphy Reservoir Replacement Project Cultural Resources Assessment. Rincon Consultants, Inc. Project No. 20-10783. Report on file at the South Central Coastal Information Center, California State University, Fullerton. 2021

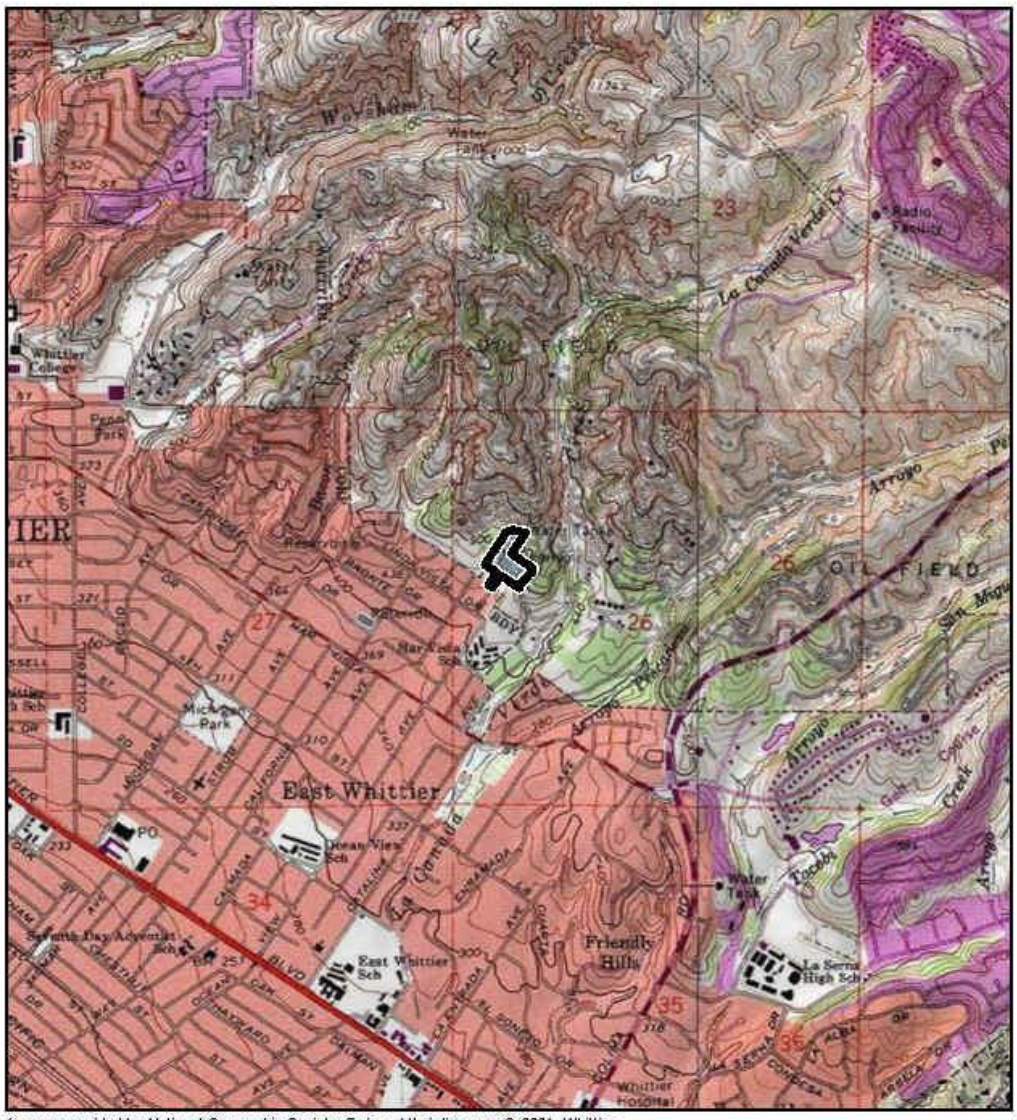
***Attachments:** ☐ NONE ■ Location Map ☐ Sketch Map ■ Continuation Sheet ■ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other (List):

State of California X Natural Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

LOCATION MAP

Trinomial

Page 2 **of** 4 ***Resource Name or #** Murphy Reservoirs
***Map Name:** Whittier ***Scale:** 1:24,000 ***Date of map:** 1984



Imagery provided by National Geographic Society, Esri, and their licensors © 2021. Whittier Quadrangle. T02S R11W S26. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** Murphy Reservoirs ***NRHP Status Code** 6Z

B1. Historic Name: Murphy Reservoirs
B2. Common Name: N/A
B3. Original Use: Municipal water treatment and distribution B4. Present Use: Municipal water treatment and distribution
***B5. Architectural Style:** N/A
***B6. Construction History:**
Murphy Reservoirs were constructed in 1955, inclusive of Murphy Reservoir West (Reservoir No. 11), Murphy Reservoir East (Reservoir No. 10), Reservoir No. 9, and the Murphy Booster Pump Station (Koebig & Koebig, 1954).

***B7. Moved?** ■ **No** □ **Yes** □ **Unknown** **Date:** N/A **Original Location:** N/A
***B8. Related Features:** None
B9a. Architect: Koebig & Koebig Consulting Engineers b. Builder: Unknown
***B10. Significance: Theme** N/A **Area** N/A
Period of Significance N/A **Property Type** N/A **Applicable Criteria** N/A

Historical aerial photographs suggest the site of Murphy Reservoirs remained largely undeveloped until the reservoir was constructed in 1955 (UCSB 1952; NETROnline 1954). Before the reservoirs were constructed, the site was part of the Murphy Ranch. The Ranch, originally over 2000 acres and including oil wells for the Murphy Oil Company, sold the remaining 450 acres for further residential development in 1953 (Whittier News 1953).

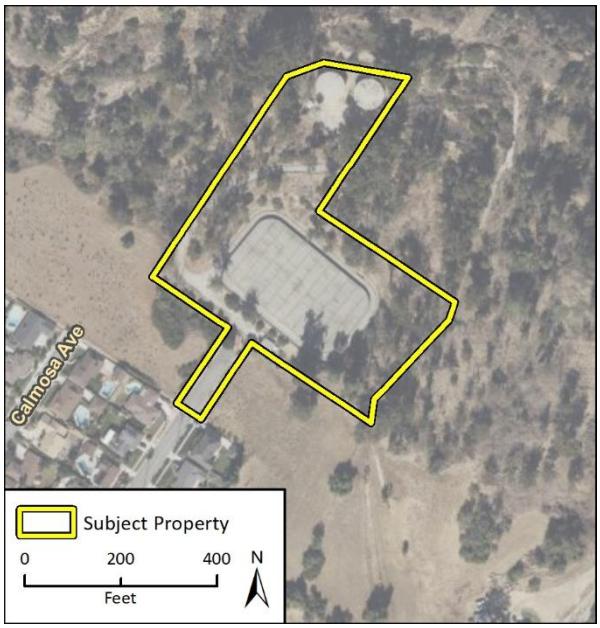
In 1953, the residents of the city voted on a bond measure to expand the city's existing water system to respond to growing consumption and development. The improvements proposed for the expanded system, as recommended by Los Angeles engineering firm Koebig & Koebig, included five reservoirs, a 2500 gallon per minute booster pump, installation of a parallel pipe for emergency use, installation of additional pipe for new service to the central and eastern areas of the city, and a check system on all reservoirs to read levels (Whittier News March 1953). The bond measure passed and construction of new water facilities followed shortly thereafter. The present-day L-shaped lot was purchased by the city for the construction of the reservoirs in October 1953 (Whittier News October 1953). Construction of the three reservoirs and the booster pump station were complete by 1955.

Los Angeles-based firm Koebig & Koebig designed the reservoir and pumping station (Koebig & Koebig, 1954). The site appears largely as it did historically save for the addition of the cellular monopole and associated wireless equipment shelter, added to the site in c. 2009 (NETROnline 2005, 2009).

Research for this study found no information suggesting the facility's original designers, Koebig & Koebig were significant in the field of engineering. The firm was founded in Los Angeles in 1909 by Adolph H. Koebig, an immigrant from Germany, and his son Adolph H. Koebig, Jr. (Notables of the Southwest 1912). Koebig & Koebig specialized in water projects and worked throughout Southern California. No information of consequence regarding Adolph Koebig, Sr. or Adolph Koebig, Jr. was uncovered as a result of research for this study.

B11. Additional Resource Attributes: N/A
***B12. References:**
See continuation sheet, p. 4.

B13. Remarks:
***B14. Evaluator:** JulieAnn Murphy, Rincon Consultants
***Date of Evaluation:** August 2021



(This space reserved for official comments.)

P3a. Description (continued):
The drive also provides access to the area of Reservoir No. 9, southwest of Reservoirs 10 and 11. Reservoir No. 9 is a subsurface, rectangular reservoir retention basin topped with concrete slab, with a short parapet above ground. The reservoir has a 4,000,000 gallon capacity and is encircled by a drive. The drive continues from Reservoir No. 9., connecting to the site's main drive.

The area to the west of Reservoir No. 9 includes the Murphy Booster Pump House, at the southern end of the drive. The Booster Pump House is a small, one-story concrete block building with a concrete foundation and a flat asphalt roof and is built at the site's natural grade, which slopes up at the eastern end. The primary, west elevation features a central man entry door and is otherwise unadorned. The south elevation is void of openings and features projecting 8'x8" concrete blocks, the western portion of the elevation extends beyond the building, creating an enclosing wall adjacent to the building entry. The opposite, north elevation repeats the same configuration with a wall extending beyond the building's east end. The north elevation features ribbon hopper windows along the roofline. The east elevation is devoid of any openings. The building's roofline is topped with a painted copper fascia.

The area to the west of the reservoir tanks includes a monopole cell phone antenna and an associated shed facility. They are not associated with the water conveyance facilities and appear to have been added to the site c. 2009.

B10. Significance (continued):
Historical Resources Evaluation
The Murphy Reservoirs is recommended ineligible for listing in the NRHP, the CRHR, or as a City of Whittier Landmark under any applicable criteria. Generally, water conveyance-related properties are generally eligible under NRHP Criterion A/CRHR Criterion 1 if they are associated specific important events (e.g., first long-distance transmission of hydroelectric power) or important patterns of events (e.g., development of irrigated farming) (JRP Historical Consulting Services and Caltrans 2000:93). Archival research indicates the Murphy Reservoirs was one of at least five projects completed as the result of the 1953 bond measure that the city passed to update its water systems. The development of the Murphy Reservoir facility was part of the gradual expansion of the city's system since its inception at the turn of the twentieth century. However, this expansion was due to what could be considered an expected response to the growth of the surrounding community and the increasing need for a reliable water system. The Murphy Reservoirs therefore does not appear to be significant within the context of water conveyance systems, or any other event or pattern of events in the history of the county, region, state, or nation (NRHP Criterion A/CRHR Criterion 1/City of Whittier Criterion E).

Archival research failed to identify any individuals associated with the Murphy Reservoirs which can be considered important within the history of the county, region, state, or nation (NRHP Criterion B/CRHR Criterion 2/City of Whittier Criterion B).

Initially developed in 1955, the Murphy Reservoirs, comprised of Murphy West Reservoir (Reservoir 11), Murphy East Reservoir (Reservoir 10), Reservoir No. 9, and the Murphy Booster Pump House, are a series of utilitarian reservoir structures and an associated building. Water conveyance-features are generally found eligible under NRHP Criterion C/CRHR Criterion 3 as the earliest, sole surviving, largest, or best preserved example of a particular type of water conveyance system or a property which introduced a design innovation or evolutionary trend in engineering (JRP Historical Consulting Services and Caltrans 2000:94). Water storage and distribution reservoirs are of common design, and there is no evidence suggesting the Murphy Reservoirs represented any particular engineering achievement at the time it was constructed. There is also no evidence indicating the associated engineers Koebig & Koebig can be considered masters, and regardless, as a simple concrete-lined reservoirs, the Murphy Reservoirs would not be considered an example of a master's work. The Murphy Reservoirs therefore does not appear to be significant for its architecture (NRHP Criterion C/CRHR Criterion 3/City of Whittier Criteria A,C,D,F,G,H,I).

Lastly, the results of the cultural resources records search or research conducted as part of this evaluation did not reveal anything suggesting the Murphy Reservoirs has the potential to yield important information (NRHP Criterion D/CRHR Criterion 4).

B12. References (continued):
JRP Historical Consulting Services and Caltrans
2000 Water Conveyance Systems in California, Historic Context Development and Evaluation Procedures. December.
Koebig & Koebig Consulting Engineers
1954 Reservoirs and Appurtenances Reservoirs No. 9, 10, 11. January, updated April.
National Environmental Title Research (NETRonline)
Var. "Historic Aerials." [digital photograph database]. Aerial images and topographical maps of the project area and vicinity viewed online. https://www.historicaerials.com/viewer. Accessed July 20, 2021.
Notables of the Southwest
1912 Press Reference Library, "Koebig, Adolph H." https://www.google.com/books/edition/Press_Reference_Library/j-IDAAAAYAAJ?hl=en&gbpv=1&bsq=koebig. Accessed July 2021.
The Whittier News
1953 "Reasons for Whittier Water Bond Vote Explained," March 25, 1953. Newspapers.com, Accessed June 2021.
1953 "Whittier Has Enough Water for Larger City," August 9, 1953. Newspapers.com, Accessed June 2021.
1953 "Sale of Murphy Ranch Recalls Area's Early History," October 23, 1953. Newspapers.com, Accessed June 2021.

Appendix D

Energy Calculations

Whittier Murphy Reservoir

Last Updated: 10/18/21

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Excavators	3	8	158	0.38	Demolition Phase	1,523.35
Off-Highway Trucks	1	8	402	0.38	Demolition Phase	1,291.96
Rubber Tired Dozers	2	8	247	0.4	Demolition Phase	1,671.19
Tractors/Loaders/Backhoes	1	8	97	0.37	Demolition Phase	337.45
Excavators	1	8	158	0.38	Grading Phase	507.78
Off-Highway Trucks	1	8	402	0.38	Grading Phase	1,291.96
Rollers	1	8	80	0.38	Grading Phase	285.83
Rubber Tired Dozers	1	8	247	0.4	Grading Phase	835.59
Tractors/Loaders/Backhoes	3	8	97	0.37	Grading Phase	1,012.34
Aerial Lifts	1	8	63	0.31	Building Construction Phase	449.88
Air Compressors	1	6	78	0.48	Building Construction Phase	646.84
Cranes	1	7	231	0.29	Building Construction Phase	1,214.57
Forklifts	3	8	89	0.2	Building Construction Phase	1,230.10
Other Material Handling Equipment	1	8	168	0.4	Building Construction Phase	1,392.43
Generator Sets	1	8	84	0.74	Building Construction Phase	1,431.89
Off-Highway Trucks	1	8	402	0.38	Building Construction Phase	3,165.30
Air Compressors	1	6	78	0.48	Architectural Coating Phase	264.02
Pavers	2	8	130	0.42	Paving Phase	923.55
Paving Equipment	2	8	132	0.36	Paving Phase	803.80
Rollers	2	8	80	0.38	Paving Phase	571.66
					Total Fuel Used	**20,851.50**
						(Gallons)

Construction Phase	Days of Operation
Demolition Phase	20
Grading Phase	20
Building Construction Phase	49
Paving Phase	20
Architectural Coating Phase	20
Total Days	129

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Demolition Phase	24.4	18	14.7	216.89
Grading Phase	24.4	18	14.7	216.89
Building Construction Phase	24.4	99	14.7	2922.53
Paving Phase	24.4	15	14.7	180.74
Architectural Coating Phase	24.4	20	14.7	240.98
		Total		**3,778.02**

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
HAULING TRIPS				
Demolition Phase	7.5	161	20.0	429.33
Grading Phase	7.5	500	20.0	1333.33
Building Construction Phase	7.5	0	20.0	0.00
Paving Phase	7.5	0	20.0	0.00
Architectural Coating Phase	7.5	0	20.0	0.00
			Total	**1,762.67**
VENDOR TRIPS				
Demolition Phase	7.5	0	6.9	0.00
Grading Phase	7.5	0	6.9	0.00
Building Construction Phase	7.5	39	6.9	1758.12
Paving Phase	7.5	0	6.9	0.00
Architectural Coating Phase	7.5	0	6.9	0.00
			Total	**1,758.12**

Total Gasoline Consumption (gallons)	**3,778.02**
Total Diesel Consumption (gallons)	**24,372.29**

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b* . July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2019. *National Transportation Statistics 2019* . Available at: https://www.bts.gov/topics/national-transportation-statistics.

Appendix E

Noise and Vibration Calculations

Roadway Construction Noise Model (RCNM),Version 1.1

Report date 10/20/2021
Case Descri Whittier Murphy Reservoir Project

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Reservoir	Industrial	75	75	75

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compactor (ground)	No	20		83.2	560	0
Dozer	No	40		81.7	560	0
Excavator	No	40		80.7	560	0

	Calculated (dBA)		Results	Noise Limits (dBA)			
			Day		Evening		Night
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Compactor (ground)	62.2	55.3	N/A	N/A	N/A	N/A	N/A
Dozer	60.7	56.7	N/A	N/A	N/A	N/A	N/A
Excavator	59.7	55.7	N/A	N/A	N/A	N/A	N/A
Total	62.2	60.7	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

		Noise Limit Exceedance (dBA)				
	Day		Evening		Night	
Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A

Groundborne Noise and Vibration Modeling

Notes
The reference distance is measured from the nearest anticipated point of construction equipment to the nearest structure.

	Reference Level Inputs			
Equipment	PPV_{ref} (in/sec)	Lv_{ref} (VdB)	RMS_{ref} (in/sec)	Reference Distance
Vibratory Roller	0.21	94	0.050	25
Hoe Ram	0.089	87	0.022	25
Large bulldozer	0.089	87	0.022	25
Caisson drilling	0.089	87	0.022	25
Loaded trucks	0.076	83	0.014	25
Jack hammer	0.035	79	0.009	25
Small bulldozer	0.003	58	0.001	25

	Vibration Level at Receiver			
Equipment	Distance (feet)	PPV_x (in/sec)	Lv_x (VdB)	RMS_x (in/sec)
Vibratory Roller	250	0.0167	72	0.004
Hoe Ram	0	#DIV/0!	#DIV/0!	#DIV/0!
Large bulldozer	250	0.0071	65	0.002
Caisson drilling	0	#DIV/0!	#DIV/0!	#DIV/0!
Loaded trucks	0	#DIV/0!	#DIV/0!	#DIV/0!
Jack hammer	0	#DIV/0!	#DIV/0!	#DIV/0!
Small bulldozer	0	#DIV/0!	#DIV/0!	#DIV/0!

	Vibration Contours		
	Distance to (feet)		
Equipment	0.200 PPV	72.0 VdB	0.0080 RMS
Vibratory Roller	26	250	133
Hoe Ram	12	120	64
Large bulldozer	12	120	64
Caisson drilling	12	120	64
Loaded trucks	10	79	42
Jack hammer	5	52	28
Small bulldozer	1	6	3

Source
California Department of Transportation (Caltrans). 2013. Transportation and Construction Last Updated: 4/11/2019

Appendix F

Assembly Bill 52 Native American Tribal Consultation

City of Whittier
13230 Penn Street, Whittier, California 90602-1772
(562) 567-9320 Fax (562) 567-2872

Notice of Project Application (AB 52)

To: Andrew Salas, Chairman **CERTIFIED MAIL**
Gabrieleno Band of Mission Indians- Kizh Nation
P.O. Box 393
Covina, CA 91723

In accordance with Assembly Bill 52, the City of Whittier is sending this notice to inform California Native American tribes that have requested such notice of a project application within a geographic area with which the tribe is traditionally and culturally affiliated. California Public Resources Code § 21080.3.1 requires this notice within 14 days of the City determining this application is complete and/or after the City has decided to undertake a project. California Native American tribes have 30 days from the date of receipt of this notice to request a consultation with the City regarding this project.

DATE OF NOTICE: July 7, 2021

PROJECT TITLE: Murphy Reservoir Replacement Project- 7900 Ocean View

PROJECT DESCRIPTION and LOCATION: To replace two existing 0.50 million gallon (MG) reservoirs with one 2.31MG reservoir located at 7900 Ocean View, in the City of Whittier, County of Los Angeles, CA 90605 (33.970694, -118.008552). See attached maps.

PROJECT INVOLVES GROUND DISTURBANCE: Yes

LOCAL GOVERNMENT/LEAD AGENCY: City of Whittier
CONTACT PERSON: Kimberly Badescu, Civil Engineer Assistant
PHONE: (562) 567-9507
E-MAIL: kbadescu@cityofwhittier.org
ADDRESS: City of Whittier, Public Works Department, Engineering Division at 13230 Penn Street, Whittier, CA 90602

Should you have any questions regarding this case, please do not hesitate to contact the Engineer listed above. After 30 days from the date of receipt of this notice, the City will respond to a request for consultation or proceed with the entitlement process.

Enclosures: USGS Map, Project Location Map and Project Site Plan
Cc: Case File Project No. 21-008

City of Whittier
13230 Penn Street, Whittier, California 90602-1772
(562) 567-9320 Fax (562) 567-2872

Notice of Project Application (AB 52)

To: Joseph Ontiveros, Tribal Historic Preservation Officer **CERTIFIED MAIL**
Soboba Band of Luiseño Indians
PO Box 487
San Jacinto, CA, 92581

In accordance with Assembly Bill 52, the City of Whittier is sending this notice to inform California Native American tribes that have requested such notice of a project application within a geographic area with which the tribe is traditionally and culturally affiliated. California Public Resources Code § 21080.3.1 requires this notice within 14 days of the City determining this application is complete and/or after the City has decided to undertake a project. California Native American tribes have 30 days from the date of receipt of this notice to request a consultation with the City regarding this project.

DATE OF NOTICE: July 7, 2021

PROJECT TITLE: Murphy Reservoir Replacement Project- 7900 Ocean View

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PROJECT INVOLVES GROUND DISTURBANCE: Yes

LOCAL GOVERNMENT/LEAD AGENCY: City of Whittier
CONTACT PERSON: Kimberly Badescu, Civil Engineer Assistant
PHONE: (562) 567-9507
E-MAIL: kbadescu@cityofwhittier.org
ADDRESS: City of Whittier, Public Works Department, Engineering Division at 13230 Penn Street, Whittier, CA 90602

Should you have any questions regarding this case, please do not hesitate to contact the Engineer listed above. After 30 days from the date of receipt of this notice, the City will respond to a request for consultation or proceed with the entitlement process.

Enclosures: USGS Map, Project Location Map and Project Site Plan
Cc: Case File Project No. 21-008

City of Whittier
13230 Penn Street, Whittier, California 90602-1772
(562) 567-9320 Fax (562) 567-2872

Notice to Proceed with Development Applications (AB 52)

To: Andrew Salas, Chairman
Gabrieleno Band of Mission Indians- Kizh Nation
P.O. Box 393
Covina, CA 91723

CERTIFIED MAIL

The City of Whittier is sending this notice as an acknowledgement of their intent to proceed with the development applications noted below.

The City of Whittier sent a Notice of Project Application by certified mail on July 7, 2021. The notice was received by the Gabrieleno Band of Mission Indians- Kizh Nation on July 14, 2021. The City of Whittier did not receive a request to consult on this project within the 30 days specified as part of California Public Resources Code § 21080.3.1.

DATE OF NOTICE: September 15, 2021

PROJECT TITLE: Murphy Reservoir Replacement Project

PROJECT DESCRIPTION and LOCATION: To replace two existing 0.50 million gallon (MG) reservoirs with one 2.31MG reservoir located at 7900 Ocean View, in the City of Whittier, County of Los Angeles, CA 90605 (33.970694, -118.008552). See attached maps.

LOCAL GOVERNMENT/LEAD AGENCY: City of Whittier
CONTACT PERSON: Kimberly Badescu, Civil Engineer Assistant
PHONE: (562) 567-9507
E-MAIL: kbadescu@cityofwhittier.org
ADDRESS: City of Whittier, Public Works Department, Engineering Division at 13230 Penn Street, Whittier, CA 90602

Thank you for your consideration.

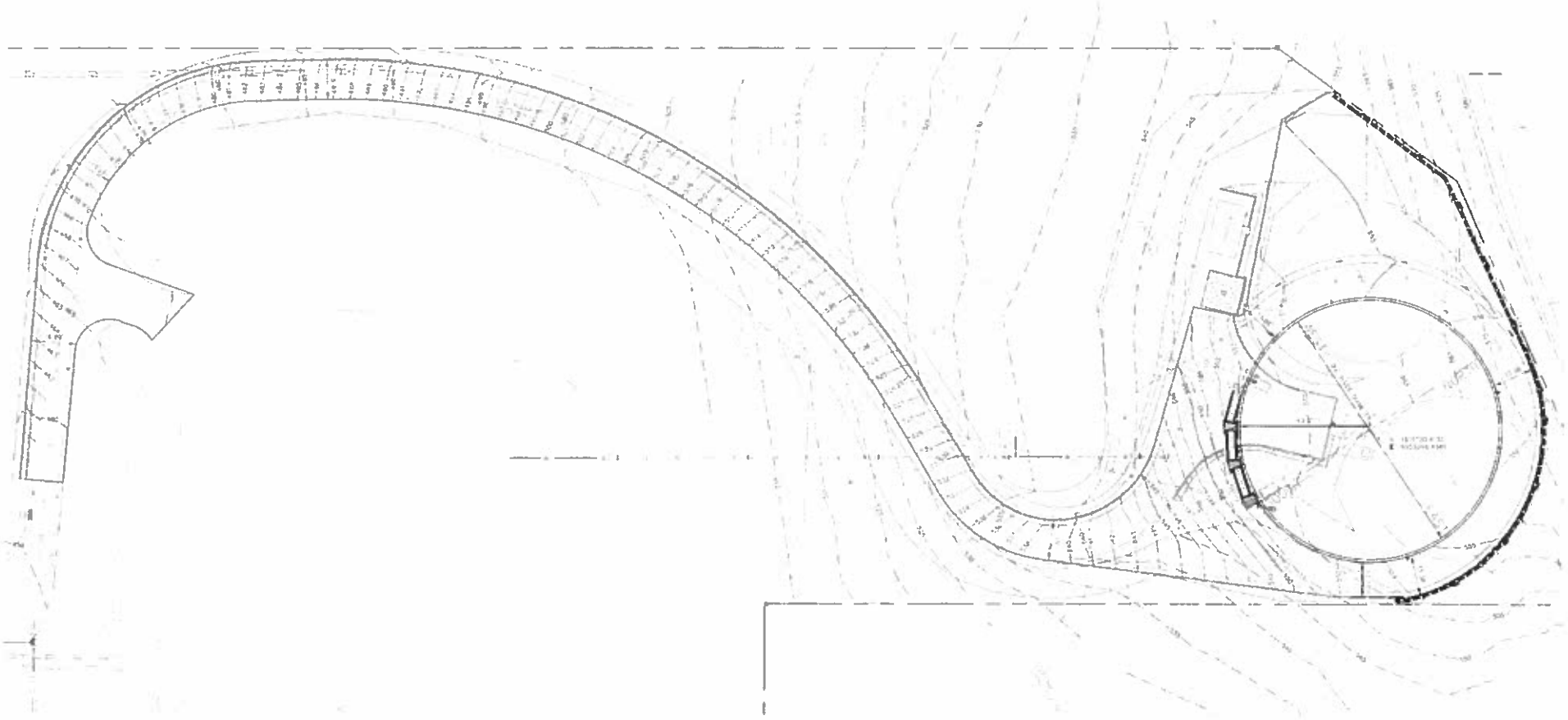
Enclosures: USGS Map, Project Location Map and Project Site Plan
CC: Case File Project No. 21-008

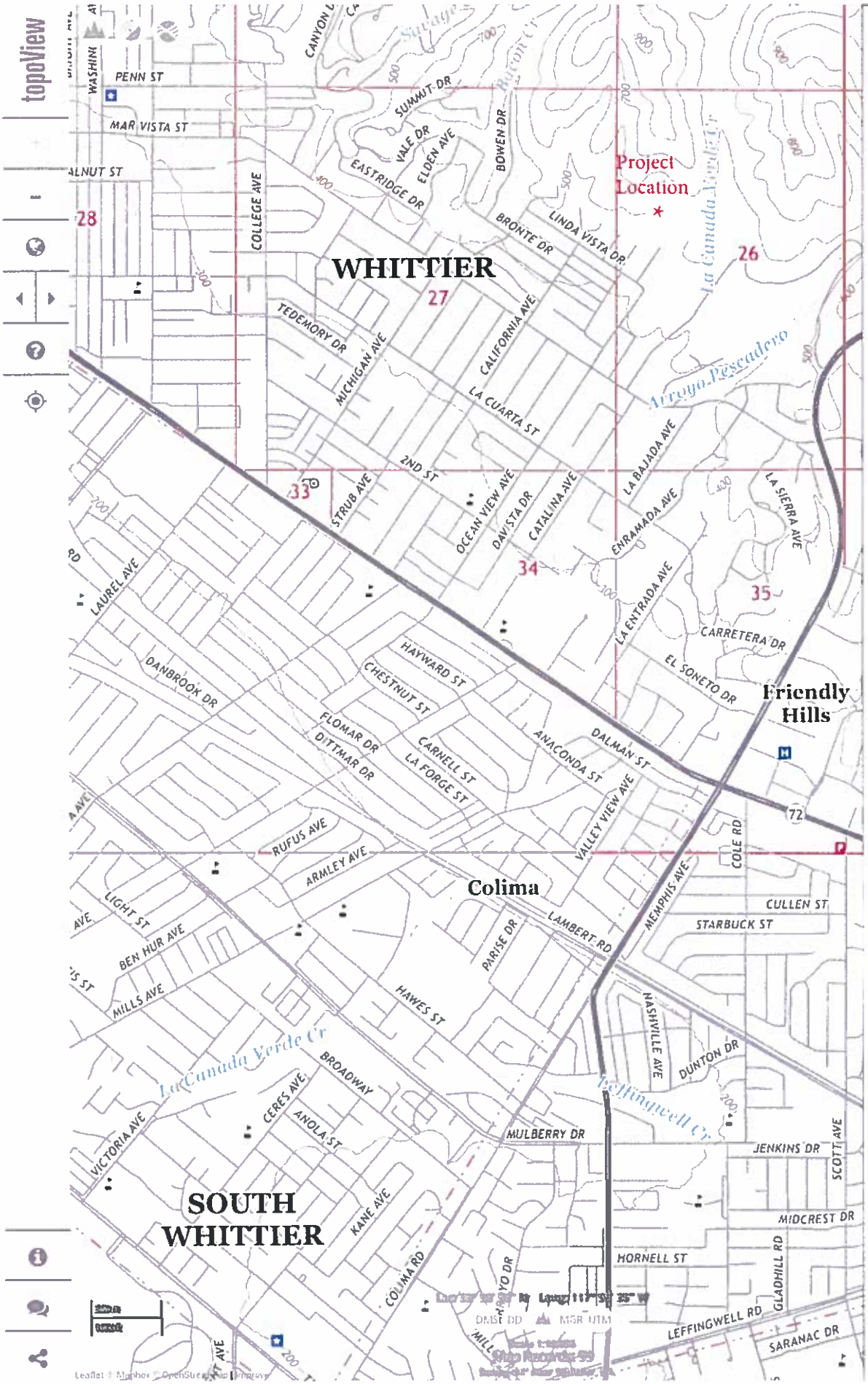
Location Map:

Murphy Reservoir Replacement Project. Replace existing two (2) – 0.50MG reservoirs with one (1) – 2.31MG Reservoir located at 7900 Ocean View, in the City of Whittier, County of Los Angeles, CA (33.970694, -118.008552).

Project Site Plan (Preliminary):

Murphy Reservoir Replacement Project. Replace existing two (2) – 0.50MG reservoirs with one (1) – 2.31MG Reservoir located at 7900 Ocean View, in the City of Whittier, County of Los Angeles, CA (33.970694, -118.008552).




topoView
Project Location
WHITTIER
SOUTH WHITTIER
Colima
Friendly Hills
PENN ST
MAR VISTA ST
WALNUT ST
COLLEGE AVE
SUMMIT DR
VALE DR
ELDEN AVE
BOWEN DR
EASTRIDGE DR
BRONTE DR
LINDA VISTA DR
TEDEMORY DR
MICHIGAN AVE
CALIFORNIA AVE
LA CUARTA ST
2ND ST
STRUB AVE
OCEAN VIEW AVE
DAVISTA DR
CATALINA AVE
LA BAJADA AVE
ENRAMADA AVE
LA ENTRADA AVE
LA SIERRA AVE
CARRETERA DR
EL SONETO DR
LAUREL AVE
DANBROOK DR
HAYWARD ST
CHESTNUT ST
FLOMAR DR
DITTMAR DR
CARNELL ST
LA FORGE ST
ANACONDA ST
DALMAN ST
VALLEY VIEW AVE
RUFUS AVE
ARMLEY AVE
LIGHT ST
BEN HUR AVE
MILLS AVE
HAWES ST
PARISE DR
LAMBERT RD
COLE RD
MEMPHIS AVE
CULLEN ST
STARBUCK ST
NASHVILLE AVE
DUNTON DR
BROADWAY
CERES AVE
ANOLA ST
VICTORIA AVE
MULBERRY DR
JENKINS DR
SCOTT AVE
MIDCREST DR
HORNELL ST
GLADHILL RD
KANE AVE
COLIMA RD
LEFFINGWELL RD
SARANAC DR
MILL AVE
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City of Whittier
13230 Penn Street, Whittier, California 90602-1772
(562) 567-9320 Fax (562) 567-2872

Notice to Proceed with Development Applications (AB 52)

To: Joseph Ontiveros, Cultural Resource Director **CERTIFIED MAIL**
Soboba Band of Luiseño Indians
PO Box 487
San Jacinto, CA 92581

The City of Whittier is sending this notice as an acknowledgement of their intent to proceed with the development applications noted below.

The City of Whittier sent a Notice of Project Application by certified mail on July 7, 2021. The notice was received by the Soboba Band of Luiseño Indians on July 13, 2021. The City of Whittier did not receive a request to consult on this project within the 30 days specified as part of California Public Resources Code § 21080.3.1.

DATE OF NOTICE: August 26, 2021

PROJECT TITLE: Murphy Reservoir Replacement Project- 7900 Ocean View

PROJECT DESCRIPTION and LOCATION: To replace two existing 0.50 million gallon (MG) reservoirs with one 2.31MG reservoir located at 7900 Ocean View, in the City of Whittier, County of Los Angeles, CA 90605 (33.970694, -118.008552). See attached maps.

LOCAL GOVERNMENT/LEAD AGENCY: City of Whittier
CONTACT PERSON: Kimberly Badescu, Civil Engineer Assistant
PHONE: (562) 567-9507
E-MAIL: kbadescu@cityofwhittier.org
ADDRESS: City of Whittier, Public Works Department, Engineering Division at 13230 Penn Street, Whittier, CA 90602

Thank you for your consideration.

Enclosures: USGS Map, Project Location Map and Project Site Plan
CC: Case File Project No. 21-008

Murphy Reservoir Replacement Project

Responses to Comments on the Draft Initial Study – Mitigated Negative Declaration

Final Initial Study – Mitigated Negative Declaration

prepared by

City of Whittier
13230 Penn Street
Whittier, California 90602
Contact: Kimberly Badescu, Civil Engineer Assistant

prepared with the assistance of

Rincon Consultants, Inc.
250 East 1st Street, Suite 1400
Los Angeles, California 90012

May 2022

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

Responses to Comments

This section includes comments received during the circulation of the Draft Initial Study-Mitigated Negative Declaration (IS-MND) prepared for the Murphy Reservoir Replacement Project (proposed project). The Draft IS-MND was circulated for a 30-day public review period which began on Thursday, April 7, 2022, and ended on Friday, May 6, 2022. The City of Whittier received two comment letters on the Draft IS-MND during the comment period, as presented below.

The comment letters and responses follow.

Letter 1

COMMENTER: Ivan Sulic, Puente Hills Habitat Preservation Authority

DATE: April 24, 2022

The commenter states the Puente Hills Habitat Preservation Authority (Habitat Authority) Board of Directors met on April 21, 2022, to consider the Draft IS-MND for the proposed project. It was determined that the analysis provided sufficiently avoids adverse impacts to the Puente Hills Preserve (Preserve). No revisions to the CEQA document were requested by the Habitat Authority. Therefore, no revisions are necessary, and no errata are associated with this comment letter.

Letter 2

COMMENTER: Miya Edmonson, Caltrans Department of Transportation - District 7

DATE: April 29, 2022

The commenter states that any transportation of heavy construction equipment and/or materials which requires use of oversized-transport vehicles on State highways will need a transportation permit from the California Department of Transportation (Caltrans). Caltrans recommends that the project limit construction traffic to off-peak periods and, if construction traffic would cause issues on any State facilities, a construction traffic control plan detailing these issues should be submitted to Caltrans for review. Caltrans does not request any revisions to the CEQA document. Therefore, no revisions are necessary, and no errata are associated with this comment letter.

Puente Hills
Habitat Preservation Authority
Endowment Provided by the Puente Hills Landfill

April 21, 2022

Kyle Cason, Director of Public Works
City of Whittier, Public Works Department
13230 Penn Street
Whittier, California 90602
PubWks@cityofwhittier.org

Re: Comments on Draft Initial Study – Mitigated Negative Declaration for the City of Whittier's Murphy Reservoir Replacement Project

Dear Mr. Cason:

The Puente Hills Habitat Preservation Authority (Habitat Authority) appreciates the opportunity to comment on the City of Whittier's Draft Initial Study – Mitigated Negative Declaration for the City of Whittier's Murphy Reservoir Replacement Project released April 7, 2022. The Board of Directors for the Habitat Authority met on April 21, 2022, and is submitting these comments for your consideration.

The Habitat Authority is a joint powers authority established pursuant to California Government Code Section 6500 *et seq*. with a Board of Directors consisting of the City of Whittier, County of Los Angeles, Sanitation Districts of Los Angeles County, and the Hacienda Heights Improvement Association. According to its mission, the Habitat Authority is dedicated to the acquisition, restoration, and management of open space in the Puente Hills for preservation of the land in perpetuity, with the primary purpose to protect the biological diversity. Additionally, the agency endeavors to provide opportunities for outdoor education and low-impact recreation.

In the Puente Hills, the Habitat Authority manages the open space in its ownership as well as open spaced owned by the City of Whittier and Sanitation Districts, totaling over 3,880 acres, within the Cities of Whittier and La Habra Heights and the County unincorporated area known as Hacienda Heights. These lands are collectively referred to as the Puente Hills Preserve (Preserve). The proposed Murphy Reservoir Replacement Project is adjacent to Preserve lands that are managed by the Habitat Authority through Agreements with the City of Whittier, A97-172 and A15-128.

Overall, we support the City's efforts to improve water supply to its residents and greatly appreciate the coordination and communication between Public Works staff and the Habitat Authority concerning the proposed project. Upon review of the Draft Initial Study – Mitigated Negative Declaration we were pleased to note that careful consideration was given to avoiding direct and indirect impacts to biological resources on the adjacent Preserve, including implementation of several appropriate project-specific Best Management Practices and avoiding

heavy equipment activities from January 1 through September 1 when raptor and songbirds have a high potential to nest in the adjacent habitat.

Thank you for your consideration, and feel free to contact me or Ecologist Michelle Mariscal (mmariscal@habitatauthority.org) for further discussion. Also, please maintain our agency on the contact list for this planning process.

Sincerely,

Ivan Sulic
Chair

cc: Board of Directors
Citizens Technical Advisory Committee

DEPARTMENT OF TRANSPORTATION
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Making Conservation a California Way of Life

April 29, 2022

Kyle Cason
City of Whittier
13230 Penn Street
Whittier, CA 90602

RE: Murphy Reservoir Replacement Project
Mitigated Negative Declaration (MND)
SCH # 2022040165
Vic. LA-72/PM: 2.78
GTS # 07-LA-2022-03910

Dear Kyle Cason:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced MND. The City of Whittier developed the Murphy Reservoir Replacement Project to respond to necessary repairs to the Murphy West and East Reservoirs and provide the water storage capacity needed to meet the demands of Pressure Zone 577, consistent with the City's Water Master Plan Update of 2018. Under the proposed project, the two existing reservoirs, which each of capacity of 0.5 million gallons (MG), would be replaced with one new reservoir of 2.31 MG capacity to address existing system deficiencies. The City of Whittier is the Lead Agency under the California Environmental Quality Act (CEQA).

The project site is approximately 1 mile from State Route 72 (SR-72). After reviewing the MND, the proposed project is a continuation of operation and maintenance activities conducted for the existing reservoirs and would not introduce new or increased vehicle miles traveled (VMT) on the local roadways. Also, construction-related traffic would be short-term and cease upon completion of construction activities. The proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b), and no impacts associated with VMT would occur. The following information is included for your consideration.

The mission of Caltrans is to provide a safe and reliable transportation network that serves all people and respects the environment. Furthermore, Caltrans encourages Lead Agencies to implement Transportation Demand Management (TDM) strategies that reduce VMT and Greenhouse Gas (GHG) emissions. For TDM strategies that the Lead Agency may want to consider integrating into this project to further reduce VMT, please refer to:

- The 2010 Quantifying Greenhouse Gas Mitigation Measures report by the California Air Pollution Control Officers Association (CAPCOA), available at http://www.capcoa.org/wpcontent/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf, and/or
- Integrating Demand Management into the Transportation Planning Process: A Desk Reference (Chapter 8) by the Federal Highway Administration (FHWA), available at https://ops.fhwa.dot.gov/publications/fhwahop12035/index.htm

Any transportation of heavy construction equipment and/or materials which requires use of oversized-transport vehicles on State highways will need a Caltrans transportation permit. Caltrans recommends that the Project limit construction traffic to off-peak periods to minimize the potential impact on State facilities. If construction traffic is expected to cause issues on any State facilities, please submit a construction traffic control plan detailing these issues for Caltrans' review.

Finally, any work completed on or near Caltrans' right of way may require an encroachment permit. However, the final determination on this will be made by Caltrans' Office of Permits. This work would require additional review and may be subject to additional requirements to ensure current design standards and access management elements are being addressed. For more information on encroachment permits, see: https://dot.ca.gov/programs/traffic-operations/ep.

If you have any questions, please feel free to contact Karen Herrera, the project coordinator, at Karen.Herrera@dot.ca.gov and refer to GTS # 07-LA-2022-03910.

Sincerely,

Miya Edmonson

MIYA EDMONSON
LDR/CEQA Branch Chief

cc: State Clearinghouse