DRAFT ENVIRONMENTAL IMPACT REPORT
FOR THE
LAKE WOHLFORD DAM REPLACEMENT PROJECT

City Case No. ENV 13-0005
State Clearinghouse No. 2015041091

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LIST OF ACRONYMS AND ABBREVIATIONS

°F	Fahrenheit
AB	Assembly Bill
ADT	average daily trips
AMSL	above mean sea level
APE	area of potential effects
APS	Alternative Planning Strategy
ARB	California Air Resources Board
ATV	acoustic-televiewer
Basin Plan	Water Quality Control Plan for the San Diego Basin
BCLA	Biological Core and Linkage Area
bgs	below ground surface
BLM	Bureau of Land Management
BMO	Biological Mitigation Ordinance
BMP	best management practice
BSA	Biological Study Area
BTR	Biological Technical Report
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAGN	coastal California gnatcatcher
CalARP	California Accidental Release Prevention
Cal-EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDMG	California Department of Conservation, Division of Mines and Geology
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO_2	carbon dioxide
CO_2e	carbon dioxide-equivalent
CRHR	California Register of Historical Resources

CRPR	California Rare Plant Rank
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
cy	cubic yard(s)
dB	decibel
dBA	A-weighted decibel
DEH	Department of Environment Health
DPP	design pollution prevention
DSHA	deterministic seismic hazard analysis
DSOD	California Department of Water Resources, Division of Safety of Dams
DTSC	Department of Toxic Substance Control
EA	Environmental Assessment
E-CAP	Escondido Climate Action Plan
EID	Escondido Irrigation District
EIR	Environmental Impact Report
EMWC	Escondido Mutual Water Company
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHSZ	Fire Hazard Severity Zone
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
g	gram(s)
GHG	greenhouse gas
GMPE	ground motion prediction equation
GWP	global warming potential
H&SC	Health and Safety Code
HA	Hydrologic Area
HCM	Highway Capacity Manual
HFC	hydrofluorocarbon
HGF	Hydroelectric Generating Facility
HMBP	Hazardous Materials Business Plan
HMD	Hazardous Materials Division
HMP	Hydromodification Management Plan
HRA	health risk assessment
HSA	hydrologic subarea

HU	hydrologic unit
I-15	Interstate 15
in/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
JURMP	Jurisdictional Urban Runoff Management Program
LBV	least Bell's vireo
LCD	liquid crystal display
LD	Larson-Davis, Inc.
L_{eq}	Equivalent Continuous Sound Level
LEV	Low Emission Vehicle
LID	low impact development
LLG	Linscott, Law & Greenspan
L_{max}	Maximum Sound Level
L_{min}	Minimum Sound Level
LOD	limits of disturbance
LOS	level of service
LT	long-term
MA	million years ago
MBTA	Migratory Bird Treaty Act
MCE	Maximum Considered Earthquake
MHCP	Multiple Species Conservation Program
M_{MAX}	maximum moment magnitude
MMRP	mitigation monitoring and reporting program
MMT	million metric tons
MND	Mitigated Negative Declaration
mph	miles per hour
MPO	Metropolitan Planning Organization
MS4	municipal separate storm water system
MT	metric tons
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NCMSCP	North County Multiple Species Conservation Program
NEPA	National Environmental Policy Act
NF_3	nitrogen trifluoride
NFIP	National Flood Insurance Program
NHTSA	National Highway Traffic Safety Administration
NO	nitric oxide

NOI	Notice of Intent
NOP	Notice of Preparation
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRC	National Research Council
NRHP	National Register of Historic Places
OEHHA	Office of Environmental Health Hazard Assessment
OHV	off—highway vehicle
PDP	Priority Development Project
PFC	perfluorocarbon
PGA	peak ground acceleration
PM	particulate matter
PM_{10}	particulate matter equal to or less than 10 micrometers in diameter
$PM_{2.5}$	particulate matter equal to or less than 2.5 micrometers in diameter
PMF	Probable Maximum Flood
PMF	Probable Maximum Flood
Porter-Cologne	Porter-Cologne Water Quality Control Act
ppm	parts per million
ppv	peak particle velocity
PRB	Peninsular Ranges Batholith
PRC	Public Resources Code
PSHA	probabilistic seismic hazard analysis
RAQS	Regional Air Quality Strategy
RCC	roller-compacted concrete
RCRA	Resource Conservation and Recovery Act
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SB	Senate Bill
SCIC	South Coastal Information Center
Scoping Plan	ARB’s Climate Change Scoping Plan
SDAB	San Diego Air Basin
SDAPCD	San Diego County, the San Diego Air Pollution Control District
SF_6	sulfur hexafluoride
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SLM	sound level meter
SO_2	sulfur dioxide
SO_X	sulfur oxides

SRA	State Responsibility Area
ST	short-term
SUSMP	Standard Urban Storm Water Mitigation Plan
SWFL	southwestern willow flycatcher
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TDS	total dissolved solids
TMDL	total maximum daily load
U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
V/C	volume to capacity
VID	Vista Irrigation District
VMT	vehicle miles traveled
VOC	volatile organic compounds
VWPT	vibrating wire pressure transducer
WDR	waste discharge requirement
WQO	water quality objective

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EXECUTIVE SUMMARY

ES.1 PURPOSE OF THE EIR/EA

The City of Escondido (City), as lead agency pursuant to the California Environmental Quality Act (CEQA, California Public Resources Code Section 21000, et seq.), has prepared this Environmental Impact Report (EIR) to evaluate the environmental effects of the proposed Lake Wohlford Dam Replacement Project ("the project" or "the proposed project"). The project proposes to construct a replacement for the existing Lake Wohlford Dam downstream (west) of the existing dam and partially deconstruct the existing dam. The project's location is shown in regional context in Figure ES-1.

ES.2 PROJECT BACKGROUND

Lake Wohlford Dam was constructed in 1895 to create Lake Wohlford, a reservoir that is an important part of the City's municipal water supply. In 1924, the dam was enlarged and raised using hydraulic fill to expand the reservoir's capacity to approximately 6,500 acre-feet and a surface area of approximately 225 acres. Most of the water released from Lake Wohlford passes through the Wohlford Penstock to the Bear Valley Hydroelectric Generating Facility, which is operated by the City under a license granted by the Federal Energy Regulatory Commission (FERC). Due to the connection to the hydroelectric facility, FERC has regulatory involvement in matters pertaining to Lake Wohlford, including seismic safety. The California Department of Water Resources, Division of Safety of Dams also regulates the safety of the dam under Division 3 of the California Water Code.

A seismic analysis of the dam conducted in 2007 identified a stability concern for the portion of the dam that was raised in 1924. Based on the results of the seismic analysis and report recommendations, FERC, in a September 19, 2007, letter, directed the City to reduce the Lake Wohlford reservoir level to a maximum of 1,460 feet above mean sea level (AMSL), which was 20 feet below its prior spillway crest elevation. Since then, the City has been operating Lake Wohlford with a reduced water storage capacity.

To alleviate seismic safety concerns with the existing dam and regain the Lake Wohlford reservoir's lost water storage capability for the City' municipal water system, the City is planning to replace Lake Wohlford Dam.

ES.3 PROJECT CHARACTERISTICS

The project entails constructing a replacement dam immediately downstream (west) of the existing dam and partially deconstructing the existing dam by removing the hydraulic fill material that is at a higher elevation than the original rockfill. The replacement dam would feature an outlet tower that is integrated into the dam's upstream face; the top of the existing outlet tower would be demolished, and the bottom of the existing outlet tower and the outlet pipe would be filled with sand and abandoned in place. The project would entail improvement and extension of an existing unpaved access road located west of the Lake Wohlford Marina, extending it to the right (north) abutment of the replacement dam. The road would provide equipment and material access to the dam construction zone and, following completion of the project, would provide permanent maintenance and inspection access to the right abutment and the dam crest. To accommodate the replacement dam's configuration, the project also entails realignment of the portion of Oakvale Road near the dam's left (south) abutment. This portion of the road would be realigned south of its current location, requiring excavation into the adjacent hillside.

The replacement dam would be constructed so the resultant storage capacity and maximum reservoir level would be equal to the capacity and elevation prior to the water level restriction, at 6,500 acre-feet and 1,480 feet AMSL, respectively, so the project proposes no changes to Lake Wohlford's historic high water level or storage capacity.

ES.4 ENVIRONMENTAL SETTING

Lake Wohlford is located in unincorporated San Diego County, in the rural foothills approximately 0.5 mile east of the City's incorporated boundaries and 5 miles northeast of the City's downtown center. Lake Wohlford is within the County's unincorporated Valley Center Community Planning Area, on land owned by the City. The lake, which is situated on Escondido Creek, stores water for use by the City's municipal system and is also a regional recreational amenity offering fishing areas, trails, and opportunities for active and passive recreation. The study area falls within the Valley Center and Rodriquez Mountain U.S. Geological Survey 7.5-minute quadrangles. The project site is located approximately 7 miles east of Interstate 15 and 2 miles east of Valley Center Road, as shown in Figure ES-2. Lake Wohlford can be accessed via east Valley Parkway and Lake Wohlford Road. Other main roadways in the vicinity of the lake include Oakvale Road and Guejito Road.

The proposed new dam site is situated within a narrow, steep, rocky canyon immediately downstream of the existing Lake Wohlford Dam. Geology in the vicinity of the project site includes surficial units composed of artificial fill, unconsolidated Holocene to late Pleistocene alluvium and colluvium/creep affected rock, overlying granitic bedrock. Soils in the project area include Cieneba very rocky coarse sandy loam, Las Posas fine sandy loam, and Fallbrook-Vista sandy loams.

The project area supports a variety of vegetative communities and habitats. Riparian and wetland vegetation communities in the area include emergent wetland, freshwater marsh, lakeshore, open water, southern willow scrub, and southern coast live oak riparian forest. Upland vegetation communities around the lake include Engelmann oak woodland, coast live oak woodland, Diegan coastal sage scrub, eucalyptus woodland, nonnative grasslands, ornamental woodland, southern mixed chaparral, and valley needlegrass grassland.

ES.5 ENVIRONMENTAL ANALYSIS

Environmental analysis conducted pursuant to CEQA concluded that the project would result in significant environmental impacts with respect to the following issue areas:

- Air Quality
- Biological Resources
- Cultural Resources
- Noise

Table ES-1 summarizes the results of the environmental analysis completed for these issue areas. Where significant impacts were identified, feasible mitigation measures are proposed to reduce impacts to less-than-significant levels. The environmental analysis concluded that mitigation for the project's impacts on air quality, biological resources, and cultural resources would reduce the identified impacts to a less-than-significant level. Analysis of the project's noise impacts concluded that temporary construction impacts would be significant and unavoidable.

As described further in Chapters 3 and 4 of this EIR, the following issue areas were determined to have less-than-significant impacts:

- Aesthetics
- Agricultural Resources
- Geology/Soils
- Greenhouse Gas Emissions
- Hazards and Public Safety
- Hydrology and Water Quality
- Mineral Resources
- Paleontological Resources
- Population and Housing
- Public Services
- Recreation
- Traffic/Circulation

ES.6 AREAS OF KNOWN CONTROVERSY

The City is not aware of any areas of controversy associated with project implementation.

Table ES-1
Summary of Significant Environmental Impacts and Mitigation Measures

Significant Environmental Impacts	Mitigation Measures	Level of Significance after Mitigation
Air Quality		
Impact AQ-1: Construction-generated PM_{10} emissions would exceed the County's applicable mass emission threshold of 100 lbs per day; therefore, construction impacts related to violation of an ambient air quality standard would be significant.	**Mitigation Measure AQ-1.1:** The following measures shall be implemented by the construction contractor to reduce fugitive dust emissions associated with off-road equipment and heavy-duty vehicles: • Water the grading areas a minimum of twice daily to minimize fugitive dust; • Stabilize graded areas as quickly as possible to minimize fugitive dust; • Apply chemical stabilizer or pave the last 100 feet of internal travel path within the construction site prior to public road entry; • Remove any visible track-out into traveled public streets within 30 minutes of occurrence; • Wet wash the construction access point at the end of each workday if any vehicle travel on unpaved surfaces has occurred; • Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads; • Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling; • Suspend all soil disturbance activities if winds exceed 25 mph; • Cover/water on-site stockpiles of excavated material; • Enforce a 15-mph speed limit on unpaved surfaces; • On dry days, dirt and debris spilled onto paved surfaces shall be swept up immediately to reduce resuspension of PM caused by vehicle movement. Approach routes to construction sites shall be cleaned daily of construction-related dirt in dry weather; and • Disturbed areas shall be hydroseeded, landscaped, or developed as quickly as possible and as directed by the contractor to reduce dust generation.	Less than significant.

Significant Environmental Impacts	Mitigation Measures	Level of Significance after Mitigation
	Mitigation Measure AQ-1.2: Minimize idling time by shutting equipment off when not in use or reducing the time of idling to no more than 5 minutes (5-minute limit is required by the state airborne toxics control measure [Title 13, sections 2449(d)(3) and 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site. **Mitigation Measure AQ-1.3:** Maintain construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic at least once per month and determined to be running in proper condition before it is operated.	
Impact AQ-2: Because the proposed project would exceed the project-level air quality significance thresholds for PM_{10} emissions, the proposed project's construction emissions would have a cumulatively considerable contribution to the region's air quality.	*See Mitigation Measures AQ-1.1 through AQ-1.3 above.*	Less than significant.
Biological Resources		
Impact BIO-1: The project would potentially result in direct and indirect impacts on special-status bird species or species covered by the MBTA if nests are established in the project area prior to construction.	**Mitigation Measure BIO-1.1:** If vegetation clearing or earthwork is proposed to commence within the bird breeding season (February 15 through September 15), a qualified biologist shall conduct pre-construction nest surveys of the project site and a 500-foot buffer to identify any listed species or bird breeding activity in the vicinity. The pre-construction survey shall be performed within 2 weeks of the start of construction activity. If the pre-construction surveys identify active nests or bird-breeding activity within the 500-foot buffer, a qualified biologist shall prepare a nest avoidance plan and, if necessary, a noise attenuation plan, to identify site-specific measures that shall be incorporated into the project to reduce construction-related impacts on the applicable bird species. **Mitigation Measure BIO-1.2:** All construction lighting shall be directed onto the construction work area and away from adjacent habitat. Light shields shall be used to reduce the extent of illumination into adjoining areas.	Less than significant.

Significant Environmental Impacts	Mitigation Measures	Level of Significance after Mitigation
Impact BIO-2: The project would entail direct impacts on Engelmann oaks, a special-status plant species, due to clearing for construction work.	**Mitigation Measure BIO-2.1:** Engelmann oaks outside the limits of disturbance will be identified as Environmentally Sensitive Areas on project plans. A qualified biologist will attend a pre-construction field meeting with the construction contractor to identify Engelmann oaks and refine the limits of disturbance to avoid unneeded clearing in areas supporting Engelmann oaks. Orange construction fencing will be installed around the locations of Engelmann oaks outside the agreed-upon limits of disturbance. Fencing shall remain in place until construction is complete to avoid inadvertent disturbance of sensitive resources.	Less than significant.
Impact BIO-3: Project construction would result in direct impacts on sensitive vegetation communities due to clearing for construction.	**Mitigation Measure BIO-3.1:** The City shall ensure that an on-site habitat restoration plan covering all areas disturbed during construction is prepared in consultation with a qualified restoration ecologist. The restoration plan will delineate all temporary impact areas subject to habitat restoration and establish standards for application of hydroseed and installation of container plants, as appropriate. The restoration plan shall include an appropriate native species planting palette to blend in with the existing and surrounding habitats. No nonnative species shall be incorporated into the restoration plan. Acreage of impacts that can be restored on-site after completion of the project will not be subject to acquisition of off-site mitigation listed in Mitigation Measures BIO-3.3 through BIO-3.9. **Mitigation Measure BIO-3.2:** A restoration maintenance and monitoring plan shall be prepared for the project by a qualified restoration ecologist outlining yearly success criteria and remedial measures in case the mitigation effort falls short of the success criteria. **Mitigation Measure BIO-3.3:** The City shall mitigate for impacts to 1.25 acres of lakeshore within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 2:1 ratio if the mitigation area is within the BCLA, totaling 2.50 acres, or at 3:1 if the mitigation area is outside the BCLA, totaling 3.75 acres.	Less than significant.

Significant Environmental Impacts	Mitigation Measures	Level of Significance after Mitigation
	Mitigation Measure BIO-3.4: The City shall mitigate for impacts to 0.41 acre of southern willow scrub within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 2:1 ratio if the mitigation area is within the BCLA, totaling 0.82 acre, or at 3:1 if the mitigation area is outside the BCLA, totaling 1.23 acres. **Mitigation Measure BIO-3.5:** The City shall mitigate for impacts to 2.36 acres of Engelmann oak woodland within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 2:1 ratio if the mitigation area is within the BCLA, totaling 4.72 acres, or at 3:1 if the mitigation area is outside the BCLA, totaling 7.08 acres. **Mitigation Measure BIO-3.6:** The City shall mitigate for impacts to 8.01 acres of coast live oak woodland within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 2:1 ratio if the mitigation area is within the BCLA, totaling 16.02 acres, or at 3:1 if the mitigation area is outside the BCLA, totaling 24.03 acres. **Mitigation Measure BIO-3.7:** The City shall mitigate for impacts to 4.31 acres of Diegan coastal sage scrub within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 1.5:1 ratio if the mitigation area is within the BCLA, totaling 6.47 acres, or at 2:1 if the mitigation area is outside the BCLA, totaling 8.62 acres. **Mitigation Measure BIO-3.8:** The City shall mitigate for impacts to 2.60 acres of nonnative grassland within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 1:1 ratio if the mitigation area is within the BCLA, totaling 2.60 acres, or at 1.5:1 if the mitigation area is	

Significant Environmental Impacts	Mitigation Measures	Level of Significance after Mitigation
	outside the BCLA, totaling 3.90 acres. **Mitigation Measure BIO-3.9:** The City shall mitigate for impacts to 8.58 acres of southern mixed chaparral within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 1:1 ratio if the mitigation area is within the BCLA, totaling 8.58 acres, or at 1.5:1 if the mitigation area is outside the BCLA, totaling 12.87 acres. **Mitigation Measure BIO-3.10:** To avoid incidental loss of sensitive habitat types during construction activities, Environmentally Sensitive Area fencing shall be installed along the limits of disturbance prior to the start of construction. In addition, grading limits shall be flagged or fenced, and grading shall not occur beyond this flagging/fencing. Location of fencing shall be confirmed by a qualified biological monitor. Construction crews shall be made fully aware of this boundary.	
Impact BIO-4: The project would result in indirect impacts to sensitive vegetation communities adjacent to construction work areas.	**Mitigation Measure BIO-4.1:** Storage of soil or fill material from the project site shall be within the LOD or developed areas. The contractor shall delineate stockpile areas on the grading plans for review by the City. **Mitigation Measure BIO-4.2:** If additional access routes are determined necessary, these areas shall be surveyed for biological resources prior to their use and, if any sensitive resources are identified, determine appropriate avoidance and minimization measures. The contractor shall clearly mark all access routes (i.e., flagged and/or staked) prior to the onset of construction. **Mitigation Measure BIO-4.3:** The contractor shall periodically monitor the work area to ensure that construction-related activities do not generate excessive amounts of fugitive dust. Water shall be applied to the construction right-of-way, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions and topsoil erosion.	
Impact BIO-5: The project would result in direct impacts on jurisdictional wetlands and waters due to clearing for construction.	Implement habitat-based mitigation stated in Mitigation Measures BIO-3.3, BIO-3.4, BIO-3.5, and BIO-3.6. No additional habitat-based mitigation for jurisdictional wetlands is warranted.	Less than significant.

Significant Environmental Impacts	Mitigation Measures	Level of Significance after Mitigation
Impact BIO-6: Project construction would occur within and adjacent to delineated wetlands and waters and potentially result in indirect impacts to jurisdictional areas.	**Mitigation Measure BIO-6.1:** A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared to comply with RWQCB requirements. The SWPPP shall identify the design features and best management practices (BMPs) that will be used to manage drainage-related issues (e.g., erosion and sedimentation) during construction. Erosion-control measures shall be regularly checked by the contractor, the project biologist, and/or City staff. Specific BMP plans shall be reviewed by the City and the project biologist, and be modified, if necessary, prior to implementation. Fencing and erosion-control measures of all project areas shall be inspected a minimum of once per week. **Mitigation Measure BIO-6.2:** Staging areas and project activities, including equipment access and disposal or temporary placement of excess fill, shall be prohibited within off-site drainages.	Less than significant.
Cultural Resources		
Impact CR-1: The past discovery of resources in the vicinity of the Oakvale Road project impact area indicates sensitivity for the potential presence of unknown archaeological resources.	**Mitigation Measure CR-1.1:** The City of Escondido Planning Division ("City") recommends the applicant enter into a Tribal Cultural Resource Treatment and Monitoring Agreement (also known as a pre-excavation agreement) with a tribe that is traditionally and culturally affiliated with the Project Location ("TCA Tribe") prior to issuance of a grading permit. The purposes of the agreement are (1) to provide the applicant with clear expectations regarding tribal cultural resources, and (2) to formalize protocols and procedures between the Applicant/Owner and the TCA Tribe for the protection and treatment of, including but not limited to, Native American human remains, funerary objects, cultural and religious landscapes, ceremonial items, traditional gathering areas and cultural items, located and/or discovered through a monitoring program in conjunction with the construction of the proposed project, including additional archaeological surveys and/or studies, excavations, geotechnical investigations, grading, and all other ground disturbing activities. **Mitigation Measure CR-1.2:** Prior to issuance of a grading permit, the applicant shall provide written verification to the City that a qualified archaeologist and a Native American monitor associated with a TCA Tribe have been retained to implement the monitoring	Less than significant.

Significant Environmental Impacts	Mitigation Measures	Level of Significance after Mitigation
	program. The archaeologist shall be responsible for coordinating with the Native American monitor. This verification shall be presented to the City in a letter from the project archaeologist that confirms the selected Native American monitor is associated with a TCA Tribe. The City, prior to any pre-construction meeting, shall approve all persons involved in the monitoring program. **Mitigation Measure CR-1.3:** The qualified archaeologist and a Native American monitor shall attend the pre-grading meeting with the grading contractors to explain and coordinate the requirements of the monitoring program. **Mitigation Measure CR-1.4:** During the initial grubbing, site grading, excavation or disturbance of the ground surface, the qualified archaeologist and the Native American monitor shall be on site full-time. The frequency of inspections shall depend on the rate of excavation, the materials excavated, and any discoveries of tribal cultural resources as defined in California Public Resources Code Section 21074. Archaeological and Native American monitoring will be discontinued when the depth of grading and soil conditions no longer retain the potential to contain cultural deposits. The qualified archaeologist, in consultation with the Native American monitor, shall be responsible for determining the duration and frequency of monitoring. **Mitigation Measure CR-1.5:** In the event that previously unidentified tribal cultural resources are discovered, the qualified archaeologist and the Native American monitor, shall have the authority to temporarily divert or temporarily halt ground disturbance operation in the area of discovery to allow for the evaluation of potentially significant cultural resources. Isolates and clearly non-significant deposits shall be minimally documented in the field and collected so the monitored grading can proceed. **Mitigation Measure CR-1.6:** If a potentially significant tribal cultural resource is discovered, the archaeologist shall notify the City of said discovery. The qualified archaeologist, in consultation with the City, the TCA Tribe and the Native American monitor, shall determine the significance of the discovered resource. A	

Significant Environmental Impacts	Mitigation Measures	Level of Significance after Mitigation
	recommendation for the tribal cultural resource's treatment and disposition shall be made by the qualified archaeologist in consultation with the TCA Tribe and the Native American monitor and be submitted to the City for review and approval. **Mitigation Measure CR-1.7:** The avoidance and/or preservation of the significant tribal cultural resource and/or unique archaeological resource must first be considered and evaluated as required by CEQA. Where any significant tribal cultural resources and/or unique archaeological resources have been discovered and avoidance and/or preservation measures are deemed to be infeasible by the City, then a research design and data recovery program to mitigate impacts shall be prepared by the qualified archaeologist (using professional archaeological methods), in consultation with the TCA Tribe and the Native American monitor, and shall be subject to approval by the City. The archaeological monitor, in consultation with the Native American monitor, shall determine the amount of material to be recovered for an adequate artifact sample for analysis. Before construction activities are allowed to resume in the affected area, the research design and data recovery program activities must be concluded to the satisfaction of the City. **Mitigation Measure CR-1.8:** As specified by California Health and Safety Code Section 7050.5, if human remains are found on the project site during construction or during archaeological work, the person responsible for the excavation, or his or her authorized representative, shall immediately notify the San Diego County Coroner's office. Determination of whether the remains are human shall be conducted on-site and in situ where they were discovered by a forensic anthropologist, unless the forensic anthropologist and the Native American monitor agree to remove the remains to an off-site location for examination. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the Coroner has made the necessary findings as to origin and disposition. A temporary construction exclusion zone shall be established surrounding the area of the discovery so that the area would be protected, and consultation and treatment could occur as prescribed by law. In the	

Significant Environmental Impacts	Mitigation Measures	Level of Significance after Mitigation
	event that the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted in order to determine proper treatment and disposition of the remains in accordance with California Public Resources Code section 5097.98. The Native American remains shall be kept in-situ, or in a secure location in close proximity to where they were found, and the analysis of the remains shall only occur on-site in the presence of a Native American monitor. **Mitigation Measure CR-1.9:** If the qualified archaeologist elects to collect any tribal cultural resources, the Native American monitor must be present during any testing or cataloging of those resources. Moreover, if the qualified Archaeologist does not collect the cultural resources that are unearthed during the ground disturbing activities, the Native American monitor, may at their discretion, collect said resources and provide them to the TCA Tribe for respectful and dignified treatment in accordance with the Tribe's cultural and spiritual traditions. Any tribal cultural resources collected by the qualified archaeologist shall be repatriated to the TCA Tribe. Should the TCA Tribe or other traditionally and culturally affiliated tribe decline the collection, the collection shall be curated at the San Diego Archaeological Center. All other resources determined by the qualified archaeologist, in consultation with the Native American monitor, to not be tribal cultural resources, shall be curated at the San Diego Archaeological Center. **Mitigation Measure CR-1.10:** Prior to the release of the grading bond, a monitoring report and/or evaluation report, if appropriate, which describes the results, analysis and conclusion of the archaeological monitoring program and any data recovery program on the project site shall be submitted by the qualified archaeologist to the City. The Native American monitor shall be responsible for providing any notes or comments to the qualified archaeologist in a timely manner to be submitted with the report. The report will include California Department of Parks and Recreation Primary and Archaeological Site Forms for any newly discovered resources.	

Significant Environmental Impacts	Mitigation Measures	Level of Significance after Mitigation
Impact CR-2: There is potential for accidental disturbance or damage to known and unknown cultural resources in the dam construction area and access road construction area.	*See Mitigation Measures CR-1.1 through 1.10 above.* **Mitigation Measure CR-2.1:** The following actions shall be taken to ensure avoidance of known cultural resources: • Existing cultural resource sites shall be designated as Environmentally Sensitive Areas on all construction drawings and the limits of disturbance identified in the drawings shall not overlap with these Environmentally Sensitive Areas. • Prior to the start of construction, under direction of the project archaeological monitor, orange construction fencing shall be placed around the known cultural resource sites. Fencing shall remain in place until construction is complete to avoid inadvertent disturbance of the site. • Environmental training will be provided for all contractors to educate them on awareness of cultural resources protection requirements.	Less than significant.
Noise		
Impact NOI-1: The dam construction phase of the project would generate noise at night that would be received by residences in excess of the County's 45 dBA nighttime noise standard.	**Mitigation Measure NOI-1.1:** <u>Implement Noise Complaint Reporting</u> – The project (via construction contractor) would establish a telephone hot-line for use by the public to report any significant adverse noise conditions associated with the construction of the project. If the telephone is not staffed 24 hours per day, the contractor shall be required to include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This hot-line telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been considered commissioned and ready for operation. **Mitigation Measure NOI-1.2:** <u>Implement Noise Complaint Investigation</u> – Throughout the construction of the project, the contractor shall be required to document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The contractor or its authorized agent shall be required to: • Use a Noise Complaint Resolution Form to document and respond to each noise complaint; • Contact the person(s) making the noise complaint within 24	Significant and unavoidable

Significant Environmental Impacts	Mitigation Measures	Level of Significance after Mitigation
	hours; • Conduct an investigation to attempt to determine the source of noise related to the complaint; and • Take all reasonable measures to reduce the noise at its source. **Mitigation Measure NOI-1.3:** Implement Construction Practices – The following are typical field techniques for reducing noise from construction activities, with the purpose of reducing aggregate construction noise levels at nearby noise-sensitive receivers. The contractor or its authorized agent shall be required to: • Adjust all audible back-up alarms downward in sound level, reflecting locations that have expected lower background level, while still maintaining adequate signal-to-noise ratio for alarm effectiveness. Consider signal persons and strobe lights, or alternative safety equipment and/or processes as allowed, for reducing reliance on high-amplitude sonic alarms. • Place stationary noise sources, such as generators and air compressors, away from affected noise-sensitive receivers to the farthest extent practical on the project site. Place non-noise-producing mobile equipment such as trailers in the direct sound pathways between suspected major noise-producing sources and these sensitive receivers. To minimize flanking underneath or through vertical gaps, the construction contractor shall cover the openings with at least 0.5-inch-thick plywood, hay bales, or other sufficiently dense material. **Mitigation Measure NOI-1.4:** Equipment Noise Reduction – The following are typical practices for construction equipment selection (or preferences) and expected function that can help reduce noise and shall be implemented: • Use concrete crushers or pavement saws rather than impact devices such as jackhammers, pavement breakers, and hoe rams for tasks such as concrete or asphalt demolition and removal. • Pneumatic impact tools and equipment used at the construction site shall have intake and exhaust mufflers recommended by the manufacturers thereof, to meet relevant noise limitations.	

Significant Environmental Impacts	Mitigation Measures	Level of Significance after Mitigation
	• Provide impact noise-producing equipment (i.e., jackhammers and pavement breaker[s]) with noise attenuating shields, shrouds or portable barriers or enclosures, to reduce operating noise. • Line or cover hoppers, storage bins, and chutes with sound-deadening material (e.g., apply wood or rubber liners to metal bin impact surfaces). • Provide upgraded mufflers, acoustical lining, or acoustical paneling for other noisy equipment, including internal combustion engines. • Use alternative procedures of construction and select a combination of techniques that generate the least overall noise and vibration. • Use construction equipment manufactured or modified to reduce noise and vibration emissions, such as: o Electric instead of diesel-powered equipment. o Hydraulic tools instead of pneumatic tools. o Electric saws instead of air- or gasoline-driven saws. • Locate construction staging area as far as feasible from occupied residences.	

ES-1
Regional Location Map

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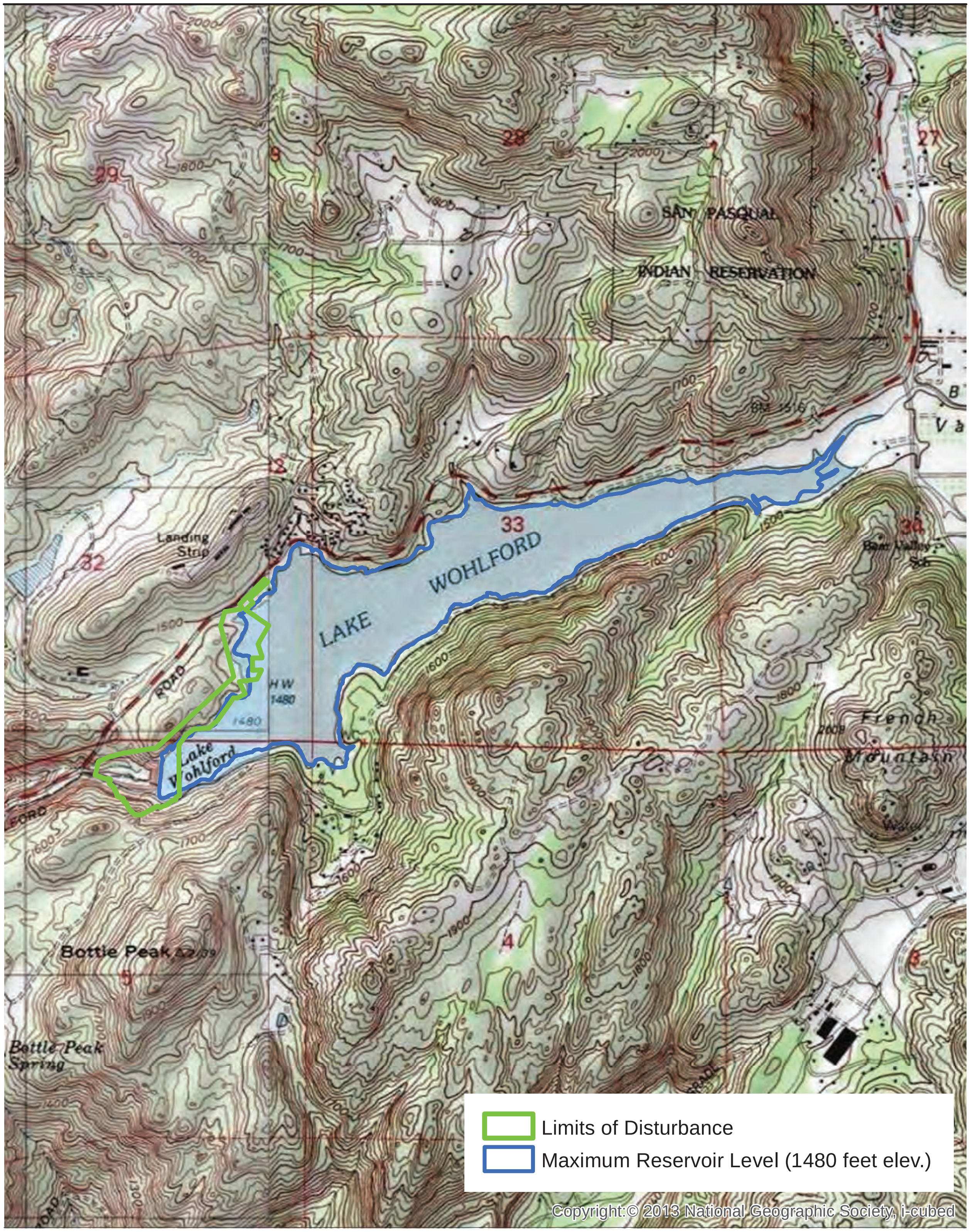

Source: USGS 7.5' Topo Quads Rodriguez Mtn 1988 and Valley Center 1975

2,000 1,000 0 2,000 Feet

Scale: 1 = 24,000 1 inch = 2,000 feet

ES-2
Vicinity Map

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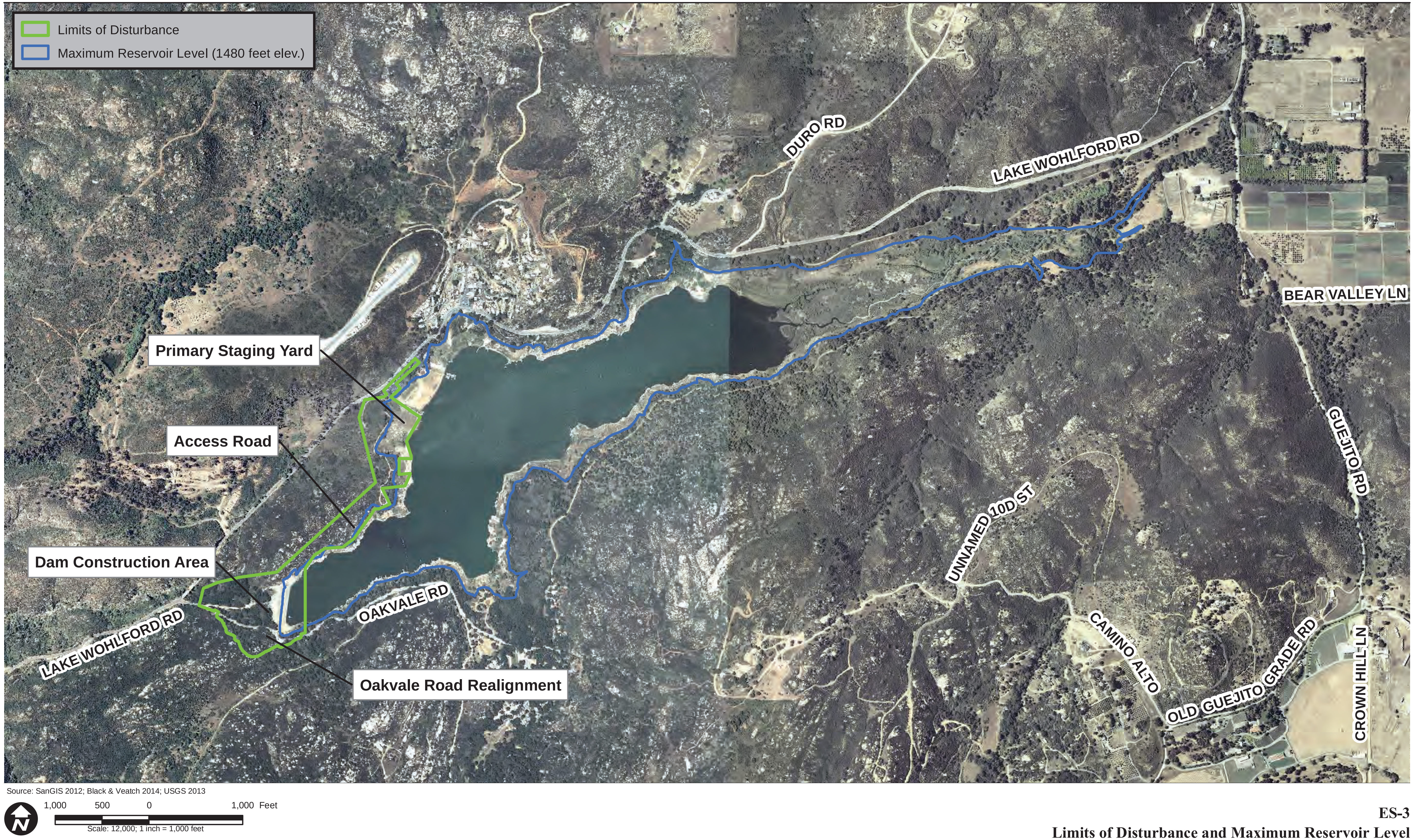

Source: SanGIS 2012; Black & Veatch 2014; USGS 2013

ES-3
Limits of Disturbance and Maximum Reservoir Level

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CHAPTER 1.0
INTRODUCTION

1.1 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

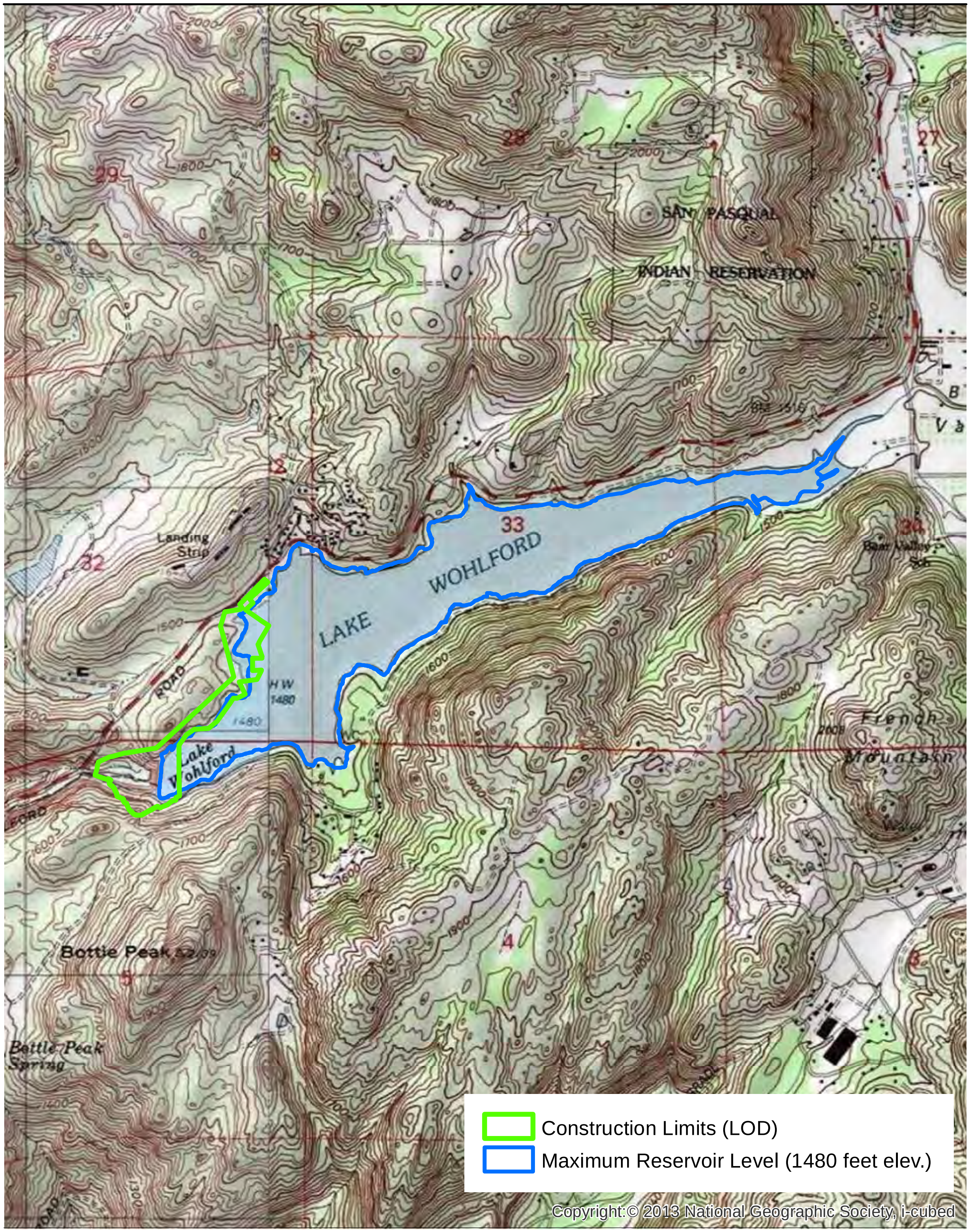
The City of Escondido (City), as lead agency pursuant to the California Environmental Quality Act (CEQA) (California Public Resources Code [PRC] Section 21000, et seq.), has prepared this Draft Environmental Impact Report (EIR) to evaluate the environmental effects of the proposed Lake Wohlford Dam Replacement Project ("the project" or "the proposed project"). The project, which is described in detail in Chapter 2, proposes to construct a replacement for the existing Lake Wohlford Dam downstream (west) of the existing dam and partially deconstruct the existing dam.

Lake Wohlford is a man-made reservoir owned and operated by the City, and is used to store untreated water as part of the municipal drinking water system. The reservoir is located in the rural foothills of unincorporated San Diego County, approximately 0.5 mile east of the City's incorporated boundaries and 5 miles northeast of the City's downtown center (Figures 1-1 and 1-2). Lake Wohlford Dam was originally constructed as a rockfill structure in 1895 to create a reservoir for the City's municipal water supply. In 1924, the City enlarged the dam using hydraulic fill, pumping earth from the lake bottom through a pipe and placing this material on the upstream side of the existing dam. A 2007 seismic analysis of the dam identified a stability concern for the raised portion of the dam in the event of a major earthquake. As a result, the City, as directed by the Federal Energy Regulatory Commission (FERC), reduced the reservoir's water level in 2007 to limit the risk of a potential failure. The water level reduction decreased the reservoir's capacity to approximately 40% of its prior size. To regain this lost water storage capacity and improve seismic safety conditions, the City is planning to construct a new roller-compacted concrete (RCC) dam approximately 200 feet downstream of the existing dam. The replacement dam would be constructed so the resultant reservoir level and storage capacity are equal to the elevation and capacity prior to the water level restriction, at 1,480 feet elevation and 6,500 acre-feet, respectively. The top of the existing dam would be deconstructed above the original rockfill elevation.

1.2 ENVIRONMENTAL REVIEW PROCESS

The proposed project is a discretionary action of the City, so it is subject to environmental review under CEQA. This document meets the requirements of an EIR under CEQA. An EIR is

Figure 1-1
Regional Location Map



Source: USGS 7.5' Topo Quads Rodriguez Mtn 1988 and Valley Center 1975

2,000 1,000 0 2,000 Feet

Scale: 1 = 24,000 1 inch = 2,000 feet

Figure 1-2
Vicinity Map

Path: P:\2012\60278081_Lk_Wohlford\05Graphics\5.4_Proj_Graphics\Report_Graphics\PDF, 8/10/2015, delapazd

an informational document used by the lead agency (in this case, the City of Escondido) when considering approval of a project. The purpose of an EIR is to provide public agencies and members of the general public with detailed information concerning the environmental effects associated with the implementation of a project. An EIR analyzes the environmental effects of a project, indicates ways to reduce or avoid potential environmental effects resulting from the project (i.e., mitigation measures), and identifies alternatives to the proposed project that are capable of avoiding or reducing impacts. CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority. Prior to approval of the project, the City, as lead agency, is required to certify that this EIR has been completed in compliance with CEQA, that the information on the project's environmental impacts and mitigation measures disclosed in this EIR has been considered, and that the EIR reflects the independent judgment of the City.

CEQA requires decision makers to balance the benefits of a proposed project against its unavoidable environmental consequences. If environmental impacts are identified as significant and unavoidable, the City may still approve a project if it believes that social, economic, or other benefits outweigh the unavoidable impacts. The City would then be required to state in writing the specific reasons for approving a project based on information in the EIR and other information sources in the administrative record. This reasoning is called a "statement of overriding considerations" (State CEQA Guidelines Section 15093).

In addition, when approving a project, lead agencies under CEQA must adopt a mitigation monitoring and reporting program (MMRP) describing the measures that were made a condition of project approval in order to avoid or mitigate significant effects on the environment (PRC Section 21081.6[a][1]). The MMRP is adopted at the time of project approval and is designed to ensure compliance during and after project implementation. If the City decides to approve a project, it will be responsible for ensuring implementation of an MMRP.

Because Lake Wohlford Dam is connected to a downstream power generation facility under FERC jurisdiction, FERC has regulatory authority over modifications of the dam. Accordingly, the project is also subject to review under the National Environmental Policy Act (NEPA). FERC plans to publish an Environmental Assessment (EA) under separate cover for their NEPA environmental review. If FERC determines that the project would result in a substantial adverse effect on the environment, then they would prepare an Environmental Impact Statement. The City's EIR may inform FERC's analysis in preparation of their EA, but the EIR will not itself be used for NEPA review.

Consistent with the requirements of CEQA, a good faith effort has been made during the preparation of the EIR to contact affected agencies, organizations, and persons who may have an interest in the project. This includes the circulation of a Notice of Preparation (NOP) on April 28, 2015, which began a 30-day comment period mandated by Section 15082 of the State CEQA Guidelines. The NOP is provided in Appendix A of this EIR. A total of three comment letters were received in response to the NOP, from the California Department of Fish and Wildlife (CDFW), the County, and the San Diego Archaeological Society. These comments, which are also included in Appendix A of this EIR, were considered in preparation of the Draft EIR.

The City filed a Notice of Completion with the Governor's Office of Planning and Research, State Clearinghouse, as required in State CEQA Guidelines Section 15085, indicating that this Draft EIR has been completed and is available for review and comment by the public. A Notice of Availability of the Draft EIR was published concurrently with distribution of the EIR.

This Draft EIR is being circulated for 45 days for public review and comment, as required in State CEQA Guidelines Section 15105. During this period, comments from the general public, organizations, and agencies regarding environmental issues identified in the Draft EIR and concerning the Draft EIR's accuracy and completeness may be submitted to the lead agency at the following address:

Bill Martin, Principal Planner
City of Escondido
Planning Division
201 North Broadway
Escondido, CA 92025
(760) 839-4671

Comments concerning the Draft EIR's accuracy and completeness may be submitted in writing before the end of the comment period. The City will prepare written responses to written comments upon completion of the public review period, and will publish them in a Final EIR, which will also incorporate any revisions needed for clarification of information presented in the EIR.

1.3 RELATIONSHIP TO OAKVALE ROAD MITIGATED NEGATIVE DECLARATION

The City prepared a Mitigated Negative Declaration (MND) for the Oakvale Road Realignment and Improvement Project, which was circulated for a 30-day CEQA review period in September 2014 and adopted by City Council resolution in March 2015. The Oakvale Road Realignment project is related to the dam replacement project in that realigning the road is needed to provide sufficient room for placing the dam's left abutment while keeping the road open to traffic during and after dam construction. The City identified Oakvale Road as a separate project from the dam replacement project for purposes of CEQA analysis in the MND because the road project has independent benefits of improving roadway safety and, while constructing the dam requires the Oakvale Road realignment, constructing the road project does not commit the City to implementing the dam project. Because of the relationship between the Oakvale Road realignment project and the dam replacement project, the Oakvale Road project is analyzed in this EIR as a part of the project as a whole.

1.4 SCOPE OF THE EIR

The initial identification of general areas of environmental impacts to be addressed in this EIR is contained in the NOP issued by the City. Environmental topics for consideration are based on Appendix G of the State CEQA Guidelines, which provides a checklist of potential environmental impact issue areas that is used as a starting point for all the City's CEQA analyses. The NOP identified the following issues to be evaluated in the EIR for potential significant effects:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology/Soils
- Greenhouse Gas Emissions
- Hazards and Public Safety
- Hydrology and Water Quality
- Noise
- Recreation
- Traffic/Circulation

The analysis conducted in preparation of this EIR identified a number of areas of potential environmental concern where no significant impacts are anticipated as a result of implementing the proposed project. Those issues for which effects were found not to be significant are Agricultural Resources, Land Use/Planning, Mineral Resources, Population and Housing, Public Services, and Utilities/Service Systems. These topics are discussed in Chapter 4 of this EIR and are not discussed in detail in Chapter 3 (CEQA Guidelines, Section 15128).

1.5 STRUCTURE OF THE EIR

This EIR contains the chapters summarized below.

Executive Summary. This section provides a brief summary of the project description and presents a summary table listing the project's anticipated significant environmental impacts and mitigation measures.

Chapter 1: Introduction. This chapter provides an introduction to the project and describes the purpose of the EIR and the CEQA process.

Chapter 2: Project Description. This chapter details the project components, including the project's purpose and objectives, project features, and proposed construction activities.

Chapter 3: Environmental Impact Analysis. This chapter describes the existing conditions for each of the environmental topics determined to have a potential for significant environmental impacts after preliminary analysis by the City Planning Division; states the environmental issues identified for the project; evaluates the potential significant environmental impacts of the proposed project; and lists mitigation measures that would avoid or reduce the significance of potential impacts. When relevant, the impact analysis in this chapter is organized into three areas representing the three distinct phases or components of the project: Oakvale Road realignment, dam and access road construction, and restoration of water levels.

Chapter 4: Effects Found Not to Be Significant. This chapter analyzes potential environmental effects identified by the City Planning Division that, after preliminary analysis, were determined to not be significant.

Chapter 5: Cumulative Impacts. This chapter analyzes the potential significant project effects that, when considered with other closely related past, present, and reasonably foreseeable future projects, could compound or increase environmental impacts.

Chapter 6: Project Alternatives. This chapter considers alternatives to the project that could reduce one or more of the significant environmental impacts identified in Chapter 4.

Chapter 7: Other Considerations Required by CEQA. This chapter identifies the changes in the local environment that would result from implementation of the proposed project. As required by the CEQA Guidelines, Growth Inducement provides an analysis of the ways in which the project could foster economic or population growth, either directly or indirectly, in the surrounding area.

Chapter 8: List of Preparers and Contributors. This chapter identifies the persons and organizations that participated in the preparation of the EIR.

Chapter 9: References. This chapter provides a list of the sources referenced in the EIR.

Appendices: The NOP, several technical studies, and supplemental data prepared for the project are provided in this section of the EIR.

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CHAPTER 2.0
PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

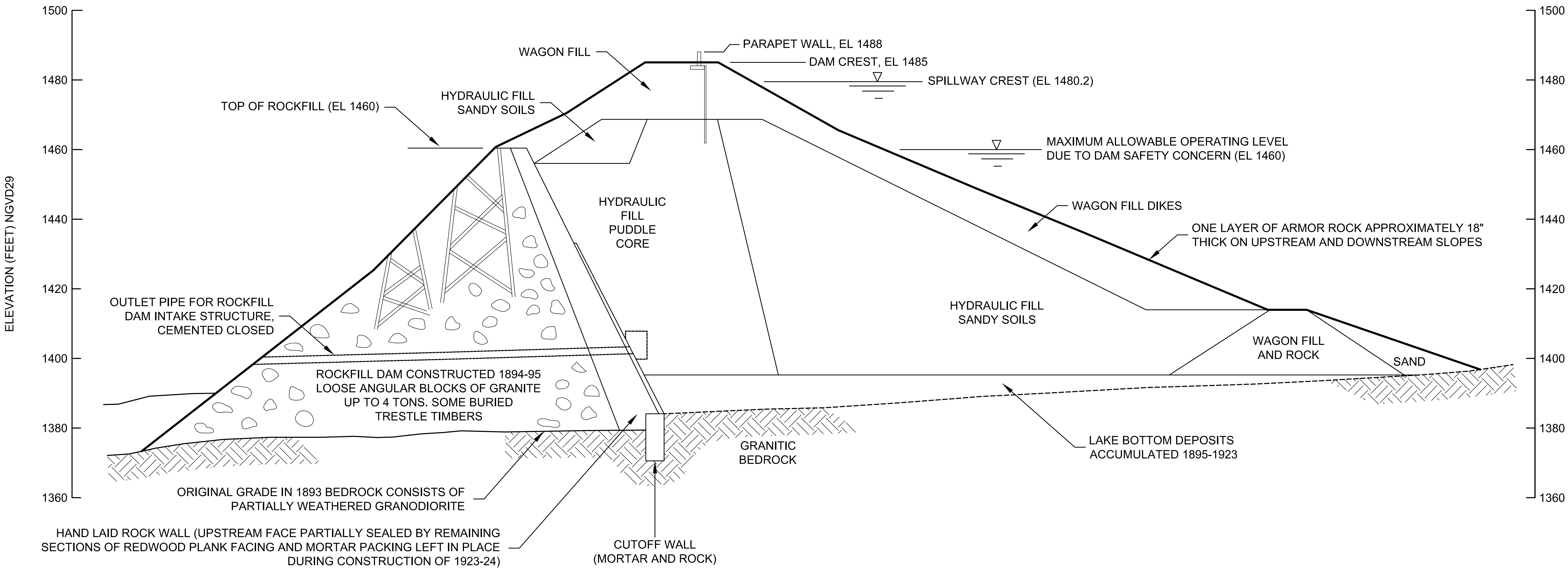
Lake Wohlford is a man-made reservoir owned and operated by the City and located in the rural foothills of unincorporated San Diego County, approximately 0.5 mile east of the City's incorporated boundaries and 5 miles northeast of the City's downtown center. Lake Wohlford is within the County's unincorporated Valley Center Community Planning Area, on land owned by the City. The reservoir is formed by Lake Wohlford Dam, which is a 100-foot-high embankment dam composed primarily of rockfill on the downstream side and hydraulically placed fill on the upstream side. Lake Wohlford, located along Escondido Creek, is filled by runoff from its 7.3-square-mile drainage area, as well as water released from the City's Lake Henshaw reservoir, which is diverted from the San Luis Rey River through the 13-mile-long Escondido Canal.

Lake Wohlford Dam was originally constructed of rockfill in 1895 at a height of approximately 76 feet, creating an important component of the City's initial municipal water supply. In 1924, the City enlarged the dam using hydraulic fill, pumping earth from the lake bottom through a pipe and placing this material on the upstream side of the existing dam. The enlargement of the dam increased the dam's height to 100 feet and expanded Lake Wohlford's storage capacity to serve the City's growing population (GEI Consultants, Inc. 2008). A cross section of the existing dam is shown in Figure 2-1. When the water level is at the existing spillway crest elevation of 1,480 feet above mean sea level (AMSL), the dam has a storage capacity of approximately 6,500 acre-feet and covers a surface area of approximately 225 acres. The reservoir's beneficial uses include municipal and agricultural water supply; flood control; non-contact water recreation, including fishing; and wildlife habitat.

Most of the water released from Lake Wohlford passes through the Wohlford Penstock to the Bear Valley Hydroelectric Generating Facility (Bear Valley HGF), which is operated by the City under a license granted by the Federal Energy Regulatory Commission (FERC) (Escondido Project, FERC No. 176) and generates electricity that is sold to San Diego Gas & Electric. After passing through the Bear Valley HGF, the Lake Wohlford water is transported to the Escondido-Vista Water Treatment Plant, where it is treated and distributed to the municipal customers of the City and the Vista Irrigation District. Due to the connection to the hydroelectric facility, FERC has regulatory involvement in matters pertaining to Lake Wohlford, including seismic safety. The California Department of Water Resources, Division of Safety of Dams (DSOD) also regulates the safety of the dam under Division 3 of the California Water Code.

A seismic analysis of the dam conducted in 2007, prepared in compliance with a directive from FERC, identified a stability concern for the portion of the dam that was raised in 1924. The 2007 report concluded that the method used to place the hydraulic fill during the dam raise, in addition to its placement overtop of new lake-bottom sediment that had accumulated at the base of the rockfill dam, resulted in inconsistency of the fill material's coarseness and created conditions where the fill could liquefy during a strong earthquake on the Elsinore Fault. Liquefaction of the fill material could result in a structural failure of the dam's upstream slope, including the material that was raised above the elevation of the original rockfill dam (GEI Consultants, Inc. 2007). This failure could, in turn, cause flood inundation downstream in Escondido Creek and lead to public safety concerns. Because of these conditions, the U.S. Army Corps of Engineers (USACE) designated Lake Wohlford Dam as a "high risk" facility on the National Inventory of Dams, reflecting a potential for significant human end economic consequences in the event of a dam failure (GEI Consultants, Inc. 2007).

Based on the results of the seismic analysis and report recommendations, FERC, in a September 19, 2007, letter, directed the City to reduce the Lake Wohlford reservoir level to 1,460 feet AMSL, which is 20 feet below its prior spillway crest elevation, corresponding to the top of the stable downstream rockfill section of the dam. The City has continued to maintain that lowered level since the FERC directive. Figure 2-2 is a line graph plotting monthly reservoir elevation data from 2001 to present (City of Escondido 2015a). As the graph shows, prior to 2007, the reservoir was subject to semiregular fluctuations in water level. Before the mandatory drawdown, the average elevation was 1462.2 feet, with a maximum of 1479.1 feet in November 2003, and a minimum of 1453.1 feet in October 2002. Since the drawdown, the reservoir has averaged approximately 1455.5 feet, or 6.6 feet below the previous average, with a maximum of 1459.1 feet in March 2009, and a minimum of 1450.6 feet in October 2008. However, the levels since the mandatory drawdown are not far outside the range of the typical low range experienced under normal conditions before the drawdown.



NOTES:
1. BASE MAP DERIVED FROM PLATE 2 OF MAY 6, 1976 DAMES & MOORE REPORT WITH MODIFICATIONS OF OUTER BOUNDARY BY GEI BASED ON SURVEY PERFORMED BY CITY OF ESCONDIDO IN FEBRUARY 2007.
2. APPROXIMATE LOCATION OF PARAPET WALL ADDED BY GEI.

Source: GEI, 2008

0 30 60 Feet

Figure 2-1
Simplified Maximum Cross Section of Existing Dam

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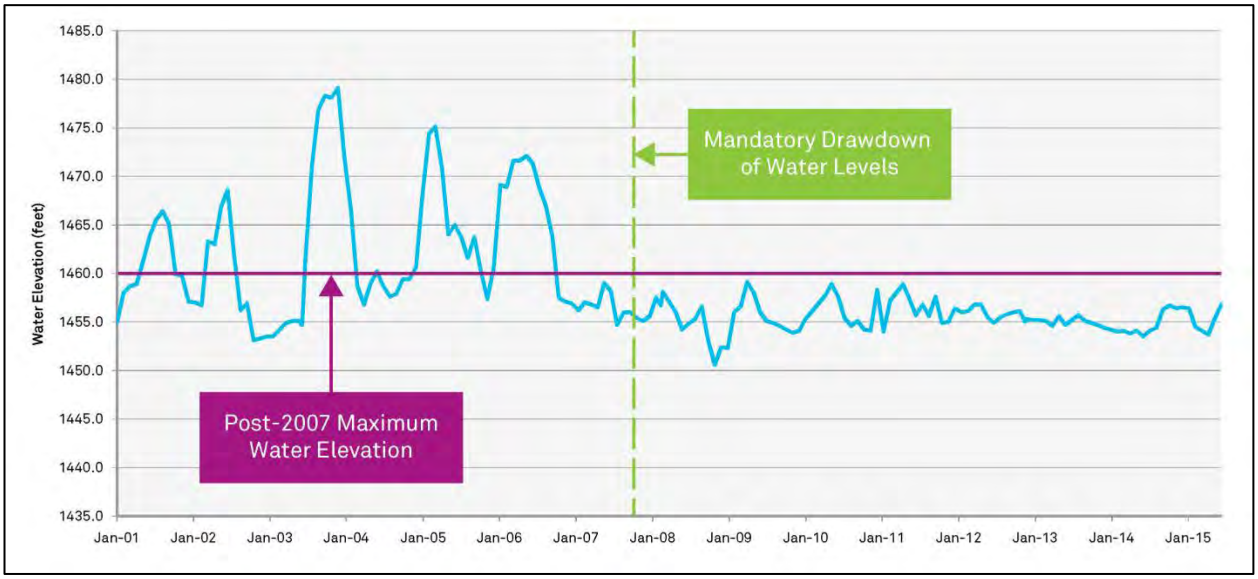

Figure 2-2. Historic Reservoir Elevation

To alleviate seismic safety concerns with the existing dam and regain the Lake Wohlford reservoir's lost water storage capability for the City' municipal water system, the City is planning to construct a replacement dam immediately downstream (west) of the existing dam and deconstruct the problematic portion of the existing dam, as further described in this chapter of the EIR. The proposed dam design is the result of an exhaustive engineering analysis conducted since 2008 that considered and compared several alternatives for their feasibility, safety, longevity, environmental impact, and cost. Additional discussion of the alternatives analysis process is provided in Section 5.2 of this EIR.

The City of Escondido and FERC are the lead agencies under CEQA and NEPA, respectively. FERC plans to comply with NEPA by preparing an EA that will be published separately from this EIR. Permits or agreements will be required from the U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW.

2.2 PROJECT OBJECTIVES

The project is intended to achieve the following primary objectives:

1. Restore the City's municipal water-storage capacity in Lake Wohlford to its historic capacity of 6,500 acre-feet.

2. Alleviate public safety and flooding concerns due to seismic instability of the existing Lake Wohlford Dam.
3. Provide a dam facility with a life expectancy of 100 years.
4. Minimize the project's temporary and long-term impact on the environment.

2.3 ENVIRONMENTAL SETTING

Lake Wohlford is a man-made reservoir first formed by the construction of the Lake Wohlford Dam in 1895 and expanded by raising the dam in 1924. The project site is located approximately 7 miles east of Interstate 15 (I-15) and 2 miles east of Valley Center Road. Lake Wohlford can be accessed via east Valley Parkway and Lake Wohlford Road. Other main roadways in the vicinity of the lake include Oakvale Road and Guejito Road. The area around the reservoir is primarily rural in character. Figure 2-3 shows the County land use designations in the vicinity of Lake Wohlford. A mobile home residential community, known as Lake Wohlford Resort, is located north of the reservoir off Lake Wohlford Road, and features homes situated on hilly terrain overlooking the reservoir. A restaurant, Smokey's Lake Wohlford Cafe, is located within this community. Another small group of residences is located south of the reservoir off Oakvale Road. The Lake Wohlford Resort airport, a private airstrip, is located on a hill north of the reservoir. The Escondido Fish and Game Association gun club operates a range located east of the reservoir, off Guejito Road.

The majority of the land immediately around the lake is within unincorporated San Diego County but is owned by the City (Figure 2-4). To the north, Lake Wohlford is surrounded by City, private, and San Pasqual Band of Diegueno Indians properties. To the south, the reservoir is surrounded by City, private, and Bureau of Land Management (BLM) properties. County zoning in the land surrounding the reservoir is A72-General Agriculture.

Lake Wohlford, which is situated on Escondido Creek, stores water for use by the City's municipal system. Escondido Creek drains into the lake from a small drainage area of approximately 7 square miles. The lake also receives water from the City's Lake Henshaw reservoir, which is diverted from the San Luis Ray River through the 13-mile Escondido Canal. Water is then routed from Lake Wohlford through the Bear Valley Hydroelectric Generating Facility to the Escondido-Vista Water Treatment Plant. Escondido Creek ultimately drains into San Elijo Lagoon, approximately 17 miles downstream and southwest of the reservoir.

Lake Wohlford is a regional recreational amenity offering fishing areas, trails, and opportunities for active and passive recreation. Access to the lake is based around a marina facility located to

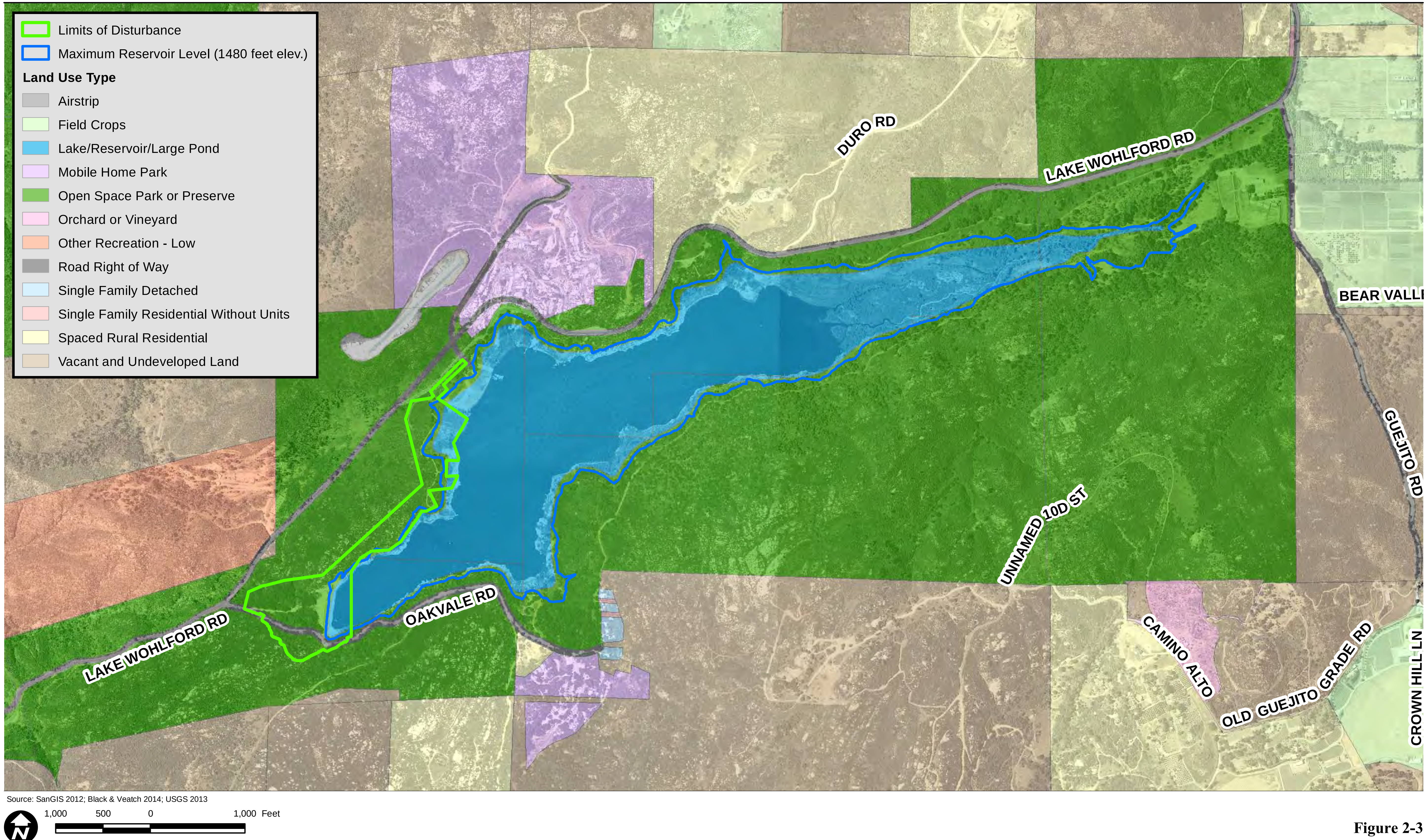

Figure 2-3
San Diego County Land Use Map

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Source: ICF Jones & Stokes 2008

0 1000 2000 Approximate Scale in Feet

Figure 2-4
Lake Wohlford Area Parcel Map

the north of the lake off Lake Wohlford Road. Boat rentals are available to the public, but due to the threat of invasive Quagga mussels and a resultant ban on private boats, the facility's launch ramp is currently inactive. The complex also includes a public park with picnic facilities and a ranger station, as well as the lake's main parking areas.

Lake Wohlford supports a variety of vegetative communities and habitats. Emergent wetland, freshwater marsh, lakeshore, open water, southern willow scrub, and southern coast live oak riparian forest are the riparian and wetland vegetation communities around Lake Wohlford. Upland vegetation communities around the lake include Engelmann oak woodland, coast live oak woodland, Diegan coastal sage scrub, eucalyptus woodland, nonnative grasslands, ornamental woodland, southern mixed chaparral, and valley needlegrass grassland. Engelmann oak is a California Rare Plant Rank List 4.2 species, and a species covered under the Escondido Subarea Plan. No other federally listed, state-listed or other state sensitive or special-status plant species are known to occur in the vicinity of the lake.

2.4 PROJECT CHARACTERISTICS

The project entails constructing a replacement dam immediately downstream (west) of the existing dam and partially deconstructing the existing dam by removing the hydraulic fill material that is at a higher elevation than the original rockfill (Figures 2-6, 2-7, and 2-8). The replacement dam would feature an outlet tower that is integrated into the dam's upstream face; the top of the existing outlet tower would be demolished, and the bottom of the existing outlet tower and the outlet pipe would be filled with concrete and abandoned in place. To accommodate the replacement dam's configuration, the project also entails realignment of the portion of Oakvale Road that passes the southern dam abutment. This portion of the road would be realigned south of its current location, requiring excavation into the adjacent hillside (Figure 2-9).

The replacement dam would be constructed so the resultant storage capacity and maximum reservoir level would be equal to the capacity and elevation prior to the water level restriction, at 6,500 acre-feet and 1,480 feet AMSL, respectively, so the project proposes no changes to Lake Wohlford's historic high water level or storage capacity.

The following sections present additional detail on the proposed project components and a discussion of anticipated construction methods and construction activity.

2.4.1 Project Components

Replacement Dam

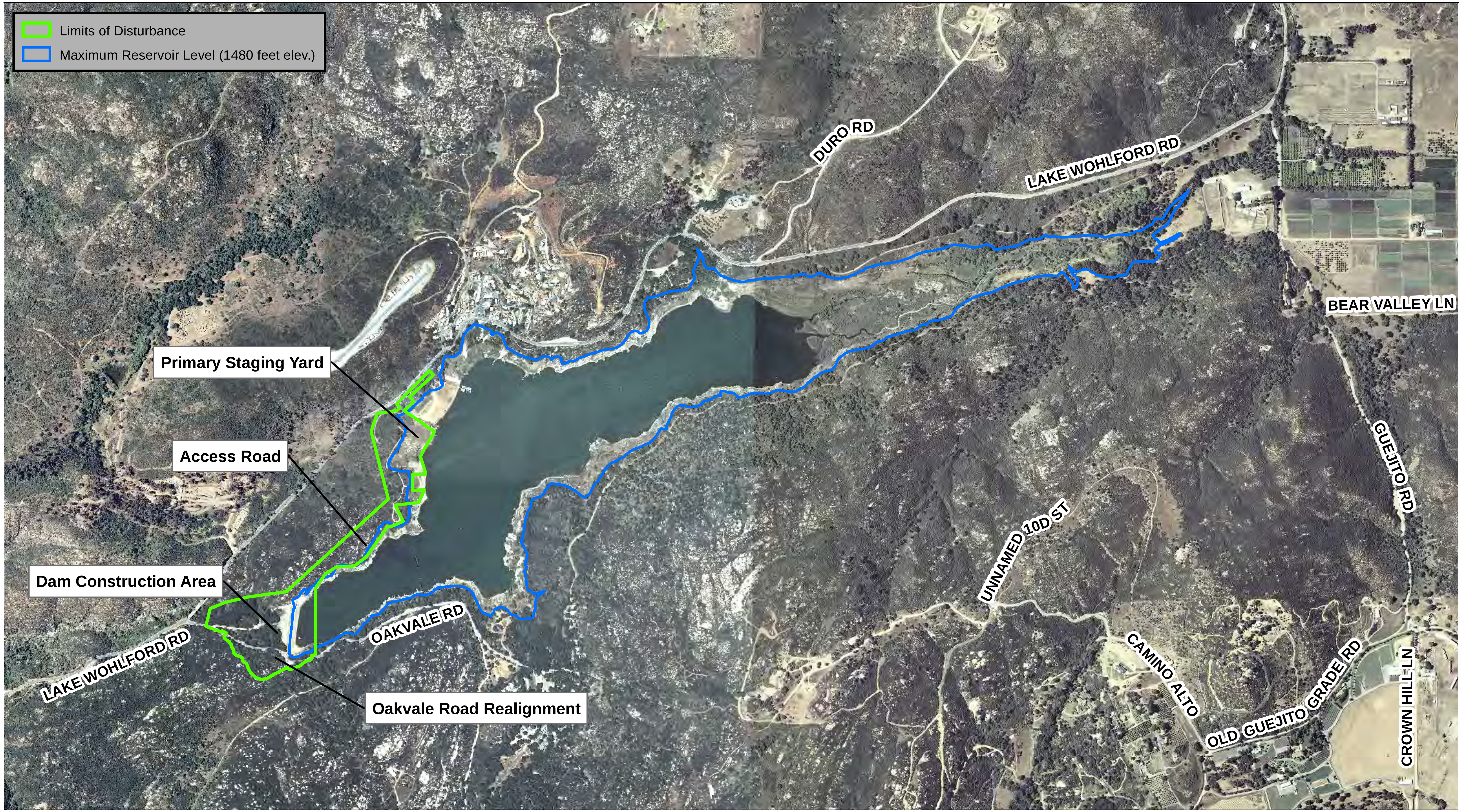
The replacement Lake Wohlford Dam would be constructed immediately downstream of the existing dam, with the replacement dam's crest approximately 200 feet downstream of the existing dam's crest. The replacement dam's crest would rise approximately 125 feet above the foundation grade, to an elevation of 1,490 feet AMSL, and the crest would span approximately 650 feet from the right (north) abutment to the left (south) abutment. The dam crest would feature a pedestrian and vehicle access path with a pedestrian access bridge constructed over the spillway. This access would be for maintenance purposes only and would not be open to the public. Based on regulatory requirements of FERC and DSOD, the dam is being designed to handle site-specific seismic conditions based on a maximum magnitude 7.64 earthquake occurring on the Elsinore Fault, which is approximately 11 miles east of the project site.

The dam would be constructed of RCC, which is a modern method of placing mass concrete for gravity dams that has recently been employed by the San Diego County Water Authority for construction of its Olivenhain Dam and San Vicente Dam Raise projects. This method utilizes the materials of conventionally placed concrete (cement, coarse aggregate, sand, and water), but minimizes the water content to allow material handling with conventional soil-placing methods. RCC is placed using conveyors, dump trucks, dozers, and roller compactors. Like engineered soil placement, RCC is placed in thin layers starting from the base of the dam (usually 12 inches thick), as opposed to conventionally placed mass concrete, which is poured in large sections that are typically 5 feet thick (SDCWA 2008). The RCC method reduces water content such that the mix is dry enough to prevent roller equipment from sinking, but wet enough to permit adequate distribution of the material in each layer. Placement of approximately 100,000 cubic yards of RCC concrete is anticipated to form the dam.

A drainage gallery would be installed during construction of the dam. The gallery is designed to be 8 feet wide by 10 feet high, with a floor elevation of 1,400 feet AMSL.

Dam Foundation

Material would be excavated from the downstream canyon floor and rocky slopes to create a solid foundation and suitable surfaces to place the abutments. Preliminary location and depth of the foundation have been identified using the results of geotechnical investigation, and the preliminary foundation has been designed such that all soil, decomposed rock, and rock generally excavated using large earthwork equipment would be removed, leaving solid bedrock



Source: SanGIS 2012; Black & Veatch 2014; USGS 2013

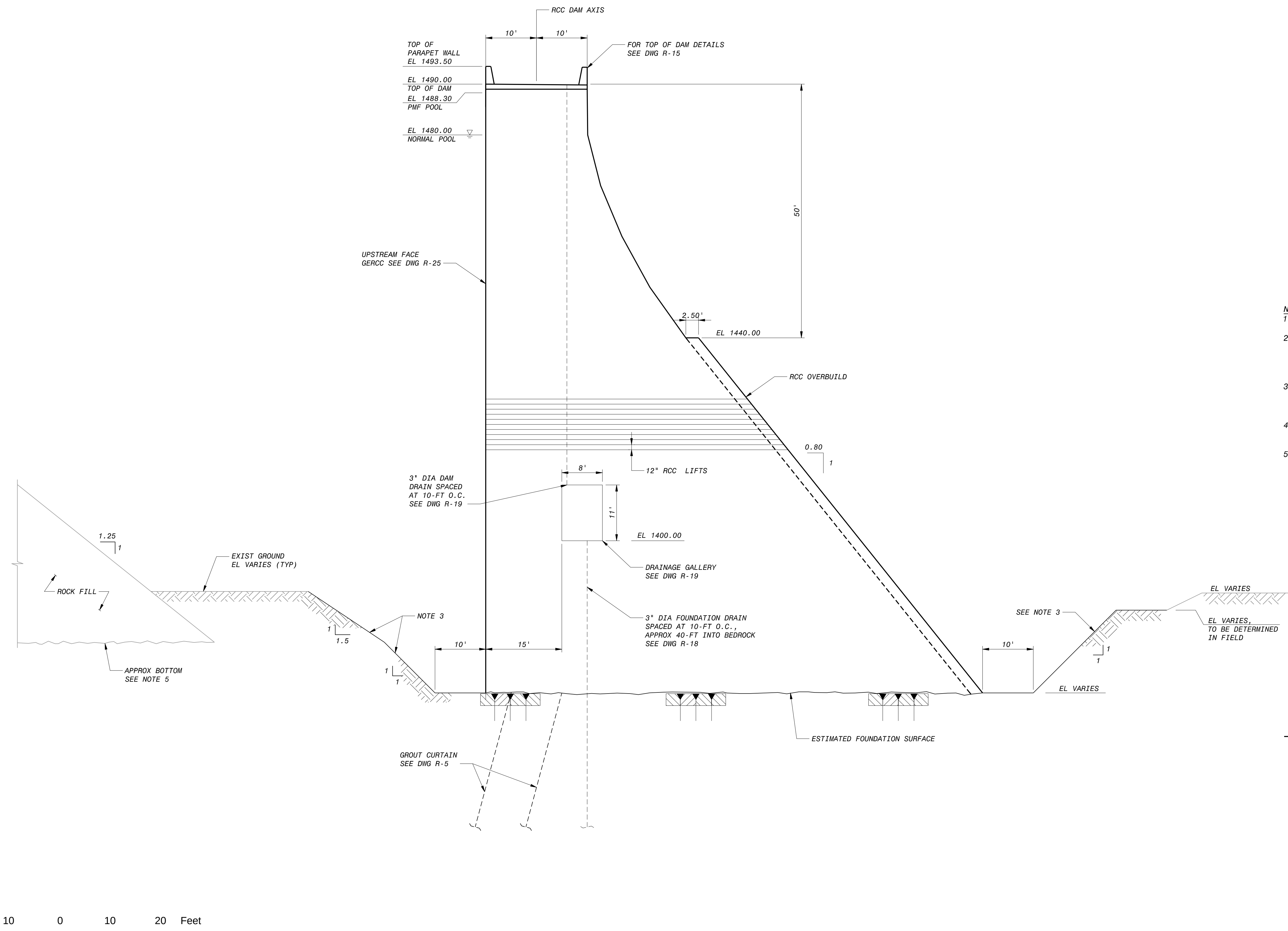
1,000 500 0 1,000 Feet

Scale: 12,000; 1 inch = 1,000 feet

Figure 2-5
Limits of Disturbance and Maximum Reservoir Level

Source: GoogleEarth 2015; Black & Veatch 2015

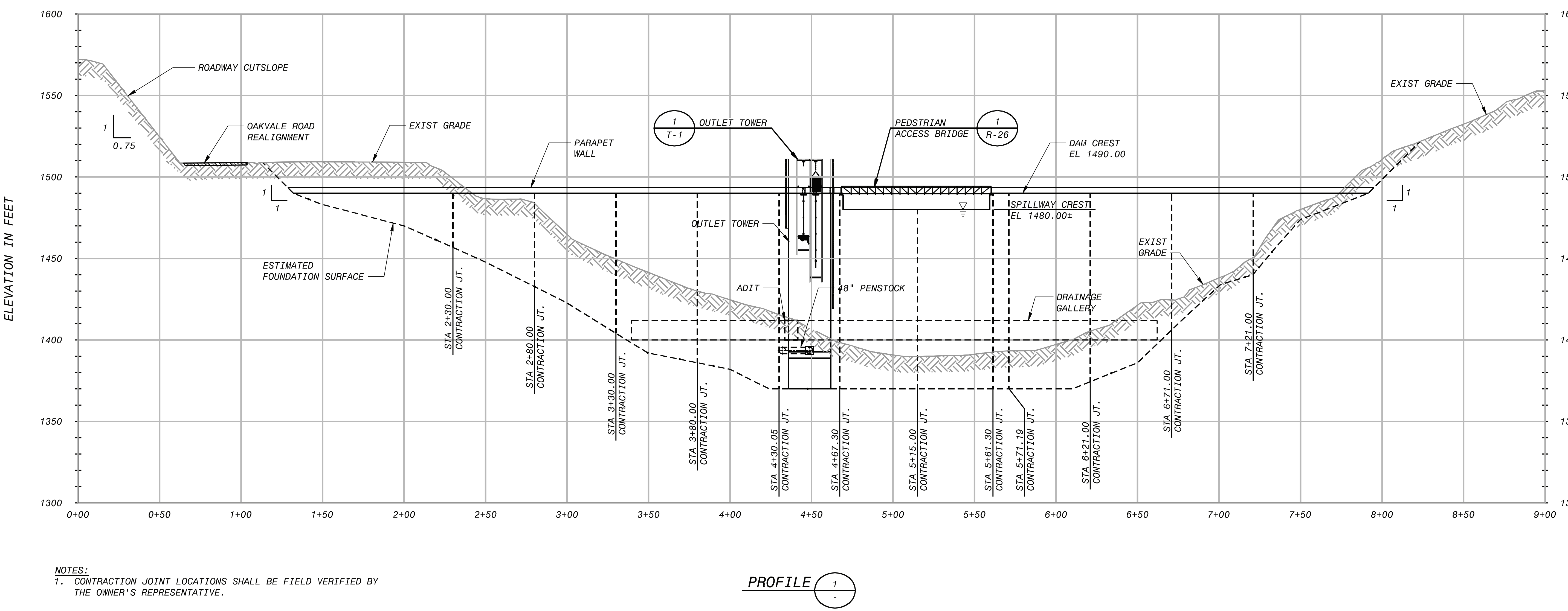
Figure 2-6
Plan Drawing of Dam Site



NOTE:
1. GERCC UPSTREAM AND DOWNSTREAM DETAILS NOT DEPICTED.
2. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE REQUIRED STABLE SLOPE GEOMETRY FOR EXCAVATION. CONTRACTOR WILL PROVIDE TEMPORARY EXCAVATION SUPPORT AS NECESSARY. TEMPORARY EXCAVATION SUPPORT SHALL BE SUBMITTED FOR REVIEW.
3. EXCAVATION SLOPES SHOWN ARE APPROXIMATE. THE ACTUAL EXCAVATION SLOPES SHALL BE DEVELOPED BY THE CONTRACTOR BASED ON THE MATERIALS ENCOUNTERED AND OHSA REQUIREMENTS.
4. CONTRACTOR TO SUBMIT APPROACH FOR CHIMNEY SECTION TO OWNER'S REPRESENTATIVE.
5. EXISTING DAM SECTION SHOWN AT CLOSEST CROSS-SECTION.

Figure 2-7
Replacement Dam Cross Section

Path: P:\2012\60278081_Lk_Wohlford\05Graphics\5.4_Proj_Graphics\Report_Graphics\PDF, 8/11/2015, delapazd



NOTES:
1. CONTRACTION JOINT LOCATIONS SHALL BE FIELD VERIFIED BY THE OWNER'S REPRESENTATIVE.
2. CONTRACTION JOINT LOCATION MAY CHANGE BASED ON FINAL FOUNDATION CONSTRUCTION.
3. DOWNSTREAM CHIMNEY SECTION SLOPE NOT SHOWN FOR CLARITY.

Source: GoogleEarth 2015

40' 20' 0 40' 80'

Figure 2-8
Replacement Dam Elevation

Source: SanGIS 2012; Black & Veatch 2014

Figure 2-9
Oakvale Road Project Plan

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for placing the dam's foundation. Consolidation grouting would be provided to ensure a more uniform foundation modulus for support of the dam. A double-row grout curtain would be installed in the foundation to strengthen the foundation and reduce seepage.

Approximately 113,430 cubic yards of earth and rock is anticipated to be excavated for establishment of the dam foundation. Of this excavated material, approximately 53,914 is anticipated to be reused on site and approximately 59,516 is anticipated to be hauled off site. Due to its high quality, reuse of the off-hauled rock is anticipated and disposal at a landfill is unlikely. For purposes of environmental analysis, this EIR assumes the excess material would be hauled to a nearby quarry for processing and reuse as aggregate. Additional discussion of materials hauling is included below.

Spillway, Stilling Basin, and Outlet Tower

A spillway would be constructed in the center of the dam, built of cast-in-place concrete, with an elevation of 1,480 feet AMSL. The dam's central spillway has been designed to handle the maximum storm events approved by FERC, including the General Storm "All Season" Probable Maximum Flood (PMF) and the Local Storm PMF. The spillway is designed to flow into an energy dissipation stilling basin at the downstream foot of the dam, constructed of reinforced concrete, which catches water that overtops the dam before it discharges into the downstream river channel. The spillway would be stepped on the dam's downstream slope to dissipate energy along the entire spillway length and reduce the stilling basin size at the end of the spillway. The stilling basin would be approximately 90 feet wide by 70 feet long. Riprap would be installed at the transition from the stilling basin to the existing channel to prevent erosion and protect the stilling basin.

A new outlet tower would be constructed on the upstream side of the dam, built as a cast-in-place, reinforced concrete structure anchored to the dam's face and extending to the dam crest at elevation of 1,490 feet AMSL. The outlet tower would be connected to the proposed dam's downstream emergency release valve and appurtenances located on the south side of the new stilling basin and spillway. Releases would be projected into the stilling basin for discharge to Escondido Creek. The emergency release valve would enable reservoir water releases in the event of a dam safety event, in accordance with DSOD requirements that 10% of the reservoir volume could be released in 7 days. The proposed outlet works would be capable of draining the entire reservoir contents within 90 days.

Oakvale Road Improvements

Oakvale Road skirts a steep rock face just southwest of the existing left abutment of the existing dam and conflicts with the proposed location for the replacement dam's left abutment. The project entails realigning approximately 1,200 feet of the road toward the south and straightening the road. To create enough of a surface that would accommodate the realignment, the project requires excavation into the hillside to the south at a slope of 0.75:1 (H:V) and removal of approximately 56,000 cubic yards of rock and earth. The maximum height of the proposed finished slope is 110 feet, though much of the slope would be shorter. Figure 2-9 shows the proposed grading plan for the project and other impact areas. A 30-foot-wide work area is assumed around grading areas to enable equipment access.

The excess materials would be hauled off-site for reuse, with the contractor having the option of selling the excess material to a nearby quarry for processing and reuse as aggregate. Due to its quality, reuse of the rock is anticipated and disposal at a landfill is unlikely. Accordingly, for purposes of assessing environmental impacts pursuant to CEQA, this report assumes the material would be sold and hauled to a nearby quarry.

The new road would be constructed to County standards and would be 28 feet wide, including two 12-foot lanes in each direction, a 10-foot lane for nonmotorized traffic on the road's westbound (northern) shoulder, and a 3-foot bench constructed on the downhill (northern) side. Drainage improvements would include reconstruction of a storm drain beneath the western end of the roadway improvements, and a new 18-inch storm drain beneath the road on the eastern side of the project limits. A brow ditch would be constructed at the top of the slope that would divert storm flows down the slope. The brow ditch on the western side would carry water to an existing ditch situated at the toe of the slope along the road's southern edge and into a storm drain that flows beneath the road. This storm drain is located at the far western end of the roadway improvements and would be reconstructed as part of the project. The brow ditch on the eastern side would carry water to a proposed storm drain that would be constructed beneath the road and empty into an earthen swale on the northern side of the road.

Realignment of Oakvale Road was the subject of the Oakvale Road Realignment and Improvement Project Initial Study and Mitigated Negative Declaration (City of Escondido 2015b), which was adopted by the City in March 2015. For full disclosure of the dam project's environmental effects, the impacts of the Oakvale Road realignment are being addressed in this EIR as a part of the dam project.

Right Abutment Access Road

The project would entail construction of a gravel access road from the Lake Wohlford Marina to the right (north) abutment of the replacement dam (Figure 2-10). The road would provide construction access to the dam construction zone and, following completion of the project, would provide permanent maintenance and inspection access to the right abutment and the dam crest, as requested by the Division of Safety of Dams. Constructing the access road would require excavation into the hillside to create a level surface for installation of the road. A locked gate would be installed to prevent trespassing and unauthorized access to the dam crest. The road has been designed to fully avoid cultural resources sites recorded in the area, based on input from the archaeological research and field survey.

2.4.2 Construction Activity and Features of Project Construction

This section describes the temporary activities that would occur during project construction and the temporary features required to construct the project. Many aspects of project construction will be subject to the discretion of the contracting team that is selected to do the work. For purposes of project disclosure environmental impact analysis pursuant to CEQA, this EIR is based on assumptions of likely scenarios for construction work, as indicated by the project's design engineers and their construction management team.

Oakvale Road Realignment Excavation

Project construction would start with excavation of the slope adjacent to Oakvale Road and roadway realignment. The excavation process would first entail vegetation removal, then rock scaling and earth movement using backhoes, loaders, and dozers staged from the toe of the slope. In areas of large rocks that cannot be easily moved by a backhoe, the project would entail blasting and hydraulic splitting to loosen rock for off-hauling. The specific methods of work, including use of any heavy equipment, would be specified in a detailed work plan prepared by the contractor and approved by the City prior to project implementation. The contractor's work plan would identify potential hazard areas due to steep slopes and would specify appropriate protective actions to ensure safe conditions throughout this work. The work plan would identify areas where temporary protective fences would be installed to safely collect falling debris and prevent impacts to the road, the dam, and the reservoir. Where blasting and/or hydraulic splitting is required, the contractor's work plan would specify a detailed plan for this work.

Once rock and earth are removed from the hillside, these materials would be temporarily stockpiled on-site and loaded into 10-cubic yard dump trucks for hauling to a nearby quarry. Based on current estimates of the excavation area, the amount of rock to be removed and exported would be 56,000 cubic yards, equating to 5,600 truckloads of 10 cubic yards each. For planning and environmental review purposes, project engineers have estimated that the hauling phase would entail approximately 70 trips per day over a 4-month period. The destination of excavated material would ultimately be determined by the contractor; however, for purposes of planning and environmental analysis, this EIR assumes haul trucks would travel from the project site through Escondido to I-15. A portion of the excavated rock may be hauled to the north shore of Lake Wohlford and deposited at the water's edge to create recreational fishing features. If this alternate placement occurs, a very small percentage of haul traffic would travel up Lake Wohlford Road to the marina rather than to the freeway.

After completion of excavation, the project would entail slope stabilization using a combination of rock bolts and wire netting to keep the rock in place. Rock bolts are long metal rods drilled into the rock face to stabilize the rock mass and prevent toppling or sliding along existing tension cracks. The bolts would also be used to anchor wire mesh to the rock surface. Bolts would be placed at locations and depths determined by additional site-specific geotechnical testing conducted by the contractor, allowing the contractor to fully address conditions as they are encountered in the field. Preliminary geotechnical engineering conducted for planning purposes indicates that the bolts would be approximately 30 to 40 feet long and would be placed about every 10 to 12 feet.

Oakvale Road would remain open to traffic during project construction, though the eastbound lane could be periodically closed to enable more room for construction vehicle access or construction staging. A traffic control plan would be prepared by the contractor that would identify measures to maintain traffic safety and ensure maintenance of adequate emergency access throughout the project construction period.

The City intends to construct the Oakvale Road realignment as a separate construction package prior to the dam construction. The separate bid packages will ensure a better understanding of the existing geotechnical conditions and material composition prior to implementing the dam foundation work, which in turn will allow refinement of the foundation design and dam design.

Foundation Development

Excavation of the dam's foundation and the adjacent slopes for placement of the abutments would begin with tree removal and vegetation clearing from the downstream work area and side slopes. Earth and rock would be removed from the dam foundation zone and rock would be scaled from the slopes using backhoes, loaders, and dozers staged from the area downstream of the existing dam. In areas where large rocks cannot be easily moved by a backhoe, the project

Source: SanGIS 2012; Black & Veatch 2014; USGS 2013

400 200 0 400 Feet

Scale: 4,800; 1 inch = 400 feet

Figure 2-10
Proposed Access Road Alignment

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would entail blasting and hydraulic splitting, as discussed above in the Oakvale Road Realignment section. Identification of a suitable foundation would be performed by an experienced, licensed engineering geologist, with the approval of DSOD and FERC, and would be deemed adequate when rock is reached that is too hard to excavate with large equipment; when rock joints are generally slightly weathered or less; and when the surface is rough and generally level in an upstream to downstream direction.

The entire foundation surface would be cleaned by barring and prying loose rock, using an air/water jet to remove as much loose material as possible. As with the Oakvale Road work, the contractor would be required to prepare a detailed work plan to identify potential hazard areas and specify appropriate protective actions ensuring safe conditions. Foundation and side slope excavation would require blasting and hydraulic drilling, which also would be addressed in the contractor's work plan.

A double-row grout curtain would be installed in the foundation to strengthen the foundation and reduce seepage. Grout would be used to fill open fractures, voids, and irregularities within the rock foundation, reducing secondary permeability and providing more homogeneous foundation conditions.

Consolidation grouting would be performed to fill open cracks, joints, and other geologic discontinuities below the foundation surface to provide more consistent and predictable foundation conditions in the shallow zone. The consolidation grouting would improve the modulus of deformation of bedrock in the shallow dam foundation, helping to mitigate the chance for differential settlement that could result from the added stress increase to the shallow foundation due to construction. Consolidation grouting is the injection of grout from the rock surface at low pressures into an evenly spaced pattern of shallow grout holes (15 to 20 feet in depth for this dam) for the purpose of treating the near surface dam foundation and abutments.

Dewatering will be required during excavation and construction of the dam foundation. Dewatering would be conducted in compliance with all applicable regulations, and the contractor would be required to obtain permission from the San Diego RWQCB under General Order R9-2008-0002.

As with the material excavated from the Oakvale Road slope, material from the foundation and abutment slopes would be temporarily stockpiled on-site and then hauled to a nearby quarry. Based on current estimates of the excavation area, the amount of excavated rock to be exported for this phase of work would be approximately 59,516 cubic yards, equating to approximately 5,952 truckloads of 10 cubic yards each. Trucks with capacity to haul 20 cubic yards may be used, but environmental analysis conducted for this EIR assumes smaller loads to allow for a more conservative estimate of the number of haul trips. It is estimated that approximately 960 cubic yards would be excavated in each work day during this phase of the project, resulting in 96 haul trips per day. For planning and environmental review purposes, it is estimated this hauling would occur over a 9-week period. The destination of excavated material would ultimately be determined by the contractor; however, for purposes of planning and environmental analysis, this EIR assumes haul trucks would travel from the project site through Escondido to I-15.

Staging Yards and Construction Work Areas

The primary staging area for project construction is anticipated to be located west of the Lake Wohlford Marina, as shown in Figure 2-5. This is referred to as the marina staging area throughout this EIR. A chain-link fence would be installed around the staging yard to prevent trespassing. Lake Wohlford and the Lake Wohlford Marina are planned to remain open to the public during project construction, with the exception of the existing dam demolition, during which the reservoir and marina would be closed due to additional reservoir drawdown.

An additional area of construction staging and project construction activity would also occur in the canyon immediately downstream of the dam. Establishment of this downstream staging and work area would require removal of vegetation, including mature oak trees, rock removal, and grading to create level surfaces and usable space for equipment movement and temporary stockpiling of excavated materials.

A temporary staging area for the Oakvale Road excavation and realignment would be developed and utilized on the eastern side of the proposed slope and south of the proposed road. This staging area could require some grading to establish a suitable work area.

Dam Construction

Once the foundation is completed, consecutive layers of RCC would be placed to form the dam structure. The RCC placement method is described above in Section 2.4.1. This phase of project construction is anticipated to involve 24-hour work (weather permitting) to maximize the effectiveness of placing the RCC layers.

Project engineers are in the process of developing an RCC mix design appropriate for this project, and initially considered both on-site aggregate sources (e.g., materials that would be excavated from the Oakvale Road slope and the dam foundation) and off-site sources from local quarries. Due to limited space available in the project work areas and staging areas, the project engineers determined it would be more feasible to use an off-site source. Accordingly, the project would entail hauling of concrete materials to the project site. Project engineers estimate the 100,000 cubic yards of RCC would require 175,000 tons of aggregate material, 9,250 tons of fly ash, and 8,750 tons of cement, or a total of 193,000 total tons of RCC material that would be delivered to the site. Assuming a 25-ton capacity per 20-cubic-yard truck, hauling of RCC materials is anticipated to require 7,720 total truck trips. This hauling is anticipated to be distributed over approximately 13 weeks during the 4- to 5-month period of dam construction.

An RCC batch plant would be established at the primary staging yard located southwest of the Lake Wohlford Marina. Concrete would be mixed at the staging yard and then transported to the dam construction area via the access road to the right abutment, which is discussed below. For concrete mixing, the contractor would establish three material stockpiles, one for each of the three constituent materials. These piles would be replenished by haul trucks transporting materials from off-site. Material would be transferred to three silos that in turn would feed material into the batch mixer. Deliveries of material to the staging yard would be limited to daytime work hours, Monday through Saturday, to prevent nighttime noise from haul trucks at the staging yard access point.

Two temporary retention ponds would be located downstream of the stockpiles, silos, and batch mixer to catch storm water runoff from the construction operation and prevent it from entering the reservoir. The retention ponds would require shallow excavation to ensure adequate capacity to handle this construction runoff.

RCC can be transported via truck or conveyor, or some combination of the two, and the project engineers intend to maintain flexibility in the transport mode, giving the contractor the option of establishing a conveyor or using trucks. However, the project is likely to include a conveyor system for transporting material along the access road and placing the material onto the dam. This would minimize the amount of equipment traveling on and off of the lift surface to prevent contamination of the material, minimize lift joint cleaning, and increase the shear strength between successive lifts. Conveyor operation would also limit the number of on-site hauling trips. Truck hauling is unlikely due to limited space available for haul trucks to pass each other and turn around. Therefore, this EIR assumes RCC material would be transported along the access road via conveyor.

Construction of the new outlet tower would occur while the existing dam is still in place, so no cofferdams or in-the-wet construction would be required.

Flood Control and Temporary Outlet Bypass

Lake Wohlford will be kept at its current water level, between 1,450 and 1,460 feet AMSL, during project construction, and the existing dam will serve as the cofferdam during construction of the replacement dam. Flood protection during the construction period will be provided by a temporary bypass pumping system that will be installed by the contractor with a minimum capacity of 30 cubic feet per second (cfs) to convey seasonal flows to the City's water treatment plant. The temporary bypass system will pump water from the reservoir into the existing penstock downstream of the construction area. In the event that the flows cannot be conveyed to the water treatment plant or they exceed the capacity of the existing penstock, they will be released to Escondido Creek downstream of the construction area. The temporary system will also be used to maintain the water level within the reservoir when not being used to convey the seasonal flows.

Hydraulic model runs performed by the project design team indicate that by maintaining reservoir levels at or below 1,460 feet AMSL and by allowing releases through the temporary bypass works, Lake Wohlford can accommodate the Local Storm PMF and all smaller storm events, including the 100-year event. Should the storms exceed these events, the contractor will be required to provide additional pumping through the temporary system with disposal to Escondido Creek to maintain or return the reservoir levels to the elevations noted above.

Demolition of Existing Dam and Existing Outlet Tower

After the new dam construction is complete and the City receives regulatory approval by FERC and DSOD to impound water at the new dam, the reservoir will be lowered to elevation 1,440 AMSL to allow for the demolition and breaching of the existing dam and demolition of the existing tower. The hydraulic fill portion of the existing dam would be removed down to 1,450 feet AMSL. A notch would be constructed in the existing dam to 1,420 feet AMSL to allow full flow access from the reservoir to the new outlet tower. The left abutment of the existing dam will be removed in its entirety to existing natural grade. For purposes of environmental analysis, this EIR assumes the excavated material would be hauled off-site for reuse. Excavation quantity for the existing dam removal is estimated at approximately 37,100 cubic yards, which would require 3,710 truck trips in 10-cubic-yard trucks. This hauling is anticipated to entail approximately 96 haul trips per day over an approximately 6-week period.

The City intends to issue a bid alternative for this construction contract that would involve full removal of the existing dam. This would require additional excavation and off-hauling of material. The full demolition excavation is estimated at 22,000 additional cubic yards beyond that described above for the top part of the dam, for a total of 59,100 cubic yards of excavated material that would be hauled off-site. Off-hauling of this material would extend the number of days of 96 haul trips by another 3 weeks. For purposes of conservative environmental review, this EIR assumes the full dam removal option would be implemented.

The existing outlet tower east of the dam would be demolished above 1,442 feet AMSL and the material would be removed. Below 1,442 feet AMSL, the existing outlet tower would be filled with concrete and abandoned in place. The outlet tunnel leading to the existing dam would also be filled with concrete and abandoned in place.

Haul Routes

Haul routes for disposal of excavated materials and delivery of equipment and aggregate materials will be determined by the contractor and will not be dictated by the City in the construction specifications. For purposes of analysis in this EIR, the haul route is anticipated to travel from the project site to I-15 through Escondido, rather than north or east through Valley Center. The Traffic Impact Analysis prepared for the project by Linscott Law and Greenspan (see Section 3.11) assumed routes based on truck routes identified in the City General Plan Circulation Element, and concluded hauling would be performed on a combination of three routes: El Norte Parkway, Valley Parkway, and Bear Valley Parkway.

Construction Schedule

Total project construction is anticipated to take 32 months, including the Oakvale Road and dam replacement components of the project. The Oakvale Road realignment excavation is anticipated to take approximately 4 months, followed by another month to construct the realigned road. Dam construction, excluding reservoir dredging but including contractor mobilization and demobilization, is expected to require approximately 27 months. Excavation and preparation of the dam foundation is anticipated to take 14 months. Establishment of the access road is anticipated to take 1 to 2 months. The dam raise construction is anticipated to take 5 months. The reservoir dredging work is anticipated to take another 7 months but may not be implemented immediately after the completion of the dam construction project.

2.4.3 Refilling Reservoir

After completion of the project and following FERC and DSOD authorization to fill the reservoir beyond the mandated 1,460 feet AMSL restricted level, the City would have the ability to fill the reservoir up to its 1,480 feet AMSL capacity. This does not mean the City would immediately fill to that level; most likely, the reservoir would return to its pre-drawdown conditions, in which it was subject to seasonal and temporal fluctuation in water levels, as shown above in Figure 2-2. Initial refilling of the reservoir and subsequent maintenance of reservoir elevation will depend on rainfall within the reservoir's watershed, the availability of water deliveries from Lake Henshaw, and demand for municipal water in the reservoir's service area. The actual schedule for filling the reservoir after completion of the project is unknown at this time.

This EIR shows the 1,480-foot maximum inundation level for informational purposes; this is not intended to imply that the reservoir would be filled to this level following construction and held at this level. The maximum level at which the reservoir could eventually be filled under normal operations would include some freeboard beneath the spillway, to prevent unnecessary release of water over the top of the dam.

2.5 INTENDED USE OF THE EIR

In compliance with CEQA, this EIR is intended to assess potential environmental impacts that would result from implementing the proposed project and to make the impact analysis available for review by the general public and public agencies. Before making a final determination on project approval, the Escondido City Council will review and certify a Final EIR after the Draft EIR has been made available for public review.

2.5.1 List of Agencies Expecting to Use This EIR for Decision Making

Any public agency with a potential stake in the proposed project would be given an opportunity to review and comment on this EIR. In addition to the City of Escondido, the following agencies would use this EIR to inform one or more discretionary actions under the regulatory jurisdiction:

- USFWS
- RWQCB, Region 9
- CDFW
- USACE
- State Historic Preservation Officer (SHPO)
- California Department of Water Resources DSOD

2.5.2 List of Approvals Necessary for the Proposed Project

The dam construction would require multiple approvals from local governments and from federal, state, and local regulatory agencies. The contractor would be responsible for submitting a Notice of Intent (NOI) to the State Water Resources Control Board (SWRCB) for coverage by the general National Pollutant Discharge Elimination System (NPDES) permit for construction. In addition, project improvements would occur within designated "waters of the U.S." and would affect a jurisdictional stream, Escondido Creek. This action would require permits under the California Fish and Game Code and the federal Clean Water Act (CWA). County permits and approvals would be required related to the Oakvale Road realignment for work in County right-of-way. There is no discretionary action of the County associated with the project. The following permits and approvals would be required:

Permits

- USFWS Endangered Species Act (ESA) Section 7 consultation and Biological Opinion
- California Fish and Game Code Section 1601 Streambed Alteration Agreement
- CWA Section 404 dredge and fill permit
- CWA Section 401 water quality certification
- RWQCB General Order R9-2008-0002 for dewatering
- County approval of roadway design (Oakvale Road)
- County encroachment permit (Oakvale Road)

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CHAPTER 3.0
ENVIRONMENTAL IMPACT ANALYSIS

This chapter presents analysis of the project's environmental impacts. The chapter is organized into sections for each of the environmental topics determined to have a potential for significant environmental impacts after preliminary assessment of the project, including the following:

- 3.1 Aesthetics
- 3.2 Air Quality
- 3.3 Biological Resources
- 3.4 Cultural Resources
- 3.5 Geology/Soils
- 3.6 Greenhouse Gas Emissions
- 3.7 Hazards and Public Safety
- 3.8 Hydrology and Water Quality
- 3.9 Noise
- 3.10 Recreation
- 3.11 Traffic/Circulation

Each section describes the environmental setting, provides a summary of the regulatory setting pertaining to the respective environmental topic, establishes the significance criteria used to evaluate environmental impacts, and provides the environmental impact analysis. Where significant impacts are identified, the section lists mitigation measures that would be employed to avoid or reduce the significance of potential impacts. Following the mitigation measures section, a conclusion is provided regarding the significance of impacts after implementation of the mitigation measures. When relevant, the impact analysis in this chapter is organized into three areas representing the three distinct phases or components of the project: Oakvale Road realignment, replacement dam and access road, and restoration of water levels. Headings are provided to establish what portion or portions of the project is or are being addressed by the subsequent text.

Chapter 4 provides discussion of the other environmental topics that were found to be less than significant during preliminary review and that do not warrant full sections in Chapter 3.

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3.1 AESTHETICS

This section analyzes the project's impacts on aesthetics and visual resources. The analysis is based on field observations and visual simulations of project features that are incorporated into figures provided in this section. For purposes of analysis pursuant to CEQA, this discussion focuses on public views of the project's visible changes, as opposed to private views.

3.1.1 Existing Conditions

Existing Visual Character and Quality

The project is located in the northwestern portion of San Diego County within the Peninsular Ranges at Lake Wohlford, an existing human-made lake in northeastern Escondido, California. Within the project vicinity, landform elevations vary from 1,400 feet AMSL to over 2,100 feet AMSL. Lake Wohlford's water level is currently set at approximately 1,460 AMSL.

The project area is accessed primarily by Lake Wohlford Road and Oakvale Road, and is traveled by residents, tourists, and recreationalists seeking enjoyment on the lake. Both roads could be characterized as narrow, winding roads with naturalized shoulders, drainages, and adjacencies. Surrounding visual character is characterized by a mixture of steep, undeveloped hillsides, open pasture lands, clustered oaks and shrubs, granite boulders and rock outcrops. The patchwork of native and nonnative vegetative cover and rocky, granite boulders and outcrops gives the majority of the landscape a vibrant green to dull gray-green and tan/light gray color palette. Plants in the project vicinity vary in height from 1 to 80 feet and range in color from dark to light green, transitioning to more intense hues of yellow and brown during the dry season. The on-site vegetation exhibits a coarse and patchy texture, as vegetative coverage varies across the site from 30 to 80%. Views within the project vicinity can be panoramic with Lake Wohlford serving as a focal point surrounded by hillsides and ridgelines. This surrounding visual context is depicted in Figure 3.1-1.

The project is located in the northwestern portion of San Diego County, within the Peninsular Range. Elevations in the lower Peninsular Range vary from 600 to 2,500 feet AMSL, and topography in this area is characterized by rolling to hilly uplands that contain frequent narrow, winding valleys whose slopes are typically covered with granite boulders and chaparral vegetation on the western slopes, evergreen and temperate forests at and near the peaks, and desert chaparral on the eastern slopes. Where visible, the more densely vegetated north-facing hillsides south of Lake Wohlford are characterized by a more muted gray-green color than those hillsides with differing exposures. The landscape texture ranges from smooth, reflective surface area (lake), to coarse clumped vegetation and boulders/rock outcrops. The northwest horizon of the viewshed tends to be characterized by more jagged and pyramidal forms compared to the south and east, which are dominated by rounded pyramidal forms dotted with interesting rock outcrops. This surrounding topographical context, and its relationship to the proposed Oakvale Road realignment, dam replacement, and restoration of water levels, is illustrated in Figure 3.1-2.

Project Viewshed

A project viewshed boundary, or limits of visibility, is defined as the visual limits of potential locations visible from a project. The viewshed boundary is also synonymous with the limits of viewers likely to be affected by visual changes brought about by project implementation.

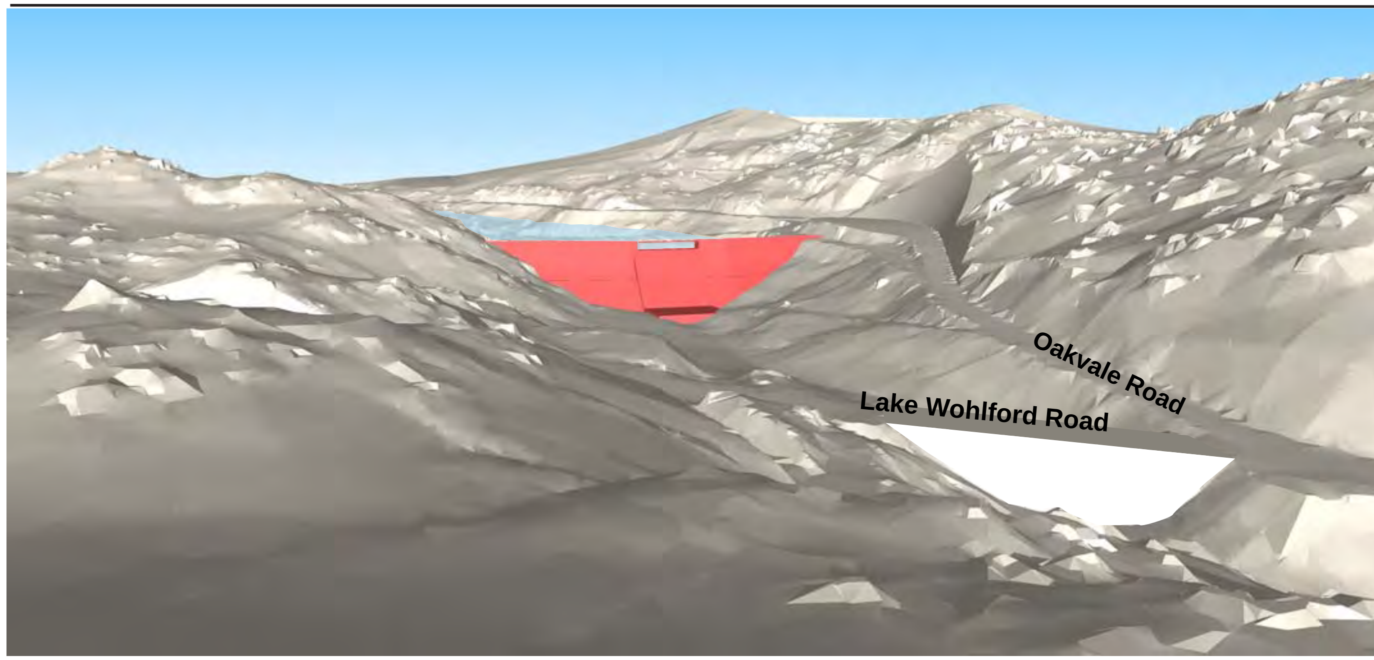
Given the location, the project viewshed is very constrained by surrounding topography and vegetation. The longest views tend to be at elevated positions along the road corridors, with an approximately 1-mile view (northeast to southwest) across Lake Wohlford from Lake Wohlford Road. The viewshed also includes the locations of viewers likely to be affected by visual changes brought about by project features. Figure 3.1-3 indicates the extents of the project viewshed; illustrating areas most likely to be affected by visual changes brought about by implementation of the proposed project.

Scenic Vistas

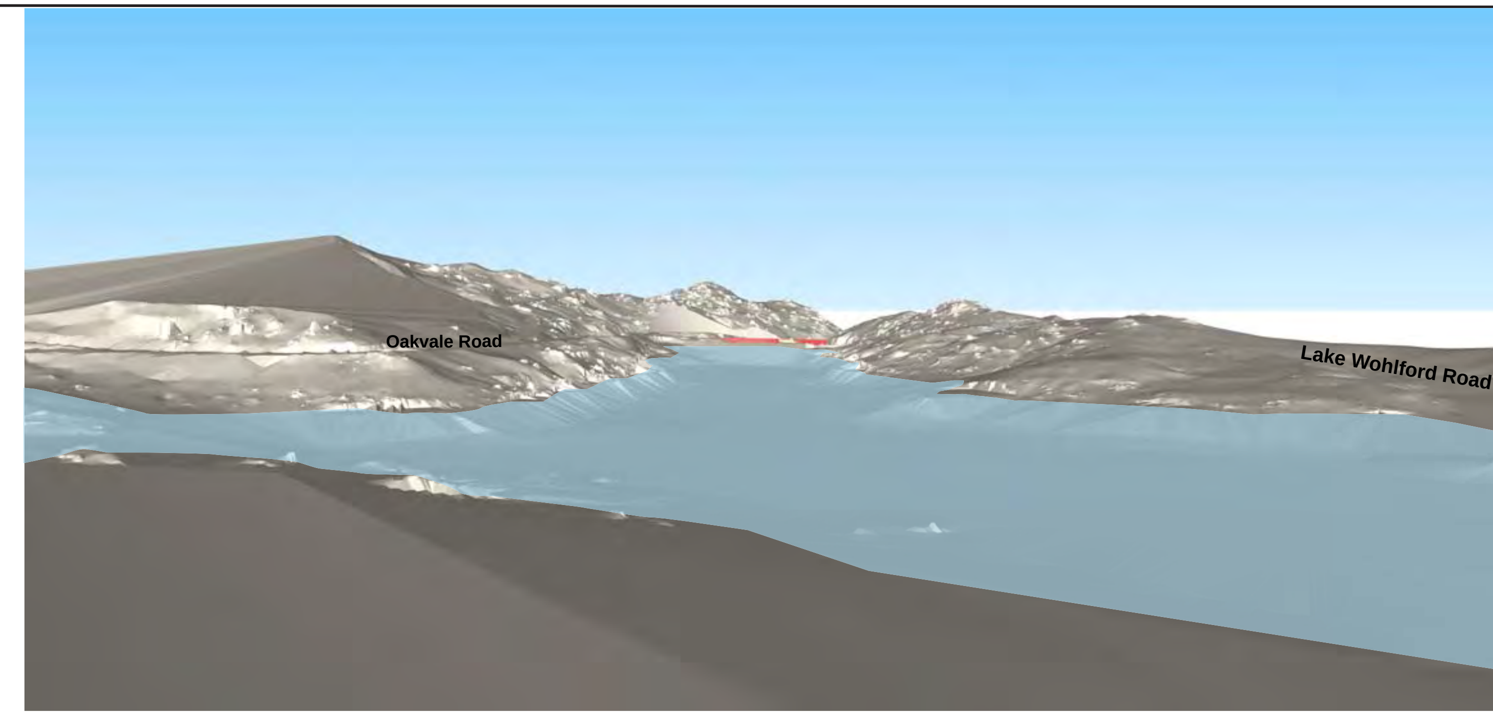
For purposes of determining significance under CEQA, a scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Although the City of Escondido does not designate or identify any scenic vistas, views of and from Lake Wohlford could be reasonably considered scenic and valued by visitors, and numerous skyline ridges have been designated in the surrounding hillsides as well as three locations shown as “Peaks and High Points” in the General Plan Resource Conservation Element Figure VII-5, Slopes and Ridgelines.

With implementation of the replacement dam, water levels would be restored to prior levels and inundation height would be consistent with past levels. This would visually change the appearance of the reservoir, as presently viewed, by increasing the open water footprint, inundating vegetation immediately surrounding the current water level, and expanding the shoreline. The overall visual character would continue to be of an open water reservoir surrounded by natural open space areas.

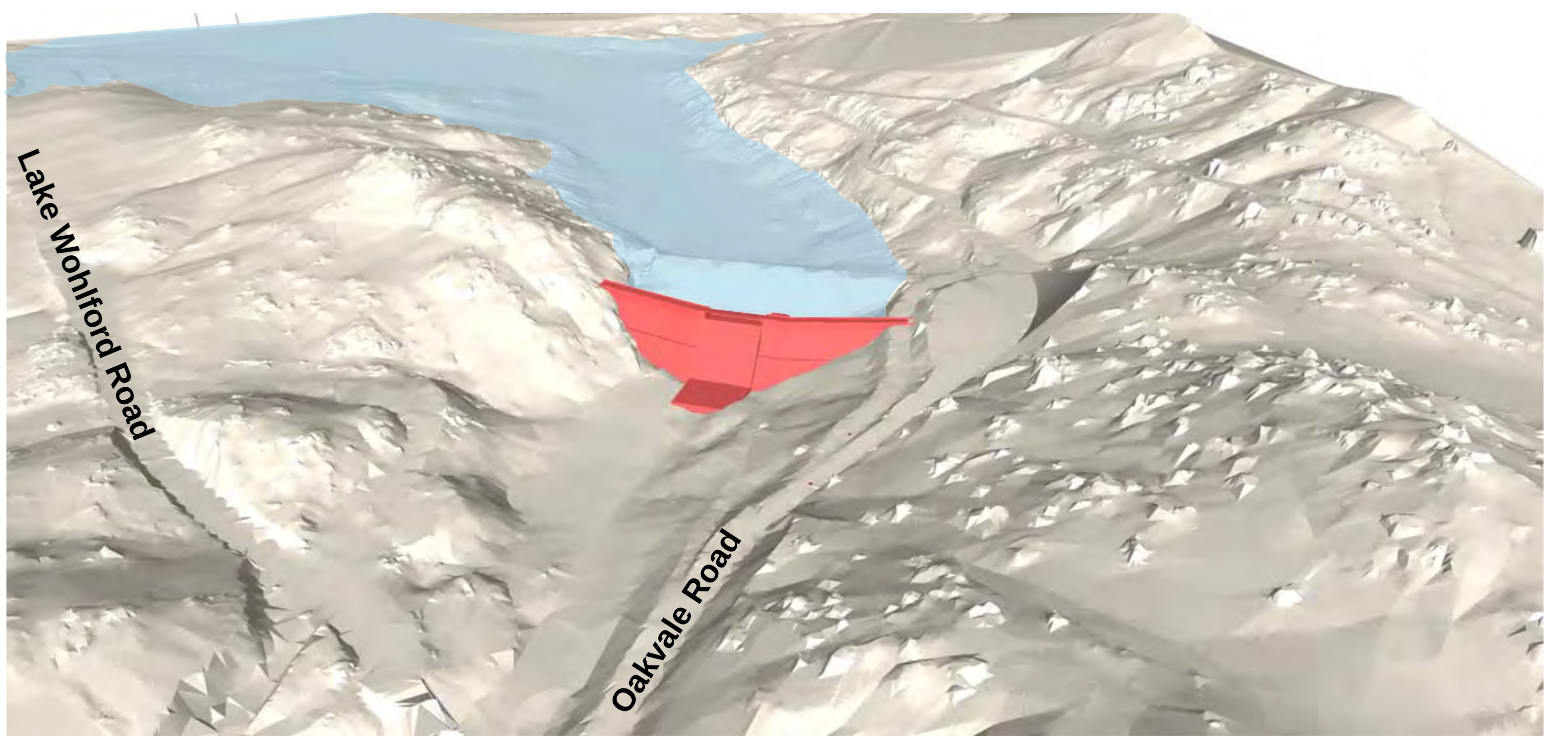
Figure 3.1-1
Surrounding Visual Context

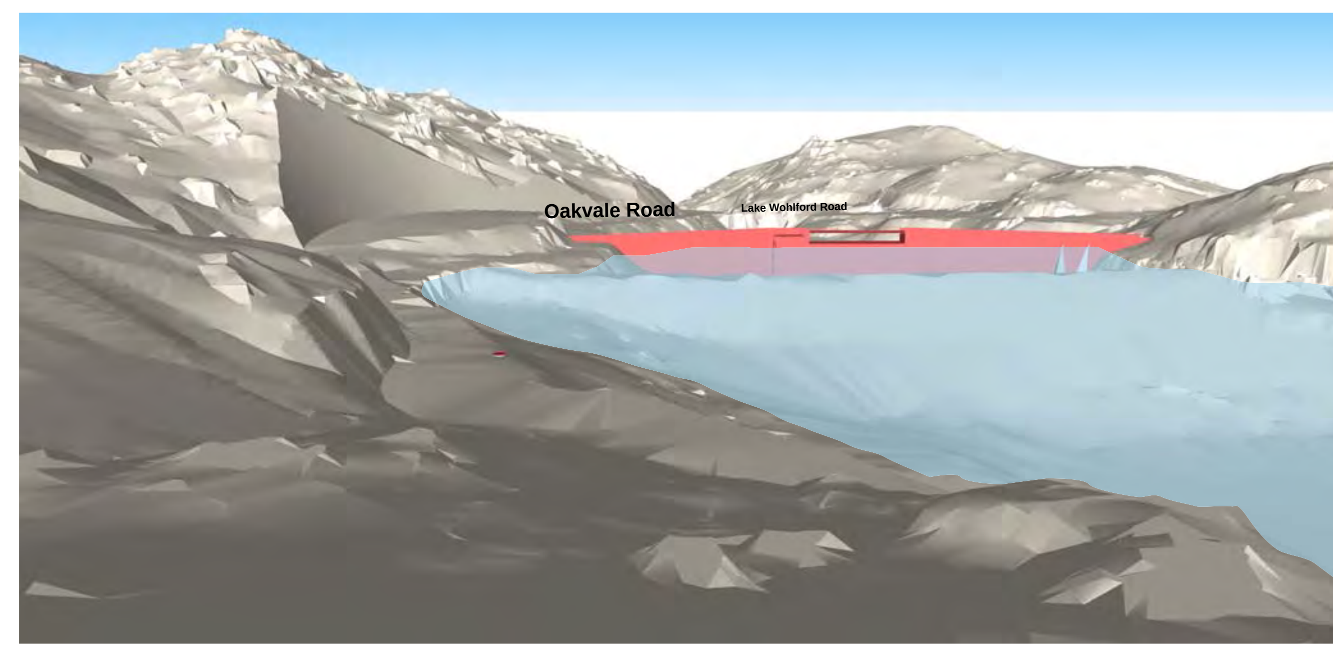


Topographical Context - upstream view of proposed project



Landform Context - comparison of surrounding landforms relative to anticipated project profile





Surrounding Topographical Context - view of proposed dam and associated site grading

Figure 3.1-2
Surrounding Topographical Context

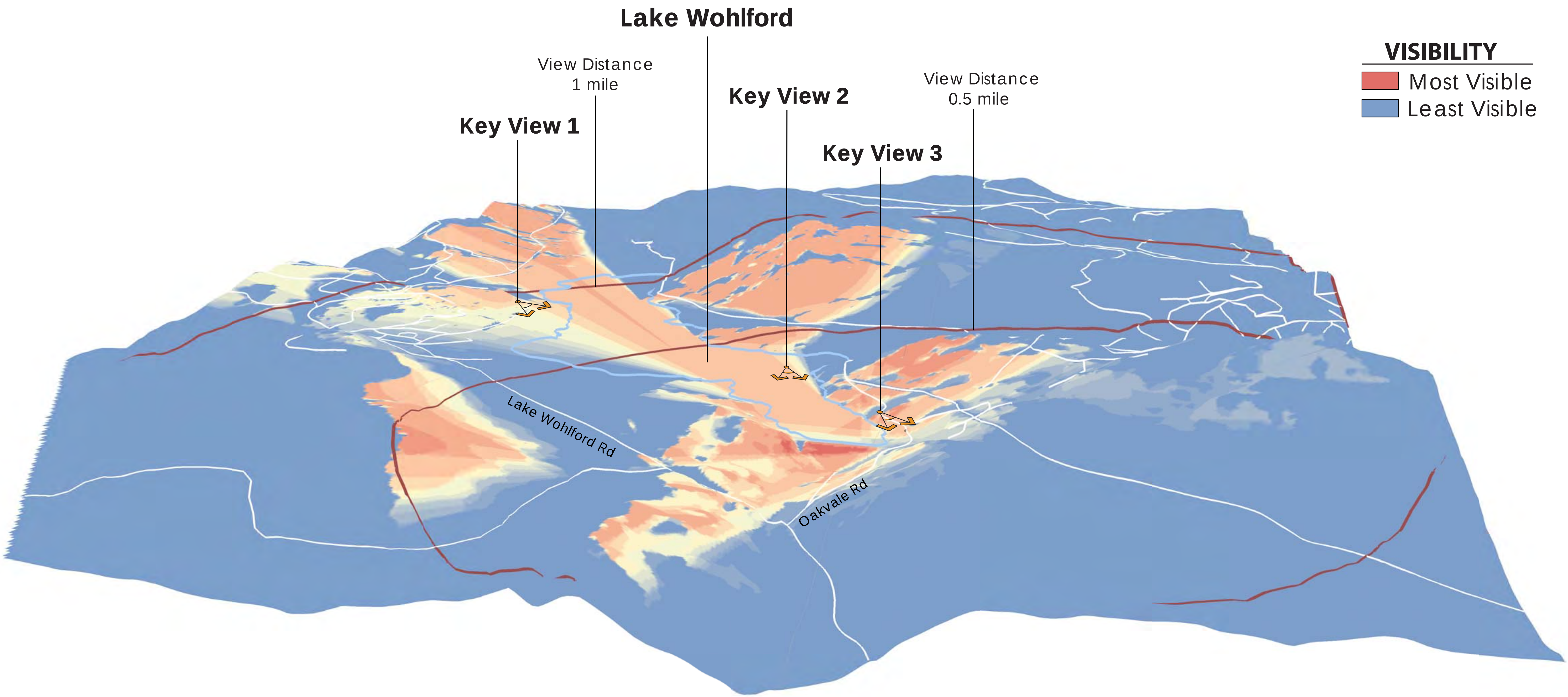


Figure 3.1-3
Project Viewshed Analysis

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Existing Viewer Groups

As noted above in the Existing Visual Character and Quality section, natural features and land uses surrounding the project site support a mixture of public and private lands, agricultural uses, rural uses, and streets and roadways. These land uses typically yield the following viewer groups: motorists, recreationists, and residents. More specifically, Lake Wohlford Road runs along the northern extent of the lake, providing viewers intermittent, direct views across the lake toward the project site. Lake Wohlford itself, and the surrounding hillsides including Bottle Peak, attract boaters, fishermen, hikers, sightseers, off—highway vehicle (OHV) users, and other recreational visitors. Finally, residential receptors scattered throughout the project vicinity have views of the site, most notably those located north of the project area on the hillside above Lake Wohlford Road.

Key View Points

Three key viewpoints were selected to represent public views from areas that would have the highest number of viewers and most direct views of the project area. These key view locations are shown in Figure 3.1-4. Key views focus on the project's permanent visual changes, rather than on temporary views of construction activity that would be available at the primary staging yard.

Key View 1

Key View 1 is located along Lake Wohlford Road to the northeast of the primary staging yard. The viewpoint represents the view experienced by motorists along this stretch of Lake Wohlford Road and nearby areas such as Lake Wohlford Café, Lake Wohlford Marina, and nearby residential developments in the area. The viewshed from this location includes direct and expansive views of the open water across Lake Wohlford to vegetated shorelines and existing roads before rising to the skyline of vegetated hillsides and rocky outcroppings at the peak. The tallest peak in this viewshed is Bottle Peak rising to 2,139 feet in elevation; approximately 659 feet above the lake.

Key View 2

Key View 2 is a representative view from the surface of Lake Wohlford, near the southern shoreline adjacent to Oakvale Road. The location lies to the east of the existing Lake Wohlford dam and represents the view experienced by recreationalists on the lake. From this location, the view distance to the dam construction site is approximately 0.35 mile, and the viewshed from Key View 2 consists primarily of open water in the foreground, the existing dam in the middleground, the surrounding hillsides covered by vegetation on the south, and rock outcroppings to the north. Views from this and similar points around Lake Wohlford are typical of those experienced within the project area, and it is anticipated that project implementation would result in minor changes to views from Lake Wohlford, including: inundation of existing exposed shorelines, greater expanse of water surface, limited visibility of the proposed replacement dam, and occasional direct views of the cut slope required to realign Oakvale Road.

Key View 3

Key View 3 is located along Oakvale Road, just east of the existing Lake Wohlford dam. The viewpoint represents the view motorists have while traveling west on Oakvale Road. From this location, the view distance to the project site is approximately 0.5 mile. The viewshed from Key View 1 includes a generally narrow line of sight along the roadway alignment due to rocky cut slopes and vegetated hillsides to the south, and vegetation that obscures views to the north. Through the existing vegetation on the north side of the road, motorists would have intermittent views of the lake and the existing dam.

Regulatory Setting

City of Escondido General Plan, Resource Conservation Element

The Resource Conservation Element establishes policies for conserving important resources, including visual resources, as well as protecting hillside and ridgeline view corridors with particular emphasis on ridgelines, unique landforms and visual gateways (City of Escondido 2012a).

Section E of the Resource Conservation Element states that a primary objective of viewshed policies is to preserve and protect existing internal and external view corridors in Escondido, with particular emphasis on ridgelines, unique landforms, visual gateways, and edges of the community. Policies most relevant to the project as listed in the Visual Resources section include:

> Visual Resources Policy 3.1: Preserve significant visual resources that include unique landforms (e.g., skyline ridges, intermediate ridges, hilltops, and rock outcroppings), creeks, lakes, and open space areas in a natural state, to the extent possible.

Source: Google, 2015

1000 500 0 1000 Feet

Scale: 1 inch = 500 feet

Figure 3.1-4
Key View Location Map

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Visual Resources Policy 3.2: Require new development to avoid obstructing views of, and to minimize impacts to, significant visual resources through the following: creative site planning; integration of natural features into the project; appropriate scale, materials, and design to complement the surrounding natural landscape; clustering of development to preserve open space vistas and natural features; minimal disturbance of topography; and creation of contiguous open space networks.

County of San Diego General Plan, Conservation and Open Space Element

The County of San Diego General Plan, Conservation and Open Space Element establishes goals, policies, and programs that value and protect natural resources to ensure they are available for the future (County of San Diego 2011a). Aesthetics-related goals and policies emphasize the protection of scenic corridors and dark skies within the natural environment and the recognition and enhancement of community character within the built environment.

Within the Conservation and Open Space Element, Lake Wohlford Road (east from Escondido city limits to Valley Center Road) is included in the listing of roads in the County Scenic Highway System and is shown as a County Designated Scenic Highway (County of San Diego 2011a).

Policies most relevant to the project as listed in the Visual Resources section of the element include:

COS-11.1 Protection of Scenic Resources. Require the protection of scenic highways, corridors, regionally significant scenic vistas, and natural features, including prominent ridgelines, dominant landforms, reservoirs, and scenic landscapes.

COS-11.2 Scenic Resource Connections. Promote the connection of regionally significant natural features, designated historic landmarks, and points of regional historic, visual, and cultural interest via designated scenic corridors, such as scenic highways and regional trails.

COS-13.1 Restrict Light and Glare. Restrict outdoor light and glare from development projects in Semi-Rural and Rural Lands and designated rural communities to retain the quality of night skies by minimizing light pollution.

COS-13.2 Palomar and Mount Laguna. Minimize, to the maximum extent feasible, the impact of development on the dark skies surrounding Palomar and Mount Laguna observatories to maintain dark skies which are vital to these two world-class observatories by restricting exterior light sources within the impact areas of the observatories.

3.1.2 Significance Criteria

The effects of a project on aesthetics would be considered significant if the project would do the following:

1. Have a substantial adverse effect on a scenic vista.
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
3. Substantially degrade the existing visual character or quality of the site and its surroundings.
4. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

3.1.3 Impact Analysis

***Criterion 1*: Would the project have a substantial adverse effect on a scenic vista?**

Oakvale Road Realignment

There are no officially designated scenic vistas in the project area. The ridgelines and peaks in the surrounding hillsides would not be visually altered or impacted by the Oakvale Road realignment. However, the entire visual setting of Lake Wohlford with the surrounding natural environment and topography are visually appealing to viewers such as recreationalists boating on Lake Wohlford, trail users, local residents, and motorists on local roadways.

The Oakvale Road realignment footprint visibility is limited due a variety of factors including location on a remote road with low traffic volume, topography, and intervening vegetation. Views from Oakvale Road itself would provide the most direct and near views, but would be limited to motorists and cyclists passing directly in front of the project site, as the winding and narrow nature of the road focuses attention on the road. The realignment area would also be visible from certain parts of the surrounding areas and local residents, motorists, and recreational users would see the project area as a small part of a scenic viewshed dominated by Bottle Peak and other steep hills south and east of the project site.

From Key View 1, viewers would not be able to view the roadway realignment itself; however, the large cut slope required by the roadway realignment would extend toward the peak of the hillside and would be visible to viewers, as shown in the Key View 1 simulation shown in Figure 3.1-5. This alteration would be noticeable to viewers due to the color and textural contrasts of lightly colored sandstone surrounded by the muted grays, greens, and browns of surrounding hillsides. The newly exposed rock cut slope would appear light tan and denuded against the darker greens of the surrounding hillsides. Due to the geological composition of the cut slope, revegetation would not be possible as part of the realignment; however, it is likely that some natural revegetation would occur over time as plants begin to grow from pockets and cracks in the exposed rock. The landform modifications would occur on the north-facing hillside but would not extend beyond or modify the top of the existing ridgeline, as seen from Key View 1.

From Key View 2 and similar views on the lake, recreational viewers would experience direct and indirect views of the Oakvale Road realignment and replacement dam. Views of the cut slope would be similar to those described under Key View 1. These anticipated visual changes are shown in the Key View 2 simulation shown in Figure 3.1-6.

From Key View 3, motorists traveling on Oakvale Road would directly experience the proposed realignment of Oakvale Road, including immediate views of the cut slopes and removal of existing trees and slope vegetation, as shown in the Key View 3 simulation shown in Figure 3.1-7. Because existing vegetation would be removed, the immediately adjacent hillside to the south would appear more consistently rocky and disturbed than the current vegetated hillside; however, this condition currently exists in other locations along Oakvale Road and proposed vegetation removal would afford motorist new views of the surrounding hillsides and Lake Wohlford.

The Oakvale Road realignment would result in landform modification, removal of mature trees and dense vegetation, and removal of rock outcrops, which would be replaced by a modified slope with exposed rock and a new roadway. Due to the steep slope and exposed rock face, revegetation of the slope at construction completion is not possible; the project proposes to revegetate the project area to the extent practicable given soil and substrate conditions. While the realignment would modify the existing visual condition of the new roadway alignment, the visual changes would be consistent with existing segments of Oakvale Road and would open views of the lake while also improving operational efficiency in the immediate project area.

For these reasons, the visual effects from the realignment of Oakvale Road would not be substantially adverse and the impact would be less than significant.

Replacement Dam and Access Road

As described under the Oakvale Road realignment analysis, there are no officially designated scenic vistas in the immediate Project area; however, the reservoir and surrounding natural environment are intrinsically scenic and important to a variety of viewers.

The proposed replacement dam would be most noticeable to viewers boating on the lake (Key View 2) and motorists traveling along Oakvale Road (Key View 3) due to the light gray color of new, unweathered concrete. Both these modifications would be initially noticeable to viewers; however, a reduction in color and textural contrast is anticipated to occur over time as natural weathering softens sharp edges and color contrasts.

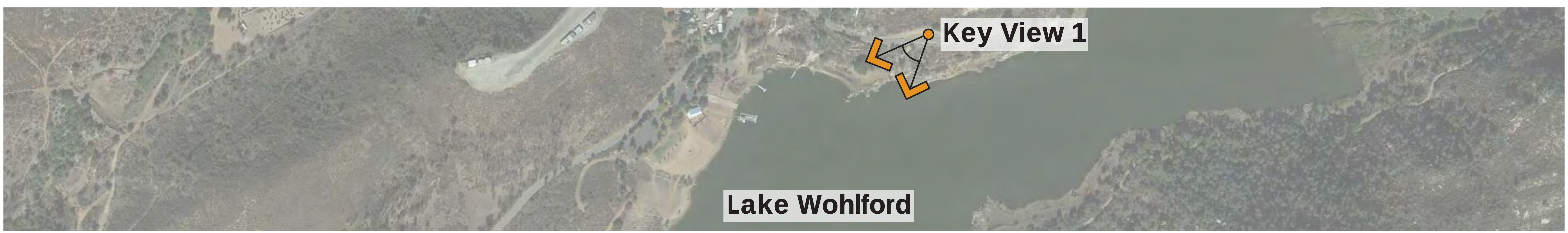
The replacement dam would appear to viewers as a newly constructed structure whose rounded, convex form and central spillway differ in appearance from the linear form of the existing dam. The overall visual character of the area, including along most segments of Oakvale Road, would remain very similar to existing conditions due to the limited public visibility of project features. Additionally, the new dam would be 13.5 feet higher in elevation from the water surface and the convex form would add 130 feet to the expanse cross the crest. A permanent paved access road would be constructed to join the realigned Oakvale Road to the left abutment of the replacement dam, which would be visible to drivers along Oakvale Road. The access road to the right abutment would be constructed using a light to medium gray compacted aggregate gravel and would be noticeable from specific points in and around the reservoir until surrounding revegetation matured. A portion of the proposed access road currently exists as the unpaved Osprey Trail, which is a City maintenance road that under present conditions doubles as a public trail originating from the marina. The project-related extension of this trail would not be publicly accessible, but the current alignment of the public portion of the trail would be maintained. Given the presence of an existing dam and related nearby infrastructure, these differences are not anticipated to create a significant visual change or impact to the surrounding visual environment due to the surrounding topographical context and locations from which the project is visible.

Restoration of Water Levels

While not officially designated as a scenic resource or vista, the Lake Wohlford reservoir provides a natural open space area that is visually appealing to viewers such as boaters on the lake, recreationalists using surrounding trails and roadways, motorists, and surrounding residents, as shown in Figure 3.1-1. The larger open water area would not be a substantial visual modification or highly different from the existing visual setting. For these reasons, the restoration of reservoir water levels would not have a substantially adverse effect on scenic vistas of or from Lake Wohlford, and the impact would be less than significant.

Key View 1 - Existing view facing southwest from Lake Wohlford Road

Simulation View 1 - Simulated view depicts planned improvements and maximum reservoir level

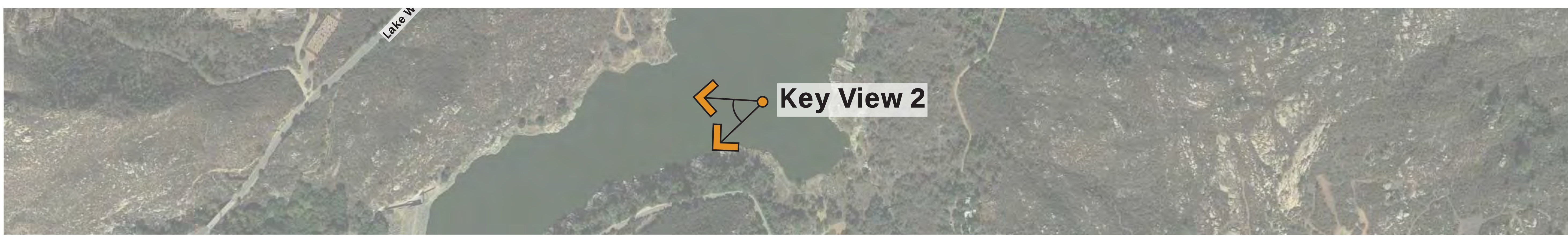


Key View Orientation - Key View 1 is located on Lake Wohlford Road east of the Ranger Station and Lake Wohlford Cafe; facing southwest across the lake toward project area

Figure 3.1-5
Key View 1 - Existing and Proposed Conditions

Key View 2 - Existing view facing west toward existing dam from Lake Wohlford

Simulation View 2 - Simulated view depicts replacement dam and maximum reservoir level



Key View Orientation - Key View 2 is located on Lake Wohlford between Lake Wohlford Ranger Station and Oakvale Road; facing west toward existing dam

Figure 3.1-6
Key View 2 - Existing and Proposed Conditions

Key View 3 - Existing view facing southwest along Oakvale Road

Simulation View 3 - Simulated view depicts cutslopes and tree removal along Oakvale Road, replacement dam, and maximum reservoir level

Key View Orientation - Key View 3 is located east of the existing Lake Wohlford Dam facing southwest along Oakvale Road

Figure 3.1-7
Key View 3 - Existing and Proposed Conditions

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***Criterion 2*: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**

There are no officially designated or eligible state scenic highways in the vicinity of the Project (Caltrans 2011). However, the County of San Diego designates Lake Wohlford Road in the vicinity of the project as a County-designated Scenic Highway (County of San Diego 2011).

Oakvale Road Realignment

As described under Criterion 1, the Oakvale Road realignment would require the removal of mature trees, dense vegetation, and rock outcrops. These elements would be replaced by a modified slope with exposed rock and a new roadway. Due to the steep slopes and exposed rock face, revegetation of the slope at construction completion is not possible; however, areas surrounding the roadwork would be revegetated to the extent practicable. Given the existing conditions along Oakvale Road, which include steep slopes and rock outcroppings, and views along Oakvale Road across the reservoir from Lake Wohlford Road (County-designated Scenic Highway), the project would alter in kind and continue to have generally the same visual elements of mature vegetation and rocky slopes. This visual change is shown in Simulation View 1 (Figure 3.1-5) where it is possible to see the modified slope that would expose the rock face instead of appearing as vegetated hillside. While this is a change to the visual aesthetic of the hillside from Lake Wohlford Road, the change is not highly out of character with the steep and often rocky hillsides in the area. Additionally, views across the reservoir toward Oakvale Road can be intermittent and partially obscured by the intervening vegetation along the Oakvale Road alignment. The newly exposed rocky slope can also be seen in Simulation View 3 (Figure 3.1-7) as viewed from Oakvale Road. It is likely that some natural revegetation would occur over time as plants begin to grow from pockets and cracks in the exposed rock and would soften the look of the exposed surface and aid in blending the newly exposed surface with the surrounding landscape. While the necessary vegetation removal and slope exposure as a result of the Oakvale Road realignment would alter the existing visual environment of the local hillside as viewed from Lake Wohlford Road (County-designated Scenic Highway), this change would not substantially damage scenic resources as exposed rocky slopes are a common and existing part of the local visual character and landscape. Thus, the impact would be less than significant.

Replacement Dam and Access Road

Given the distance, curvilinear alignment, and interventions of existing vegetation and topography along Lake Wohlford Road, construction of the proposed dam replacement would not be highly noticeable to motorists traveling along this County-designated Scenic Highway. There may be areas of construction staging and the new access road that would be visible to motorists traveling on Lake Wohlford Road near the marina parking lot area. The temporary construction visibility would generally include the presence of typical construction equipment and staging areas. . While the visibility of construction activities from Lake Wohlford Road would be a change in the visual environment and appear out of context with the rural and natural setting of the reservoirs and surrounding areas, the presence of construction would be temporary and the visual change would cease at the end of construction. For this reason, the visibility of construction activities from Lake Wohlford Road (County-designated Scenic Highway) is not anticipated to substantially degrade existing scenic resources and the impact would be less than significant.

As described above, the actual location of the replacement dam is not highly visible to motorists passing by on Lake Wohlford Road. Views from the road to the replacement dam site are obscured with intervening dense and mature vegetation and topographic features. The curvilinear alignment and narrow roadway tend to focus motorists' attention on the road alignment, rather than into adjacent areas. For these reasons, the replacement dam facility would not substantially damage scenic resources as viewed from Lake Wohlford Road (County-designated Scenic Highway) and the impact would be less than significant.

Restoration of Water Levels

As described under Criterion 1, the proposed restoration of lake water levels, as experienced along Lake Wohlford Road, is anticipated to provide net-positive scenic results by expanding the visibility of the reservoir surface. Therefore, this component of the project would not result in a significant impact.

Criterion 3: **Substantially degrade the existing visual character or quality of the site and its surroundings?**

Oakvale Road Realignment

As described under Criteria 1 and 2, the Oakvale Road realignment would require the removal of existing mature trees, dense vegetation, and rock outcrops; however, removal of these existing features would be consistent with existing portions of Oakvale Road and the features found in surrounding hillsides. Therefore, the proposed realignment would not substantially degrade existing visual character or quality.

Replacement Dam and Access Road

As described under Criteria 1 and 2, construction of a replacement dam is unlikely to substantially degrade existing visual character and quality of the site and surroundings due to the presence of the existing dam, surrounding visual and topographical context, new distant views of (Lake Wohlford to the north and east; surrounding valley to the south and west) afforded to motorists traveling along Oakvale Road, and the restoration of prior lake water levels.

During the construction phase, a staging yard would be located adjacent to Lake Wohlford Marina and would be visible from points around the reservoir, along Lake Wohlford Road, and potentially some residential viewers north of the reservoir. Overall visibility during the construction phase would be highly variable as clear lines of sight are dependent on location within this project area. As described under Criterion 2 in Section 3.3 (Biological Resources), revegetation of work areas without permanent project features (including staging area) would occur as conditions permitted, which would mitigate permanent visual effects. Given the dynamic and temporary nature of construction staging activities, visual impacts associated with construction phase staging are anticipated to be less than significant.

Restoration of Water Levels

As described under Criteria 1 and 2, and as depicted in Figures 3.1-5, 3.1-6, and 3.1-7, the proposed restoration of lake water levels, as experienced along Lake Wohlford Road, is anticipated to provide net-positive scenic results. Restoration of water levels would increase water surface area, inundate existing shoreline formations, and support the volunteer vegetation established since the lowering of inundation levels.

***Criterion 4*:** **Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?**

Oakvale Road Realignment

Nighttime work requiring lighting would not be required for construction of the Oakvale Road realignment. No permanent lighting is proposed as part of the realignment. Additionally, the road would be constructed of standard road pavement material that is not conducive to generating glare. Therefore, no impact related to a new source of light or glare would occur that could affect daytime or nighttime views in the area.

Replacement Dam and Access Road

The replacement dam would entail 24-hour work for the estimated 5 months of RCC material placement. Nighttime lighting would be required in the active construction work areas during the 24-hour dam raise construction and at staging or construction yard areas for safety and security purposes. Lighting would be used to illuminate the work areas with appropriate shielding to direct the light. While this would create a new temporary source of nighttime light during the 24-hour construction period, the light would not be of the magnitude to create substantial illumination at sensitive receptor locations as there are no sensitive receptors in the immediate vicinity. Motorists traveling at night along Lake Wohlford Road may receive views toward the lit construction area; however, lighting along and adjacent to roadways is not uncommon and light would not shine directly on or at the road. Also, nighttime lighting would be filtered and obscured due to the presence of dense vegetation surround the work areas and intervening topography.

In addition, as required by Mitigation Measure BIO-1.2, described in Section 3.3 (Biological Resources), all construction lighting would be directed onto the construction site and away from surrounding sensitive habitat, and light glare shields would be required to reduce the extent of illumination into adjoining areas. This measure would help to ensure that lighting was restricted to the areas necessary for work and light spillage into adjacent areas would be minimized.

Palomar Observatory is located approximately 14 miles to the northeast of Lake Wohlford. Any additional nighttime glare that would be generated during project construction would be far less than that generated from the developed areas of Escondido and San Marcos farther southwest of the construction site from the observatory. In this context, project-related glare is not likely to be detectable from the observatory.

For these reasons, temporary nighttime lighting associated with dam construction would create a new source of light during the construction period, but it would not be of the magnitude to create substantial light or glare that would adversely affect daytime or nighttime views in the area and the impact would be less than significant.

Restoration of Water Levels

No permanent lighting is proposed as an element of the restored water levels. Therefore, no impact related to a new source of light or glare would occur that could affect daytime or nighttime views in the area.

3.1.4 Significant Impacts and Mitigation Measures

No significant aesthetic impacts were identified for any component of the project. No mitigation measures are required.

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3.2 AIR QUALITY

This section analyzes the potential for adverse effects to air quality during project construction and operation. The information and analysis contained in this section is based on the Air Quality Technical Study for the Lake Wohlford Dam Replacement Project (AECOM 2016a), which is included as Appendix B of this EIR.

3.2.1 Existing Conditions

Climate, Topography, and Meteorology

The project is located in the San Diego Air Basin (SDAB). The SDAB is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountain ranges to the east. The topography in the SDAB region varies greatly, from beaches on the west, to mountains and then desert to the east.

The climate of the SDAB is characterized by warm, dry summers and mild winters. A common atmospheric condition known as a temperature inversion affects air quality in the SDAB. During an inversion, air temperatures get warmer rather than cooler with increasing height. Inversion layers are important for local air quality, because they inhibit the dispersion of pollutants and result in a temporary degradation of air quality. The pollution potential of an area is largely dependent on a combination of winds, atmospheric stability, solar radiation, and terrain. The combination of low wind speeds and low-level inversions produces the greatest concentration of air pollutants. On days without inversions, or on days of winds averaging over 15 miles per hour (mph), the atmospheric pollution potential is greatly reduced.

Criteria Pollutants

Individual air pollutants at certain concentrations may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation. Six air pollutants have been identified by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) as being of concern both on a nationwide and statewide level: ozone; carbon monoxide (CO); nitrogen dioxide (NO_2); sulfur dioxide (SO_2); lead; and particulate matter (PM), which is subdivided into two classes based on particle size: PM equal to or less than 10 micrometers in diameter (PM_{10}) and PM equal to or less than 2.5 micrometers in diameter ($PM_{2.5}$). Because the air quality standards for these air pollutants are regulated using human health and environmentally based criteria, they are commonly referred to as "criteria air pollutants." Full definitions of criteria pollutants and their associated health effects can be found in Appendix B.

Air Quality Standards

Health-based air quality standards have been established for these criteria pollutants by EPA at the national level and by ARB at the state level. These standards were established to protect the public with a margin of safety from adverse health impacts due to exposure to air pollution. California has also established standards for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) are presented in Table 1 of Appendix B.

San Diego Air Basin Existing Air Quality

Ambient air pollutant concentrations in the SDAB are measured at air quality monitoring stations operated by ARB and the San Diego Air Pollution Control District (SDAPCD). The closest and most representative SDAPCD air quality monitoring station to the project site is the Escondido monitoring station, located at 600 East Valley Parkway in Escondido, California. Table 3.2-1 presents the most recent data over the past 3 years from the Escondido monitoring station as summaries of the exceedances of standards and the highest pollutant levels recorded for years 2012 through 2014. These concentrations represent the existing, or baseline conditions, for the project.

As shown in Table 2, ambient air concentrations of CO and NO_2 at the Escondido monitoring station have not exceeded the NAAQS/CAAQS in the past 3 years. PM_{10} concentrations exceeded the CAAQS in 2013, and $PM_{2.5}$ concentrations exceeded the federal standards in all of the past 3 years. Concentrations of 8-hour ozone registered at the monitoring station also exceeded the NAAQS in 2014 and the CAAQS in all of the past 3 years.

SDAB Attainment Status

Both EPA and ARB use ambient air quality monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. An “attainment” designation for an area signifies that pollutant concentrations did not exceed the established standard. In most cases, areas designated or redesignated as attainment must develop and implement maintenance plans, which are designed to ensure continued compliance with the standard.

Table 3.2-1
Ambient Air Quality Summary –Escondido Monitoring Stations

Pollutant Standards	2012	2013	2014
Carbon Monoxide (CO)			
National maximum 8-hour concentration (ppm)	3.61	*	*
State maximum 8-hour concentration (ppm)	3.70	*	*
Number of Days Standard Exceeded			
NAAQS 8-hour (>9.0 ppm)	0	0	0
CAAQS 8-hour (>9.0 ppm)	0	0	0
Nitrogen Dioxide (NO_2)			
State maximum 1-hour concentration (ppb)	62	61	63
Annual Average (ppb)	13	13	11
Number of Days Standard Exceeded			
CAAQS 1-hour	0	0	0
Ozone			
State maximum 1-hour concentration (ppm)	0.084	0.084	0.099
National maximum 8-hour concentration (ppm)	0.073	0.074	0.079
Number of Days Standard Exceeded			
CAAQS 1-hour (>0.09 ppm)	0	0	1
CAAQS 8- hour (>0.070 ppm)/NAAQS 8-hour (>0.075 ppm)	2/0	4/0	8/5
Particulate Matter (PM_{10}) [a]			
National maximum 24-hour concentration (μg/m^3)	33.0	80.0	43.0
State maximum 24-hour concentration (μg/m^3)	33.0	82.0	44.0
State annual average concentration (μg/m^3)	18.8	23.1	21.5
Estimated Number of Days Standard Exceeded			
NAAQS 24-hour (>150 μg/m^3)	0	0	0
CAAQS 24-hour (>50 μg/m^3)	0	1	0
Particulate Matter ($PM_{2.5}$) [a]			
National maximum 24-hour concentration (μg/m^3)	70.7	56.3	77.5
State maximum 24-hour concentration (μg/m^3)	70.7	56.3	82.3
National annual average concentration (μg/m^3)	10.5	10.5	9.9
State annual average concentration (μg/m^3)	*	10.5	9.6
Estimated Number of Days Standard Exceeded			
NAAQS 24-hour (>35 μg/m^3)	1	1	1

μg/m^3 = micrograms per cubic meter; ppb = parts per billion; ppm == parts per million

Source: ARB 2015a

In contrast to attainment, a "nonattainment" designation indicates that a pollutant concentration has exceeded the established standard. Nonattainment may differ in severity. To identify the severity of the problem and the extent of planning and actions required to meet the standard, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe, extreme).

Finally, an unclassified designation indicates that insufficient data exist to determine attainment or nonattainment. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment.

As shown in Table 3.2-2, the SDAB currently meets NAAQS for all criteria air pollutants except ozone, and meets the CAAQS for all criteria air pollutants except ozone, PM_{10}, and $PM_{2.5}$. The SDAB is designated as "marginal" nonattainment area for the 2008 8-hour ozone standard. The SDAB currently falls under a federal maintenance plan for the 1997 8-hour ozone standard. The SDAB is currently classified as a state nonattainment area for ozone, PM_{10}, and $PM_{2.5}$.

Table 3.2-2
San Diego Air Basin Attainment Designations

Pollutant	State	Federal
Ozone (1-hour)	Nonattainment	Attainment
Ozone (8-hour)	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Unclassified/Attainment
Nitrogen Dioxide	Unclassified/Attainment	Unclassified/Attainment
Sulfur Dioxide	Unclassified/Attainment	Unclassified/Attainment
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Nonattainment	Unclassified/Attainment
Sulfates	Attainment	N/A
Hydrogen Sulfide	Unclassified	N/A
Visibility Reducing Particles	Unclassified/Attainment	N/A
Lead	Unclassified/Attainment	Unclassified/Attainment

Source: ARB 2015b.
N/A = not applicable; no standard.

Toxic Air Contaminants

In addition to criteria pollutants, both federal and state air quality regulations also focus on toxic air contaminants (TACs). TACs can be separated into carcinogens and noncarcinogens based on the nature of the effects associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts would not occur. Any exposure to a carcinogen poses some risk of contracting cancer. Noncarcinogens differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

TACs may be emitted by stationary, area, or mobile sources. Common stationary sources of TAC emissions include gasoline stations, dry cleaners, and diesel backup generators, which are subject to local air district permit requirements. The other, often more significant, sources of TAC emissions are motor vehicles on freeways, high-volume roadways, or other areas with high numbers of diesel vehicles, such as distribution centers. Off-road mobile sources are also major contributors of TAC emissions and include construction equipment, ships, and trains.

Odor

Odors are considered an air quality issue both at the local level (e.g., odor from wastewater treatment) and at the regional level (e.g., smoke from wildfires). Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

Sensitive Receptors

Some members of the population are especially sensitive to air pollutant emissions and should be given special consideration when evaluating air quality impacts from projects. These include children, the elderly, people with preexisting respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Air quality regulators typically define sensitive receptors as schools, hospitals, resident care facilities, day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality.

Residential areas are also considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent as the majority of the workers tend to stay indoors most of the time.

Regulatory Setting

A full description of the regulatory setting for this document can be found in Section 3 of the Air Quality Technical Report (Appendix B). The following laws, regulations, policies, and plans are applicable to this resource area:

- Clean Air Act (CAA)
- Tanner Air Toxics Act
- Air Toxics Hot Spots Information and Assessment Act
- California CAA
- San Diego Air Pollution Control District Regulation IV

3.2.2 Significance Criteria

The effects of a project on air quality would be considered significant if the project would do the following:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
3. 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 (including releasing emissions that exceed quantitative thresholds for ozone precursors).
4. Expose sensitive receptors to substantial pollutant concentrations.
5. Create objectionable odors affecting a substantial number of people.

Both the County of San Diego and the City of Escondido have established recommended screening level thresholds of significance for regional pollutant emissions (County of San Diego 2007; City of Escondido 2013). Since the site is located outside the City's municipal boundaries, the City has elected to use the San Diego County screening thresholds for regional pollutant emissions to analyze the impacts of the project pursuant to CEQA. The County of San Diego *Guidelines for Determining Significance and Report Format and Content Requirements, Air Quality*, which outline these screening level thresholds, state that a project that results in an emissions increase less than these levels would not lead to a violation of a NAAQS or CAAQS (County of San Diego 2007). The daily emission thresholds for criteria pollutants are consistent in both the County and City guidelines. The screening level thresholds used for analysis of project impacts are shown in Table 3.2-3.

Table 3.2-3
Regional Pollutant Emission Screening Level Thresholds of Significance

	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	Lead
Pounds per hour	–	25	100	25	–	–	–
Pounds per day	75	250	550	250	100	55	3.2
Tons per year	13.7	40	100	40	15	10	0.6

VOC = volatile organic compounds; NO_X = oxides of nitrogen; SO_X = sulfur oxides; CO = carbon monoxide; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less, $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less

– = No threshold proposed

Source: County of San Diego 2007

This analysis evaluates the impacts of all project components together, including the Oakvale Road realignment, access road and replacement dam Construction, and restoration of water levels. The finding of significance for the CEQA thresholds cannot be determined separately and must be based on emissions for the entire project.

Restoration of reservoir levels would not result in impacts on air quality, so this component is not discussed in the analysis below.

3.2.3 Impact Analysis

***Criterion 1*: Would the Project conflict with or obstruct implementation of the applicable air quality plan?**

Air quality plans describe air pollution control strategies to be implemented by a city, county, or regional air district. The primary purpose of an air quality plan is to bring an area that does not attain federal and state air quality standards into compliance with those standards pursuant to the requirements of the CAA and California CAA. Projects that are consistent with the assumptions and control measures used in development of the applicable air quality plan are considered to not conflict with or obstruct the attainment of the air quality levels identified in the plan.

The CAA requires that areas in nonattainment for NAAQS develop a State Implementation Plan (SIP) that describes how and when the nonattainment area will attain NAAQS for the nonattainment pollutant. On June 4, 2014, EPA approved the Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County, the SDAPCD maintenance plan for the 1997 8-hour ozone standard. The SDAB achieved the NAAQS for CO in 1993, and EPA approved a 10-year maintenance plan in 1998. The current version of the maintenance plan is the 2004 Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan for Ten Federal Planning Areas.

Elements of the SIP are also taken from the Regional Air Quality Strategy (RAQS), the SDAPCD plan for attaining the state ozone standard (SDAPCD 2009). The RAQS was developed pursuant to California CAA requirements and identifies feasible emission control measures to provide expeditious progress toward attaining the state ozone standard, which is more stringent than the federal ozone standard. The RAQS control measures focus on emission sources under SDAPCD authority, specifically stationary sources and some area-wide sources. The RAQS identifies area-wide sources as mostly residential sources, including water heaters, furnaces, architectural coatings, and consumer products.

The SIP includes on-road motor vehicle emissions budgets that represent the maximum allowable levels of emissions from on-road vehicle travel on the region's transportation system. Conformity determinations must be made by the San Diego Association of Governments (SANDAG), and emissions projected to result from implementation of the transportation plans may not exceed these emissions budgets. Emission forecasts rely on projections of VMT by SANDAG, and population, employment, and land use projections made by local jurisdictions during development of the area and general plans. While the SIP and RAQS include estimates of mobile and area sources, minor changes in the assumptions relative to these sources would not obstruct successful implementation of the strategies for improvement of SDAB’s air quality.

The proposed project is solely a construction project and would not develop any land uses that would result in a net increase in long-term operational emissions. The use of construction equipment in the SIP and the RAQS is estimated for the region on an annual basis, and construction-related emissions are estimated as an aggregate in the RAQS. The project would not increase the assumptions for off-road equipment use in the SIP and the RAQS.

Because the proposed project would comply with all construction-related SDAPCD rules and regulations and would not construct a land use that would result in a net increase in long-term operational emissions, the project would not conflict with or obstruct implementation of the applicable air quality plan. This impact would be less than significant.

***Criterion 2*:** **Would the Project violate any air quality standard or contribute substantially to an existing or projected air quality violation?**

Construction emissions are described as “short-term” or temporary in duration; however, they have the potential to represent a significant impact with respect to air quality. Construction of the project would result in the temporary generation of VOC, NO_X, CO, PM_{10}, and $PM_{2.5}$ emissions. VOC, NO_X, and CO emissions are primarily associated with mobile equipment exhaust, including off-road construction equipment and on-road motor vehicles. Fugitive PM dust emissions are primarily associated with site preparation and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and VMT by construction vehicles on- and off-site. Earthmoving, material handling operations, and the concrete batch plant are the primary sources of fugitive PM dust emissions from the proposed construction activities.

Construction of the proposed project would include the following construction phases: Oakvale Road improvements, dam foundation, access road, replacement dam construction, and demolition of existing dam and existing outlet tower. It is anticipated that construction activities would occur in a linear fashion and that construction phases would not overlap.

As shown in Table 3.2-4, construction emissions for the project would result in maximum daily emissions of approximately 14 pounds of VOC, 165 pounds of NO_X, 63 pounds of CO, 245 pounds of PM_{10}, and 37 pounds of $PM_{2.5}$. Additional modeling assumptions and details are provided in Appendix B of the Air Quality Report (Appendix B of the EIR).

Table 3.2-4
Estimated Maximum Daily Construction Emissions by Project Component

	VOC	NO_X	CO	PM_{10} [1,2]	$PM_{2.5}$ [1]
Staging (Mobilization)	1.71	21.23	10.57	7.07	4.17
Oakvale Road	7.17	96.89	35.79	65.58	17.29
Dam Foundation	8.29	121.24	43.67	244.89	37.08
Access Road	3.90	42.68	22.33	91.36	20.22
Replacement Dam	14.27	164.85	63.14	108.80	17.69
Demolition of Existing Dam	1.86	44.91	9.87	61.39	9.87
Maximum Daily Construction Emissions (lbs/day)	14.27	164.85	63.14	244.89	37.08
Threshold of Significance (lbs/day)	75	250	550	100	55
Significant Impact?	No	No	No	**YES**	No

[1] PM_{10} emissions shown include the sum of particulate matter (PM) with aerodynamic diameter 0 to 2.5 microns and PM with aerodynamic diameter 2.5 to 10 microns.
[2] Fugitive dust emissions were reduced based on watering two times per day.
VOC = volatile organic compounds; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = suspended PM; $PM_{2.5}$ = fine PM
Source: Estimated by AECOM in 2016

As shown in Table 3.2-4, construction-related emissions of VOC, NO_X, CO, and $PM_{2.5}$ would not exceed the thresholds of significance and would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. However, construction-generated PM_{10} emissions would exceed the mass emission threshold of 100 lbs per day, and construction emissions could violate an ambient air quality standard or contribute substantially to an existing violation (**Impact AQ-1**). Therefore, construction impacts related to violation of an ambient air quality standard would be significant. Implementation of Mitigation Measures AQ-1.1 through

AQ-1.3 would be required. Because the County lbs/day screening threshold is the same as the City's lbs/day threshold, the impact conclusion and mitigation measures would be the same if the City was applying its own threshold for this impact analysis.

<u>Criterion 3</u>: **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?**

A significant impact related to air quality would occur if implementation of the project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.

The cumulative analysis focuses on whether a specific project would result in a cumulatively considerable increase in emissions. By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development within the SDAB, and this regional impact is cumulative rather than attributable to any one source. A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects.

The thresholds of significance are relevant to whether a project's individual emissions would result in a cumulatively considerable incremental contribution to the existing cumulative air quality conditions. These thresholds are designed to identify those projects that would result in significant levels of air pollution and to assist the region in attaining the applicable state and federal ambient air quality standards. Projects that would not exceed the thresholds of significance would not contribute a considerable amount of criteria air pollutant emissions to the region's emissions profile, and would not impede attainment and maintenance of ambient air quality standards.

Because the proposed project would exceed the project-level air quality significance thresholds for PM_{10} emissions, the proposed project's construction emissions would have a cumulatively considerable contribution to the region's air quality. Therefore, the cumulative impact would be significant (**Impact AQ-2**). Implementation of Mitigation Measures AQ-1.1 through AQ-1.3 would reduce PM_{10} emissions to a less than significant level. This cumulative impact would be less than significant with mitigation.

<u>Criterion 4</u>: **Would the Project expose sensitive receptors to substantial pollutant concentrations?**

The nearest off-site sensitive receptors are single-family residences located approximately 900 feet to the northeast of the staging area and batch plant location. The majority of road and dam construction activities would occur at distances of 900 to 3,000 feet from these residences. The residential properties represent the nearest sensitive receptors with the potential to be impacted as a result of construction of the proposed project.

Construction-Related Health Risks

The greatest potential for TAC emissions resulting from construction of the proposed project would originate from diesel PM emissions associated with heavy equipment operations. Construction of the proposed project would result in the generation of diesel PM from the use of off-road diesel construction equipment at the project site. Most diesel PM emissions associated with material delivery trucks and construction worker vehicles would occur off-site.

The generation of diesel PM emissions from construction projects typically occurs in a single area for a short period of time. Construction emissions would occur intermittently throughout the day, as construction equipment is required, rather than as a constant plume of emissions from the project site. All construction emissions would cease following completion of the proposed project.

The dose of TACs to which receptors are exposed is the primary factor used to determine health risk and is a function of concentration and duration of exposure. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure a person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period to a fixed amount of emissions results in a higher exposure level and higher health risks for the maximally exposed individual.

Furthermore, the dose (i.e., concentration levels) to which nearby receptors would be exposed would be limited because of the distance from the project site (approximately 900 to 3,000 feet from the nearest sensitive receptor to the site). ARB has published studies that show a 70% decrease in PM emissions at 500 feet from freeways and high-traffic roads, which are continuous emission sources (ARB 2005). Emissions would be dispersed around the project site; thus, TAC emissions from project construction would be less concentrated than those from a typical roadway and would be less likely to substantially expose receptors. SDAPCD rules and permits and Mitigation Measures AQ-1.1 through AQ-1.3 would also reduce PM_{10} emissions generated by construction of the proposed project. Therefore, it is anticipated that PM concentrations would decrease substantially before affecting the nearest sensitive receptor.

Thus, considering the distance to the nearest sensitive receptor, intermittent emission source, relatively low overall exposure period, and the highly dispersive nature of diesel PM emissions (Zhu et al. 2002), construction emissions would not generate pollutant concentrations that expose sensitive receptors to substantial pollutant concentrations. This impact would be less than significant.

Carbon Monoxide

CO concentration is a direct function of motor vehicle activity, particularly during peak commute hours, and meteorological conditions. Under specific meteorological conditions, CO concentrations may reach unhealthy levels with respect to local sensitive land uses, such as residential areas, schools, preschools, playgrounds, and hospitals. As a result, air districts typically recommend analysis of CO emissions at a local rather than a regional level.

Because increased CO concentrations are usually associated with roadways congested and with heavy traffic volume, many agencies have established preliminary screening criteria to determine with fair certainty that, if not violated, project-generated, long-term operational local mobile-source emissions of CO would not result in, or substantially contribute to, emissions concentrations that exceed the 1-hour ambient air quality standard of 20 parts per million (ppm) or the 8-hour standard of 9.0 ppm.

Level of service (LOS) is a measurement of an intersection's performance based on idling time and speed of vehicles. Intersections operating at LOS E or F would result in a greater number of vehicles idling and/or moving slowly through the intersection, thereby increasing the possibility for a CO hotspot.

During construction of the proposed project, construction-related vehicles would contribute temporary traffic volumes to the existing roadway network. Daily vehicle trips would occur as result of equipment and material delivery trucks, and construction workers coming to and from the project site.

The traffic analysis prepared or the proposed project indicates that all of the studied intersections are calculated to currently operate at service levels of LOS C or better during both the AM and PM peak hours (LLG 2014b). Roadway segments, including Lake Wohlford Road and Valley Parkway, currently operate at LOS C or better. Project trips were distributed regionally based on potential destinations for material hauling from construction activity. The rest of the trips are distributed to regional destinations via the City of Escondido's identified truck routes, ultimately reaching I-15 for regional access (LLG 2014b). The traffic impacts proposed for the project do not exceed the applicable significance thresholds of the City and County, and all intersections and roadway segments would continue to operate at LOS C or better with the addition of project-related trips.

The proposed project's construction traffic would not contribute significant volumes to intersections operating at LOS E or F. Therefore, the CO concentrations resulting from the project would not violate the CAAQS for either the 1-hour period (20 ppm) or the 8-hour period (9.0 ppm). This impact would be less than significant.

***Criterion 5*: Create objectionable odors affecting a substantial number of people?**

Sources that may emit odors during construction activities include exhaust from diesel construction equipment and heavy-duty trucks, which could be considered offensive to some individuals. Odors from these sources would be localized and generally confined to the immediate area surrounding the project site. The proposed project would use typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. As discussed above, the nearest sensitive receptor would be located approximately 900 feet away from the batch plant and staging area. Because of the amount and types of equipment, the temporary nature of these emissions, and the highly diffusive properties of diesel exhaust, nearby receptors would not be affected by diesel exhaust odors associated with project construction.

After construction of the proposed project, all construction-related odors would cease. Operation of the proposed project would not be expected to add any new odor sources. As a result, the proposed project would not create objectionable odors affecting a substantial number of people. The impact would be less than significant.

3.2.4 Significant Impacts and Mitigation Measures

Impact AQ-1: Construction-generated PM_{10} emissions would exceed the applicable mass emission threshold of 100 lbs per day; therefore, construction impacts related to violation of an ambient air quality standard would be significant (Criterion 2).

Mitigation Measure AQ-1.1: The following measures shall be implemented by the construction contractor to reduce fugitive dust emissions associated with off-road equipment and heavy-duty vehicles:

- Water the grading areas a minimum of twice daily to minimize fugitive dust;
- Stabilize graded areas as quickly as possible to minimize fugitive dust;

- Apply chemical stabilizer or pave the last 100 feet of internal travel path within the construction site prior to public road entry;
- Remove any visible track-out into traveled public streets within 30 minutes of occurrence;
- Wet wash the construction access point at the end of each workday if any vehicle travel on unpaved surfaces has occurred;
- Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads;
- Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling;
- Suspend all soil disturbance activities if winds exceed 25 mph;
- Cover/water on-site stockpiles of excavated material;
- Enforce a 15-mph speed limit on unpaved surfaces;
- On dry days, dirt and debris spilled onto paved surfaces shall be swept up immediately to reduce resuspension of PM caused by vehicle movement. Approach routes to construction sites shall be cleaned daily of construction-related dirt in dry weather; and
- Disturbed areas shall be hydroseeded, landscaped, or developed as quickly as possible and as directed by the contractor to reduce dust generation.

Mitigation Measure AQ-1.2: Minimize idling time by shutting equipment off when not in use or reducing the time of idling to no more than 5 minutes (5-minute limit is required by the state airborne toxics control measure [Title 13, sections 2449(d)(3) and 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.

Mitigation Measure AQ-1.3: Maintain construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic at least once per month and determined to be running in proper condition before it is operated.

Impact AQ-2: Because the proposed project would exceed the project-level air quality significance thresholds for PM_{10} emissions, the proposed project's construction emissions would have a cumulatively considerable contribution to the region's air quality (Criterion 3).

Based on estimates consistent with South Coast Air Quality Management District Rule 403 requirements for site-watering activities, Mitigation Measure AQ-1.1 would reduce fugitive dust emissions by 60 percent. Potential reductions were not estimated for the remaining mitigation measures, since the extent to which they would affect emissions associated with construction of the proposed project is unknown. The maximum mitigated PM10 emissions would be 85.57 pounds per day. Implementation of Mitigation Measures AQ-1.1 through AQ-1.3, as listed above, would effectively reduce Impact AQ-2 to a less-than-significant level. No other mitigation is warranted.

With the implementation of Mitigation Measures AQ-1.1 through AQ-1.3, as described above, all impacts related to air quality would be reduced to less than significant.

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3.3 BIOLOGICAL RESOURCES

This section describes existing biological resources conditions and identifies potential impacts during project construction and operation. Information provided in this section is derived from the *Lake Wohlford Dam Replacement Project Biological Technical Report* (BTR) (AECOM 2014a) and the *Lake Wohlford Dam Replacement Project Jurisdictional Delineation Report* (JDR) (AECOM 2014b). These reports are provided in this EIR as Appendices C and D, respectively. Additional biological resources information specific to the Oakvale Road realignment is taken from the Oakvale Road Realignment and Improvement Project MND (City of Escondido 2015b).

3.3.1 Existing Conditions

This section describes the existing biological setting of the Biological Study Area (BSA), including the regional context of the site, vegetation communities, plant species, wildlife species, rare and sensitive plant and wildlife species either known or potentially occurring in the proposed project site, jurisdictional waters, and wildlife corridors.

Methods and Definitions

Biological Study Area

The BSA addressed in this report consists of the project's impact area plus an approximately 500-foot buffer. The project's impact areas include approximately 33.64 acres that are assumed disturbed by project construction (referred to herein as the limits of disturbance or LOD). In addition to this direct impact area, the BSA includes land within the 1,480-foot elevation maximum reservoir level after completion of the project and an approximately 500-foot buffer around this 1,480-foot contour. The BSA is shown in Figure 3.3-1.

The BSA is within the County of San Diego's draft NCMSCP and the draft Escondido Subarea Plan for the MHCP; however, those documents are in draft form and do not have regulatory applicability to the project. Because the project is located outside the City's municipal boundaries and the County has an adopted standard for applying habitat-based mitigation in the County's Biological Mitigation Ordinance (BMO), the City has elected to apply the BMO in assessing the project's habitat impacts pursuant to CEQA and identifying habitat-based mitigation.

Special-Status Species

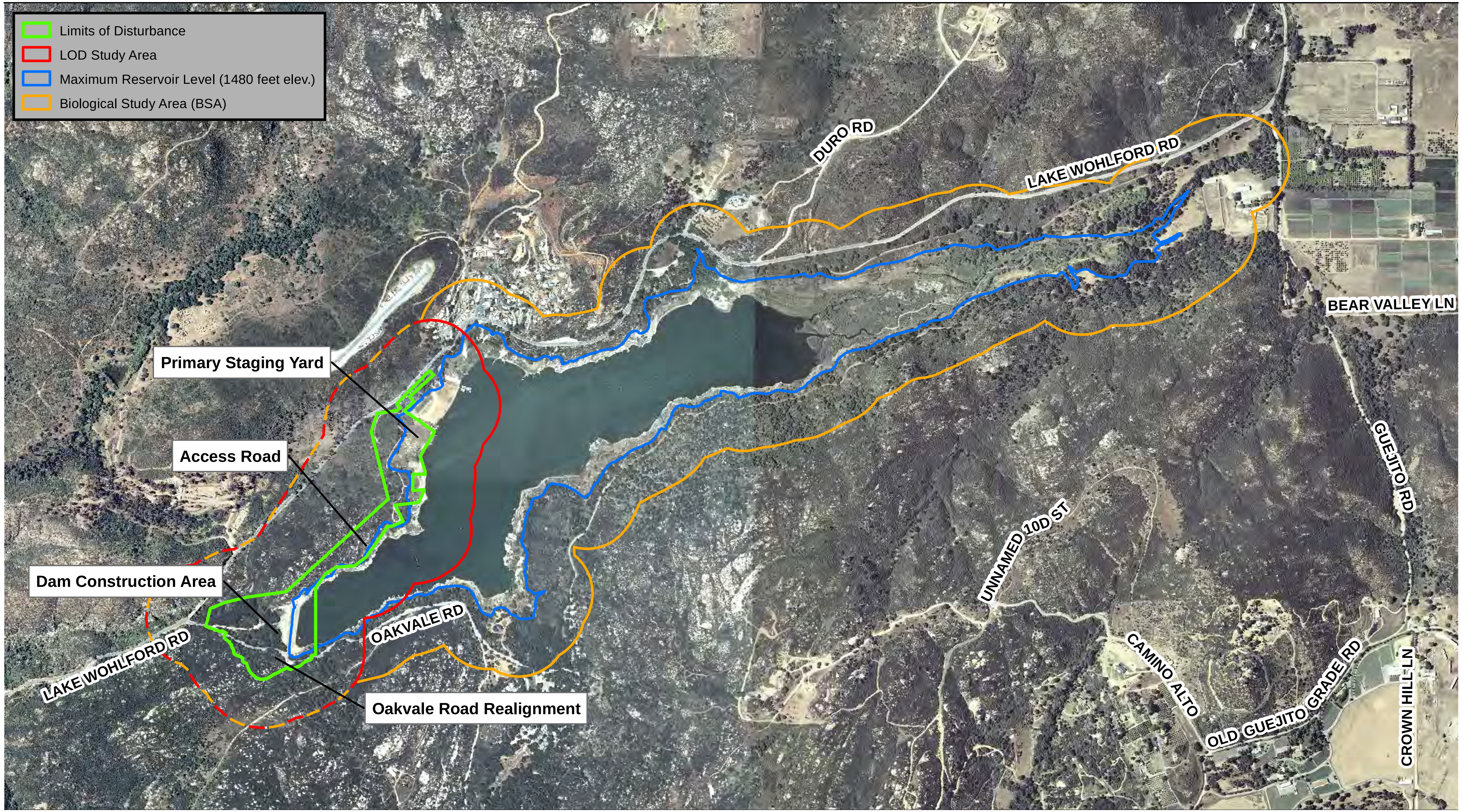
For purposes of this analysis, species are considered to have special status if they meet at least one of the following criteria:

- Listed as threatened or endangered under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA)
- California Department of Fish and Wildlife (CDFW) Species of Special Concern or Watch List (CDFW 2013)
- CDFW fully protected species (CDFW 2013)
- Listed as sensitive by the California Native Plant Society (CNPS 2013)
- Covered under the draft NCMSCP and/or draft Escondido Subarea Plan

Biological Resources Surveys

Biological field surveys completed for the project included a vegetation mapping survey; general wildlife reconnaissance surveys; rare plant surveys; USFWS protocol surveys for coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher; focused bat surveys; and a delineation of wetlands and waters that are jurisdictional of federal and state agencies. Prior to the initiation of biological field surveys and the environmental analyses, existing data were compiled and reviewed for the BSA. This process included a review of the available data on past observation from the CNPS California Rare Plant Rank (CRPR) List, California Natural Diversity Database (CNDDB), and SanGIS (CNPS 2013; CDFW 2013).

Vegetation mapping was conducted concurrently with rare plant surveys, which occurred during the appropriate blooming periods for local sensitive plant species in January, March, and June 2013. General wildlife surveys coincided with USFWS protocol surveys for the three bird species identified above during spring and summer 2013. Focused bat surveys were conducted in the summer and fall of 2013. Complete survey details and USFWS protocols are described in Section 2.2 of the BTR (Appendix C).



Source: SanGIS 2012; Black & Veatch 2014; USGS 2013

1,000 500 0 1,000 Feet

Scale: 12,000; 1 inch = 1,000 feet

Figure 3.3-1
Biological Study Area

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Environmental Setting

Vegetation Communities

Fourteen native and naturalized vegetation communities were determined present in the BSA. This includes the wetlands communities emergent wetland, freshwater marsh, lakeshore, open water, southern willow scrub, and coast live oak riparian forest; and the upland communities Diegan coastal sage scrub, southern mixed chaparral, nonnative grassland, Engelmann oak woodland, coast live oak woodland, and eucalyptus woodland, ornamental woodland, and valley needlegrass grassland. One additional unvegetated cover type, urban/developed, was also mapped. Of these vegetation communities and cover types, all were detected within the LOD and maximum inundation area, with the exception of eucalyptus woodland, ornamental woodland, and valley needlegrass grassland. The mapped locations of the vegetation communities within the BSA are shown in Figure 3.3-2. Detailed descriptions of each vegetation community are provided in Section 3.1 of Appendix C. The BMO classifies vegetation communities into tiers that reflect their relative biological resource values, ranging from Tier I (highest value) to Tier IV (lowest value). Table 3.3-1 details the acreage of the vegetation communities within the LOD and maximum inundation area, along with their BMO tier designations. In this table, areas that are in both the LOD and maximum inundation area are shown as LOD acreage impacts, and not in the inundation acreages.

Jurisdictional Waters and Wetlands

As presented in Table 3.3-2, a total of 205.17 acres of waters of the U.S.[1] and state[2] were delineated for the project, including areas within the LOD and maximum inundation area. Of those acres, 167.05 acres are waters of the U.S. and state under the purview of USACE, RWQCB, and CDFW consisting of Escondido Creek and Lake Wohlford and their abutting wetlands. Also, several small ephemeral channels that are tributary to Escondido Creek and Lake Wohlford were delineated. The additional 38.12 acres is exclusively waters of the state under the purview of CDFW, which consists of the outer limits of the riparian corridor that surrounds Escondido Creek and Lake Wohlford. The jurisdictional delineation results are shown in Figure 3.3-3.

[1] Jurisdictional waters of the U.S. include jurisdictional waters of the state.

[2] State jurisdictions often exceed, in lateral extent and area, federal jurisdiction. Therefore, jurisdictional waters of the U.S. include waters of the state. Although federal and state jurisdictions do overlap, they remain distinct for regulatory administration and permitting purposes.

Table 3.3-1
Vegetation Communities and Cover Types within the LOD and Maximum Inundation Area

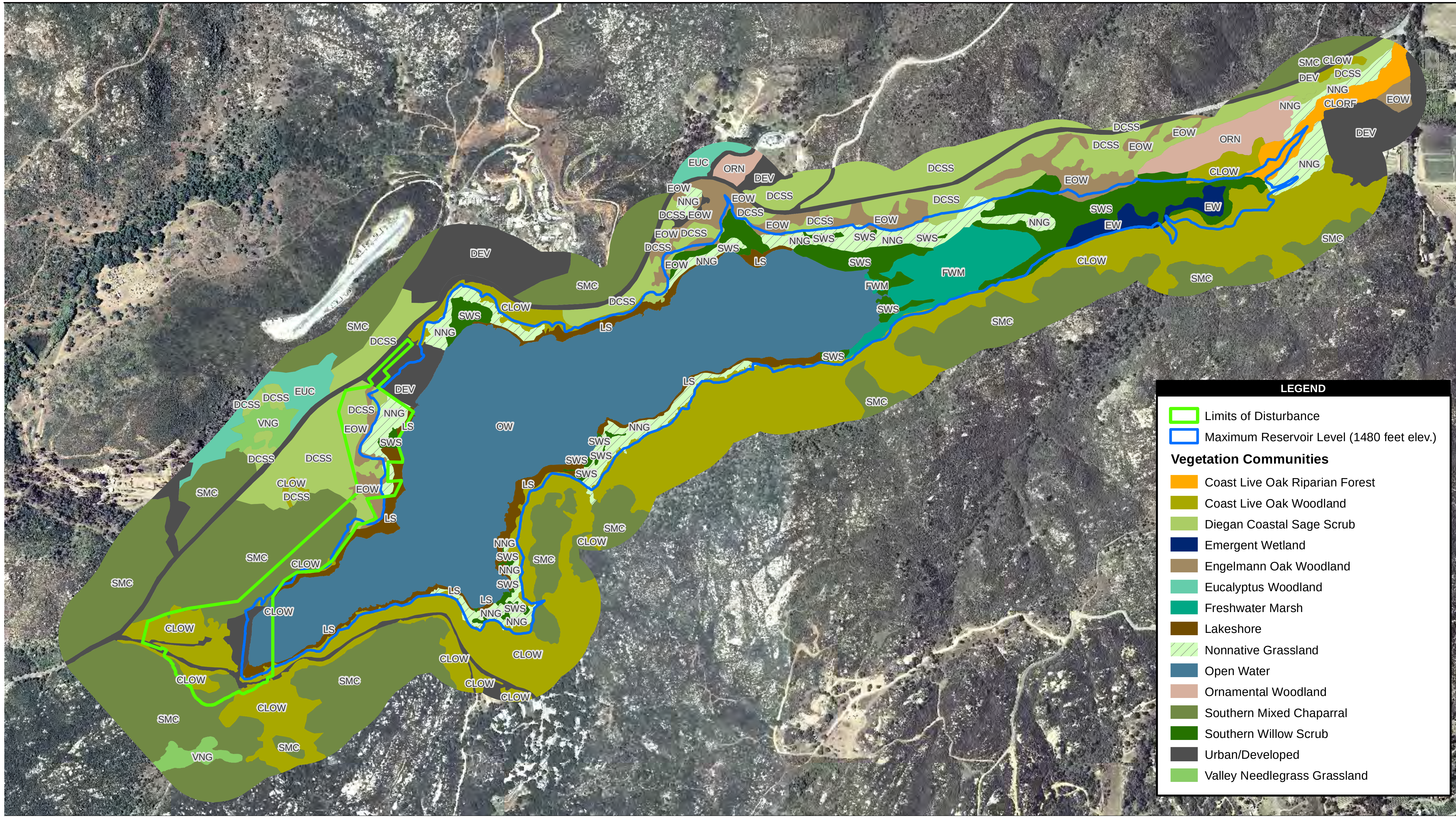
Vegetation Community	BMO Tier Designation	Holland Code[1]	LOD (acres)	Maximum Inundation Area (acres)[2]	Total (acres)
Wetlands					
Emergent Wetland	I	N/A	0.00	4.13	4.13
Freshwater Marsh	I	52400	0.00	13.75	13.75
Lakeshore	I	N/A	1.25	11.63	12.88
Open Water	I	N/A	2.12	126.85	128.97
Southern Willow Scrub	I	63320	0.41	26.75	27.16
Coast Live Oak Riparian Forest	I	61000	0.00	1.03	1.03
Subtotal Riparian and Wetlands			***3.78***	***184.14***	***187.92***
Uplands					
Engelmann Oak Woodland	I	71181	2.36	1.70	4.06
Coast Live Oak Woodland	I	71162	8.01	8.25	16.26
Diegan Coastal Sage Scrub	II	32500	4.31	1.21	5.08
Nonnative Grassland	III	42200	2.60	18.77	21.37
Southern Mixed Chaparral	III	37121	8.58	0.14	8.72
Subtotal Uplands			***25.86***	***30.07***	***55.49***
Other Cover Types					
Urban/Developed	N/A	12000	4.00	3.14	7.14
Subtotal Other Cover Types			***4.00***	***3.14***	***7.14***
Total (acres)			**33.64**	**217.35**	**250.55**

[1] Based on the *Draft Vegetation Communities of San Diego County* (Oberbauer et al. 2008).
[2] Acreages in this column only include areas within the 1,480-foot elevation that are outside the LOD; there is no overlap.
Note: All acreages are rounded to the nearest hundredth, which may account for minor rounding error in totals.

Table 3.3-2
Summary of Waters of the U.S. and State Occurring within the Limits of Disturbance and Maximum Inundation

Type of Habitat	USACE (acres)[1]	RWQCB (acres)[1]	CDFW (acres)[1]
Waters of the U.S.			
Wetland	27.27	27.27	27.27
Other Waters	139.78	139.78	139.78
Subtotal Waters of the U.S.	*167.05*	*167.05*	*167.05*
Waters of the State			
Riparian Component	-		35.23
Other Waters	-	-	2.88
Subtotal Waters of the State	-	-	*38.12*
Grand Total Jurisdictional Waters	**167.05**	**167.05**	**205.17**

[1] Jurisdictional waters acreage of the survey area was determined by using ArcGIS. All acreages are rounded to the nearest hundredth (which may account for minor rounding error).



Source: ; AECOM 2014; SanGIS 2012.

850 0 850 Feet

Scale: 1:10,200; 1 inch = 850 feet

Figure 3.3-2
Vegetation Communities

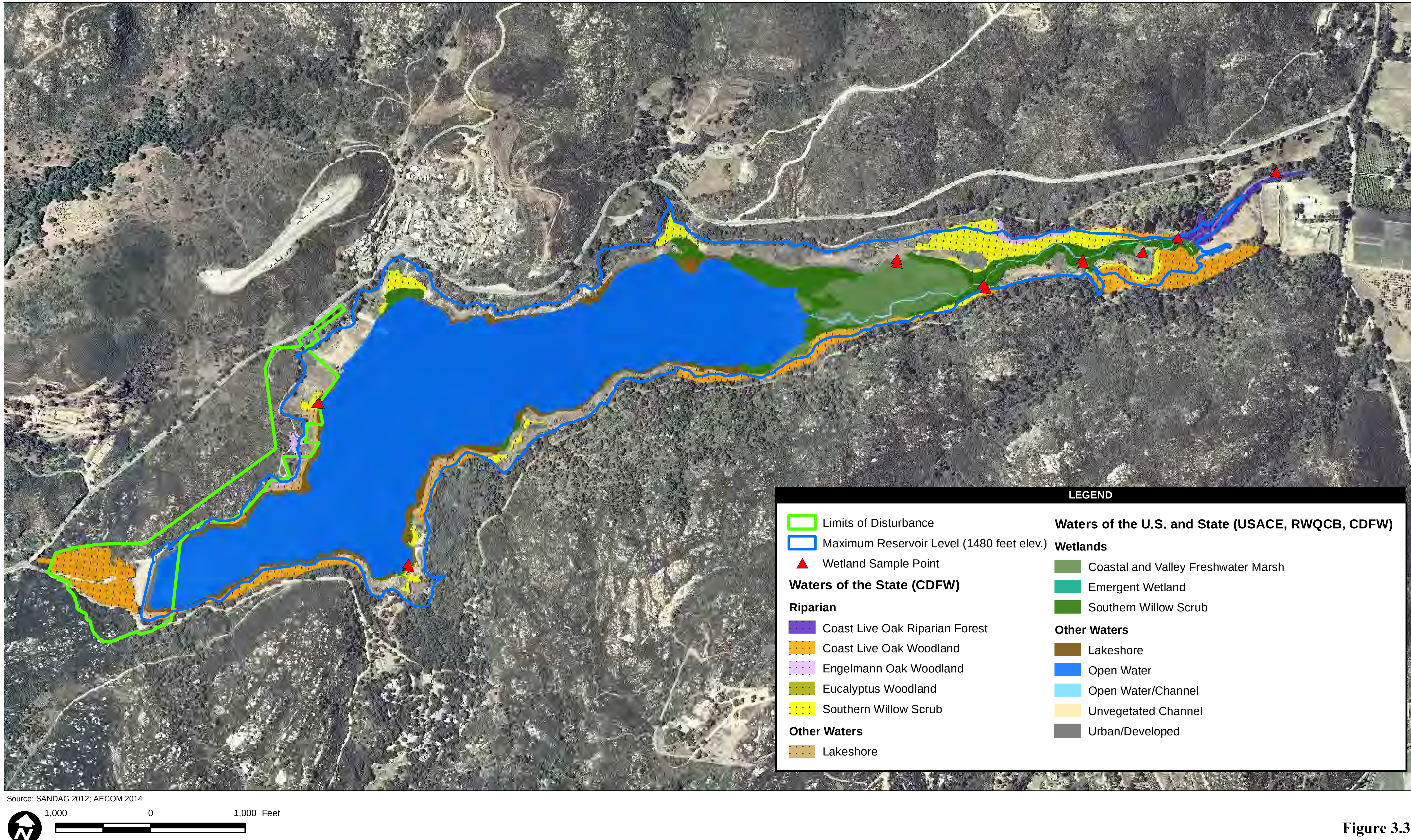


Figure 3.3-3
Jurisdictional Delineation

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Sensitive Plant Species

In total, 224 plant species were detected in the BSA during vegetation mapping and rare plant surveys (Appendix F of the BTR, which is included in this document as Appendix C). The CNDDB search identified 49 special-status plant species that have potential to occur within the BSA based on the project's regional location. Table 4 of Appendix C lists the plants, their sensitivity status, whether suitable habitat for the plant is present in the BSA, and the determination of species presence or absence in the BSA. See Section 3.3 of Appendix C for additional detail and rationale of presence/absence determination for these species.

Only one sensitive plant species, Englemann oak (*Quercus engelmannii*), was observed within the BSA. Engelmann oak is present in the LOD, the proposed inundation area, and areas of the project's buffer. This species does not have listing status under the federal ESA or CESA, but is considered sensitive by CNPS and classified as CRPR List 4.2 (i.e., a plant of limited distribution, moderately threatened in California). It is also a species covered under the draft Escondido Subarea Plan. The locations of Englemann oak woodlands within the BSA are shown in Figure 3.3-4.

Sensitive Wildlife Species

According to the CNDDB search and the USFWS species list, 41 special-status wildlife species have potential to occur within the BSA based on the project's regional location and prior observation data. Table 5 of Appendix C lists the wildlife species from the CNDDB search, their sensitivity status, the results of the project surveys indicating detection or nondetection of the species, and the probability of occurrence in the BSA. See Section 3.4 of Appendix C for additional detail and rationale of presence/absence determination for these species.

Based on habitat conditions in the BSA observed during initial reconnaissance surveys, USFWS protocol surveys were conducted for coastal California gnatcatcher (CAGN), least Bell's vireo (LBV), and southwestern willow flycatcher (SWFL) in 2013. Focused bat surveys were also conducted in 2013. No CAGN, LBV, or SWFL were detected in the BSA during protocol surveys or other surveys, and suitable habitats for these species within the BSA were concluded to be unoccupied. Focused bat surveys identified two CDFW bat species in the BSA, but no roosting sites were documented.

The following seven sensitive wildlife species were detected within the BSA during surveys:

- bald eagle (*Haliaeetus leucocephalus*), endangered species per CESA, CDFW Fully Protected species, protected under federal Bald and Golden Eagle Protection Act

- Cooper's hawk (*Accipiter cooperii*), CDFW Watch List species
- southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), CDFW Watch List species
- yellow warbler (*Dendroica petechia brewsteri*), CDFW Species of Special Concern
- yellow-breasted chat (*Icteria virens*), CDFW Species of Special Concern
- pallid bat (*Antrozous pallidus*), nonlisted CDFW Species of Special Concern
- western mastiff bat (*Eumops perotis californicus*), nonlisted CDFW Species of Special Concern

The locations of the sensitive wildlife species observations within the BSA are shown in Figure 3.3-4.

In addition to special-status species listed above, several non-special-status bird species were detected that are subject to the federal Migratory Bird Treaty Act (MBTA).

<u>Wildlife Corridors</u>

Water impounded within Lake Wohlford represents a high-value resource to wildlife species, and the presence of undeveloped land within and adjacent to the BSA makes the area important to local wildlife movement. In general, wildlife species are likely to use habitat in the BSA for movements related to home range activities (foraging for food and water, defending territories, searching for mates, breeding, and cover). Movement would likely be concentrated in the riparian and wetland habitat because these areas may provide greater foraging opportunities and cover.

Regulatory Setting

<u>Federal Regulations</u>

Federal Endangered Species Act

Congress passed the federal ESA (16 United States Code [U.S.C.] 1531 et seq.) in 1973 to protect species that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range, including all regulations made public pursuant to that act. ESA provides for the protection, recovery, and conservation of fish, wildlife, and plants that have

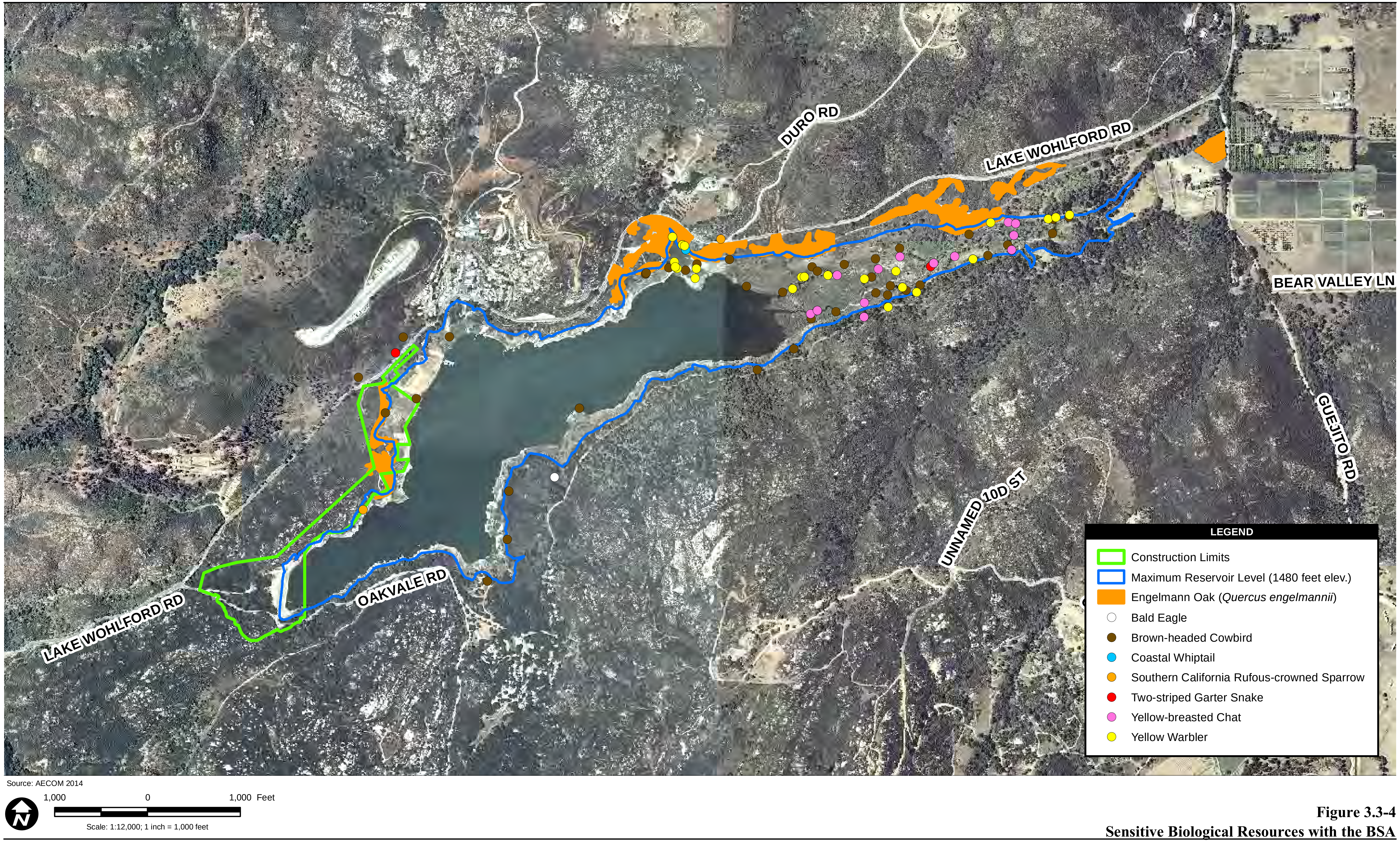

Figure 3.3-4
Sensitive Biological Resources with the BSA

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been federally listed as threatened or endangered. ESA prohibits the take, harm, or harassment of, species listed as threatened or endangered by USFWS or the National Marine Fisheries Service.

Bald and Golden Eagle Protection Act

The federal Bald and Golden Eagle Protection Act of 1940, with multiple amendments, provides for protection of the golden eagle nationwide by prohibiting the taking of eagles, including their parts, nests, or eggs. The act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb." This act is relevant to the project because bald eagles are known to forage in the area. The portion of the act most relevant to this project is "disturb." "Disturb" is defined in the Bald and Golden Eagle Protection Act as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle; (2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior."

Clean Water Act of 1972

The Clean Water Act (CWA) is the primary federal law dealing with surface water quality control and protection of beneficial uses of the nation's waters, including lakes, rivers, aquifers, and coastal areas. Section 404 of the CWA establishes a permit program, administered by USACE, regulating discharge of dredged or fill materials into waters of the U.S., including wetlands. Activities in waters of the U.S. that are regulated under this program include fills for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and conversion of wetlands to uplands for farming and forestry. CWA Section 404 permits are issued by USACE. Pursuant to Section 401 of the CWA, RWQCB certifies that any discharge into jurisdictional waters of the U.S. will comply with state water quality standards. RWQCB, as delegated by USEPA, has the principal authority to issue a CWA Section 401 water quality certification or waiver.

Migratory Bird Treaty Act

The MBTA (16 USC Sections 703–712) makes it unlawful to take or possess migratory birds, except as permitted by USFWS. The MBTA protects all migratory bird, their eggs, their body parts, or their nests. "Take" under the MBTA is defined "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect" protected birds (50 Code of Federal Regulations [CFR] 10.12). The current list of species protected by the MBTA includes several hundred species. Nearly all native birds in the San Diego region are considered migratory. No permit is issued under the MBTA.

Executive Order 11990 – Protection of Wetlands

Executive Order (EO) 11990 is an overall wetlands policy for all agencies managing federal lands, sponsoring federal projects, or providing federal funds to state or local projects. EO 11990 requires that when a construction project involves wetlands, a finding must be made by the federal agency that there is no practicable alternative to such construction, and that the proposed action includes all practicable measures to minimize impacts to wetlands resulting from such use.

State Regulations

California Endangered Species Act of 1970

CESA was established by CDFW in Sections 2050 through 2068 of the California Fish and Game Code. CESA provides for the conservation, protection, restoration, and enhancement of any state endangered or threatened species and its habitat while allowing for the lawful take of such species provided that the take is incidental, minimized, fully mitigated for with adequate funding and does not jeopardize the continued existence of the listed species. The requirements of an application for incidental take under CESA are described in Section 2081 of the California Fish and Wildlife Code. Incidental take of state-listed species may be authorized if an applicant submits an approved plan that minimizes and "fully mitigates" the impacts of the take.

California Natural Community Conservation Planning Act of 1991

The Natural Community Conservation Planning Act takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity by the state, and numerous private and public partners. A Natural Community Conservation Plan (NCCP) identifies and provides for the regional or areawide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity through an agreement between CDFW and the local jurisdiction.

California Fish and Game Code

Section 1600. Pursuant to Section 1600 et seq. of the California Fish and Game Code, CDFW is authorized to regulate any activity that would alter the flow, bed, channel, or bank of streams and lakes. Jurisdictional waters of the state include the channel, bed, or bank of a lake, river, or stream. Riparian habitats do not always have identifiable hydric soils, or clear evidence of wetland hydrology as defined by USACE. Therefore, CDFW wetland boundaries often include, but extend beyond, USACE wetland boundaries. Jurisdictional boundaries under California Fish and Game Code Section 1600–1616 (CDFW's Lake and Streambed Alteration Program) may encompass an area that is greater than that under the jurisdiction of the CWA Section 404. Therefore, jurisdictional waters of the state include jurisdictional waters of the U.S.; federal and state jurisdictions do overlap, but would remain distinct for regulatory administration and permitting purposes.

<u>Section 3503</u>. Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. This statute does not provide for the issuance of any type of incidental take permit.

<u>Fully Protected Species</u>. Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species and do not provide for authorization of incidental take of fully protected species.

Porter-Cologne Water Quality Control Act of 1969

Pursuant to Section 13000 et seq. of the California Water Code (Porter-Cologne Water Quality Control Act), RWQCB is authorized to regulate activity that would result in discharges of waste and fill material into waters of the state, including "isolated" waters and wetlands. Waters of the state include any surface or groundwater within the boundaries of the state (California Water Code Section 13050[e]).

<u>Local Regulations</u>

City of Escondido General Plan, Resource Conservation Element

The Resource Conservation Element's purpose is to identify biologically important open space areas and establish polices for developing a comprehensive system that includes natural areas in concert with the NCCP as well as existing and planned park and trail recreational amenities (City of Escondido 2012a).

Policies most relevant to the project are listed in the Biological and Open Space Resources Section:

> *Biological and Open Space Resources Policy 1.6:* Preserve and protect significant wetlands, riparian, and woodland habitats as well as rare, threatened or endangered plants

> and animals and their habitats through avoidance. If avoidance is not possible, require mitigation of resources either on- or off-site at ratios consistent with State and federal regulations, and in coordination with those agencies having jurisdiction over such resources.
>
> *Biological and Open Space Resources Policy 1.7:* Require that a qualified professional conduct a survey for proposed development projects located in areas potentially containing significant biological resources to determine their presence and significance. This shall address any flora or fauna of rare and/or endangered status, declining species, species and habitat types of unique or limited distribution, and/or visually prominent vegetation.

Additionally applicable policies are listed in the Water Resources and Quality Section:

> *Water Resources and Quality Policy 6.2:* Protect the surface water resources in the city including Lake Wohlford, Dixon Lake, Lake Hodges, Escondido Creek, and other waterways.
>
> *Water Resources and Quality Policy 6.6:* Control encroachments into wetlands and designated floodways to protect the community's water resources.
>
> *Water Resources and Quality Policy 6.7:* Prohibit development in the areas around Lake Wohlford, Dixon Lake, or Lake Hodges that would detract from their use as watershed areas or as visual and recreational amenities.

County of San Diego Biological Mitigation Ordinance

The BMO is the implementing ordinance for the Multiple Species Conservation Program County Subarea Plan and pertains to discretionary actions of the County. This project is not a discretionary action of the County, but the BMO is used in this EIR to assess the project's habitat impacts and identify habitat-based mitigation (see discussion under Biological Study Area portion of Section 3.3.1). The BMO assigns habitat a tier according to their ecological value, and assigns mitigation ratios to those tiers, which are lower if mitigation occurs inside a Biological Core and Linkage Area (BCLA) and higher if mitigation occurs outside a BCLA.

3.3.2 Significance Criteria

The guidelines used for the determination of significance for biological resources impacts are based on City guidelines. The effects of a project on biological resources would be considered significant if the project would do the following:

1. 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.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service.
3. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
4. 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.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Project impacts can be considered direct or indirect, and permanent or temporary, as defined below.

<u>Direct</u>: Direct impacts are caused by the project and occur at the same time and place as the project. Any alteration, disturbance, or destruction of biological resources that would result from project-related activities is considered a direct impact. Direct impacts could include injury, death, or harassment of listed and/or sensitive species, or destruction of habitats necessary for species breeding, feeding, or sheltering. Direct impacts to plants can include crushing of adult plants, bulbs, or seeds.

<u>Indirect</u>: Indirect impacts may occur later in time or at a place that is farther removed in distance from the project than direct impacts, but are still reasonably foreseeable and attributable to project-related activities. Examples include habitat fragmentation; elevated noise, dust, and lighting levels; changes in hydrology, runoff, and sedimentation; decreased water quality; soil compaction; increased human activity; and the introduction of invasive wildlife or plants.

Permanent: All impacts that result in the irreversible removal of biological resources are considered permanent. Impacts are considered irreversible if filling activities result in an elevation (gradient) change or an impervious surface. Examples include constructing a building or permanent road on an area containing biological resources.

Temporary: Any impacts considered to have reversible effects on biological resources can be viewed as temporary. For the purpose of this project, if preconstruction contours are maintained and the area can be revegetated in place, then the impact is considered temporary. Examples include the generation of fugitive dust during construction or removing vegetation and then allowing the natural vegetation to recolonize the impact area.

3.3.3 Impact Analysis

This section addresses project-related impacts on sensitive biological resources. For purposes of this CEQA analysis, impacts are considered direct and permanent where vegetation will be cleared during construction and replaced by a permanent facility or feature, including the replacement dam and downstream infrastructure, the Oakvale Road excavation and road realignment, and the access road. Impacts are considered direct and temporary in areas that will be disturbed by project construction activity, but where revegetation will occur as part of the project. Temporary indirect impacts would occur in the 500-foot buffer surrounding the construction LOD as a result of construction activity. Indirect impacts would occur as a result of reestablishing the reservoir to its prior condition and subject to occasional elevation and receding of water levels.

***Criterion 1*: Would the project 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 Game or U.S. Fish and Wildlife Service?**

Oakvale Road Realignment

Plant Species

No sensitive plant species were observed within the Oakvale Road realignment project area during the general and rare plant surveys. Thus, no significant direct or indirect adverse effects to sensitive or special-status plant species would occur during this aspect of the project.

Wildlife Species

No special-status wildlife species were observed within the Oakvale Road impact area during surveys conducted for the project. The Oakvale Road portion of the project area was not included in any of the USFWS protocol bird surveys performed for the project due to lack of appropriate habitat. No bird nests were observed in the Oakvale Road project area. One individual bald eagle, which is listed as endangered pursuant to CESA, was observed flying overhead along the edge of the reservoir approximately 0.6 mile northeast of the Oakvale Road project area. Eagles that nest in Ramona are known to visit Lake Wohlford to fish but are not known to nest in the vicinity of Lake Wohlford.

Although no special-status bird species were identified in the Oakvale Road impact area during project biological resources surveys, significant direct and indirect impacts on listed bird species and other bird species protected by the federal MBTA may occur if their nests are established in the impact area prior to initiating construction activities. These species may include the state-listed endangered bald eagle, which is also protected under the federal Bald and Golden Eagle Protection Act. If nests are established in the Oakvale Road impact area prior to construction, this aspect of the project could result in direct construction-related impacts to birds in the form of habitat destruction, and potentially death, injury, or harassment of nesting birds, their eggs, and their young. Indirect impacts would potentially result from construction noise affecting breeding activity in nests established adjacent to the limits of disturbance. Additionally, use of lighting during nighttime construction could disrupt species in adjacent habitat or cause increased predation rates. Indirect impacts from these construction-related activities would be temporary, as these impacts would end with cessation of project construction. Potential direct and indirect impacts to special-status species and birds protected by the MBTA would be considered significant (**Impact BIO-1**) and warrant mitigation, as discussed below in Section 3.3.4.

Direct impacts on special-status reptiles and mammals are not anticipated as a result of this phase of the project because none were observed in the vicinity of the proposed construction area during project surveys. Therefore, this impact would be less than significant.

<u>Replacement Dam and Access Road</u>

Plant Species

One special-status plant species, Engelmann oak, was identified in the LOD for this phase of the project. Based on the current LOD, approximately 2.36 acres of Engelmann oak woodland are located in the anticipated disturbance area for the staging yard and east portion of the access road, as shown in Figure 3.3-3. Engelmann oaks exist in the area of the LOD that is anticipated to be cleared for the batch plant and along the portion of existing trail that would be improved for the access road. Removal of Engelmann oaks would be considered a significant impact (**Impact BIO-2**) and warrants mitigation, as discussed below in Section 3.3.4. Mitigation for Engelmann oaks removed for project construction would be provided by the habitat-based mitigation for this vegetation community, as discussed below under Criterion 2. Additional mitigation is identified in Section 3.3.4 under Impact BIO-2 to limit the amount of Engelmann oaks cleared for project construction, which may reduce the actual acreage subject to direct impact and acreage-based mitigation.

As shown in Figure 3.3-3, there are Engelmann oaks just outside the LOD that are not anticipated to be cleared for project construction. These individuals are on the fringes of the populations that would be cleared, and are located both upslope and downslope of the proposed construction area. Accordingly, the project may result in indirect impacts on these special-status plant species during construction. Grading has the potential to create airborne dust, sedimentation, and erosion that would affect these species. Construction-generated fugitive dust can adversely affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration. Runoff, sedimentation, and erosion can adversely impact plant populations by damaging individuals or by altering site conditions so as to favor other species, including exotic nonnatives, that could competitively displace native plants. Construction activity adjacent to sensitive plant communities is a significant impact, as addressed further under Criterion 2.

Wildlife Species

Coastal sage scrub areas in the LOD, in the vicinity of the access road and staging yard, were identified as suitable habitat for CAGN and were included in the USFWS protocol survey area for this species, as shown in Figure 3.3-4. CAGN were not documented during this survey. Therefore, this habitat is not considered occupied, and the project would not result in an impact on occupied CAGN habitat.

An individual rufous-crowned sparrow, a CDFW Watch List species, was observed in the LOD, south of the proposed access road alignment during protocol-level CAGN surveys. Suitable nesting/breeding habitat for rufous-crowned sparrow is present in the construction LOD. The project would result in a direct impact on habitat for this species by removing Diegan coastal sage scrub in the LOD. Cooper's hawks were observed during project surveys in riparian habitat on the eastern side of the reservoir, but not in the LOD. Cooper's hawks are known to nest in oak woodlands, and suitable habitat for Cooper's hawk is located in the LOD, including in the dam construction area and the staging yard site. The project would result in a direct impact on habitat for this species by removing oak woodland. These habitat-based impacts are addressed below under Criterion 2, and habitat-based mitigation for that impact is addressed in Section 3.3.4.

Potential direct and indirect impacts on individuals, nests, and breeding activity on these species is the same impact previously identified as Impact BIO-1 discussed above for the Oakvale Road component of the project, and would require implementation of Mitigation Measure BIO-1.1. With incorporation of these mitigation measures, the project's impact on rufous-crowned sparrow and Cooper's hawk would be reduced to a less than significant level.

Although bald eagle, a state-listed endangered species, was documented at Lake Wohlford, its known roosting area at the reservoir is on the south side and outside of the construction LOD, and there are no known nesting locations in the BSA; therefore, no significant direct impact to bald eagle is anticipated. Project-related construction activities may occur when bald eagles are present at the reservoir, but construction would be limited to the west/northwest end of the reservoir, leaving the vast majority of fishing territory around the reservoir available for eagle use. The project's impact on bald eagle would be less than significant.

Similar to the Oakvale Road realignment, the access road and dam construction phase has the potential to result in direct and indirect construction-related impacts to birds subject to MBTA. Direct impacts to birds protected by the MBTA for this phase of the project are the same as those identified for the Oakvale Road component (Impact BIO-1), which is addressed above.

The pallid bat and the western mastiff bat are considered CDFW Species of Special Concern at roosting sites. These two species of bats were detected flying and foraging within the BSA, but they were not documented roosting within the LOD, and it is anticipated that these species do not roost within the BSA. Therefore, the project's impact on pallid bat and western mastiff bat would be less than significant.

<u>Restoration of Water Levels</u>

Plant Species

Engelmann oak woodland is identified along the northern fringes of the maximum inundation. The oaks in the maximum inundation area are part of populations located farther north. After the replacement dam is built, the reservoir would return to its prior state and be subject to seasonal and temporal fluctuation in water levels. Oak roots, particularly Engelmann oaks, are adversely affected by constantly saturated soil. If the reservoir reaches its maximum level, the roots of some Engelmann oaks would become submerged, but this full extent of inundation would be rare and, based on historic data provided above in Figure 2-2, would be short term. Furthermore, these oaks in this part of the reservoir were subject to similar conditions prior to the mandatory drawdown. After completion of the project, reservoir levels would continue their seasonal and temporal fluctuation, reverting to pre-drawdown conditions. Therefore, restoration of water levels would have a less than significant impact on special-status plant species.

Wildlife Species

Coastal sage scrub in the maximum inundation area was identified as suitable habitat for CAGN and was included in the USFWS protocol survey area for this species, as shown in Figure 3.3-4. CAGN were not documented during this survey. Therefore, this habitat is not considered occupied, and the project would not result in an impact on occupied CAGN habitat.

Riparian habitat in the maximum inundation area was identified as suitable habitat for LBV and SWFL and was included in the USFWS protocol survey area for these species, as shown in Figure 3.3-4. LBV and SWFL were not documented during this survey. Therefore, this habitat is not considered occupied, and the project would not result in an impact on occupied LBV or SWFL habitat. Cowbird observations were noted during LBV and SWFL surveys, since presence of this nest parasite can often indicate a negative influence on breeding success by LBV and SWFL.

Cooper's hawks were observed in the riparian and oak woodland habitat in the maximum inundation area and are also potentially breeding on-site. Yellow warblers and yellow-breasted chats were found in the riparian habitat present in the maximum inundation area and are potentially breeding on-site. After the replacement dam is built, the reservoir would return to its condition prior to the mandatory drawdown and be subject to seasonal and temporal fluctuation in water levels. Riparian habitat would occasionally be flooded and then uncovered when the water recedes. This does not represent a change in conditions from before the drawdown, and the project would not result in a significant impact these nonlisted bird species.

***Criterion 2*: Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS?**

Sensitive natural communities for purposes of this analysis are those habitat types identified as Tier I, II, or III in the BMO, as described above in Section 3.3.1, and wetlands communities under jurisdiction of USACE, RWQCB, and CDFW. Impacts on these communities are described below.

Oakvale Road Realignment; Replacement Dam and Access Road

The project would clear existing habitat within the LOD to create areas suitable for construction work. Permanent direct impacts would occur where vegetation would be removed within the construction LOD and replaced with a permanent feature such as the dam and its appurtenant structures, the access road, and the graded slope adjacent to Oakvale Road. Where vegetation is removed from work areas that do not include permanent project features, revegetation would occur on-site, as conditions allow. Cleared areas would include the Oakvale Road excavation, the construction zone west of the existing dam, the slope northeast of the existing dam for construction of the access road, and the batch plant area in the staging yard.

Table 3.3-3 provides a summary of potential direct impacts that would occur to vegetation communities, including sensitive and riparian habitats and other cover types within the LOD.

Table 3.3-3
Direct Impacts to Vegetation Communities and Cover Types within the Limits of Disturbance

Vegetation Community	Sensitive Habitat	Impacts within the LOD (acres)
Riparian and Wetlands (jurisdictional waters)		
Lakeshore	Yes	1.25
Open Water	Yes	2.12
Southern Willow Scrub	Yes	0.41
Subtotal Riparian and Wetlands		***3.78***
Uplands		
Engelmann Oak Woodland	Yes	2.36
Coast Live Oak Woodland	Yes	8.01
Diegan Coastal Sage Scrub	Yes	4.31
Nonnative Grassland	Yes	2.60
Southern Mixed Chaparral	Yes	8.58
Subtotal Uplands		**25.86**
Other Cover Types		
Urban/Developed	No	4.00
Subtotal Other Cover Types		**4.00**
Total Acres		**33.64**

As shown in Table 3.3-3, project implementation within the LOD would result in direct, permanent impacts to seven sensitive vegetation communities including 1.25 acres of lakeshore, 0.41 acre of southern willow scrub, 2.36 acres of Engelmann oak woodland, 8.01 acres of coast live oak woodland, 4.31 acres of Diegan coastal sage scrub, 2.60 acres of nonnative grassland, and 8.58 acres of southern mixed chaparral. As noted in the Oakvale Road MND, that component of the project would result in impacts on two sensitive vegetation communities: coast live oak woodland (1.71 acres) and chaparral (1.52 acres). The remaining project impacts listed above are related to dam and access road construction. Direct impacts from removal or disturbance of sensitive habitat are a significant impact (**Impact BIO-3**), and mitigation is listed in Section 3.3.4. An exception to this is open water impacts, which are not considered significant because this habitat type would be fully replaced on-site by open water habitat after completion of construction, and because open water acreage would expand as the existing dam is removed and this area is inundated. Therefore, no mitigation would be provided for open water impacts in the LOD.

As outlined in the discussion of potential temporary indirect impacts to Engelmann oak woodland adjacent to the LOD, construction work elsewhere in the LOD would be conducted adjacent to sensitive communities and result in similar indirect impacts as described for Engelmann oak woodland, including dust, sedimentation, and erosion. Construction activity adjacent to sensitive plant communities is a significant impact (**Impact BIO-4**), and mitigation is provided in Section 3.3.4.

Restoration of Water Levels

In addition to these direct habitat impacts due to construction, the project would inundate habitat around the rim of the reservoir as water levels increase following project construction. In this sense, the reservoir would return to conditions prior to the drawdown. Although the 1,480-foot elevation is shown for information purposes in this report, the reservoir would not necessarily be filled immediately after construction; rather, water levels would be subject to seasonal and temporal fluctuations depending on the availability of water. Habitat along the fringe of the reservoir would be inundated and then exposed again as these cycles continue, and habitat communities will continue to change over time. As the reservoir level increases and the area of inundation expands, similar wetland communities are expected to reform along the edge of the expanded water level, but this habitat type-conversion is a complicated process and the ultimate composition and distribution of vegetation adjacent to the new shoreline cannot be predicted with certainty. Because this represents a return to conditions at Lake Wohlford prior to the mandatory drawdown, habitat inundation is a less than significant impact and does not warrant off-site mitigation.

***Criterion 3*:** **Would the project have a substantial adverse effect on federally protected wetlands through direct removal, filling, hydrological interruption, or other means?**

Oakvale Road Realignment

No wetlands occur on the project site for the Oakvale Road realignment components of the project. Thus, no adverse direct or indirect impacts would result to federally protected wetlands due to the Oakvale Road realignment.

Replacement Dam and Access Road

Potential impacts to jurisdictional waters in the LOD as a result of dam construction are listed in Table 3.3-4. Some of these impacts overlap with the impacts to similar vegetation community impacts noted in Table 3.3-3, but represent only the jurisdictional wetlands and waters as delineated in the field. The primary impact on wetlands occurs in the downstream construction area, where the project would result in impacts on approximately 6.10 acres of coast live oak woodland, which is jurisdictional exclusively of CDFW. Some of these impacts would be permanent due to the placement of new downstream facilities and would be considered permanent loss of jurisdictional waters of the state (including wetlands). Impacted areas that are cleared for construction staging and access purposes and do not feature permanent structures would be subject to on-site restoration and would be considered temporary. Acreages of permanent and temporary impacts would be solidified during the project's permitting phase.

Table 3.3-4
Impacts to Waters of the U.S. and State in the LOD

Type of Jurisdictional Waters	Type of Habitat (Holland 1986; Oberbauer et al. 2008)	Impacts (Acres/Linear Feet)[1]
Waters of the U.S. (USACE, RWQCB, and CDFW)		
Wetland	Southern Willow Scrub	0.04
Other Waters	Open Water	2.12
Other Waters	Lakeshore	0.44
Other Waters	Urban/Developed (Dam)	0.48
Subtotal Waters of the U.S.		*3.08*
Waters of the State, Exclusively CDFW		
Riparian Canopy	Southern Willow Scrub	0.37
Riparian Canopy	Coast Live Oak Woodland	6.10
Riparian Canopy	Engelmann Oak Woodland	0.37
Other Waters	Lakeshore	0.73
Subtotal Waters of the State, Exclusively CDFW		*7.57*
Grand Total Jurisdictional Waters		**10.65**

[1] Jurisdictional waters acreage of the BSA was determined by using ArcGIS. All acreages are rounded to the nearest hundredth (which may account for minor rounding error).

Impacts to riparian habitats, wetlands, and jurisdictional waters within the LOD shall require the following permits by regulatory federal and state agencies: (1) USACE CWA Section 404 permit for placement of dredged or fill material within waters of the U.S.; (2) RWQCB CWA Section

401 state water quality certification/waiver for an action that may result in degradation of waters of the state; and (3) CDFW California Fish and Game Code Section 1602 agreement for alteration of a streambed.

The project's potential to have direct impacts on wetlands is significant (**Impact BIO-5**), and mitigation is provided below in Section 3.3.4.

Potential indirect impacts to the jurisdictional waters surrounding the LOD would occur as a result of construction activity, which would occur within and upslope from jurisdictional areas, including Escondido Creek in the downstream construction area and the reservoir in the access road construction area and staging yard. Potential temporary, indirect impacts would occur as a result of grading activities creating airborne dust and potentially off-site erosion and sedimentation. Water quality in jurisdictional areas can be adversely affected by surface water runoff and sedimentation during construction. The use of petroleum products (e.g., fuels, oils, and lubricants) and erosion of cleared land during construction could potentially impact surface water in the reservoir. Temporary retention basins have been incorporated into the project to capture construction runoff before it can flow into jurisdictional areas, which will limit the project's impact on these jurisdictional features. The project's potential to have an indirect impact on jurisdictional waters is a significant impact (**Impact BIO-6**), and mitigation is provided below in Section 3.3.4.

Restoration of Water Levels

After the replacement dam is built, the reservoir would return to its prior state and be subject to seasonal and temporal fluctuation in water levels. Some wetlands established at the fringe of the reservoir would become submerged and others would be subject to the occasional inundation and exposure as the water level rises and recedes, similar to conditions before the mandatory drawdown. This would likely lead to a gradual shifting in wetland habitat types, primarily in the reservoir's long eastern arm. There would be no loss of jurisdictional wetland habitat from returning the reservoir to this prior condition, but rather wetlands types would be converted to other wetlands types. Because this represents a return to the reservoir's prior conditions, inundation of jurisdictional wetlands outside the LOD would not be a significant impact subject to mitigation.

Criterion 4: **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?**

Oakvale Road Realignment; Replacement Dam and Access Road

Local wildlife movement in the immediate vicinity of the new dam construction may experience temporarily direct impacts due to construction activities. Construction would entail activity in a location currently open and available for wildlife to use and move through. Construction would include installation of fencing in some areas, presence of people and equipment, and noise generation, all of which could interfere with or discourage the movement of wildlife through the immediate area. However, these activities would be generally located along the fringe of a currently developed area, including the existing dam and areas of human activity such as the marina and Lake Wohlford Road. The open nature of the area beyond the LOD would allow for continued movement of wildlife through the area and would not substantially restrict access to the reservoir or associated habitats. For these reasons, potential temporary impacts to wildlife movement due to project construction would be considered not adverse and less than significant.

The proposed project may result in a minor permanent impact on local wildlife movement due to the expanded footprint of the developed area downstream of the dam and by the associated realignment of Oakvale Road. However, these project areas do not represent large-scale migratory wildlife corridors, so this impact would be less than significant. Lake Wohlford is not habitat for migratory fish and the BSA does not support any wildlife nursery sites, so there would be no impact with respect to those features. The Oakvale Road project would realign an existing feature that local wildlife must currently traverse, and realignment would not add a new hazard or barrier to wildlife movement. Permanent direct impacts to wildlife movement would be less than significant.

Restoration of Water Levels

Raising the water level within the reservoir would inundate riparian and wetland vegetation along the fringe of the reservoir, which would have a minor effect on localized wildlife movement for resident species. Areas beyond the inundation limits would continue to be available for wildlife movement, so this aspect of the project would not result in a significant impact. From the perspective of regional wildlife movement, the project is anticipated to provide a moderate increase to regional corridor values as the surface area of the reservoir increases. For these reasons, the project's impacts on wildlife movement would be less than significant.

Criterion 5: **Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

Oakvale Road Realignment; Replacement Dam and Access Road; Restoration of Water Levels

Project compliance with the City General Plan policies listed above in the Regulatory Setting section is discussed below.

Biological and Open Space Resources Policy 1.6: The project proposes an important infrastructure project located in an area that features significant biological resources, as described throughout this section. Full avoidance of these resources is not possible, so the project will entail mitigation at ratios stated in the BMO. The project complies with this General Plan policy.

Biological and Open Space Resources Policy 1.7: Biological resources surveys of the BSA were conducted by qualified professionals, who identified sensitive resources requiring mitigation. The project complies with this General Plan policy.

Water Resources and Quality Policy 6.2: The project is intended in part to return the City's water storage capacity at Lake Wohlford. The project complies with this General Plan policy.

Water Resources and Quality Policy 6.6: The project would entail construction impacts in wetlands that are necessary to implement this water resources infrastructure project, which would protect the community's water resources. The project complies with this General Plan policy.

Water Resources and Quality Policy 6.7: The project does not propose development around Lake Wohlford. The project complies with this General Plan policy.

The project would not conflict with any of the applicable local policies protecting biological resources; therefore, this impact would be less than significant.

The discussion provided under the Oakvale Road realignment would also be applicable to the restoration of water levels in the reservoir. The restoration of water to historic levels would require that some sensitive resources, including mature Engelmann oak trees and emergent wetlands, be inundated and the resource lost. However, the project would provide mitigation at the appropriate ratios to reduce the effects. Thus, the restoration of water levels would not conflict with any local policies or ordinances protecting biological resources and the impact would not be adverse and would be less than significant.

***Criterion 6*: 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?**

Oakvale Road Realignment; Replacement Dam and Access Road; Restoration of Water Levels

The project is within the boundaries of the draft NCMSCP and the draft City of Escondido Subarea Plan. However, because both plans are in draft form and have not been adopted and implemented, mitigation for impacts would not be covered by these plans. In the absence of an approved subarea plan or Habitat Loss Permit process in the City, this project's impacts on sensitive habitat and its relationship to the City's habitat conservation planning efforts are addressed through the CEQA process. Adequate mitigation per the County's BMO is required for significant biological resource impacts and in coordination with the wildlife agencies as part of this CEQA document. Thus, the Oakvale Road realignment would not conflict with the provisions of an adopted habitat conservation plan; NCCP; or other approved local, regional, or state habitat conservation plan and would result in a not adverse and less than significant impact.

3.3.4 Significant Impacts and Mitigation Measures

Impact BIO-1: The project would potentially result in direct and indirect impacts on special-status bird species or species covered by the MBTA if nests are established in the project area prior to construction (Criterion 1).

> **Mitigation Measure BIO-1.1:** If vegetation clearing or earthwork is proposed to commence within the bird breeding season (February 15 through September 15), a qualified biologist shall conduct pre-construction nest surveys of the project site and a 500-foot buffer to identify any listed species or bird breeding activity in the vicinity. The pre-construction survey shall be performed within 2 weeks of the start of construction activity. If the pre-construction surveys identify active nests or bird-breeding activity within the 500-foot buffer, a qualified biologist shall prepare a nest avoidance plan and, if necessary, a noise attenuation plan, to identify site-specific measures that shall be incorporated into the project to reduce construction-related impacts on the applicable bird species.
>
> **Mitigation Measure BIO-1.2:** All construction lighting shall be directed onto the construction work area and away from adjacent habitat. Light shields shall be used to reduce the extent of illumination into adjoining areas.

Impact BIO-2: The project would entail direct impacts on Engelmann oaks, a special-status plant species, due to clearing for construction work (Criterion 1).

Mitigation Measure BIO-2.1: Engelmann oaks outside the limits of disturbance will be identified as Environmentally Sensitive Areas on project plans. A qualified biologist will attend a pre-construction field meeting with the construction contractor to identify Engelmann oaks and refine the limits of disturbance to avoid unneeded clearing in areas supporting Engelmann oaks. Orange construction fencing will be installed around the locations of Engelmann oaks outside the agreed-upon limits of disturbance. Fencing shall remain in place until construction is complete to avoid inadvertent disturbance of sensitive resources.

Impact BIO-3: Project construction would result in direct impacts on sensitive vegetation communities due to clearing for construction (Criterion 2).

Mitigation Measure BIO-3.1: The City shall ensure that an on-site habitat restoration plan covering all areas disturbed during construction is prepared in consultation with a qualified restoration ecologist. The restoration plan will delineate all temporary impact areas subject to habitat restoration and establish standards for application of hydroseed and installation of container plants, as appropriate. The restoration plan shall include an appropriate native species planting palette to blend in with the existing and surrounding habitats. No nonnative species shall be incorporated into the restoration plan. Acreage of impacts that can be restored on-site after completion of the project will not be subject to acquisition of off-site mitigation listed in Mitigation Measures BIO-3.3 through BIO-3.9.

Mitigation Measure BIO-3.2: A restoration maintenance and monitoring plan shall be prepared for the project by a qualified restoration ecologist outlining yearly success criteria and remedial measures in case the mitigation effort falls short of the success criteria.

Because there is no approved subarea plan governing the project's impacts, the City proposes to mitigate for this project's permanent habitat impacts pursuant to the County's BMO, which assigns mitigation ratios based on habitat tiers and allows a lower ratio if mitigation occurs inside a BCLA and a higher ratio if mitigation occurs outside a BCLA. For permanent impacts that cannot be mitigated by on-site restoration, the City plans to mitigate for project impacts by purchasing credits at the City's Daley Ranch Conservation Bank, which would be considered a BCLA and would qualify for the lower mitigation ratios listed in the BMO. Mitigation acreage for each habitat type impacted by project construction is discussed below.

Table 3.3-5 lists the mitigation acreages at ratios in accordance with the San Diego County BMO. Open water impacts do not warrant off-site mitigation because they would be fully replaced on-site by open water habitat after completion of construction, and because open water acreage would expand as the existing dam is removed and this area is inundated. Mitigation measures specific to habitat types are provided below.

Table 3.3-5
Mitigation for Permanent Direct Impacts to Sensitive Vegetation Communities (acres)

Vegetation Community (BMO Tier)	Total Impacted Acreage	Mitigation Ratio[1]	Mitigated Inside BCLA	Mitigated Outside BCLA
Riparian and Wetlands (jurisdictional waters)				
Lakeshore (Tier I)	1.25	2:1 to 3:1	2.50	3.75
Open Water (Tier I)	2.12	N/A[2]	0.00	0.00
Southern Willow Scrub (Tier I)	0.41	2:1 to 3:1	0.82	1.23
Subtotal Wetlands	***3.78***	-	***3.32***	***4.98***
Uplands				
Engelmann Oak Woodland (Tier I)	2.36	2:1 to 3:1	4.72	7.08
Coast Live Oak Woodland (Tier I)	8.01	2:1 to 3:1	16.02	24.03
Diegan Coastal Sage Scrub (Tier II)	4.31	1.5:1 to 2:1	6.47	8.62
Nonnative Grassland (Tier I)	2.60	1:1 to 1.5:1	2.60	3.90
Southern Mixed Chaparral (Tier III)	8.58	1:1 to 1.5:1	8.58	12.87
Subtotal Uplands	***25.86***	**-**	***38.39***	***56.50***
Other Cover Types				
Urban/Developed	4.00[3]	N/A	-	-
Total	**33.64**	**-**	**41.71**	**61.48**

All acreages are rounded to the nearest hundredth (which may account for minor rounding error).
[1] Lower ratio applies where mitigation occurs inside a BCLA; higher ratio where outside a BCLA.
[2] Open water impacts do not warrant off-site mitigation because they would be fully replaced on-site by open water habitat after completion of construction.
[3] Urban/Developed not included in impacted acreage totals.

Mitigation Measure BIO-3.3: The City shall mitigate for impacts to 1.25 acres of lakeshore within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 2:1 ratio if the mitigation area is within the BCLA, totaling 2.50 acres, or at 3:1 if the mitigation area is outside the BCLA, totaling 3.75 acres.

Mitigation Measure BIO-3.4: The City shall mitigate for impacts to 0.41 acre of southern willow scrub within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 2:1 ratio if the mitigation area is within the BCLA, totaling 0.82 acre, or at 3:1 if the mitigation area is outside the BCLA, totaling 1.23 acres.

Mitigation Measure BIO-3.5: The City shall mitigate for impacts to 2.36 acres of Engelmann oak woodland within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 2:1 ratio if the mitigation area is within the BCLA, totaling 4.72 acres, or at 3:1 if the mitigation area is outside the BCLA, totaling 7.08 acres.

Mitigation Measure BIO-3.6: The City shall mitigate for impacts to 8.01 acres of coast live oak woodland within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 2:1 ratio if the mitigation area is within the BCLA, totaling 16.02 acres, or at 3:1 if the mitigation area is outside the BCLA, totaling 24.03 acres.

Mitigation Measure BIO-3.7: The City shall mitigate for impacts to 4.31 acres of Diegan coastal sage scrub within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 1.5:1 ratio if the mitigation area is within the BCLA, totaling 6.47 acres, or at 2:1 if the mitigation area is outside the BCLA, totaling 8.62 acres.

Mitigation Measure BIO-3.8: The City shall mitigate for impacts to 2.60 acres of nonnative grassland within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 1:1 ratio if the mitigation area is within the BCLA, totaling 2.60 acres, or at 1.5:1 if the mitigation area is outside the BCLA, totaling 3.90 acres.

Mitigation Measure BIO-3.9: The City shall mitigate for impacts to 8.58 acres of southern mixed chaparral within the LOD through creation and enhancement of suitable habitat or acquisition of suitable habitat credits at an approved mitigation bank. Mitigation acreage shall occur at a 1:1 ratio if the mitigation area is within the BCLA, totaling 8.58 acres, or at 1.5:1 if the mitigation area is outside the BCLA, totaling 12.87 acres.

Mitigation Measure BIO-3.10: To avoid incidental loss of sensitive habitat types during construction activities, Environmentally Sensitive Area fencing shall be installed along the limits of disturbance prior to the start of construction. In addition, grading limits shall be flagged or fenced, and grading shall not occur beyond this flagging/fencing. Location of fencing shall be confirmed by a qualified biological monitor. Construction crews shall be made fully aware of this boundary.

Impact BIO-4: The project would result in indirect impacts to sensitive vegetation communities adjacent to construction work areas (Criterion 2).

In addition to the measures stated below specific to Impact BIO-4, Mitigation Measure BIO-3.10, stated above, would be implemented to ensure sensitive areas are identified in the field and flagged or fenced to prevent unauthorized access. Additional measures are listed below.

Mitigation Measure BIO-4.1: Storage of soil or fill material from the project site shall be within the LOD or developed areas. The contractor shall delineate stockpile areas on the grading plans for review by the City.

Mitigation Measure BIO-4.2: If additional access routes are determined necessary, these areas shall be surveyed for biological resources prior to their use and, if any sensitive resources are identified, determine appropriate avoidance and minimization measures. The contractor shall clearly mark all access routes (i.e., flagged and/or staked) prior to the onset of construction.

Mitigation Measure BIO-4.3: The contractor shall periodically monitor the work area to ensure that construction-related activities do not generate excessive amounts of fugitive dust. Water shall be applied to the construction right-of-way, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions and topsoil erosion.

Impact BIO-5: The project would result in direct impacts on jurisdictional wetlands and waters due to clearing for construction (Criterion 3).

The vegetation communities that make up the jurisdictional wetlands and waters are included in the habitat-based mitigation listed pursuant to Mitigation Measures BIO-3.3, BIO-3.4, BIO-3.5, and BIO-3.6; this mitigation adequately accounts for the project's direct impacts on wetlands and waters. No additional habitat-based mitigation for jurisdictional wetlands is warranted.

Impact BIO-6: Project construction would occur within and adjacent to delineated wetlands and waters and potentially result in indirect impacts to jurisdictional areas (Criterion 3).

Mitigation Measure BIO-6.1: A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared to comply with RWQCB requirements. The SWPPP shall identify the design features and best management practices (BMPs) that will be used to manage drainage-related issues (e.g., erosion and sedimentation) during construction. Erosion-control measures shall be regularly checked by the contractor, the project biologist, and/or City staff. Specific BMP plans shall be reviewed by the City and the project biologist, and be modified, if necessary, prior to implementation. Fencing and erosion-control measures of all project areas shall be inspected a minimum of once per week.

Mitigation Measure BIO-6.2: Staging areas and project activities, including equipment access and disposal or temporary placement of excess fill, shall be prohibited within off-site drainages.

With the implementation of Mitigation Measures BIO-1.1 through BIO-6.2, as described above, all impacts related to biological resources would be reduced to less than significant.

3.4 CULTURAL RESOURCES

The cultural resources section of this EIR focuses on the identification of archaeological and historical sites, or cultural resources, within the cultural resources area of potential effects (APE) associated with the project. The project APE encompasses environment resources that may be directly or indirectly affected by the dam replacement, realignment of Oakvale Road, and the raised water levels following dam replacement. The APE was established as the physical limits of both temporary and permanent project activities, including adjacent areas that may contain potentially historic built environment resources in immediate range of project activities.

The cultural resources analysis in this EIR is based on information and evaluation provided in two technical reports: *Historic Resources Survey Report for the Lake Wohlford Dam Replacement Project* (AECOM 2014c) and *Cultural Resources Inventory for the Lake Wohlford Dam Replacement Project* (Affinis 2013). The technical reports are provided as Appendix E and Appendix F, respectively. Appendix B of the Affinis report is a confidential appendix that is unavailable to the public due to the sensitivity of the information it presents. This confidential appendix can only be viewed by authorized individuals and is omitted from the publically accessible version of this EIR.

3.4.1 Existing Conditions

The project and APE are located in Township 11 South, Range 1 West, Sections 32–34, with portions in Township 12 South, Range 1 West, Sections 4 and 5, on the USGS 7.5' Valley Center and Rodriguez Mountain quadrangles. Information on existing conditions with respect to historic resources and archaeological resources is discussed below, beginning with a discussion of the methodology followed to identify and document existing resources.

Methodology

The presence and, in the case of historical resources, the significance of cultural resources within the APE was determined based on archival research and pedestrian surveys completed as part of the two technical reports prepared for the project.

The historical resources survey methodology included review of historic USGS topographic maps and historic photographs, review of a records search results from the South Coastal Information Center (SCIC) at San Diego State University, a general reconnaissance survey of the project vicinity, and an intensive survey of the APE. In addition to the SCIC research, AECOM staff also reviewed archival collections at the following repositories:

- California Department of Water Resources Division of Safety and Dams, Sacramento
- City of Escondido Utilities Department, Escondido
- Escondido History Center, Escondido
- San Diego History Center, San Diego
- Water Resources Collections and Archives at the University of California, Riverside

Lake Wohlford Dam was assessed for eligibility for inclusion in the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR).

For listing in the NRHP or to be considered a historic property, a resource must meet one or more of the following criteria:

- It is associated with events that have made a significant contribution to the broad patterns of our history;
- It is associated with the lives of persons significant in our past;
- It embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or,
- It has yielded, or may be likely to yield, information important in prehistory or history.

For listing in the CRHR or to be considered a historical resource under CEQA, a resource must be significant at the local, state, or national level under one or more of the following criteria:

- It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
- It is associated with the lives of persons important to local, California, or national history;
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
- It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

For the archaeological resources survey, Affinis conducted an SCIC records search in June 2013. The Native American Heritage Commission (NAHC) was contacted for a Sacred Lands File

Check and a list of contacts representing Native American tribes who may be interested in the project. Affinis sent letters to interested parties identified by the NAHC regarding the project.

The fieldwork for the archaeological survey was conducted in July and August 2013. To the extent feasible, the survey area was walked using parallel transects spaced 10 meters to 15 meters apart. In some areas, steep topography or very dense vegetation required different transect spacing or forays into areas of dense brush and granitic boulder outcrops. A significant portion of the property had very poor visibility while the remaining survey area had fair to good visibility. Some portions of the survey area could not be accessed, due to steep topography and thick brush. One area was not surveyed, as it was too marshy to walk, and a portion of the survey area adjacent to the Escondido Fish and Game Rifle Range could not be accessed due to active shooting. Efforts were made to contact the range to arrange access but were met with no return communication. The Historic Resources Survey Report did not assess archaeological resources within the project survey area for their NRHP or CRHR eligibility because the project was designed to avoid all identified resources.[3]

Cultural Setting

The following discussion of the project's cultural setting is summarized from lengthier discussions in the two cultural resources reports. Additional detail is available in Appendix E and Appendix F.

The earliest accepted archaeological manifestation of Native Americans in the San Diego area is the San Dieguito complex, dating to approximately 10,000 years ago. The material culture of the San Dieguito complex consists primarily of scrapers, scraper planes, choppers, large blades, and large projectile points. Malcolm Rogers considered crescentic stones to be characteristic of the San Dieguito complex as well (Rogers 1939). Tools and debitage made of fine-grained green metavolcanic material, locally known as felsite, were found at many sites that Rogers identified as San Dieguito.

The Lake Wohlford area generally lies between two ethnographic territories. The Cuyamaca complex in southern San Diego County is the archaeological manifestation of the forebears of the Kumeyaay people. The San Luis Rey complex, in the northern part of the county, represents the predecessors of the ethnohistoric Luiseño. Agua Hedionda Creek is often described as the division between the territories of the Luiseño and the Kumeyaay people, although various historic and ethnographic sources present somewhat varying maps and descriptions of traditional

[3] For purposes of CEQA analysis, this EIR takes the conservative assumption that these resources are eligible for listing and therefore are considered significant resources. This is not meant as a conclusion that the resources are actually eligible for listing, but only an assumption used in this analysis.

territories and use areas. The Lake Wohlford project is in a transitional area between the ethnographic territory of the Kumeyaay and the Luiseño people.

The beginning of the historic period in the San Diego area is generally given as 1769. It was that year that the Royal Presidio and the first Mission San Diego were founded on a hill overlooking Mission Valley. The Spanish Colonial period lasted until 1821 and was characterized by religious and military institutions bringing Spanish culture to the area and attempting to convert the Native American population to Christianity. Mission San Diego was the first mission founded in Southern California. Mission San Luis Rey, in Oceanside, was founded in 1798. *Asistencias* (chapels) were established at Pala (1816) and Santa Ysabel (1818).

In 1843, the project area became part of Rancho El Rincon del Diablo, which was granted to Juan Bautista Alvarado by the Mexican government. In 1860, this rancho was acquired by the Wolfskill brothers, who planted vineyards and raised sheep. In 1883, much of the area was purchased by the Escondido Company, a group of Stockton speculators that subdivided the property 3 years later. In 1886, a 12,000-acre tract was purchased by a group of investors that formed the Escondido Land and Town Company, which platted the City of Escondido. Aggressive land promotions during the latter half of the 1880s drew many people to the area, and although growth had slowed considerably during the 1890s because of economic instability, settlers continued to arrive in the back country, establishing small farms and ranches. Farming and ranching continued to be the major focus of Escondido's economy until the 1960s.

History of Lake Wohlford Dam

The City of Escondido incorporated in 1888, and the Escondido Irrigation District (EID) was formed a year later, encompassing 13,000 acres. In 1894, EID decided to create a dam in order to centralize its water storage and expand its capacity. The Escondido Dam (also the Bear Valley Dam and, later, Lake Wohlford Dam) was the first rockfill dam to be constructed in California for irrigation storage (Schuyler 1901, as referenced in AECOM 2014c). The distribution system that channeled water from the dam to EID customers consisted of 0.5 mile of canyon, and 31.5 miles of pipes, ditches, flumes, and lateral channels for irrigation. When completed in August 1895, the capacity of the EID system was not sufficient for the projected irrigation needs of the district, and it was estimated that it supplied less than a quarter of what the whole district would eventually require. As a result of this inadequacy to meet demand, plans to raise the height of the dam and to enlarge the reservoir were quickly conceived (Schuyler 1901, as referenced in AECOM 2014c).

The overwhelming cost of the system led EID stockholders to elect a new board of trustees in 1895, including banker Alvin Webster (A.W.) Wohlford. Disgruntled over the cost burden, landowners refused to pay their assessments. Without payments for the water supply to finance the operation of the system, the reservoir dried up by 1898. In 1904, a fire destroyed parts of the flume, crippling operations. Already on the brink of insolvency before the fire, EID was dissolved in 1905 through a settlement with the bondholders involving foreclosure of its lands and contributions raised by A.W. Wohlford and the Bank of Escondido (McGrew 1988; Ryan and Ryan 1971, as referenced in AECOM 2014c). The Escondido Mutual Water Company (EMWC) formed in 1905 as the successor to EID to assume its remaining assets, with A.W. Wohlford serving on the board of directors.

In 1914, EMWC began a new project to provide electricity to the growing population of Escondido. Orchestrated by A.W. Wohlford, EMWC acquired the City's failing utility company and reached an agreement with the Rincon tribe to permit the construction of a new power plant downstream from the Escondido Dam, referred to as the Bear Valley power plant. This addition to the system further increased the demand for an increase in the water supply, and renewed attention to rehabilitating the failing distribution system.

EMWC signed a contract with San Diego County Water Company in 1922 to purchase water from Lake Henshaw and distribute it through the EMWC's distribution system. Availability of this water created a need to raise the Escondido Dam to expand its reservoir's storage capacity. As a result, EMWC implemented a project to increase the height and width of the dam embankment, add a new spillway and outlet tower, and make further improvements to the distribution system. Oakvale Road was created as a new maintenance roadway to the dam's left abutment. Construction was completed in 1924, and the reservoir was renamed Lake Wohlford on August 18, 1924, in honor of A.W. Wohlford, who had passed away earlier that year.

The City acquired EMWC in 1970 and joined the municipal system with EMWC and Vista Irrigation District (VID) systems, sharing the water supply delivery system. The City and VID made major improvements to the water supply system, including the construction of Dixon Lake, the Dixon Dam, and a major treatment plant in the 1970s.

Records Search Results

The Affinis records search obtained from SCIC covered the project APE and a surrounding 1-mile radius (referred to as the study area). The records search shows 28 cultural resources studies conducted within a 1-mile radius of the project. None of these previous studies cover the project survey area. The records search identified that 28 cultural resources studies were conducted within a 1-mile radius of the project and a total of 94 previously recorded cultural resources lie within the study area, including archaeological sites, isolates, and historic resources.

A total of 73 archaeological sites lie within the 1-mile records search radius for the project, including 68 with a prehistoric component and 12 with a historic component (seven have both historic and prehistoric elements). Twelve of the sites (16%) are recorded as occupation or habitation sites (including temporary camps) with bedrock milling features, lithic debitage and tools, and ground stone artifacts; two of these occupation sites also have a historic component. Two of the habitation sites are recorded as having middens. While bedrock milling features are present at 51 of the sites (70%), 30 sites (41%) are composed solely of bedrock milling features. Five of the sites (7%) are recorded as lithic scatters, with primarily quartz as the material base. Rock rings or other rock features (other than milling features) were noted at seven sites. One site is recorded as a pot cache with no other artifacts observed. Five of the sites are solely historic in nature; four of these include historic structures and artifacts, and one is a historic trash dump. Fourteen of the previously recorded sites were within the boundaries of the Affinis pedestrian survey area. Seventeen isolates were previously recorded within the designated records search boundary for the project. Additional details on these records search results are provided in Table 1 of Appendix F.

AECOM's SCIC records search was conducted in the same radius and around the same time, so the results were the same as described above. AECOM noted that no previously recorded historical resources were identified through the SCIC records search within the APE or 1-mile buffer.

Archaeological Pedestrian Survey Results

Seven isolates and five previously unrecorded archaeological sites were identified during the field survey for archaeological resources. Site records for these resources were completed and submitted to SCIC. All 14 previously recorded sites within the survey area were identified during the survey; updated site records were prepared and submitted to SCIC. Archaeological sites, including milling features and lithic scatters, were identified in the vicinity of the access road alignment and staging yard, as well as around the rim of the reservoir at its current water level elevation. Details on these resources are discussed in Appendix F.

Assembly Bill 52 Cultural Resources Consultation

Assembly Bill (AB) 52, which was enacted in September 2014, requires Native American consultation on projects subject to CEQA. The Native American consultation conducted by Affinis in preparation of the Cultural Resources Inventory Report occurred prior to the advent of AB 52. In conformance with this new law, the City requested a list of tribal contacts for the project from NAHC and notified tribal representatives of the project and EIR. On November 24, 2015, the City mailed letters to the three responsive tribes: Rincon Band of Luiseño Indians, San Luis Rey Band of Mission Indians, and Soboba Band of Luiseño Indians.

Regulatory Setting

CEQA

Section 15064.5 of the State CEQA Guidelines defines a significant cultural resource as any of the following:

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (PRC SS5024.1, Title 14 CCR, Section 4850 et seq.).
2. A resource included in the local register of historical resources, as defined in section 5020.1(k) of the PRC or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the PRC, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR, as discussed above.
4. The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the PRC), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the PRC) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1(i) or 5024.1.

California Assembly Bill 52

Pursuant to AB 52, tribal cultural resources must be considered under CEQA. "Tribal cultural resources" are defined as (1) sites, features, places cultural landscapes, sacred places and objects with cultural value to a California Native American tribe" that are included in the state register of historical resources or a local register of historical resources, or that are determined to be eligible for inclusion in the state register; or (2) resources determined by the lead agency, in its discretion, to be significant based on the criteria for listing in the state register.

City of Escondido General Plan

For resources that fall within City jurisdiction, the prevailing guidelines are the City's Cultural Policies F1.1 and F1.5, which state that historic and cultural resources will be considered through the environmental review process based on an assessment in compliance with appropriate ordinances and regulations.

3.4.2 Significance Criteria

The significance criteria for this project's cultural resource impacts are based on CEQA Appendix G Guidelines.
The effects of a project on aesthetics would be considered significant if the project would do the following:

1. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines.
2. The project causes a substantial adverse change in the significance of an historical resource as defined in Section 15064.5 of the CEQA Guidelines.
3. The project disturbs any human remains, including those interred outside of formal cemeteries.

Definitions of significance for cultural resources are described above in the Regulatory Setting portion of Section 3.4.1.

3.4.3 Impact Analysis

The project represents a source of potential direct and indirect impacts to cultural resources. A discussion of the potential impacts is provided below. Measures to address these potential impacts are presented in Section 3.4.4.

Criterion 1: **Would the project cause a substantial adverse change in the significance of an archaeological resource?**

Oakvale Road Realignment

The Affinis report identified one archaeological resource in the vicinity of the Oakvale Road project site, which was previously collected and curated. No additional resources were identified during the pedestrian surveys. Therefore, this component of the project would not result in any impacts on known archaeological resources.

The past discovery of resources in the vicinity of the Oakvale Road project impact area indicates sensitivity for the potential presence of archaeological resources. Additionally, extensive vegetation led to limited ground visibility observed during project surveys, and archaeological resources could potentially exist on the project site. Resources that may be present in the project area could be affected by project-related earth disturbance. Therefore, impacts to unknown cultural resources from the Oakvale Road Realignment would be significant (Impact CR-1). To address this potential significant impact, the project would incorporate Mitigation Measure CR-1.1 through 1.10, as listed below in Section 3.4.4.

Replacement Dam and Access Road

Several archaeological resources were identified near the access road alignment and staging yard. These resources were not evaluated for eligibility in the NRHP and CRHR, so they are assumed eligible for purposes of this CEQA analysis. To prevent direct impacts on known resources, the access road and staging yard were configured to avoid them, based on GIS data provided by Affinis. All known cultural resources in the access road and staging yard area have been avoided through project design. However, even with the designed avoidance of all known cultural resources, there is the potential for accidental disturbance or damage to these known resources due to the proximity of their location to active construction areas. Thus, the potential for inadvertent adverse impact to known cultural resources in the vicinity of the access road and staging yard is significant. To address this potentially significant impact, the project would incorporate Mitigation Measure CR-2.1, as listed below in Section 3.4.4.

As with the Oakvale Road component of the project, dam and access road construction would occur in an area where past discovery of cultural resources indicates sensitivity for the potential presence of archaeological resources. Resources that may be present in the dam construction area and access road construction area could be affected by initial project-related earth disturbance. Thus, impacts to known and unknown cultural resources from the replacement dam and access road would be significant (Impact CR-2). Implementation of Mitigation Measures CR-1.1 through 1.10 and CR-2.1 would be required.

Reestablishment of Reservoir Level

Raising the reservoir level would reinundate archaeological sites identified at the rim of the existing water level that were submerged before the water level in the dam was reduced in 2007. The reinundation of these resources would not disturb or destroy the resources, and would remove them from public access. Therefore, this component of the project would not result in a significant impact, and no mitigation is required.

The area that will be inundated with the refilling of the dam was submerged for decades prior to the drawdown of water levels in 2007. Therefore, there would be no impacts to cultural resources from this component of the project.

Criterion 2. **Would the project cause a substantial adverse change in the significance of an historical resource?**

Oakvale Road Realignment

There are no known historical resources located in the impact area for the Oakvale Road project. As discussed above in the History of Lake Wohlford portion of Section 3.4.1, Oakvale Road was constructed as part of the dam raise project in 1924, but the road is an active public facility maintained by the County and it has been repaved several times over the decades. The road lacks the integrity required to be considered a significant historical resource. Thus, the Oakvale Road realignment would not have the potential to cause an adverse change in the significance of a historic resource.

Because there are no historic resources in the vicinity, construction of the Oakvale Road realignment would not have the potential to disturb historic resources. Therefore, no impacts to historic resources would result from the Oakvale Road realignment, and no mitigation is required.

Replacement Dam and Access Road

Lake Wohlford Dam was identified as a resource over 50 years old that required further evaluation for listing eligibility, which was conducted for the AECOM Historic Resources Survey Report (Appendix E). The Historic Resources Survey Report concluded the resource is not eligible.

Because the area that this particular dam and infrastructure serviced was limited, and the concept for a dam to service an irrigation district was not unique regionally after the passage of the Wright Act in 1889, it does not achieve the level of significance necessary to meet NRHP Criterion A or CRHR Criterion 1. Although associated with A.W. Wohlford, arguably an important historical person in Escondido history, the dam itself is not directly illustrative of Wohlford's efforts to financially revive the EID's failing system, establish the EMWC, and work on funding for the system upgrades completed in 1924; therefore, the dam does not meet NRHP Criterion B or CRHR Criterion 2. The rockfill dam was a common type and is not considered an important example of a specific type of construction or the work of a master, potentially J.D. Schuyler, to be eligible under NRHP Criterion C or CRHR Criterion 3. The dam is well documented and, as a resource, is not likely to yield further information pertaining to history. It is not eligible under NRHP Criterion D or CRHR Criterion 4. The dam as it appears currently does not reflect the 1895 design or period of significance. The resource is not eligible for the NRHP or CRHR, and is not considered a historic property for the purposes of NEPA or the National Historic Preservation Act, or a historical resource for the purposes of CEQA. No other historic resources are located in the APE and thus this component of the project would not have the potential to disturb other historic resources.

Because the Lake Wohlford Dam is not a significant historic resource and is well documented, the partial demolition of the structure as part of the project would be a less than significant impact, and no mitigation is required.

Reestablishment of Reservoir Level

There are no historic resources located in the maximum inundation area. No resources would be submerged when the reservoir level is raised; there would be no impact and no mitigation is required.

Criterion 3: **Would the project disturb any human remains, including those interred outside of formal cemeteries?**

Oakvale Road Realignment; Replacement Dam and Access Road

There are no known human remains that would be affected by project construction. In the event of an unexpected discovery of human remains during any phase of construction, the project contractor would be required to adhere to California Health and Safety Code Section 7050(b). Project activities in the vicinity of the discovery would be temporarily halted and the San Diego County Coroner would be contacted. If the remains were determined to be of Native American origin, the Most Likely Descendent, as identified by the NAHC, would be contacted to determine proper treatment and disposition of the remains. Proper adherence to these regulations would ensure that the project's impact would be less than significant.

Reestablishment of Reservoir Level

Elevating the reservoir level would not have the potential to uncover or otherwise disturb human remains; therefore, there would be no impact.

3.4.4 Significant Impacts and Mitigation Measures

Impact CR-1: The past discovery of resources in the vicinity of the Oakvale Road project impact area indicates sensitivity for the potential presence of unknown archaeological resources (Criterion 1).

> **Mitigation Measure CR-1.1:** The City of Escondido Planning Division ("City") recommends the applicant enter into a Tribal Cultural Resource Treatment and Monitoring Agreement (also known as a pre-excavation agreement) with a tribe that is traditionally and culturally affiliated with the Project Location ("TCA Tribe") prior to issuance of a grading permit. The purposes of the agreement are (1) to provide the applicant with clear expectations regarding tribal cultural resources, and (2) to formalize protocols and procedures between the Applicant/Owner and the TCA Tribe for the protection and treatment of, including but not limited to, Native American human remains, funerary objects, cultural and religious landscapes, ceremonial items, traditional gathering areas and cultural items, located and/or discovered through a monitoring program in conjunction with the construction of the proposed project, including additional archaeological surveys and/or studies, excavations, geotechnical investigations, grading, and all other ground disturbing activities.

> **Mitigation Measure CR-1.2:** Prior to issuance of a grading permit, the applicant shall provide written verification to the City that a qualified archaeologist and a Native American monitor associated with a TCA Tribe have been retained to implement the monitoring program. The archaeologist shall be responsible for coordinating with the Native American monitor. This verification shall be presented to the City in a letter from the project archaeologist that confirms the selected Native American monitor is associated with a TCA Tribe. The City, prior to any pre-construction meeting, shall approve all persons involved in the monitoring program.

Mitigation Measure CR-1.3: The qualified archaeologist and a Native American monitor shall attend the pre-grading meeting with the grading contractors to explain and coordinate the requirements of the monitoring program.

Mitigation Measure CR-1.4: During the initial grubbing, site grading, excavation or disturbance of the ground surface, the qualified archaeologist and the Native American monitor shall be on site full-time. The frequency of inspections shall depend on the rate of excavation, the materials excavated, and any discoveries of tribal cultural resources as defined in California Public Resources Code Section 21074. Archaeological and Native American monitoring will be discontinued when the depth of grading and soil conditions no longer retain the potential to contain cultural deposits. The qualified archaeologist, in consultation with the Native American monitor, shall be responsible for determining the duration and frequency of monitoring.

Mitigation Measure CR-1.5: In the event that previously unidentified tribal cultural resources are discovered, the qualified archaeologist and the Native American monitor, shall have the authority to temporarily divert or temporarily halt ground disturbance operation in the area of discovery to allow for the evaluation of potentially significant cultural resources. Isolates and clearly non-significant deposits shall be minimally documented in the field and collected so the monitored grading can proceed.

Mitigation Measure CR-1.6: If a potentially significant tribal cultural resource is discovered, the archaeologist shall notify the City of said discovery. The qualified archaeologist, in consultation with the City, the TCA Tribe and the Native American monitor, shall determine the significance of the discovered resource. A recommendation for the tribal cultural resource's treatment and disposition shall be made by the qualified archaeologist in consultation with the TCA Tribe and the Native American monitor and be submitted to the City for review and approval.

Mitigation Measure CR-1.7: The avoidance and/or preservation of the significant tribal cultural resource and/or unique archaeological resource must first be considered and evaluated as required by CEQA. Where any significant tribal cultural resources and/or unique archaeological resources have been discovered and avoidance and/or preservation measures are deemed to be infeasible by the City, then a research design and data recovery program to mitigate impacts shall be prepared by the qualified archaeologist (using professional archaeological methods), in consultation with the TCA Tribe and the Native American monitor, and shall be subject to approval by the City. The archaeological monitor, in consultation with the Native American monitor, shall determine the amount of material to be recovered for an adequate artifact sample for analysis. Before construction activities are allowed to resume in the affected area, the research design and data recovery program activities must be concluded to the satisfaction of the City.

Mitigation Measure CR-1.8: As specified by California Health and Safety Code Section 7050.5, if human remains are found on the project site during construction or during archaeological work, the person responsible for the excavation, or his or her authorized representative, shall immediately notify the San Diego County Coroner's office. Determination of whether the remains are human shall be conducted on-site and in situ where they were discovered by a forensic anthropologist, unless the forensic anthropologist and the Native American monitor agree to remove the remains to an off-site location for examination. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the Coroner has made the necessary findings as to origin and disposition. A temporary construction exclusion zone shall be established surrounding the area of the discovery so that the area would be protected, and consultation and treatment could occur as prescribed by law. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted in order to determine proper treatment and disposition of the remains in accordance with California Public Resources Code section 5097.98. The Native American remains shall be kept in-situ, or in a secure location in close proximity to where they were found, and the analysis of the remains shall only occur on-site in the presence of a Native American monitor.

Mitigation Measure CR-1.9: If the qualified archaeologist elects to collect any tribal cultural resources, the Native American monitor must be present during any testing or cataloging of those resources. Moreover, if the qualified Archaeologist does not collect the cultural resources that are unearthed during the ground disturbing activities, the Native American monitor, may at their discretion, collect said resources and provide them to the TCA Tribe for respectful and dignified treatment in accordance with the Tribe's cultural and spiritual traditions. Any tribal cultural resources collected by the qualified archaeologist shall be repatriated to the TCA Tribe. Should the TCA Tribe or other traditionally and culturally affiliated tribe decline the collection, the collection shall be curated at the San Diego Archaeological Center. All other resources determined by the qualified archaeologist, in consultation with the Native American monitor, to not be tribal cultural resources, shall be curated at the San Diego Archaeological Center.

Mitigation Measure CR-1.10: Prior to the release of the grading bond, a monitoring report and/or evaluation report, if appropriate, which describes the results, analysis and conclusion of the archaeological monitoring program and any data recovery program on the project site shall be submitted by the qualified archaeologist to the City. The Native American monitor shall be responsible for providing any notes or comments to the qualified archaeologist in a timely manner to be submitted with the report. The report will include California Department of Parks and Recreation Primary and Archaeological Site Forms for any newly discovered resources.

Impact CR-2: There is potential for accidental disturbance or damage to known and unknown cultural resources in the dam construction area and access road construction area (Criterion 1).

See Mitigation Measures CR-1.1 through 1.10 above.

Mitigation Measure CR-2.1: The following actions shall be taken to ensure avoidance of known cultural resources:

- Existing cultural resource sites shall be designated as Environmentally Sensitive Areas on all construction drawings and the limits of disturbance identified in the drawings shall not overlap with these Environmentally Sensitive Areas.
- Prior to the start of construction, under direction of the project archaeological monitor, orange construction fencing shall be placed around the known cultural resource sites. Fencing shall remain in place until construction is complete to avoid inadvertent disturbance of the site.
- The project archaeological monitor shall provide environmental training to all contractors to educate them on awareness of cultural resources protection requirements.

With the implementation of Mitigation Measures CR-1.1 through 1.10 and CR-2.1, as described above, all impacts related to air quality would be reduced to less than significant.

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3.5 GEOLOGY/SOILS

This section describes the existing geology and soils conditions for the project site, potential environmental impacts, recommended mitigation measures to help reduce or avoid impacts, and the level of significance of project impacts after mitigation. The information and analysis in this section is based on information contained in the *Liquefaction Evaluation of Lake Wohlford Dam* (GEI 2007), *Lake Wohlford Dam Replacement Geotechnical Data Report* (GEI 2010), *Geotechnical Data Report Amendment No. 1* (Kleinfelder 2013), *Geotechnical Interpretive Report* (B&V 2013), *Oakvale Road Realignment 30% Design Memorandum* (B&V 2014), *Final Seismic Hazard Analysis* (Kleinfelder, 2014), *Draft Geotechnical Data Report Amendment No. 2* (Kleinfelder, 2014), and the *Lake Wohlford Dam Replacement 90% Design Memorandum* (B&V 2015).

3.5.1 Existing Conditions

Regional Geologic Setting

The project site is located within the Peninsular Ranges Geomorphic Province (CGS 2002, as referenced in B&V 2013) along Escondido Creek about 5 miles east of Escondido. This province stretches from the north in Orange County and Riverside County, 800 miles southward to the tip of Baja California in Mexico (Norris and Webb 1990, as referenced in B&V 2013). The Peninsular Ranges Geomorphic Province is characterized by a series of northwest-trending mountain ranges separated by similarly aligned alluvial filled valleys. The structural grain of the mountain ranges and the intervening valleys is influenced by faulting of the San Andreas fault zone. The core of this province consists of a basement complex composed primarily of Cretaceous-age igneous plutonic rocks and lesser quantities of older metamorphic rocks.

Lake Wohlford is surrounded by very rugged and steep terrain. Bottle Peak is located approximately 0.4 mile to the south with a maximum elevation of approximately 2,100 feet above mean sea level (AMSL).

The plutonic rocks of the project area are part of a regional unit known as the Peninsular Ranges Batholith (PRB). This batholith developed in the early Cretaceous when California was located along a convergent tectonic plate margin. The PRB comprises many smaller plutons (intrusive igneous bodies) and has been divided into three zones (Gromet and Silver 1987, as referenced in B&V 2013): the western zone, a central zone, and the eastern zone. The zonation is based on differences in composition, isotope fractionation, and rare earth elements. Wohlford Dam is located in the western zone of the PRB, which is typically composed of older, low-potassium series magmas that were intruded at shallow depths along the subduction zone. The rock types in the western zone include tonalite, gabbro, quartz gabbro, and diorite. The western zone plutons were emplaced between 140 to 105 million years ago (MA) (Kimbrough et al. 2001, as referenced in B&V 2013).

Project Area Geology

In general, the ground is idealized as being composed of several surficial units and one granitic bedrock unit. The geologic units present at, and in the vicinity of, the project site include surficial units composed of artificial fill, unconsolidated Holocene to late Pleistocene alluvium and colluvium/creep affected rock, overlying granitic bedrock. The igneous rocks are also intruded by veins and dikes and contain a variety of joints and fractures.

<u>Surficial Units</u>

Several phases of fill placement were performed during construction of the existing dam and Oakvale and Old Lake Wohlford Roads. Alluvium and colluvium occur along the bottom of Escondido Creek, within tributary hillside drainages, along elevated ancient stream terraces above the creek, and near the base of steep hillsides. These sediments are subdivided into younger alluvium (Qal), colluvium (Qc), rock creep-colluvium undifferentiated (Rc-Qc) and older alluvium (Qoa). These units are described in the following paragraphs. These descriptions are based on boring samples taken within the deposits.

Younger Alluvium (Qal)

The most recent material is Holocene-age alluvium associated with the active creek drainage. This material is designated as younger alluvium (Qal) and was sampled in rock core borings B-202 (GEI 2010, as referenced in B&V 2013) and KB-302 (Kleinfelder 2013, as referenced in B&V 2013). The younger alluvium is also observed at test pit locations FP-101, FP-102, and FP-103 (GEI 2010, as referenced in B&V 2013). The thickness of the alluvium was inferred from the seismic traverses performed during the GEI (2010) explorations, SR2 through SR11, and the supplemental exploration (Kleinfelder 2013, as referenced in B&V 2013), KSR1.

The alluvium consists predominately of light brownish gray to dark grayish brown, silt and sand mixtures with gravel and cobbles. Some fine-grained silt and clay layers were also encountered in the test pits (FP-101 and FP-103). The thickness of the alluvium in the creek bottom varies from approximately 4 to 16 feet.

Creep Affected Rock and Colluvium (Rc-Qc)

Colluvium (Qc) and creep affected rock (Rc-Qc) materials were not sampled and are not differentiated because this unit includes colluvium, creep affected rock, and highly to completely weathered rock, all of which are unsuitable as dam foundation materials. These materials consist of nonuniform mixtures of silt and sand with gravel size to boulder size granitic bedrock. Creep affected rock is predominately highly weathered to decomposed granitic rock. At some locations, relict structures are still visible (i.e., joints and veins) within exposures.

Older Alluvium (Qoa)

Older alluvium (Qoa) was likely deposited during late Pleistocene to early Holocene time within an older stream channel and has been differentiated from the younger alluvium based on elevation and geomorphic expression. Stream terraces are formed gradually over time or rapidly in response to changes in sea-level or tectonics that affect the erosional capability of the stream.

The older alluvium was sampled and observed along the south hillside at rock core boring KB-303 (Kleinfelder 2013, as referenced in B&V 2013). The thickness of the older alluvium at the boring location is described on the logs as being about 28 feet (corrected for boring inclination). The thickness of the deposits may be greater at other locations. The material is similar in composition to the younger alluvium and consists predominately of silt and sand mixtures with cobbles and possibly boulders. Some clay layers also exist within the older alluvium.

Granitic Bedrock (Quartz Diorite Undifferentiated)

For much of the granitic bedrock, which is typically described as quartz diorite, the primary minerals consist of quartz, and plagioclase and alkali feldspars, with lesser amounts of amphibole (hornblende), biotite, and magnetite.

Gabbro, a dark-colored rock composed mostly of mafic minerals (iron and magnesium minerals), occurs occasionally throughout the rock as intrusive dikes and xenoliths. Secondary mineralization, weathering, and alteration are also present, but appear to be localized to joints, dikes, and veins.

The textures observed are predominately medium- to coarse-grained, phaneritic (i.e., all crystal sizes nearly uniform and visible to the naked eye), with interlocking crystal structure. Some sections of rock core exhibit foliation (i.e., planar fabric). In addition to the foliation, there are zones of linear and more continuous concentrations of dark-colored, mafic minerals. These are referred to using the geologic term banding or “schlieren,” which is German for streaks. These features are common in plutonic rocks and are formed as crystals are sorted during magmatic flow.

Aside from the textures and fabric of the rock, other features occur, such as joints, shears, dikes, and veins. These structural features formed in response to changes in stress conditions after the rock had mostly cooled and become brittle. These features are collectively referred to as discontinuities.

The most common discontinuities in the rock are joints. These joints include exfoliation joints, regional joint systems, and random joints. Localized, minor shears resulting from either localized faulting or gravity were described at each of the Kleinfelder rock core boring locations. Sheared zones were also observed at rock core borings KB-301 from a cored depth of about 59 to 68 feet, and KB-303 from a cored depth of about 100 to 110 feet. Dikes and veins occur at several rock core boring locations.

Dikes and veins develop by intrusion of melted material into cracks within the cooled plutonic body. In general, veins and thin dikes are infilled with aplite (fine-grained granite), potassium feldspar (K-spar), or quartz. Mafic dikes of gabbro on the order of 1 to 3 feet were inferred within rock core borings KB-301, KB-302, and KB-303.

Project Area Soils

The United States Department of Agriculture, Natural Resources Conservation Service maps three soil map units within the project area. Descriptions of the three soil map units are provided below.

<u>Cieneba very rocky coarse sandy loam, 30 to 75% slopes</u>

This soil map unit generally occurs on hillside slopes within elevations of 500 to 4,000 feet AMSL and consists primarily of rock outcrops and cieneba and similar soils. Typical profiles include a shallow (0 to 8 inches) layer of rocky, coarse sandy loam, overlying weathered bedrock (8 to 12 inches). This soil type is considered somewhat excessively drained and has very low (approximately 0.8 inch) available water storage in the profile.

<u>Las Posas fine sandy loam, 15 to 30% slopes, eroded</u>

This soil map unit generally occurs on hillside slopes within elevations of 200 to 3,000 feet AMSL and consists primarily of Las Posas and similar soils. Typical profiles include fine sandy loam (0 to 4 inches), clay loam and clay (4 to 33 inches), overlying weathered bedrock. This soil type is considered well drained with high (approximately 9.8 inches) available water storage in the profile.

Fallbrook-Vista sandy loams, 9 to 15% slopes

This soil map unit generally occurs on hillside slopes within elevations of 200 to 3,900 feet AMSL and consists primarily of Fallbrook and similar soils and Vista and similar soils. Typical Fallbrook soil profiles include sandy loam (0 to 8 inches), loam, sandy loam (8 to 12 inches), sandy clay loam, clay loam (8 to 12 inches), loam, and sandy loam (12 to 28 inches), overlying weathered bedrock, and are considered well drained with high (approximately 11.1 inches) available water storage in the profile. Typical vista soil profiles include sandy loam (0 to 19 inches) and coarse sandy loam, sandy loam (19 to 35 inches), overlying weathered bedrock, and are considered well drained with low (approximately 5.1 inches) available water storage in the profile.

Seismicity

The nearest known active fault to the project site is the Elsinore fault. The Elsinore fault stretches for nearly 180 miles from northern Baja California to Whittier, California. It is broken into five segments, of which the Julian segment is located closest to project site, approximately 11.3 miles to the northeast. This segment is estimated to be about 49 miles long (USGS and CGS 2010, as referenced in B&V 2013). The 2008 update of the United States National Seismic Hazard Map, (Petersen et al. 2008, as referenced in B&V 2013) included 15 different rupture segmentation scenarios, the most severe of which is a rupture that includes all five segments and has a maximum moment magnitude (M_{MAX}) of 7.8. Depending upon the segment, the Elsinore fault zone has a slip rate of between 3±1 to 5±2 millimeters per year (Wills et al. 2008, as referenced in B&V 2013).

The Newport-Inglewood-Rose Canyon fault zone is located offshore to the west of the project site. The nearest segments of the Newport-Inglewood-Rose Canyon fault are the Oceanside and Del Mar segments estimated to be about 60 miles and 25 miles long, respectively (USGS and CGS 2010, as referenced in B&V 2013). The closest section is located approximately 30 miles southwest of the project site. The right-lateral strike-slip fault is capable of generating a M_{MAX} 6.9 for a rupture involving the Rose Canyon fault, and a M_{MAX} 7.5 for a rupture that combines the Rose Canyon fault with the Newport-Inglewood fault to its north (Petersen et al. 2008, as referenced in B&V 2013). The estimated slip rate for the Rose Canyon fault is 1.5 ± 0.5 millimeters per year (Wills et al. 2008, as referenced in B&V 2013).

The San Jacinto fault zone is a right-lateral strike slip fault located about 34 miles northeast of the project site. Petersen et al. (2008, as referenced in B&V 2013) and Wills et al. (2008, as referenced in B&V 2013) identify seven different segments of this fault with slip rates ranging from 4±6 to 18±6 millimeters per year, and up to 25 possible rupture segmentation scenarios. The two closest segments of this fault are the Coyote Creek and Anza sections. The Coyote Creek and Anza segments are estimated to be about 27 miles and 53 miles long, respectively (USGS and CGS 2010). Ruptures involving only the Coyote Creek or Anza sections of the fault are capable of generating M_{MAX} 7.0 and 7.3 earthquakes, respectively. The largest rupture scenario developed by Petersen et al. (2008, as referenced in B&V 2013) involves six segments (including the Anza and Coyote Creek segments) and corresponds to a M_{MAX} of 7.9.

Several other faults have been mapped in the area. Two northwest-southeast-trending faults mapped by Kennedy (1999) are approximately 1.7 miles and 3.0 mile to the southwest and north, respectively, of the project site. The nearest of these faults is located along the western foot of the mountains traversing across the valley to the northeast side (left abutment) of Dixon Lake. According to California Department of Water Resources, Division of Safety of Dams (DSOD), faults along which displacement has occurred within the past 35,000 years are considered active (Fraser 2001, as referenced in B&V 2013). These faults are considered inactive by DSOD definition because alluvium concealing the faults has not been displaced by fault activity within the last 35,000 years (Kennedy 1999, as referenced in B&V 2013), and because there is no evidence of micro-seismicity along the faults above normal regional background levels. Additionally, USGS and CGS have not included these faults in their databases of faults that have shown Quaternary activity.

Hydrogeology

The hydrogeology of the project area is complex. Based on the piezometers installed in the rock core borings, multiple groundwater regimes were interpreted, including an unconfined aquifer and one or more fracture controlled systems in the underlying granitic rock. The unconfined aquifer is composed of the unconsolidated alluvium and colluvium, weathered granitic rock of the creek bottom, and the thin mantle covering the hillside. Piezometers have not been installed in the upper unconfined aquifer. The degree of hydraulic communication between the unconfined aquifer and underlying fracture controlled system(s) is poorly constrained.

Geologic Hazards

Each of the following types of geologic hazards can cause damage to structures, utilities, and roadways. Hazards discussed below include slope instability and erosion, lateral spreading, subsidence, liquefaction, nonseismic settlement, construction-related settlement, and expansive soils.

Slope Instability and Erosion

Landslide and mudflow are terms used to designate certain forms of natural or man-induced slope instability that may adversely influence life or property. Included are a number of different processes that range from very slow (a few inches in 100 years) to extremely rapid (70 or more miles per hour). Included within the definition of this hazard are all gravity-induced downslope movements, which can include landslides, mudflows, soil creep (the slow downslope movement of surface soils, often seen on natural slopes), and combinations of these phenomena. The hazard applies to both natural and artificial slopes. Contributing factors include bedding planes that slope in the same direction as the land surface, erosion, earthquake ground shaking, brush fires (which can kill plant root systems that tend to hold soils in place), and groundwater.

The California Department of Conservation, Division of Mines and Geology (CDMG) identifies the slopes surrounding Lake Wohlford as having a relative landslide susceptibility rating of "3-1" (Generally Susceptible) (California Department of Conservation 1995a). Slopes within the 3-1 area are considered to be "at or near their stability limits due to a combination of weak materials and steep slopes (many slope angles exceed 15 degrees). Although most slopes within these areas do not currently contain landslide deposits, they can be expected to fail, locally, when adversely modified." (California Department of Conservation 1995b). Additionally, Chapter VI (Community Protection Element) of the City of Escondido's General Plan identifies a number of the areas surrounding Lake Wohlford as having greater than a 25% slope "that may be prone to surficial failures, mudflows, debris flows, rock falls, soil creep, and erosion." (City of Escondido 2012a)

Liquefaction

Liquefaction is the phenomenon whereby strong, cyclic ground motions during an earthquake transform a soil mass into a liquid state. The process involves densification and pore pressure increases in a saturated soil mass. The occurrence of liquefaction is dependent upon the strength and duration of ground shaking, the depth to saturated soil, and local soil properties. It most readily occurs in loose, cohesionless, granular soil with a shallow groundwater table. Liquefaction can result in damage to or collapse of structures if the soils that support a building's foundation liquefy and no longer support the foundation of the building.

According to Chapter VI (Community Protection Element) of the City of Escondido General Plan, some areas surrounding Lake Wohlford are identified as liquefaction hazard areas (City of Escondido 2012a). However, these areas are primarily located on the southern and eastern sides of Lake Wohlford, opposite the existing dam situated on the west side of the lake.

Lateral Spreading

Lateral spreading, which is related to liquefaction, can occur on gentle slopes (typically 0.3 to 5%) where the surface soils are underlain by loose sands and a shallow water table. During an earthquake, the underlying loose sands can undergo liquefaction, leaving the surface layer unsupported. The surface layer can move downslope toward an unsupported area such as a stream bank or artificial cut. Under lateral spreading, the surface layer may sink into the liquefied layer, move downslope, rotate, or disintegrate, causing major damage to structures on the surface layer.

Subsidence

Subsidence is a general term for the slow, long-term regional lowering of the ground surface with respect to sea level. It can be caused by natural forces such as the consolidation of recently deposited sediments or by man-induced changes such as the withdrawal of oil field fluids or the dewatering of an aquifer. Subsidence occurs as a gradual change over a considerable distance (miles); less commonly, it can occur in discrete zones. Subsidence is not a concern at the project site because it is underlain by granitic bedrock and because the site has not been subject to the primary human-induced causes of subsidence, such as mineral and water withdrawal and mining.

Nonseismic Settlement

Even competent earth materials, including compacted fill, can settle to some degree when subjected to large stresses.

Expansive Soils

Expansive soils are primarily clay-rich soils subject to changes in volume with changes in moisture content. The resultant shrinking and swelling of soils can cause damage to fixed structures, utilities, and roadways by causing stresses to their foundations. The soils underlying the project site are primarily dominated by hard granite that would not be subject to soil expansion.

Regulatory Setting

Alquist-Priolo Fault Zoning Act

Following the 1971 San Fernando Earthquake, the State of California passed the Alquist-Priolo Fault Zoning Act in 1972 to address surface rupture hazards to human-occupied structures. The main purpose of the Act is to prevent the construction of human-occupied structures along the surface trace of active faults. Under the Act, the State Geologist is required to delineate active faults or "regulatory zones," known as Earthquake Fault Zones. The Earthquake Fault Zones are identified on maps distributed to affected cities, counties, and state agencies for their use in planning and regulating development projects located within the zones.

Seismic Hazards Mapping Act

The only hazards addressed by the Alquist-Priolo Fault Zoning Act are those related to surface fault rupture, not other earthquake hazards. As such, the state passed the Seismic Hazards Mapping Act in 1990 to address nonsurface rupture seismic hazards, which include liquefaction, landslides, and strong seismic ground shaking. Under the Seismic Hazards Mapping Act, the State Geologist is required to identify and map the locations of these secondary seismic hazards.

Engineering Standards

The DSOD regulates the safety of Lake Wohlford Dam under Division 3 of the California Water Code. The California Water Code designates the regulatory Dam Safety Program to the DSOD, the principal goal of which is to avoid dam failure and thus prevent loss of life and destruction of property. The DSOD reviews plans and specifications for the construction of new dams and for the enlargement, alteration, repair, or removal of existing dams, and must grant written approval before the owner can proceed with construction. Professional engineers and geologists from the DSOD evaluate each project, investigate proposed sites, and review foundation conditions and proposed construction materials.

City of Escondido Policies

The following policies from the City of Escondido General Plan, Community Protection Element, regarding soils and seismicity are relevant to the proposed project.

> *Soils and Seismicity Policy 7.3:* Require that development applications in areas where the potential for geologic and seismic hazards exists, such as slopes of 25% or greater, submit a site-specific geotechnical analysis prepared by a certified geotechnical engineer to identify potential hazards and recommend measures to avoid or mitigate said hazards.

> *Soils and Seismicity Policy 7.5:* Avoid developing in areas that are susceptible to erosion and sediment loss. Where avoidance is not feasible, require the restoration of natural patterns of surface water runoff after grading to minimize erosion.

3.5.2 Significance Criteria

Criteria used to evaluate potential geology and soils impacts are based on Appendix G of the State CEQA Guidelines. The effects of a project on geology and soils would be considered significant if the project would do the following:

1. Expose people or structures to substantial adverse effects, including the risk of loss, injury, death or property damage, from:
   a. Rupture along 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, such as Division of Mines and Geology Special Publication 42;
   b. Strong seismic ground shaking;
   c. Seismic-related ground failure, including liquefaction;
   d. Landslides.
2. Result in substantial soil erosion or the loss of topsoil.
3. 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.
4. Be located on expansive soil, as defined in Table 18-1-B of the UBC (1994), creating substantial risks to life or property.

It should be noted the proposed project does not include septic tanks or alternative waste disposal systems. Therefore, the following CEQA criterion will not be analyzed in any further detail:

> "Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water."

3.5.3 Impact Analysis

Methodology

The methodology for determining impacts related to geology and soils is based on information contained in the Liquefaction Evaluation of Lake Wohlford Dam (GEI 2007), Lake Wohlford

Dam Replacement Geotechnical Data Report (GEI 2010), Geotechnical Data Report Amendment No. 1(Kleinfelder 2013), Geotechnical Interpretive Report (B&V 2013), Oakvale Road Realignment 30% Design Memorandum (B&V 2014), Final Seismic Hazard Analysis (Kleinfelder 2014), Draft Geotechnical Data Report Amendment No. 2 (Kleinfelder 2014), and the Lake Wohlford Dam Replacement 90% Design Memorandum (B&V 2015). These documents incorporate the results and findings derived from geologic mapping and reconnaissance; excavation, sampling and logging of test pits; drilling, sampling, and logging of vibracore borings within the reservoir and rock core borings within the abutments and footprint of the proposed dam; installation and monitoring of piezometers; downhole seismic velocity and borehole acoustic-televiewer (ATV) surveys in the rock core borings; in situ hydraulic conductivity (packer) testing in the rock core borings; geotechnical laboratory testing on lake sediment, soil, and rock samples; and seismic refraction surveys. Site-specific geotechnical investigation/testing coupled with research provided the basis for determining existing conditions and forecasting project impacts related to faulting and seismicity, liquefaction, subsidence, expansive soils, settlement, slope stability, and erosion.

Analysis

***Criterion 1*: Would the project expose people or structures to substantial adverse effects, including the risk of loss, injury, death or property damage, from: rupture along a known earthquake fault; strong seismic ground shaking; seismic-related ground failure; landslides; seismic induced waves?**

Oakvale Road Realignment

Surface fault rupture is most likely to occur on active faults (i.e., faults showing evidence of displacement within the last 11,700 years). As mentioned previously, the State Geologist is required to delineate active faults or "regulatory zones," known as Earthquake Fault Zones as part of the Alquist-Priolo Fault Zoning Act. The nearest known active fault to the project site is the Elsinore fault, which is broken into five segments. The closest segment of the Elsinore fault to the project site is the Julian segment, approximately 11.3 miles to the northeast. Therefore, no impacts associated with the Oakvale Road realignment related to rupture along a known earthquake fault would occur.

Strong seismic activity along nearby faults could result in ground shaking conditions that are a common hazard in much of Southern California. Seismic activity has the potential to dislodge rocks from slopes above Oakvale Road, resulting in rock slides that could present a hazard to motorists on the roadway below. To realign Oakvale Road farther to the south, a combination of blasting and rippable rock excavation would be required for the road cut and would result in side slopes of approximately 0.75H:1V (horizontal to vertical), with heights up to approximately 110 feet. Because of this, the Oakvale Road realignment would include ample slope protection through the installation of rock bolts into the slope and the installation of wire netting to secure the proposed surface. The bolts would be used to anchor the wire mesh to the rock surface. Bolts would be placed at locations deemed necessary based on conditions as they are encountered in the field. Therefore, impacts associated with the Oakvale Road realignment related to strong seismic ground shaking would be less than significant.

As discussed previously, some of the slopes within the project site, including in the vicinity of Oakvale Road, are considered at or near their stability limits due to a combination of weak materials and steep slopes, a number of which have greater than a 25% slope that may be prone to surficial failures, mudflows, debris flows, and rock falls. The potential exists for rock to become dislodged from slopes adjacent to Oakvale Road and create a hazard to motorists using the roadway below. However, slope stabilization along the realigned road would include the installation of rock bolts to anchor rocks in place and enhance the slope's sheer strength, and wire netting would be added to catch any falling rocks. Therefore, impacts associated with the Oakvale Road realignment related to landslides would be less than significant.

Similar to the existing road, the proposed realignment of Oakvale Road would be located in an area characterized by a shallow (0 to 8 inches) layer of very rocky coarse sandy loam soil that overlies granitic bedrock, which would not be subject to seismic-related ground failure conditions. Therefore, no impacts associated with the Oakvale Road realignment related to seismic-related ground failure, including liquefaction, would occur.

Replacement Dam and Access Road

As mentioned previously, the nearest known active fault to the project site is the Elsinore fault, the closest segment of which is approximately 11.3 miles to the northeast. Therefore, no impacts associated with the access road realignment and replacement dam related to rupture along a known earthquake fault would occur.

The proposed access road from Lake Wohlford Marina to the replacement dam's right abutment, to be located on the northwest side of Lake Wohlford, has been aligned such that construction would entail minimal grading and no structural improvements. Constructing the access road would require some excavation into the hillside to create a level surface for installation of the road; however, ample slope protection, similar to the Oakvale Road realignment, would be installed in these areas. Therefore, impacts associated with the access road related to strong seismic ground shaking and landslides would be less than significant.

Similar to Oakvale Road realignment, the access road would primarily be located in an area that is characterized by a shallow (0 to 8 inches) layer of very rocky coarse sandy loam soil that overlies granitic bedrock, which would not be subject to seismic-related ground failure conditions. Therefore, no impacts associated with access road related to seismic-related ground failure, including liquefaction, would occur.

Through previous investigations and analyses, it was concluded that the hydraulic fill portion of the existing dam has the potential to experience a liquefaction-induced flow slide as a result of earthquake loading. Due to this finding, the City of Escondido has maintained the Lake Wohlford reservoir in a lowered state for dam safety purposes. Current reservoir level restrictions are set to 1,460 feet AMSL, which is 20 feet below the normal reservoir pool elevation of 1,480 feet AMSL. The primary purpose of the dam replacement is to alleviate public safety and flooding concerns due to the identified seismic instability of the existing dam, and to restore the City's municipal water-storage capacity by restoring the historic water level of 1,480 feet AMSL. The proposed dam replacement design is the result of an exhaustive engineering analysis conducted since 2008 that has considered and compared several alternatives for their feasibility, safety, longevity, environmental impact, and cost.

As discussed previously, there are a number of faults within a sufficient distance to cause ground motion at the project site. Strong ground motions resulting from seismic events are likely to occur at the project site during the life of the proposed project. A site-specific peak ground acceleration and horizontal design response spectrum for the Maximum Considered Earthquake (MCE) was prepared based on DSOD and FERC criteria, with some updates to reflect more developments in ground motion prediction equations (GMPEs). The horizontal design response spectrum is based on the deterministic seismic hazard analysis (DSHA) for the Elsinore fault with a maximum magnitude of 7.64[4] at a distance of about 11.2 miles. Consistent with the DSOD/FERC guidance, the existing dam is considered in the "High Consequence" and "High Slip Rate" category. Therefore, the DSHA is based on the 84th percentile (mean plus one standard deviation) ground motions from the GMPEs. The ground motion analysis resulted in an 84th percentile peak ground acceleration (PGA) of 0.29 gram (g), which corresponds to a return period of about 1,515 years based on a comparison with the probabilistic seismic hazard analysis (PSHA). Seismic stability design has been prepared by a registered geotechnical and civil engineer and has been approved at the 60% and 90% design levels by both DSOD and FERC. The City must meet the design safety standards required by DSOD and FERC, which are specifically intended to ensure the safe, long-term performance of the dam and associated structures. The final (100%) design review, which will be conducted by DSOD and FERC, will focus primarily on confirming that the City has incorporated all design review comments issued

[4] A rupture scenario involving all five segments of the Elsinore fault and generating a moment magnitude of 7.8 has a very low rate (Petersen et al. 2008) and therefore was not considered for the deterministic analysis.

on the 90% design review process. Construction oversight would be provided by a licensed geotechnical or civil engineer during all earthmoving activities. Any necessary modifications based on DSOD and FERC inspections during the construction process would be implemented. Therefore, impacts associated with the dam replacement related to strong seismic ground shaking would be less than significant.

Regarding slope stability and liquefaction, the top of the existing dam would be removed to reduce the possibility of upstream slope failure due to liquefaction during a seismic event. Removal of the top 33 feet of the existing embankment modifies the slope characteristics, reducing the driving forces on the slope and increasing the factor of safety. This also reduces the amount of material present for displacement in the event of a seismic failure of the slope. For construction of the dam replacement, all soil, decomposed rock, and rock that are generally excavatable using large earthwork equipment would be removed. To construct a generally level foundation (from upstream to downstream), controlled blasting is also likely required. Identification of a suitable foundation would be performed by an experienced, licensed engineering geologist. The foundation would be considered adequate when it is too hard to excavate with large excavation equipment; when the joints are generally slightly weathered or less; and when the surface is rough and generally level in an upstream to downstream direction. Any necessary modifications based on the final (100%) design review and/or DSOD and FERC inspections during the construction process would be implemented. Therefore, impacts associated with the dam replacement related to seismic-related ground failure, including liquefaction, would be less than significant.

Restoration of Water Levels

Restoration of water levels would have no bearing on this issue area, and there would be no impact.

***Criterion 2*: Would the project result in substantial soil erosion or the loss of topsoil?**

Oakvale Road Realignment

Erosion potential of the Oakvale Road realignment is limited due to the predominance of solid rock on the site and the general absence of topsoil. Because over 1 acre of ground disturbance would occur, construction activities would be subject to compliance with NPDES requirements and with the SWRCB's Construction General Permit (Order 2009-0009-DWQ). Compliance with the Construction General Permit would include the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which incorporates project-specific best management practices (BMPs) to ensure that erosion is minimized. Therefore, impacts associated with the Oakvale Road realignment related to soil erosion or loss of topsoil would be less than significant.

Replacement Dam and Access Road

Similar to the Oakvale Road realignment, construction activities associated with the access road realignment would be subject to compliance with NPDES requirements and with the SWRCB's Construction General Permit. Therefore, impacts associated with the access road related to soil erosion or loss of topsoil would be less than significant.

Construction activities associated with the dam replacement would be subject to compliance with NPDES requirements and with the SWRCB's Construction General Permit. To prevent erosion downstream of the dam replacement area, analysis of the PMF, a storm event in which flows could overtop the dam, has identified the need for a Type II stilling basin to be located immediately on the downstream side of the dam. To prevent damage from scouring and negative pressures in the stilling basin, the foundation would be on competent rock with RCC fill to raise the invert elevation and allow some drainage from the stilling basin. Loss of tailwater (i.e., waters located immediately downstream of the dam) caused by erosion of the stream during high discharge events could cause damage to the stilling basin. To address the risks of inadequate tailwater elevation, an end sill would be located at the end of the stilling basin. At the transition from the stilling basin to the existing river channel, riprap would be installed to prevent erosion and protect the stilling basin. Because the flood events for these releases are extremely rare, and the natural channel would experience substantial erosion, the exit channel would be provided with riprap to protect the stilling basin and dam from damage during reservoir discharges. No other downstream river channel grading is anticipated to be required other than the installation of the riprap at the transition. It should be noted that PMF flow is determined to be contained within the stilling basin and erosion of this downstream fill is not expected. Therefore, impacts associated with the dam replacement related to soil erosion or loss of topsoil would be less than significant.

Restoration of Water Levels

Restoration of water levels would have no bearing on this issue area, and there would be no impact. No additional geology and soils-related considerations beyond those discussed above would need to be analyzed for this project component.

***Criterion 3*:** **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?**

Oakvale Road Realignment

The Oakvale Road realignment proposes slope protection in the form of rock bolts and wire netting to limit the potential for rock fall or rock slide incidents from affecting the roadway below. Excavation, including blasting, splitting, and scaling, would be conducted under the supervision of a geotechnical engineer pursuant to a site-specific work plan, which would identify methods for safe removal and stockpiling of rock to ensure worker safety throughout the construction process. Proper engineering design and installation of the rock bolts and netting, and adherence to the work plan during excavation, would ensure that impacts with respect to geological instability (landslide, lateral spreading, settlement, subsidence, liquefaction or collapse) would be less than significant.

Replacement Dam and Access Road

The access road realignment proposes minimal grading and no structural improvements. Constructing the access road would require some excavation into the hillside to create a level surface for installation of the road; however, ample slope protection, similar to the Oakvale Road realignment, would be installed in these areas. Proper engineering design and installation of slope protection, and adherence to the work plan during excavation, would ensure that impacts with respect to geological instability (landslide, lateral spreading, settlement, subsidence, liquefaction, or collapse) would be less than significant.

As discussed under Criterion 1, design of the dam replacement has been prepared by a registered geotechnical and civil engineer and has been approved at the 60% and 90% design levels by both DSOD and FERC. The City must meet the design safety standards required by DSOD and FERC, which are specifically intended to ensure the safe, long-term performance of the dam and associated structures. For example, once excavated, the foundation surface would be irregular with exposed joints, seams, fractures, and other discontinuities. The entire foundation surface would be cleaned by barring and prying loose all drummy rock, using an air/water jet to remove as much loose material as possible, and removing by hand (and/or vacuum truck) loose material missed by previous steps. Portions of the foundation surface would require treatment to protect the exposed bedrock from deterioration, to backfill joints, and to eliminate drastic slope changes. These portions would be addressed through appropriate treatment measures, including overexcavation, dental excavation, dental concrete, stitch grouting, and slush grout. The final (100%) design review, which will be conducted by DSOD and FERC, will focus primarily on confirming that the City has incorporated all design review comments issued on the 90% design review process. Construction oversight would be provided by a licensed geotechnical or civil engineer during all earthmoving activities. Any necessary modifications based on DSOD and FERC inspections during the construction process would be implemented. Therefore, impacts associated with the dam replacement with respect to geological instability (landslide, lateral spreading, settlement, subsidence, liquefaction, or collapse) would be less than significant.

It should be noted that, in addition to soil stability considerations, the dam replacement may be subject to corrosive exposures, including atmospheric, soil resistivity, and water. Atmospheric variables such as temperature, climatic conditions, and relative humidity are important factors in determining if the exposure is corrosive. Likewise, soil resistivity, moisture, and soil chemical properties such as pH, chlorides, and sulfate levels are important factors in determining if the soil is corrosive to piping, valves, metal screens, and concrete structures. Liquids, depending on their characteristics, can also be corrosive to piping, valves, metal screens, and concrete structures. Submerged conditions increase the corrosion potential for piping equipment and structures. However, methods to control or eliminate corrosion would be included as part of the dam's final design. For buried piping and valves, coating in conjunction with cathodic protection would be used to provide adequate protection. The cathodically protected pipes would be electrically isolated via insulated flanges from all other metallic structures including rebar, grounding wire, etc. An impressed current cathodic protection system would be provided to achieve a long service life of the pipe. The impressed current cathodic protection system would consist of a rectifier, an anode junction box, an anode bed, cabling, and test stations. The rectifier provides DC current to the pipe through the anodes. The anodes would be consumed to protect the pipe. The anode bed would be sized to provide corrosion protection of the pipe for 30 years. Therefore, impacts to the dam replacement associated with corrosive exposures would be less than significant.

Restoration of Water Levels

Restoration of water levels would have no bearing on this issue area, and there would be no impact. The proposed dam replacement is being designed to handle site-specific conditions and to contain the restored water level such that no additional geology and soils-related considerations beyond those discussed above would need to be analyzed for this project component.

Criterion 4: **Would the project be located on expansive soil, creating substantial risks to life or property?**

Oakvale Road Realignment

As discussed previously, expansive soils are primarily clay-rich soils subject to changes in volume with changes in moisture content. The soils underlying the Oakvale Road realignment are dominated by hard granite that would not be subject to soil expansion. Therefore, no impact would occur.

Replacement Dam and Access Road

Similar to the Oakvale Road realignment, the soils underlying the access road realignment are dominated by hard granite that would not be subject to soil expansion. Therefore, no impact would occur.

As discussed under Criteria 1 and 3, above, excavation for the dam foundation would involve the removal of all soil, decomposed rock, and rock that is generally excavatable using large earthwork equipment. Identification of a suitable foundation would be performed by an experienced, licensed engineering geologist. The foundation would be considered adequate when it is too hard to excavate with large excavation equipment; when the joints are generally slightly weathered or less; and when the surface is rough and generally level in an upstream to downstream direction. Because the dam would be constructed on bedrock, it would not be subject to soil expansion. Therefore, no impact would occur.

Restoration of Water Levels

Restoration of water levels would have no bearing on this issue area, and there would be no impact. The proposed dam replacement is being designed to handle site-specific conditions and to contain the restored water level such that no additional geology and soils-related considerations beyond those discussed above would need to be analyzed for this project component.

3.5.4 Significant Impacts and Mitigation Measures

No significant impacts were identified for geology and soils. All potential geology and soils-related concerns associated with the proposed project would be addressed through proper engineering analysis and design. No additional mitigation measures would be required for CEQA purposes.

3.6 GREENHOUSE GAS EMISSIONS

This portion of the EIR focuses on the potential greenhouse gas (GHG) emissions impacts of the project. Specifically, this assessment includes a discussion on global climate change and existing GHG emissions sources; a summary of the applicable federal, state, and local regulations; and an analysis of the impacts from construction and operation of the project. The analysis is based on information contained in the *Greenhouse Gas Analysis for the Lake Wohlford Dam Replacement Project* (AECOM 2016b) (see Appendix G of the EIR].

3.6.1 Existing Conditions

Environmental Setting

Scientific Basis of Climate Change

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. A portion of the solar radiation that enters the earth's atmosphere is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. This infrared radiation (i.e., thermal heat) is absorbed by GHGs within the earth's atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on the earth.

GHGs are present in the atmosphere naturally, are released by natural and anthropogenic (generated by human activities) sources, and are formed from secondary reactions taking place in the atmosphere. Natural sources of GHGs include the respiration of humans, animals and plants; decomposition of organic matter; and evaporation from the oceans. Anthropogenic sources include the combustion of fossil fuels, waste treatment, and agricultural processes. The following GHGs are widely accepted as the principal contributors to human-induced global climate change:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF_6)
- Nitrogen Trifluoride (NF_3)

The majority of CO_2 emissions are byproducts of fossil fuel combustion. CH_4 is the main component of natural gas and is associated with agricultural practices and landfills. N_2O is a colorless GHG that results from industrial processes, vehicle emissions, and agricultural practices. HFCs are synthetic chemicals used as a substitute for chlorofluorocarbons in automobile air conditioners and refrigerants. PFCs are produced as a byproduct of various industrial processes associated with aluminum production and the manufacturing of semiconductors. SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable GHG used for insulation in electric power transmission and distribution equipment, and in semiconductor manufacturing. NF_3 is used in the electronics industry during the manufacturing of consumer items, including photovoltaic solar panels and liquid crystal display (LCD) television screens.

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to CO_2. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time (i.e., lifetime) that the gas remains in the atmosphere ("atmospheric lifetime"). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main GHGs that have been attributed to human activity include CH_4, which has a GWP of 28, and N_2O, which has a GWP of 265 (IPCC 2013). For example, 1 ton of CH_4 has the same contribution to the greenhouse effect as approximately 28 tons of CO_2. GHGs with lower emissions rates than CO_2 may still contribute to climate change, because they are more effective at absorbing outgoing infrared radiation than CO_2 (i.e., high GWP). The concept of CO_2 equivalents (CO_2e) is used to account for the different GWP potentials of GHGs to absorb infrared radiation.

Although the exact lifetime of any particular GHG molecule is dependent on multiple variables, it is understood by scientists who study atmospheric chemistry that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. GHG emissions related to human activities have been determined as "extremely likely" to be responsible (indicating 95% certainty) for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's atmosphere and oceans, with corresponding effects on global circulation patterns and climate (ARB 2014a).

GHG Emission Sources

GHG emissions contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, electric utility, residential, commercial, and agricultural categories. The majority of CO_2 emissions are byproducts of fossil fuel combustion, and CH_4, a highly potent GHG, is the primary component in natural gas and is associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management.

For the purposes of accounting for and regulating GHG emissions, sources of GHG emissions are grouped into emission categories. ARB identifies the following main GHG emission categories that account for most anthropogenic GHG emissions generated within California:

- **Transportation:** On-road motor vehicles, recreational vehicles, aviation, ships, and rail
- **Electric Power:** Use and production of electrical energy
- **Industrial:** Mainly stationary sources (e.g., boilers and engines) associated with process emissions
- **Commercial and Residential:** Area sources, such as landscape maintenance equipment, fireplaces, and consumption of natural gas for space and water heating
- **Agriculture:** Agricultural sources that include off-road farm equipment; irrigation pumps; crop residue burning (CO_2); and emissions from flooded soils, livestock waste, crop residue decomposition, and fertilizer volatilization (CH_4 and N_2O)
- **High GWP:** Refrigerants for stationary and mobile-source air conditioning and refrigeration, electrical insulation (e.g., SF_6), and various consumer products that use pressurized containers
- **Recycling and Waste:** Waste management facilities and landfills; primary emissions are CO_2 from combustion and CH_4 from landfills and wastewater treatment

California

ARB performs an annual GHG inventory for emissions and sinks of the six major GHGs. California produced 459 million metric tons (MMT) of CO_2e in 2012. Combustion of fossil fuel in the transportation category was the single largest source of California's GHG emissions in 2012, accounting for 36% of total GHG emissions in the state. The transportation category was followed by the electric power category (including in-state and out-of-state sources), which accounts for 21% of total GHG emissions in California, and the industrial category, which accounts for 19% of California's total GHG emissions (ARB 2014b).

San Diego County

The University of San Diego School of Law, Energy Policy Initiative Center, prepared a GHG inventory for San Diego County in 2008. The inventory was updated in 2014 using the best available data and following the U.S. Community Protocol for Accounting and Reporting of GHG Emissions (University of San Diego 2014). Total GHG emissions in San Diego County in 2012 were estimated to be 32.9 MMT of CO_2e. This represents an 11% increase compared to

1990 emissions levels of 29.5 MMT CO_2e (University of San Diego 2014). Transportation is the largest emissions sector, accounting for approximately 14 MMT of CO_2e, or 41% of total emissions. Energy consumption, including electricity and natural gas use, is the next largest source of emissions, at 32% of the total.

City of Escondido

In February 2011, the City of Escondido completed a 2005 GHG emissions inventory of both municipal and community-wide GHG emissions through participation in the San Diego Foundation's Regional Climate Protection Initiative. In 2013, the City developed the Escondido Climate Action Plan (E-CAP) that revised the 2005 inventory and also developed emission estimates for 2010, 2020, and 2035. As a result of changes to assumptions for VMT and water estimates, the revised community-wide inventory estimated the 2005 emissions at 927,266 metric tons (MT) CO_2e.

The GHG emissions for 2010 were 886,118 MT CO_2e from community-wide activities and 18,143 MT CO_2e from municipal operations. Energy consumption is the largest source of emissions in the 2010 GHG inventory, at 45% of the total. Transportation is the next largest emissions sector, accounting for approximately 42% of total emissions. Accounting for future population and economic growth, the City estimates that GHG emissions will increase to approximately 992,583 MT CO_2e in 2020 and 1,230,182 MT CO_2e in 2035.

Global Climate Change Trends

The Intergovernmental Panel on Climate Change (IPCC) concluded that variations in natural phenomena, such as solar radiation and volcanoes, produced most of the warming of the earth from pre-industrial times to 1950. These variations in natural phenomena also had a small cooling effect. From 1950 to the present, increasing GHG concentrations resulting from human activity, such as fossil fuel burning and deforestation, have been responsible for most of the observed temperature increase.

Global surface temperature has increased by approximately 1.53 degrees Fahrenheit (°F) over the last 140 years (IPCC 2013); however, the rate of increase in global average surface temperature has not been consistent. The last three decades have warmed at a much faster rate per decade (IPCC 2013).

During the same period when increased global warming has occurred, many other changes have occurred in other natural systems. Sea levels have risen; precipitation patterns throughout the world have shifted, with some areas becoming wetter and others drier; snowlines have increased in elevation, resulting in changes to the snowpack, runoff, and water storage; and numerous other conditions have been observed. Although it is difficult to prove a definitive cause-and-effect relationship between global warming and other observed changes to natural systems, there is a high level of confidence in the scientific community that these changes are a direct result of increased global temperatures caused by the increased presence of GHGs in the atmosphere (IPCC 2013).

Additional changes related to climate change can be expected by the year 2050 and on to the end of the century, including the following:

- California's mean temperature may rise by 2.7°F by 2050 and by 4.1°F to 8.6°F by the end of the century (CEC 2012). Temperatures in San Diego County may rise by 3.2°F to 5.7°F during that same period (CEC 2014).
- A consistent rise in sea level has been recorded worldwide over the last 100 years. Rising average sea level over the past century has been attributed primarily to warming of the world's oceans, the related thermal expansion of ocean waters, and the addition of water to the world's oceans from the melting of land-based polar ice (IPCC 2007). Sea level rise is expected to continue, and the most recent climate science report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*, has estimated that sea levels along the U.S. Pacific coast will increase by up to 66 inches by 2100 (NRC 2012). The project area would not be subject to flooding as a result of sea level rise related to climate change.
- Various California climate models provide mixed results regarding forecasted changes in total annual precipitation in the state through the end of this century. However, recent projections suggest that the 30-year statewide average precipitation will decline by more than 10% (CEC 2012).
- Historically, extreme warm temperatures in the San Diego region have mostly occurred in July and August, but as climate warming continues, the occurrences of these events will likely begin in June and could continue to take place into September. All simulations indicate that hot daytime and nighttime temperatures (heat waves) will increase in frequency, magnitude, and duration (San Diego Foundation 2008).

Regulatory Setting

A full description of the regulatory setting applicable to GHG emissions for this project can be found in Section 3 of the Greenhouse Gas Technical Report (Appendix G of this EIR). The following federal and State of California laws, regulations, policies, and plans are applicable to this resource area:

- Federal CAA
- EPA Final Mandatory Greenhouse Gas Reporting Rule
- California AB 1493
- California EO S-3-05
- California AB 32
- California EO S-1-07
- California SB 97
- California SB 375
- California EO S-03-05

Discussion of applicable local regulations pertinent to this project is provided below. ARB acknowledges that local governments have broad influence and, in some cases, exclusive jurisdiction over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. In San Diego County, the SDAPCD is the agency responsible for protecting public health and welfare through the administration of federal and state air quality laws and policies. The SDAPCD has no regulations relative to GHG emissions.

City of Escondido

General Plan

The City of Escondido adopted an updated General Plan in 2012 (City of Escondido 2012a). The following policies contained in the Resource Conservation Element of the General Plan are applicable to the project:

- Goal 6: Preservation and protection of the City's surface water and groundwater quality and resources.

- Water Resources and Quality Policy 6.2: Protect the surface water resources in the city including Lake Wohlford, Dixon Lake, Lake Hodges, Escondido Creek, and other waterways.

- Goal 7: Improved air quality in the city and the region to maintain the community's health and reduce [GHG] emissions that contribute to climate change.

- Air Quality and Climate Protection Policy 7.1: Participate in regional planning efforts and coordinate with the San Diego Air Pollution Control District and San Diego Association of Governments in their efforts to reduce air quality impacts and attain state and federal air quality standards.
- Air Quality and Climate Protection Policy 7.2: Reduce regional [GHG] emissions through the following measures including, but not limited to:
  a) Implementing land use patterns that reduce automobile dependence (compact, mixed-use, pedestrian, and transit-oriented development, etc.);
  b) Reducing the number of vehicular miles traveled through implementation of Transportation Demand Management programs, jobs-housing balance, and similar techniques;
  c) Supporting public transportation improvements;
  d) Encouraging the use of alternative modes of transportation by expanding public transit, bicycle, and pedestrian networks and facilities;
  e) Participating in the development of park-and-ride facilities;
  f) Maintaining and updating the City's traffic signal synchronization plan;
  g) Promoting local agriculture;
  h) Promoting the use of drought-tolerant landscaping; and
  i) Encouraging the use of non-polluting alternative energy systems.
- Air Quality and Climate Protection Policy 7.3: Require that new development projects incorporate feasible measures that reduce construction and operational emissions.
- Air Quality and Climate Protection Policy 7.4: Locate uses and facilities/operations that may produce toxic or hazardous air pollutants an adequate distance from each other and from sensitive uses such as housing and schools as consistent with California Air Resources Board recommendations.
- Air Quality and Climate Protection Policy 7.7: Encourage businesses to alter local truck delivery schedules to occur during non-peak hours, when feasible.
- Air Quality and Climate Protection Policy 7.8: Require that government contractors minimize [GHG] emissions in building construction and operations, which can be accomplished through the use of low or zero-emission vehicles and equipment.

- Air Quality and Climate Protection Policy 7.10: Purchase low-emission vehicles for the City's fleet and use clean fuel sources for trucks and heavy equipment, when feasible.
- Air Quality and Climate Protection Policy 7.11: Educate the public about air quality, its effect on health, and efforts the public can make to improve air quality and reduce [GHG] emissions.

Climate Protection Plans

The City of Escondido has taken steps to address climate change impacts at a local level. The City adopted the E-CAP in December 2013. The development of the E-CAP coincided with the City's General Plan Update. The E-CAP provides an analysis of GHG emissions and sources attributable to the City of Escondido, estimates on how those emissions are expected to increase with the General Plan, recommended policies and actions that can reduce GHG emissions to meet state and federal targets, a timeline of implementation, and a defined tracking and reporting mechanism that measures progress toward the goals.

Pursuant to the state's adopted AB 32 GHG reduction target, Escondido has set a goal to reduce emissions back to 1990 levels by the year 2020. This target was calculated as a 15% decrease from 2005 levels, as recommended in the AB 32 Scoping Plan. To reach the reduction target, the City would implement additional local reduction measures that encourage energy efficiency and renewable energy in buildings, transit-oriented planning, water conservation, and increase waste diversion. After 2020, many of the E-CAP and statewide reduction measures would continue to reduce GHG emissions.

3.6.2 Significance Criteria

Criteria used to evaluate potential GHG emissions impacts are based on Appendix G of the State CEQA Guidelines. The effects of a project related to greenhouse gas emissions would be considered significant if the project would do the following:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

The SDAPCD has neither quantitative thresholds nor specific guidelines for determining the significance of impacts under CEQA. The City has established a threshold of 2,500 MT CO_2e per year as a project-level GHG significance threshold that would apply to land use development projects (City of Escondido 2013a). The threshold was set at a level that would account for both operational and construction emissions attributable to new development projects through 2020. The emissions level is considered a threshold above which a project would require "project-specific technical analysis to quantify and mitigate project emissions" (City of Escondido 2013a). The project site is located outside the City's municipal boundaries, within unincorporated San Diego County. The County is in the process of developing a Climate Action Plan, but this document has not been finalized and adopted. The County Planning and Development Services Department has issued recommended guidance until the County adopts the Climate Action Plan (County of San Diego 2015), but these guidelines are nonbinding. Because the County of San Diego has not officially adopted a Climate Action Plan or significance threshold for GHG emissions and the project is a City project, the City has elected to apply their adopted threshold for GHG emissions in analyzing the impacts of the project pursuant to CEQA. Therefore, the project's annual average construction emissions over the duration of the project will be compared with the 2,500 MT CO_2e per year threshold to determine significance. Although the City's threshold was established for land development projects with ongoing operational emissions (e.g., residential and commercial projects), this analysis conservatively compares the construction emissions for the proposed project to the adopted threshold.

3.6.3 Impact Analysis

Methodology

Construction-related exhaust emissions for the project were estimated for construction worker commutes, haul trucks, and the use of off-road equipment. GHG emissions generated by construction activities would be primarily in the form of CO_2. Although emissions of other GHGs, such as CH_4 and N_2O, are important with respect to global climate change, the emission levels of these other GHGs from on- and off-road vehicles used during construction are relatively small compared with CO_2 emissions, even when factoring in the relatively larger GWP of CH_4 and N_2O.

Construction-related emissions for the project were estimated using emission factors from ARB's OFFROAD and EMFAC2014 inventory models (ARB 2013). Construction emissions from the operation of diesel-fueled off-road equipment were estimated by multiplying daily usage (i.e., hours per day) and total days of construction by OFFROAD equipment-specific emission factors. GHG emissions from on-road motor vehicles were estimated using vehicle trips, VMT, and EMFAC2014 mobile source emission factors. The emission factors represent the fleet-wide average emission factors within San Diego County.

The project is not anticipated to generate new vehicle trips and would not generate any additional activities related to maintenance or operations that would exceed existing levels. The project would not significantly increase the generation or use of electricity, water, wastewater, and solid waste. Therefore, operational GHG emissions were not estimated for the project.

Lastly, it should be noted that the discussion below discusses impacts resulting from implementation of the entire project rather than by each project component (e.g., the Oakvale Road realignment, access road and replacement dam construction, and restoration of water levels) as GHG emissions were evaluated over the entire construction period (using annual averages). Also, it should be noted that the GHG emissions generated would be from the Oakvale Road realignment and access road and replacement dam construction; restoration of water levels will not generate any GHG emissions.

Analysis

***Criterion 1*: Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?**

Construction-related GHG exhaust emissions would be generated by sources such as heavy-duty off-road equipment, trucks hauling materials to the site, and construction worker commutes. Project construction is estimated to occur over approximately 32 months.

As shown in Table 3.6-1, the total construction-related emissions over the construction period for the project would be approximately 6,656 MT CO_2e, which would result in approximately 2,496 MT CO_2e per year of construction.

Table 3.6-1
Construction-Related GHG Emissions (MT CO2e/Year)

Year	Emissions (MT CO_2e)
Staging (Mobilization)	227
Oakvale Road	771
Dam Foundation	3,323
Access Road	90
Replacement Dam	1,871
Demolition of Existing Dam	375
Total	**6,656**
Annual Average Emissions	**2,496**
Significance Threshold	**2,500**
Exceeds Threshold?	**No**

MT CO_2e = metric tons of carbon dioxide equivalent
Note: Totals may not add due to rounding.
Additional details available in Appendix G of the EIR.
Source: AECOM 2016b.

As shown in Table 3.6-1, the annual average construction-related CO_2e emissions associated with the project would be less than the 2,500 MT threshold of significance recommended by the City of Escondido. Therefore, the project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. This impact would be less than significant.

***Criterion 2*: Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions GHGs?**

At the time of this writing, the E-CAP is considered an approved plan designed to fulfill the requirements identified in CEQA Guidelines Section 15183.5. One of the goals of the E-CAP is to allow program-level review and mitigation of GHG emissions that allows streamlining of CEQA review for subsequent development projects. Therefore, for the purposes of this analysis, the applicable GHG reduction plans to evaluate the project against are the statewide AB 32 Scoping Plan and the E-CAP. Projects that would be consistent with the goals and strategies of the AB 32 Scoping Plan and the E-CAP would be considered not to conflict with the state's purpose of reducing GHG emissions.

ARB's *First Update to the Climate Change Scoping Plan: Building on the Framework* (2014a) includes measures to meet California's goal of reducing emissions to 1990 levels by 2020 and also reiterates the state's role in the long-term goal established in Executive Order S-3-05, which is to reduce GHG emissions to 80% below 1990 levels by 2050. The Scoping Plan Update confirms that the state is on track to meet the 2020 emissions reduction target, but will need to maintain and build upon its existing programs, scale up deployment of clean technologies, and provide more low-carbon options to accelerate GHG emissions reductions, especially after 2020, to meet the 2050 target. However, the plan does not recommend additional measures for meeting specific GHG emissions limits beyond 2020. In general, the measures described in the plan are designed to meet emissions goals in 2020 and do not become increasingly stringent until after 2020.

The Scoping Plan did not directly create any regulatory requirements for construction of the project. However, measures included in the Scoping Plan would indirectly address GHG emissions levels associated with construction activities, including the phasing-in of cleaner technology for diesel engine fleets (including construction equipment) and the development of a low-carbon fuel standard. The project would comply with any mandate or standards set forth by the Scoping Plan update.

The City of Escondido's General Plan also includes implementation tools that are presented as separate policies and documents related to the project. The Resource Conservation Element of the General Plan has goals to preserve and protect the City's surface water (Goal 6) and protect the surface water resources in the City, including Lake Wohlford (Water Resources and Quality Policy 6.2). The General Plan also includes policies to require that new development projects incorporate feasible measures that reduce construction and operational emissions (Air Quality and Climate Protection Policy 7.3) and to encourage businesses to alter local truck delivery schedules to occur during non-peak hours, when feasible (Air Quality and Climate Protection Policy 7.7).

The E-CAP is an implementation tool of the General Plan to guide development in Escondido by focusing on attaining the various goals and policies of the General Plan while also achieving GHG reduction goals. The E-CAP includes actions that encourage energy efficiency and renewable energy in buildings, transit-oriented planning, water conservation, and increased waste diversion. With respect to the project, Measure R2-C1, Construction Emissions Reductions, includes the following options for projects to reduce construction-related emissions:

- Turn off all diesel-powered vehicles and gasoline-powered equipment when not in use for more than five minutes.
- Use electric or natural gas-powered construction equipment in lieu of gasoline or diesel-powered engines, where feasible.
- Require 10% of the construction fleet to use any combination of diesel catalytic converters, diesel oxidation catalysts, diesel particulate filters, and/or ARB-certified Tier III equipment or better.

- Support and encourage ridesharing and transit incentives for the construction crew.

During the CEQA review process, the City will screen projects to determine if compliance with the E-CAP measures is required. According to the City, projects that generate less than 2,500 MT CO_2e would be considered to have a "less than significant GHG emissions impact" and would have a difficult time implementing the R2 measures (City of Escondido 2013a). As shown in Table 3.6-1, the average annual emissions for the project would not exceed the threshold of significance. Therefore, the project would be consistent with the goals of the E-CAP and implementation of Measure R2-C1 is not required.

The purpose of the project is to restore the City's municipal water-storage capacity and alleviate a public safety concern. The project would protect infrastructure and resources by proactively improving and upgrading Lake Wohlford Dam. The project would thus help avoid reactive rebuilding and repairing expenditures as a result of natural disasters or infrastructure failure, which would lead to losses and disruptions to economic activities and reduction in the quality of life of local residents if a flood event impacted the area. The intent, purpose, and functions of the project are consistent with the goals of the AB 32 Scoping Plan to protect against the detrimental effects of climate change.

As discussed earlier, the project does not exceed the threshold of significance for GHG emissions. The approach to developing a threshold of significance for GHG emissions is to identify the level of emissions for which a project would not be expected to substantially conflict with existing California legislation that has been adopted to reduce statewide GHG emissions. The project would be consistent with the goals and strategies of the ARB Scoping Plan update and the E-CAP. Therefore, the project would not conflict with any applicable plan, policy, or regulation for the purpose of reducing GHG emissions. This impact would be less than significant.

3.6.4 Significant Impacts and Mitigation Measures

No significant impacts related to GHG emissions were identified for the project. Therefore, no mitigation is required.

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3.7 HAZARDS AND PUBLIC SAFETY

This section analyzes the existing and potential hazardous materials and other hazardous or public safety conditions of concern during project construction and operation.

3.7.1 Existing Conditions

Hazardous Materials

Hazardous substances are defined by state and federal regulations as substances that must be regulated to protect the public health and the environment. Such hazardous materials have certain chemical, physical, or infectious properties that cause them to be hazardous. The California Health and Safety Code (H&SC), in Section 25501, defines hazardous material as:

> Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

The locations of known hazardous materials sites can be found in various regulatory agency databases. The project site, as well as the general Lake Wohlford area, is not listed as a hazardous materials site on State of California Hazardous Waste and Substances lists compiled pursuant to Government Code Section 65962.5, and no known hazardous material sites are located in the immediate vicinity of the project area or within a 10,000-foot radius (DTSC 2015a; 2015b).

Public Safety

A 2007 seismic analysis of the Lake Wohlford Dam concluded the upstream hydraulic fill portion of the structure could experience a liquefaction flow slide following a 7.5 magnitude earthquake along the Elsinore fault, and that such a slide could lead to an uncontrolled release of the reservoir (GEI 2007). USACE categorizes Lake Wohlford Dam as "high risk." Under current conditions, the City maintains the reservoir water level below the hydraulic fill portion, so that a liquefaction-induced slide would not lead to reservoir release.

Wildland Fire Hazards

The project site, as well as the majority of the Lake Wohlford area, is designated as a Very High Fire Hazard Severity Zone as identified by the California Department of Forestry and Fire Protection (CAL FIRE 2007). The fire protection responsibility for the project site is mapped within the Sate Responsibility Area, with some portions mapped as Federal Responsibility Area. Wildland fire safety concerns in these areas exist due to the presence of dense native and exotic vegetation in proximity to residences.

Regulatory Setting

California H&SC Chapter 6.5 and Title 22 of the California Code of Regulations

California Department of Toxic Substance Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under RCRA and the California Hazardous Waste Control Law. Both laws impose “cradle to grave” regulatory systems for handling hazardous waste in a manner that protects human health and the environment. Cal/EPA has delegated some of its authority under the Hazardous Waste Control Law to county health departments and other CUPAs, including the San Diego County Department of Environment Health (DEH).

San Diego County Department of Environment Health

Establishments within Escondido involved with hazardous materials are regulated by the Hazardous Materials Division (HMD) of the County DEH. The HMD regulates hazardous materials business plans and chemical inventories, hazardous waste permitting, underground storage tanks, risk management plans, and a listing of permitted hazardous materials users within the city.

California Emergency Services Act – California Government Code Section 8550-8551

The California Emergency Services Act provides the basic authority for conducting emergency operations following a proclamation of emergency by the governor and/or appropriate local authorities. Local government and district emergency plans are considered extensions of the California Emergency Plan, established in accordance with the Emergency Services Act.

Public Resource Code 4201-4204 and California Government Code 51175-89

These regulations direct the California Department of Forestry and Fire Protection to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones (FHSZs), then define the application of various mitigation strategies to reduce risk associated with wildland fires.

Title 14 Division 1.5 of the California Code of Regulations Section 1270

California Code of Regulations Title 14 Division 1.5 Section 1270 establishes the regulations for CAL FIRE and is applicable in all State Responsibility Areas (SRAs)—areas where CAL FIRE is responsible for wildfire protection. Most of the unincorporated area of the County is SRA and any development in these areas must comply with these regulations. Among other things, Title 14 establishes minimum standards for emergency access, fuel modification, setback to property line, signage, and water supply.

City of Escondido General Plan, Community Protection Element

The Community Protection Element includes policies specific to wildland fire hazards. Policies that may be applicable to the project include:

> *Fire Protection Policy 2.14:* Require new development in high wildfire risk areas to incorporate site design, maintenance practices, and fire resistant landscaping to protect properties and reduce risks.
>
> *Fire Protection Policy 2.16:* Require fire protection plans for mitigation of potential grass and wildland fires within designated high fire hazard areas and other areas required by the Fire Department, that address the need for fire systems, water availability, secondary emergency access routes, construction requirements, and fire resistant landscaping and appropriate defensible space around structures.

The Community Protection Element includes policies specific to hazardous materials. Policies that may be applicable to the project include:

> *Hazardous Materials Policy 8.2:* Coordinate with relevant agencies to enforce applicable laws regulating the handling, use, production, storage, disposal, and transportation of hazardous materials, and notify the appropriate city, county, state, and federal agency in the event of a violation.
>
> *Hazardous Materials Policy 8.3:* Maintain regulations requiring proper handling, storage and disposal of hazardous materials to prevent leakage, potential explosion, fire, or the escape of harmful gases, and to prevent individually innocuous materials from combining to form hazardous substances.

Hazardous Materials Policy 8.11: Maintain strict land use controls, performance standards, and structure design standards for uses that generate, use, or store hazardous materials, including setbacks from sensitive uses (schools, residential homes, daycare facilities, etc.) to protect and health and safety of the community in concert with regional, state and federal requirements for existing and proposed uses.

3.7.2 Significance Criteria

The effects of a project on hazards and public safety would be considered significant if the project would do the following:

1. Create a substantial hazard or risk to public safety.
2. Create a significant hazard to the public or the environment through the routine transport, use, disposal, or release of hazardous materials; or be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
4. Result in a safety hazard for people residing or working in the project area due to location 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 or the vicinity of a private airstrip.
5. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
6. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

3.7.3 Impact Analysis

***Criterion 1*: Would the project create a substantial hazard or risk to public safety?**

Oakvale Road Realignment

The terrain of the existing Oakvale Road and the proposed realignment abuts steep, rocky slopes. This type of treacherous topography and the need to excavate from a steep rock face could create worker and safety hazards beyond those typically encountered in an active construction zone due to rock fall hazards. The contractor's work plan would identify potential hazard areas due to steep slopes where construction could present a hazard to adjacent facilities or resources, and would specify appropriate protective actions to ensure safe conditions throughout the construction period. The work plan would identify areas where netting and temporary protective fences would be installed to safely collect falling debris and prevent impacts to workers, the road, the dam, and the reservoir.

The nature of the project, including blasting and excavation of rock faces near publicly accessible areas (existing Oakvale Road, which would remain open during construction and trails in the area), could entice public interest and generate a safety hazard if the public were to encroach into the construction area. The work plan would identify potential public safety hazards in and around the work zones and include preventative measures. Such measures may include additional security fencing surrounding the active work areas and unstabilized rock fall hazards areas; posting of hazard warning signs; additional security (safety lighting, lock down of staging areas and equipment, etc.) during non-work hours when the contractor is not on-site, and a public notification program to educate the nearby residents of potential safety hazards during construction, among others. With implementation of the contractor's work plan with measures specific to public safety concerns in and around the construction area, the potential for increased public safety hazards during construction would be minimized and the impact would be less than significant.

The realignment would be accomplished by excavating into the adjacent slope to remove approximately 56,000 cy of rock and earth and create space for realigning the road. In areas of large rocks that cannot be easily moved by a backhoe or dozer, blasting may be required and hydraulic splitting used to loosen rock for off-hauling. Excavation, including blasting, splitting, and scaling, would be conducted under the supervision of a geotechnical engineer pursuant to a site-specific work plan and blasting plan, which would identify methods for safe removal and stockpiling of rock to ensure worker safety throughout the construction process. The explosive force of blasting would be limited to what is sufficient to remove the loose rock without damaging surrounding rock and terrain. Proper engineering design and adherence to the work plan during excavation would ensure this element of excavation would not create a safety hazard or risk to public safety during active construction operations and the impact would be less than significant.

After completion of excavation, the project proposes slope stabilization and protection in the form of rock bolts and wire netting. Rock bolts are long metal rods drilled into the rock face to stabilize the rock mass and prevent toppling or sliding along existing tension cracks. Wire mesh installed over the exposed slope surfaces would hold rock in place and prevent rock that may be loosened in future conditions from falling down the slope. With these measures implemented to limit the potential for rock fall or rock slide incidents from affecting the roadway below, the long-term public safety hazard from rock falls along the realigned Oakvale Road would be minimized. The impact would be less than significant.

Replacement Dam and Access Road

The discussion of public safety provided under the Oakvale Road realignment is also applicable to the dam construction as it is in a nearby location with similar terrain and would require similar construction methods, such as blasting. The steep, rocky slopes of the dam construction area could create worker and safety hazards beyond those typically encountered in an active construction zone due to rock fall hazards. The contractor's work plan would identify potential risk areas where construction could present a hazard and would specify appropriate protective actions, such as temporary protective fences, posting of warning signs, and other appropriate measures to ensure safe conditions throughout the construction period.

As discussed for the road realignment, the dam construction also presents an interesting construction scenario, with 24-hour dam construction, a batch plant and conveyer belt system, and blasting and excavation near publicly accessible areas, which could entice public interest and generate a safety hazard if the public were to knowingly trespass or unknowingly encroach into the construction area. The work plan would identify potential public safety hazards in and around the work zones and include preventative measures as described under the road realignment such as additional security fencing surrounding the active work areas and unstabilized rock fall hazards areas; posting of hazard warning signs; additional security during non-work hours when the contractor is not on-site; and a public notification program to educate the nearby residents of potential safety hazards during construction, among others. The recreational trails that traverse the area would be closed during the construction period to minimize the potential for the public to access areas near the active construction zone. A screened chain-link fence would be installed around the staging yard to prevent trespassing. With implementation of the contractor's work plan including measures specific to public safety concerns in and around the construction area, the potential for increased public safety hazards during construction would be minimized and the impact would be less than significant.

As with the road realignment, the dam construction would also require the use of blasting for excavation. It is anticipated that the foundation excavation would require approximately 59,516 cy of rock to be removed. Foundation and side slope excavation would require blasting. Also, in the dam foundation zone where large rocks could not be easily moved by a backhoe or dozer, blasting may be required and hydraulic splitting used to loosen rock for off-hauling. The site-specific work plan and blasting plan as described for the road realignment would identify methods for safe removal and stockpiling of rock to ensure worker safety throughout the construction process. The explosive force of blasting would be limited to what is sufficient to remove the loose rock without damaging surrounding rock and terrain. Proper engineering design and adherence to the work plan and blasting plan during excavation would ensure this element of excavation would not create a safety hazard or risk to public safety during active construction operations and the impact would be less than significant.

During dam replacement construction activities, Lake Wohlford and the Lake Wohlford Marina are planned to remain open to the public with the exception of the existing dam demolition, during which the reservoir and marina would be closed due to additional reservoir drawdown. The area near the existing dam currently is sectioned off by a buoy-line to keep boaters out of the area. This restricted area would remain in place during construction and would be modified as needed to ensure boater safety at all times while the lake remained open to recreationalists during construction.

With implementation of safety measures as proposed by the project and additional project-specific measures specified in the construction work plan and blasting plan, the dam construction would not create a substantial hazard or risk to public safety during active construction operations and the public safety impact would be less than significant.

The project is intended to correct an existing public safety hazard by constructing a replacement dam that will prevent uncontrolled reservoir release in the event of an earthquake. Therefore, the project would have a beneficial impact on public safety. Once complete, the public would not have access to the dam infrastructure, either by water or land. The buoy -line preventing boaters from approaching dam infrastructure would remain in place to restrict water-based access. Security fencing would be installed around the perimeter of the dam foundation and points of pedestrian or vehicular entrance for dam maintenance would be gated and restricted from public access.

Restoration of Water Levels

The restoration of the water levels in Lake Wohlford would not extend beyond historic inundation areas, which would have no bearing on public safety. Therefore, no impact would result.

Criterion 2: **Would the project create a significant hazard to the public or the environment through the routine transport, use, disposal, or release of hazardous materials or be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5?**

Oakvale Road Realignment

As described in the Existing Conditions, a records search of known hazardous material sites databases found that no such sites are located within the vicinity of the project area. The construction site for the Oakvale Road realignment is generally undeveloped open space adjacent to an existing rural roadway. There is no evidence of past disposal of hazardous materials within the project site.

Hazardous materials require special methods of disposal, storage, and treatment, and the release of hazardous materials requires an immediate response to protect human health and safety, and/or the environment. Improper disposal or accidental release can harm the environment and people. Construction equipment and activities would require the short-term transport, storage, and use of various materials and chemicals classified as hazardous materials, such as fuel, hydraulic fluids, solvents, and lubricants for effective operation. Fuel replenishment would be required daily for most of the heavy equipment. Activities involving hazardous materials would comply with all local, state, and federal health and safety requirements. The City would require the preparation and implementation of a contingency plan to prevent and contain accidental release of hazardous products. Additionally, the project would implement project-specific BMPs stated in the SWPPP to prevent on-site use of these materials from resulting in a hazard to the public or environment. The long-term use of the improved Oakvale Road would not involve the routine use, transport, and/or disposal of hazardous materials. With adherence to all regulatory requirements regarding hazardous materials, the potential for accidental release would be minimized and measures specified for immediate action if a release were to occur.

For these reasons, realignment of Oakvale Road would not create a significant hazard to the public or the environment through the routine transport, use, disposal, or release of hazardous materials or be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The impact would be less than significant.

Replacement Dam and Access Road

The analysis presented above for the Oakvale Road realignment is also applicable to the construction of the replacement dam. The majority of the construction area for the dam construction is generally undeveloped vegetated open space. There is no evidence of past disposal of hazardous materials on the project site.

Similar to the road realignment, dam construction would require the short-term transport, storage, and use of various materials and chemicals classified as hazardous materials. Activities involving hazardous materials would comply with all local, state, and federal health and safety requirements. The City would require the preparation and implementation of a contingency plan to prevent and contain accidental release of hazardous products and the project would implement project-specific BMPs stated in the SWPPP. Once completed, maintenance activities could require the ongoing use of hazardous materials and all regulatory requirements would continue to apply during long-term operation of the dam. With adherence to all regulatory requirements regarding hazardous materials during both construction and operation, the potential for accidental release would be minimized and measures specified for immediate action if release were to occur.

For these reasons, dam construction would not create a significant hazard to the public or the environment through the routine transport, use, disposal, or release of hazardous materials or be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The impact would be less than significant.

Restoration of Water Levels

Restoration of water levels would have no bearing on this issue area, and there would be no impact.

Criterion 3: **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?**

Oakvale Road Realignment

No schools are located within 0.25 mile of the project site. School sites may be located along the haul routes that would be utilized by construction vehicles; however, construction vehicles would not be transporting hazardous materials other than standard construction materials such as lubricants, solvents, and similar items. Any transport of hazardous material would be in compliance with regulatory requirements. For these reasons, the Oakvale Road realignment would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school and there would be no impact.

Replacement Dam and Access Road

As described above for the Oakvale Road realignment, no schools are located within 0.25 mile of the project site. School sites may be located along project haul routes; however, construction vehicles would not be transporting hazardous materials other than standard construction materials and any transport of hazardous material would be in compliance with regulatory requirements. For these reasons, the dam construction would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school and there would be no impact.

Restoration of Water Levels

Restoration of water levels would have no bearing on this issue area, and there would be no impact.

Criterion 4: **Would the project result in a safety hazard for people residing or working in the project area due to location 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 or the vicinity of a private airstrip?**

Oakvale Road Realignment

The Lake Wohlford Resort Airport is a small private airstrip located on a ridge north of Lake Wohlford, approximately 0.5 mile north of the project site. This is the only airfield within the immediate vicinity of the project. The roadway realignment would not require substantially tall equipment that could cause a safety risk to aircraft in the area or alter the air traffic pattern. Additionally, the realignment of the roadway on the ground would have no influence on air traffic levels or locations. The private airstrip would continue to operate in its current state with no change in air traffic patterns or volume due to the road realignment. For this reason, the Oakvale Road realignment would not result in a safety hazard for people working or residing in the project area due to airport operations and there would be no impact.

Replacement Dam and Access Road

As described for the road realignment, the private Lake Wohlford Resort Airport is located approximately 0.5 mile north of the project site. Construction of the replacement dam would not require the use of substantially tall cranes or other equipment that could interfere with aircraft operations or cause potential safety hazards. There would not be a substantial new elevation increase in the dam infrastructure that could interfere or cause a new safety hazard for aviation operations. The private airstrip would continue to operate in its current state with no change in air traffic patterns or volume due to dam construction. Thus, the dam construction would not result in a safety hazard for people working or residing in the project area due to airport operations and there would be no impact.

Restoration of Water Levels

Restoration of water levels would not require construction or other activities that could have influence on the Lake Wohlford Resort Airport operations. The rise in water level would impact the water body and immediately surrounding shoreline that has been historically inundated. The private airstrip would continue to operate in its current state with no change in air traffic patterns or volume due to water level change. Thus, the restoration of water levels would not result in a safety hazard for people working or residing in the project area due to airport operations and there would be no impact.

***Criterion 5*: Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

Oakvale Road Realignment

The City of Escondido General Plan Community Protection Element includes specific Emergency Evacuation Routes. The Emergency Evacuation Routes map does not include Oakvale Road or Lake Wohlford Road as emergency evaluation routes; however, the map does indicate that Valley Parkway, Bear Valley Parkway, and El Norte Parkway are designated Evacuation Routes (City of Escondido 2012a). These roadways are expected to be haul routes for construction vehicles associated with the project. As described in Section 3.7, Traffic/Circulation, the Oakvale Road realignment would not generate construction traffic that could cause roadways or intersections to operate at substantially worse or unacceptable conditions and the presence of construction vehicles on local roadways would not preclude the roads from serving as emergency evaluation routes. Additionally, a traffic control plan would be required by the City that would identify measures to maintain traffic safety and emergency access. Access to all areas served by Oakvale Road would be maintained throughout construction allowing for evacuation of the area if necessary. No additional elements of the roadway realignment could impact emergency response or evacuations. For these reasons, the Oakvale Road realignment would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. A less than significant impact would result.

Replacement Dam and Access Road

The information and analysis provided above for the Oakvale Road realignment apply to the dam construction. Similar to the road realignment, the dam construction would necessitate that construction vehicles use roadways that have been designated as Evacuation Routes. The construction traffic would not interfere or create unacceptable roadway operating conditions or preclude the roads from serving as emergency evaluation routes. The traffic control plan required by the City would identify measures to maintain traffic safety and emergency access. Access to all areas affected by dam construction would be maintained throughout construction allowing for evacuation of the area if necessary. No additional elements of the dam construction could impact emergency response or evacuations. For these reasons, the dam construction would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. A less than significant impact would result.

Restoration of Water Levels

The restoration of water levels in Lake Wohlford would not be of the nature to impede or interfere with emergency response or evacuations plans. The rise in water levels would affect the water body and shoreline immediately surrounding that has been historically inundated and is not used for emergency operations. Thus, the restoration of water levels would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. No impact would result.

***Criterion 6*:** **Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?**

Oakvale Road Realignment

As previously described, the project site is located within a Very High Fire Hazard Severity Zone as mapped by CAL FIRE. An urban interface susceptible to wildfire exists in the project area due to the large expanses of undeveloped open space dominated by dense chaparral and oak woodland vegetation, interspersed with rural residential development.

The use of construction equipment, similar to any powered equipment or vehicle, can be a source of potential fire, due to electrical sparks and use of flammable materials that could ignite and spread quickly to surrounding areas and fuel sources. The realignment of Oakvale Road would entail construction work in the vicinity of dry brush and other dense vegetation vulnerable to ignition, which could result in a temporary increase in the potential for accidental wildfires.

As a standard practice, the City would require the contractor to prepare a Fire Prevention and Response Plan specific to the project, and all construction crewmembers would be trained in the requirements of the plan. The Fire Prevention and Response Plan would reduce the potential for accidental wildfires through requirements and measures that minimize potential for accidental ignition as well as ensure quick response if a fire were to occur. Such measures and requirements may include fire suppression equipment to be located on board construction equipment and/or at the worksite; heavy equipment operators to be trained in appropriate responses to accidental fires; emergency communication equipment available to site personnel; and requirements for vegetation clearing and buffers around active work and staging areas, among others.

Once completed, the Oakvale Road realignment would not introduce new or permanent structures that would be fire prone or would create substantial new fire hazards. Because the required Fire Prevention and Response Plan would minimize potential for accidental wildfires due to construction operations, the Oakvale Road realignment would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. A less than significant impact would result.

Replacement Dam and Access Road

The analysis presented above for the Oakvale Road realignment is applicable to the construction of the replacement dam. Construction activities associated with dam construction would be located within a Very High Fire Hazard Severity Zone. Construction work in the vicinity of dry brush and other dense vegetation vulnerable to ignition could result in a temporary increase in the potential for accidental wildfires. The City-required Fire Prevention and Response Plan specific to the project as described for the Oakvale Road realignment would also be applicable to construction associated with the dam replacement and would minimize potential for accidental wildfires due to construction operations. Once completed, the replacement dam would not be a structure that would be fire prone or would create substantial new fire hazards. Thus, the dam construction would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. A less than significant impact would result.

Restoration of Water Levels

The restoration of water levels in Lake Wohlford would not be of the nature to cause increased wildland fire risk. The rise in water levels would affect the water body and shoreline immediately surrounding that has been historically inundated. Thus, the restoration of water levels would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. No impact would result.

3.7.4 Significant Impacts and Mitigation Measures

No significant hazards or public safety impacts were identified for any component of the project. No mitigation measures are required.

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3.8 HYDROLOGY AND WATER QUALITY

This section analyzes the existing and potential hydrology and water quality conditions and impacts during project construction and operation. The analysis is based on information contained in the *Lake Wohlford Dam Replacement Drainage Study* (Black & Veatch 2014a) and the *Water Quality Technical Report, Lake Wohlford Dam Replacement Project* (AECOM 2015) (see Appendix H of the EIR].

3.8.1 Existing Conditions

Environmental Setting

Hydrology

Regional Hydrology

The proposed project area lies within the San Diego Region (RWQCB Region 9), which occupies approximately 3,900 square miles in the southwest corner of California and encompasses most of San Diego County and parts of southwestern Riverside County and southwestern Orange County. The Pacific Ocean coastline is the western boundary of the region, which extends approximately 85 miles north from the California/Mexico border. The San Diego region's northern boundary is formed by the hydrologic divide starting near Laguna Beach and extending inland through El Toro and easterly along the ridge of the Elsinore Mountains into the Cleveland National Forest. The eastern boundary is formed by the Laguna Mountains and other mountains located in the Cleveland National Forest. The California/Mexico border forms the southern boundary of the region. The San Diego region is divided into 11 major hydrologic units (HUs).

Local Hydrology

The proposed project area is located in the Escondido Creek Hydrologic Area (HA) within the Carlsbad HU (Figure 3.8-1). The majority of the proposed project area is located in the Lake Wohlford hydrologic subarea (HSA) and a small portion on the western edge of the proposed project area is located in the Escondido HSA. The Carlsbad HU is approximately 210 square miles extending from the headwaters above Lake Wohlford in the east to the Pacific Ocean in the west, and from Vista and Oceanside in the north to Solana Beach, Escondido, and the community of Rancho Santa Fe to the south. Escondido Creek extends approximately 28 miles from its headwaters, runs through the project site, and discharges into San Elijo Lagoon and out to the Pacific Ocean.

Precipitation and Climate

Precipitation in San Diego County is derived from frontal low-pressure systems that originate over the Pacific Ocean and generally travel southeast into Southern California. The climate at the proposed project location is a typical Mediterranean climate with warm summers and cool wet winters. The mean annual precipitation is approximately 17 inches, with most of the precipitation occurring from November through March. Rainfall totals are higher in the hills to the north and east, with 20 to 24 inches falling in most areas above 2,000 feet elevation. The mean annual temperature ranges from approximately 52° F to 77°F.

Floodplains

Figure 3.8-2 illustrates the Federal Emergency Management Agency (FEMA) 100-year and 500-year floodplain extent for the proposed project area. The majority of the proposed project location is a “Zone X” and is outside of the 100- and 500-year Flood Hazard Zones. A very small portion of the proposed project location in the northeastern area is within the 100-year flood zone and has a 1% probability of flooding each year.

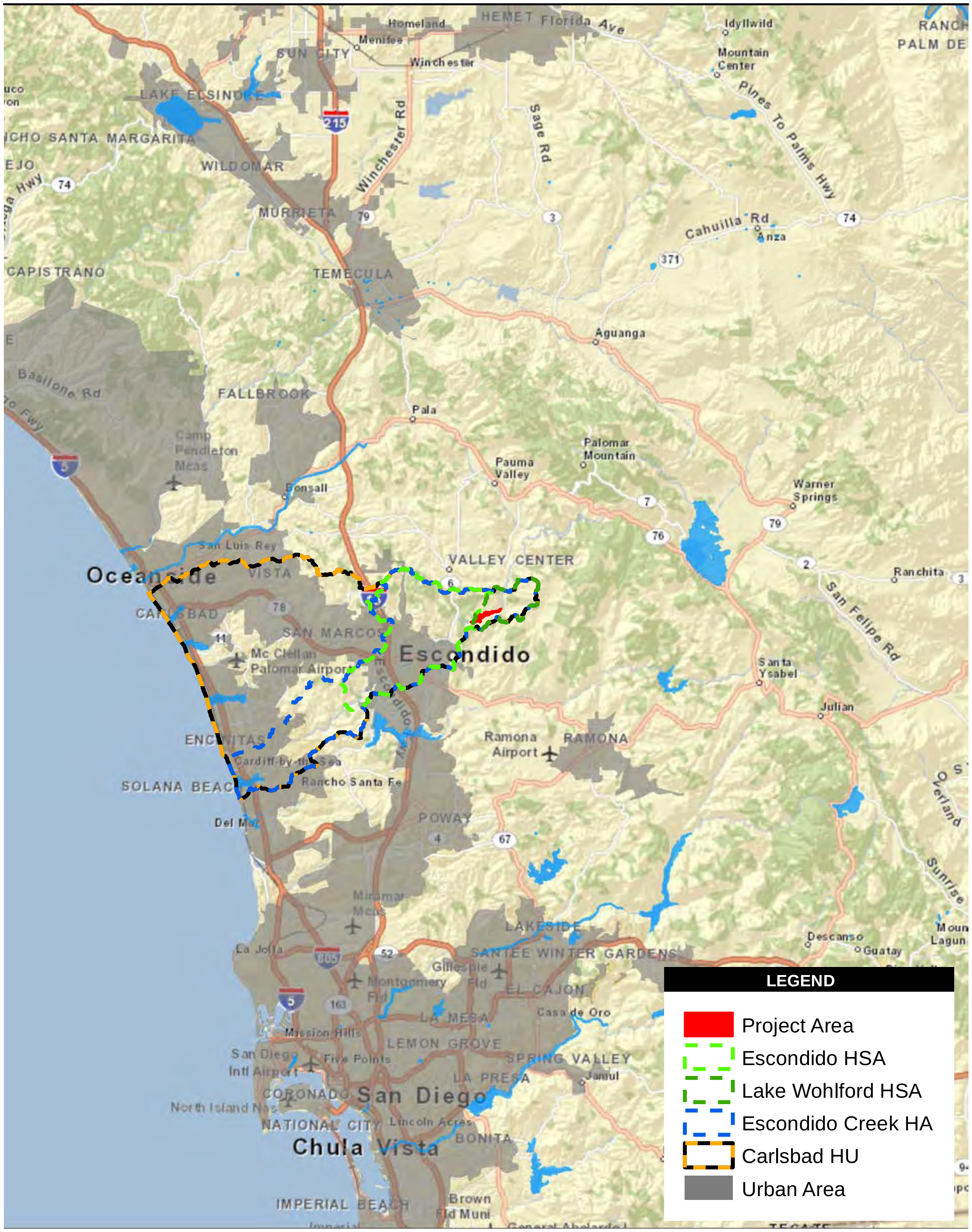
Groundwater Hydrology

Groundwater basins in San Diego County are relatively small and shallow. The proposed project site is entirely underlain by the Escondido Valley Groundwater Basin. The basin has a surface area of 2,890 acres (4.5 square miles) and is bounded by the contact of residuum with impermeable Cretaceous granitic rocks and pre-Cretaceous metamorphic rocks (DWR 2004). The water-bearing units in the basin are Quaternary-age alluvium and residuum; groundwater production in this basin is largely from residuum (DWR 1967 as cited in DWR 2004). Groundwater within this basin is generally found at less than 50 feet in depth (DWR 1967 as cited in DWR 2004).

Beneficial Uses and Water Quality Objectives

The Water Quality Control Plan for the San Diego Basin (Basin Plan) (RWQCB 1994) identifies beneficial uses and water quality objectives (WQOs) for surface water and groundwater in the proposed project area. The following sections summarize relevant WQOs and beneficial uses.

Beneficial uses are the uses of water necessary for the survival or well-being of humans, plants, and wildlife. Beneficial uses identified in the Basin Plan (RWQCB 1994) for Escondido Creek and Lake Wohlford are:



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community; NHD; CalWater 2014

10 5 0 10 Miles

Scale: 1 = 633,600 1 inch = 10 miles

Figure 3.8-1
Watersheds

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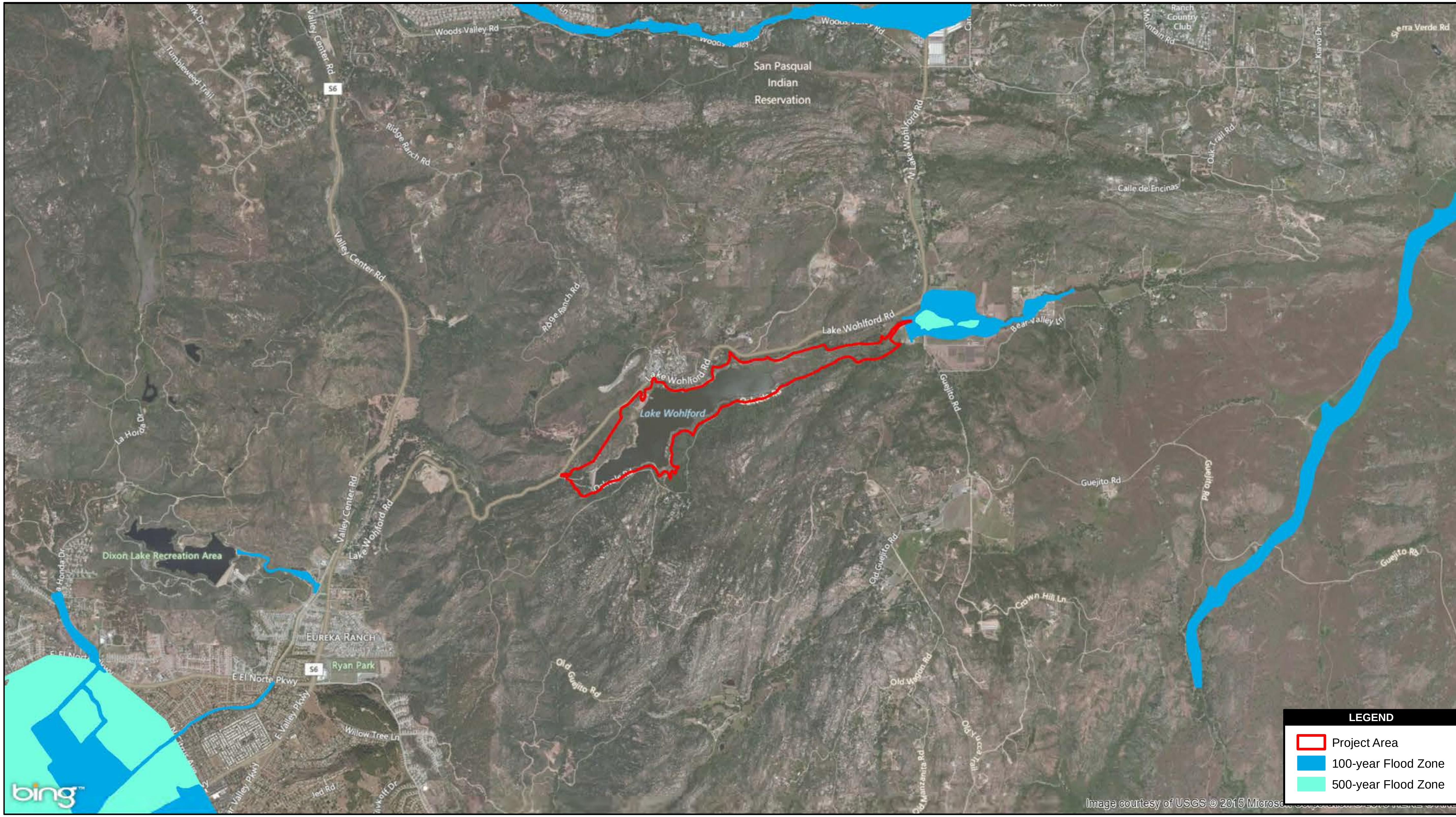

Source: ESRI; Microsoft 2010; FEMA 2002

3,000 0 3,000 Feet

Scale: 1:36,000; 1 inch = 3,000 feet

Figure 3.8-2
FEMA Flood Zones

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- Municipal and Domestic Supply (MUN)
- Agricultural Supply (AGR)
- Hydropower Generation (POW)
- Contact Water Recreation (REC-1)
- Non-contact Water Recreation (REC-2)
- Warm Freshwater Habitat (WARM)
- Cold Freshwater Habitat (COLD)
- Wildlife Habitat (WILD)

Beneficial uses identified in the Basin Plan (RWQCB 1994) for groundwater within Lake Wohlford and Escondido HSAs are:

- Municipal and Domestic Supply (MUN)
- Agricultural Supply (AGR)
- Industrial Service Supply (IND).

Narrative and numeric WQOs have been established to protect the beneficial uses of waters and/or prevent a nuisance in a specific area. WQOs for surface waters within the Escondido Creek HA are established for total dissolved solids (TDS), chloride, sulfate, percent sodium, nitrogen and phosphorus, iron, manganese, methylene blue activated substances, boron, turbidity, color, and fluoride. See Table 3-2 in the Basin Plan (RWQCB 1994) for the specific WQOs for surface waters within the Escondido Creek HA. WQOs for groundwater within the Escondido Creek HA are established for TDS, chloride, sulfate, percent sodium, nitrate, iron, manganese, methylene blue activated substances, boron, turbidity, color, and fluoride. See Table 3-3 in the Basin Plan (RWQCB 1994) for specific WQOs for groundwater within the Escondido Creek HA. See the Basin Plan (RWQCB 1994) for narrative WQOs for surface waters and groundwater within Escondido Creek HA.

Existing Water Quality

The proposed project site is situated within the Carlsbad HU, which is experiencing degrading water quality due to rapid development. Constituents of concern in Carlsbad HU surface waters include indicator bacteria, nutrients, and sediment. Groundwater quality is impacted by TDS, nitrates, and sulfates (DWR 2004). Many of the water quality problems in the Carlsbad HU are due to urban and agricultural runoff, sewage spills, livestock, and domestic animals. Along the proposed project footprint, it would be expected that sediment would be a principal pollutant of concern.

Escondido Creek is included on the 2010 CWA 303(d) list of impaired water bodies (SWRCB 2011). Escondido Creek has been listed as impaired by dichlorodiphenyltrichloroethane, *Enterococcus*, fecal coliform bacteria, manganese, phosphate, selenium, sulfates, TDS, nitrogen, and toxicity. These impairments are listed as being from unknown point and nonpoint sources and urban runoff/storm sewers. Total maximum daily loads (TMDLs) action plans for these pollutants are scheduled for completion in 2019.

Regulatory Setting

Various governing laws and regulations serve to protect surface water quality and hydrology by establishing water quality compliance standards or waste discharge requirements (WDRs). These mandates require implementation of a number of design, construction, and operational controls that address structural and nonstructural best management practice (BMP) requirements for proper management and water quality treatment/protection. Applicable regulations and the associated agencies with regulatory authority and oversight are described below.

Federal Laws and Requirements

Federal Clean Water Act of 1972

The federal Clean Water Act (CWA) of 1972 is the basic federal law that addresses surface water quality control and protection of beneficial uses of water. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters through prevention, reduction, and elimination of pollution. The CWA applies to discharges of pollutants into waters of the U.S. The CWA establishes a framework for regulating storm water discharges from municipal, industrial, construction, and other activities under NPDES regulations. In California, the SWRCB administers the NPDES program. The following CWA sections are most relevant to regulation of surface water in the project area.

CWA SECTION 303(D)

CWA Section 303 requires states to adopt water quality standards for all surface waters of the U.S. As defined by the CWA, water quality standards consist of four elements:

- designated beneficial uses of water bodies,
- water quality criteria to protect designated uses,
- an anti-degradation policy to maintain and protect existing uses and high-quality waters, and
- general policies addressing implementation issues.

Under CWA Section 303(d), states, territories, and authorized tribes are required to develop a list of water bodies that are considered “impaired” from a water quality standpoint. Water bodies that appear on this list either do not meet or are not expected to meet water quality standards, even after the minimum required levels of pollution control technology have been implemented to reduce point-source discharges. The law requires that respective jurisdictions establish priority rankings for surface water bodies on the list and develop action plans, referred to as TMDLs, to improve water quality. A TMDL is a calculation of the maximum amount of a specific pollutant that a water body can receive and still meet federal water quality standards as provided in the CWA (EPA 2012). TMDLs account for all sources of pollution, including point sources, nonpoint sources, and natural background sources.

The CWA Section 303(d) list of impaired water bodies provides a prioritization and schedule for development of TMDLs for states. The SWRCB, in compliance with CWA Section 303(d) publishes the list of water quality-limited segments in California, which includes a priority schedule for development of TMDLs for each contaminant or “stressor” affecting the water body (SWRCB 2011).

CWA SECTION 401

Every applicant for a federal permit or license for any activity that may result in a discharge to a water body must obtain a CWA Section 401 Water Quality Certification for the proposed activity and must comply with state water quality standards prescribed in the certification. In California, these certifications are issued by the SWRCB under the auspices of nine RWQCBs. Most certifications are issued in connection with CWA Section 404 USACE permits for dredge and fill discharges.

CWA SECTION 402

CWA Section 402 sets forth regulations that prohibit the discharge of pollutants into waters of the U.S. from any point source without first obtaining an NPDES Permit. The SWRCB and nine RWQCBs administer the NPDES Permit program. The SWRCB implements the NPDES and the state’s water quality programs by regulating point-source discharges of wastewater and agricultural runoff to land and surface waters to protect their beneficial uses. To comply with the CWA water quality regulations, nine RWQCBs in California develop and enforce water quality objectives and implementation plans, issue waste discharge permits, take enforcement action, and monitor water quality within their hydrologic areas.

Permitting the construction or modification of outfall structures, where the discharged effluent is authorized or otherwise complies with an NPDES Permit, also is governed under Nationwide

Permit #7, requiring the permittee to submit a pre-construction notification to the district USACE engineer before beginning any project activity.

Although the NPDES Permit program initially focused on point source discharges of municipal and industrial wastewater that were assigned individual permits for specific outfalls, results of the Nationwide Urban Runoff Program identified contaminated storm water as one of the primary causes of water quality impairment. To regulate runoff-related (nonpoint source) discharges, the EPA developed a variety of general NPDES Permits for controlling industrial, construction, and municipal storm water discharges.

CWA Section 404

CWA Section 404 establishes a permit program, administered by USACE, regulating discharge of dredged or fill materials into waters of the U.S., including wetlands. Activities in waters of the U.S. that are regulated under this program include fills for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and conversion of wetlands to uplands for farming and forestry. CWA Section 404 permits are issued by USACE.

Under CWA Section 404(e), USACE can issue general permits to authorize activities that have minimal individual and cumulative adverse environmental effects. General permits can be issued for a period of no more than 5 years. USACE can issue nationwide permits, which is a general permit that authorizes activities across the country, unless revoked by a district or division commander. Nationwide permits authorize a wide variety of activities such as linear transportation projects, residential development, commercial and industrial developments, utility lines, road crossings, bank stabilization activities, wetland and stream restoration activities, and certain maintenance activities. Two new nationwide permits were added in 2012 to evaluate land-based and water-based renewable energy proposals in support of U.S. clean energy initiatives.

Federal Antidegradation Policy

The Federal Antidegradation Policy has been in existence since 1968. The policy protects existing uses, water quality, and national water resources. It directs states to adopt a statewide policy that includes the following primary provisions:

- maintain and protect existing instream uses and the water quality necessary to protect those uses;

- where existing water quality is better than necessary to support fishing and swimming conditions, maintain and protect water quality unless the state finds that allowing lower water quality is necessary for important local economic or social development; and
- where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, maintain and protect that water quality.

Section 10 of the Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act, administered by USACE, prohibits the creation of any obstruction, excavation or fill, or any alteration or modification of any navigable water of the U.S. unless the work has been permitted by USACE (33 USC Section 403).

National Flood Insurance Act

The National Flood Insurance Act of 1968 established the National Flood Insurance Program (NFIP). The NFIP is a federal program administered by the Flood Insurance Administration of FEMA. It enables individuals who have property within the 100-year floodplain to purchase insurance against flood losses. Community participation and eligibility, flood hazard identification, mapping, and floodplain management aspects are administered by state and local programs and support directorate within FEMA. FEMA works with the states and local communities to identify flood hazard areas and publishes a flood hazard boundary map of those areas.

Executive Order 11988—Floodplain Management

An amendment to Executive Order 11988 was issued on January 28, 2015, and includes revised guidelines for implementing Executive Order 11988. Amended Executive Order 11988 directs federal agencies to avoid, to the extent practicable and feasible, short- and long-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever a practicable alternative exists. Each federal agency is responsible for reducing the risk of flood loss; minimizing the impact of floods on human safety, health, and welfare; and restoring and preserving natural and beneficial values served by floodplains. In addition, amended Executive Order 11988 advises agencies to use a higher flood elevation and expanded flood hazard area than the base flood previously described in Executive Order 11988 to ensure that climate change and other future changes are more adequately accounted for in agency decisions.

The basic tools for regulating construction in potentially hazardous floodplain areas are local zoning techniques and FEMA floodplain mapping. Flood Insurance Rate Map (FIRM) is the official map created and distributed by FEMA and the NFIP that delineates Special Flood Hazard Areas (SFHAs)—areas that are subject to inundation by a base flood—for every county and community that participates in the NFIP. FIRMs contain flood risk information based on historic, meteorological, hydrologic, and hydraulic data, as well as open-space conditions, flood control works, and development.

For projects that would affect the hydrologic or hydraulic characteristics of a flooding source and modify an existing regulatory floodway, effective Base Flood Elevations, or an SFHA, a conditional letter of map revision would need to be approved by FEMA.

State Regulations and Policies

Porter-Cologne Water Quality Control Act

Division 7 of the California Water Code is the basic water-quality control law for California. This law, titled the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) and enacted in 1969, establishes a regulatory program to protect water quality and beneficial uses of state waters.

The Porter-Cologne Act is California's comprehensive water quality control law and is a complete regulatory program designed to protect water quality and beneficial uses of the state's waters. It requires the nine RWQCBs to adopt water quality control plans (basin plans) for watersheds within their regions. These basin plans are reviewed triennially and amended as necessary by the RWQCBs, subject to the approval of the California Office of Administrative Law, SWRCB, and EPA. Moreover, pursuant to the Porter-Cologne Act, these basin plans become part of the California Water Plan when such plans have been reported to the legislature (California Water Code, Section 13141). The Porter-Cologne Act also regulates river or stream crossings during road, pipeline, or transmission line construction that may result in a discharge into a state water body that is not considered to be under USACE jurisdiction.

In some cases, an RWQCB may issue WDRs under the Porter-Cologne Act that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals, that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

State Antidegradation Policy (Resolution 68-16)

The state's Antidegradation Policy restricts degradation of surface and ground waters. This policy protects water bodies where existing quality is higher than necessary for the protection of beneficial uses. The state policy establishes two conditions that must be met before the quality of high-quality waters may be lowered by waste discharges. The state must determine that lowering the quality of high-quality waters:

1) Will be consistent with the maximum benefit to the people of the state,
2) Will not unreasonably affect present and anticipated beneficial uses of such water, and
3) Will not result in water quality less than that prescribed in state policies (e.g., water quality objectives in Water Quality Control Plans).

Any activities that result in discharges to high-quality waters are required to:

1) Meet WDRs that will result in the best practicable treatment or control of the discharge necessary to avoid pollution or nuisance, and
2) Maintain the highest water quality consistent with the maximum benefit to the people of the state.

The discharge would not be allowed under Resolution 68-16 if the discharge, even after treatment, would unreasonably affect beneficial uses or would not comply with applicable provisions of water quality control plans.

Cobey-Alquist Flood Plain Management Act

The Cobey-Alquist Act of 1967 encourages local governments to plan, adopt, and enforce land use regulations to accomplish floodplain management, in order to protect people and property from flooding hazards. This act also provides state financial assistance for flood control projects.

California Flood Future Report

California's Flood Future Report (DWR 2013) includes information from more than 140 local, state, and federal agencies throughout California to provide a look at statewide exposure to flood risk, and identifies and addresses the barriers to improved flood management. The Flood Future Report provides information to assist decision-making about policies and financial investments to improve public safety, foster environmental stewardship, and support economic stability.

Construction General Permit

Dischargers whose projects disturb 1 or more acres of soil, or less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the SWRCB's Order 2009-0009-DWQ (as amended by Orders 2010-0014-DWQ and 2012-0006-DWQ), the Construction General Permit (SWRCB 2009). Construction and demolition activities subject to this permit include clearing, grading, grubbing, and excavation, or any other activity that results in a land disturbance equal to or greater than one acre.

Permit applicants are required to submit a Notice of Intent to the SWRCB and to prepare a Storm Water Prevention Pollution Plan (SWPPP). The SWPPP must identify BMPs that are to be implemented to reduce construction impacts on receiving water quality based on potential pollutants. The SWPPP also must include descriptions of the BMPs to reduce pollutants in storm water discharges after all construction phases are completed at a site (post-construction BMPs). The Construction General Permit also includes requirements for risk-level assessment for construction sites, a storm water effluent monitoring and reporting program, rain event action plans, and numeric action levels for pH and turbidity.

California Fish and Game Code Section 1602

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW, pursuant to the Fish and Game Code Section 1602. Section 1602 makes it unlawful for an entity (i.e., any person, state, local governmental agency, or public utility) to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake without first notifying CDFW of such activity. The regulatory definition of a stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A Lake or Streambed Alteration Agreement must be obtained from CDFW for any activity that may substantially adversely affect an existing fish or wildlife resource.

Regional and Local Requirements

San Diego Regional Water Quality Control Board

As described above, the Porter-Cologne Act requires that RWQCBs adopt water quality control plans (basin plans) for watersheds within their jurisdiction. These plans establish water quality standards for particular surface water bodies and groundwater resources.

The San Diego RWQCB (Region 9) is responsible for the basin plan for the San Diego Basin. The RWQCB implements management plans to modify and adopt standards under provisions set forth in Section 303(c) of the CWA and California Water Code (Division 7, Section 13240). In addition to basin plan requirements, the RWQCB issues water quality certifications under CWA Section 401. The RWQCB also regulates discharges to, and the quality of, groundwater resources through the issuance of WDRs. WDRs are issued for discharges that specify limitations relative to the San Diego Basin Plan (RWQCB 1994).

Water Quality Control Plan for the San Diego Basin (Basin Plan)

The basin plan for the San Diego Basin (RWQCB 1994) establishes water quality objectives for constituents that could potentially cause an adverse effect or impact on the beneficial uses of water. Specifically, the Basin Plan:

1. Designates beneficial uses for surface and ground waters.
2. Sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to California's anti-degradation policy.
3. Describes implementation programs to protect beneficial uses of all waters in the region.
4. Describes surveillance and monitoring activities to evaluate the effectiveness of the basin plan.
5. Incorporates by reference all applicable State and Regional Board plans and policies.

Total Maximum Daily Loads

CWA Section 303(d) mandates that states, territories, and authorized tribes develop a list of segments of water that do not meet water quality standards, even after pollution control technology has been implemented for point sources of pollution. RWQCBs are required to prepare the CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLs (SWRCB 2011) and submit it to the SWRCB, who then is to submit it to EPA for final approval.

RWQCBs are required by law to establish TMDLs. These are action plans designed to improve the quality of water resources. As part of the TMDL process, municipalities must examine their water quality problems and identify sources of pollutants to create specific actions, designed to improve water quality.

Dewatering Permit

Discharges from specified groundwater extraction activities (such as construction dewatering) must be permitted either by the San Diego RWQCB under the General Order R9-2008-0002 for groundwater waste discharges to surface waters or authorized by the agency with jurisdiction if discharged to a municipal separate storm water systems (MS4). Discharge via either of these mechanisms must meet applicable water quality objectives, constituent limitations, and pretreatment requirements.

San Diego Regional Municipal Storm Water Permit

The San Diego Regional Municipal Storm Water Permit (Order R9-2013-0001 [as amended by Order R9-2015-0001]) (Municipal Permit) regulates the conditions under which storm water and non-storm water discharges into and from MS4s are prohibited or limited. The 18 cities, County of San Diego government, County of San Diego Regional Airport Authority, and San Diego Unified Port District each owns or operates an MS4, through which it discharges storm water and non-storm water into waters of the U.S. within the San Diego region. These entities are the County of San Diego Copermittees (Copermittees) which, along with the applicable Orange County and Riverside County Copermittees, are subject to the requirements of the permit. The Caltrans storm water system is regulated separately under the Caltrans NPDES permit as described previously.

Under Phase I of its storm water program, EPA published NPDES permit application requirements for municipal storm water discharges for municipalities that own and operate separate storm drain systems serving populations of 100,000 or more, or that contribute significant pollutants to waters of the U.S. Under Phase II, small MS4s that are not permitted under the municipal Phase I regulations are regulated under the Phase II Small MS4 permit (Order 2013-0001-DWQ).

The Municipal Permit establishes prohibitions and limitations with the goal of protecting water quality and designated beneficial uses of waters of the state from adverse impacts caused by or contributed to by MS4 discharges. The Municipal Permit requires that each jurisdiction covered under the permit implement a Jurisdictional Urban Runoff Management Program (JURMP) to control the contribution of pollutants to and the discharges from the MS4. The goal of the jurisdictional runoff management programs is to implement water quality improvement strategies and runoff management programs that effectively prohibit non-storm water discharges into the Copermittees' MS4s and reduce pollutants in storm water discharges from the Copermittees' MS4s to the maximum extent practicable.

The Municipal Permit requires that the Copermittees develop a Water Quality Improvement Plan for each of 10 Watershed Management Areas in the San Diego region. These plans will identify the highest priority water quality conditions within each watershed and specific goals, strategies, and schedules to address those priorities, including numeric goals and action levels, and requirements for water quality monitoring and assessment. The Copermittees will implement strategies through their jurisdictional runoff management programs to achieve the goals of the Water Quality Improvement Plans.

In accordance with the provisions of the Municipal Permit, the County of San Diego developed a Standard Urban Storm Water Mitigation Plan (SUSMP) (County of San Diego 2011b) to identify mitigation strategies required to protect storm water quality for new development and significant redevelopment within the San Diego region. The County of San Diego's SUSMP establishes a series of source control, site design, and treatment control BMPs that are to be implemented by all Priority Development Projects (PDPs). PDPs include new development; redevelopment projects that create, add, or replace 5,000 square feet; and pollutant-generating projects. Each jurisdiction within the County of San Diego (i.e., Copermittees of the Municipal Permit) has adopted their own SUSMP. A PDP should refer to the SUSMP that has jurisdiction for the project for guidance on the mitigation of storm water pollutants. All future projects implementing the proposed project must adhere to these regulations.

Under the Municipal Permit, Copermittees are required to implement storm water management requirements and controls, which include requirements for storm water BMPs during construction and post-construction, including implementing low impact development (LID) BMPs for development and significant redevelopment to reduce pollutants in storm water runoff from sites through more natural processes such as infiltration and biofiltration. The County of San Diego developed a LID handbook for guidance in the BMP selection process (County of San Diego 2014a). Design techniques include minimizing impervious areas, conserving natural areas, and utilizing vegetation and landscaping for water quality treatment benefits.

Copermittees are also required to comply with hydromodification management requirements to mitigate the potential for increased erosion in receiving waters due to increased runoff rates and durations often caused by development and increased impervious surfaces. The Municipal Permit requires Copermittees to implement a Hydromodification Management Plan (HMP) "to manage increases in runoff discharge rates and durations from all PDPs, where such increased rates and durations are likely to cause increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force." The HMP was prepared in 2009 and was finalized in January 2011 (County of San Diego 2011b).

The HMP requires PDPs to implement hydrologic control measures so that post-project runoff flow rates and durations do not exceed pre-development flow rates and durations where they would result in an increased potential for erosion or significant impacts to beneficial uses or violate the channel standard.

The Copermittees are currently developing a new Model BMP Design Manual per Order R9-2013-0001. The Model BMP Design Manual is expected to be implemented in December 2015. Components of the 2011 HMP are being incorporated into the Model BMP Design Manual with modifications as necessary.

City of Escondido Jurisdictional Urban Runoff Management Plan

The City's JURMP (City of Escondido 2008) was developed in response to the mandates of the Municipal Permit described above, which incorporates a city-specific SUSMP, HMP, and LID guidance to improve urban runoff quality and protect local waterbodies.

The City's JURMP is designed to reduce the discharge of pollutants in runoff to the MS4 or surface waters during the three major phases of urban development:

1. Existing development
2. Planning
3. New development construction

To accomplish this, the City has implemented a strategic set of pollution prevention measures through various programs implemented by a number of City departments. These measures include:

- Monitoring water quality;
- Evaluating sites and activities associated with new development or redevelopment;
- Recommending controls, designs, and/or treatment needs to reduce potential pollutants;
- Educating the public about storm water issues; and
- Enforcing pollution prevention regulations.

Standard Urban Storm Water Mitigation Plan

The City's SUSMP (City of Escondido 2011) was developed to address the following objectives:

- incorporate a unified LID design procedure that integrates site planning and design measures with engineered, small-scale integrated management practices such as bioretention;
- assist developers in creating a single integrated design that complies with requirements for LID, storm water treatment, and runoff peak-and-duration control (hydromodification management);
- provide guidance for proper implementation of LID facilities and design approaches; and
- provide guidance for conformance with regional hydromodification management requirements.

All proposed development projects within the City's jurisdiction must include control measures to reduce the discharge of storm water pollutants to the maximum extent practicable. In general, all development projects must include:

- implementation of source-control BMPs;
- inclusion of some LID features that conserve natural features, set back development from natural water bodies, minimize imperviousness, maximize infiltration, and retain and slow runoff; and
- compliance with requirements for construction-phase controls on sediment and other pollutants for all phases of construction.

City of Escondido Flood Plain Management Ordinance

The City of Escondido Flood Plain Management Ordinance promotes public health, safety, and general welfare, and minimizes public and private losses due to flood conditions within flood prone, mudflow, or flood related erosion areas. The Flood Plain Management Ordinance includes requirements for reducing flood losses, including restricting uses that are dangerous to health, safety, and property due to erosion or water hazards; requiring uses vulnerable to floods to be protected against flood damage at the time of construction; controlling the alteration of natural floodplains; controlling filling, grading, or dredging that may increase flood damage; and preventing construction of flood barriers that will divert flood waters or increase flood hazards in other areas.

Goals of the Flood Plain Management Ordinance include the following:

- Protect human life and health;

- Minimize expenditure of public money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- Minimize prolonged business interruptions;
- Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone and sewer lines; and streets and bridges located in areas of special flood hazard;
- Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future blighted areas caused by flood damage;
- Ensure that potential buyers are notified that property is in an area of special flood hazard; and
- Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

3.8.2 Significance Criteria

The effects of a project on hydrology and water quality would be considered significant if the project would do the following:

1. Violate any water quality standards or waste discharge requirements.
2. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site, or would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site.
4. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.
5. Otherwise substantially degrade water quality.

6. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map; or place within a 100-year flood hazard area, structures which would impede or redirect flood flows.

7. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

8. Inundation by seiche, tsunami, or mudflow.

3.8.3 Impact Analysis

Criterion 1: **Would the project violate any water quality standards or waste discharge requirements?**

To prevent potential impacts on receiving waters resulting from project construction activities and operations, all phases of project construction must comply with various regulations pertaining to maintenance of water quality, as described below. Short-term temporary measures focus on implementing construction BMPs aimed at reducing erosion and subsequent sediment transport. Long-term permanent measures would consider factors such as preserving existing vegetation, permanent stabilization of disturbed soil, and regrading temporary access paths to conform to existing pre-construction contours. Compliance with the standard requirements of the Construction General Permit, Municipal Permit, and the City's JURMP and SUSMP would be required. Standard measures that will be implemented for the project to avoid significant impacts on water quality are discussed below.

In accordance with the Construction General Permit, Order 2009-0009-DWQ (as amended by Orders 2010-0014-DWQ and 2012-0006-DWQ), a SWPPP shall be prepared and implemented to address all construction-related activities, equipment, and materials that have the potential to impact water quality. The SWPPP shall identify the sources of pollutants that may affect the quality of storm water and include construction site BMPs to control sedimentation, erosion, and potential chemical pollutants. The SWPPP shall also provide for construction materials management and non-storm-water BMPs, and shall include routine inspections and a monitoring and reporting plan. The SWPPP, along with project design elements, would constitute an erosion and sediment control plan for the proposed project (dam footprint, batch plant, access roads, staging areas, and other ancillary disturbances). It would be particularly important for SWPPP safeguards and BMP implementation to control the foundation surface-cleaning process where loose material would be dislodged using an air/water jet. The contractor shall be required to prepare a detailed work plan to identify potential hazard areas and specify appropriate BMPs to protect water quality. Blasting and hydraulic drilling at the foundation and on side slope excavations will be given special attention to avoid water quality impacts in areas of steep and largely impervious terrain.

All construction-site BMPs shall follow the latest edition of the Construction BMP Handbook (California Storm Water Quality Association) to control and minimize the impacts of construction-related activities, materials, and pollutants on the watershed. These include temporary sediment controls, temporary soil stabilization, scheduling management, waste management, materials handling, and other non-storm-water BMPs. Post-construction standards to address hydromodification impacts are not anticipated due to the decrease in peak flows following the dam replacement.

The contractor shall be required to implement, at the minimum, the following BMPs to reduce effects on receiving water quality based on the potential pollutants expected to be generated during construction:

- Stabilized Construction Entrance/Exit
- Stabilized Construction Roadway
- Street Sweeping and Vacuuming
- Scheduling
- Silt Fence
- Fiber Rolls
- Sandbag Barrier
- Gravelbag Berms and Check Dams
- Vehicle and Equipment Cleaning
- Vehicle and Equipment Maintenance
- Material Delivery and Storage
- Material Use
- Stockpile Management
- Spill Prevention and Control
- Solid Waste Management
- Existing Vegetation Preservation

The BMPs will be directed at implementing both sediment- and erosion-control measures and other measures to control potential chemical contaminants.

The SWPPP must incorporate source-control pollution prevention BMPs to help minimize pollutant sources and their potential discharge in storm water runoff. Source-control BMPs to be implemented for the proposed project would typically include, but not be limited to, the following:

- Proper storage and containment safeguard for building materials, paints, solvents, fuels, lubricants, and other construction-related materials to avoid or minimize exposure to weather (rain and wind). Spill prevention and control protocols, as well as refueling safeguards, would be incorporated in the project SWPPP.
- Proper site management for the control of trash, vegetation debris, construction waste, and other byproducts of construction to avoid rainfall contact and runoff.
- Suitable stockpile management to avoid wind and storm water erosion, including perimeter controls to properly manage runoff.
- Adequate safeguards to protect against rock debris and other construction-related equipment, materials, or products from accidently falling into lake receiving water or downstream drainage conveyances.

Complementing source-control BMPs, the proposed project must minimize storm water quality runoff impacts to the surrounding environment (Lake Wohlford and Escondido Creek) through the use of the low-impact site designs discussed below.

- *Preservation of Natural Drainage Features:* The general sloping nature of the site would be preserved, and existing gradients would be maintained as much as possible. Drainage patterns within the watershed or proposed project area would not be substantially altered by the proposed project; peak flows into Escondido Creek would actually be reduced due to a decrease in the size of the drainage area downstream of the new dam, thereby improving runoff water quality and limiting hydromodification impacts.
- *Using Drainage as a Design Element:* The project design would incorporate drainage improvements including reconstruction of storm drains, conveyances, and inlet/outlets. These would include, but not be limited to, new brow ditches to divert downslope discharges, protected riprap outlets and vegetated earthen swales to slow runoff velocities and prevent scour, permanent erosion controls (e.g., hydroseed and mulch), grading fill slopes as flat as feasible, energy dissipaters at outfalls, and proper drainage conveyance without hydromodification.

Oakvale Road Realignment

In addition to local, city-specific requirements, regional, state, and federal water quality standards are currently implemented through a variety of programs and permits under the auspices of the SWRCB. These standards have been set to control both point and nonpoint sources of water pollution. Realignment of Oakvale Road could potentially allow pollutants, such as sediment, metals, soil stabilization residues, oil and grease, nutrients, organic compounds, and trash and debris, to enter receiving waters (i.e., Lake Wohlford and Escondido Creek) during construction activities if pollution controls are not properly implemented. Any type of soil disturbance would expose soil to erosion from wind and water that could result in sedimentation in downgradient surface waters if left uncontrolled. In addition, as discussed above, the project would be implemented in proximity to a 303(d)-listed water body (i.e., Escondido Creek), and development near this impaired water body could potentially generate pollutants that would exacerbate existing impairments, cause additional pollution, and impact water quality if not properly controlled.

However, all development would be required to conform to the water quality standards, WDRs, and/or regulatory permits enforced by the SWRCB. This would include applying for and complying with storm water permits, all relevant sections of the CWA, and all other relevant standards and regulations. Temporary construction BMPs would be implemented to properly control erosion, minimize sediment transport, and manage site runoff discharge points in accordance with Construction General Permit (Order 2009-0009-DWQ, as amended) requirements for SWPPP implementation.

Specific pollution prevention measures, including slope aspects and stabilization measures, would be identified during the design phase. The minimum anticipated temporary erosion control measures for this proposed project would include:

- Silt fence;
- Fiber rolls;
- Sandbag barrier;
- Gravelbag berm;
- Hydroseed, mulch, or rolled erosion control product; and
- Reestablishment of vegetation or other stabilization measures on disturbed areas and newly constructed slopes.

The proposed project would require a SWPPP that complies with the Construction General Permit and would include the following:

- Site maps;
- Description and location of the BMPs using best conventional pollutant control technology;
- Routine inspections to ensure proper working conditions of BMPs;
- Rain event action plans;
- Construction site monitoring and reporting plan;
- BMP maintenance and repair; and
- Storm water monitoring for storm events not exceeding the 20-year, 1-hour storm event.

With respect to long-term operational impacts, realignment of Oakvale Road would not change site conditions, as the project would construct similar features as currently exist and would not result in an addition of impervious surface. However, drainage improvements, including reconstruction of storm drains, construction of brow ditches, and incorporation of earthen swales and energy dissipaters, would be implemented into the site design to improve and protect drainage within the proposed project footprint and further reduce any potential water quality impacts. These would provide beneficial impacts relative to existing conditions. Therefore, this impact would be less than significant.

<u>Replacement Dam and Access Road</u>

Construction of the proposed replacement dam would involve temporary disturbance for excavation and demolition of the existing dam foundation and outlet tower, new dam construction, and establishment of staging areas and temporary and permanent access roads. Unless properly controlled, pollutants (e.g., sediment, metals, soil stabilization residues, oil and grease, nutrients, organic compounds, and trash and debris) could potentially enter receiving waters during construction activities. Without implementation of construction-phase BMPs, temporary soil disturbance during construction activities would have the potential to impact Lake Wohlford and/or Escondido Creek water quality. Accordingly, a project-specific SWPPP would be developed and implemented to employ temporary construction BMPs for properly controlling erosion, minimizing sediment transport, and managing site runoff discharge points in accordance with Construction General Permit (Order 2009-0009-DWQ, as amended) requirements. Any pollutants generated from construction activities conducted upstream of the dam within its drainage area would ultimately be contained behind the dam and not allowed to be transported into downstream receiving waters. Two temporary retention ponds would be located downstream of the staging yard to capture, retain, and prevent any construction runoff from entering Lake Wohlford. The retention ponds would be adequately sized to handle runoff capacity during construction activities. The use of a conveyor system for transporting material along the access road and placing the material onto the dam would minimize vehicle and equipment traveling, minimize lift joint cleaning, and reduce the water quality impact potential relative to truck transport.

Although impervious surface area of the drainage area downstream of the proposed dam (between the dam and Lake Wohlford Road) is expected to increase, post-construction runoff rates and volume downstream of the dam into Escondido Creek would decrease compared to existing conditions (Black and Veatch 2014a; AECOM 2015). In addition, drainage improvements, including reconstruction of storm drains, construction of brow ditches, and incorporation of earthen swales and energy dissipaters, would be implemented into the site design to improve and protect drainage within the proposed project footprint and further reduce any potential water quality impacts. Therefore, this impact would be less than significant.

Restoration of Water Levels

The replacement dam would be constructed so the resultant reservoir level and storage capacity are equal to the elevation and capacity prior to the water level restriction, at 1,480 feet AMSL and 6,500 acre-feet, respectively. A higher water level would be expected to decrease the residence time of Lake Wohlford. Water circulation and the amount of mixing would increase, thereby reducing residence time and improving water quality conditions (mainly associated with temperature and dissolved oxygen levels) compared to existing conditions. In addition, the project's new spillway would be designed to flow into an energy dissipation stilling basin. Riprap would also be installed at the transition from the stilling basin to the existing channel to prevent erosion and minimize water quality impacts at the point of discharge. Therefore, the restoration of water levels, along with the new erosion and flow controls incorporated, would not result in regulatory violations or negative impacts to water quality.

Criterion 2: **Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level?**

Oakvale Road Realignment

The project would not be anticipated to impact groundwater supplies or recharge rates during construction activities. With respect to long-term operations impacts, the new roadway realignment would replace an existing roadway alignment with little or no increase in impervious surface area. The project would not involve any long-term use of groundwater and would not substantially deplete groundwater supplies or interfere with groundwater recharge. Therefore, no significant impacts would occur.

Replacement Dam and Access Road

Construction of the proposed replacement dam would involve excavation and demolition of the existing dam foundation and outlet tower, new dam construction, and establishment of staging areas and temporary and permanent access roads. The project would not be anticipated to impact groundwater supplies or recharge rates during construction activities.

Impervious surface area would increase under proposed conditions, which could reduce storm water infiltration and groundwater recharge rates. However, the project is not expected to substantially deplete groundwater supplies or substantially interfere with groundwater recharge and impacts would be less than significant.

Restoration of Water Levels

Water levels would be restored to historic elevations, which would be higher than current levels. An increased water level would be a beneficial impact to groundwater supply and recharge rates. and impacts to groundwater supply or recharge rates would be less than significant.

Criterion 3: **Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site or would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?**

Oakvale Road Realignment

The Oakvale Road Realignment project is not anticipated to substantially alter the existing drainage pattern of the project site and would not alter the course of a stream or river resulting in increased erosion or siltation, increased surface runoff, or increased flooding. However, standard construction-phase BMPs would be required in accordance with the Construction General Permit to control construction-related erosion and sedimentation impacts. A project-specific SWPPP would be in place during construction activities to reduce the amount of soils disturbed and to prevent disturbed soils from entering runoff to surface/receiving waters. Typical construction BMPs would include fiber rolls, storm drain inlet protection, street sweeping and vacuuming, stabilized construction entrance/exit, containment of material delivery and storage areas, and management of concrete and other construction and hazardous wastes. Erosion control plans would be prepared and submitted prior to performing any operation that would disturb and expose soil.

Drainage improvements, including reconstruction of storm drains, construction of brow ditches, and incorporation of earthen swales and energy dissipaters, would be implemented into the site design to improve and protect drainage within the proposed project footprint and further reduce any potential water quality impacts related to increased erosion, increased surface runoff rates and volumes, and flooding. Therefore, no impact would occur.

Replacement Dam and Access Road

The proposed dam replacement work would increase impervious surface area and alter existing drainage patterns. Temporary construction BMPs would be implemented under a contractor-prepared SWPPP to minimize impacts to downstream erosion or siltation. It would be anticipated that permanent erosion control measures, such as hydroseed or mulch, would be applied to all disturbed areas. When no longer necessary, any temporary access paths established to work areas would be regraded to conform to the existing contours and would be stabilized.

Although percent impervious surface area downstream of the dam would increase, peak flows into Escondido Creek following dam replacement would decrease because post-construction runoff rates and volume and drainage patterns would be improved over existing conditions, which would also avoid hydromodification effects (i.e., increased erosion and sediment transport). In addition, flows from the access road would remain the same as existing conditions. Three culverts are proposed along the access road alignment to convey flows; however, flows would not be expected to change under proposed conditions.

In addition, drainage improvements would be implemented into the site design to improve and protect drainage within the proposed project footprint and further reduce any potential water quality impacts related to increased erosion/siltation, surface runoff or flooding. Drainage improvements would include reconstruction of storm drains and construction of brow ditches to divert downslope drainage. Storm drains would empty into earthen swales via riprap outlets to slow runoff velocities and prevent scour. In addition, the project's new spillway would be designed to flow into an energy dissipation stilling basin to reduce storm runoff to nonerosive velocities. Riprap would also be installed at the transition from the stilling basin to the existing channel to prevent erosion. As a result, potential water quality impacts related to altered drainage patterns resulting in increased erosion, surface runoff, or flooding would not occur and impacts would be less than significant.

Restoration of Water Levels

Restoration of water levels would not be anticipated to alter the existing drainage pattern of the project site and would not alter the course of a stream or river resulting in increased erosion or siltation, increased surface runoff, or flooding. Lake Wohlford would remain at its current water level, between 1,450 and 1,460 feet AMSL, during project construction; water levels would be restored to historic levels following dam replacement. In addition, as discussed above, peak flows into Escondido Creek under the proposed condition would be lower than existing conditions, thereby reducing potential impacts from increased surface runoff, flooding, and downstream erosion.

***Criterion 4*: Would the project create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?**

Oakvale Road Realignment

As discussed above, Oakvale Road realignment would not result in a substantial net increase in impervious surfaces, so the project would not result in a substantial increase in the amount of surface runoff or additional sources of pollution. Storm flows from the site would be conveyed to a swale proposed on the north side of the realigned road, which would detain flows and remove pollutants prior to flowing into the reservoir. This would result in an improvement compared to existing conditions, where storm flows from the existing site are not detained or treated. In addition, construction phase BMPs would be required, in accordance with the Construction General Permit, to control potential impacts from pollutant runoff. Therefore, the project would result in a less than significant impact on storm water runoff and additional pollutants.

Replacement Dam and Access Road

Construction and post-construction phase BMPs would be required, in accordance with both the Municipal and Construction General permits, to control construction- and operation-related water quality impacts. As such, any runoff during construction and post-construction operations would be required to be minimized and treated through recommended source control, site design, and/or treatment-control BMPs. Erosion and sediment controls would be used, and a project-specific SWPPP would be in place during construction activities to prevent potential pollutants from entering surface/receiving waters.

As discussed above, post-construction peak flows into Escondido Creek would be reduced compared to existing conditions. In addition, drainage improvements, including brow ditches, earthen swales, and energy dissipation, would be implemented into the site design to improve and protect drainage within the proposed project footprint and further reduce any potential water quality impacts related to increased surface runoff and pollutant transport. Therefore, the project would result in a less than significant impact on storm water runoff.

Restoration of Water Levels

As discussed above, Lake Wohlford would remain at its current water level during project construction, and would be anticipated to accommodate the Local Storm Probable Maximum Flood (PMF) and all smaller storm events (including the 100-year event); thus, increased surface runoff and pollutant discharge would be minimized. The redesigned spillway would be designed to handle maximum storm events. Energy dissipation and riprap would be incorporated to slow runoff rates, prevent scour and erosion, and minimize water quality impacts at the point of discharge. In addition, as discussed above, peak flows into Escondido Creek under the proposed condition would be lower than existing conditions, thereby reducing potential impacts from increased surface runoff and pollutant transport. Therefore, no significant impacts would occur.

***Criterion 5*:** **Would the project otherwise substantially degrade water quality?**

Oakvale Road Realignment

Mandatory compliance with the Construction General Permit would ensure the project would not substantially degrade water quality during construction. Implementation of standard BMPs during construction, and adequate post-construction BMPs, would reduce potential water quality impacts to less than significant. Typical BMPs would include preventing erosion and sedimentation; providing comprehensive employee training at the construction site; and implementing proper waste management, vehicle maintenance, and material use and storage. In addition, storm flows from the site would be carried to a swale, which would detain flows and remove pollutants prior to flowing into the reservoir. Therefore, water quality would be protected and impacts would be less than significant.

Replacement Dam and Access Road

As discussed above, compliance with the Construction General Permit would ensure the project would not substantially degrade water quality during construction. Temporary construction BMPs would be implemented in accordance with the project-specific SWPPP to reduce the amount of soils disturbed, prevent erosion and sediment transport into receiving waters, and control/minimize pollutants in site runoff.

Operation of the project is not expected to increase the potential for pollutant loading into surrounding water bodies since post-construction runoff rates and volume would decrease compared to existing conditions. In addition, drainage improvements, including reconstruction of storm drains, construction of brow ditches, and incorporation of earthen swales and energy dissipaters, would be implemented into the site design to improve and protect drainage, slow runoff velocities, and further reduce any potential water quality impacts. Therefore, the project's water quality impacts would be less than significant.

Restoration of Water Levels

As discussed above, Lake Wohlford would remain at its current water level during project construction, and the existing dam would serve as the cofferdam during construction of the replacement dam. The replacement dam would be designed to accommodate historical water levels, and the new spillway would flow into an energy dissipation stilling basin. Riprap would also be installed at the transition from the stilling basin to the existing channel to prevent erosion and minimize water quality impacts. Water quality conditions would be expected to improve over existing conditions as a result of a higher water level, which would increase water circulation and mixing and reduce residence times. Therefore, restoration of water levels would not negatively impact water quality.

Criterion 6: **Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map or place within a 100-year flood hazard area, structures which would impede or redirect flood flows?**

Oakvale Road Realignment

The Oakvale Road Realignment project is not within a 100-year flood zone and the project does not involve construction of housing or placing structures that would affect flood flows; therefore, no impact would occur.

Replacement Dam and Access Road

The proposed project would not be anticipated to impact flood control, as the majority of the project site is in a FEMA "Zone X" that is located outside the 100- and 500-year Flood Hazard Zone. The reduction in peak runoff flow would contribute to lowering flood hazard potential. Therefore, no impact would occur.

Restoration of Water Levels

Restoration of water levels would not be anticipated to impact flood control since the project is not located within the 100-year flood zone. However, the redesigned spillway would be designed to handle maximum storm events, and energy dissipation and riprap would be incorporated to slow runoff rates. In addition, as discussed above, peak flows into Escondido Creek under the proposed condition would be lower than existing conditions, thereby reducing potential flooding impacts from increased surface runoff. As a result, no significant impacts would occur.

Criterion 7: **Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?**

Oakvale Road Realignment

The Oakvale Road Realignment project would not result in increased surface runoff rates or volumes resulting in increased flooding. Drainage improvements, including reconstruction of storm drains, construction of brow ditches, and incorporation of earthen swales and energy dissipaters, would be implemented into the site design to improve and protect drainage within the proposed project footprint. In addition, the project is located upslope from the Lake Wohlford Dam; therefore, failure of the dam would not expose people or structures to flooding risk and impacts would be less than significant.

Replacement Dam and Access Road

As discussed above, Lake Wohlford would remain at its current water level during project construction, and the existing dam would serve as the cofferdam during construction. Flood protection during the construction period would be provided by releases through temporary pumps. By maintaining current reservoir levels and by allowing releases through the temporary pumps, it is anticipated that Lake Wohlford would accommodate the Local Storm PMF and all smaller storm events, including the 100-year event; thus, increased flooding impacts would not be anticipated to occur during construction activities. In addition, the project would avoid construction scheduling during wet weather, thereby reducing flooding impacts.

Dam construction/replacement would alleviate public safety and flooding concerns due to seismic instability of the existing dam. The replacement dam would be designed to withhold historic water levels and would be expected to last for 100 years. The redesigned spillway would reduce the occurrence of spillover events relative to existing conditions and correspondingly reduce the lake-related discharges to Escondido Creek. Furthermore, the dam's emergency release valve would enable reservoir water releases to Escondido Creek in the event of a dam safety event to minimize flooding impacts. In addition, since post-construction peak runoff flow would be reduced over existing conditions, the potential for flooding hazards would be reduced.

Compliance with the City's Flood Plain Management Ordinance would be required to minimize public and private losses due to flood conditions. The ordinance includes requirements for reducing flood losses, including restricting uses that are dangerous to health, safety, and property due to erosion or water hazards; requiring uses vulnerable to floods to be protected against flood damage at the time of construction; controlling the alteration of natural floodplains; controlling filling, grading, or dredging that may increase flood damage; and preventing construction of flood barriers that will divert flood waters or increase flood hazards in other areas. Therefore, people or structures would not be exposed to flooding impacts, including flooding as a result of dam failure, and impacts would be less than significant.

Restoration of Water Levels

Reservoir water level and storage capacity would be restored to the elevation and capacity prior to the water level restriction; the proposed project recommends no changes to Lake Wohlford's historic high water level or storage capacity. The redesigned spillway would be designed to handle maximum storm events and would be designed to flow into an energy dissipation stilling basin at the downstream foot of the dam, which would catch water that overtops the dam before it discharges into the downstream river channel. The spillway would be stepped on the dam's downstream slope to dissipate energy along the entire spillway length and reduce the stilling basin size at the end of the spillway. Storm drains would empty into earthen swales via riprap outlets to slow runoff velocities. The outlet tower would be connected to the proposed dam's downstream emergency release valve, enabling water releases in the event of a dam safety event. In accordance with Division of Safety of Dams requirements, 10% of the reservoir volume could be released in 7 days; the proposed outlet would be capable of draining the entire reservoir contents within 90 days. In addition, as discussed above, peak flows into Escondido Creek under the proposed condition would be lower than existing conditions, thereby reducing potential impacts from increased flooding.

By incorporating the required design standards and complying with all applicable regulations and ordinances, flows would be controlled and flooding hazards would be reduced, and the risk of injury, loss of life, and property damage associated with hazards would be minimized. As a result, people or structures would not be exposed to flooding impacts, including flooding as a result of dam failure, and impacts would be less than significant.

Criterion 8: **Would the project be susceptible to inundation by seiche, tsunami, or mudflow?**

Oakvale Road Realignment

The project site is located approximately 19 miles from the coast and would not be susceptible to inundation by a tsunami. There is no historical precedence for large damaging seiches in the San Diego region. In addition, Lake Wohlford is located downslope of the project site, and any unforeseen seiche occurring on the reservoir would not be anticipated to inundate the project site. Therefore, the risk of tsunamis or seiches impacting the Oakvale Road realignment would be expected to be low.

The project site could be subject to impacts related to inundation by mudflow based on the location and topography in the project area; however, risks would not be increased over existing conditions. Compliance with enforced planning and design standards, regulations, and safety ordinances would serve to address and minimize associated impacts with mudflows. Planning and design of the project would be required to incorporate safety policies from the City of Escondido Flood Plain Management Ordinance to reduce the risk of injury, loss of life, and property damage within flood prone or mudflow areas. Current state and local design standards require slope stabilization that would reduce the possibility for mudflows. Therefore, the proposed project would not result in impacts related to inundation by seiche, tsunami, or mudflow and impacts would be less than significant.

Replacement Dam and Access Road

Similar to the Oakvale Road realignment, the risk of inundation by a tsunami or seiche would be low. Impacts related to inundation by mudflow could occur; however, risks would not be increased over existing conditions. The project would be required to comply with enforced planning and design standards, regulations, and safety ordinances to address and minimize associated impacts with mudflows. The project would incorporate safety policies from the City of Escondido Flood Plain Management Ordinance to reduce the risk of injury, loss of life, and property damage. As a result, impacts related to inundation by seiche, tsunami, or mudflow would be less than significant.

Restoration of Water Levels

The risk of tsunamis and seiches is historically low in the San Diego region. Restoration of water levels would not be susceptible to inundation by a tsunami, seiche, or mudflow. The project involves restoring water levels to previous levels and would not be at risk of inundation by tsunami, seiche, or mudflow, and impacts would be less than significant.

By incorporating the required design standards and complying with applicable regulations and safety ordinances, impacts associated with mudflow would be minimized. Therefore, impacts related to inundation by seiche, tsunami, or mudflow would be less than significant.

3.8.4 Significant Impacts and Mitigation Measures

No significant impacts were identified; therefore, no mitigation measures are proposed.

3.9 NOISE

This section of the EIR focuses on the potential noise and vibration impacts of the project. This evaluation includes an assessment of the direct, indirect, short-term, long-term, and cumulative noise and vibration effects of the project. The analysis is based on information contained in the *Noise Technical Report – Lake Wohlford Dam Replacement Project, San Diego, California* (AECOM 2016c) (see Appendix I of the EIR) and the *Oakvale Road Realignment and Improvement Project Initial Study and Mitigated Negative Declaration* (City of Escondido 2015b).

3.9.1 Existing Conditions

Noise and Vibration Terminology

Noise Descriptors

Noise is generally defined as unwanted or objectionable sound. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment. The unit of measurement used to describe a noise level is the decibel (dB); decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3-dB decrease.

Human Perception of Noise

The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, a method called "A weighting" is used to filter noise frequencies that are not audible to the human ear. The A scale approximates the frequency response of the average young ear when listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale levels of those sounds. Therefore, the "A-weighted" noise scale is used for measurements and standards involving the human perception of noise. In this noise section of the EIR, all noise levels are A-weighted and "dBA" is understood to identify the A-weighted dB. Table 3.9-1 provides typical noise levels associated with common activities.

Table 3.9-1
Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
-	110	Rock Band
Jet Fly-over at 300 m (1,000 ft)	100	-
Gas Lawn Mower at 1 m (3 ft)	90	-
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	80	Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	60	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	50	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	30	Library
Quiet Rural Nighttime	20	Bedroom at Night, Concert Hall (Background)
-	10	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Notes: m=meters ft=feet km/hr=kilometers per hour mph=miles per hour
Source: Caltrans 2009.

Human perception of noise has no simple correlation with acoustical energy. The perception of noise is not linear in terms of dBA or in terms of acoustical energy. Two noise 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); that a change of 5 dBA is readily perceptible; and that an increase (or decrease) of 10 dBA sounds twice (or half) as loud (Caltrans 2009).

Averaging Noise Levels

In addition to noise levels at any given moment, the duration and averaging of noise over time is also important for the assessment of potential noise disturbance. Noise levels varying over time are averaged over a period of time, usually hour(s), expressed as dBA L_{eq}. For example, $L_{eq(3)}$ would be a 3-hour average noise level. When no period is specified, a 1-hour average is assumed ($L_{eq(1)}$ or simply L_{eq}).

The time of day of noise is also an important factor to consider when assessing potential community noise impacts, as noise levels that may be acceptable during the daytime hours may create disturbance during evening or nighttime hours, when people are typically at home and sleeping. The Community Noise Equivalent Level (CNEL) is a descriptor used to characterize average noise levels over a 24-hour period, calculated from hourly L_{eq} values, with 5 dBA added to the hourly L_{eq} levels occurring between 7:00 p.m. and 10:00 p.m. and 10 dBA added to the hourly L_{eq} levels occurring between 10:00 p.m. and 7:00 a.m., to reflect the greater disturbance potential from evening and nighttime noise, respectively. The day/night average sound level (L_{dn}) is the same as the CNEL, except the evening period is included in the daytime period.

Noise Attenuation

From the source to the receiver, noise changes both in level and frequency spectrum. The most obvious change is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on the following important factors: ground absorption, atmospheric effects and refraction, shielding by natural and man-made features, noise barriers, diffraction, and reflection. For a point or stationary noise source, such as construction equipment, the attenuation or drop-off in noise level would be at least -6 dBA for each doubling of unobstructed distance between source and the receiver and could attenuate to -7.5 dBA depending on the acoustic characteristics of the intervening ground. For a linear noise source, such as vehicles traveling on a roadway, the attenuation or drop-off in noise level would be approximately -3 dBA for each doubling of unobstructed distance between source and the receiver and could attenuate to -4.5 dBA depending on the acoustic characteristics of the intervening ground.

A large object in the path between a noise source and a receiver can significantly attenuate noise levels at that receiver. 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, as well as man-made features, such as buildings and walls, can significantly alter noise levels. Walls or berms are often specifically used to reduce, or attenuate, noise.

Noise-Sensitive Receptors

Some land uses are considered more sensitive to noise than others due to the types of persons or activities involved, such as sleeping, reading, talking, or convalescing. Noise-sensitive receptors are generally considered humans engaged in activities, or occupying land uses, that may be subject to the stress of significant interference from noise including, but not limited to, talking, reading, and sleeping. Typically, land uses associated with noise-sensitive human receptors include residential dwellings, hotels/motels, hospitals, nursing homes, educational facilities, and libraries. The City’s General Plan Community Protection Element, Noise Section defines noise-sensitive land uses as including residential development and care facilities; schools, churches, and transient lodging; hospitals and health care facilities; libraries, museums, and cultural facilities; and golf courses and passive recreation sites (City of Escondido 2012a).

In addition to human receptors, special-status wildlife species have been afforded protection or special recognition by federal, state, or local resource agencies or organizations. Special-status species typically have relatively limited distribution and may require specialized habitat conditions. Bird species protected under the MBTA may be considered noise-sensitive receptors during their breeding season. Temporary, indirect impacts are likely to arise from construction-generated noise resulting in destruction and/or avoidance of habitat by wildlife.

Construction Noise

Construction noise varies depending on construction activities and duration, type of equipment involved, proximity to sensitive receptors, and the duration of the construction activities. Construction equipment used on the site may be mobile (e.g., loaders, graders, dozers) or stationary (e.g., air compressor, generator, concrete saw). Heavy construction equipment typically operates for short periods at full power followed by extended periods of operation at lower power, idling, or powered-off conditions. Typically, construction, demolition, grading, compacting, and excavating, include the use of backhoes, bulldozers, loaders, excavation equipment (e.g., graders and scrapers), and compaction equipment. If rock is encountered during excavation, rock blasting (including rock drilling) may be required for rock removal. Finishing activities may include the use of pneumatic hand tools, scrapers, concrete trucks, vibrators, and haul trucks. Typical noise levels associated with typical construction equipment operation range from approximately 70 to 95 dBA, depending upon the piece of equipment operating (FTA 2006). Impact equipment such as rock drills, pavement breakers, and pile drivers generate higher noise levels of approximately 85 to 100 dBA (FTA 2006).

Vibration Terminology

In addition to noise, construction activities generate vibration, which can be interpreted as energy transmitted in waves through the soil mass. These energy waves generally dissipate with distance from the vibration source, due to spreading of the energy and frictional losses. The energy transmitted through the ground as vibration, if great enough and in proximity to structures, can result in structural damage.

Typical outdoor sources of perceptible groundborne vibration are construction equipment and traffic on rough (i.e., unpaved or uneven) roads. Construction activity can also result in varying degrees of groundborne vibration, depending on the type of equipment, methods employed, distance between source and receptor, duration, number of perceived vibration events, and local geology.

Groundborne vibrations from typical construction activities do not often reach levels that can damage structures in proximity to construction, but their effects may manifest and be noticeable in buildings that are within 25 feet of construction activities. One major concern with regard to construction vibration is potential building damage, which is assessed in terms of peak particle velocity (ppv), typically in units of inches per second (in/sec). In addition to structural damage, the vibration of room surfaces affects people as human annoyance. Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Typically, a vibration level of 0.1 in/sec ppv is the threshold of human annoyance, and 0.2 ppv is the threshold of risk of structural damage.

Construction operations generally include a wide range of activities that can generate various levels of groundborne vibration. In general, blasting and demolition of structures generate the highest vibrations. Heavy truck transport can also generate groundborne vibrations, which vary depending on vehicle type, weight, and pavement conditions. At 25 feet, some construction equipment generates vibration at levels exceeding the threshold of human annoyance (0.1 in/sec ppv), and at levels exceeding the threshold of risk of structural damage (0.2 in/sec ppv). However, at 50 feet, this same equipment is below the thresholds of human annoyance and structural damage (FTA 2006).

Regulatory Setting

This section provides a summary of the applicable federal, state, and local noise and vibration regulations.

State Regulations

California Administrative Code, Title 24, Interior Noise

Title 24 of the California Administrative Code requires that residential structures, other than detached single-family dwellings, be designed to prevent the intrusion of exterior noise so that the interior CNEL with windows closed and attributable to exterior sources does not exceed 45 dBA CNEL in any habitable room. This requirement is applicable to new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings. This standard is implemented by the California State Building Code Section 1208A.8.2 by stating that "interior noise levels attributable to exterior sources shall not exceed 45 dBA CNEL in any habitable room."

California Government Code, General Plan Noise Elements

California does not promulgate statewide standards for environmental noise, but the California State Government Code Section 65302 (f) requires each local jurisdiction to draft a Noise Element for their General Plan to establish acceptable noise limits for various land uses.

California Environmental Quality Act

PRC 21100 et seq., requires lead agencies to evaluate the environmental impact associated with a project. CEQA requires that a local agency prepare an EIR on any project it proposes to approve that may have a significant effect on the environment. Technical reports such as this noise technical report are used to develop noise sections of EIRs. Appendix G of CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387) provides thresholds of significance for noise.

California Department of Transportation

The project is not subject to Caltrans requirements; however, Caltrans provides vibration thresholds that are useful for reference in analyzing project impacts. To assess the potential for structural damage associated with vibration from construction activities, the vibratory ground motion in the vicinity of an affected structure is measured in terms of ppv, typically in units of in/sec. Table 3.9-2 presents the vibration level thresholds for architectural and structural damage and human perception and annoyance.

Table 3.9-2
Human and Structural Response to Vibration

Effects on Structures and People	Peak Vibration Threshold (ppv) (in/sec)
Structural damage to commercial structures	6
Structural damage to residential buildings	2
Architectural damage	1.0
General threshold of human annoyance	0.1
General threshold of human perception	0.01

Source: Caltrans 2004

As shown in Table 3.9-2, structural damage occurs to various structures when vibration levels reach 2 to 6 in/sec ppv at the respective structures. One-half of the minimum of this threshold range (i.e., 1 in/sec ppv), is considered a safe criterion that would protect against structural damage. For its construction projects, Caltrans uses a vibration criterion of 0.2 in/sec ppv, except for pile driving and blasting activities.

Local Regulations

The project is proposed on City-owned property that is outside the City's municipal boundaries. Because project-related construction noise will be received by County residents, the City has elected to apply County noise standards for purposes of assessing impacts pursuant to CEQA. For purposes of context, this section also discusses City regulations, which generally are similar in their limitations. Applicable County noise limits are specified in the County Noise Ordinance (County of San Diego 2008). City ordinances with respect to noise are included in the City's Municipal Code, Noise Ordinance (City of Escondido 2015d). Additional detail on these referenced documents is provided in Section 4 of Appendix I.

County of San Diego Noise Ordinance

The County Noise Ordinance is a component of the County Code of Regulatory Ordinances. Section 36.404 of the Noise Ordinance sets limits on the noise levels generated from one property to another, such as from mechanical equipment. Section 36.410 of the Noise Ordinance also regulates noise generated by construction activities. Section 36.404 establishes 1-hour average sound level limits, shown below in Table 3.9-3. Sound levels pursuant to these regulations are measured at the property line of any property receiving the noise. The sound level limits vary with the zoning of the properties concerned.

Table 3.9-3
County of San Diego Sound Level Limits

Zone	Applicable Hours	Sound Level Limit dB $L_{eq\ (1\ hour)}$
RS, RD, RR, RMH, A70, A72, S80, S81, S87, S90, S92, RV, and RU. Use Regulations with a density of less than 11 dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	50 45
RRO, RC, RM, C30, S86, RV, RU and V5. Use Regulations with a density of 11 or more dwelling units per acre.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	55 50
S94, V4, and all other commercial zones.	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	60 55
V1	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	60 55 55
V2	7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m.	60 55 50
V3	7 a.m. to 10 p.m. 10 p.m. to 7 a.m.	70 65
M50, M52, M54	Anytime	70
S82, M56, and M58	Anytime	75
S88 (see subsection (c) below)		

Source: County of San Diego 2008.

Section 36.408. Hours of Operation of Construction Equipment

The County Noise Ordinance limits construction hours. Except for emergency work, it is unlawful for any person to operate or cause to be operated, construction equipment:

(a) Between 7 p.m. and 7 a.m. Monday through Saturday.

(b) On a Sunday or a holiday. For purposes of this section, a holiday means January 1st, the last Monday in May, July 4th, the first Monday in September, December 25th, and any day appointed by the President as a special national holiday or the Governor of the State as a special State holiday. A person may, however, operate construction equipment on a Sunday or holiday between the hours of 10 a.m. and 5 p.m. at the person's residence or for the purpose of constructing a residence for himself or herself, provided that the operation of construction equipment is not carried out for financial consideration or other consideration of any kind and does not violate the limitations in sections 36.409 and 36.410.

Section 36.409. Sound Level Limitations on Construction Equipment

In addition to limiting construction hours, the County Noise Ordinance also limits noise levels generated by construction. Except for emergency work, it is unlawful for any person to operate construction equipment that exceeds an average sound level of 75 dB for an 8-hour period, between 7 a.m. and 7 p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

City of Escondido Noise Ordinance

The City regulates noise through the City’s Municipal Code, Chapter 17, Article 12 Noise Abatement and Control (Noise Ordinance) (City of Escondido 2015). Section 17-229 of the Ordinance provides sound level limits at property boundaries of different land uses, as shown in Table 3.9-4.

Table 3.9-4
City of Escondido Sound Level Limits

Zone	Time	Applicable Limit 1-Hour Average Sound Level (dBA)
Residential zones	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
Multi-residential zones	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
Commercial zones	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
Light industrial/Industrial park zones	Anytime	70*
General industrial zones	Anytime	75*

*Subject to provisions of Section 17-229 (c)(5).
Source: City of Escondido 2015d.

For comparison purposes, the City's sound level limits for residential zones are the same as the County's limits, at 50 dBA during the day and 45 dBA at night.

Section 17-234, Construction Equipment, limits the operation of construction equipment to Monday through Friday from 7:00 a.m. to 6:00 p.m., and Saturdays from 9:00 a.m. to 5:00 p.m.; and prohibits construction on Sundays and City holidays. These limits are more restrictive than in the County's noise ordinance, which allows construction between 7:00 a.m. and 7:00 p.m. Monday through Saturday.

Section 17-234 limits noise generated by construction equipment to a maximum of 75 dBA for a 1-hour average at the property line of any property developed for residential purposes, unless a variance is obtained from the City Manager (pursuant to Sections 17-249 through 17-257). This 75 dBA limit is the same as in the County ordinance, except that the County limit is averaged over an 8-hour period rather than the 1-hour average in the City ordinance.

Existing Noise and Vibration Conditions

<u>Existing Land Uses</u>

The project site is located in unincorporated San Diego County, northeast of the jurisdictional limits of the City. The majority of the land around the lake is owned by the City, but the land is not within the City's jurisdictional boundaries.

The project would perform construction activities on approximately 50 acres including the proposed dam site and construction staging area, both of which are currently undeveloped. The staging area is relatively flat with a gentle downward grade toward Lake Wohlford, and steeper sloping toward downstream at the proposed dam site. Elevation ranges from approximately 1,490 feet AMSL at the staging area to approximately 1,365 feet AMSL at the foundation of the proposed dam site. The area surrounding the staging area is relatively flat, sloping toward the lake with no topographic features that could serve as a noise barrier. Existing housing is within line-of-sight of the staging area across Lake Wohlford Road, and across the lake along Oakvale Road. The proposed dam site is located downstream and west of the existing dam, which serves as a noise barrier to noise-sensitive receptors approximately 2,500 feet to the west; there are no existing noise-sensitive receptors (i.e., housing) within line-of-sight of the base of the proposed dam.

Land uses surrounding the staging area include noise-sensitive receptors (i.e., single-family residences) located along the northern side of Lake Wohlford Road, and the road and lake itself. Additional noise-sensitive receptors (i.e., single-family residences) are located across the lake to the south along the lake and along Oakdale Drive.

Noise-Sensitive Receptors

The City's General Plan Community Protection Element, Noise Section defines noise-sensitive land uses as including residential development and care facilities; schools, churches, and transient lodging; hospitals and health care facilities; libraries, museums, and cultural facilities; and golf courses and passive recreation sites (City of Escondido 2012a). The nearest noise-sensitive receptors in proximity to the project site are single-family residences north of Lake Wohlford Road, which are as near as approximately 300 feet north of the entrance to the staging area. The residences adjacent to the road would potentially have an obstructed view of the proposed staging area and concrete batch plant; farther to the northeast, the land slopes upward from Lake Wohlford Road. As a result, residences upslope approximately 0.25 mile to the northeast at a higher elevation would have a direct line-of-sight of the proposed staging area and concrete batch plant. Another small group of single-family residences are located approximately 0.5 mile south of the proposed staging area on the southern side of the reservoir at the terminus of Oakvale Road. These residences would have a direct line-of-sight of the proposed staging area, concrete batch plant, and access road.

Existing Noise Environment

Noise Sources

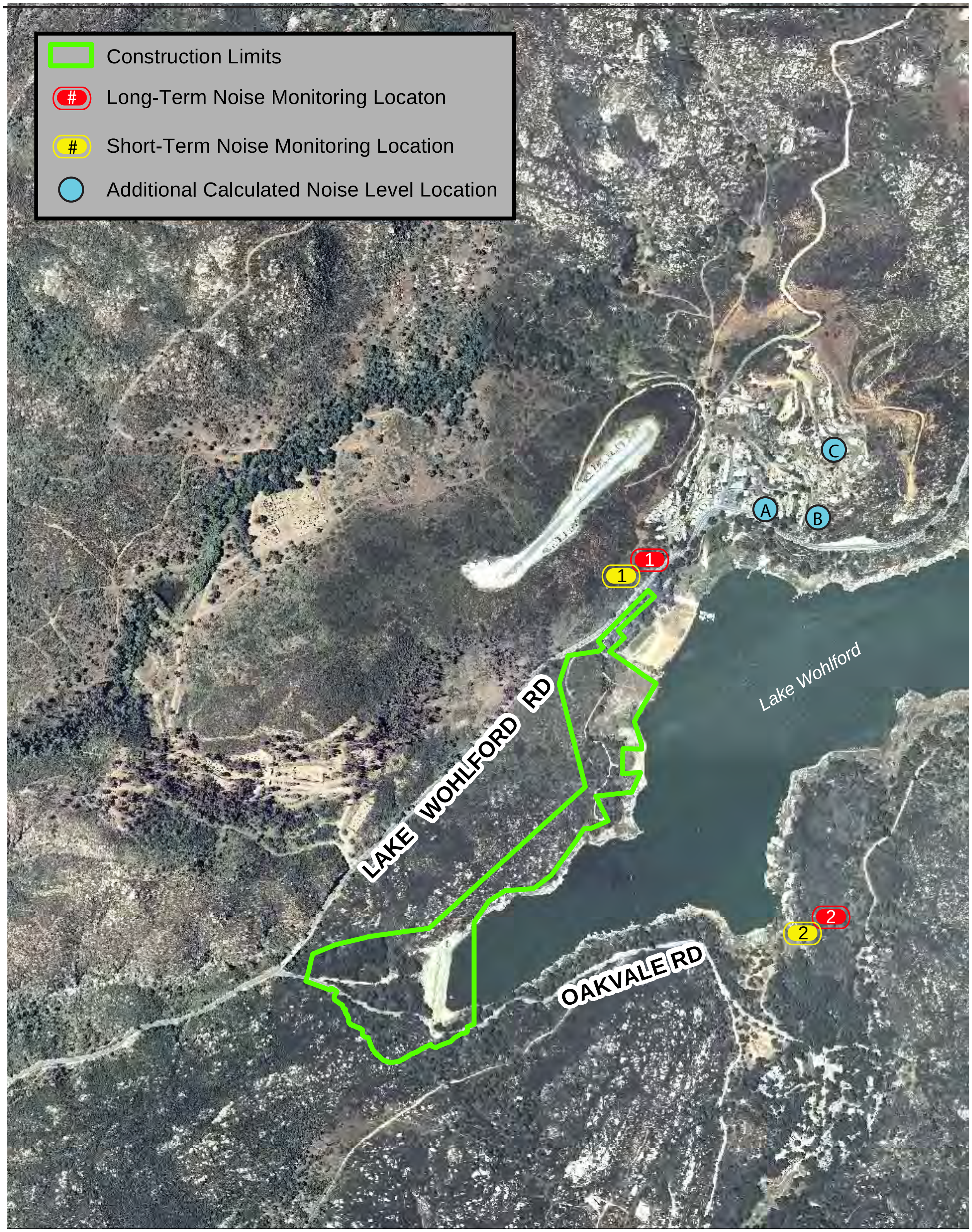
The primary existing noise source in the project area is vehicle traffic on roadways adjacent to the project area and residential areas including Lake Wohlford Road and Oakvale Road, which are both two-lane rural roadways. Lake Wohlford Road provides regional east-west access from the project area to the City and I-5 via Valley Center Road, and locally, to the project construction staging area and adjacent residences. Lake Wohlford Road is a two-lane collector winding through generally steep and mountainous terrain that becomes more level and less winding along the northern perimeter of Lake Wohlford and its marina and residential area, with a posted speed limit of 50 mph and vehicle traffic of 29,700 average daily trips (ADT) (LLG 2014). Oakvale Road is a two-lane collector winding through generally steep terrain to access the dam and residential area at its terminus, with a posted speed limit of 35 mph and vehicle traffic of 4,680 ADT (LLG 2014).

The secondary existing noise source in the project area is aircraft flyovers. Several airports are in proximity to the project site including Ramona Airport (10 miles to the southeast), Pauma Valley Airport (10 miles to the north), Carlsbad Airport (16 miles to the west), and Fallbrook Airport (18 miles to the northwest). Other noise sources in the project area include heating, ventilation, and air conditioning equipment in the adjacent residential and commercial area; truck deliveries; and human and animal vocalizations.

Ambient Noise Measurements and Observations

To determine the existing noise environment, ambient noise measurements and observations were performed at the nearest noise-sensitive receptors (i.e., residences) to the project construction and staging areas. On Monday, December 12, 2014, two long-term (LT) (24-hour) measurements and two associated short-term (ST) (15-minute) daytime noise measurements were taken by an AECOM noise specialist in proximity to the nearest noise-sensitive receptors (i.e., residences) to the two major project site construction areas: the construction staging area off Lake Wohlford Road, and the dam demolition and construction area off Oakvale Road. Noise measurement locations are shown in Figure 3.9-1.

Noise measurements were taken by an AECOM noise specialist using sound level meters (SLMs): Model 824 SLM and Model 820 SLM manufactured by Larson-Davis, Inc. (LD). The SLMs were programmed in “slow” response mode, to record noise levels in A-weighted mode. All noise measurements were taken approximately 5 feet above ground level using stationary tripods. SLMs were calibrated before and after each measurement using an LD Model CAL 200 calibrator. During the ST daytime measurements, the weather was clear and dry, with winds slightly breezy (2 to 2.5 mph), and temperatures ranging between 57 to 65 degrees Fahrenheit. There was no rainfall during the ST and LT measurements. The ambient noise measurement data are detailed in Table 3.9-5.



Source: SanGIS 2012; Black & Veatch 2014; USGS 2013

1,000 500 0 1,000 Feet

Scale: 12,000; 1 inch = 1,000 feet

Figure 3.9-1
Noise Measurement Locations

Table 3.9-5
Ambient Noise Measurement Data

Site ID*	Location	Start Time	CNEL (dBA)	L_{eq} (dBA)	L_{max} (dBA)	L_{min} (dBA)	Noise Sources
LT-1	North of Lake Wohlford Road across from Marina	12:10	41.7	44.3	70.4	32.6	Adjacent traffic on Lake Wohlford Road, aircraft flyovers, bird vocalizations
ST-1	North of Lake Wohlford Road across from Marina	1:25	-	38.9	58.5	26.3	Adjacent traffic on Lake Wohlford Road, aircraft flyovers, bird vocalizations
LT-2	Lake Landing Area off Oakvale Road near foot bridge	12:27	57.2	61.3	82.8	64.7	Distant traffic on Lake Wohlford Road, aircraft flyovers, bird vocalizations
ST-2	Lake Landing Area off Oakvale Road near foot bridge	12:43	-	57.5	68.8	34.7	Distant traffic on Lake Wohlford Road, aircraft flyovers, animal vocalizations

* The Site ID corresponds to locations shown in Figure 3.9-1.
Notes: ST measurements were taken on December 12, 2014, continuously over a 15-minute period;
LT measurements were taken on December 12–13, 2014, continuously over a 24-hour period.
L_{max}= maximum sound level L_{min}= minimum sound level
Source: AECOM 2016c.

As shown in Table 3.9-5, LT noise levels ranged from 41.7 to 57.2 dBA CNEL at LT-1 and LT-2, respectively, at the nearest residences; and daytime ST noise levels, taken concurrent with the LT measurements, ranged from 38.9 to 57.5 L_{eq} at ST-1 and ST-2, respectively.

Existing Vibration Environment

The existing vibration source in the project area is vehicle traffic on roadways adjacent to the project area, including Lake Wohlford Road and Oakvale Road, which does not produce substantial vibration levels received by adjacent receptors.

3.9.2 Significance Criteria

The noise effects of a project would be considered significant if the project would do the following:

1. Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
2. Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

3. Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
4. Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
5. Be located within the vicinity of a private airstrip, exposing people residing or working in the project area to excessive noise levels.

It should be noted that the project site is not located within an airport land use plan area nor is it within 2 miles of a public airport. Therefore, the following CEQA criterion will not be analyzed in any further detail:

> "Be 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, exposing people residing or working in the project area to excessive noise levels."

Significance Thresholds

Because the project is located outside of the City's municipal boundaries and will generate noise that will be received by residents of unincorporated San Diego County, the City has elected to apply County thresholds for purposes of assessing noise impacts pursuant to CEQA.

The County Noise Ordinance restricts the operation of construction equipment to the hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday; construction on Sundays and City holidays is prohibited. The ordinance limits noise generated by construction equipment to an average of 75 dBA for an 8-hour period, as measured at a residential property boundary. This 75 dBA average is considered the daytime significance threshold for this project's adverse noise impacts. The County Noise Ordinance does not contain a standard for nighttime construction noise levels because it does not specifically allow nighttime construction. The Noise Ordinance also assumes that no construction noise would be generated on Sundays. For the purposes of the noise analysis of the project's nighttime construction, the basic sound level limits contained in the County Noise Ordinance are used. As shown previously in Table 3.9-3, a sound level limit of 45 dBA L_{eq} is established for residential zones from 10 p.m. to 7 a.m. Nighttime noise levels in excess of this limit would be considered a significant impact. For vibration, a significant impact would occur if project construction causes vibration in excess of 0.2 ppv, which is a standard adopted by Caltrans for identifying risk to buildings.

3.9.3 Impact Analysis

Methodology

Noise

Noise impacts from construction are dependent on the noise generated by the construction equipment and the location and sensitivity of affected land uses, as well as the timing and duration of the activities. Noise levels adjacent to the active construction sites would increase during construction. Construction equipment can be stationary and mobile. Stationary equipment operates in one location for various periods of time with fixed-power operation, such as pumps, generators, and compressors, or a variable noise operation, such as pile drivers, rock drills, and pavement breakers. For the project, the primary stationary noise sources audible to nearby receptors would be the concrete batch mixer and conveyor system, which would be a variable noise operation located on the western side of the staging yard. Mobile sources include equipment such as bulldozers, graders, and loaders that move around the construction site. For this project, the primary mobile sources would be heavy trucks, graders, and loaders. For purposes of noise impact analysis, all construction equipment is assumed to be powered by diesel engines. Typical maximum noise levels and duty cycles generated by various pieces of construction equipment are listed in Table 3.9-6.

As shown in Table 3.9-6, maximum noise levels range from 70 to 95 dBA L_{max} at 50 feet. In typical construction projects, grading and impact activities typically generate the highest noise levels. Grading involves the largest and heaviest equipment and typically includes bulldozers, excavators, dump trucks, front-end loaders, and graders. Impact equipment includes pile drivers, rock drills, pavement breakers, and industrial/concrete saws.

Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some phases will have higher continuous noise levels than others, and some have high-impact noise levels. The L_{eq} of each phase is determined by combining the L_{eq} contributions from each piece of equipment used in that phase (FTA 2006). Typical construction projects, with equipment moving from one point to another, work breaks, and idle time, have hourly average noise levels that are lower than loud short-term, or instantaneous, peak noise events, as shown in Table 3.9-6. Typically, hourly average noise levels are approximately 75 to 80 dBA L_{eq} at 50 feet from the construction activity. For purposes of the project, a maximum 1-hour average noise level of 80 dBA L_{eq} at 50 feet from the center of the construction area is assumed to occur; noise levels of other activities would be less. However, maximum noise levels of 90 dBA L_{max} at 50 feet may occur during grading and excavation, when several pieces of equipment are operating in combination with backup alarms, near the construction site periphery.

Table 3.9-6
Construction Equipment Noise Levels

Equipment	Noise Level (dBA L_{max}) at 50 Feet	Typical Duty Cycle
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80	20%
Compressor (air)	80	40%
Concrete Batch Plant	83	15%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 KVA or less)	70	50%
Generator (more than 25 KVA)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
Impact Pile Driver (diesel or drop)	95	20%
Insitu Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%
Vibratory Pile Driver	95	20%

KVA = kilovolt amps
Sources: Thalheimer 2000; FTA 2006

Noise levels from construction activities are considered point sources and would drop off at a rate of 6 dBA per doubling of distance over acoustically hard sites, such as streets and parking lots. Intervening structures and/or topography would result in lower noise levels at greater distances as they interfere with sound waves. These factors generally limit the distance construction noise travels and ensure noise impacts from construction are localized.

Vibration

Project construction activities would generate localized vibration from the Oakvale Road and dam excavation phases, including rock drilling and blasting and truck hauling; dam construction, including truck hauling; and existing dam excavation and removal including truck hauling. Groundborne vibration generated by construction projects is usually highest during pile driving, soil compacting, jackhammering, and demolition-related activities. Table 3.9-7 shows typical vibration levels for various pieces of construction equipment that generate high vibration levels (FTA 2006).

Table 3.9-7
Construction Equipment Vibration Levels

Equipment		PPV at 25 Feet (in/sec)
Pile Driver (impact)	Upper range	1.518
	Typical	0.644
Pile Driver (sonic)	Upper range	0.734
	Typical	0.170
Hydromill (slurry wall)	Soil	0.008
	Rock	0.017
Clam Shovel Drop (slurry wall)		0.202
Vibratory Roller		0.210
Hoe Ram		0.089
Large Bulldozer		0.089
Caisson Drilling		0.089
Loaded Trucks		0.076
Jackhammer		0.035
Small Bulldozer		0.003

Source: FTA 2006.

As shown in Table 3.9-7, vibration levels at 25 feet from construction equipment, with the exception of pile drivers, are at or below the threshold of risk of structural building damage (0.2 ppv in/sec). However, at distances beyond 65 feet, vibration levels would be below the threshold of risk of structural damage and below the threshold for human perception (0.1 ppv in/sec) beyond 80 feet.

Analysis

***Criterion 1*: Would the project result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

Oakvale Road Realignment

Construction and grading operations associated with the proposed Oakvale Road realignment are anticipated to occur between 7:00 a.m. to 6:00 p.m. Monday through Friday, as allowed by the City of Escondido's Noise Ordinance. However, work outside those periods may be necessary to expedite certain phases of project construction. There are no sensitive receptors within 0.5 mile of the proposed Oakvale Road realignment site, and the residences nearest to the proposed Oakvale Road realignment site are blocked by intervening topography that would eliminate exposure to any construction-related noise. Noise along the haul route would be intermittent, with one truck traveling the route approximately every 10 minutes, which would not be significantly distinguishable from existing vehicle traffic that travels the proposed haul routes. The proposed Oakvale Road realignment would not expose residents to noise levels exceeding 75 dBA averaged over an 8-hour period, as specified in the County Noise Ordinance. Therefore, the proposed Oakvale Road realignment would result in a less-than-significant impact.

Noise levels associated with operation of the improved section of roadway would be indistinguishable from levels associated with existing conditions. Thus, operation of the proposed Oakvale Road realignment would not result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, and no impact would occur.

Replacement Dam and Access Road

On-Site Construction Noise

Project construction entails various components that would generate noise received by nearby residences. These components are discussed separately below, followed by a discussion of estimated combined noise levels that would be received by these residences.

Access Road Noise: Construction noise would be generated during the construction and operation of the construction access road from the staging area to the dam construction area. This construction activity would only occur during Monday through Saturday within the allowable hours of the City of Escondido's Noise Ordinance. Noise levels generated by construction of the access road would be primarily from the operation of heavy trucks and graders rated at approximately 84 and 85 dBA L_{max} (see Table 3.9-7) with an hourly average of approximately 75 dBA L_{eq} at 50 feet, which would attenuate to approximately 49 dBA L_{eq} at the point closest to the nearest residences, approximately 1,000 feet northeast of the project site across Lake Wohlford Road. These residences are represented by locations LT-1 and ST-1 in Figure 3.9-1. Project construction equipment and materials would be transported by heavy trucks on the access road. Construction vehicle traffic would be approximately 70 dBA L_{eq} at 50 feet, which would attenuate as a line source at a rate of 3 dBA per doubling of distance to approximately 63 dBA L_{eq} at the point closest to the nearest residences approximately 300 feet from the construction access point along Lake Wohlford Road (LT-1 and ST-1). The residences at LT-2 are approximately 2,000 feet from the proposed access road at its nearest point, and these noise levels would be below the County's construction noise level threshold. Therefore, noise levels from this aspect of project construction would be below the County's daytime construction noise level limit of 75 dBA L_{eq} averaged over an 8-hour period at the nearest residential property line.

Staging Area Noise: Project construction equipment and materials would be stored and staged at the proposed project construction staging area. Construction noise would be generated at the staging area from truck traffic, equipment maintenance, materials storage, and dam construction staging activities. Construction vehicle traffic would utilize Lake Wohlford Road for delivery of dam construction materials and workers from the staging area to the dam construction area. Noise levels from the staging area operations during these periods are anticipated to be approximately 75 dBA L_{eq} at 50 feet, based on the operation of portable generators, and materials handling from front end loaders and haul trucks, which would attenuate to approximately 53 dBA L_{eq} at the nearest residence (LT-1 and ST-1) approximately 700 feet northeast of the center of the staging area, across Lake Wohlford Road to the north. Therefore, these levels would be below the County's daytime construction noise level limit of 75 dBA L_{eq} averaged over an 8-hour period at the nearest residential property line. Noise levels would further attenuate to below ambient levels of 58 dBA L_{eq} measured at the residences approximately 2,500 feet to the south across the lake (ST-2).

Concrete Batch Plant: Construction noise would be generated from the assembly and operation of the temporary concrete batch plant located in the center of the staging area. During the 5-month period of dam construction, the concrete batch plant would operate 24 hours per day, 7 days per week. Noise levels generated from the assembly of the concrete batch plant would be approximately 75 dBA at 50 feet, primarily from the operation of heavy trucks and equipment. Noise levels generated from the operation of the batch plant during RCC dam construction are rated at approximately 83 dBA L_{max} at 50 feet, and materials handling from front end loaders and haul trucks rated at 80 dBA L_{max} and 84 dBA L_{max} at 50 feet, respectively, which would result in an hourly average of approximately 80 dBA L_{eq} at 50 feet, and would attenuate to approximately 53 dBA L_{eq} at the nearest residence, approximately 900 feet from the batch plant, across Lake Wohlford Road (ST-1). Therefore, these levels would be below the City's daytime construction noise level limit of 75 dBA L_{eq} averaged over an 8-hour period at the nearest residential property line.

Concrete batch plant operation would be the primary noise-generating component of project construction as received by nearby residences. In addition to standard daytime construction hours, this noise would be generated at night and on Saturdays and Sundays, outside of the hours allowed by the County and City noise ordinances. Nighttime noise levels from the batch plant are estimated at approximately 55 dBA L_{eq} at the nearest residence (ST-1), which would continue throughout the night. This noise level would exceed the nighttime noise threshold of 45 dBA L_{eq} at a residential property line, as defined by the County's Noise Ordinance, and contribute to a significant impact discussed below under the "Combined Concrete Batch Plant, Conveyor Belt, and Dam Construction" heading.

Conveyor Belt: Construction noise would be generated by the installation and operation of the conveyor belt system along the constructed access road. Noise levels generated from the assembly of the conveyor belt system would be approximately 75 dBA L_{eq} at 50 feet primarily from the operation of heavy trucks and equipment. Noise levels generated from the operation of the conveyor belt system during conveyance of materials would generate steady and constant noise levels of approximately 80 dBA L_{eq} at 50 feet, which would attenuate to approximately 54 dBA L_{eq} at the nearest residence (ST-1), approximately 1,000 feet to the northeast. During the day, these levels would be below the County's daytime construction noise level limit of 75 dBA L_{eq} averaged over an 8-hour period at the nearest residential property line. Noise levels would further attenuate to below ambient levels of 58 dBA L_{eq} measured at the residences approximately 2,500 feet to the south across the lake (ST-2 in Figure 4). For both locations, the conveyor belt would result in nighttime noise levels exceeding 45 dBA, contributing to a significant impact discussed below under the "Combined Concrete Batch Plant, Conveyor Belt, and Dam Construction" heading.

Dam Construction: On-site construction noise would be generated by construction equipment during dam excavation, construction, and demolition. Excavation for the proposed dam could require the use of rock drilling, small commercial explosives, and heavy equipment including hydraulic breakers (e.g., hoe-rams) to break up rock to be hauled off-site by heavy trucks. Most of this activity would occur in the canyon floor downstream of the existing dam and away from noise receptors. Blasting and excavation work would be confined to daytime work hours, but as with the batch plant and conveyor, activity related to placement of RCC materials at the dam site would occur 24 hours per day, 7 days per week for an estimated duration of 5 months.

Noise generated by a blasting event is an instantaneous impulse sound. Much of the acoustic energy (noise) released by a blasting event is in the form of very low frequency sound that is inaudible to humans; the audible noise portion (lasting 1 to 2 seconds) is approximately 85 dBA at 800 feet. The pressure change from the blast can rattle windows and startle people in proximity to the blast. Drilling into the material would be necessary to create bore holes for the explosive materials. Rock drills generate airborne noise levels of approximately 80 to 98 dB at a distance of 50 feet. Drilling holes for a blasting event can last from several hours to several days depending upon the material type, area to be blasted, number and depth of the holes, and the effort required to drill through the material. No more than one to two blast events are anticipated to occur in any single day due to the time required to drill the holes as well as insert and connect the explosive materials.

Assuming drilling and blasting activities are conducted continuously for 8 hours with two blasts conducted in a day, a worst-case 8-hour average drilling noise level would be approximately 98 dBA L_{eq} at 50 feet, which would attenuate by distance alone to approximately 64 dBA L_{eq} at the nearest residences located approximately 2,500 feet to the east (ST-2). The intervening topography between the dam site and these residences would further attenuate noise levels by approximately 10 dBA, to an estimated 54 dBA L_{eq}. ST-1 is farther from the dam construction site than ST-2, so noise levels would further attenuate by distance alone to approximately 62 dBA L_{eq} at approximately 3,100 feet, and further attenuate due to intervening topography to approximately 52 dBA L_{eq}.

Construction activities for dam excavation, construction, and demolition would generate noise levels from heavy equipment such as excavators, heavy trucks, and front end loaders, which would generate a maximum 1-hour average noise level of 80 dBA L_{eq} at 50 feet from the center of the dam construction activity. This noise level would attenuate by distance to approximately 46 dBA L_{eq} at the nearest residence located approximately 2,500 feet to the east (ST-2 in Figure 4), and would further attenuate due to intervening topography. These levels would be below ambient conditions and well below the County's construction noise level limit of 75 dBA L_{eq} averaged over an 8-hour period at the nearest residential property line (ST-2). At ST-1, noise levels would further attenuate by distance alone to approximately 46 dBA L_{eq} at approximately 3,100 feet, and further attenuate due to intervening topography. Dam construction work would occur at night during placement of the RCC. This would contribute to a significant impact discussed below under the "Combined Concrete Batch Plant, Conveyor Belt, and Dam Construction" heading.

Combined Concrete Batch Plant, Conveyor Belt, and Dam Construction: During the 5 months of RCC dam construction, construction activities would occur at night and on Saturdays and Sundays, outside of the hours allowed by the County Noise Ordinance. Nighttime work would include activity at the batch plant, conveyor system, and the dam construction area. Nighttime construction noise limits are not specified in the County Noise Ordinance. Therefore, the County Noise Ordinance basic noise level limit of 45 dBA for a 1-hour average at the property line of any residential property is used for analysis of nighttime impacts.

Overall, worst-case combined noise levels from simultaneous operations at the concrete batch plant, conveyor belt, and RCC dam construction at the dam at the nearest residence (ST-1), and at the other measured location (ST-2) during nighttime RCC dam construction are summarized in Table 3.9-8. Based on the rules of decibel addition, the resultant noise level of combined activity operation from Table 3.9-8 is anticipated to be approximately 58 dBA L_{eq} at ST-1 and 53 dBA L_{eq} at ST-2, which would be the same during the day and night. These noise levels exceed the County's nighttime limit at residential property lines of 45 dBA L_{eq}, resulting in a significant impact.

Table 3.9-8
Combined Nighttime Construction Activity Noise Levels

Activity	Noise level dBA L_{eq} at 50 feet	Distance to nearest receptor (ST-1)	Noise level dBA L_{eq} at ST-1	Distance to nearest receptor (ST-2)	Noise level dBA L_{eq} at ST-2
RCC Dam Construction	80	3,100	44	2,500	46
Concrete Batch Plant	80	900	55	2,000	48
Conveyor Belt	80	1000	54	1,900	49
Combined Activities	–	–	58	–	53

Source: AECOM 2016c.

To disclose anticipated impacts at the additional residences in the community northeast of the staging area and batch plant location, nighttime noise was calculated for three additional residential locations near ST-1 (shown as Points A, B, and C in Figure 3.9-1). These locations are approximately 1,350, 1,500, and 1,900 feet from the proposed batch plant site, respectively, and are situated at various points upslope from the project site. Combined noise at these locations is estimated at 54 dBA L_{eq} for Point A, 53 dBA L_{eq} at Point B, and 51 dBA L_{eq} at Point C. As with ST-1 and ST-2, this would fall under the 75 dBA daytime construction noise limit specified in the County Noise Ordinance but would exceed the 45 dBA limit for nighttime noise. Therefore, the project would result in a significant impact at these locations.

Summary of On-Site Construction Noise Impacts: On-site daytime construction noise levels at the staging area, concrete batch plant, and access road, and rock drilling for blasting activities for dam excavation would result in a temporary increase in ambient noise levels, but they would not exceed the County's 75 dBA daytime construction noise level limit at nearby receptors. Nighttime activities, including work at the concrete batch plant and operation of the conveyor belt system, would occur outside of the allowable construction hours of the County Noise Ordinance and would exceed the County's 45 dBA nighttime noise standard at nearby receptors. Thus, the on-site construction noise generated by the proposed access road and replacement dam would result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies and therefore the impact would be significant (**Impact NOI-1)**.

Off-Site Construction Noise

Off-site construction noise generated by the proposed access road and dam replacement would be generated on local roadways by workers commuting to and from the job site and by construction material deliveries, which would access the project site on adjacent roadways. Construction of the proposed access road and dam replacement are calculated to generate 898 average ADT with 59 trips in the a.m. peak hour and 59 trips (28 inbound and 31 outbound) during the p.m. peak hour (LLG 2014). These project trips were distributed regionally on roadways based on potential destinations for truck hauling from construction activity; a few trips were distributed via Lake Wohlford Road and Valley Center Road to possible local destinations in the community of Valley Center, and the rest of the trips were distributed to regional destinations via the City's identified truck routes, ultimately utilizing I-15 for regional access (LLG 2014). Existing ADT volume on Lake Wohlford Road from Valley Center Road to Oakvale Road is 4,680 ADT. As doubling traffic volumes would increase noise levels by 3 dBA, the project increase of 898 ADT would result in a less than 1 dBA L_{eq} increase in noise levels along adjacent roadways during the peak a.m. period, which is not a perceivable change in noise level. Therefore, these levels would be below the County's daytime construction noise level limit of 75 dBA L_{eq} at the nearest residential property line. Thus, off-site construction noise generated by the proposed access and dam replacement would not result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies and therefore the impact would be less than significant. Hauling would be limited to daytime construction hours, so there would be no nighttime impact.

Restoration of Water Levels

The proposed restoration of water levels would not generate any temporary or permanent noise. Thus, no impact would occur.

Criterion 2: **Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?**

Oakvale Road Realignment

There are no buildings or other occupied areas in proximity to the proposed Oakvale Road realignment site that would receive vibration generated by project construction. Therefore, construction of the proposed Oakvale Road realignment would not result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels, and no impact would occur.

Groundborne vibration or groundborne noise levels associated with operation of the improved section of roadway would be indistinguishable from groundborne vibration or groundborne noise levels associated with the existing operation of the roadway alignment. Therefore, operation of the proposed Oakvale Road realignment would not result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels, and no impact would occur.

Replacement Dam and Access Road

Construction of the proposed access road and replacement dam (including excavation, construction, demolition, and removal activities) would not be located in proximity to building structures or humans, which are located approximately 1,500 feet from the dam construction site. At these distances, typical construction activities would not result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. However, the transport of materials by heavy trucks to and from construction sites has the potential to generate higher levels of groundborne vibration than mechanical equipment. Heavy trucks, though, generally operate at very low speeds on-site. Therefore, the groundborne vibration induced by heavy truck traffic is not anticipated to be perceptible at distances greater than 25 feet. Implementation of the proposed access road and dam replacement would not result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels and therefore the impact would be less than significant.

Restoration of Water Levels

The proposed restoration of water levels would not generate any groundborne vibration or groundborne noise levels. Thus, no impact would occur.

***Criterion 3*:** **Would the project cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?**

Oakvale Road Realignment

There would be no long-term changes in ambient noise levels as a result of the proposed Oakvale Road realignment. Thus, the proposed Oakvale Road realignment would not cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. No impact would occur.

Replacement Dam and Access Road

There would be no long-term changes in ambient noise levels as a result of the proposed access road and replacement dam. Thus, the proposed access road and dam replacement would not cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. No impact would occur.

Restoration of Water Levels

As stated previously, the proposed restoration of water levels would not generate any permanent noise. Thus, the proposed restoration of water levels would not cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project, and no impact would occur.

Criterion 4: **Would the project cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?**

Oakvale Road Realignment

Ambient noise levels in the vicinity of the proposed Oakvale Road realignment are low and primarily result from intermittent vehicle traffic traveling along Oakvale Road (AECOM 2014d). The proposed Oakvale Road realignment would result in short-term increases in ambient noise during construction, but the absence of sensitive receptors means this impact would be less than significant. Along the haul routes, noise levels are characterized by regular vehicular traffic, and the intermittent project-related truck noise would not be substantial enough to result in a significant increase in ambient noise. Thus, the proposed Oakvale Road realignment would not cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, and the impact would be less than significant.

Replacement Dam and Access Road

On-Site Construction Noise

As discussed previously under Criterion 2, on-site daytime construction noise levels at the staging area, concrete batch plant, and access road, and rock drilling for blasting activities for dam excavation would result in a substantial temporary increase in ambient noise levels. Nighttime RCC dam construction, and construction activities at the concrete batch plant, conveyor belt system, and dam construction area would occur outside of the allowable construction hours of the County Noise Ordinance and would result in a substantial temporary increase in ambient noise levels. Thus, the proposed access road and replacement dam would cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, and the impact would be considered significant. Refer to the discussion on Criterion 2 for a detailed breakdown by activity of the on-site construction noise levels generated by the proposed access road and replacement dam.

Off-Site Construction Noise

As discussed previously under Criterion 2, off-site construction resulting from the proposed access road and dam replacement would result in an increase of 898 ADT, which would result in a less than 1 dBA L_{eq} increase in noise levels along adjacent roadways during the peak a.m. period, which is not a perceivable change in noise level. Therefore, these levels would be below the County's daytime construction noise level limit of 75 dBA L_{eq} at the nearest residential property line. Thus, off-site construction noise would not cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project and the impact would be considered less than significant. Refer to the discussion for Criterion 2 for a detailed breakdown by activity of the off-site construction noise levels generated by the proposed access road and replacement dam.

Restoration of Water Levels

As stated previously, the proposed restoration of water levels would not generate any temporary or periodic noise. Thus, the proposed restoration of water levels would not cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, and no impact would occur.

***Criterion 5*: Would the project be located within the vicinity of a private airstrip, exposing people residing or working in the project area to excessive noise levels?**

Oakvale Road Realignment

Lake Wohlford Airstrip is the closest private airport to the project site, at a distance of approximately 0.5 mile to the north. As mentioned previously, there are no sensitive receptors within 0.5 mile of the proposed Oakvale Road realignment site. Furthermore, there is very limited air traffic at the Lake Wohlford Airstrip and the planes do not typically fly over or near the project site, which is within a steep and narrow canyon area adjacent to Lake Wohlford Dam. Thus, the construction and operation of the proposed Oakvale Road realignment would not expose people residing or working in the project area to excessive noise levels, and no impact would occur.

Replacement Dam and Access Road

As mentioned above, while the project site (including the proposed access road and replacement dam) would be located within the vicinity of a private airstrip (Lake Wohlford Airstrip), there is very limited air traffic at this airstrip and the planes do not typically fly over or near the project site. The airstrip does not generate noise that would affect construction workers. Therefore, the project would result in a less than significant impact.

Restoration of Water Levels

While the proposed restoration of water levels would occur within the vicinity of the Lake Wohlford Airstrip, it would not generate any new noise levels. Thus, no impact would occur.

3.9.4 Significant Impacts and Mitigation Measures

Impact NOI-1: The dam construction phase of the project would generate noise at night that would be received by residences in excess of the County's 45 dBA nighttime noise standard.

> **Mitigation Measure NOI-1.1:** Implement Noise Complaint Reporting – The project (via construction contractor) would establish a telephone hot-line for use by the public to report any significant adverse noise conditions associated with the construction of the project. If the telephone is not staffed 24 hours per day, the contractor shall be required to include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This hot-line telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been considered commissioned and ready for operation.

Mitigation Measure NOI-1.2: Implement Noise Complaint Investigation – Throughout the construction of the project, the contractor shall be required to document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The contractor or its authorized agent shall be required to:

- Use a Noise Complaint Resolution Form to document and respond to each noise complaint;
- Contact the person(s) making the noise complaint within 24 hours;
- Conduct an investigation to attempt to determine the source of noise related to the complaint; and
- Take all reasonable measures to reduce the noise at its source.

Mitigation Measure NOI-1.3: Implement Construction Practices – The following are typical field techniques for reducing noise from construction activities, with the purpose of reducing aggregate construction noise levels at nearby noise-sensitive receivers. The contractor or its authorized agent shall be required to:

- Adjust all audible back-up alarms downward in sound level, reflecting locations that have expected lower background level, while still maintaining adequate signal-to-noise ratio for alarm effectiveness. Consider signal persons and strobe lights, or alternative safety equipment and/or processes as allowed, for reducing reliance on high-amplitude sonic alarms.
- Place stationary noise sources, such as generators and air compressors, away from affected noise-sensitive receivers to the farthest extent practical on the project site. Place non-noise-producing mobile equipment such as trailers in the direct sound pathways between suspected major noise-producing sources and these sensitive receivers. To minimize flanking underneath or through vertical gaps, the construction contractor shall cover the openings with at least 0.5-inch-thick plywood, hay bales, or other sufficiently dense material.

Mitigation Measure NOI-1.4: Equipment Noise Reduction – The following are typical practices for construction equipment selection (or preferences) and expected function that can help reduce noise and shall be implemented:

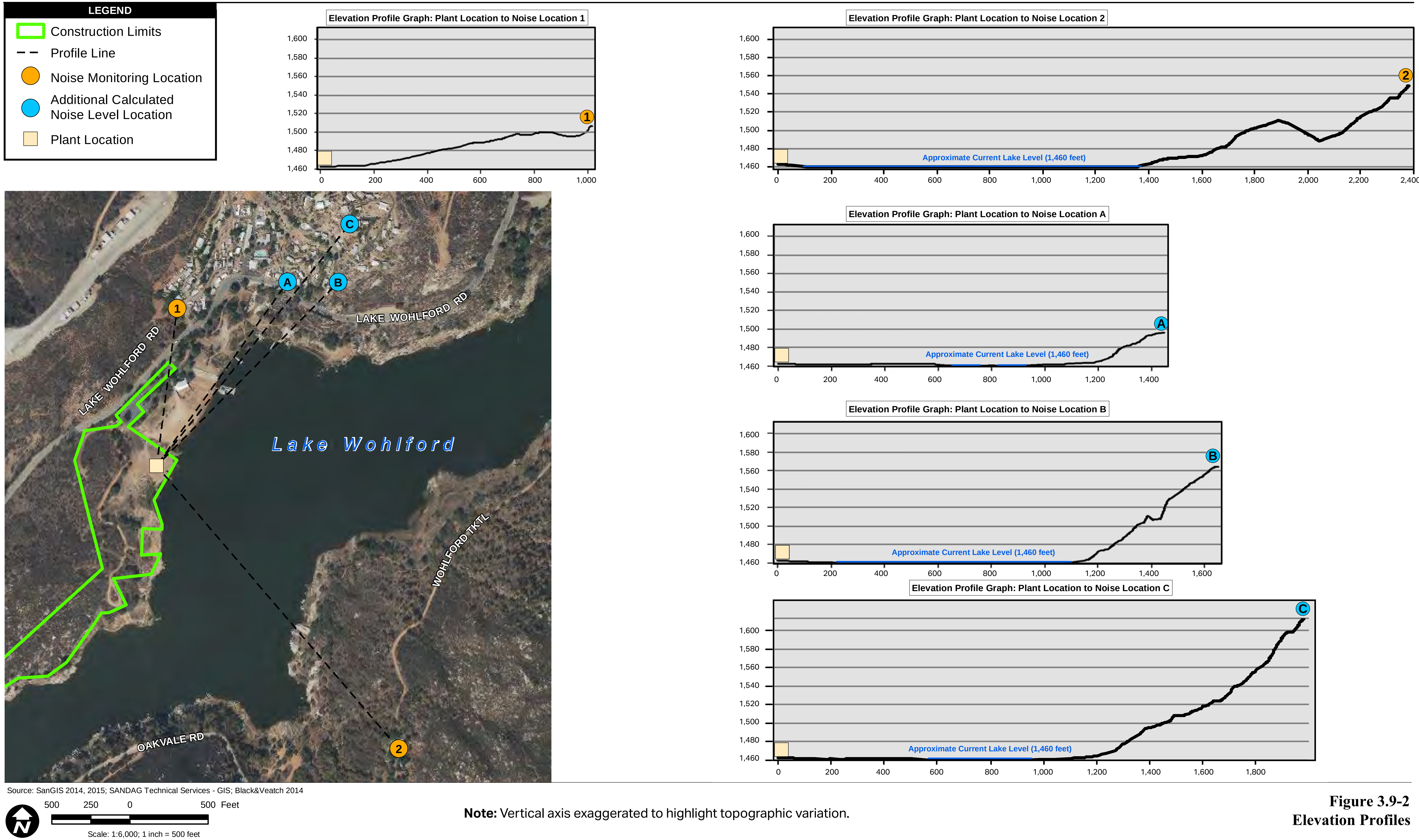
- Use concrete crushers or pavement saws rather than impact devices such as jackhammers, pavement breakers, and hoe rams for tasks such as concrete or asphalt demolition and removal.

- Pneumatic impact tools and equipment used at the construction site shall have intake and exhaust mufflers recommended by the manufacturers thereof, to meet relevant noise limitations.
- Provide impact noise-producing equipment (i.e., jackhammers and pavement breaker[s]) with noise attenuating shields, shrouds or portable barriers or enclosures, to reduce operating noise.
- Line or cover hoppers, storage bins, and chutes with sound-deadening material (e.g., apply wood or rubber liners to metal bin impact surfaces).
- Provide upgraded mufflers, acoustical lining, or acoustical paneling for other noisy equipment, including internal combustion engines.
- Use alternative procedures of construction and select a combination of techniques that generate the least overall noise and vibration.
- Use construction equipment manufactured or modified to reduce noise and vibration emissions, such as:
  - Electric instead of diesel-powered equipment.
  - Hydraulic tools instead of pneumatic tools.
  - Electric saws instead of air- or gasoline-driven saws.
- Locate construction staging area as far as feasible from occupied residences.

The implementation of Mitigation Measures NOI-1.3 and NOI-1.4 would reduce noise generated during construction, and Mitigation Measures NOI-1.1 and NOI-1.2 would create a system for public involvement and addressing resolution of noise complaints. The noise-reduction measures would not reduce nighttime noise to below the County's 45 dBA standard. The public-involvement measures would not actually reduce noise themselves, but would help foster positive neighbor relations for the duration of the project. Therefore, even with the implementation of mitigation measures N-1 through N-4, the nighttime RCC dam construction, and construction activities at the concrete batch plant, conveyor belt system, and dam construction area would still result in a substantial temporary increase in ambient noise levels. Therefore, the project would contribute to a significant and unavoidable impact with respect to nighttime noise.

A common measure for mitigating noise levels generated by construction is erection of temporary barriers around the locations where noise originates, but such a measure would be infeasible and ineffective on this project. Noise barriers are most effective when located adjacent to the noise source or noise receptor, where line of sight between the source and receptor is fully blocked by the barrier. Temporary noise barriers may include, but are not necessarily limited to, using appropriately thick wooden panel walls (at least ½ inch thick), or mobile "blocking vehicles" (e.g., semi-truck trailers, moving vans, etc.) high enough to block the line of sight from the dominant construction noise source(s) to the noise-sensitive receiver. Alternately, field-erected noise curtain assemblies can be installed around specific equipment sites or zones of anticipated mobile or stationary activity. These techniques are most effective and practical when the construction activity noise source is stationary (e.g., auger or drill operation) and the specific source locations of noise emission are near the ground and can be placed as close to the equipment/activity-facing side of the noise barrier as possible. Depending on factors such as barrier height, barrier length, and distance between the barrier and the noise-producing equipment or activity, such barriers can reduce construction noise by 5 to 10 dBA at nearby receptors.

Erection of temporary noise barriers would not be an effective mitigation measure for this project's construction noise impacts. The residences likely to receive noise from this project's 24-hour construction activities are all located at higher elevations from the construction site, without intervening topography or other obstructions that would the block line of sight to the construction work. Figure 3.9-2 shows several approximated elevation cross-sections between the concrete batch plant location and a sampling of residential locations north, northeast, and southeast of the primary staging area, as based on GIS topographic data. As shown in Figure 3.9-2, all of the residential receptors are higher in elevation than the plant, ranging 35 to 140 feet higher than the plant. Assuming all noise sources at the batch plant are on the ground, it would not be possible to effectively reduce noise with noise walls because of this elevation difference, as the walls would not block the line of sight. Furthermore, the batch plant operations would include noise-generating machinery that would be elevated off the ground, possibly 10 to 30 feet high depending on the design, which would make standard noise walls even more ineffective at reducing the noise received by nearby residences. Building noise walls high enough to block line of sight to the nearby receptors would be unsafe and impractical. It would also be unsafe and impractical to mount noise barriers to the noise-generating equipment at the batch plant. Therefore, it is infeasible to reduce construction-related noise levels on this project by means of noise barriers.



Source: SanGIS 2014, 2015; SANDAG Technical Services - GIS; Black&Veatch 2014

Note: Vertical axis exaggerated to highlight topographic variation.

Figure 3.9-2
Elevation Profiles

Path: P:\2012\60278081_Lk_Wohlford\06GIS\6.3_Layout\Noise_profiles.mxd, 10/29/2015, augellop

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3.10 RECREATION

The recreation section of this EIR focuses on the identification of existing recreation opportunities within the project APE. The project APE encompasses environmental resources that may be directly or indirectly affected by the dam replacement, realignment of Oakvale Road, and the raised water levels following dam replacement. The APE was established as the physical limits of both temporary and permanent project activities. This analysis then evaluates the impacts to these recreation opportunities associated with implementation of the project.

3.10.1 Existing Conditions

Environmental Setting

The following section describes the existing recreational facilities in the area of Lake Wohlford.

Regional Recreation Facilities

The City of Escondido maintains 15 parks, which range in size from small urban neighborhood recreation areas to the sprawling 3,058-acre Daley Ranch open space preserve. Amenities range from amphitheaters and ballfields and swimming pools to campgrounds and hiking opportunities. A full description of the facilities available at each park is available in the City of Escondido's Park Map and Directory (City of Escondido n.d.). Three of the largest recreation facilities, Lake Wohlford, Dixon Lake, and Daley Ranch, are located in the far northeastern corner of Escondido and are operated by the City's Lakes Division. Together, these large facilities offer a range of active and passive recreation opportunities, including camping and picnic areas, as well as many trails for hiking, mountain bike, and equestrian use. In addition, both of the lakes described above offer a range of water-based recreation opportunities and are popular recreation destinations for local residents and visitors.

Lake Wohlford is a City-owned and operated reservoir located on City property within north San Diego County. The lake is surrounded by City, private, and San Pasqual Band of Diegueno Indians properties on the north, and City, private, and federal (BLM) properties on the south. In addition to the lake itself, there are several other major private recreational amenities in the area. These include the Escondido Fish & Game Club, located east of the lake off Guejito Road, and a paintball park, "Mr. Paintball USA," located west of the lake along Lake Wohlford Road. Lake Wohlford Resort and Smokey's Lake Wohlford Cafe lie to the north of the lake along Lake Wohlford Road. The resort facilities include a general store, trailer spaces, and primitive camping areas. Smokey's Cafe is a popular meeting place for residents of the nearby community and visitors to the area, and also provides visitors with boat rentals and fishing licenses for the reservoir. On the south side of the reservoir, south of Oakvale Road, the Oakvale Park campground is a privately operated facility for tent camping.

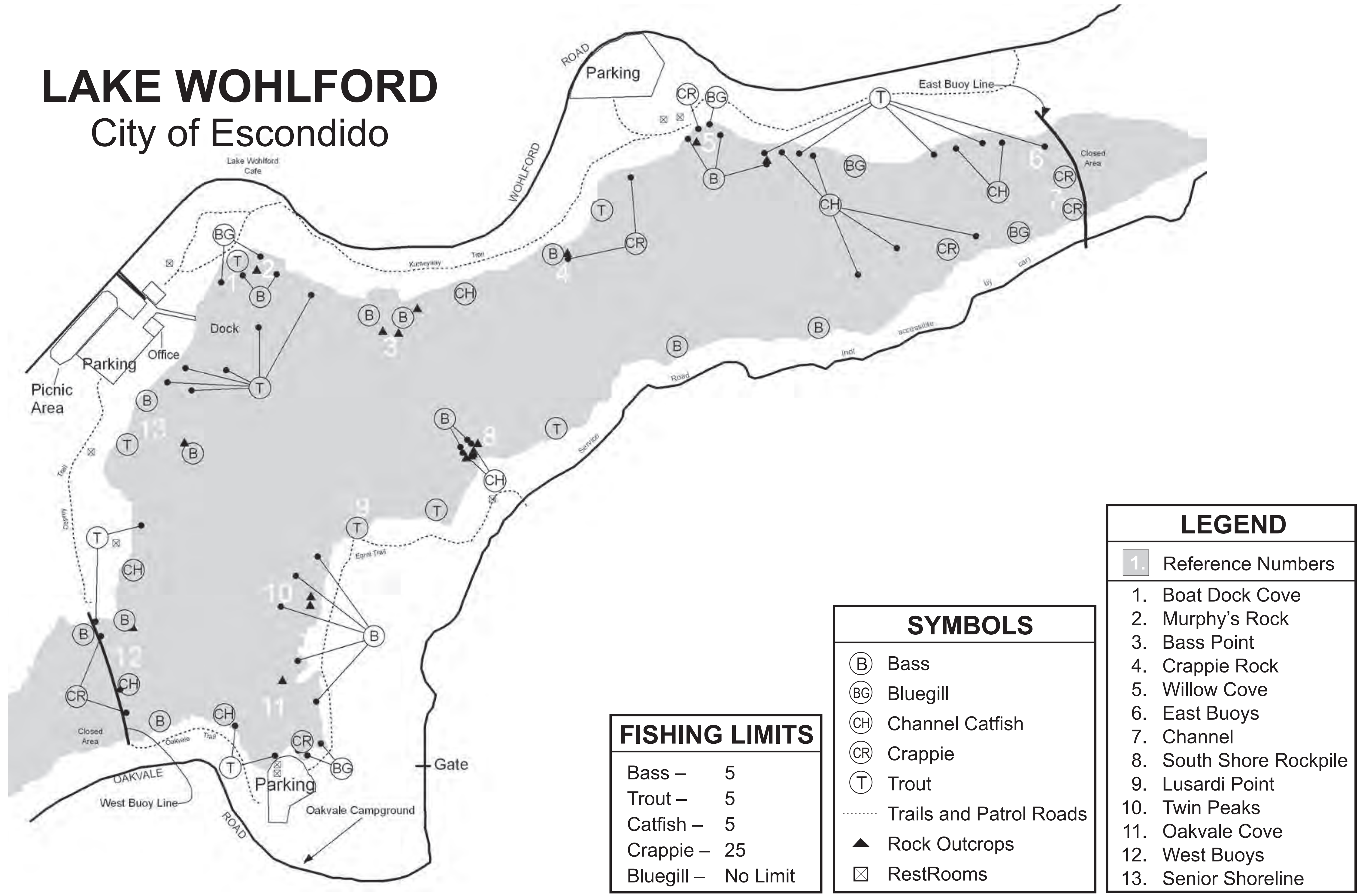
Lake Wohlford Recreational Facilities

Lake Wohlford is a regional park that offers noncontact recreation. As shown in Figure 3.10-1, the majority of existing recreational access to the lake is based around the Lake Wohlford Marina. The facility, which is owned and operated by the City of Escondido, is located on approximately 1.66 acres on the north side of the lake, just off Lake Wohlford Road. The facility consists of a boat launch ramp, a picnic area, restroom, several parking areas with approximately 56 spaces, a ranger station, and a maintenance/storage barn. The boat launch ramp itself is currently inactive, as private watercraft are banned in the lake due to the threat of invasive Quagga mussels (City of Escondido 2015c). In addition to the formally designated access points mentioned above, the area adjacent to the launch ramp facility is a popular fishing area. Known informally as "Senior Shoreline," this area allows anglers to park immediately adjacent to the shoreline and has become one of the lake's most popular fishing areas.

There are two additional parking areas are available: the Willow Cove Parking Area and the Oakvale Cove Parking Area. The Willow Cove Parking Area is a primitive, undeveloped parking and shoreline access site located along the north shoreline of the lake. The parking area has an approximate capacity of 40 vehicles. The Oakvale Cove Parking Area is a rustic, undeveloped parking and shoreline access site located off Oakvale Road, south of the lake, near the dam. The parking area has an approximate capacity of 25 vehicles.

Fishing (shoreline and boat-based) is the primary water-based recreation activity at the lake. The lake is stocked with coldwater fish species (i.e., trout) in the winter and spring and warmwater fish (i.e., catfish) in the summer and early fall. Both shoreline and boat fishing are popular modes of recreation at Lake Wohlford. Due to the current ban on private watercraft, all boat fishing is conducted from rental boats, available during normal operating hours. The lake is open on Saturday and Sunday from September through mid-December and daily the rest of the year from 6 a.m. to sunset. Boat access within the lake is prohibited near the dam, as delineated by a buoy line approximately 0.25 mile east of the dam. No swimming or direct water contact is allowed due to Lake Wohlford's status as a drinking water reservoir.

In addition to water-based recreation opportunities, Lake Wohlford is surrounded by trails and open spaces offering a variety of recreational opportunities, including hiking, running, nature observation, and photography. Figure 3.10-1 shows the trails that span the majority of Lake Wohlford's shorefront, including the Kumeyaay Trail to the north, the Osprey Trail to the west, and the Egret Trail to the south.



Source: City of Escondido

100 50 0 100 Feet

Scale: 1,200; 1 inch = 100 feet

Figure 3.10-1
Trails and Fishing Locations

Path: P:\2012\60278081_Lk_Wohlford\05Graphics\5.4_Proj_Graphics\Report_Graphics\PDF, 8/11/2015, delapazd

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Regulatory Setting

The Escondido General Plan, Resource Conservation Element states that trails provide opportunities for recreation, exploration, instruction, community involvement, economic benefits, and alternative transportation. Goal 2 of the element is, “A network of trails that connect the community and provide opportunities for recreation and alternative transportation use.” The Resource Conservation Element identifies the trail network encompassing Lake Wohlford as a Primary Local Rural Trail.

3.10.2 Significance Criteria

The significance criteria for this project’s impacts on recreation are based on Appendix G of the State CEQA Guidelines, with an additional criterion included for this project based on the nature of the project’s temporary construction impacts and unique situation as a critical reservoir feature.

The effects of a project on recreation would be considered significant if the project would do the following:

1. Result in the direct displacement or disturbance of established recreational facilities.
2. 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.
3. Include recreational facilities or requires the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

3.10.3 Impact Analysis

Methodology

The recreational impacts analysis includes a review of applicable recreational planning documents and maps, as well as an examination of existing recreational facilities at Lake Wohlford. The impact assessment evaluates the potential disruption by the project of recreation activities on and around the reservoir, including fishing, hiking, and passive recreation. Impacts on existing recreational uses were analyzed based on the type and magnitude of the effects the project could have on recreational uses within the project’s study area.

Analysis

Criterion 1: **Would the project result in the direct displacement or disturbance of established recreational facilities?**

Oakvale Road Realignment

Trails: There are currently no public trails in the vicinity of the Oakvale Road realignment portion of the project. Design of the project-related segment of Oakvale Road, however, includes a 10-foot lane for non-motorized traffic, to be located within the road's westbound shoulder. Addition of this lane would provide added connectivity between the preexisting trails around Lake Wohlford and the conserved open space and trails located on Bottle Peak Preserve to the south of the project area.

Lake Access and Use: Public access to Lake Wohlford is not available on the western side of the reservoir, so no boat activity or fishing access would occur in the vicinity of this portion of the project. With the exception of informal roadside turnouts, there are also no parking areas in the vicinity of this portion of the project. The primary lake access point off of Oakvale Road—the parking area near Oakvale Campground——is located outside the vicinity of the realignment, and its use would not be restricted by the project.

The proposed project would not restrict access to any currently existing trails and would ultimately improve trail connectivity and recreational access in the area. Therefore, impacts on trails from the Oakvale Road realignment portion of the project **would be less than significant.**

As there are no lake access points in the immediate vicinity of the project, the proposed project would not limit lake access. Therefore, impacts on lake access from the Oakvale Road realignment portion of the project **would be less than significant.**

Replacement Dam and Access Road

Dam construction activity would occur in the canyon downstream of the dam. To enable construction access from the staging area near Lake Wohlford Marina to the dam construction zone, the project entails construction of a permanent access road northeast of the existing dam. The new gravel access road would be constructed along the existing Osprey Trail alignment (which also serves as a City maintenance road). For public safety, the Osprey Trail would be temporarily closed during construction. Though this trail would be closed during construction, a number of other trail options are available in the area surrounding the lake that would not be impacted by construction activities. This is a relatively short trail that does not provide access to or connect to other trails in the area. Recreationalists who use the Osprey Trail to access areas of the shoreline for fishing opportunities would have other shoreline fishing areas available for use throughout the construction period.

Once construction is complete, the prior alignment of the Osprey Trail improved for construction access would be returned to public access, extending approximately 0.25 mile southwest from the marina parking area. At that point, the public trail would end and the access road would be gated to prevent unauthorized access to the dam. The length and location of the public trail would be the same as currently exists.

The construction area of the dam is not open to the public and there is no public lake access available within the dam construction area, so there would be no additional restriction on lake access as a result of this portion of the project. Access to the lake from preexisting access points would remain open during dam construction. For public safety purposes, the existing buoy line approximately 0.25 mile east of the dam may be moved farther east on the water to prevent public access near the construction area. This temporary additional restricted area within the reservoir would not create a substantial limitation on the water area available for public boating or fishing recreation.

As described above, the Osprey Trail would be closed to the public during construction as the construction access road would utilize that alignment. The shoreline areas accessed from this trail used for informal fishing would not be accessible via the trail. However, other trail and shoreline fishing opportunities around the lake would not be affected and would remain available for public use throughout the construction period.

The primary staging area for project construction is planned at the Lake Wohlford Marina on the northern side of the reservoir and on the adjacent lakeshore area to the west. The marina and adjacent area also represent a primary parking space and access point for recreational users of the reservoir. Although the reservoir would remain open to recreational use, a significant portion of this parking area would be unavailable to the public during construction. It is anticipated that the remaining parking available in the lot would be sufficient for the typical daily use of the marina. Also, informal parking would continue to be available during construction in the area known as Senior Shoreline, located between the official parking lot and the shoreline just southeast of the marina.

The temporary closure of the Osprey Trail during construction would not be significant as there are a number of other trails surrounding the lake that would remain available for use and other shoreline fishing locations would also be accessible No other trails surrounding Lake Wohlford would be affected by access road or dam construction activities. Therefore, impacts on trails from the Dam Construction portion of the project **would be less than significant.**

A restriction on lake access would come from moving the buoy line east, which would restrict a very small area of the lake compared to its total area. Therefore, impacts on lake access from this portion of the project **would be less than significant.**

The proposed project would require the restriction of public access to the marina and the adjacent parking area, the largest at the lake. However, the remaining parking availability in the official parking lot and the continued use of the dirt area along the shoreline as an informal parking area through the construction period are anticipated to provide adequate parking for the typical use of the marina area. The entire marina lot would be restored to full public use at the end of construction. Therefore, impacts on parking from this portion of the project **would be less than significant.**

Restoration of Water Levels

Because the lake has only been at its current reduced level since 2007, and no official new trails have been implemented since then, the restoration of the lake to its original water levels would have no impact on currently existing trails.

Although lake visitors have used the ground exposed by the reduced water level for shoreline fishing access, restoring the lake's water level would ultimately improve recreational opportunities. The restored water levels would inundate portions of the areas currently used for shoreline fishing, such as Senior Shoreline. However, new and expanded acreage of shoreline would be created with the restored water levels and would continue to be available for shoreline fishing, similar to conditions prior to the lowering of the water level in 2007. Higher water levels would support a more robust fish population, offering a benefit to anglers. The increased water levels would expand the water surface area available for recreational use. The increased water level would not adversely affect any of the boating-related facilities, such as the Lake Wohlford Marina or the boat launch.

Since the reduction of the water level in 2007, the expanded shoreline west of the marina, known as Senior Shoreline, is often used for informal parking close to the water's edge. Immediately adjacent to this area, however, is the lake's official parking lot that is paved and provides spaces for both passenger vehicles as well as long spaces designed for boat trailers. A portion of the unofficial dirt parking area along the shoreline would be inundated by the restored water levels, but some area would remain available and the official parking lot would also continue to be available for parking at the end of construction. The partial loss of unofficial parking along the shoreline due to restoration of water levels would not create a parking shortage for marina or shoreline access and would be similar to conditions prior to 2007.

No trails have been put in place since the lowering of the lake's water level. Therefore, impacts of restoring of the water level to its previous elevation to trail use **would be less than significant.**

The restored water levels associated with the proposed project would not limit or restrict lake access or use. Therefore, impacts of restoring the water level **would be less than significant.**

The proposed project would not affect any officially designated parking areas, including the sizable lot adjacent to the marina. Therefore, the loss of parking availability in unofficial dirt areas from this portion of the project **would be less than significant.**

Criterion 2: **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?**

Oakvale Road Realignment; Replacement Dam and Access Road; Restoration of Water Levels

No portion of this project would substantially restrict access to the lake, although certain areas of the lake and surrounding areas may be closed during different phases of the project. The expanded area of the lake surface that would potentially be temporarily off-limits is small in comparison to the total area of the lake. Despite the temporary closure of the Osprey Trail, the remainder of trails around the lake would continue to be available for public use. Although the parking area adjacent to the marina would be partially closed during construction, two other parking areas would remain open during construction. None of these restrictions are expected to limit recreational use of the lake, and for this reason recreational users are unlikely to utilize other existing facilities due to project construction at Lake Wohlford. Therefore, the project is not expected to significantly increase the use of existing neighborhood or regional parks or facilities.

Criterion 3: **Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?**

Oakvale Road Realignment; Replacement Dam and Access Road; Restoration of Water Levels

No recreational facilities are included in this project. The dam itself serves as a critical element to the reservoir but is not considered a recreational facility. The construction access road has been designed to follow the alignment of the existing Osprey Trail. At the completion of construction, the portion of that road along the trail alignment would be reopened for public use and would serve as the Osprey Trail. Thus, it is not a new trail facility or recreation opportunity. Therefore, this project includes no recreational facilities that might have an adverse environmental effect.

3.10.4 Significant Impacts and Mitigation Measures

The project would result in less than significant impacts to recreation opportunities or facilities. No mitigation is required.

3.11 TRAFFIC/CIRCULATION

This section analyzes the existing traffic environment and traffic conditions during project construction. The analysis is based primarily on the *Lake Wohlford Dam Traffic Impact Analysis* prepared for the project (LLG 2014a) and provided in Appendix J. Information specific to the Oakvale Road Realignment component of the project was evaluated in a traffic report titled *Traffic Impact Analysis, Oakvale Road Realignment* (LLG 2014b), provided as Appendix K.

3.11.1 Existing Conditions

Access to Lake Wohlford is via Valley Parkway and Lake Wohlford Road. The main roadways in the area are Valley Parkway, which provides north/south access through Escondido; Lake Wohlford Road, which winds eastward up the hill from Valley Parkway and around the north side of the lake; Oakvale Road, which branches off of Lake Wohlford Road and provides access to residences south of the lake; Bear Valley Parkway, which provides north/south access within Escondido; and El Norte Parkway, which is a major east/west roadway through Escondido.

The existing local roadways are described as follows:

- Lake Wohlford Road is a generally east/west facility with portions in both the City of Escondido and the unincorporated area of San Diego County. Within the City of Escondido it is classified as a Local Collector. Within the unincorporated County it is classified as a 2.2F Light Collector. For the purpose of being conservative, the lower-capacity County classification is used. Lake Wohlford Road is currently constructed as a two-lane undivided roadway with narrow shoulders and no passing lanes, through generally steep and mountainous terrain. The posted speed limit is 50 mph.
- Valley Parkway is a north/south roadway within the City of Escondido and is classified as a Prime Arterial in the vicinity of the project. From Bear Valley Parkway to Beven Drive, Valley Parkway is currently built as a five-lane divided roadway. From Beven Drive to Lake Wohlford Road, Valley Parkway transitions to a two-lane roadway with a two-way left-turn lane median. The posted speed limit is 45 mph.
- Bear Valley Parkway is a north/south facility in the City of Escondido with varying classifications. In the project study area, from Valley Parkway to Boyle Avenue it is currently constructed as a four-lane divided roadway and classified as a Major Road. The posted speed limit is 45 mph north of Boyle Avenue. Curbside parking is prohibited. Bear Valley Parkway provides Class II bicycle lanes from Valley Parkway to Boyle Avenue.

- El Norte Parkway is currently built as a Four-Lane Collector west of Valley Parkway to Washington Avenue. Bike lanes and bus stops are provided on El Norte Parkway in the study area.

Study Area

The study area was determined in accordance with the City of Escondido's published Traffic Impact Analysis Requirement Guidelines as detailed in Appendix J. The study area for both the Oakvale Road replacement and the dam construction includes the following two street segments and four existing public intersections:

Roadway Segments

- Lake Wohlford Road; Valley Center Road to Oakvale Road (County facility)
- Valley Parkway; El Norte Parkway to Lake Wohlford Road (City facility)

Intersections

- Lake Wohlford Road/Oakvale Road (County facility)
- Lake Wohlford Road/Valley Center Road (City facility)
- Valley Parkway/El Norte Parkway (City facility)
- Valley Parkway/Bear Valley Parkway (City facility)

Existing Traffic Volumes

The following discussion describes the existing traffic volumes for the two study area roadway segments and four intersections that would be affected during construction of the Lake Wohlford Dam Replacement Project.

Roadway Segments

Table 3.11-1 provides a summary of the most recent available average daily trips (ADT) counts for the studied road segments. Segment operations are described in terms of level of service (LOS), ranging from LOS A (best traffic conditions; light traffic, minimal delays) to LOS F (worst traffic conditions; significant traffic congestion, long delays). Volume to capacity (V/C) ratio is also provided in the table. Both roadway segments currently operate at LOS C or better.

Table 3.11-1
Existing Traffic Volumes

Street Segment	Existing Classification	Capacity[1] (LOS E)	ADT	LOS	V/C
Lake Wohlford Road Valley Center Road to Oakvale Road	Local Collector	9,700	4,680	A	0.482
Valley Parkway El Norte Parkway to Lake Wohlford Road	5-Lane Major	43,500	29,700	C	0.683

[1] Capacities based on the City of Escondido Roadway Classification
Source: LLG 2014a

<u>Intersections</u>

Table 3.11-2 summarizes the existing peak hour intersection operations at each of the four study area intersections. Peak hour (AM and PM) intersection operations are described in terms of LOS. As shown, all the study area intersections are calculated to currently operate at service levels of LOS C or better during both the AM and PM peak hours and are not considered congested.

Table 3.11-2
Existing Intersection Operations

Intersection	Control Type	Peak Hour	Existing	
			Delay[1]	LOS
Lake Wohlford Road / Oakvale Road	MSSC[2]	AM	10.4	B
		PM	11.5	B
Lake Wohlford Road / Valley Center Road	Signal	AM	15.5	B
		PM	10.7	B
Valley Parkway / El Norte Parkway	Signal	AM	22.8	C
		PM	26.6	C
Valley Parkway / Bear Valley Parkway	Signal	AM	24.9	C
		PM	20.3	C

[1] Average delay expressed in seconds per vehicle.
[2] Minor Street Stop Controlled intersection.
Source: LLG 2014a

Alternative Transportation Modes

Due to the relatively rural nature of the project study area, there is limited public transit or alternative modes of transportation in the immediate area and along surrounding roadways. The existing alignment of Oakvale Road, including the project-related segment and segments immediately west and east of the project site, does not currently include trails, bike lanes, or other facilities specific to nonmotorized traffic. Similarly, Lake Wohlford Road in the project vicinity is a narrow road with minimal shoulders that does not support bike lanes or other nonmotorized traffic facilities. Within the study area, closer to the developed urban areas of

Escondido, there are more opportunities for public and alternative transit modes as Bear Valley Parkway provides Class II bicycle lanes from Valley Parkway to Boyle Avenue and bike lanes and bus stops are provided on El Norte Parkway in the study area. Portions of Valley Parkway, Bear Valley Parkway, and El Norte Parkway are shown as existing or planned Class II Bicycle Facilities on the City of Escondido Bicycle Master Plan. Lake Wohlford Road or Oakvale Road is not shown as a planned bicycle pathway in the Bicycle Master Plan (City of Escondido 2012b).

The North County Transit District Breeze bus system operates throughout San Diego’s North County. The nearest bus route to the project site is Route 388, which connects Escondido to Pala via Valley Parkway/Valley Center Road. Routes 355 and 357 travel along El Norte Parkway and Valley Parkway in the study area (NCTD 2015).

Regulatory Setting

The City’s General Plan Mobility and Infrastructure Element (City of Escondido 2012a) sets roadway operation standards that should be maintained to achieve an efficient transportation network. As stated in Street Network Policy 7.3, the City established a goal of LOS C for all City streets; however, due to overall citywide traffic conditions, LOS D is considered acceptable. If the existing LOS is D or worse, preservation of the existing LOS must be maintained, or acceptable mitigation must be identified.

> *Street Network Policy 7.3.* Strive to maintain LOS C or better throughout the city except for within the urban core. Establish LOS D as the threshold for determining significant impacts and appropriate mitigation.

The City of Escondido’s *Traffic Impact Analysis Guidelines* outlines conditions that trigger the preparation of a traffic impact analysis and provides thresholds and other information to be used in traffic analysis (City of Escondido 2013c).

Some of the studied roadway segments and intersections are outside the City’s municipal boundaries, so this section addresses impacts on those facilities with respect to the County of San Diego Guidelines for Determining Significance, Transportation and Traffic (County of San Diego 2011c).

3.11.2 Significance Criteria

The effects of a project on traffic and circulation would be considered significant if the project would do any of the following:

1. a. Cause the LOS of a City circulation element street to fall below LOS D or, for roadway segments or intersections operating below LOS D under existing conditions, to exceed the operational values in the following table.

City of Escondido Facilities

Level of Service with Project	Allowable Change due to Project Impact		
	Roadway Segments		Intersections
	V/C	Speed Reduction (mph)	Delay (seconds)
D, E, or F	0.02	1	2

Source: City of Escondido 2013c

b. Cause the LOS of a County street segment or intersection to fall below LOS D or, for roadway segments or intersections operating below LOS D under existing conditions, to exceed the operational values in the following table.

County of San Diego Roadway Segments

Level of Service	Allowable Change due to Project Impact	
	Two-Lane Rd.[1]	Unsignalized Intersection[2]
E	200 ADT	Delay of 2 sec or less
F	100 ADT	Delay of 1 sec, or 5 peak-hour trips

[1] County thresholds for four-lane roads and six-lane roads are omitted because the County facilities applicable to this project are two-lane roads.
[2] County thresholds for signalized intersections are omitted because the County facilities applicable to this project are unsignalized intersections.
Source: County of San Diego 2011c

2. Conflict with applicable congestion management program, including but not limited to service level standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
3. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that cause substantial safety risks.
4. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
5. Result in inadequate emergency access.
6. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

3.11.3 Impact Analysis

Methodology

Trip Generation

Complete trip generation details and calculations are provided in the *Traffic Impact Analysis, Oakvale Road Realignment* prepared for the Oakvale Road realignment component of the project (LLG 2014b) and included in Appendix J.

Trip generation associated with Oakvale Road realignment would consist of heavy truck trips making multiple round-trips per day and employee trips to and from the site by workers. It is anticipated that the hauling phase would entail approximately 70 round-trips per day over a 4-month period. It is assumed that this construction effort would employ an 8-hour workday from 7 a.m. to 4 p.m. with approximately 35 workers on-site daily. Due to the workshift hours, most employees would be traveling to and from the worksite outside of peak hours.

Using these assumptions and applying the appropriate trip rates for heavy trucks compared to passenger vehicles, the Oakvale Road realignment is calculated to generate the equivalent of 497 daily trips with 59 trips (32 inbound/27 outbound) in the AM peak hour and 86 trips (30 inbound/56 outbound) during the PM peak hour.

Complete trip generation details and calculations specific to the dam construction component of the project are provided in the *Lake Wohlford Dam Traffic Impact Analysis* prepared for the project (LLG 2014a) and included in Appendix J.

Dam construction would not begin until the Oakvale Road realignment construction was complete and construction-generated traffic would not combine or overlap. Dam construction trip generation would consist of heavy truck trips making multiple round-trips per day and employee trips to and from the site by workers. It is assumed that construction of the project will employ a 16-hour workday composed of two shifts expected to run from 6 a.m. to 3 p.m. and from 3 p.m. to 12 a.m. with a maximum of 44 workers on-site during any one shift.

Dam construction would consist of multiple phases that would generate a varying number of daily haul trips by heavy trucks, as described above in Section 2.4.2.

While more truck trips would result during the excavation and demolition phases, larger trucks (20 cubic yards versus 10 cubic yards) would be used during the construction phase. Thus, the dam construction phase, representing the most intense phase of the dam construction, was the phase used to calculate trip generation in this analysis.

Using these assumptions and applying the appropriate trip rates for heavy trucks compared to passenger vehicles, dam construction is calculated to generate the equivalent of 898 daily trips with 59 trips (31 inbound/28 outbound) in the AM peak hour and 59 trips (28 inbound/31 outbound) during the PM peak hour.

Construction Year Scenario

To determine the traffic volumes on the affected roadways and intersections in the anticipated construction years, location-specific growth factors were applied for a period of 2 years to determine those near-term baseline conditions that would have project traffic added to them. The typical annual growth rate ranged between 2 and 5% at study area roadways and intersections. In the traffic analysis reports, these scenarios are called “Cumulative Growth” scenarios. However, as described above, the use of “Cumulative Growth” in the traffic analysis reports is not equivalent to the CEQA consideration of a cumulative scenario as it reflects the future years when the project would add construction traffic rather than a horizon year or long-term condition. To avoid confusion with CEQA cumulative analysis, the “Cumulative Growth” scenarios in the traffic analysis have been incorporated into this EIR under the heading “Construction Year.”

Trip Distribution

Project trips were distributed regionally based on potential destinations for material hauling from construction activity. The destination of excavated material would ultimately be determined by the contractor; however, for the purposes of planning and environmental analysis of both the Oakvale Road realignment and the dam construction, a small number of trips were distributed via Lake Wohlford Road and Valley Center Road to possible local destinations in Valley Center. The rest of the trips were distributed to regional destinations via the City of Escondido’s identified truck routes, ultimately reaching I-15 for regional access. Trips were split among these existing truck routes based on orientation to northbound or southbound destinations and roadway characteristics including size of the roadway, existing congestion patterns, surrounding land uses, and spacing of signalized intersections.

Analysis Approach

The City of Escondido’s *Traffic Impact Analysis Guidelines* (2013) was followed for direction on report approach and methodology.

Signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 18 of the *2010 Highway Capacity Manual* (HCM) and delay values (represented in seconds) were qualified with a corresponding intersection LOS.

Unsignalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and LOS were determined based upon the procedures found in Chapters 19 and 20 of the 2010 HCM.

Street segment analysis was based upon the comparison of ADT to the City of Escondido *Roadway Classification, Level of Service, and ADT Table*. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics.

LOS is the term used to denote the different operating conditions that occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. LOS provides an index to the operational qualities of a roadway segment or an intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. LOS designation is reported differently for signalized intersections, unsignalized intersections, and roadway segments.

For purposes of CEQA analysis, impacts on facilities that are within the City's municipal boundaries are identified pursuant to City thresholds, while impacts on facilities outside the municipal boundaries are identified pursuant to County thresholds.

Analysis

***Criterion 1*: Would the project cause the LOS of a circulation element street to fall below LOS D and/or cause the operational values (see table in Section 3.11.2) to be exceeded in a roadway segment or intersection with operation at LOS D or worse?**

Oakvale Road Realignment

Roadway Segments

The Oakvale Road realignment component would add traffic to the local roadway system on a temporary basis during project construction, including worker trips and excavated material hauling. Table 3.11-3 presents the operational analysis for the two study area roadway segments with the addition of road realignment construction traffic.

As shown in Table 3.11-3, all roadway segments would continue to operate at acceptable LOS C or better conditions in all scenarios. Because construction traffic generated during the Oakvale Road phase of the project would not cause a roadway segment to degrade to LOS D or worse or exceed other operational values as specified by the City of Escondido and County of San Diego traffic thresholds, the impact to roadway segments due to the Oakvale Road realignment would be less than significant.

Intersections

Construction of the Oakvale Road realignment would result in a temporary increase in traffic passing through local intersections to access the project site, including large trucks and worker vehicles. Table 3.11-4 presents the operational analysis for the four study area intersections with the addition of road realignment construction traffic.

As shown in Table 3.11-4, all intersections would continue to operate at their current acceptable LOS B or C conditions in all scenarios. Because construction traffic generated during the during the Oakvale Road phase of the project would not cause an intersection to degrade to LOS D or worse or exceed other operational values as specified by the City of Escondido and County of San Diego traffic thresholds, the impact to intersections due to Oakvale Road realignment would be less than significant.

Table 3.11-3
Oakvale Road Realignment Roadway Segment Operations

Street Segment	Capacity[1] (LOS E)	Existing			Existing + Project				Existing + Construction Year[3]			Existing + Construction Year[3] + Project				Significant Impact?
		ADT	LOS	V/C	ADT	LOS	V/C	Δ[2]	ADT	LOS	V/C	ADT	LOS	V/C	Δ[2]	
Lake Wohlford Road Valley Center Road to Oakvale Road	9,700	4,680	A	0.482	5,152	A	0.531	0.049	4,960	A	0.511	5,432	A	0.560	0.049	No
Valley Parkway El Norte Parkway to Lake Wohlford Road	43,500	29,700	C	0.683	30,147	C	0.693	0.010	29,740	C	0.684	30,187	C	0.694	0.010	No

[1] Capacities based on the City of Escondido Roadway Classification
[2] Δ denotes a project-related increase in the V/C ratio.
[3] Construction Year = Cumulative Projects scenario in the traffic analysis
Source: LLG 2014b

Table 3.11-4
Oakvale Road Realignment Intersection Operations

Intersection	Control Type	Peak Hour	Existing		Existing + Project			Existing + Construction Year[4]		Existing + Construction Year[4] + Project			Significant Impact?
			Delay[1]	LOS	Delay	LOS	Δ[2]	Delay[1]	LOS	Delay	LOS	Δ[2]	
Lake Wohlford Road / Oakvale Road	MSSC[3]	AM	10.4	B	11.1	B	0.7	10.5	B	11.3	B	0.8	No
		PM	11.5	B	12.9	B	1.4	11.7	B	13.3	B	1.6	No
Lake Wohlford Road / Valley Center Road	Signal	AM	15.5	B	17.5	B	2.0	18.3	B	20.8	C	2.5	No
		PM	10.7	B	13.6	B	2.9	11.5	B	14.6	B	3.1	No
Valley Parkway / El Norte Parkway	Signal	AM	22.8	C	23.1	C	0.3	23.1	C	23.4	C	0.3	No
		PM	26.6	C	27.9	C	1.3	28.3	C	29.6	C	1.3	No
Valley Parkway / Bear Valley Parkway	Signal	AM	24.9	C	25.1	C	0.2	25.2	C	25.4	C	0.2	No
		PM	20.3	C	20.4	C	0.1	20.4	C	20.6	C	0.2	No

[1] Average delay expressed in seconds per vehicle. Denotes an increase in delay due to project.
[2] Δ denotes an increase in delay due to project.
[3] Minor Street Stop Controlled intersection.
[4] Construction Year = Cumulative Projects scenario in the traffic analysis
Source: LLG 2014b

Replacement Dam and Access Road

Roadway Segments

Construction of the dam would result in a temporary increase in traffic utilizing local roads to access the project site. All construction traffic generated during the Oakvale Road realignment would have ceased prior to the start of the dam construction activities; thus, there would be no overlap or combination of construction traffic from the two project components. Project traffic would include large haul trucks as well as worker vehicles. Table 3.11-5 presents the operational analysis for the two study area roadway segments with the addition of dam construction traffic.

As shown in Table 3.11-5, all roadway segments would continue to operate at acceptable LOS C or better conditions in all scenarios. Because temporary dam construction-generated traffic would not cause a roadway segment to degrade to LOS D or worse or exceed other operational values as specified by the City of Escondido and County of San Diego traffic thresholds, the impact to roadway segments due to dam construction would be less than significant.

Intersections

Construction of the dam would result in a temporary increase in traffic passing through local intersections to access the project site, including large trucks and worker vehicles. Table 3.11-6 presents the operational analysis for the four study area intersections with the addition of dam construction traffic.

As shown in Table 3.11-6, all intersections would continue to operate at their current acceptable LOS B or C conditions in all scenarios. Because temporary dam construction-generated traffic would not cause an intersection to degrade to LOS D or worse or exceed other operational values as specified by the City of Escondido and County of San Diego traffic thresholds, the impact to intersections due to dam construction would be less than significant.

Table 3.11-5
Dam Project Roadway Segment Operations

Street Segment	Capacity[1] (LOS E)	Existing			Existing + Project				Existing + Construction Year[3]			Existing + Construction Year[3] + Project				Significant Impact?
		ADT	LOS	V/C	ADT	LOS	V/C	Δ[2]	ADT	LOS	V/C	ADT	LOS	V/C	Δ[2]	
Lake Wohlford Road Valley Center Road to Oakvale Road	9,700[3]	4,680	A	0.482	5,533	B	0.570	0.088	5,250	B	0.541	6,103	B	0.629	0.088	No
Valley Parkway El Norte Parkway to Lake Wohlford Road	43,500	29,700[3]	C	0.683	30,508	C	0.701	0.018	29,790	C	0.685	30,598	C	0.703	0.019	No

[1] Capacities based on the City of Escondido Roadway Classification
[2] Δ denotes a project-related increase in the V/C ratio.
[3] Construction Year = Cumulative Projects scenario in the traffic analysis
Source: LLG 2014a

Table 3.11-6
Dam Project Intersection Operations

Intersection	Control Type	Peak Hour	Existing		Existing + Project			Existing + Construction Year[4]		Existing + Construction Year[4] + Project			Significant Impact?
			Delay[1]	LOS	Delay[1]	LOS	Δ[2]	Delay[1]	LOS	Delay[1]	LOS	Δ[2]	
Lake Wohlford Road / Oakvale Road	MSSC[3]	AM	10.4	B	11.0	B	0.6	10.7	B	11.4	B	0.7	No
		PM	11.5	B	12.2	B	0.7	12.0	B	12.9	B	0.9	No
Lake Wohlford Road / Valley Center Road	Signal	AM	15.5	B	17.6	B	2.1	22.9	C	26.3	C	3.4	No
		PM	10.7	B	12.3	B	1.6	12.4	B	14.1	B	1.7	No
Valley Parkway / El Norte Parkway	Signal	AM	22.8	C	23.1	C	0.3	23.6	C	23.9	C	0.3	No
		PM	26.6	C	27.8	C	1.2	30.3	C	31.9	C	1.6	No
Valley Parkway / Bear Valley Parkway	Signal	AM	24.9	C	25.1	C	0.2	25.6	C	25.8	C	0.2	No
		PM	20.3	C	20.4	C	0.1	20.6	C	20.7	C	0.1	No

[1] Average delay expressed in seconds per vehicle. Denotes an increase in delay due to project.
[2] Δ denotes an increase in delay due to project.
[3] Minor Street Stop Controlled intersection.
[4] Construction Year = Cumulative Projects scenario in the traffic analysis
Source: LLG 2014a

<u>Restoration of Water Levels</u>

The restoration of water levels within Lake Wohlford to historic levels at the completion of the dam replacement would not generate traffic. Once completed, the lake and new dam would continue to operate in a manner similar to current status and not require substantially more maintenance operations that could produce vehicle trips or generate a high volume of new trips to the lake area. For these reasons, the restoration of water levels would not generate traffic that could cause roadway or intersection operations of LOS D or worse or exceed other operational values as specified by the City of Escondido traffic thresholds and the impact would be less than significant.

<u>Criterion 2</u>: **Would the project conflict with an applicable congestion management program?**

<u>Oakvale Road Realignment; Replacement Dam and Access Road</u>

There is no congestion management program applicable to the roads in the vicinity of the project site or along the haul routes. Therefore, there will be no impact. Temporary impacts on the local circulation system are discussed above under Criterion 1, and were concluded to be less than significant.

<u>Restoration of Water Levels</u>

Restoration of water levels within Lake Wohlford would not generate traffic. Therefore, there would be no impact.

<u>Criterion 3</u>: **Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that cause substantial safety risks?**

<u>Oakvale Road Realignment</u>

As described in Section 3.8, Hazards and Public Safety, there is not a public airport in the vicinity of the project; however the Lake Wohlford Resort Airport is a small private airstrip located approximately 0.5 mile north of the project site. The roadway improvements and realignment would not require substantially tall equipment that could cause a safety risk to aircraft in the area or alter the air traffic pattern. Additionally, the realignment of the roadway on the ground would have no influence on air traffic levels or locations. Thus, the Oakvale Road realignment would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that cause substantial safety risks and there would be no impact.

Replacement Dam and Access Road

The Lake Wohlford Resort Airport is 0.25 mile north of the project staging yard site. Construction of the replacement dam would not require the use of tall cranes or other equipment that could interfere with aircraft operations or cause potential safety hazards. The project proposes no permanent features that would interfere with or cause a new safety hazard for aviation operations. No element of the dam replacement would be of the nature to create new or altered air traffic volumes or patterns.

For these reasons, the dam replacement would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that cause substantial safety risks and there would be no impact.

Restoration of Water Levels

The restoration of water levels in Lake Wohlford after completion of the new dam to historic levels would not influence air traffic patterns. Therefore, there would be no impact.

***Criterion 4*: Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

Oakvale Road Realignment

The proposed project would decrease an existing traffic hazard on Oakvale Road by eliminating sharp curves. The newly realigned Oakvale Road would be constructed to County of San Diego roadway standards and designed to meet all safety criteria and engineering requirements.

Large haul trucks would utilize local roadways throughout the duration of the road realignment construction period. While substantially bigger and slower than typical passenger vehicles, haul trucks and other construction-related vehicles or equipment are not out of the normal range of vehicles that typically use local roadways for general construction operations in the area. As a standard practice, the City requires preparation of and adherence to a traffic control plan. The preparation and implementation of a traffic control plan as part of City requirements for the project would identify measures to ensure that potential conflicts between project-related construction traffic and general vehicle, pedestrian, and/or bicycle traffic would be minimized.

Thus, the temporary presence of construction traffic on area roads would not create an incompatible use that could result in a substantial safety hazard.

For these reasons, realignment of Oakvale Road would not substantially increase hazards due to a design feature or incompatible uses and the impact would be less than significant.

Replacement Dam and Access Road

Large haul trucks would use local roadways throughout the duration of the dam construction period. As described for the road realignment, haul trucks and other construction-related vehicles or equipment are not out of the normal range of vehicles that typically use local roadways for general construction operations in the area. Additionally, the preparation and implementation of a traffic control plan as part of City requirements for the project would identify measures to ensure that potential conflicts due to project-related construction traffic are minimized. Thus, the temporary presence of construction traffic on area roads would not create an incompatible use that could result in a substantial safety hazard.

The proposed access road would initially be installed to facilitate movement of construction materials and equipment between the construction site and the staging area, and later would be maintained for maintenance and inspection access to the right dam abutment. The road would not be available for public use and thus would not create a transportation hazard.

For these reasons, construction of the dam would not substantially increase hazards due to a design feature or incompatible uses and the impact would be less than significant.

Restoration of Water Levels

The restoration of water levels in Lake Wohlford would have no bearing on traffic safety. Therefore, there would be no impact.

***Criterion 5:* Would the project result in inadequate emergency access?**

Oakvale Road Realignment

As shown in the analysis for Criterion 1 above, the realignment of Oakvale Road would not generate construction traffic that could cause roadways or intersections to operate at substantially worse or unacceptable conditions. The presence of construction vehicles on local roadways would not preclude the roads from continuing to operate in the current state and allow for continued emergency access as it currently exists.

During realignment construction activities, the existing Oakvale Road would remain open for traffic, including emergency vehicles. The eastbound lane may be periodically closed to enable more room for construction vehicle access or construction staging; during blasting events, brief closures of both lanes would be required to ensure safety of passing cars, for a maximum duration of 5 minutes each hour. During final transitions after completion of the new road, a 2-hour road closure is possible, which would be noticed to nearby residences as part of the traffic control plan. Emergency access would be maintained at all times on Oakvale Road throughout the duration of construction. Additionally, as a standard practice, the City requires preparation of and adherence to a traffic control plan that would identify measures to maintain traffic safety and emergency access. While additional precaution may be appropriate for emergency vehicles traveling in areas close to active construction areas, the realignment construction would not preclude or substantially hinder the ability of emergency vehicles to access the area.

Once completed, the realigned roadway would be adequate for emergency vehicles and allow for emergency access to the areas served by Oakvale Road. For these reasons, realignment of Oakvale Road would not result in inadequate emergency access and the impact would be less than significant.

Replacement Dam and Access Road

As shown in the analysis for Criterion 1 above, the construction of the dam would not generate construction traffic that could cause roadways or intersections to operate at substantially worse or unacceptable conditions. The presence of dam construction vehicles on local roadways would not preclude the roads from continuing to operate in the current state and allow for continued emergency access as it currently exists. Additionally, as a standard practice, the City requires preparation of and adherence to a traffic control plan that would identify measures to maintain traffic safety and emergency access. While additional precaution may be appropriate for vehicles traveling in areas close to active construction areas and along haul routes where large trucks are also traveling, the dam construction would not preclude or substantially hinder the ability of emergency vehicles to access the area.

Additionally, an access road would be installed to allow for movement of materials and equipment between the staging area and construction site. This roadway would aid in keeping construction equipment and vehicles off of local roadways, minimize potential for disruption or conflict with emergency access or operations, and provide an emergency evacuation route for construction personnel during construction. Once operational, the new dam would not create traffic or cause other traffic or roadway-related modifications that could affect emergency access.

Thus, dam construction would not result in inadequate emergency access and a less-than-significant impact would result.

Restoration of Water Levels

The restoration of water levels in Lake Wohlford to historic levels would have no bearing on emergency access. Therefore, there would be no impact.

Criterion 6: **Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?**

Oakvale Road Realignment

As described in 3.11.1, some of the roadways that may be used for project haul traffic currently accommodate public and alternative modes of transit. Bear Valley Parkway provides Class II bicycle lanes from Valley Parkway to Boyle Avenue. Bike lanes and bus stops are provided on El Norte Parkway in the study area. Other than adding construction traffic to these local roadways, construction of the road realignment would not otherwise modify or alter the roads in a manner that could conflict with or decrease the performance alternative transportation facilities. While project construction activities would temporarily necessitate large haul trucks to travel along local roads, these road facilities currently accommodate large vehicles, such as other large trucks and buses. The temporary addition of haul trucks on roadways currently used by large vehicles would not substantially decrease the performance or safety of the alternative transportation facilities. The City–required traffic control plan that would be prepared for the project would identify any measures necessary to maintain traffic safety associated with alternative transportation modes and pedestrian safety.

As shown in the analysis for Criterion 1 above, the realignment of Oakvale Road would not generate construction traffic that could cause roadways or intersections to operate at substantially worse or unacceptable conditions that could hinder or conflict with public transit operations. The presence of construction vehicles on local roadways would not preclude the roads from continuing to operate in the current state and allow for continued public transportation, bicycle, and pedestrian use as it currently exists along local roads.

Oakvale Road itself is a small road providing access to a limited number of residential homes along the south side of Lake Wohlford. The existing alignment of Oakvale Road, including the project-related segment and segments immediately west and east of the project site, does not include trails, bike lanes, or other facilities specific to nonmotorized traffic or other alternative transportation modes. Design of the project-related segment of Oakvale Road, however, includes a 10-foot lane for nonmotorized traffic, to be located within the road's westbound shoulder. This road currently is not included as part of public transit or alternative transportation policies or plans and its realignment would not create conflict or obstruction of existing or planned public transportation programs or facilities.

For these reasons, the realignment of Oakvale Road would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities and a less than significant impact would result.

Replacement Dam and Access Road

As shown in the analysis for Criterion 1 above, the construction of the dam would not generate construction traffic that could cause roadways or intersections to operate at substantially worse or unacceptable conditions that could hinder or conflict with public transit operations. Similar to the analysis for the road realignment, the presence of dam construction vehicles on local roadways would not preclude the roads from continuing to operate in the current state and allow for continued public transportation, bicycle, and pedestrian use as it currently exists along local roads. The City-required traffic control plan that would be prepared for the project would identify any measures necessary to maintain traffic safety associated with alternative transportation modes and pedestrian safety

No element of the replacement dam would be of the nature to conflict with policies, plans, or programs related to alternative transportation. Once operational, the new dam would not create traffic or cause other traffic or roadway-related modifications that could affect or hinder public or alternative transportation.

Thus, dam construction would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities and a less than significant impact would result.

Restoration of Water Levels

The restoration of water levels in Lake Wohlford to historic levels would have no bearing on alternative transportation. Therefore, there would be no impact.

3.11.4 Significant Impacts and Mitigation Measures

No significant traffic impacts were identified for any component of the project. No mitigation measures are required.

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CHAPTER 4.0
EFFECTS FOUND NOT TO BE SIGNIFICANT

As allowed by Section 15128 of the CEQA Guidelines, effects found not to be significant need not be discussed in detail in an EIR. Rather, a brief discussion as to why various possible effects of a project were determined not to be significant is appropriate. The following five issue areas were determined, based on preliminary review, not to have a significant effect on the environment: Agricultural Resources, Land Use, Mineral Resources, Population and Housing, and Public Services. The rationale for these conclusions is outlined below.

4.1 AGRICULTURAL RESOURCES

The project site is not currently used for agricultural purposes; rather it is open, generally undeveloped land due in part to the rocky slopes, rock outcroppings, and dense vegetation found in the vicinity. The California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) designates the project vicinity and majority of surrounding area as Other Land. However, there is some land north of the project site along and to the north of Lake Wohlford Road that is designated as Farmland of Local Importance (Department of Conservation 2014). The land with this designation is not currently in agricultural production. The County of San Diego zones the project site as A72 (General Agriculture) and surrounding areas as A70 (Limited Agriculture) (County of San Diego 2014b), both of which are common zoning for the large areas of undeveloped land in the vicinity. The Escondido General Plan, Resource Conservation Element does not designate the Lake Wohlford vicinity or surrounding area as an Agricultural Area (City of Escondido 2012a). The project site is not within a Williamson Act Contract (Department of Conservation 2013). The project site is not within a timberland or forest land zone.

A portion of the Lake Wohlford Marina is mapped with the FMMP designation Farmland of Local Importance. However, this appears to be an outdated mapping anomaly, as this land is not used for agriculture, and project activities on this land would not be considered an impact on agricultural resources. The relocation of the dam would not impact agricultural resources, conflict with the agricultural zoning of the area, or preclude the use of surrounding land for agricultural uses. The MND for the Oakvale Road Realignment and Improvement Project found no impact to agricultural resources as a result of that project. Therefore, the project would not have a significant effect on agricultural resources.

4.2 LAND USE AND PLANNING

The project site is immediately downstream (southwest) of Lake Wohlford on unincorporated land owned by the City. The Escondido General Plan identifies the project site as Public Land/Open Space with Rural I residential land use designated in surrounding areas (City of Escondido 2012a). The County's North County Metropolitan Subregional Plan shows the site mapped as Public/Semi-Public Facilities with Rural Lands (RL-40) surrounding the area (County of San Diego 2011d). The North County Metro Resource Conservation Area Map also shows areas south of Lake Wohlford designated as the Bottle Peak-Lake Wohlford Resource Conservation Area and areas to the northwest designated as the Valley Center Ridge Resource Conservation Area (County of San Diego 2011d). The project site is surrounded by lands within the planning area of the North County Subregion of the County of San Diego's MSCP, which remains in draft form and does not govern project activities. The project site is included within the City of Escondido's MHCP Subarea. The Escondido MHCP Subarea Plan, which is also in draft form, includes the incorporated city limits plus approximately 3,000 acres owned by the City in the unincorporated areas, such as Lake Wohlford.

Implementation of the project would relocate the existing Lake Wohlford Dam approximately 200 feet downstream from its current location, in an area currently used for maintenance access. Because of the existing dam, the project site is not developed and the construction of the replacement dam would not alter land uses in a way that could divide an established community or conflict with planning documents or policies as the dam and reservoir are existing elements of the area and the project would only modify the location within a very nearby area. The MND for the Oakvale Road Realignment and Improvement Project found no significant impact to land use as a result of that project. Therefore, the project would not have a significant effect related to land use.

4.3 MINERAL RESOURCES

According to the USGS Mineral Resources Data System, past and present mining operations and prospect areas are located in the general vicinity of the project (Lake Wohlford Road Pit [Wickoff Quarry], A.M.E. Quarry, Bear Deposit, Langer Deposit). Mineral extraction from these locations generally includes crushed stone (USGS 2014). The project site is not within a Mineral Resource Zone as designated by the County. Areas west of the project are designated as Mineral Resource Zone 3 (MRZ-3) (County of San Diego 2011e). MRZ-3 indicates areas containing mineral deposits whose significance cannot be evaluated from available data. The existing Escondido General Plan does not include a designation for mineral resources or extraction operations (City of Escondido 2012a).

Mining or mineral extraction does not currently take place within the project site or immediate vicinity. It is likely that some of the aggregate needed for project construction may come from project excavation operations, as feasible. This on-site reuse would provide high-quality aggregate necessary for the project and minimize the need for hauling rock material on- and/or off-site. The shifting of the dam from its current location to the proposed site 200 feet downstream would not substantially change the existing availability of mineral resources that would be of value to the region and residents of California or result in the loss of availability of a locally important mineral resource recovery site delineated on a land use plan. The project would not alter or hinder existing or future mineral extraction operations. The MND for the Oakvale Road Realignment and Improvement Project found no impact to mineral resources as a result of that project. Therefore, the project would not have a significant effect on mineral resources.

4.4 PALEONTOLOGICAL RESOURCES

Evaluation of sensitivity for potential presence of paleontological resources in unincorporated County land is provided in the County of San Diego Guidelines for Determining Significance, Paleontological Resources (County of San Diego 2009). As shown in Figure 2 of the referenced guidelines, the project area is mapped as having a sensitivity level of “none.” Therefore, there would be no impact on paleontological resources.

4.5 POPULATION AND HOUSING

The project would not displace existing housing or people as there are no residential developments within the project site or immediate vicinity. The project does not include the development of new housing or any population-generating uses. Construction of the project is anticipated to take approximately 32 months and could employ up to approximately 88 workers at a time (two daily shifts of up to 44 workers); however, the workforce is expected to be drawn from the local region and would not cause a substantial influx of new population growth to the area. The project would result in increased capacity of the reservoir, which is used in part by the City for municipal water supply. However, the increase in capacity would be a return to historic levels necessary to serve existing and planned City needs and not be an infrastructure expansion that could induce substantial new population growth. The MND for the Oakvale Road Realignment and Improvement Project found no impact to population and housing as a result of that project. Therefore, the project would not have a significant effect on population and housing in the area.

4.6 PUBLIC SERVICES

Emergency services are provided to the project site by the Valley Center Fire Protection District (fire and medical) and Valley Center Sheriff's Substation (police), both of which are located approximately 4.5 miles northeast of the project site on North Lake Wohlford Road. Construction and operation of the project would not generate a need for increased emergency services or new facilities as the new dam would replace the existing seismically unstable dam and would not create a new or substantially altered use of the area or reservoir that could generate an increase in the need for services or effect the ability of the service providers to maintain adequate service ratios. The traffic control plan required by the City for construction activities would outline all requirements to ensure that emergency access is maintained at all times and project construction would not impact acceptable response times and would require coordination and notification of emergency service providers.

Other public services such as schools, parks, and other public services and facilities would not experience an increase in demand or need for services as the project would not generate population growth or other community changes that might increase demand or availability of those public services or create the need for new or expanded facilities. The MND for the Oakvale Road Realignment and Improvement Project found no impact to public services as a result of that project. Therefore, the project would not have a significant effect on public services.

4.7 UTILITIES AND SERVICE SYSTEMS

Lake Wohlford is an important component of the City's initial municipal water supply, serving as a storage reservoir where discharged water is treated and distributed to the City's municipal customers. As described in Chapter 2, due to seismic stability concerns with the existing dam, the City had to decrease the reservoir's capacity to approximately 40% of its prior capacity. Additionally, most of the water released from Lake Wohlford passes through the Wohlford Penstock to the Bear Valley HGF and generates electricity that is sold to San Diego Gas & Electric.

Construction of the replacement dam would occur while the existing dam is still in place; thus, any utilities that need to be relocated in association with the replacement dam would be installed prior to demolition of the existing dam and minimal impacts to utilities and service systems are anticipated. Water supply would be necessary during construction, most specifically during the concrete dam construction. However, the RCC method of placing concrete minimizes water content. Demand for water during construction activities would cease at the end of the construction period. Once operational, the project would not require a substantial volume of water as project components are static infrastructure features. The project would not result in the need for new or expanded water entitlements, but rather would regain the Lake Wohlford reservoir's lost water storage capability for the City's municipal water system. The replacement dam would provide a seismically safe and long-term (expected lifespan of 100 years) component of the City's water infrastructure system. Discharged water would continue to pass through the Wohlford Penstock to the Bear Valley HGF for electricity generation, similar to existing conditions. Because the permanent facilities would basically replace similar existing facilities (i.e., the existing dam and Oakvale Road), there would not be a substantial difference in the volume of runoff generated by the project or a need for increased stormwater treatment facilities. Thus, the project would not have a significant effect on utilities and service systems.

Approximately 59,516 cubic yards of excavated earth and rock from the dam foundation area would be hauled off site, and Oakvale Road reconstruction would require approximately 56,000 cubic yards of material to be removed from the project site. It is anticipated that this material would be transported to a local quarry for processing and resale. Due to the quality of the rock, it is not expected to be disposed of in a landfill. Material from demolition of the existing dam, approximately 37,100 cubic yards would be hauled off-site for reuse, rather than disposal in a landfill. Thus, the project would not result in impacts to local landfills.

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CHAPTER 5.0
CUMULATIVE IMPACTS

CEQA Guidelines require a discussion of cumulative impacts of a project "when the project's incremental effect is cumulatively considerable" (2011 CEQA Guidelines, Section 15130). As defined by Section 15065 (a)(3) "cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (2011 CEQA Guidelines, Section 15065 (a)(3)). These cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355).

The discussion of cumulative impacts is further guided by CEQA Guidelines Section 15130(a) and (b), as summarized below:

- An EIR shall not discuss impacts which do not result in part from the project evaluated in the EIR.
- When the cumulative effect of the project's incremental contribution and the effect of the other projects are not significant, the EIR shall briefly indicate why and not discuss it further.
- An EIR may identify a significant cumulative effect, but determine that a project's contribution is less than significant. That conclusion could result if the project is required to implement or fund its fair share of a mitigation measure designed to alleviate the cumulative impact.
- The discussion of cumulative impacts shall reflect the possibility of occurrence and severity of the impacts and focus on cumulative impact to which the identified other projects could contribute.

In general, effects of a particular action or a group of actions would be considered cumulative impacts under the following conditions:

- effects of several actions in a common location,
- effects are not localized (i.e., can contribute to effects of an action in a different location),
- effects on a particular resource are similar in nature (i.e., they affect the same specific element of a resource)

5.1 AFFECTED ENVIRONMENT

Information on past, present, and reasonably foreseeable probable future projects, and identified project impacts were gathered via the County of San Diego Department of Planning and Land Use and the City of Escondido Planning Division through review of available environmental documentation (conducted in 2015, following publication of the project NOP in April 2015). The initial radius used for conducting the cumulative project research was approximately 5 miles surrounding the project site, which includes parts of the City of Escondido and the community of Valley Center. In addition to this search radius, additional area for traffic analysis and hydrology/water quality analysis was considered. For the purposes of the cumulative impact analysis for construction traffic impacts and construction-traffic-related air quality and noise impacts, the cumulative study area also includes the roads identified as material haul routes for the Oakvale Road and dam construction, as discussed in Section 3.11, Traffic/Circulation. The analysis of cumulative water quality impacts focused on the entire Escondido Creek hydrologic area.

5.2 PRESENT AND REASONABLY FORESEEABLE PROJECTS

Table 5-1 shows the cumulative projects considered in this analysis. The discussion of present and reasonably foreseeable probable projects focuses on those development projects that could occur concurrently with the proposed project. Although precise construction timelines are unknown for many of these projects, it is highly unlikely that all of the projects would occur simultaneously. However, in the interest of a conservative analysis, the potential for simultaneous construction on all projects was considered.

5.3 CUMULATIVE IMPACT ANALYSIS

As required by CEQA, the discussion below identifies the potential for cumulative impacts and discusses the project's contribution on these impacts. In the discussion below, "proposed project" is used to refer to the project analyzed in this EIR, to differentiate between cumulative projects.

5.3.1 Aesthetics

None of the cumulative projects are located in the same viewshed as the project analyzed in this EIR. The topography of Lake Wohlford and its immediate surroundings is self-contained, as it is encircled by peaks and relatively steep slopes. Due to this relative isolation, no viewsheds affected by the project would simultaneously be affected by any other project under consideration in this section. Therefore, no cumulative impact would result related to aesthetics.

Table 5-1
Present and Reasonably Foreseeable Projects

Project Name	Lead Agency	Project Status	Location/ APN	Project Description	Potential Cumulative Environmental Impacts
Calvin Christian Schools	City of Escondido	A Negative Declaration for the project was issued on 5/4/15, and received no comments from the public or from other agencies. A City of Escondido Planning Commission staff report recommended the approval of the modification of the applicant's Conditional Use Permit on 6/9/15.	200 North Broadway, Escondido. APNs: 224-120-54; 224-120-55.	The project includes the construction of a new 15,515-square-foot auditorium on the 13.17-acre campus of Calvin Christian High/Middle School. Construction would require a modification of the property's existing Conditional Use Permit.	Construction-related traffic, noise, and air quality.
Centerpointe 78 Commercial Center	City of Escondido	The City of Escondido issued a Notice of Preparation for an Environmental Impact Report on 6/4/2014. As of 7/8/15, the Screencheck Environmental Impact Report was under review by the City.	925 North Broadway, Escondido. APNs: 229-121-1300; 229-121-1400; 229-121-1200; 229-121-1100.	The project proposes to replace a former automotive dealership located on the northwest corner of Highway 78 and North Broadway. The dealership would be demolished and replaced with a local grocery store and a quick-service restaurant.	Construction-related traffic, noise, and air quality.
El Caballo Park Master Plan	City of Escondido	A draft of the Park Master Plan was released on 2/11/14. The Master Plan was accepted by the Escondido City Council on 3/27/2014, but the preparation of an Environmental Impact Report has not yet commenced.	Located to the west of Save a Life Way, southwest of the Escondido Humane Society.	The project includes the improvement of preexisting equestrian facilities on the site, as well as the creation of additional community features and additional trail connections to the trails of Daley Ranch and other adjacent open spaces.	Biological resources, recreation, and hydrology/water quality, as well as construction-related traffic, noise, and air quality.
Pickering Annexation	City of Escondido	A Mitigated Negative Declaration was adopted on 9/11/14. The annexation was approved by the San Diego Local Agency Formation Commission (LAFCO) on 2/2/15.	2056 N. Ash Street, Escondido, and adjacent vacant properties. APNs: 224-142-10; 224-142-26, 27, 28.	Annexation of approximately 5.7 acres involving development of a 13-lot Tentative Tract Map on 4.2 acres. In addition, an existing structure will be demolished and three adjacent properties annexed.	Construction-related traffic, noise, and air quality.

Project Name	Lead Agency	Project Status	Location/ APN	Project Description	Potential Cumulative Environmental Impacts
Stanley Avenue Subdivision	City of Escondido	An Initial Study/Mitigated Negative Declaration was submitted to the City in April 2014.	836 Stanley Avenue, Escondido. APN: 224-142-04.	The project includes construction of 16 new single-family detached residences on a currently vacant 4.6 acre site, as well as improvement of adjacent streets and storm water management facilities.	Construction-related traffic, noise, and air quality.
Zenner Development	City of Escondido	An Initial Study/Mitigated Negative Declaration was circulated for public review from 1/30/15 to 2/18/15.	Located to the north of Vista Avenue, imme-diately to the east and west of Ash Street. APNs: 224-130-07, 08, 12, 13; 224-142-20.	The project consists of two elements: a development and an annexation. The development consists of a 43-lot subdivision on approximately 14 acres, and the annexation area includes one developed residential parcel and three street segments.	Construction-related traffic, noise, and air quality.
Westminster Seminary	City of Escondido	An application to modify the existing Conditional Use Permit was submitted in November 2014.	1725 Bear Valley Pkwy, Escondido APN: 234-030-3400.	The project includes construction of eight two-story buildings containing 64 units of multifamily housing for graduate students, as well as two larger buildings (11,147 square feet and 2,200 square feet) on the 18-acre campus.	Construction-related traffic, noise, and air quality.
Valley Center Road Widening Project	City of Escondido	Mostly complete; section of Beven Drive is currently in planning phase.	Valley Center Road, Beven Drive north to City boundary.	Widening Valley Center Road to two lanes in each direction.	Construction-related traffic, noise, and air quality.
Butterfield Trails Development	County of San Diego	Tentative Map was approved by San Diego County planning commission on 5/17/13.	Sunday Drive at Valley Center Road. 189-012-59, 60, 61, 62; 189-281-18.	The project is a Tentative Map and Major Use Permit for a 71-lot residential development on approximately 60 acres, including 27 acres of designated open space.	Biological resources, as well as construction-related traffic, noise, and air quality.
Bear Valley Parkway Widening Project	County of San Diego	Construction on the project began in August 2014 and is expected to continue through the summer of 2016.	Bear Valley Parkway, between SR-78 and Boyle Avenue.	The project consists of widening the existing two-lane road to four lanes. Improvements such as bike lanes/sidewalks, landscaped parkways, and drainage improvements are also included in the project.	Construction-related traffic, noise, and air quality.

5.3.2 Air Quality

Due to the inherently cumulative nature of regional air quality impact analysis, cumulative impacts from the proposed project are addressed at length under Criterion 3 in Section 3.2, Air Quality. A significant air quality impact would occur if implementation of the project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.

Because the proposed project would exceed the project-level air quality significance thresholds for PM_{10} emissions, the proposed project's construction emissions would have a cumulatively considerable contribution to the region's air quality. Therefore, there is a significant cumulative impact to which the proposed project would contribute. Implementation of Mitigation Measure AQ-1.1 would reduce fugitive PM_{10} dust emissions to a less than significant level, so the project's contribution to this cumulative impact would be less than significant.

5.3.3 Biological Resources

Although the proposed project is located in a rural area of unincorporated San Diego County that is not proposed for intensive development in the County's General Plan (City of Escondido 2012a), future development that may occur in the area, such as the Butterfield Trails residential project located approximately 3.25 miles northwest of the proposed project, would result in converting existing habitat to developed uses. Additionally, the improvements to nearby El Caballo Park, as described in Table 5-1, could impact similar sensitive vegetation communities to those present at Lake Wohlford. Other cumulative development projects listed in Table 5-1 are located in the urbanized area of the City of Escondido and would not contribute in a significant way to this cumulative habitat conversion. Past projects throughout the region have combined to create a cumulative impact on biological resources due to development, and future projects are likely to continue to contribute to this trend. Pursuant to County policy, development in the area would also entail open space preservation and/or off-site mitigation to ensure preservation of natural habitat. Similarly, the proposed project's mitigation includes habitat-based mitigation at ratios identified in the BMO, which are intended to ensure habitat is restored on-site and preserved off-site to account for the project's temporary and permanent removal. By conforming to these habitat-based mitigation requirements, the project would reduce its contribution to this cumulative impact to a less than significant level, and no additional mitigation is warranted.

5.3.4 Cultural Resources

Because of the distance and topographical variation between Lake Wohlford and all other projects considered in this analysis, any cultural resources impacts would be localized and would not be affected by other cumulative projects. Therefore, no cumulative impacts to cultural resources are anticipated. The project includes a number of project design features and mitigation measures that would minimize the effects of construction on cultural resources in the area. These features include designing roads in a way that avoids known cultural resources, as well as the presence of an archaeologist and Native American monitor during any activities that could disturb previously unknown cultural resources.

5.3.5 Geology/Soils

The mountainous terrain in the project area effectively separates the geology and soils affected by this project from those affected by any other project under consideration. Any geologic or soils-related impacts associated with implementation of the project—including lack of stability or increased risk of liquefaction—would not worsen those from another project, nor would they be worsened by any other project. The proposed project would not contribute to a significant cumulative impact to geology or soils.

5.3.6 Greenhouse Gas Emissions

Because no single project is large enough to result in a measurable increase in global concentrations of GHG emissions, climate change impacts of a project are considered on a cumulative basis. The analysis presented above in Section 3.6 of this EIR is also applicable to the cumulative analysis. As discussed in Section 3.6, the project would not generate significant GHG emissions and would be consistent with applicable GHG reduction plans. Therefore, the project would not contribute to a cumulatively considerable GHG impact.

5.3.7 Hazards and Public Safety

Public safety hazards related to construction zones are generally limited to the immediate area of activity and have minimal potential to combine with other projects in a cumulative manner. Because there are no cumulative projects in the immediate area of the Oakvale Road realignment or the dam construction area, the project would not have the potential to combine with another project resulting in increased public safety hazards due to construction operations. Thus, the project would not result in a cumulatively considerable contribution to a public safety impact.

Hazardous materials impacts are typically very limited in their geographic scope as the effect is generally contained within a specific location or site, with some exceptions such as spreading through groundwater. Most construction projects in the area would require the use of standard hazardous materials typical of construction operations such as solvents, fuels, and lubricants. Similar to the project, any projects involving hazardous materials would be required to comply with all local, state, and federal health and safety requirements. The City would also require the preparation and implementation of a contingency plan to prevent and contain accidental release of hazardous products for projects with hazardous material use. With adherence to regulatory requirements, the potential for cumulative public safety impacts due to hazardous material would be minimized. The project would not result in a cumulatively considerable contribution.

Other cumulative projects also located in high risk areas for wildfires could be a source of potential fire due to construction activities. Similar to requirements for the proposed project, the City would require contractors on projects with wildlife hazards to prepare a Fire Prevention and Response Plan, which would minimize potential for accidental wildfires due to construction operations. With adherence to fire prevention requirements, the potential for cumulative public safety impacts due to wildfires ignited by construction activities would be minimized. The project would not result in a cumulatively considerable contribution.

5.3.8 Hydrology and Water Quality

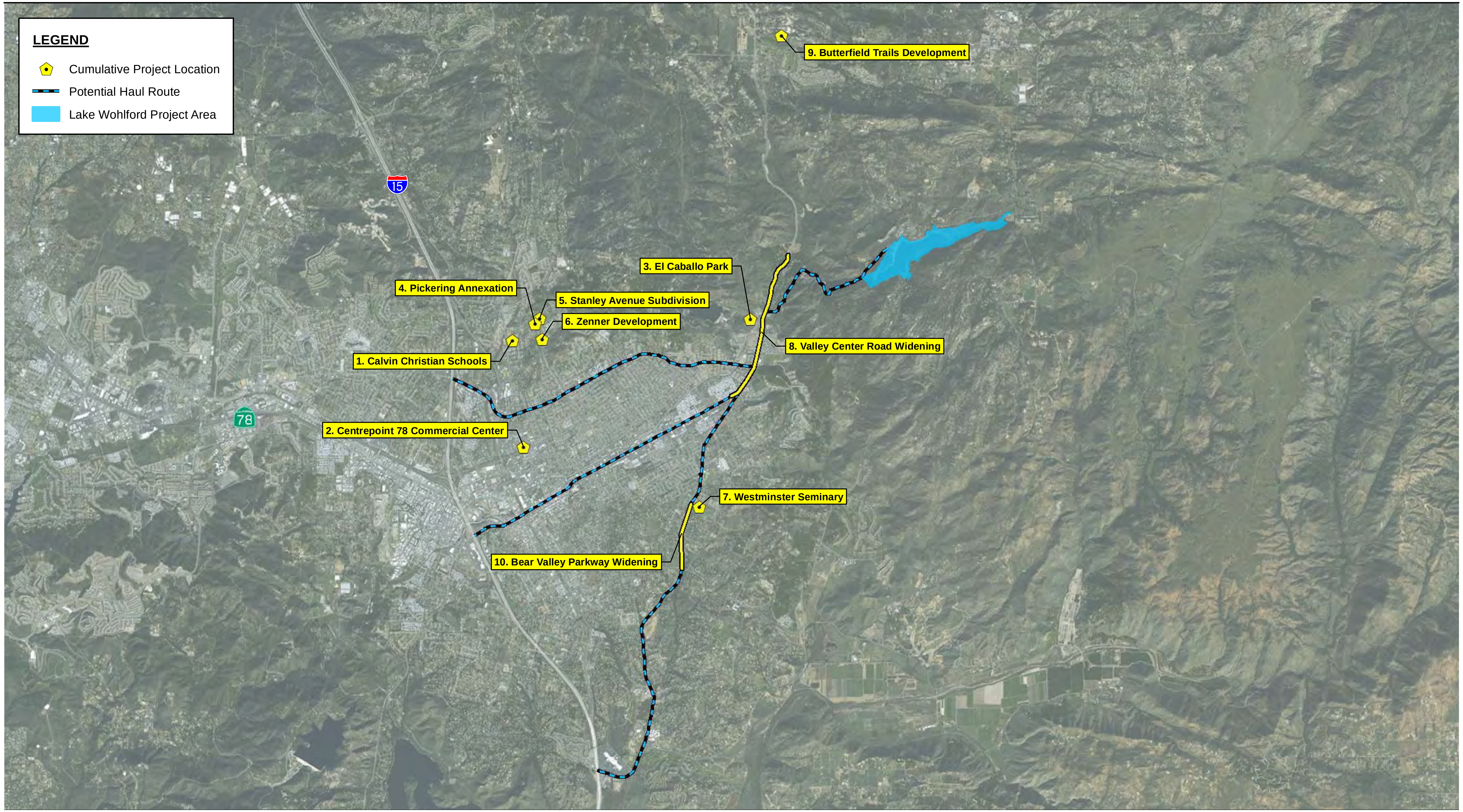
The cumulative study area for assessing the potential water quality and storm water runoff impacts of the proposed project is the Escondido Creek HA within the Carlsbad HU. Land uses in the Escondido Creek HA include open space, vacant/undeveloped land, and rural residential land in the east, and denser development in the City of Escondido in the west. None of the cumulative projects are located upstream of the proposed project within the Escondido Creek HA; several cumulative projects are located downstream of the proposed project, in the developed part of the City. Potential future modifications to El Caballo Park, located approximately 1.5 miles to the southwest of the proposed project area, may result in modifications to Escondido Creek and were therefore examined for potential cumulative water quality impacts. The Draft El Caballo Park Master Plan, dated February 11, 2014, proposes the replacement of the existing concrete channel that lines the existing portion of the creek that passes through the park. The Master Plan would remove the concrete sides of the channel, as well as a portion of the channel bottom, and replace it with vegetation to improve area aesthetics and improve stormwater drainage. Although any hydrologic or water quality impacts from this change would affect Escondido Creek downstream from Lake Wohlford, no significant water quality or hydrologic impacts from the project are anticipated. Therefore, no significant cumulative impacts to hydrology or water quality are anticipated as a result of the proposed project.

Conversion of undeveloped land to transportation, commercial/industrial, retail, and residential uses can result in hydromodification and increased loading of pollutants into surface waters and, indirectly, into groundwater provided soils with adequate percolation properties are present. Urbanization can also introduce new sources of pollutants associated with the new land uses. To counteract the impacts associated with increased development, all projects proposed in this watershed must undergo review by the applicable lead agency for compliance with NPDES permits for construction activities and project operations, as well as compliance with local urban runoff ordinances. BMPs must be employed in site designs to reduce sources of pollutants and to treat storm water runoff.

As discussed in Section 3.8, the purpose of the NPDES permit program, and, by extension, California's TMDL program, is to restore the beneficial uses of receiving waters. NPDES permits are updated every 5 years by the RWQCB, based on local watershed conditions. Compliance with the NPDES program is considered sufficient to mitigate impacts to water quality. Because the proposed project would reduce peak flows into Escondido Creek, thereby limiting hydromodification influences, water quality impacts would be avoided and/or minimized. Further, because the proposed project would comply with standard water quality measures outlined in Section 3.8, the proposed project would be expected to improve the management of runoff in the proposed project area and, therefore, would not contribute to cumulative water quality impacts. The proposed project would be expected to have a net benefit cumulative impact on Lake Wohlford and Escondido Creek water quality.

5.3.9 Noise

The project would generate noise on a temporary basis at the construction sites and staging yard, as well as along the haul route. None of the cumulative projects are located in an area in which their construction noise would be received by the same receptors as those receiving noise at the proposed project's staging yard and work areas. Therefore, no cumulative impacts would result from construction noise. As shown in Figure 5-1, the El Caballo Park and Westminster Seminary projects are adjacent to potential haul routes for the proposed project, and the Valley Center Road widening and Bear Valley Parkway widening overlap with these potential haul routes. The other cumulative projects located in the developed area of Escondido are not located adjacent to the potential haul routes, so construction traffic noise from the proposed project would not combine with project-related hauling noise. If the construction timeframes for the four cumulative projects listed above overlapped with the hauling phases of the proposed project, haul traffic could be received by the same receptors that would receive construction noise from the cumulative projects. However, the proposed project's haul trips would occur on busy roads such that noise from the project-related haul trips would not be discernable from regular traffic noise. Therefore, the cumulative projects would not combine with the proposed project to create a cumulative noise impact.



Source: SanGIS 2012; Black & Veatch 2014; USGS 2013; NAIP 2014.

7,000 3,500 0 7,000 Feet

Scale: 84,000; 1 inch = 7,000 feet

Figure 5-1
Lake Wohlford Cumulative Projects

Path: P:\2012\60278081_Lk_Wohlford\05Graphics\5.4_Proj_Graphics\Report_Graphics\PDF, 08/11/2015, delapazd

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5.3.10 Recreation

None of the cumulative projects would have an effect on the recreational facilities at Lake Wohlford. Recreation-related impacts from project construction would be relatively self-contained due to the isolation of the site. The only facility in the 5-mile cumulative projects radius that offers similar recreational opportunities is Dixon Lake, which does not have any construction projects pending that would affect recreation. Recreationalists seeking an alternative to Lake Wohlford during project construction could partake in similar activities at Dixon Lake, approximately 2 miles to the west. The 2014 Draft Park Master Plan Report for El Caballo Park, an equestrian facility located approximately 2 miles from the project, includes a discussion of improvements to the Escondido Creek Trail. The 2012 Master Plan Report for that trail includes connection with Lake Wohlford trails as a long-term goal, but no immediate plans to do so have been implemented. Therefore, there would be no cumulative recreation impacts.

5.3.11 Traffic/Circulation

As shown in Figure 5-1, two cumulative projects—Valley Center Road widening and Bear Valley Parkway widening—overlap with the project's potential haul routes. Those projects may occur concurrently with the materials hauling for Oakvale Road and the dam construction. If the proposed project's hauling occurs concurrently with these cumulative projects, then haul traffic could encounter traffic delays due to lane closures and reduced lane widths during construction. Haul trucks could encounter equipment and construction trucks related to the widening projects, resulting in potential safety concerns. Other cumulative projects are located in the vicinity of the proposed project's potential haul routes, and their construction trips are likely to travel on those same roads. To ensure concurrent construction traffic does not result in a significant cumulative impact, the City would ensure the contractor's traffic control plan would specify measures to maintain traffic safety in the vicinity of the concurrent projects. Therefore, the project would not contribute to a significant cumulative impact.

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CHAPTER 6.0
PROJECT ALTERNATIVES

Section 15126.6 of the State CEQA Guidelines requires that an EIR “describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.” This section presents a comparative analysis of the potential environmental impacts resulting from selected project alternatives. This chapter also discusses a series of other project alternatives that were considered during the project’s extensive planning phase but were not carried forward based on an extensive engineering and environmental evaluation conducted by the City.

6.1 RATIONALE FOR ALTERNATIVE SELECTION

The State CEQA Guidelines direct lead agencies that the “range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the Project and could avoid or substantially lessen one or more of the significant effects” (Section 15126.6[c]). The Lake Wohlford Dam Replacement Project’s environmental impacts are analyzed in Chapter 3 of this EIR with an emphasis on identifying potentially significant impacts and recommended mitigation measures to avoid these impacts. The environmental analysis in this EIR identified significant impacts for air quality, biological resources, cultural resources, and noise. In addition, Chapter 5 identifies a significant cumulative traffic impact. Impacts to air quality, biological resources, cultural resources, and cumulative traffic can be mitigated to below a level of significance with the incorporation of the mitigation measures in Chapter 3 of this EIR. Noise impacts were identified as significant and unavoidable with project implementation. This chapter provides a comparative analysis of two alternatives to the proposed project, including the “Existing Dam Improvement Alternative” (Alternative 1) and the No-Project Alternative. Alternative 1 was selected because of its potential to avoid the significant and unavoidable noise impact identified in Section 3.9, and because of the reduction in impacts on habitat in the downstream construction area.

6.2 ALTERNATIVES CONSIDERED BUT REJECTED DURING PLANNING PHASE

In 2008, the City of Escondido contracted GEI Consultants to develop a series of engineering alternatives that could then be further analyzed during the project planning process. Using the results of the GEI report, ICF Jones & Stokes (ICF) prepared an opinion on the potential environmental impacts of each alternative. As the City continued the planning process, they evaluated the engineering and environmental issues with these alternatives, and ultimately decided to move forward with the RCC dam downstream of the existing dam, as described in Chapter 2 and analyzed for environmental impacts in Chapter 3. This section provides a brief discussion of the alternatives that were considered but rejected during the planning phase, as based on the GEI report (GEI 2008) and ICF report (ICF 2008). The alternatives considered in these analyses can be separated into two categories: upstream solutions, which would reuse the existing dam (Alternatives 1, 2, and 3), and downstream solutions, which would construct a new dam downstream of the existing dam (Alternatives 4A/4B, 5, and 6). Each alternative is described below, with the exception of Alternative 1, which is discussed as Alternative 1 below in Section 6.3, and Alternative 6, which is the proposed RCC dam considered in Chapter 3 of this EIR.

6.2.1 Stabilizing Berm on Upstream Slope

The GEI and ICF reports considered a project involving stabilizing the berm on the upstream slope, which was Alternative 2 in those reports. This would have involved constructing a cofferdam upstream of the existing dam using borrow materials from the reservoir bottom. Lake bottom deposits and loose foundations soils located below the footprint of the proposed new berm would be excavated and processed through an on-site crushing/processing facility. The compact new rockfill and/or earthfill would be placed on the upstream side of the existing dam to create a stabilizing berm, and overlaid on the downstream side of the existing dam. A cofferdam would be constructed in the reservoir approximately 1,000 feet upstream of the existing dam, which would require additional disturbance in jurisdictional areas and a further reduction in reservoir capacity during construction. The cofferdam would encroach into an existing BLM-owned parcel, requiring approvals from that agency. Alternative 2 was rejected because it does not remedy the potential for internal erosion of hydraulic fill through the rockfill section of the existing dam (GEI 2008).

6.2.2 Shear Wall Through Upstream Slope

Constructing a shear wall through the existing dam's upstream slope was considered as Alternative 3 in the GEI and ICF reports. This alternative proposed stabilizing the existing dam by placing a shear wall on the upstream side of the existing dam, and by placing a new rockfill overlay on the downstream side of the existing dam. To achieve this, a cofferdam would be constructed in a location similar to Alternative 2. Excavated hydraulic fill and wagon fill would be placed upstream of the existing dam. Compacted earthfill would be placed above the top of shear walls to reestablish the upstream slope of embankment, and compacted rockfill material would be overlaid on the downstream side of the existing dam. Alternative 3 was rejected because it does not remedy the potential for internal erosion of hydraulic fill through the rockfill section of the existing dam, similar to Alternative 2 (GEI 2008).

6.2.3 New Rockfill Dam

Alternatives 4A and 4B proposed rockfill dams downstream of the existing dam, with 4A proposing a new earth-core dam and 4B proposing a concrete-faced dam. The top portion of the existing dam would be removed and the material disposed of in the reservoir. A new spillway would be cut through the north abutment of the new dam and a temporary access road was identified from Oakvale Road east to Guejito Road for use only by local residents/businesses and emergency-response vehicles. The temporary access road would have encroached onto existing BLM lands. These alternatives would have resulted in much larger downstream footprints for the replacement dam than the RCC method selected by the City. They were rejected primarily because rockfill characteristics are not fully known until full-scale blasting during construction takes place, increasing potential for differing site conditions and complications during project construction (GEI 2008).

6.2.4 New Earthfill Dam

Alternative 5 in the GEI and ICF reports was construction of a new earthfill dam downstream of the existing dam. This alternative would have required borrow of earth materials, most likely from surficial soils in Bear Valley, resulting in off-site impacts not contemplated for the RCC option in this EIR. Similar to Alternatives 4A and 4B, Alternative 5 would have resulted in a much larger footprint downstream of the existing dam, and a temporary access road would be constructed from Oakvale Road east to Guejito Road for bypass use during construction. The excavation area for the right dam abutment and spillway is much larger than for the RCC dam selected for project analysis. For these reasons, this alternative was rejected from further consideration.

6.3 ALTERNATIVES ANALYSIS

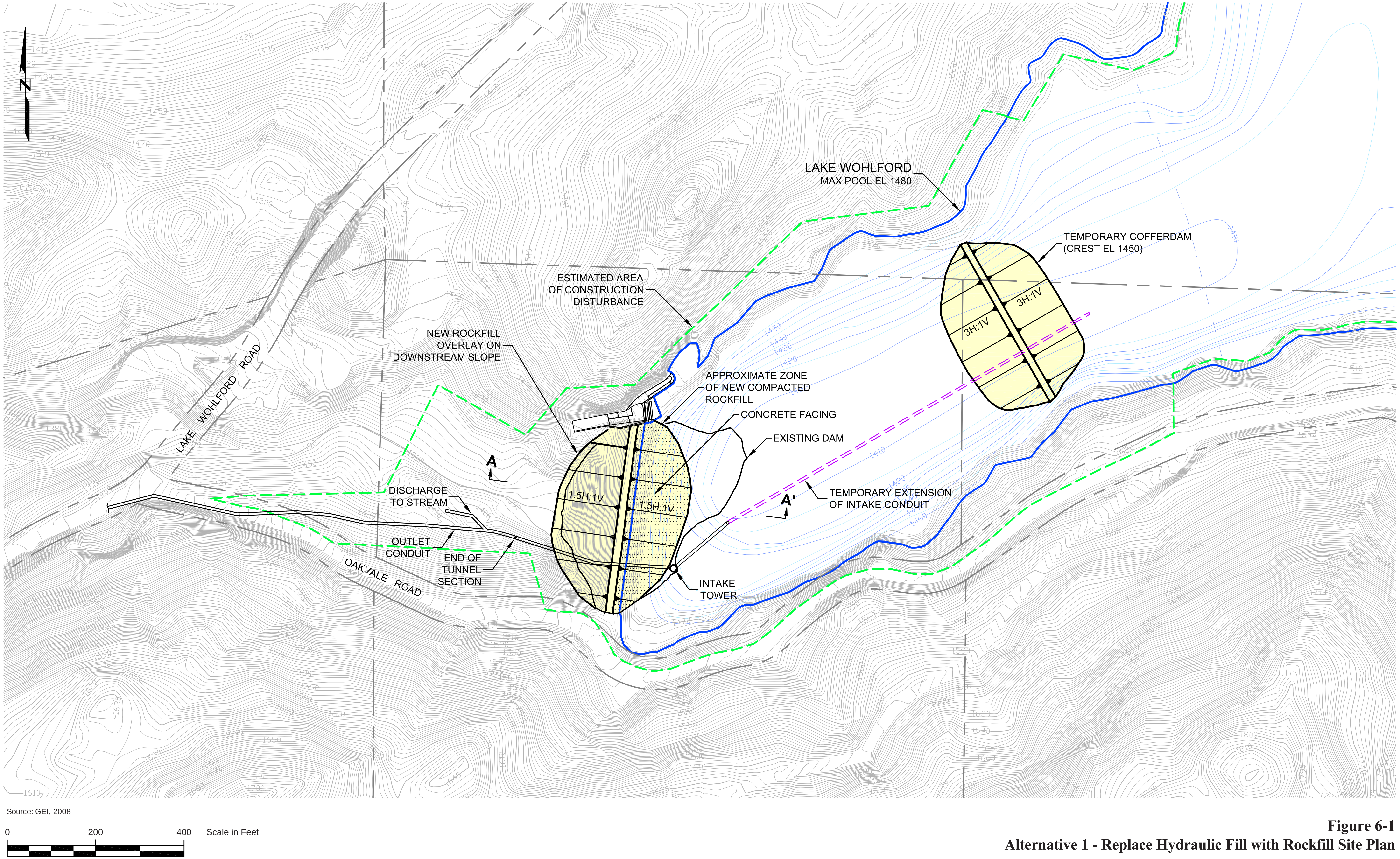
The following section compares the potential impacts of Alternative 1 and the No-Project Alternative to the project analyzed in Chapter 3 of this EIR. A discussion is also provided regarding the ability of both alternatives to meet the project objectives, which are presented in Section 2.2 of this EIR.

6.3.1 Alternative 1: Existing Dam Improvement Alternative

Alternative 1, as analyzed pursuant to CEQA requirements in the discussion below, is Alternative 1 from the GEI and ICF reports. This alternative proposes improvement of the existing dam, rather than constructing a new dam downstream of the existing dam. The existing hydraulic fill on the upstream side of the dam, which is the problematic feature causing the safety concern in the existing dam, would be removed and replaced with engineered rockfill, which would improve the dam's seismic safety. The new rockfill would need to be placed on competent foundation materials, requiring excavation and removal of any loose soils below the new footprint. The seismic stability of the downstream slope would be increased by placing a rockfill overlay on the existing rockfill section. Seepage through the new rockfill would be controlled by a concrete facing placed on the upstream slope. Hydraulic fill, lake bottom deposits, and loose foundation soils located upstream of the existing rockfill section would be removed, processed in a facility on-site, and then placed on the upstream and downstream sides of the existing rockfill. A plan drawing of Alternative 1 is shown in Figure 6-1.

There are several considerable differences in impact area between Alternative 1 and the RCC method described in Chapter 2. First, in-place replacement of the dam would obviate the Oakvale Road realignment component of the proposed project, as the replacement dam would keep the same left abutment and access point to the dam crest. Second, the existing spillway would not need to be replaced, limiting the amount of excavation on the slope north of the dam. Third, the downstream construction area would be smaller because the Alternative 1 dam footprint would only be slightly larger than the dam's existing footprint. Fourth, a temporary coffer dam would be constructed approximately 1,000 feet upstream of the dam, which was anticipated in the GEI report to be located on a parcel within the reservoir that is owned by BLM. Finally, alternative 1 also would require establishment of an off-site borrow area for excavation of rock materials in the dam improvements. This would create additional impacts at an undetermined off-site location. Analysis below assumes the primary staging yard from the proposed project would be used for staging, and that the access road would be constructed in a similar alignment to the right abutment for use during construction and in perpetuity for maintenance and inspection access.

In addition to area of impact, other key differences include construction timing and duration. Because Alternative 1 does not entail RCC construction, there would be no need for 24-hour work. However, project construction would last for a longer period of time. Most importantly, Alternative 1 would require draining Lake Wohlford prior to construction of the cofferdam. Once the cofferdam is erected, the City may be able to fill the reservoir for use during construction, although at a substantially reduced level from its existing conditions. Therefore, Alternative 1 would result in long-term restrictions on the reservoir's functions as a water storage facility and on its usability for recreation.



Source: GEI, 2008

Figure 6-1
Alternative 1 - Replace Hydraulic Fill with Rockfill Site Plan

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This alternative would achieve all of the Project objectives, but would result in a longer construction phase, increased costs, and reduced reservoir function during construction. Consideration of Alternative 1 environmental impacts is provided below.

Aesthetics

Alternative 1's permanent aesthetics impacts would be less than those of the proposed project, because Alternative 1 does not require realignment of Oakvale Road or excavation north of the dam. However, as described in Section 3.1, these remote areas are limited in their visibility, so this difference in environmental impacts is not significant. On a temporary basis, Alternative 1 would result in a greater amount of aesthetics impacts due to draining Lake Wohlford and the visibility of the coffer dam from public locations at the Lake Wohlford Marina.

Air Quality

The amount of air pollutant emissions under Alternative 1 would likely be similar to those under the proposed project, although they would occur in different locations. Alternative 1 would avoid emissions related to Oakvale Road realignment, but would result in other impacts at the off-site borrow location and due to construction of the temporary cofferdam in the reservoir. Construction would occur over a longer timeframe, but would be less intense due to avoidance of 24-hour work. Therefore, there is no discernable increase or reduction in pollutant emissions, and Alternative 1 is assumed to result in the same significant impact identified in Section 3.2. Mitigation measures identified in Section 3.2 would be required for Alternative 1.

Biological Resources

Alternative 1 would result in a lesser acreage of permanent impacts due to the reduced project footprint, primarily in the downstream construction area, Oakvale Road excavation, and grading north of the dam. However, Alternative 1 would also result in additional off-site impacts at the borrow area. Alternative 1 would also result in a greater acreage of temporary impacts on jurisdictional wetlands from construction of the cofferdam and long-term operation of the staging area between the cofferdam and the existing dam. Alternative 1 would not avoid any of the significant impacts identified in Section 3.3, and would require implementation of all mitigation measures identified in that section. Mitigation acreages identified in measures related to Impact BIO-3 would differ, but all habitat types would be included. Alternative 1 also has the potential to affect other habitat types and other species not identified in Section 3.3, depending on the location of the borrow area.

Cultural Resources

Alternative 1 would result in cultural resources impacts that are similar to those identified in Section 3.4, although additional cultural resources survey work would need to be performed for the borrow site location to confirm that this additional Alternative 1 feature would not impact any existing resources. All significant impacts and mitigation measures identified in Section 3.4 also apply to Alternative 1. As with the proposed project, known cultural resources in the vicinity of the Alternative 1 construction area would need to be identified as ESAs on construction drawings and flagged in the field for avoidance, and initial grading work would require the presence of cultural resources monitors.

Geology/Soils

No significant geology and soils impacts were identified for the proposed project, and Alternative 1 is not anticipated to result in any additional significant impacts. Excavation areas in the slopes north and south of the dam would be avoided under Alternative 1, so the geological footprint would be reduced. As in the proposed project, proper engineering of Alternative 1 would ensure seismic stability and prevent hazardous downstream conditions.

Hazards and Hazardous Materials

Alternative 1 has the potential to result in an impact that was not identified for the proposed project. During construction, seismic failure of the coffer dam could lead to hazardous flooding that would inundate the work area and endanger workers. To avoid this, the cofferdam would require proper geotechnical engineering.

Hydrology and Water Quality

Alternative 1 could result in additional water quality impacts during construction due to construction of the cofferdam. Alternative 1 would be subject to the same construction-period storm water control requirements identified for the proposed project.

Noise

Alternative 1 would avoid the significant and unavoidable impact of nighttime construction identified in Section 3.9 because Alternative 1 would not entail 24-hour work. Alternative 1 would also not include a batch plant at the staging yard, so construction activity would generate less noise received by nearby residences. However, the noise that would be generated during project construction would occur for a longer duration under this alternative, which could be less favorable to the receivers. Under Alternative 1, noise from cofferdam construction and demolition would also be received by residences south of the reservoir, increasing noise impacts on these receptors. Additional noise generation would result from excavation at the off-site borrow area, which would expose additional receptors to project-related noise beyond those considered for the proposed project. Therefore, while Alternative 1 would avoid the significant and unavoidable impact identified for the proposed project, it would also result in different noise impacts that would temper its benefits.

Recreation

Alternative 1 would likely result in a significant and unavoidable recreation impact due to temporary closure of Lake Wohlford for recreational use during project construction. Erection of the cofferdam would require drawdown of the reservoir, which may persist throughout the duration of the project. If water is placed back in the reservoir during construction for municipal storage purposes, the reservoir is unlikely to reopen due to a concern for public safety with the presence of the cofferdam. Therefore, the Alternative 1 impacts with respect to recreation would be greater than those of the proposed project.

Traffic/Circulation

Because it would not entail RCC construction requiring delivery of constituent materials from off-site, Alternative 1 would generate less off-site haul traffic than the proposed project. However, additional hauling impacts would occur between the off-site borrow area, and these impacts could have a greater localized impact on roads near the project site. Alternative 1 would avoid Oakvale Road improvements, so the existing curve on this narrow road that would be straightened out by construction of the proposed project would not be accomplished under Alternative 1.

Land Use

In addition to those subjects addressed for the proposed project in Chapter 3 of this EIR, Alternative 1 would also result in a temporary land use impact not anticipated for the proposed project. Based on the preliminary location shown in the GEI report, the cofferdam is proposed to partially overlap with a parcel in the reservoir that is owned by BLM. Therefore, additional permitting would be required from that agency under Alternative 1 to obtain the right to construct on this federal land.

Rationale for Selecting the Proposed Project over Alternative 1

Alternative 1 meets all of the project objectives but would take longer to construct, would require further drawdown of the reservoir, and would result in a structure that may not last as long as the RCC option. The proposed project was selected over Alternative 1 because of the potential to keep the reservoir at current levels during downstream construction, the reduced duration of project construction, and the reliability and longevity of RCC construction. Alternative 1 reduces and avoids some impacts, but increases other impacts or extends impacts due to the longer construction duration, so there is no clear benefit from an environmental analysis perspective.

6.3.2 No-Project Alternative

The No-Project Alternative would result in the continued operation of the existing dam and would not allow for the restoration of water levels. Although short-term environmental impacts would be avoided, a long-term adverse impact to the City's flood control and water supply system would occur. The No-Project Alternative would not achieve any of the project objectives identified in Section 2.2. The following discussion addresses the impacts of the No-Project Alternative on environmental resources.

Aesthetics

The No-Project Alternative would not alter any land, so none of the impacts discussed in Section 3.1 would occur. However, the No-Project Alternative would also not allow for an increase in reservoir water levels, which was identified as a beneficial impact in Section 3.1.

Air Quality

No construction work would occur under the No-Project Alternative; therefore, the No-Project Alternative would avoid significant impacts identified in Section 3.2.

Biological Resources

The No-Project Alternative would not entail any construction work or permanent features; therefore, the No-Project Alternative would avoid all impacts on biological resources identified in Section 3.3.

Cultural Resources

The No-Project Alternative would have no direct impact on cultural resources because no construction would occur. However, because the No-Project Alternative would not allow increase in reservoir water levels, several resources that are exposed along the fringes of the current water level would not become resubmerged and could be affected by encroachment of reservoir users. Therefore, the No-Project Alternative could result in an impact on existing cultural resources that would not occur under the proposed project.

Geology/Soils

As the No-Project alternative would not involve earth disturbance, there would be no potential for geology and soils impacts from those activities. However, the No-Project Alternative would also not correct the existing seismic conditions in the existing dam, which could result in geologic hazards upstream and downstream of the dam in the event of an earthquake. Liquefaction of the existing dam could lead to earth and riprap falling down the downstream face of the dam, and could result in earth sliding down the upstream face, displacing water in the reservoir.

Hazards and Hazardous Materials

As discussed in the Geology and Soils section above, the No-Project Alternative would not correct the existing seismic conditions in the existing dam, which could result in an impact on public safety in the event of an earthquake. The No-Project Alternative would not result in any other hazards and hazardous materials impacts because no construction would occur.

Hydrology and Water Quality

The No-Project Alternative would maintain existing hydrology/water quality conditions at Lake Wohlford. In the event of an earthquake, as discussed above under Geology and Soils, earth from the upstream face of the dam could slide into the reservoir, which would affect water quality by increasing turbidity.

Noise

Because the No-Project Alternative would not entail any construction, it would avoid all noise impacts identified for the proposed project in Section 3.9.

Recreation

The No-Project Alternative would not result in the temporary impacts on recreational uses identified in Section 3.10 for the proposed project during construction. All trails and areas of the marina would remain available for public use. Maintenance of the reservoir at the existing level would continue to limit the reservoir area available for fishing and boating, which is likely to be perceived as a recreation impact to frequent reservoir users.

Traffic/Circulation

The No-Impact Alternative would not generate construction traffic, so there would be no impact.

Rationale for Selecting the Proposed Project over the No-Project Alternative

Although it would avoid significant impacts related to construction work, including impacts on air quality, biological resources, cultural resources, and noise, the No-Project Alternative is not an option because it would perpetuate unsafe conditions at the existing dam and prevent the City from using the full water storage potential in their reservoir. The No-Project Alternative would not meet any of the project objectives, and the City has been in the planning stages for implementing this project for several years.

CHAPTER 7.0
OTHER CONSIDERATIONS REQUIRED BY CEQA

Section 15126.2 of the State CEQA Guidelines specifies requirements for consideration and discussion of significant environmental impacts. The proposed project's significant impacts are analyzed in the various sections of Chapter 3, pursuant to Section 15126.2(a) of the State CEQA Guidelines. Other requirements of EIRs specified in the above-referenced section are addressed below.

7.1 SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROJECT IS IMPLEMENTED

Section 15126.2(b) of the State CEQA Guidelines requires a description of a project's significant impacts that "can be mitigated but not reduced to a level of insignificance." The analysis conducted for this EIR identified one significant impact that cannot be avoided because the identified mitigation measure would not fully reduce the impact to a less-than-significant level. As stated in Section 3.9, the project would generate 24-hour construction noise for a period of 5 months during the RCC construction phase. This noise would be received by residential receptors and cannot be mitigated to a less-than-significant level by the mitigation measures identified for the project. Therefore, the project would result in a significant and unavoidable impact for noise. A statement of overriding considerations would be necessary pursuant to Section 15093 of the State CEQA Guidelines.

7.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126.2(c) of the State CEQA Guidelines requires consideration of the project's irreversible environmental changes, including commitments of nonrenewable resources. The project would entail use of nonrenewable fuels to power construction equipment and would use aggregate materials to make concrete. These uses are similar to all construction projects, and do not represent a significant impact. Beyond the project's construction phase, there would be no long-term commitment of resources. The project would also entail permanent conversion of existing natural habitat to developed uses, as described in Section 3.3. This was identified as a significant impact and will be mitigated by preservation of off-site mitigation land.

7.3 GROWTH-INDUCING IMPACTS

A discussion of the proposed project's growth-inducing impacts is required under CEQA Guidelines Section 15126(d). This includes ways in which a project would foster economic or population growth, or the construction of additional housing, in the surrounding environment. A project may be growth inducing if it does any of the following:

- directly or indirectly fosters economic or population growth or the construction of additional housing,
- removes obstacles to population growth,
- taxes community service facilities to the extent that the construction of new facilities would be necessary, or
- encourages or facilitates other activities that cause significant environmental effects.

The dam replacement project is intended to return water storage capacity for the City, not increase capacity at Lake Wohlford. Therefore, the dam project would not induce population growth, remove obstacles for future growth, or generate increased demand for existing utilities and public services in the project area.

Although the Oakvale Road realignment would improve a roadway, the project-related improvement would not induce growth because the minor changes would not significantly enhance access to currently inaccessible areas. The developable area immediately surrounding the project is restricted by the area's topography, so construction of a significant amount of additional housing would be infeasible. The improved roadway would not require a significant increase in operations and maintenance activities such as street cleaning, landscape watering, or law enforcement and emergency services.

The proposed project would temporarily require construction workers, but most would be expected to come from the local workforce and would not exert an additional burden on local housing availability. The proposed project would ultimately enhance the recreational functions offered by Lake Wohlford; however, it is not anticipated that the project would generate enough new nonlocal visitors to create a need for new tourist-related commercial uses. Therefore, neither construction nor long-term uses associated with the project would be considered growth-inducing.

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