VENTURA COUNTY WATERWORKS DISTRICT NO. 1
Stockton Reservoir Replacement Project
DRAFT INITIAL STUDY

Ventura County Waterworks District No. 1
6767 Spring Road, P.O. Box 250
Moorpark, California 93020-0250
Mr. Matt Grieger, Project Manager
(805) 378-3020

February 2015

SCH No. _____

Prepared with the Assistance of:

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SECTION A - PROJECT DESCRIPTION

1.0 PROJECT TITLE

Ventura County Waterworks District No. 1 Stockton Reservoir Replacement Project.

2.0 LEAD AGENCY NAME AND ADDRESS/CONTACT PERSON AND PHONE NUMBER

Ventura County Waterworks District No. 1
6767 Spring Road
P.O. Box 250
Moorpark, California 93020-0250
Mr. Matt Grieger, Project Manager
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3.0 PROJECT LOCATION

The existing Stockton Reservoir is located on the south side of Stockton Road in unincorporated Ventura County. The replacement reservoir site is located on the east side of Stockton Road slightly northwest of the existing Stockton Reservoir and about 0.5-mile north of Broadway Road. The Assessor's Parcel No. is 108-0-170-115. Additionally, a segment of water pipeline is proposed to be installed in Stockton Road between the existing and proposed reservoir sites. A Regional and Project Location Map is provided as Figure 3-1.

Staging of equipment and material laydown area will occur within the boundaries of the proposed new reservoir site. Some laydown of materials for pipeline installation within the right-of-way of Stockton Road will occur adjacent to the pipeline trench. Construction within the Stockton Road right-of-way may temporarily take out one traffic lane.

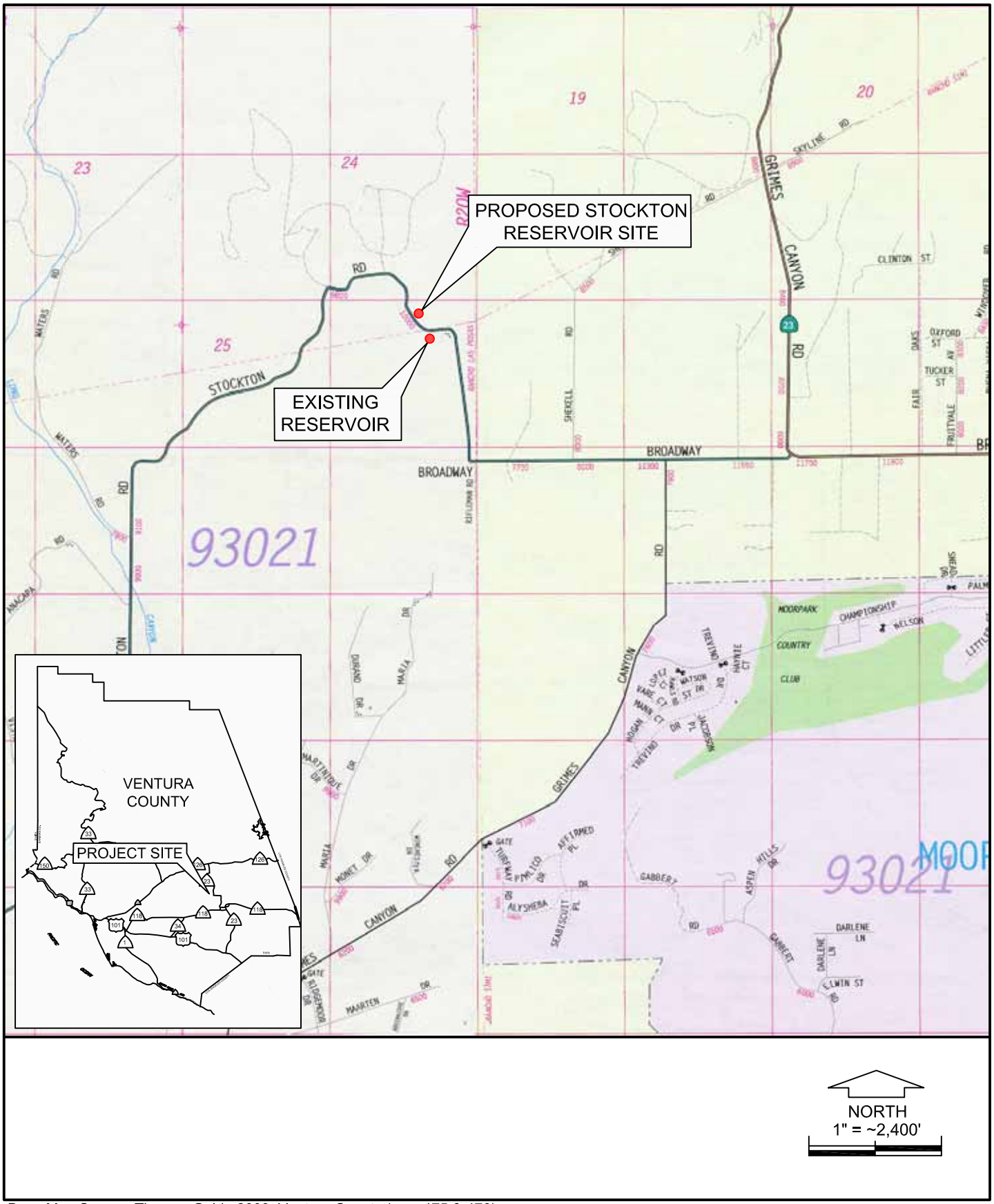
4.0 PROJECT SPONSOR'S NAME AND ADDRESS

The Project Sponsor is the lead agency. (See Section 2.0.)

5.0 GENERAL PLAN DESIGNATION AND ZONING

The General Plan designation and corresponding zoning of the proposed Project site are Agriculture and AE-40 Acres respectively. Roadways do not have General Plan designations or zoning; however the General Plan designations on either side of Stockton Road where the pipeline would be installed are Agriculture and Open Space.

July 2014
Project No. 1402-0611



Base Map Source: Thomas Guide 2009, Ventura County (pgs. 475 & 476)

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Stockton Reservoir Replacement Project

REGIONAL AND PROJECT SITE LOCATION MAP
FIGURE 3-1

6.0 DESCRIPTION OF PROJECT

6.1 BACKGROUND, GOALS, OBJECTIVES, PURPOSE AND NEED

6.1.1 Background

Ventura County Waterworks District (VCWWD) No. 1 (or District) was formed on November 22, 1921, and serves approximately 37,576 customers through 10,194 service connections, including 10,053 residential and commercial service connections and 141 agricultural service connections. The District encompasses approximately 19,800 acres and includes the City of Moorpark and contiguous unincorporated areas to the north and west. VCWWD No. 1 provides both water and sanitation services to the customers within its service area. District water supplies come from both imported and local (groundwater sources).

Pressure Zone 994, located in the western portion of the District service area, has only one existing reservoir (0.5 million gallon [MG] capacity) which is at the end of its useful life. In 2008, the District commissioned the preparation of a Water Service Master Plan update. As a result of this report, it was recommended that the existing reservoir be replaced with a 1.0 MG reservoir in the near-term. An additional future 1.0 MG reservoir was also recommended.

Penfield & Smith, an engineering consulting firm, was retained by the District to investigate alternative sites and designs for the replacement reservoir. The results of this study are presented in Preliminary Design Report for Stockton Reservoir Replacement Project (Penfield & Smith, March 25, 2013). Site A as identified in the Penfield & Smith Preliminary Design Report was selected by the District as the best location for a replacement reservoir. The selected site is located on the east side of Stockton Road slightly northwest of the existing reservoir site and about 0.5-mile north of Broadway Road. The site is 0.65 acre in size and is presently in agricultural production as a citrus orchard. A preliminary design for the reservoir was also included in the report and is described further herein.

6.1.2 Goals and Objectives

VCWWD No. 1 proposes to implement the proposed Project to meet the water storage requirements for Pressure Zone 994 and replace an existing reservoir that is at the end of its useful life. Since the construction of the existing Stockton Reservoir in 1974, the population within the service area for the reservoir has increased. Fire flow demand within the service area has also increased. Therefore, the proposed replacement reservoir is 1 MG to safely accommodate this increased need.

Per the Master Plan for VCWWD No. 1, each pressure zone is to have two reservoirs. For maintenance purposes, one tank can be taken out of service without effecting the operation of the system within that particular zone. Therefore, once the new reservoir (tank) is constructed the old tank will be drained but will not be deconstructed until plans for another new tank are completed at some undetermined future date.

6.1.3 Purpose and Need

Water facilities within Pressure Zone 994 serve exiting agricultural irrigation, agricultural facilities such as barns and some domestic customers. To ensure continued uninterrupted, safe

delivery of adequate water supplies within this zone the existing water storage reservoir needs to be replaced and increased in size.

6.2 PROJECT COMPONENTS

The District proposes to build a new 1.0 MG reservoir at a site near the existing Stockton Reservoir site. (Figure 6-1 shows the Preliminary Site Plan.) The new reservoir will be an above-ground, welded steel tank, 80-feet in diameter, 30-feet in height with a knuckled roof. It is anticipated that the tank will be founded on a concrete ring wall and soil pad at an approximate elevation of 974 feet. There will be a concrete berm and asphalt road around the perimeter of the tank. Other elements of the proposed tank replacement include construction/installation of the following project components:

- Paved access road from Stockton Road to the tank;
- Pipeline (420 linear feet, 12-inch diameter, from the new tank to connect with an existing 12-inch water line located approximately 300 feet west of the intersection of the proposed tank access road and Stockton Road near the existing tank);
- Road culvert;
- Storm drain (18-inch to carry water from the pad to existing drainage channel on Stockton Road and accommodate flow from an emergency overflow event from the reservoir);
- Fencing (6-feet high chain link with three strands of barbed wire on top);
- Retaining wall;
- Solar-powered supervisory control and data acquisition (SCADA) system;
- Solar-powered lighting;
- Seeding of the site for erosion control.
- Once the proposed reservoir is operational, the existing reservoir will be placed on standby for emergency use.

6.3 PROJECT SCHEDULE

The preliminary construction start date is April 2016 and completion is expected to occur by December 2016. Construction will occur eight hours per day, Monday through Friday between the hours of 7:00 am and 4:00 pm.

6.4 PROJECT CONSTRUCTION

6.4.1 Methods

Site preparation will include tree removal, grubbing and preparation of the ground in accordance with the recommendations of the Project-specific geotechnical report (Preliminary Geotechnical Study Stockton Reservoir Moorpark, California prepared by Fugro Consultants Inc. [Fugro], February 2014). Cuts and fills up to 10 feet are anticipated. A concrete ring wall will be constructed and the welded steel tank assembled on-site. The perimeter access road will be paved, and culvert and storm drain installed.

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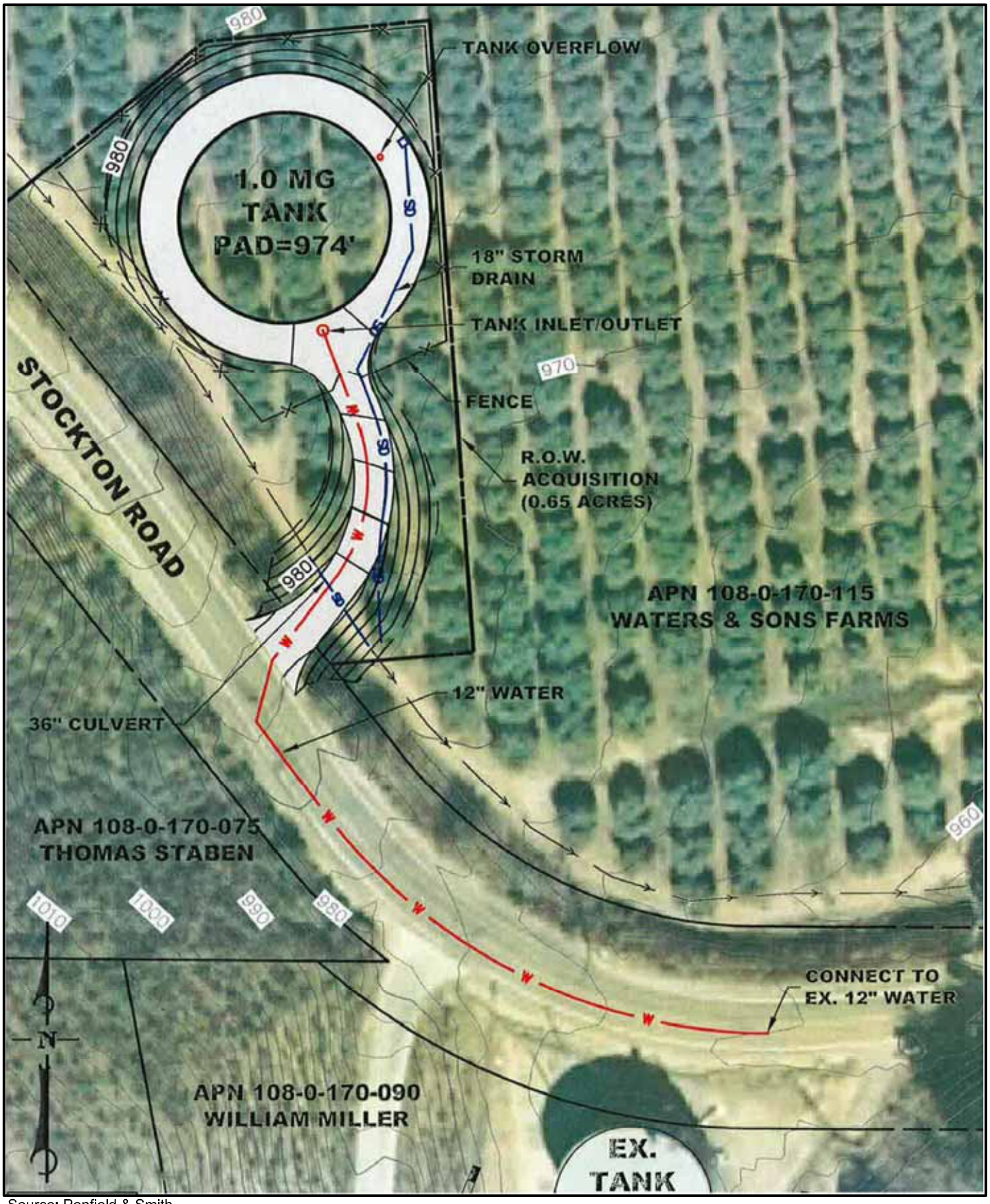

Source: Penfield & Smith

1" = 50'

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Stockton Reservoir Replacement Project

PRELIMINARY SITE PLAN
FIGURE 6-1

Pipeline construction methods will be conventional trenching which includes cutting and removal of pavement, excavation of trench, preparation of pipe bed, installation of pipeline, backfilling trench compacting soils and restoring the surface to original conditions. The trench will be approximately 4.5 feet deep and 2.0 feet wide.

Estimates of cut, fill, import and export volumes for the Project are provided in Table 6.4-1. It is anticipated that about 242 truck trips will be required for import of concrete, asphalt and other construction material, and export of earth materials (Table 6.4-2). Additional truck trips will be for mobilization and demobilizations of equipment will be required. Worker vehicle trips will also be generated during the construction period.

Table 6.4-1. Estimate of Cut/Fill and Import/Export Volumes

	Volume in Cubic Yards
Cut	2,500
Fill	500
Export	2,000
Import (base does not include concrete or asphalt)	40

Table 6.4-2. Estimate of Truck Trips

Task	Trips
Import concrete	12
Import construction materials	30
Export earth materials	200
Total	**242**

Traffic control measures will be used when work is within the lanes of traffic (e.g., pipeline installation). Caltrans standard traffic control methods will be implemented for all Project traffic control. Lane closures will be necessary where work needs to be conducted in the travel lanes of local roads.

6.4.2 Equipment

The construction equipment anticipated to be required for the proposed Project is listed below. One piece of each equipment type (or possibly more) is expected to be required. Only particular pieces of equipment listed below would be used during each specific phases of site preparation and construction.

Equipment required for the tank site construction includes:

- Loader
- Rubber Tired Backhoe
- Water Truck
- Dump Truck

- Crane
- Concrete Truck
- Delivery Trucks for material
- Street Sweeper

Pipeline installation:

- Rubber Tired Backhoe
- End Dump Truck
- Soil Compactor
- Roller compactor (pavement replacement)
- Tracked excavator
- Delivery Trucks for material (e.g. pipe, sand, asphalt)
- Generator (pavement saw cutting)
- Street Sweeper

6.4.3 Manpower

It is estimated that a crew of up to 16 personnel would be required for Project construction with a maximum of 12 construction employees being required at any one time.

6.4.4 Construction Staging Areas

Staging of equipment and materials will be provided within the proposed tank site. During the hours of pipeline construction operations, materials (e.g., pipe and earth materials) would be temporarily stored adjacent to the pipeline trench within the Stockton Road right-of-way.

6.5 OPERATIONS AND MAINTENANCE

Long-term operations and maintenance requirements for the Project will be minimal as the operation of the new tank will be automated. The exterior of the tank and the site in general will be inspected on a weekly basis by District staff. Any necessary maintenance (e.g., painting of the tank, repair of the access road) will be conducted when needed. The interior will be inspected once every five years by a consulting specialist. No new permanent employees will be required as a result of the Project.

7.0 SETTING

7.1 ENVIRONMENTAL SETTING

The Project area is located in the southeastern quadrant of unincorporated Ventura County. The Project area is located in the Transverse Ranges physiographic province of southern California. The characteristic landforms that define this province are a series of predominantly east-west trending mountain ranges and their intervening valleys. Major topographic features of the project area include the Oak Ridge to the north of the project site, and the Las Posas and Little Simi Valleys to the south.

The Project area is within the Calleguas Creek Watershed. The Calleguas Creek Watershed is approximately 343 square miles and lies in the most heavily populated area of

eastern Ventura County (WCVC, March 2013). The Calleguas Creek has relatively small natural flows, augmented by the treated effluent from several wastewater treatment plants and urban runoff from the areas tributary to the Creek. The communities in the watershed are served largely with imported water from the State Water Project, delivered by the Calleguas Municipal Water District and distributed by local purveyors such as VCWWD No. 1.

The Project site is in a rural agricultural area of unincorporated Ventura County. The proposed Reservoir site is within an existing citrus orchard located adjacent to and east of Stockton Road. The site is at the base of a 12-foot high roadway embankment that is inclined at approximately 1H:1V (horizontal to vertical). The topography of the orchard generally slopes down to the southeast corner of the property. Elevations at the proposed tank footprint and access road footprint range from approximately 972 to 984 feet relative to the datum established by Penfield & Smith (see Figure 6-1).

Additional setting information is provided by subject area in Section C of this Initial Study.

7.2 SURROUNDING LAND USE

The Project site is located within an area characterized primarily by agricultural uses and natural open space. The proposed tank site specifically is located within a parcel developed as a citrus orchard. This orchard is located north of the existing tank site and north of the orchard is a poultry farm. Land immediately east, west of the existing tank is natural open space. Based upon a review of Google Earth imagery from December 2013, a graded area about 16 acres in size is located immediately south of the existing Stockton Reservoir and may be used for equipment storage and as a source of earth materials (e.g., sand). Land uses including an equestrian boarding facility, and wholesale plant nursery (Taiwan Plant Corporation) are also located south of the existing reservoir. Scattered residences are also located in the general Project area.

7.3 OTHER PENDING AND APPROVED DEVELOPMENT

A review of County of Ventura and City of Moorpark on-line information sources was conducted to identify pending and approved projects within a 2.5 mile radius of the proposed Project site. These projects were considered with respect to the cumulative impacts analyses presented in this Initial Study (see Sections B and C). (Cumulative impact analysis considers the effects of the proposed Project together with past, present and reasonably foreseeable projects.)

7.3.1 County of Ventura

The County of Ventura Pending and Approved Projects lists and County of Ventura South Half Pending and Recently Approved Projects Map (June, 2 2014) was reviewed. Several projects were identified within the 2.5 mile radius of the proposed Project as identified in Table 7.3-1.

A review of the County of Ventura Public Works Agency Planned Capital Projects Program Five Year Plan 2014-2019 which addresses Transportation, Water and Sanitation, Watershed Protection and CEO projects, resulted in the identification of planned projects as described below that were considered with respect to the cumulative impacts analyses.

Table 7.3-1 Pending and Approved Development – Ventura County

Permit No.	Location	Description	Status
PL13-0039	10700 Broadway Road, Moorpark	Request Conditional Use Permit (CUP) to authorize agri-tourism (tours, seminars and classes) at the existing Apricot Lane Family Farms	Pending
PL14-0051	8400 Waters Road, Moorpark	Lot line adjustment	Pending
PL14-0057	11952 Broadway Road, Moorpark	CUP for keeping wild animals by Wildlife and Environmental Conservation.	In appeal
PL14-0047	7840 Balcom Canyon Road	Lot line adjustment, and LCA contract rescission and re-entry	Pending
PL13-0116	Assessor Parcel Numbers (APN) 500-0-100-055	Major Modification to an existing CUP to allow land owner/mine operator to continue to develop the properties natural resources includes expansion of project.	Pending
LU4171	APNs 500-0-050-41 and 500-0-090-19, -20 and -22.	Request time extension of CUP from 2000 to 2025, to allow increased truck trips and combine two CUPs into one permit	Pending
LU08-0153	7980 Balcom Canyon Road, Somis	CUP for continued operation of kennel and cattery and 20 year extension.	Approved

Transportation: No specific transportation projects within a 2.5 mile radius of the proposed project were identified with the exception of:

- Broadway Road bike lane construction (1.34 miles) from Grimes Canyon Road/SR 23 to Walnut Canyon Road (2018- 2019) (this is after the currently anticipated construction schedule for the proposed Stockton Reservoir Replacement Project).

General bridge deck rehabilitation, pavement rehabilitation, installation/update of traffic signals and drainage improvements at unspecified locations are also included in the above referenced plan. Additionally, Donlon Road is proposed to be realigned to create a four-way

intersection with Los Angeles Avenue (State Route 118) and Somis Road (State Route 34) to improve level of service and traffic safety. Construction is planned 2014-2016. This intersection is approximately 6 miles from the proposed Project site, but would likely be impacted by Project traffic.

Water and Sanitation: The following water system improvements are proposed in the Project area (2.5 mile radius) additionally general unspecified water system improvements are proposed:

- Conversion of chemical feed system to chloramines (District No. 1-wide);
- Second 1.0 MG reservoir at the Stockton Reservoir site (however the actual timing and any specifications are not known);
- 8-inch water line generally between Stockton Road and Grimes Canyon Road (at Winchester Road) at 944 Zone (1,600 l.f.)
- 12-inch water line generally between Stockton Road and Well No, 98 at 944 Zone (between Luxenberg Drive and Maria Drive) (3,550 l.f.)
- 12-inch water line south of Well No. 98 at 944 Zone (extends north from Grimes Canyon Road) (6,850 l.f.)
- 944 and 1250 Pressure Zone connection (8,000 l.f. of 12-inch water line)
- Well No. 95 and 98 Water Treatment Facility (iron and manganese treatment)

No watershed Protection District or County Executive Office projects are located within 2.5 mile radius of the Project site.

The County of Ventura Initial Study Assessment Guidelines (2011) indicate that the County General Plan's population, dwelling unit and employment forecasts, in conjunction with land use maps, should be used as the foundational basis for determining cumulative development within the geographic area. Additionally, all known General Plan Amendments that have been filed or are being processed in the same geographical area should be added to the forecasts. As previously noted, there are no substantive (e.g., General Plan Amendment) County discretionary approvals being sought in the Project area. For the assessment of long-term environmental effects associated with population, the service area of VCWWD No. 1 is the area of concern.

7.3.2 City of Moorpark

A review of the City of Moorpark's Residential, Commercial, Industrial and Public Projects Quarterly Status Report for March of 2015 identified the following approved project within the 2.5 miles of the Project site:

- Site R-1, RPD 2003-04, TR 5463, 49 single family residences located on approximately 43 acres at the north side of Championship Drive, west of Grimes

Canyon Road. According to the report, grading is in progress. (This project is about 1.25 mile from the Stockton Reservoir Replacement Project.)

8.0 OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED (E.G., PERMITS, FINANCING APPROVAL, OR PARTICIPATION AGREEMENT)

The Project will potentially require permits and approvals as listed below.

- Approval of the project by the VCWWD No. 1; and
- County Road Encroachment Permit (for construction of pipeline in County road including lane closure).

This environmental document will be used by decision-makers in the review and approval of the proposed Project, as well as in consideration of issuance of any necessary permits and clearances.

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SECTION B - ENVIRONMENTAL CHECKLIST

	Issue (Responsible Department)	Project Impact Degree of Effect*				Cumulative Impact Degree of Effect*			
		N	LS	PS -M	PS	N	LS	PS -M	PS
RESOURCES:	**1. Air Quality (APCD)**		X				X		
	2. Water Resources (PWA):								
	A. Groundwater Quantity		X				X		
	B. Groundwater Quality	X				X			
	C. Surface Water Quantity	X				X			
	D. Surface Water Quality		X				X		
	3. Mineral Resources (Plng.):								
	A. Aggregate		X				X		
	B. Petroleum		X				X		
	4 . Biological Resources:			X				X	
	5. Agricultural Resources:								
	A. Soils (Plng.)		X				X		
	B. Land Use Incompatibility (Ag. Dept.)			X			X		
	6 Scenic Resources (Plng.)		X				X		
	7. Paleontological Resources			X				X	
	8. Cultural Resources:								
	A. Archaeological			X				X	
	B. Historical (Plng.)	X				X			
	9. Coastal Beaches & Sand Dunes	X				X			
HAZARDS:	**10. Fault Rupture (PWA)**	X				X			
	11. Ground Shaking (PWA)		X			X			
	12. Liquefaction (PWA)	X				X			
	13. Seiche &Tsunami (PWA)	X				X			
	14. Landslides/Mudslides (PWA)	X				X			
	15. Expansive Soils (PWA)		X			X			
	16. Subsidence (PWA)	X				X			
	17. Hydraulic Hazards:								
	A. Non-FEMA (PWA)		X				X		
	B. FEMA (WPD)	X				X			
	18. Fire Hazards (Fire)		X				X		
	19. Aviation Hazards (Airports)	X				X			

	Issue (Responsible Department)	Project Impact Degree of Effect*				Cumulative Impact Degree of Effect*			
		N	LS	PS -M	PS	N	LS	PS -M	PS
	20. Hazardous Materials/Waste:								
	A. Hazardous Materials (EH/Fire)			X				X	
	B. Hazardous Waste (EH)		X				X		
	21. Noise and Vibration		X				X		
	22. Daytime Glare	X				X			
	23. Public Health (EH)			X				X	
	24. Greenhouse Gases (APCD)		X				X		
LAND USE:	**25. Community Character (Plng.)**		X			X			
	26. Housing (Plng.)		X				X		
PUBLIC FACILITIES/ SERVICES:	**27. Transportation/Circulation:**								
	A. Roads and Highways:								
	(1) Level of Service (PWA)			X				X	
	(2) Safety/Design of Public Roads (PWA)			X				X	
	(3) Safety/Design of Private Access (Fire)	X				X			
	(4) Tactical Access (Fire)	X				X			
	B. Pedestrian/Bicycle (PWA/Plng.)	X				X			
	C. Bus Transit	X				X			
	D. Railroads	X				X			
	E. Airports (Airports)	X				X			
	F. Harbors (Harbors)	X				X			
	G. Pipelines		X				X		
	28. Water Supply:								
	A. Quality (EH)	X				X			
	B. Quantity (PWA)		X				X		
	C. Fire Flow (Fire)	X				X			
	29. Waste Treatment/Disposal:								
	A. Individual Sewage Disposal System (EH)	X				X			
	B. Sewage Collection/Treatment Facilities (EH)		X				X		
	C. Solid Waste Management (PWA)		X				X		
	D. Solid Waste Facilities (EH)	X				X			
	30. Utilities		X				X		

	Issue (Responsible Department)	Project Impact Degree of Effect*				Cumulative Impact Degree of Effect*			
		N	LS	PS -M	PS	N	LS	PS -M	PS
	31. Flood Control/Drainage:								
	A. WPD Facilities/Watercourses (WPD)		X				X		
	B. Other Facilities/Watercourses (PWA)		X				X		
	32. Law Enforcement/Emergency Svs. (Sheriff):		X				X		
	33. Fire Protection (Fire):								
	A. Distance/Response Time		X			X			
	B. Personnel/Equipment/Facilities	X				X			
	34. Education:								
	A. Schools		X				X		
	B. Libraries (Lib. Agency)		X				X		
	35. Recreation (GSA):		X				X		

DEGREE OF EFFECT:

N = No Impact
LS = Less Than Significant
PS-M = Potentially Significant Impact Unless Mitigation Incorporated.
PS = Potentially Significant Impact

AGENCIES:

APCD - Air Pollution Control District
PWA - Public Works Agency
Plng. - Planning Division
GSA - General Services Agency
Ag. Dept. - Agricultural Department
FCD - Flood Control District
Harbors - Harbor Department
Airports - Department Of Airports
Fire - Fire Protection District
Sheriff - Sheriff's Department
EH - Environmental Health Division
Lib. Agency - Library Services Agency

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SECTION C - DISCUSSION OF RESPONSES TO CHECKLIST

The assessment and threshold criteria used in this Section (C) are taken from the Ventura County Initial Study Assessment Guidelines (County Guidelines), 2011. The County Guidelines indicate that a project's inconsistency with an adopted policy or development standard may result in a significant impact. Therefore, an assessment of project consistency with applicable County General Plan policies is provided in a specific subsection for each checklist issue area.

1.0 AIR QUALITY

1.1 REGIONAL

1.1.1 Setting

Ventura County is located in the South Central Coast Air Basin. The topography and climate of Southern California combine to make the basin an area of high air pollution potential. Ozone and particulate matter less than 10 microns (PM_{10}) are of particular interest in Ventura County because State air quality standards for these pollutants are regularly exceeded. The air quality of Ventura County is monitored by a network of six stations, operated by the California Air Resources Board (ARB) and the Ventura County Air Pollution Control District (APCD). The Thousand Oaks ambient air monitoring station is the closest to the Project site, located approximately 9.1 miles to the south.

Table C.1-1 lists the monitored maximum concentrations and number of violations of air quality standards for the years 2011 through 2013. As shown in Table C.1-1, ozone concentrations monitored at the Thousand Oaks station periodically exceeded the State 1-hour standard and State 8-hour ozone standards from 2011 through 2013.

Table C.1-1. Air Quality Summary

Parameter	Standard	Year		
		2011	2012	2013
Ozone (O_3) – parts per million				
Maximum 1-hour concentration monitored (ppm)		0.093	0.090	0.099
Number of days exceeding State standard	0.095 ppm	0	0	1
Maximum 8-hour concentration monitored (ppm)		0.079	0.076	0.081
Number of days exceeding State 8-hour standard	0.070 ppm	7	2	1
Particulate Matter less than 2.5 microns ($PM_{2.5}$) – micrograms per cubic meter				
Maximum 24-hour sample ($\mu g/m^3$)		27.5	41.9	28.7
Number of samples exceeding Federal 24-hour standard	35 $\mu g/m^3$	0	1	0

1.1.2 Project Consistency with Applicable Policies

Policy	Consistency Determination
County Policy 1.1.2.3: Discretionary development that would have a significant adverse air quality impact shall only be approved if it is conditioned with all reasonable mitigation measures to avoid, minimize or compensate (offset) for the air quality impact. Developers shall be encouraged to employ innovative methods and technologies to minimize air pollution impacts.	Consistent - Project-related air emissions will not result in a significant impact to local air quality as described below. Appropriate dust and emission control measures have been incorporated into the Project.
County Policy 1.1.2.5: Development subject to APCD permit authority shall comply with all applicable APCD rules and permit requirements, including the use of best available control technology (BACT) as determined by the APCD.	Consistent - The District intends to comply with APCD rules and regulations with emphasis on Rule 50 (Opacity), Rule 51 (Nuisance), and Rule 55 (Fugitive Dust), as well as Rule 10, (Permits Required) permit requirements. It is understood that certain types of new and modified equipment and operations require APCD air permits prior to installation and/or inauguration of use. The District will contact the VCAPCD Engineering Division to determine any air permit requirements. The VCAPCD Engineering Division can be contacted by telephone at (805) 645-1401 or by email at engineering@vcapcd.org.

1.1.3 Impact Discussion

1.1.3.1 Significance Thresholds

The APCD has prepared Air Quality Assessment Guidelines (2003) for the preparation of air quality impact analyses. The Guidelines indicate that projects would have a significant impact on the environment if they would:

- Result in daily emissions exceeding 25 pounds of reactive organic compounds (ROC) or oxides of nitrogen (NO_x);
- Cause a violation or make a substantial contribution to a violation of an ambient air quality standard;
- Directly or indirectly cause the existing population to exceed the population forecasts in the most recently adopted Air Quality Management Plan (AQMP);
- Be inconsistent with the Ventura County AQMP and emit greater than 2 pounds per day ROC or NO_x.

Due to the temporary, short-term nature of construction emissions, the APCD does not apply the quantitative emissions thresholds for ROC and NO_X to construction activities. The APCD does require that emission reduction measures be implemented during construction to reduce exhaust emissions and fugitive dust generation.

1.1.3.2 Impacts

a. AQMP Consistency. Projects that cause local populations to exceed population forecasts in the Ventura County AQMP are considered inconsistent with the AQMP, as

exceeding population forecasts can result in the generation of emissions beyond those which have been projected in the AQMP. Inconsistency with the AQMP may hinder progress towards attainment of the ozone ambient air quality standard. The Project would provide for safe and adequate water storage for Pressure Zone 994 and is meant to meet existing and projected future storage requirements within the zone. The Project does not however increase the supplies of water available to the area. Therefore, the proposed Project would not affect population projections of the AQMP.

b. Criteria Pollutant Emissions Increase. Emissions would be generated during the construction phase by heavy equipment, heavy-duty trucks and construction worker passenger vehicles. This analysis is based on a peak construction day, consisting of earthwork to prepare the reservoir site. Equipment assumed to be operating during a peak construction day includes one dozer, one soil compactor, one scraper and one wheeled loader. Construction equipment exhaust emissions were calculated using load factors and emission factors from Nonroad Engine and Vehicle Emissions Study (USEPA, 1991). On-road worker and material transportation emissions were estimated using the EMFAC2007 model, based on 32 one-way trips per day and 20 percent heavy-duty trucks.

Peak day construction emissions would be 124.2 pounds NO_X and 9.6 pounds ROC. As such, NO_X emissions during peak construction periods would exceed the 25 pounds per day threshold established by the APCD. However, due to the temporary, short-term nature of construction emissions, the APCD does not apply the quantitative emissions thresholds for ROC and NO_X to construction activities. The APCD does require that emission reduction measures be implemented during construction to reduce exhaust emissions and fugitive dust generation (see mitigation measures below).

The Project consists of an above-ground tank and associated facilities including a buried pipeline segment. The Project would have very little maintenance requirements, and would not result in the generation of substantial emissions following construction. Based on one maintenance worker trip on a peak day, operational emissions would be 0.02 pounds NO_x, and considered less than significant. Also, these emissions are already produced for inspection/maintenance associated with the existing Stockton Reservoir.

c. Toxic Air Contaminants. The combustion of diesel fuel in truck engines (as well as other internal combustion engines) produces exhaust containing a number of compounds that have been identified as hazardous air pollutants by EPA and toxic air contaminants by the ARB. Particulate matter (PM) from diesel exhaust has been identified as a toxic air contaminant, which has prompted ARB to develop a Final Risk Reduction Plan (released October 2000) for exposure to diesel PM. Based on ARB Resolution 00-30, full implementation of emission reduction measures recommended in the Final Risk Reduction Plan would result in a 75 percent reduction in the diesel PM Statewide inventory and the associated cancer risk by 2010, and an 85 percent reduction by 2020 in the diesel PM inventory and potential cancer risk.

Construction of the proposed Project would involve diesel exhaust emissions from heavy equipment and heavy-duty trucks as close as 750 feet from a residence. However, this residence is currently exposed to local truck traffic on Stockton Road, and regional diesel exhaust emissions from truck traffic on State Routes 118 and 23, and rail traffic on the Union

Pacific Railroad tracks. The proposed Project would have a small, short-term contribution to existing diesel PM emissions, and impacts are considered less than significant.

1.1.3.3 Mitigation and Residual Impact

Air emissions reduction measures recommended by the Ventura County APCD Air Quality Assessment Guidelines (revised 2003) shall be incorporated into the Project as described below.

AQ1 The District shall implement a fugitive dust control program. The dust control program should include the following procedures:

- The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of dust.
- Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.
- All trucks shall be required to cover their loads as required by California Vehicle Code §23114.
- All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally-safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible.
- Graded and/or excavated inactive areas of the construction site shall be monitored at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally-safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area shall be seeded and watered until plant growth is evident, or periodically treated with environmentally-safe dust suppressants, to prevent excessive fugitive dust.
- Signs shall be posted on-site limiting traffic to 15 miles per hour or less.
- During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site. The site superintendent/supervisor shall use his/her discretion in conjunction with the APCD in determining when winds are excessive.
- Personnel involved in grading operations, including contractors and subcontractors, shall be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.

- Material stockpiles shall be enclosed, covered, stabilized, or otherwise treated as needed to prevent blowing fugitive dust off-site.
- All project construction and site preparation operations shall be conducted in compliance with all applicable Ventura County APCD Rules and Regulations with emphasis on Rule 50 (Opacity), Rule 51 (Nuisance), Rule 55 (Fugitive Dust) and Rule 10 (Permits Required).

The above emission reduction measures ensure that dust impacts are less than significant.

The following measures shall be implemented to reduce construction-related ozone precursor emissions from motor vehicles and equipment.

AQ2 Minimize equipment idling time.

AQ3 Maintain equipment engines in good condition and in proper tune as per manufactures' specifications.

AQ4 Lengthen the construction period during smog season (May through October), to minimize the number of vehicles and equipment operating at the same time.

AQ5 Use alternatively fueled construction equipment such as compressed natural gas (CNG), liquefied natural gas (LNG), or electric, if feasible.

1.2 LOCAL

1.2.1 Setting

The regional air quality setting applies to the local conditions as well.

1.2.2 Project Consistency with Applicable Policies

The policy consistency analysis provided for regional air quality applies to local air quality as well.

1.2.3 Impact Analysis

1.2.3.1 Thresholds of Significance

The APCD has prepared Air Quality Assessment Guidelines (2003) for the preparation of air quality impact analyses. The Guidelines indicate that projects would have a significant impact on the local air quality environment if they would:

- Cause a violation or make a substantial contribution to a violation of an ambient air quality standard;
- Result in fugitive dust, odors or other emissions to cause injury, detriment, nuisance or annoyance to a considerable number of persons.

1.2.3.2 Impacts

a. Carbon Monoxide Hotspots. State 1-hour ambient standards for carbon monoxide (CO) are sometimes exceeded at urban roadway intersections during times of peak traffic congestion. These localized areas are sometimes called CO "hotspots". Ambient CO levels in the region are relatively low due to the use of oxygenated fuels, and increasingly stringent

emissions standards for motor vehicles. The Project site is relatively isolated from major roadways and associated vehicle emissions. The Project would generate roadway traffic only during construction, when workers and trucks would be traveling to and from the Project site. The number of daily vehicle trips that would be generated during construction would not add substantially to local traffic volumes. Considering the above, the Project would not be expected to create or contribute substantially to the violation of CO standards.

b. Dust and Nuisance. Fugitive dust would be generated by the operation of heavy equipment and vehicles during site preparation (e.g., grubbing and grading). Dust generation from these activities would be considered a significant impact if APCD Rule 51 is violated. Rule 51 states "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public or which endangers the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property." Fugitive dust generated by the Project may be considered a nuisance by the adjacent orchard owner/operator. Therefore, fugitive dust reduction measures listed above in Section 1.1.3.3 under the regional discussion will be incorporated into the Project.

c. Odors. Based upon a review of aerial photography of the Project area and field reconnaissance, the closest structure that may be occupied is located about 850 feet southwest of the proposed reservoir site and 750 feet from the proposed pipeline segment. Workers may also be in the orchard adjacent to the reservoir site. Diesel exhaust odors from construction equipment may be considered objectionable to human receptors near Project construction operations. However, due to the distance of the work areas from locations where people are expected to be continuously present, these odors are unlikely to affect a substantial number of people. Therefore, odor impacts are considered less than significant.

1.2.3.3 Mitigation and Residual Impacts

No mitigation required. However, measures identified above in Section 1.1.3.3 will be incorporated into the Project as recommended by the APCD and would reduce Project emissions.

2.0 WATER RESOURCES

2.A GROUNDWATER QUANTITY

2.A.1 Setting

2.A.1.1 Physical Setting

The largest groundwater supplies in the County are contained within major water bearing aquifers, which underlie most of the Oxnard Plain and Pleasant Valley areas. These are, in order of depth from top to bottom, the Oxnard, Mugu, Hueneme, Fox Canyon, and Grimes Canyon aquifer zones.

The Project site is located over the Las Posas Groundwater Basin, specifically the East Las Posas Sub-Basin. The Las Posas Basin is an east-west structural depression containing

water-bearing sediments of Pliocene to recent age covering an area of about 40 square miles (Ventura County Waterworks District No. 1, 2010). The basin spans approximately 15 miles between the Oxnard Plain and the City of Moorpark. The basin has been historically considered to be comprised of two separate sub-basins, the North and South Las Posas Sub-Basins, by the presence of the Moorpark Anticline, a large east-west trending anticlinal structure located north of Los Angeles Avenue. More recently, the Las Posas Basin has been divided into three sub-basins, based on geologic structure, aquifer distribution, inferred sources of recharge, and water quality variations. These sub-basins include the West, East and South Las Posas Sub-Basins (also referred to as the WLP, ELP and SLP). The most important division is between the WLP and ELP Sub-Basins where there is strong evidence that a north trending fault or other geologic structure located near Somis forms a barrier to groundwater flow between these sub-basins within the deep confined aquifers. Therefore, for groundwater management purposes the ELP and SLP Sub-Basins are grouped into a single management sub-area called the Eastern Management Sub-area by the Los Posas Basin Users Group.

The primary aquifer system (referred to as the Lower Aquifer System or LAS) in the Las Posas Basin consists of the Fox Canyon Aquifer and Grimes Canyon Aquifer. The Fox Canyon Aquifer is part of the Lower Pleistocene San Pedro Formation and consists of marine and non-marine sand and gravel. The Grimes Canyon Aquifer is part of the Plio-Pleistocene Santa Barbara Formation, and consists of marine sand with gravel. The Fox Canyon Aquifer is typically separated from the underlying Grimes Canyon Aquifer by 50 to 100 feet of fine-grained sediments, which are of low permeability. The LAS is overlain by interbedded fine-grained and coarse grained sedimentary deposits, which are referred to as the interbedded unit.

Water levels in the ELP Sub-Basin are affected by urban development, recharge associated with wastewater discharges, groundwater pumping and injected water as part of the Las Posas Basin Aquifer Storage and Recovery (ASR) Project operated by the Calleguas Municipal Water District. Discharges from the MWTP and Simi Valley Wastewater Treatment Plant, and shallow groundwater dewatering discharges in Simi Valley to the Arroyo Simi/Arroyo Las Posas have resulted in a perennial base flow that continuously recharges the shallow aquifer underlying the arroyo flood plain in the SLP and ELP Sub-Basins as well as the underlying confined aquifers which supply most of the wells in these sub-basins.

Water levels have been relatively stable or rising within the Las Posas Basin during the decades between 1990 and 2010 with a temporary decline during the 2007 - 2010 period when ASR pumping was conducted in the ELP Sub-Basin and localized pumping depressions occurred in the WLP Sub-Basin. Water levels measured at monitoring well No. 03N20W26R03S within the ELP Sub-Basin ranged from a low of about 100 feet msl (measured in 2009) to a high of 200 feet msl (this level was generally maintained for the reported dates of 1985 through 2006) (Ventura County Watershed Protection District, Water and Environmental Resources Division, 2012).

The County of Ventura 2013 Groundwater Section Annual Report summarizes groundwater monitoring data for wells in the in the Las Posas valley. The findings are presented as follows. The water level elevation in the WLP basin key Well No. 02N21W12H01S was down 4.3 feet from the 2012 spring measurement. In the ELP basin the water level elevation in key Well No. 03N20W26R03S was down 1.6 feet. The water levels in this well have

been declining over the previous ten year period, with the exception of 2003 and 2007. The water level elevation in the SLP key Well No. 02N19W05K01S continued its slight upward trend of the past several years but was down slightly 0.9 feet in 2013. The depth to water in this well has risen from 136 feet to 27 feet below ground surface since 1975. This trend is attributed to groundwater recharge from treated effluent from upstream waste water treatment plants and groundwater discharge to surface from the Simi Valley basin.

2.A.1.2 Groundwater Management

The Fox Canyon Groundwater Management Agency (FCGMA) was created by State legislation in 1982 to manage groundwater under the southern portion of Ventura County with the objective of controlling overdrafting. As such, the FCGMA manages the groundwater resources in the area overlying the Fox Canyon Aquifer Zone. The FCGMA has authority to require well registrations, reporting of groundwater production, and place limits on groundwater extractions. The FCGMA has prepared a Groundwater Management Plan and the County of Ventura, cities within the County, various water agencies and any other entity pumping groundwater within the boundaries of the FCGMA jurisdiction must comply with the Plan. Groundwater basins within the jurisdiction of the FCGMA are shown on the Figure C.2-1.

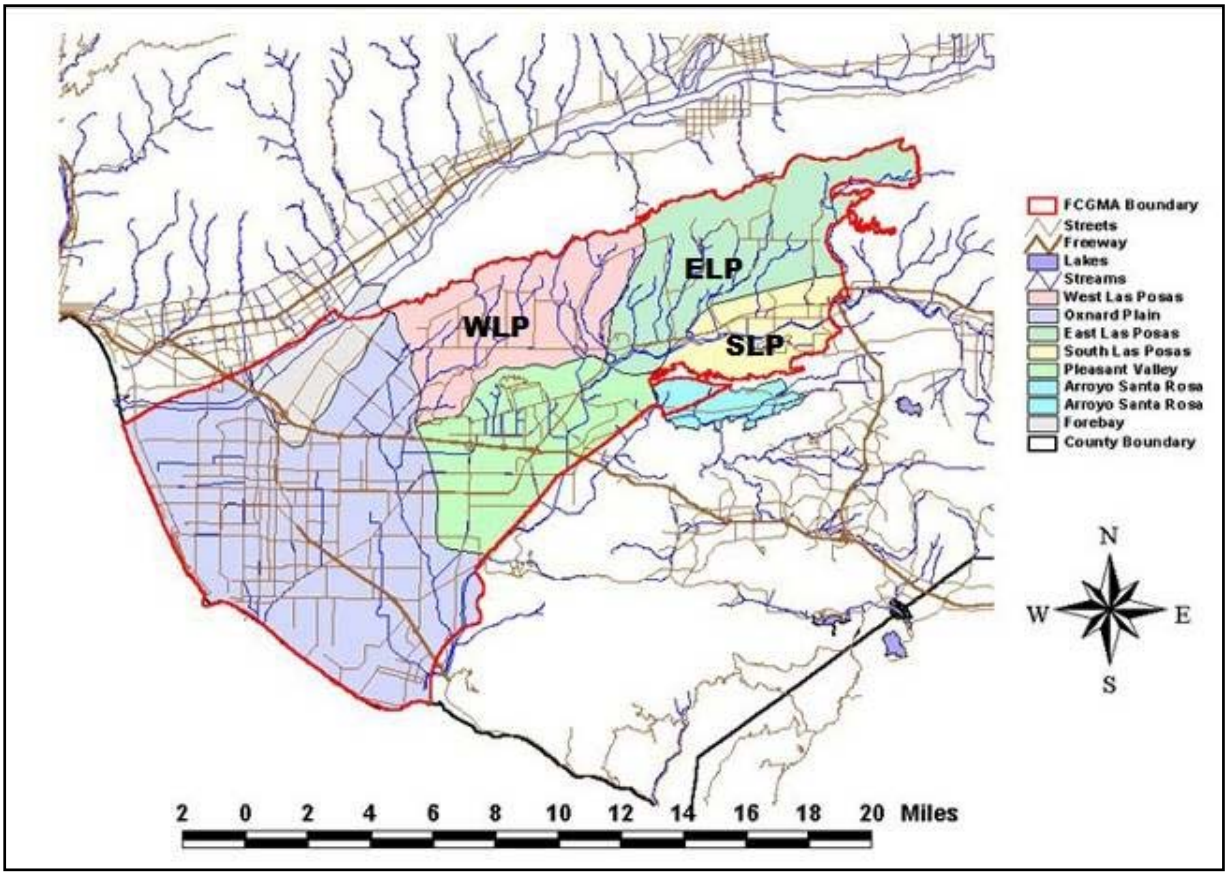

Figure C.2-1. Groundwater Basins within the FCGMA

Additionally, the FCGMA has promulgated several ordinances in its groundwater management role. One of these ordinances with particular general relevance is Ordinance No.

5. Ordinance No. 5 was adopted with the objective of reducing extractions to a "safe yield" level of 120,000 acre-feet per year (AFY) within the Agency by the year 2010. This was to be accomplished via scheduled five percent reductions in groundwater pumping that total 25 percent by the year 2010. As part of this process a system of allocations to groundwater users was developed based upon historical, baseline and efficiency related water data. The system also provides for credits for allocation volumes not used (under-pumping) as well as penalties if allocations are exceeded (over-pumping). As a member agency VCWWD No. 1, like other member agencies, has received allocations for its groundwater pumpage.

2.A.2 Project Consistency with Applicable Policies

County Policy	Consistency Determination
County Policy 1.3.2.1: Discretionary development which is inconsistent with the goals and policies of the County's Water Management Plan (WMP) shall be prohibited, unless overriding considerations are cited by the decision-making body.	Consistent - The Project provides for adequate storage of potable water for VCWWD No. 1 customers.
County Policy 1.3.2.2: Discretionary development shall comply with all applicable County and State water regulations.	Consistent - The Project is a VCWWD No. 1 proposal, it is within the District jurisdictional responsibilities to comply with applicable County and State water regulations.
County Policy 1.3.2.4: Discretionary development shall not significantly impact the quantity or quality of water resources within watersheds, groundwater recharge areas or groundwater basins.	Consistent – The Project is a water storage project and would not require new groundwater or surface water extractions. The Project would comply with existing regulations for the protection of groundwater and surface water quality.
County Policy 1.3.2.5: Landscape plans for discretionary development shall incorporate water conservation measures as prescribed by the County's Guide to Landscape Plans, including use of low water usage landscape plants and irrigation systems and/or low water usage plumbing fixtures and other measures designed to reduce water usage.	Consistent. No landscaping plans are proposed. However, a measure to require the inclusion of water conservation into any future landscape plans has been included in Section 2.A.3.3 to ensure compliance with this policy.

2.A.3 Impact Discussion

2.A.3.1 Thresholds of Significance

The County Guidelines state that a project will have a significant impact on groundwater quantity if it will increase the net use of groundwater in a basin that is overdrafted, or individually or cumulatively cause a basin to become overdrafted.

2.A.3.2 Impacts

The proposed Project is limited to the construction of a replacement water reservoir. Minor amounts of water would be required during construction. Additionally, minor amounts of water may be required during maintenance operations over the life of the Project. District water supplies include imported water and local groundwater. However, the local groundwater resources do not come from an overdrafted basin. Additionally, because the proposed reservoir is a replacement reservoir, any water use for maintenance of the existing reservoir would be

reduced or eliminated while it is non-operational/decommissioned. Therefore, the Project would not result in a significant impact on groundwater quantity or a project-specific or cumulative basis.

2.A.3.3 Mitigation and Residual Impact

No mitigation is required. However, the following measure will be incorporated into the project to ensure Project consistency with County Policy 1.3.2.5:

GWQ1 Any landscaping provided at the proposed Stockton Reservoir site shall include low water usage landscape plants and irrigation systems and/or low water usage plumbing fixtures and other measures designed to reduce water usage.

2.B GROUNDWATER QUALITY

2.B.1 Setting

(The setting discussion provided above in 2.A., Groundwater Quantity also pertains to this topic.)

According to the California's Groundwater Bulletin 118 (California Department of Water Resources, 2006), the Las Posas Valley Groundwater Basin groundwater is calcium bicarbonate to sodium bicarbonate in character with an average total dissolved solids (TDS) concentration of 752 mg/L and a maximum of 2,318 mg/L. Of 22 public supply wells sampled, one had concentrations of primary inorganics above the maximum (permissible) contamination level (MCL) as set by the U.S. Environmental Protection Agency, two wells had radiological levels above the MCL, and one well had pesticides levels above the MCL (sampling period 1994 through 2000). However, according to a 2007 Groundwater Basin Report prepared for the Ventura County Basins of the northwest Metropolitan Water District service area, chloride has become a problem along the Arroyo Las Posas, where groundwater from an area in the ELP and SLP Sub-Basins must be blended with lower-chloride water to meet irrigation suitability. The high levels of chloride and sulfates along the southern flank of the ELP and SLP Sub-Basins are reportedly due to higher groundwater levels leaching salts from shallow aquifers and transporting them to deeper aquifers as described above.

The FCGMA has established Basin Management Objectives (BMOs) for chloride and TDS in the Las Posas Basins to protect groundwater quality for potable and irrigation uses. According to the FCGMA Annual Basin Management Objectives Progress Report (FCGMA, July 24, 2013), Chloride and TDS BMOs were not met in the ELP Sub-Basin. Chloride and TDS BMOs were met in the WLP Sub-Basin. No monitoring data was available for the SLP Sub-Basin. In the ELP Sub-Basin, chloride and TDS concentrations over the last five years have been gradually increasing whereas in the WLP Sub-Basin they were stable to decreasing at the BMO monitoring locations. The report also states that poor quality water continues to migrate northward into ELP Sub-Basin from sources in the SLP Sub-Basin, although the current set of BMO locations is not situated so as to illustrate this movement.

2.B.2 Project Consistency with Applicable Policies

The policies outlined under topic 2.A are also applicable to groundwater quality.

2.B.3 Impact Discussion

2.B.3.1 Thresholds of Significance

The County Guidelines state that any project that will individually or cumulatively degrade the quality of groundwater and cause it to fail to meet groundwater quality Basin standards set by the Regional Water Quality Control Board (Regional Board) is a significant impact.

2.B.3.2 Impacts

The Project is a water storage project and would not require new groundwater extractions or injections. No hazardous materials are expected to be stored or regularly used at the site. It is possible that materials such as equipment fuel, lubricants and paint could be accidentally spilled during construction or during periodic maintenance operations. However, this is unlikely and in the event that such discharges did occur, the spill would be cleaned and it is not expected that contamination would reach groundwater. Thus groundwater quality impacts are not expected to occur as a result of the Project and it would not contribute to any cumulative impacts on groundwater quality.

2.B.3.3 Mitigation and Residual Impact

No impact would result. Therefore, no mitigation is necessary.

2.C SURFACE WATER QUANTITY

2.C.1 Setting

Surface water resources in Ventura County are divided into two major hydrologic units (the Ventura River and Santa-Clara-Calleguas Units) and into four other smaller hydrologic units (Rincon Creek, Cuyama, San Joaquin, and Malibu Hydrologic Units) (Ventura County, 2000).

The Arroyo Simi and Arroyo Las Posas drain the northern portion of the Calleguas Watershed. The Arroyo Simi passes through the cities of Simi Valley and Moorpark. Downstream of Hitch Boulevard, the Arroyo Simi becomes the Arroyo Las Posas. The Arroyo Las Posas passes through agricultural fields and orchards mostly in natural channels. Surface water flows in the Arroyo Las Posas derive from precipitation runoff, agricultural return flows, discharges of effluent from the City of Simi Valley Water Quality Control Plant (wastewater treatment plant) and MWTP, and discharges from dewatering wells in the Simi Valley area. The Arroyo Las Posas Channel meets with the Calleguas Creek near Camarillo.

A blue line channel is located approximately 400 feet east of the tank site and runs parallel to the eastern tank site boundary. This channel is referred to as Shekell Drain where it parallels Stockton Road on the east south of the Project site.

2.C.2 Project Consistency with Applicable Policies

The policies outlined under topic 2.A are also applicable to surface water quantity.

2.C.3 Impact Discussion

2.C.3.1 Thresholds of Significance

According to the County Guidelines, threshold of significance criteria for determining if a land use or project activity has the potential to cause a significant adverse impact upon surface water quantity in itself or on a cumulative basis include, but are not limited to:

1. Any project that will increase surface water consumptive use (demand), either individually or cumulatively, in a fully appropriated stream reach as designated by SWRCB or where unappropriated surface water is unavailable, shall be considered to have a significant adverse impact on surface water quantity.
2. Any project that will increase surface water consumptive use (demand) including but not limited to diversion or dewatering downstream reaches, either individually or cumulatively, resulting in an adverse impact to one or more of the beneficial uses listed in the Basin Plan per Section B, above, is considered a significant adverse impact.

2.C.3.2 Impacts

Due to the nature of the Project, it would not utilize surface water resources. The project would therefore not contribute to any cumulative surface water quantity impacts.

2.C.3.3 Mitigation and Residual Impact

No impact would result. Therefore, no mitigation is necessary.

2.D SURFACE WATER QUALITY

2.D.1 Setting

The Water Quality Control Plan for the Los Angeles Region (California Regional Water Quality Control Board, 1994) establishes beneficial uses for water bodies within the region. Beneficial uses for the Arroyo Las Posas (hydrological unit 403.62) include the following existing and potential uses:

Existing:

- Groundwater recharge,
- Freshwater replenishment,
- Contact and non-contact water recreation,
- Water recreation,
- Warm freshwater habitat, and
- Wildlife habitat.

Potential:

- Municipal and domestic supply,
- Industrial process supply,
- Industrial service supply,
- Agricultural supply, and
- Cold freshwater habitat.

Section 303(d) of the 1972 Federal Clean Water Act requires states to identify water bodies that do not meet water quality objectives and are not supporting their beneficial uses. Each state must submit an updated list, called the 303(d) list, to the U.S. EPA every two years. In addition to identifying the water bodies that are not supporting beneficial uses, the list also identifies the pollutant or stressor causing impairment, and establishes a priority for developing a control plan to address the impairment.

Calleguas Creek Reaches 6 and 7, which is the Arroyo Las Posas from Hitch Road to the confluence with Calleguas Creek, is on the 2010 303(d) List for the following pollutants: (ammonia, chlordane, chloride, chlorpyrifos, DDT (in sediment), diazanon, deldrin, fecal coliform, nitrate and nitrite, sedimentation/siltation, sulfates, total dissolved solids, and toxicity (California State Water Resources Control Board, 2010). Reach 7 is listed for the following additional pollutants boron, indicator bacteria and organophosphorus pesticides.

2.D.2 Project Consistency with Applicable Policies

The policies outlined under topic 2A are also applicable to surface water quality.

2.D.3 Impact Discussion

2.D.3.1 Thresholds of Significance

County threshold of significance criteria for determining if a land use or project activity has the potential to cause a significant adverse impact upon surface water quality individually or cumulatively when combined with recently approved, current, and/or reasonably foreseeable future projects, include, but are not limited to the following:

1. Any land use or project proposal that is expected to individually or cumulatively degrade the quality of Surface Water causing it to exceed water quality objectives as contained in Chapter 3 of the three Basin Plans.
2. Any land use or project development that directly or indirectly causes stormwater quality to exceed water quality objectives or standards in the applicable MS4 Permit or any other NPDES Permits.

2.D.3.2 Impacts

a. Short-term. Construction activities can result in short-term erosion events (e.g., erosion of soil piles, erosion of previously covered soil by the removal of significant amounts of pavement, or living ground cover, etc.). The Project must comply with the local requirements of Ventura County Ordinance 4450 regarding Stormwater Quality Management and the Ventura Countywide Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) Permit No. CAS004002. “Development Construction Program” Subpart 4.F. Under this permit the project applicant is required to include Best Management Practices (BMPs) designed to ensure compliance and implementation of an effective combination of erosion and sediment control measures to protect surface water quality and develop, implement, and submit for approval a Stormwater Pollution Control Plan (SWPCP) for publicly owned/operated construction projects disturbing less than 1 acre of soil. (Applicable BMPs are listed in Table 6, Subpart 4.F of the Ventura Countywide Municipal Stormwater Permit ORDER R4-2010-0108.) Conformance with permit requirements are intended to reduce impacts to stormwater due to

short-term construction related erosion of soils to a less than significant level on project-specific and cumulative basis.

b. Long-term. The portion of the proposed 0.65 acre reservoir site that would not be covered by the proposed replacement tank would be subject to erosion. However, it is expected that construction BMP would include hydro-seeding of the site which would help prevent erosion form the site over the long-term assuming vegetation is maintained. No hazardous materials are expected to be stored or regularly used at the site. It is possible that materials such as equipment fuel, lubricants and paint could be accidentally spilled during periodic maintenance operations. However, this is unlikely and in the event that such discharges did occur, it is expected that quantities of material discharged would be minor, clean-up would be promptly implemented and contamination would not reach surface water bodies. Therefore, surface water quality impacts are considered less than significant and not cumulatively considerable.

2.D.3.3 Mitigation and Residual Impact

Impacts would be less than significant; therefore, no mitigation is required. However, to ensure compliance with Part 4.F, "Development Construction Program" of the Ventura Countywide Municipal Stormwater Permit and inclusion in the Mitigation Monitoring Program, the following standard requirement provided by the Ventura County Watershed Protection District is presented below.

WQ1 Project construction shall meet performance criteria defined in Section 1 of Part 4.F of the Ventura Countywide Municipal Stormwater Permit through the inclusion of the effective Best Management Practices (BMPs) for Construction Sites Less than One Acre during all ground disturbing activities or the BMPs for Construction Sites Over One Acre but Less than Five Acres as appropriate. The project applicant (District) is required to develop and implement a Stormwater Pollution Control Plan (SWPCP). VCWWD No. 1 shall review and approve the SWPCP for the Project for compliance with Section 1 or 2 and Section 6 regarding repaving of Part 4.F of the NPDES permit. The review shall be done by qualified personnel. The VCWWD No. 1 shall provide a copy of the approved SWPCP to the Watershed Protection District, Water and Environmental Resources Division for permit tracking purposes. The SWPCP shall be reviewed and approved by the Watershed Protection District prior to issuance of a notice to proceed to the contractor. A VCWWD No. 1 inspector shall conduct inspections per Section 8 of Part 4.F of the MS4 permit to assure effective installation and functionality of the approved BMPs.

3.0 MINERAL RESOURCES

3.A AGGREGATE

3.A.1 Setting

The California Geological Survey Department of Conservation (CGSDC) provides an inventory of the current availability of California's permitted construction aggregate resources. Permitted aggregate resources are resources of aggregate that have been determined to be

acceptable for commercial use, which exist within properties owned or leased by aggregate-producing companies, and for which permits have been granted to allow mining and processing of the materials. The assessment of fifty-year aggregate demand compared to permitted aggregate reserves is presented below (CGSDC, 2012).

Table C.3-1. Ventura Aggregate Demand Compared to Permitted Reserves

Aggregate Study Area	50-Year Demand (Million Tons)	Permitted Aggregate Reserves (Million Tons)	Permitted Aggregate Reserves Compared to 50-Year Demand (Percent)	Projected Years Remaining
Ventura County	298	96	32	11 to 20

The proposed Project area is not within or adjacent to an area identified on the Ventura County Resource Protection Map (2010) as a "mineral resource area."

3.A.2 Project Consistency with Applicable Policies

Policy	Consistency Determination
County Policy 1.4.2.8: Discretionary development within a Mineral Resource Area (see Resource Protection Map) shall be subject to the provisions of the Mineral Resource Protection (MRP) Overlay Zone, and is prohibited if the use will significantly hamper or preclude access to or the extraction of mineral resources.	Consistent – The Project site is not located in a significant "mineral resource area." Additionally, the Project would not preclude access to an existing aggregate resource.

3.A.3 Impact Discussion

3.A.3.1 Significance Thresholds

The County Guidelines provide the following criterion for determining the significance of project impacts on aggregate resources.

1. Any land use or project activity which is proposed to be located on or immediately adjacent to land zoned Mineral Resource Protection (MRP) overlay zone, or adjacent to a principal access road to an existing aggregate Conditional Use Permit (CUP), and which has the potential to hamper or preclude extraction of or access to the aggregate resources, shall be considered to have a significant adverse impact on the environment.
2. A project would have a cumulative impact on aggregate resources if when considered with other pending and recently approved projects in the area, hampers or precludes extraction or access to identified resources.

3.A.3.2 Impacts

The Project site is not located in or in immediate proximity to a significant "mineral resource area". Additionally, the Project would not hamper or preclude extraction access to identified mineral resources. Implementation of the Project would require the use of a limited quantity of mineral resources (e.g., sand for pipeline trench bedding). However, based upon

County thresholds this impact would be less than significant on a project-specific and cumulative basis.

3.A.3.3 Mitigation and Residual Impacts

Impacts are less than significant; therefore, no mitigation is necessary.

3.B PETROLEUM

3.B.1 Setting

The Project site is not within an oil production area. Additionally, based upon a search of the on-line Department of Gas and Geothermal Resources Well Finder application, there are no active oil or gas wells on or adjacent to the Project. However, historically oil and gas exploration has been conducted in the Moorpark area.

3.B.2 Project Consistency with Applicable Policies

Policy	Consistency Determination
County Policy 1.9.2.1: Discretionary development shall be evaluated for impact to energy resources and utilization of energy conservation techniques.	Consistent - Preparation of this environmental document provides consistency with this policy.
County Policy 1.9.2.3: Energy efficiency and renewable energy use shall be included as factors in designing capital improvement projects of all County agencies, departments and service areas.	Consistent - The Project involves the construction of a replacement water reservoir. The location of the replacement reservoir at an elevation that does not require pumping for distribution provides energy efficiency.

3.B.3 Impact Discussion

3.B.3.1 Significance Thresholds

The County Guidelines state that determinations of significance for petroleum resources require a case-by-case determination based on the type of land use being requested and its location relative to petroleum resource areas and CUPs. Generally,

1. Any land use that is proposed to be located on or immediately adjacent to any known petroleum resource area, or adjacent to a principal access road to an existing petroleum CUP, has the potential to hamper or preclude access to petroleum resources.
2. If the subject property is not located on or adjacent to land located in an oil field or containing an oil extraction CUP, then the project would not cause a significant impact on the extraction of oil resources. If the subject property is located on or adjacent to land located in an oil field or containing an oil extraction CUP, then the state Division of Oil and Gas Regulation should be consulted for their review of the project application.
3. If the subject property is not located adjacent to a road used as a principal means of access to an existing CUP for oil extraction, and the proposed use is not sensitive to the effects of truck traffic to and from the oil CUP, then the project would not cause a significant impact on access to oil resources.

3.B.3.2 Impacts

The Project site is not in an oil producing area, and would require only a small amount of petroleum products for construction and operation, the Project would have a less than significant impact on petroleum products. Additionally, the Project would not hamper or preclude extraction of a petroleum resource. The Project's contribution to impacts on petroleum resources is inconsequential and is, therefore, not cumulatively significant.

3.B.3.3 Mitigation and Residual Impacts

Impacts are less than significant; therefore, no mitigation is necessary.

4.0 BIOLOGICAL RESOURCES

4.1 SPECIES

4.1.1 Setting

The Project site and adjacent areas (north and east) have been highly disturbed from a biological perspective due to agricultural development (orchards, row crops, berries, egg production). However, a patch (about 400 acres) of mostly native vegetation occurs south of Stockton Road. Mapping provided by the Ventura County Geographic Information System indicates this vegetation is comprised of purple sage series (*Salvia leucophylla* association), mixed sage series (*Salvia mellifera-salvia leucophylla association*), and coyote brush scrub series (*Baccharis pilularis association*). Vegetation in the immediate vicinity of the proposed reservoir site includes sagebrush scrub (*Artemisia californica* alliance) located on the slopes west of Stockton Road and on the roadway embankment between the reservoir site and Stockton Road. The area within the project impact area (limits of grading and pipeline alignment as shown on Figure 6-1) supports only non-native introduced species, such as Italian thistle (*Carduus pycnocephalus*), summer mustard (*Hirschfeldia incana*) and red brome (*Bromus madritensis ssp. rubens*). However, three small native trees (blue elderberry) are also located on the roadway embankment within the impact area.

A small intermittent drainage (known as the Shekell Road Drain south of Broadway Road) is located approximately 500 feet east of the proposed reservoir site, and is flanked by lemon orchards on both banks. This drainage supports a linear strip (20 feet wide) of riparian scrub vegetation.

A brief biological survey of the proposed reservoir site and surrounding areas was conducted by a qualified Padre Associates, Inc. biologist on July 17, 2014. Wildlife observed included American crow, spotted towhee, mourning dove, California quail, California towhee, raven, house finch, Cooper’s hawk, Anna’s hummingbird, barn swallow and Audubon’s cottontail. Note that Cooper’s hawk has been placed on the California Department of Fish & Wildlife’s watch list. This species was observed in blue gum trees approximately 350 feet southeast of the proposed reservoir site. It is possible Cooper’s hawk is drawn to the area by the large number of chickens associated with the egg production facility located to the north.

No special status plants were observed or are expected to occur at the project site. No Ventura County Locally Important Plant Species exist within the Project direct impact area.

Special-status plants known to exist within the Project region that may have the potential to occur within a few miles of the Project site are listed in Table C.4-1.

Table C.4-1. Special-Status Plant Species of the Project Region

Common Name (*Scientific Name*)	Status	Nearest Known Location	Preferred Habitat	Potential to Occur along the Pipeline Alignment
Lyon's pentachaeta (*Pentachaeta lyonii*)	SE, FE, List 1B	North of Tierra Rejada Road, 5.6 miles to the southeast (CNDDB, 2014)	Coastal scrub	Very low, no suitable habitat in area
Curly-leaved monardella (*Monardella sinuata ssp. sinuata*)	List 1B	Santa Rosa Valley, 5.2 miles to the south (CNDDB, 2014)	Coastal scrub, chaparral, coastal dunes	Very low, no suitable habitat in area
California orcutt grass (*Orcuttia californica*)	SE, FE, List 1B	Near intersection of SR 23 and Tierra Rejada Road, 5.5 miles to the southeast (CNDDB, 2014)	Vernal pools	Very low, no suitable habitat in area
Southern California black walnut (*Juglans californica*)	List 4	Adjacent to Stockton Road, 300 feet to the east-southeast	Canyons, moist slopes	Present

List 1B Plants rare, threatened, or endangered in California and elsewhere (CNPS)
List 4 Plants of limited distribution (CNPS)
FE Federal Endangered (USFWS)
SE State Endangered (CDFW)

The proposed reservoir site supports lemon trees, and a weedy roadway embankment with a few small blue elderberry trees. Suitable habitat for special-status species does not occur at the site. Cooper's hawk was observed near the site, and may forage in nearby windrows. However, the reservoir site does not provide any woodland foraging or breeding habitat for Cooper's hawk. No Ventura County Locally Important Animal Species exist within the Project area. Special-status animal species known to exist within the Project region that may have the potential to occur within a few miles of the project site are listed in Table C.4-2.

Table C.4-2. Special-Status Wildlife Species of the Project Region

Common Name (*Scientific Name*)	Status	Nearest Known Location	Potential to Occur at Reservoir Site
Arroyo chub (*Gila orcuttii*)	CSC	Arroyo Las Posas: 3.5 miles to the southeast (CNDDB, 2014)	None, no waterbodies present
Spadefoot toad (*Spea hammondii*)	CSC	Roseland Avenue, 2.7 miles to the east-northeast (CNDDB, 2014)	Very low, no breeding habitat (seasonal pools) present
Southwestern pond turtle (*Emys marmorata*)	CSC	Arroyo Simi, 5.4 miles to the east-southeast (CNDDB, 2014)	None, no aquatic habitat on-site
Coast horned lizard (*Phrynosoma blainvillii*)	CSC	Upper Happy Camp Canyon, 3.3 miles to the east-northeast (CNDDB, 2014)	Very low, low quality habitat occurs west of Stockton Road
Coastal western whiptail (*Aspidoscelis tigris stejnegeri*)	SA	Lower Happy Camp Canyon, 3.2 miles to the east (Padre Associates, 1999)	Very low, low quality habitat occurs west of Stockton Road
Silvery legless lizard (*Anniella pulchra pulchra*)	CSC	Grimes Canyon Road: 2 miles to the south	Very low, suitable habitat (woodland, native tree groves) not present

Common Name (*Scientific Name*)	Status	Nearest Known Location	Potential to Occur at Reservoir Site
Two-striped garter snake (*Thamnophis hammondi*)	CSC	Arroyo Simi, 5.4 miles to the east-southeast (CNDDB, 2014)	Very low, no aquatic habitat on-site
Least Bell's vireo (*Vireo belli pusillus*)	FE, SE	Arroyo Las Posas: 3.8 miles to the south (CNDDB, 2014)	Very low, no foraging or breeding habitat present
Cooper's hawk (*Accipiter cooperi*)	WL	Observed during field survey 350 feet to the southeast	Low, may forage in blue gum windrows in the area, unlikely to occur at the site
Coastal California gnatcatcher (*Polioptila californica californica*)	FT, CSC	Moorpark near Spring Road: 3.6 miles to the southeast (CNDDB, 2013)	Very low, low quality habitat occurs west of Stockton Road
Yellow warbler (*Dendroica petechia brewsteri*)	CSC	Arroyo Simi: 5.5 miles to the east-southeast (Montgomery Watson, 1995)	Very low, suitable no riparian habitat in area
Yellow-breasted chat (*Icteria virens*)	CSC	Arroyo Simi: 5.5 miles to the east-southeast (Montgomery Watson, 1995)	Very low, no suitable riparian habitat in area
White-tailed kite (*Elanus caeruleus*)	FP	Lower Happy Camp Canyon, 3.2 miles to the east (Padre Associates, 1999)	Very low, no suitable habitat in area
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	WL	Lower Happy Camp Canyon, 3.2 miles to the east (Padre Associates, 1999)	Very low, low quality habitat occurs west of Stockton Road
San Diego desert woodrat (*Neotoma lepida intermedia*)	CSC	Union Pacific Railroad tracks, 2.9 miles to the south (CNDDB, 2014)	Very low, low quality habitat occurs west of Stockton Road

Status Codes:
FP Fully protected under Fish and Game Code (CDFW)
FT Federal Threatened (USFWS)
CSC California Species of Special Concern (CDFW)
SA Special Animal (CDFW)
SE State Endangered (CDFW)
FE Federal Endangered (USFWS)
WL Watch List (CDFW)

4.1.2 Impact Discussion

4.1.2.1 Significance Thresholds

The following thresholds are taken from the Ventura County Initial Study Assessment Guidelines and indicate the potential for a significant impact:

- Substantially reduce a species population or habitat;
- Substantially increase habitat fragmentation or restrict reproductive capacity;
- Loss of one or more individuals listed as endangered, threatened or rare under the Federal or State Endangered Species Act, a candidate species or California fully protected species;
- Eliminate or threaten to eliminate an element occurrence of a special-status species;
- Threaten the viability of a habitat that sustains a special-status species;
- Take of birds protected under the California Fish & Game Code or Migratory Bird Treaty Act;

- Increases in noise and/or lighting that would adversely affect a special-status species;
- Increases in human access, predation or competition from domestic animals, pests or exotic species that would adversely affect special-status species;
- Impacts that would substantially reduce the habitat of a wildlife species or cause a wildlife population to decline substantially or drop below self-sustaining levels.

4.1.2.2 Impacts

a. Special-Status Plants. As discussed in Table C.4-1, the only special-status plant species in the vicinity is southern California black walnut. However, this species is not located within or adjacent to the project impact area, and would not be adversely affected. Any potential indirect impacts due to short-term dust creation would be less than significant due to the implementation of standard dust control measures.

b. Special-Status Wildlife. As discussed in Section 4.1.1, Cooper's hawk is the only special-status wildlife species observed or expected to occur in the vicinity of the reservoir site. Suitable habitat for this species would not be affected by project implementation; therefore, impacts are not anticipated. Sagebrush scrub west of the project site has the potential to support coast horned lizard, coastal western whiptail, southern California rufous-crowned sparrow and San Diego desert woodrat. However, this vegetation appears to exhibit low plant diversity and is fragmented by surrounding disturbed or agricultural areas. Therefore, the potential for these species to be present near the project site is considered very low. In any case, the project impact area does not support suitable habitat for these species, and adverse impacts would not occur.

The threatened California gnatcatcher occurs in the Project area (vicinity of Moorpark) and the project site is located approximately 2.8 miles west of designated critical habitat (Unit 13, within Ventura County and northern Los Angeles County). Sagebrush scrub located on the slopes west of the project site would be considered low quality habitat for this species. Therefore, it is highly unlikely that California gnatcatcher occurs in this area. In any case, the project impact area does not support suitable habitat for this species, and adverse impacts would not occur.

c. Migratory Birds. Removal of lemon trees and blue elderberry during clearing of the proposed reservoir site has the potential to result in take of migratory birds through the loss of active nests (with eggs or nestlings). This impact is considered potentially significant on a Project-specific and cumulative basis.

4.1.2.3 Mitigation and Residual Impacts.

The following mitigation measure is a Ventura County Planning Department Standard Condition and is required to ensure Project compliance with the Migratory Bird Treaty Act.

BIO1 **Purpose:** In order to prevent impacts on birds protected under the Migratory Bird Treaty Act, land clearing activities shall be regulated.

Requirement: The District shall conduct all demolition, tree removal/trimming, vegetation clearing, and grading activities (collectively, "land clearing activities")

in such a way as to avoid nesting native birds. This can be accomplished by implementing one of the following options:

1. Timing of construction: Prohibit land clearing activities during the breeding and nesting season February 1 - August 31 or January 1 - September 1 if raptors have the potential to occur, in which case the following surveys are not required; or
2. Surveys and avoidance of occupied nests: Conduct site-specific surveys prior to land clearing activities during the breeding and nesting season (January 1 – September 1) and avoid occupied bird nests. Surveys shall be conducted to identify any occupied (active) bird nests in the area proposed for disturbance. Occupied nests shall be avoided until juvenile birds have vacated the nest. All surveys shall be conducted by a County-approved biologist.

An initial breeding and nesting bird survey shall be conducted 30 days prior to the initiation of land clearing activities. The project site must continue to be surveyed on a weekly basis with the last survey completed no more than 3 days prior to the initiation of land clearing activities. The nesting bird survey must cover the development footprint and 300 feet from the development footprint. If occupied (active) nests are found, land clearing activities within a setback area surrounding the nest shall be postponed or halted. Land clearing activities may commence in the setback area when the nest is vacated (juveniles have fledged) provided that there is no evidence of a second attempt at nesting, as determined by the County-approved biologist. Land clearing activities can also occur outside of the setback areas. The required setback is 300 feet for most birds and 500 feet for raptors, as recommended by the California Department of Fish and Wildlife. This setback can be increased or decreased based on the recommendation of the County-approved biologist and approval from the Planning Division.

Documentation: The District shall commission a Survey Report from a County-approved biologist documenting the results of the initial nesting bird survey and a plan for continued surveys and avoidance of nests in accordance with the requirements above. The District shall commission a Mitigation Monitoring Report from a County-approved biologist following land clearing activities documenting actions taken to avoid nesting birds and results.

Timing: If land clearing activities will occur between January 1 and September 1, nesting bird surveys shall be conducted 30 days prior to initiation of land clearing activities, and weekly thereafter, and the last survey for nesting birds shall be conducted no more than 3 days prior to initiation of land clearing activities. The Survey Report documenting the results of the first nesting bird survey shall be finalized prior to construction. The Mitigation Monitoring Report shall be finalized within 14 days of completion of the land clearing activities.

4.2 ECOLOGICAL COMMUNITIES - SENSITIVE PLANT COMMUNITIES

4.2.1 Setting

4.2.1.1 Plant Communities

Based on the biological survey conducted for the project, sensitive plant communities including Ventura County Locally Important Communities do not occur at the Project site.

4.2.1.2 Waters and Wetlands

Waters and wetlands do not occur at the Project site. The closest water body is an ephemeral stream located east of Stockton Road near the Project site.

4.2.2 Impact Discussion

4.2.2.1 Significance Thresholds

The following thresholds are taken from the Ventura County Initial Study Assessment Guidelines and indicate the potential for a significant impact:

- Activities that would result in temporary or permanent removal of sensitive plant communities;
- Indirect impacts from project operation that would degrade the health of a sensitive plant community;
- Removal of vegetation, grading, obstruction or diversion of water flow, change in flow velocity, siltation, volume of flow, change in run-off rate, placement of fill, placement of structures, construction of a road crossing, or placement of culverts within waters and wetlands;
- Disruption of wetland or riparian plant communities that would isolate or substantially interrupt contiguous habitat, block seed dispersal routes or increase vulnerability of wetland species to exotic weed invasion or local extirpation;
- Interference with ongoing maintenance of hydrological conditions in a water or wetland; and
- Inadequate buffer to protect functions and values of existing waters or wetlands.

4.2.2.2 Impacts

a. Plant Communities. No sensitive plant communities would be directly impacted. In the event that any sensitive communities exist within proximity of the Project such that they could be impacted by dust, such impacts would be less than significant due to the implementation of standard dust mitigation.

b. Waters and Wetlands. No waters or wetlands would be impacted.

4.2.2.3 Mitigation and Residual Impacts

No significant impacts were identified; therefore no mitigation is required.

4.3 HABITAT CONNECTIVITY

4.3.1 Setting

Wildlife migration corridors are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Migration corridors may be local such as between foraging and nesting or denning areas, or they may be regional in nature. Migration corridors are not unidirectional access routes; however, reference is usually made to source and receiver areas in discussions of wildlife movement networks. "Habitat linkages" are migration corridors that contain contiguous strips of native vegetation between source and receiver areas. Habitat linkages provide cover and forage sufficient for temporary inhabitation by a variety of ground-dwelling animal species. Wildlife migration corridors are essential to the regional ecology of an area as they provide avenues of genetic exchange and allow animals to access alternative territories as fluctuating dispersal pressures dictate.

Regional wildlife movement in the project area occurring between the Santa Clara River valley and the Las Posas Valley, likely occurs along Balcom Canyon and Grimes Canyon as they provide topographic connections between these two habitat areas. The immediate project area does not provide any physical or habitat features that would focus wildlife movement. Therefore, neither the Project site nor areas adjacent to the site are utilized as a wildlife movement corridor.

4.3.2 Impact Discussion

4.3.2.1 Thresholds of Significance

The following thresholds are taken from the Ventura County Initial Study Assessment Guidelines and indicate the potential for a significant impact:

- A habitat connectivity feature would be severed, substantially interfered with, or potentially blocked;
- Wildlife access to foraging habitat, breeding habitat, water sources or other areas necessary for their reproduction would be prevented or substantially interfered with;
- Wildlife would be forced to use routes that endanger their survival;
- Lighting, noise, domestic animals or other indirect impacts that could hinder or discourage fish and/or wildlife movement within a habitat connectivity feature;
- The width of a habitat linkage, corridor or chokepoint would be reduced to less than the sufficient width for movement of the target species; and
- Loss of visual continuity (line-of-sight) across a highly constrained wildlife corridor, such as highway crossing structures.

4.3.2.2 Impacts

Project implementation would not impact wildlife movement corridors.

4.3.2.3 Mitigation and Residual Impacts

No impacts to habitat connectivity would result; therefore, no mitigation is required.

4.4 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

Policy	Consistency Determination
County Policy 1.5.2.1: Discretionary development which could potentially impact biological resources shall be evaluated by a qualified biologist to assess impacts and, if necessary, develop mitigation measures.	Consistent - This Initial Study includes an evaluation of biological impacts conducted by a qualified biologist.
County Policy 1.5.2.2: Discretionary development shall be sited and designed to incorporate all feasible measures to mitigate any significant impacts to biological resources.	Consistent – No significant biological impacts would result with the exception of possible impacts to migratory birds. These potential impacts will be mitigated through the implementation of mitigation measure BIO1.
County Policy 1.5.2.3: Evaluate impacts to wetland habitat, discretionary development that would have a significant impact on a significant wetland habitat shall be prohibited.	Consistent - This Initial Study includes an evaluation of biological impacts, including wetland habitats. No significant wetland habitat impact would occur.
County Policy 1.5.2.4: Discretionary development shall be sited a minimum of 100 feet from significant wetland habitats.	Consistent – No significant wetland habitat would be impacted by Project development.
County Policy 1.5.2.5: The California Department of Fish and Game, U.S. Fish and Wildlife Service, National Audubon Society and California Native Plant Society shall be consulted when discretionary development may significantly impact biological resources.	Consistent – With implementation of biological mitigation measures, the Project would not significantly impact biological resources. However, the Initial Study/Mitigated Negative Declaration will be submitted to these entities.

5.0 AGRICULTURAL RESOURCES

5.A SOILS

5.A.1 Setting

Agriculture plays an important role in the national, State, and County economies. Ventura County is one of the principal agricultural counties in the State. The value of Ventura County agricultural production in 2013 was $2,094,915,000 (Ventura County Office of the Agricultural Commissioner, August 4, 2013). In 2010 Ventura County was 8th in the state with respect to economic value of agricultural production and 10th among all counties in the United States (Farm Bureau of Ventura County web site, accessed August 2014). This prolific production is made possible by the presence of high quality soils, adequate water, favorable climate, and level topography. In addition, according to the Ventura County Farm Bureau, altogether, farming and farm-dependent businesses provide an estimated 31,000 jobs in Ventura County, more than any other sector of the economy except services. Agriculture and agriculture-related businesses account for about 4.4 percent of overall economic activity in Ventura County (Farm Bureau of Ventura County web site accessed March 2013). There are several factors that affect agricultural economic viability. Cost of land, water, materials and equipment, etc., are important factors. To preserve the agricultural base of the County, it is necessary to discourage the conversion of farmland to other uses.

The proposed reservoir relocation site is located within an existing citrus orchard. Land across Stockton Road and adjacent to the existing reservoir site is not developed for agricultural use (e.g., orchards or row crops), but may be used for grazing.

Based upon a review of the Agricultural Preserves Map prepared by the Ventura County Resource Management Agency Information Systems (January 15, 2013), the proposed reservoir replacement site is within an area designated as "Agricultural Preserve" which is a designation given to agriculturally zoned parcels to allow the landowner to enter into a Land Conservation Act (LCA aka Williamson Act) contract. However, based upon communication with the County Planning Department the property is not covered under a LCA contract (Harris, personal communication, June 27, 2014).

In Ventura County, the California Department of Conservation Important Farmlands Inventory (IFI) system is used to inventory lands considered to have agricultural value. The areas with the highest agricultural potential are classified as "Prime" or of "Statewide Importance," followed by "Unique," "Local Importance," "Grazing," "Urban" and "Other." This system is superior to merely identifying class I and II type soils because other aspects of the land's productive potential are factored in. Based upon Important Farmlands Inventory mapping prepared by Ventura County GIS, the proposed reservoir replacement site is designated as "Prime Farmland". The existing reservoir site is located on land designated as "Grazing" land.

Agriculturally zoned land at and proximate to the Project site within unincorporated Ventura County is "protected" under the Ventura County Save Open Space and Agricultural Resources (SOAR) ordinance. This ordinance requires countywide voter approval of any change to the County General Plan involving the Agricultural, Open Space or Rural land use map designations, or any change to a General Plan goal or policy related to those land use designations. The ordinance remains in effect until 2020.

5.A.2 Project Consistency with Applicable Policies

Policy	Consistency Determination
County Policy 1.6.2.1: Discretionary development located on land designated as Agricultural (see Land Use Chapter) and identified as Prime Farmland or Farmland of Statewide Importance on the State's Important Farmland Inventory, shall be planned and designed to remove as little land as possible from potential agricultural production and to minimize impacts on topsoil.	Consistent - The Project would result in the conversion of 0.65 acre of Prime Farmland from agricultural use. However, this use is for a water reservoir. Water from this reservoir is in part utilized to support agricultural operations. The proposed site area has been minimized to that essential to the construction and operation of the proposed reservoir.
County Policy 1.6.2.6: Discretionary development adjacent to Agricultural-designated lands shall not conflict with agricultural use of those lands.	Consistent - The proposed Project would not conflict with agricultural uses in the long-term. Dust control measures will be incorporated into the Project to reduce short-term construction-related impacts to agriculture.

5.A.3 Impact Discussion

5.A.3.1 Significance Thresholds

The County of Ventura Guidelines state that projects resulting in the direct or indirect loss of agricultural soils meeting or exceeding the following criteria would result in significant project-specific impacts to agriculture. Any project that would result in the direct and/or indirect loss of soils designated Prime, Statewide Importance, Unique or Local Importance will have an impact. Any project that would result in the direct and/or indirect loss of agricultural soils meeting or exceeding the following criteria will be considered as having a significant project impact:

General Plan Land Use Designation	Important Farmland Inventory Classification	Acres Lost
Agricultural	Prime/Statewide	5 ac.
	Unique	10 ac.
	Local	15 ac.
Open Space/Rural	Prime/Statewide	10 ac.
	Unique	15 ac.
	Local:	20 ac.
All Others	Prime/Statewide	20 ac.
	Unique	30 ac.
	Local	40 ac.

Any project that would result in the direct and/or indirect loss of agricultural soils is considered as having a contribution to a significant cumulative impact. However, the cumulative loss of agricultural soils was discussed in the Final EIR for the Comprehensive Amendment to the County General Plan (1988). The conclusions of that EIR were that there will be a significant loss of agricultural soils and, although the General Plan contains policies and programs that serve to partially mitigate the cumulative impact, the impact can't be reduced to a less-than-significant level.

Therefore, in accordance with Section 15183 of the CEQA Guidelines, additional cumulative environmental analysis is not required for any project that is consistent with the General Plan. Furthermore, any project that entails a General Plan amendment and would result in the loss of agricultural soils less than that indicated above (project impact), is considered as having a de minimus contribution to a significant cumulative impact and would not require an EIR. Conversely, any project that entails a General Plan amendment and would result in the loss of agricultural soils equal to or greater that that indicated above is considered as having a substantial contribution to a significant cumulative impact, and would require an EIR.

5.A.3.2 Impacts

Development of the Project would result in the result in the conversion of 0.65 acre of Prime Farmland from agricultural use to use for a water reservoir. The amount of area of loss of Prime farmland is under the 5 acre significance threshold. It should also be noted that water from this reservoir is in part utilized to support agricultural operations. Further, the proposed site area has been minimized to that essential to the construction and operation of the proposed reservoir.

5.A.3.3 Mitigation and Residual Impacts

No significant impact would result, so no mitigation is required.

5.B AGRICULTURAL RESOURCES - LAND USE INCOMPATIBILITY

5.B.1 Setting

The general setting provided in 5.A.1 above applies to this issue.

5.B.2 Project Consistency with Applicable Policies

The policies outlined under topic 5A are also applicable to agricultural land use incompatibility.

5.B.3 Impact Discussion

5.B.3.1 Significance Thresholds

The County Guidelines agricultural land use compatibility impact thresholds state that a project that is closer than 300 feet with vegetative screening, or 150 feet without vegetative screening, may have a potentially significant impact on agricultural resources. However, several waiver conditions from these thresholds are also identified. The following waiver condition is applicable to the proposed Project:

- Individuals are not continuously present in the proposed structures or use area.

5.B.3.2 Impacts

Construction of the replacement reservoir and pipeline segment in Stockton Road may interfere with ongoing agricultural operations on a short-term basis. Construction will result in the creation of dust; however, standard dust suppression measures recommended by the VCAPCD will be implemented as part of the Project. Therefore, dust impacts to adjacent agricultural uses will be less than significant with implementation of dust mitigation. Because there are no other construction projects proximate to the same orchard that would be impacted by Project construction, there would be no cumulative short-term agricultural land use compatibility impact.

It is anticipated that staging of construction equipment and materials will be confined to the proposed reservoir site and area immediately adjacent to the proposed pipeline segment trench. As such, direct impacts to agricultural properties other than the proposed reservoir site would be avoided as would impacts such as introduction of disease to agricultural crops from the introduction of construction equipment.

Over the long-term, due to the nature of the Project, it is not anticipated to introduce any new uses, activities, or elements to the site that would result in an introduction of pest or disease to nearby agricultural uses. Also, because the Project is limited to the construction of water infrastructure no long-term incompatibility between the Project and nearby agricultural land use practices, such as the use of agricultural chemicals, is anticipated since no continuously occupied structures are proposed. Furthermore, the operation of the proposed uses would not interfere with agricultural operations over the long-term.

5.B.3.3 Mitigation and Residual Impacts

No mitigation other than dust mitigation is required. Residual impacts would be less than significant.

6.0 SCENIC RESOURCES

6.1 SETTING

Major natural scenic features of the Project area include the Little Simi and Las Posas Valleys to the south and Oak Ridge to the north. The Project area is rural in nature and numerous orchards and other agricultural operations populate the landscape. Tracts of undeveloped open space also remain. The topography along Stockton Road is undulating. This feature, together with the mixture of colors and shapes of the vegetation in the landscape, creates a rich and visually pleasing scenic character. Native trees including blue elderberry (*Sambucus nigra cerulea*) and Southern California black walnut (*Juglans californica*) are located adjacent to Stockton Road in the Project area. Scattered homes as well as various other structures (e.g., hen houses, hoop houses, barns) including numerous existing above-ground tanks such as the Stockton Reservoir are located throughout the Project area (Figures C.6-1 and C.6-2). Within Ventura County, many residents value the aesthetics as well as other characteristics of agricultural land and open space as evidenced by the passage of Save Open-Space and Agricultural Resources (SOAR) initiatives within the County beginning in 1995 with the City of Ventura.

The proposed reservoir site is in citrus production and is part of a larger orchard and is at the base of a 12-foot high roadway embankment for Stockton Road. The site includes a steep (approximately 1H:1V and locally steeper incline) vegetated slope along Stockton Road which includes native vegetation such as the blue elderberry trees at the edge of Stockton Road, sagebrush (*Artemisia californica*) and grasses. Elevations at the site (tank pad and road footprint) range from approximately 972 to 984 feet (relative to Penfield and Smith datum 2014). (See Figures C.6-3 and C.6-4.)

Stockton Road provides visual as well as physical access to the existing and proposed replacement reservoir sites which are about 100 feet apart. As such it may be considered a primary view corridor for the Project. Views of the Project site are also available from neighboring properties. However, near field views of the existing reservoir site are blocked by elevated topography east, west and south of the site. Other than Stockton Road there are no nearby public areas (e.g., parks, trails, designated view points) offering views of the site. The closest park and trails are located approximately 3 miles east of the site (Happy Camp Canyon

Figure C.6-1 Photo of Existing Stockton Reservoir from Stockton Road Looking West

Figure C.6-2 Photo of Proposed Tank Site from Stockton Road Looking North (Note Other Tanks in the Background)

Figure C.6-3 Panoramic View of the Proposed Reservoir Site from Stockton Road Looking West—Northwest (Stockton Reservoir on the Left)

Figure C.6-4 View of Proposed Site and Existing Reservoir from Stockton Road Looking Southeast

Park). Views of the existing and proposed reservoir sites from Stockton Road are limited in duration for travelers due to curves (approximating right angle turns) in the road and intervening topography. Travelers coming from the east would have a view of the proposed reservoir site for about 1,100 feet. Traveling at 30 miles per hour the duration of the view would be about half a minute. Travelers coming from the west would view the proposed reservoir site for about 1,500 feet. The duration of the view from this direction also traveling at 30 miles per hour would be just over a half a minute. Based on a weekday field visit in July 2014, the majority of the traffic observed on Stockton Road was heavy and medium sized truck traffic. Thus most viewer passing the existing and proposed reservoir sites appear to be workers transiting through the area. Individuals including residents of Stockton Road would also have regular views of the Project site while transiting the area. Additionally, at least one residential property has a view of the proposed site (10485 Stockton Road). This residence is located about 1,300 feet from the proposed reservoir site. It is at an elevation of about 1,250 feet (based upon topographic data available on Google Earth) and has a straight line-of sight to the proposed site.

There are no Ventura County designated Scenic Resources areas, as identified on the Ventura County General Plan Resource Protection Map, in the Project area. Based on a review of Ventura County General Plan Resources Appendix (updated June 28, 2011) Figure 1.7.3b, Designated and Eligible Scenic Highways Southern Half, Grimes Canyon Road and Broadway Road east of Grimes Canyon Road are considered eligible County Scenic Highways.

6.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

As described in the Ventura County General Plan - Goals, Policies & Programs document:

> *The visual beauty and aesthetic quality of the natural landscape in Ventura County are significant resources. The County's natural visual resources are largely composed of the varied topography, exposed geological formations, heterogeneous vegetation, beaches and waterways. The man-made environment of parks, golf courses, harbors, public buildings, and major commercial, industrial, and residential developments can also contribute to, or detract from, scenic resource quality. The scenic resources of Ventura*
>
> *County, especially the coastline, within the viewshed of the County's lakes, and along designated State and County Scenic Highways, are of considerable value both in providing a pleasurable environment for local citizens and in stimulating tourism...*
>
> *Conservation of scenic resources is most critical where the resources will be frequently and readily viewed, as from a highway, or where the resource is particularly unique.*
>
> *Ventura County has identified the viewsheds of lakes (excluding land designated Existing Community) and State or County designated scenic highways as being worthy of special protection. These protected areas are described as Scenic Resource Areas which are depicted in Resource Protection Map (Figure 1). In addition, area plans may identify local scenic resources as Scenic Resource Areas unique or of significant importance to that area.*
>
> Ventura County General Plan - Goals, Policies & Programs document identifies the preservation and protection of the significant open views and visual resources of the

County as a scenic resource goal (Goal 1.7.1.1). The following policy is applicable to the proposed Project.

Policy	Consistency Determination
County Policy 1.7.2.1: Notwithstanding Policy 1.7.2.2, discretionary development which would significantly degrade visual resources or significantly alter or obscure public views of visual resources shall be prohibited unless no feasible mitigation measures are available and the decision-making body determines there are overriding considerations.	Consistent - The Project would not significantly degrade visual/scenic resources, nor would it significantly alter or obscure public views of visual/scenic resources based upon the County evaluation criteria.

6.3 IMPACT DISCUSSION

6.3.1 Significance Thresholds

The County Guidelines state that:

A project has the potential to create a significant impact to scenic resources if it:

a. Is located within an area that has a scenic resource that is visible from a public viewing location; and,

b. Would physically alter the scenic resource either individually or cumulatively when combined with recently approved, current, and reasonably foreseeable future projects; or

c. Would substantially obstruct, degrade, or obscure the scenic vista, either individually or cumulatively when combined with recently approved, current, and reasonably foreseeable future projects.

The County Guidelines identify scenic resources as consisting of aesthetically pleasing natural physical features. The guidelines further state that scenic resources include lakes, beaches, dunes, rivers, creeks, bluffs, mountains, ridgelines, hillsides, native habitat (e.g., wetlands, oak woodlands, and coastal sage chaparral habitat), and rock outcroppings.

6.3.2 Impacts

Project construction would result in the removal of existing citrus trees and introduction of, construction equipment and stockpiles of materials to the Project site. Therefore, views of the Project site from Stockton Road and neighboring properties would be modified during the 10 month construction period. This may be considered to be an adverse visual impact to some viewers. However, disturbed soil and equipment are not unusual visual features in the agricultural area. Additionally, the project would impact less than one acre of existing orchard and a small strip natural vegetation (sagebrush chaparral) which is barely visible from the road due to the topography of the site with the exception of the three mature elderberry bushes which are adjacent to the road. Based upon the County definition of scenic resource above, orchard plantings in contrast to native habitat are not considered a scenic resource.

Over the long-term, the Project would introduce a new 80-foot diameter, 30-feet tall steel welded tank and appurtenant structures including chain link fencing to the site. Additionally the

topography of the site would be altered requiring cuts and fills up to 10 feet (Fugro 2014) to create an access road and level pad for the tank. The new tank and land alterations would be visible from Stockton Road, adjacent land uses and at least one residence. The proposed water pipeline segment would be subsurface and the previously disturbed ground would be restored to its original condition. Because water tanks are not an unusual physical feature in the Project area landscape, orchards are not considered a scenic resource based upon the Ventura County definition, and the amount of visible native habitat that would be impacted is very limited from a visual standpoint, the Project would not result in a substantial alteration of a scenic resource that is visible to the public.

Presently, views toward the site from Stockton Road include near-, mid- and far-field views of hills and mountains. The development of the Project would result in a slight blockage of views of these topographic features; however, due to the limited scale of the Project, this effect is not considered substantial. The Project is therefore determined to result in an adverse, but less than significant scenic resource impact.

The impact of the proposed Project is compounded by the fact that the existing Stockton Reservoir will remain in place for an undetermined duration until an additional reservoir is constructed in the 004 Pressure Zone. As such, in the immediate Project area foreground views from Stockton Road will include above-ground tanks on both sides of the road. This condition is not found elsewhere along Stockton Road. However, due to the limited duration that viewers would see the tanks, and the fact that the existing Stockton Reservoir would ultimately be removed, this cumulative scenic resource impact is considered adverse, but less than significant. (The potential environmental impacts of a future tank to be constructed in this pressure zone will need to be the subject of future environmental assessment and is not evaluated here as the location and type of construction of this future reservoir is presently unknown.)

6.3.3 Mitigation and Residual Impacts

Although no mitigation is required, the following measures are proposed to further reduce the visual impact of the Project on project-specific and cumulative basis.

SR1 The new tank should be colored to blend in with the natural surroundings and the edges rounded to soften its appearance. The following photo of the reservoir north of Palmer Drive in Moorpark is an example.

Reservoir north of Palmer Drive in Moorpark, California

7.0 PALEONTOLOGICAL RESOURCES

7.1 SETTING

According to the Ventura County General Plan Resources Appendix, paleontological resources refer to the fossilized remains of pre-historic plant and animal life. In Ventura County, paleontological remains include examples from throughout most of geologic history dating back 600 million years ago to the present. Certain geologic formations are of known paleontological importance, others are of low importance, while the importance of some deposits is unknown. According to the County Guidelines, fossil remains are considered important if they are: 1) well preserved; 2) identifiable; 3) type/topotypic specimens; 4) age diagnostic; 5) useful in environmental reconstruction; 6) represent rare and/or endemic taxa; 7) represent a diverse assemblage; and/or 8) represent associated marine and non-marine taxa.

Fugro Consultants Inc. (Fugro) states that proposed reservoir site lies within an eroded channel of the Saugus Formation (QTs) that has since been filled with recent alluvial deposits (Qa) (Fugro, February 2014). It is further stated that the site is underlain by south-dipping Pilo-Pleistocene deposits and that Saugus Formation outcroppings exist at the ground surface adjacent to the proposed site and west of Stockton Road. The Fugro field exploration, one hollow-stem-auger drill hole to approximately 76.5 feet below ground surface at the western edge of the proposed reservoir access road footprint, encountered alluvial strata extending from ground surface to approximately 20 feet below the ground surface. Based upon geologic mapping provided in the Fugro report Stockton Road in the Project area is also underlain by Qa and possibly QTs.

The Saugus Formation is nonmarine fluviatile, weakly consolidated material of the Pleistocene and possibly Pliocene ages and is ranked as a geologic formation of paleontological importance in the Ventura County area as identified in the Ventura County Initial Study Assessment Guidelines. The comparatively large number of fossil sites, the abundance of vertebrate taxa (particularly terrestrial vertebrates), and the moderate local site densities indicate that the Saugus Formation has a high paleontological sensitivity. This formation has the potential to yield additional scientifically significant paleontological resources of great importance to the understanding of the evolution of mammals in the early Tertiary Eocene and Oligocene times (BonTerra Consulting, 2002). Marine invertebrates are well known from Saugus Formation deposits in the Moorpark and Simi Valley areas. A diverse assemblage of marine and non-marine vertebrates, including extinct horses, large cats, dogs, elephants, turtles, peccaries, deer, and sharks are known from exposures of the Saugus formation in Simi Valley. Other fossil remains that have been recovered from this formation include rodents, rabbits and lizards (United States Army Corps of Engineers and California Department of Fish and Game, April 2009). In 2005, a nearly intact fossilized mammoth skeleton was discovered in Saugus formation at a residential development construction site in Moorpark (Valencia-Martinez, April 9, 2005).

7.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES:

Policy	Consistency Determination
County Policy 1.8.2.1: Discretionary developments shall be assessed for potential paleontological and cultural resource impacts, except when exempt from such requirements by CEQA. Such assessments shall be incorporated into a Countywide paleontological and cultural resource data base.	Consistent - The Project has been reviewed for potential paleontological and cultural resource impacts.
County Policy 1.8.2.2: Discretionary development shall be designed or re-designed to avoid potential impacts to significant paleontological or cultural resources whenever possible. Unavoidable impacts, whenever possible, shall be reduced to a less than significant level and/or shall be mitigated by extracting maximum recoverable data. Determinations of impacts, significance and mitigation shall be made by qualified archaeological (in consultation with recognized local Native American groups), historical or paleontological consultants, depending on the type of resource in question.	Consistent – The proposed reservoir site is underlain by Qa which has no paleontological significance. However, there is a potential for paleontological resources to exist within the earth material at the proposed pipeline alignment in Stockton Road. Mitigation has been proposed to reduce potential Project impacts in this area to a less than significant level. The Project is not expected to result in significant impacts to cultural resources with implementation of standard mitigation regarding unanticipated finds.

7.3 IMPACT DISCUSSION

7.3.1 Significance Thresholds

Based upon the County Guidelines, if the proposed project's disturbance is located in an area of "Quarternary Deposits (alluvium), or formations ranked as Moderate, Low of No paleontological importance no further assessment need to be done and the "N" column checked in the Initial Study. However, significance for formations listed as - Moderate to High or "High, must be determined by a paleontological consultant.

7.3.2 Impacts

As stated above, the proposed reservoir site is underlain by recent alluvial deposits to a depth of 20 feet. Based upon the preliminary geotechnical report (Fugro, February 2014), development of the reservoir site is anticipated to require cuts and fills up to 10 feet. Therefore, development of the reservoir site would not impact paleontological resources. However, installation of the pipeline would be within the Stockton Road right-of-way. Geologic mapping shows the roadway to be at the interface of alluvial deposits and Saugus Formation. To date no borings of the proposed pipeline route have been conducted. Therefore, the detailed characteristics of the subsurface materials along the proposed pipeline route (portion in Stockton Road) are unknown. In the event that trench excavation requires disturbance of previously undisturbed materials including Saugus formation, it would have the potential to result in a significant impact to paleontological resources should the disturbed area contain scientifically significant fossils. Because of the past exploitation of fossil resources, a project-specific impact may be considered cumulatively significant.

7.3.3 Mitigation and Residual Impacts

The following measure shall be implemented to reduce paleontological project-specific and cumulative impacts to a less than significant level.

P1 Geologic borings along the pipeline route will be taken prior to construction start. Boring logs will be interpreted by a qualified geologist. If it is determined that pipeline installation will impact Saugus Formation or borings are not conducted, then measure P2 will be implemented.

P2 The District shall implement a paleontological monitoring program for Project areas where excavation would have the potential to impact native Saugus Formation materials (pipeline route). The paleontological monitoring program shall be comprised of at least the following elements:

a) A qualified, Ventura County-approved paleontologist shall be retained by the District to monitor initial excavation activities within the pipeline routes where excavation has the potential to extend into native Saugus Formation materials to determine if continued monitoring is warranted, and if so, to develop a monitoring schedule.

b) The Project paleontologist will provide an educational overview relating to paleontological issues in Ventura County and protection of resources at the Project site to all construction employees who will be onsite during the ground-disturbing phases of Project construction.

c) In the event that fossil remains are found during Project construction in any location, work shall be stopped immediately or redirected away from the find. The Project paleontologist or other Ventura County approved paleontologist shall be called to the site immediately to assess the site and determine further mitigation measures to be implemented as necessary.

d) If fossils are encountered, the paleontologist will salvage scientifically significant fossil remains.

e) The paleontologist shall have the power to temporarily halt or divert grading efforts to allow evaluation and any necessary salvage of exposed fossils which are determined as potentially significant.

f) All significant fossils collected shall be identified. These remains shall be donated to an institution with research and/or educational interest in the materials and a retrievable storage system such as the Los Angeles County Museum of Natural History.

g) Locations of recorded fossil localities are confidential and are to be released on a “need to know” basis only to reduce unauthorized collecting activities.

h) A final report summarizing findings, including an itemized inventory and contextual stratigraphic data, shall accompany the fossils to the designated repository with a copy also retained by the District.

8.0 CULTURAL RESOURCES

The following evaluation is based upon the following document: *Phase I Archaeological Investigation VCWWD No. 1 Stockton Reservoir Replacement Project, Moorpark, Ventura County, California,* prepared by Conejo Archaeological Consultants (Conejo) (July 11 2014). This report is provided in the Cultural Resources appendix to this Initial Study.

8.A ARCHAEOLOGICAL

8.A.1 Setting

8.A.1.1 Regional Setting

The Project area lies within the historic territory of the Native American Indian group known as the Chumash. The Chumash occupied the region from San Luis Obispo County to Malibu Canyon on the coast, and inland as far as the western edge of the San Joaquin Valley, and the four northern Channel Islands. The Chumash are subdivided into factions based on distinct dialects. The general Project area lies within the historic territory of the Ventureño Chumash.

The Ventureño were the southernmost Chumash group, occupying most of the area of present day Ventura County and the southwest corner of Los Angeles County. The name Ventureño is derived from the mission with local jurisdiction, San Buenaventura.

Chumash society developed over the course of some 9,000 years and achieved a level of social, political and economic complexity not ordinarily associated with hunting and gathering groups. The protohistoric Chumash are believed to have maintained one of the most elaborate bead money systems in the world, as well as one of the most complex non-agricultural societies.

The Chumash aboriginal way of life ended with Spanish colonization. As neophytes brought into the mission system, they were transformed from hunters and gatherers into agricultural laborers and exposed to diseases to which they had no resistance. By the end of the Mission Period in 1834, the Chumash population had been decimated by disease and declining birthrates. Population loss as a result of disease and economic deprivation continued into the next century.

Today many people claim their Chumash heritage in Ventura County. In general, they place high value on objects and places associated with their past history, especially burials, grave goods, and archaeological sites.

8.A.1.2 Site-Specific Setting

As indicated above, a Phase I archaeological investigation was conducted by Conejo addressing the proposed Project. The Phase I archaeological investigation included:

- Review of archaeological archives at the South Central Coastal Information Center (SCCIC), housed at California State University, Fullerton;
- A sacred lands file check by the Native American Heritage Commission (NAHC);
- Native American consultation; and

- Archaeological survey of the Project's area of potential effect (APE).

a. Archaeological Sites. Based upon Conejo's review of the SCCIC archaeological site records no prehistoric or historic archaeological sites are recorded within a one-mile radius of the Project site.

b. Previous Archaeological Investigations. Only three previous archaeological investigations have been conducted within a 0.5-mile radius of the Project site. None of these surveys included or were adjacent to the Project site.

c. Federal, State and Local Historic Listings. The National Register of Historic Places (NRHP) listings include no properties within a 0.5-mile radius of the Project site. No California Historical Landmarks or California Points of Historical Interest are located within a 0.5-mile radius of the Project site. The California State Historic Resources Inventory lists no properties within a 0.5-mile radius of the Project site. There are no Ventura County Landmarks within a 0.5-mile radius of the Project site.

d. Native American Consultation. The Native American Heritage Commission (NAHC) sacred lands file search failed to indicate the presence of Native American sacred places/sites in the Project area. The NAHC list of recommended Chumash contacts (22 in total) were emailed or mailed a Project description letter dated June 25, 2014, and asked to respond with any comments or concerns regarding the Project.

To date, three Native American responses have been received. On June 25, 2013, Ms. Tumamait of the Barbareño/Ventureño Band of Mission Indians emailed that she was not familiar with the Project area. On June 27, 2013, Mr. Romero of the Santa Ynez Band of Mission Indians emailed:

> *SYBCI Elders will not be commenting on this project, but will be deferring all comments to the local tribes.*

Mr. Tumamait telephoned on July 10, 2014 and indicated that he was not aware of any cultural resources in the immediate project vicinity.

e. Archaeological Survey. Archaeologist, Ms. Mary Maki, conducted an archaeological survey of the approximate 0.65-acre Project site on July 10, 2014. The objective of the survey was the visual detection of historical resources, including lithic debris and aboriginal artifacts, midden deposits, archaeological features, historical-era foundations or refuse, and other evidence of past land use.

Conejo's field survey identified no evidence of prehistoric or historic resources. Previous ground disturbances within the Project site included the planting of citrus trees and the construction of Stockton Road.

8.A.1 3 Regulatory Setting

The State of California has formulated numerous laws for the protection and preservation of archaeological resources. Generally, a cultural resource shall be considered to be "historically significant" if the resource meets the criteria for listing on the California Register of Historic Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852) including the following:

a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

b. Is associated with the lives of persons important in our past;

c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

d. Has yielded, or may be likely to yield, information important in prehistory or history.

8.A.4 Project Consistency with Applicable Policies

The policy discussion provided in Section 7.2 applies to this section.

8.A.5 Impact Discussion

8.A.5.1 Significance Thresholds

The County Initial Study Guidelines state that a project that may cause a substantial adverse change in the significance of an archaeological resource is a project that may have a significant effect on the environment. The significance of an archaeological resource is materially impaired when a project:

1. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not archaeologically or culturally significant; or

2. Demolishes or materially alters in an adverse manner those physical characteristics of a archaeological resource that convey its archaeological significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

The County Guidelines also state that *CEQA requires the protection of unique archaeological resources that may be damaged or destroyed by a development project*. Therefore damage or destruction of unique archaeological resources is considered a significant impact.

8.A.5.2 Impacts

Conejo's background research and intensive onsite archaeological survey failed to identify any prehistoric or historic resources within or adjacent to the Project site. The Native American Heritage Commission and Native Americans contacted also had no knowledge of any cultural resources within the Project site. The ground surface throughout the Project site has been disturbed by orchard planting and the grading of Stockton Road. Based on the findings above, the proposed Project is not expected to impact known prehistoric or historic resources. However, since an archaeological survey can only confidently assess the potential for encountering surface cultural resource remains, there is the potential that previously undiscovered remains could exist. In the unlikely event that site preparation activities disturb

previously unidentified, intact prehistoric or historic resources within the Project APE and such resources were determined to be significant, Project activities would have the potential to result in a significant cultural resource impact.

In the unlikely event of Project impacts to previously unidentified and unanticipated significant cultural resources, such impacts may be considered cumulatively significant due to the historic abuse of cultural resource sites.

8.A.5.3 Mitigation and Residual Impacts

The following measures will be incorporated into the Project to ensure that potential project-specific and cumulative cultural resource impacts would be less than significant.

CUL1 In the event that archaeological resources are unearthed during project construction, all earth disturbing work within 30 meters (100 ft) of the find must be temporarily suspended until an archaeologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume. A Chumash representative should monitor any archaeological field work associated with Native American materials.

CUL2 If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission. The District shall also be notified of any such find.

8.B HISTORICAL

8.B.1 Setting

As indicated above in Section 8.A.1.2, the NRHP listings include no properties within a 0.5-mile radius of the Project APE. No California Historical Landmarks or California Points of Historical Interest are located within a 0.5-mile radius of the Project APE. The California State Historic Resources Inventory lists no properties within a 0.5-mile radius of the Project APE. Additionally, there are no Ventura County Landmarks within a 0.5-mile radius of the Project APE.

A review of historic maps revealed the following. Stockton Road is present on the 1921 USGS 15' Piru Quadrangle, but no development is evident within the Project site. The 1941 USGS 15' Piru Quadrangle indicates that Stockton Canyon Road was improved and that the Project site lies within an orchard.

8.B.2 Project Consistency with Applicable Policies

The assessment in Section 7.2 applies to historic resources as well as archaeological and paleontological resources.

8.B.3 Impact Discussion

8.B.3.1 Significance Thresholds

The Ventura County thresholds for historic resources state that a project that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment. Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation or alteration of the resource or its immediate surroundings such that the significance of an historic resource would be materially impaired.

8.B.3.2 Impacts

The Project will not impact any historical resources. As such, it would not contribute to any cumulative impact to historic resources.

8.B.3.3 Mitigation and Residual Impacts

No impact to historic resources would result. Therefore, no mitigation is warranted.

9.0 COASTAL BEACHES AND SAND DUNES

9.1 SETTING

The Project area is located over 15 miles from the coast.

9.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

There are no applicable policies from Ventura County's General Plan.

9.3 IMPACT DISCUSSION

Due to the distance of the Project site from the coast, Project implementation would not directly impact coastal beaches or sand dunes. In addition, the Project would not result in the paving of significant open areas or other activities that could indirectly affect the deposition or erosion of sand at the coast. No impact to coastal beaches or sand dunes would result. Since there would be no project-specific impact, the Project would not contribute to cumulative impacts. Therefore, no mitigation is required.

10.0 FAULT RUPTURE

10.1 SETTING

The State Division of Mines and Geology indicates that on a statewide basis the potential hazard to structures from the surface displacement of faults is low compared to such geologic phenomena as earthquake shaking and landsliding. The greatest potential for fault activity is along any of the faults, which lie within the several major fault systems which transect the County from east to west. Many of the faults in the County are associated with major fault systems extending beyond County boundaries. Several of these faults and fault systems are considered to be active, but a great deal of additional information must be assembled to

determine the potential for, as well as the nature of the activity of most of the faults presently considered to be active.

The Project site is not located within an Alquist-Priolo fault rupture hazard zone and no known active or potentially active faults are known or mapped across or trend toward the proposed site (Fugro 2014). However, the Project is proximal to a number of other local and regional faults that are considered active or potentially active by the United States Geologic Survey and the California Geologic Survey. The closest of these faults is the Oak Ridge fault located 3.3 miles from the Project site. The maximum earthquake magnitude of this fault is 7.4.

10.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

Policy	Consistency Determination
County Policy 2.2.2.5: Roads, streets, highways, utility conduits, and oil and gas pipelines, shall be planned to avoid crossing active faults where feasible. When such location is unavoidable, the design shall include measures to reduce the effects of any fault movement as much as possible.	Consistent - The Project would not be located on an active fault.

10.3 IMPACT DISCUSSION

10.3.1 Significance Thresholds

Threshold of significance criteria for determining whether a project is potentially at risk with respect to fault rupture is its location within any of the following areas:

- State of California designated Alquist-Priolo Special Fault Study Zone, or
- County of Ventura designated Fault Hazard Area.

10.3.2 Impacts

The Project site would not include construction of new facilities or upgrade of facilities within an Alquist-Priolo Special Fault Study Zone, or County of Ventura designated Fault Hazard Area. Therefore, no impact would result.

10.3.3 Mitigation and Residual Impacts

No impact would result. Therefore, no mitigation is required.

11.0 GROUND SHAKING

11.1 SETTING

The entire southern California region is seismically active given the numerous faults throughout the region. Several faults are present in the general area including the Oak Ridge, Simi-Santa Rosa, San Cayetano, Santa Susana, and Pitas Point faults among others.

Ground-shaking is the cause of most damage during earthquakes. In a preliminary geotechnical study for the proposed replacement reservoir, Fugro performed a probabilistic seismic hazard analysis of the site. They concluded that the proposed reservoir site could

experience a peak horizontal ground acceleration of about 1.02g, 0.77g and 0.59g from a 2,475-year, 975-year and 475-year return period earthquake event respectively.

11.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No policies relating to ground shaking from Ventura County's General Plan are applicable to the Project.

11.3 IMPACT DISCUSSION

11.3.1 Significance Thresholds

The County Guidelines provide the following significance thresholds for groundshaking impacts.

1. Is the proposed structure designed to be built in accordance with all applicable requirements of the Ventura County Building Code? If the answer is no, then the project has the potential to expose people or other structures to potential significant adverse effects, including the risk of loss, injury or death involving ground shaking hazards. If the answer is yes, then the project design will reduce the adverse effects of ground shaking to less than significant.
2. The hazards from ground shaking will affect each project individually; and no cumulative ground shaking hazard would occur as a result of other approved, proposed or probable projects.

11.3.2 Impacts

As previously stated, there are no faults or special study fault zones located beneath the Project site, however due to the location of the site within the Southern California area, the potential exists for seismic ground shaking events to occur that may damage the proposed structures during the design life of the Project. However, the Project structures will be designed in compliance with the Uniform Building Code (UBC) and local earthquake design standards. Seismic design criteria have been specified for the reservoir in the Preliminary Geotechnical Study for the Stockton Reservoir prepared by Fugro (February 2014). Further, the Project would not involve the construction of habitable structures, and would not subject additional people to risk of injury or loss of life in the event that strong ground shaking occurs. Considering the above, hazards associated with ground shaking would be a less than significant impact with respect to the proposed Project. An assessment of cumulative development impacts is not relevant to the issue of ground shaking.

11.3.3 Mitigation and Residual Impacts

Impacts are less than significant. Therefore, no mitigation is required.

12.0 LIQUEFACTION

12.1 SETTING

Liquefaction occurs when strong, cyclic motions during an earthquake cause water-saturated soils to lose their cohesion and take on a liquid state. Liquefied soils are unstable and can subject overlying structures to substantial damage. The occurrence of liquefaction is highly

dependent on local soil properties, depth to groundwater, and the strength and duration of a given ground-shaking event. Shallow ground-water conditions in the Moorpark Quadrangle occur in and adjacent to the floodplains of the Santa Clara River, Arroyo Las Posas/Arroyo Simi, and their tributaries.

Liquefaction-induced ground failure has historically been a major cause of earthquake damage in southern California. During the 1971 San Fernando and 1994 Northridge earthquakes, significant damage to roads, utility pipelines, buildings, and other structures in the Los Angeles area was caused by liquefaction-induced ground displacement.

According to the Fugro Preliminary Geotechnical Study for the proposed reservoir, groundwater was not encountered at the Project site to the ultimate depth explored of 76.5 feet. Therefore, the potential for liquefaction and liquefaction-related ground settlement at the site is very low.

12.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

Policy	Consistency Determination
County Policy 2.4.2: Prior to the issuance of building or grading permits for essential facilities, special occupancy structures, two-story single family residences, or hazardous materials storage facilities located within areas prone to liquefaction, a geotechnical report that includes a seismic analysis and evaluation of liquefaction in accordance with the State of California Guidelines shall be prepared in order to assess the liquefaction potential and provide recommendations for mitigation.	Consistent – a preliminary geotechnical report was prepared for the proposed reservoir and hazards associated with liquefaction were determined to be very low requiring no mitigation.

12.3 IMPACT DISCUSSION

12.3.1 Significance Thresholds

The Project would have a significant impact if liquefaction hazards would subject persons or property to loss of life or substantial injury or damage.

12.3.2 Impacts

As indicated above, the potential for liquefaction at the proposed Project site is very low. Therefore, no liquefaction-related impacts are anticipated. This issue is not subject to cumulative analysis as it is site-specific.

12.3.3 Mitigation and Residual Impacts

No impacts were identified. Therefore, no mitigation is necessary.

13.0 SEICHE AND TSUNAMI

13.1 SETTING

According to the General Plan Hazards Appendix (2007), there is no record of a seiche occurring in Ventura County. However, the worldwide history of the phenomenon illustrates the damage that seiches can do, and that seismic disturbances at great distances from Ventura County could have an effect here. As indicated within the County Guidelines, areas subject to seiche hazards are those located within 10 feet vertical elevation from an enclosed body of water such as a bay, lake, or reservoir.

Tsunamis are seismically induced sea waves that can be of sufficient size to cause substantial damage to coastal areas. The last major tsunami in Southern California was in 1812. The largest tsunami wave amplitude recorded in Ventura County was 8.8 feet, associated with the Chilean earthquake of 1960. Based on a review of the County of Ventura General Plan Hazards Appendix, the nearest tsunami hazard zone is located over 15 miles southwest of the Project area.

13.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No seiche or tsunami hazard policies from the Ventura County's General Plan are applicable to the proposed Project.

13.3 IMPACT DISCUSSION

The Project site is not located near an enclosed body of water such as a bay or lake that would create a significant oscillating wave (seiche) in the event of an earthquake. Therefore, no impact would result. This issue is not subject to cumulative analysis as it is site-specific.

The Project site is not located in a tsunami hazard zone and would not increase the severity or the number of persons potentially affected by a tsunami. No impact would result. This issue is not subject to cumulative analysis as it is site-specific.

No significant impacts would result. Therefore, no mitigation is needed.

14.0 LANDSLIDES/MUDSLIDES

14.1 SETTING

Areas of high landslide or mudflow potential are typically hillside areas with slopes of greater than 10 percent. Based on a review of Ventura County mapping no actual or potential landslides are located in the immediate Project area.

14.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No policies from Ventura County's General Plan relating to this issue are applicable to the proposed Project.

14.3 IMPACT DISCUSSION

The proposed Project is not located in an area subject to landslides, thus no landslide/mudslide impact would result. This issue is not subject to cumulative analysis as it is site-specific. No significant impact would result, therefore, no mitigation is needed.

15.0 EXPANSIVE SOILS

15.1 SETTING

"Expansive soils" are soils that expand when wet and contract when dry. Soils at the proposed reservoir site are sandy silt to a depth of 15 feet (Fugro, February 2014). Sandy soils are not subject to expansion. However, based upon the log of the drill hole advanced at the site a layer of sandy clayey silt was observed at a depth of between 15 and 20 feet below ground surface. Testing of sandy clayey silt for expansion potential yielded an expansion index of 67.0. Soils with an expansion index between 51 to 90 are considered to have a medium expansion potential.

15.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

Policy	Consistency Determination
County Policy 2.8.2.1: Construction must conform to established standards of the Ventura County Building Code, adopted from the California Building Code.	Consistent - The Project will be constructed in compliance with applicable standards.

15.3 IMPACT DISCUSSION

15.3.1 Significance Thresholds

As described in the County Initial Study Assessment Guidelines, the determination of a significant soils expansion effect shall be based upon an inquiry of whether a proposed project will expose people or structures to potential adverse effects, including the risk of loss, injury, or death involving soil expansion if it is located within a soils expansive hazard zone or where soils with an expansion index greater than 20 are present. The hazards from expansive soils will affect each project individually; and no cumulative expansive soils hazard would occur as a result of other approved, proposed or probable projects.

15.3.2 Impacts

Soils within the cut/fill depths (10 feet) at the proposed reservoir site are not expansive. However, deeper soils have a moderate expansion potential. The tank site will be developed to the specifications of the preliminary geotechnical report. No residual hazard associated with expansive soil is expected.

The pipeline alignment crosses areas mapped with Anacapa sandy loam (AcC) and Soper gravelly loam (SvF2). Since these soils are not clayey, the expansion potential is expected to be low. Additionally, the District's standard pipeline trench preparation and pipeline design, which is constructed for pressurized flow, is adequate to mitigate any hazards associated with expansive soils. This issue is not subject to cumulative analysis as it is site specific.

15.3.3 Mitigation and Residual Impacts

No mitigation required. Impacts would be less than significant.

16.0 SUBSIDENCE

16.1 SETTING

Subsidence is generally related to over pumping of groundwater or petroleum reserves from deep underground reservoirs. No recognized subsidence has been identified within the Project area (Ventura County General Plan Hazards Appendix, updated 2013). The closest mapped probable subsidence zone is to the north along the Santa Clara River corridor in Fillmore.

16.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

Policy	Consistency Determination
County Policy 2.9.2.1: Structural design of buildings and other structures shall recognize the potential for hydro-compaction subsidence and provide mitigation recommendations for structures that may be affected.	Consistent - Subsidence is not an issue in the Project area.

16.3 IMPACT DISCUSSION

The Project area is not located in a designated subsidence zone pursuant to the Ventura County Liquefaction and Subsidence Zones Map and Landslide Map. No subsidence impact would result from Project implementation. Therefore, no mitigation is needed.

17.0 HYDRAULIC HAZARDS

17.A NON-FEMA

17.A.1 Setting

As indicated in the County Guidelines, hydraulic hazards, in the context of flood control and drainage, consist of the wearing away or deposition of land surface by wind or water. Erosion occurs naturally from weather or runoff but can be intensified by land clearing practices. Flooding is an overflow of water onto land that is normally dry.

An unnamed blue-line stream channel, as shown on the U.S. Geologic Survey 7.5 minute series Moorpark Quadrangle Map, is located approximately 500 feet east of the proposed reservoir site. This channel also runs east of and parallel to Stockton Road south of the Project site and north of Broadway Road. This channel is identified as Shekell Road Drain on the Flood Insurance Rate Map (National Flood Insurance Rate Program, Map No 06111C0810E, January 20, 2010). The Project site is in Flood Zone X which is an area outside of the 100-year sheet flow flooding (average depths are less than 1 foot).

Soils at the Project site, Anacapa sandy loam [majority of the site] and Soper gravelly loam, are in Hydrologic Soil Group A and C respectively. Soils in group A have a low runoff

potential and high infiltration rate. Soils in group C have slow infiltration rates when thoroughly wetted. Anacapa sandy loam is found on 2 to 9 percent slopes (USDA NRCS, 2014). Soper gravelly loam is found on 30 to 50 percent slopes and are eroded.

17.A.2 Project Consistency with Applicable Policies

No policies of the Ventura County's General Plan relating to non-FEMA hydraulic hazards are applicable to the proposed Project.

17.A.3 Impact Discussion

17.A.3.1 Significance Thresholds

Potential erosion/siltation hazards and flooding hazards are ubiquitous throughout Ventura County and are addressed by the Ventura County Public Works Agency-Watershed Protection District's Standards and Specifications Design Manual. Erosion/siltation hazards and the effects of flooding hazards are required to be considered within the existing framework of grading and building code ordinances, which apply to all sites and projects.

17.A.3.2 Impacts

Construction activities can result in short-term erosion events (e.g., erosion of soil piles, erosion of previously covered soil by the removal of significant amounts of pavement, or living ground cover, etc.) These potential short-term impacts would be reduced to a less than significant level of impact with Project compliance with the local requirements of the Ventura Countywide Stormwater Quality Management Program, NPDES Permit conditions.

Following construction, the drainage pattern at the proposed reservoir site will be channeled to an 18-inch storm drain that would extend from the proposed perimeter road around the tank and down the access driveway. The drain would discharge onsite at the agricultural road at the toe of the Stockton Road embankment. A culvert is also proposed to be located onsite which would channel onsite runoff. Stormwater discharge from the site would follow the natural surface flow pattern to the southeast from that point.

Runoff volumes and flow rates from the proposed reservoir site would have the potential to increase due to the introduction of impervious surfaces (tank and road) to the site, and the potential for runoff-caused erosion at the discharge point would increase due to the channeling of runoff to a drain and culvert. However, since the site is less than one acre, relatively flat, and has an estimated peak discharge rate below 2 cubic feet per second (cfs), it would be relatively easy to detain all stormwater on site by using a small basin or swale. Incorporation of such runoff detention and runoff energy dissipation is proposed by the District to ensure that post-Project runoff maintains pre-Project volumes and the erosive potential of the Project site runoff will be minimized.

The tank would only be drained during planned operations and maintenance repairs. These are repairs are done rarely, once or twice every decade and the tanks are emptied slowly by using the distribution system so as not to waste water. Interior inspection of the tank is completed by underwater cameras and scuba divers. There is little need to ever drain the tank. Therefore no erosion or flooding impacts would be associated with tank maintenance.

The proposed Project would be constructed in accordance with the standard specifications for public works construction and the site stabilized to avoid long-term erosion. The Project would comply with the Countywide Stormwater Quality Management Program, and would not create long-term erosion or down-stream siltation since offsite runoff would be maintained at pre-Project conditions. As such, the Project would result in less than significant hydraulic hazard impacts and the Project's contribution to cumulative erosion/siltation impacts would also be less than significant. (See also Surface Water Quality impact discussion provided in Section 4d., above).

17.A.3.2 Mitigation and Residual Impacts

No significant non-FEMA hydraulic impacts would result. Therefore, no mitigation is needed. However, the following measure is provided so that it will be incorporated into the Project Mitigation Monitoring and Reporting Program for tracking purposes.

HH1 The Project design will incorporate: 1) measures for detention of runoff (e.g., swales or basin) to ensure that runoff from the site is maintained at existing levels; and 2) runoff energy-dissipation features (e.g. placement of cobbles at discharge points) to prevent erosion.

17.B FEMA

17.B.1 Setting

As described in the Ventura County Initial Study Assessment Guidelines, flooding is a general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland or tidal waters; the unusual and rapid accumulation of runoff of surface waters from any source, and the condition resulting from flood-related erosion. Flood hazard is determined as being public and private lands and infrastructure that have a high risk of being damaged or destroyed as a result of major flooding conditions. These conditions have a one percent chance of being equaled or exceeded in any given year and are commonly referred to as the one-percent chance flood or the 100-year base flood. The calculated height of the 100-year base flood hazard that is anticipated to occur on any given property is called the base flood elevation. Properties that have been determined by the Federal Emergency Management Agency (FEMA) as being at risk are mapped through the National Flood Insurance Program (NFIP) on the Digital Flood Insurance Rate Maps (DFIRMs) and in Flood Insurance Studies (FISs), and are referred to as Special Flood Hazard Areas (SFHA).

As stated above, the National Flood Insurance Rate Program, Map No 06111C0810E, (January 20, 2010) shows the Project site as being located within Flood Zone X which is an area outside of the 100-year sheet flow flooding (average depths are less than 1 foot). Flood Zone X is not considered a SFHA.

As required by the California Dam Safety Act, preparation of dam inundation maps showing areas of potential flooding in the event of sudden or total dam failure have been prepared by the Ventura County Sheriff's Department through its Office of Emergency Services (OES). Based upon a review of Figure 2.11.2, Dam Inundation Areas, provided within the General Plan Hazards Appendix, the Project does not lie within an area subject to inundation in the event of dam failure.

17.B.2 Project Consistency with Applicable Policies

Policy	Consistency Determination
County Policy 2.10.2.2: Within areas subject to flooding, the County shall require the recordation of a Notice of Flood Hazard or dedication of a flowage easement with the County Recorder for all divisions of land and discretionary permits.	Consistent – The Project site is not subject to flooding.
County Policy 2.10.2.4: The design of any structures which are constructed in floodplain areas as depicted on the Hazards Protection Maps (Figure 2), shall be governed by Federal regulations, specifically Title 44 Code of Federal Regulations Sections 59 through 70, as well as the County Floodplain Management Ordinance and shall incorporate measures to reduce flood damage to the structure and to eliminate any increased potential flood hazard in the general area due to such construction.	Consistent – The Project site is not subject to flooding.
County Policy 4.6.2.1: All necessary flood control and drainage facilities shall be constructed to meet the minimum standards of the Public Works Agency and the County Flood Control District consistent with the goals, policies and programs of the General Plan.	Consistent - Any drainage features included in the final design for the proposed Project will be constructed to County standards.
County Policy 4.6.2.2: Discretionary development shall be conditioned to provide flood control and drainage facilities deemed by the Public Works Agency and Flood Control District as necessary for the development, and shall be required to contribute toward flood control facilities necessitated by cumulative development.	Consistent - See response above.

17.B.3 Impact Discussion

17.B.3.1 Significance Thresholds

Threshold criteria provided by the County Guidelines states that flooding hazards are ubiquitous throughout Ventura County and are accommodated by the building design and construction standards set forth in FEMA and County regulations pertinent to flooding hazards. The thresholds further state that if the proposed development, in part or in whole, is located within the boundaries of a Special Flood Hazard Area, but is located outside of the boundaries of the Regulatory Floodway, a determination of Less Than Significant project-specific and cumulative Impact (LS) will be made under Item 17.b.: Hydraulic Hazards – FEMA in the Initial Study Checklist. A determination of (LS) will be made if it can be demonstrated that the proposed development can be designed and constructed, as part of the Floodplain Development Permit and Building Permit processes, to be in compliance with all applicable floodplain management standards and measures set out in the Threshold Criteria. If the proposed development, in part or in whole, is located within the boundaries of the Regulatory Floodway, as determined using the Effective‘ and latest available DFIRMs provided by FEMA, a

determination of Potentially Significant project-specific and cumulative Impact (PS) will be made under Item 17.b. Hydraulic Hazards - FEMA in the Initial Study Checklist. The Threshold Criteria specify that new habitable and non-habitable development will not be allowed within the Regulatory Floodway. Due to this restriction, development cannot be mitigated to either a PS-M or a LS level.

17.B.3.2 Impacts

The Project site is not within the boundaries of a Special Flood Hazard Area. No FEMA-related impacts would result and the Project would not contribute considerably to any cumulative FEMA flood impacts.

17.B.3.3 Mitigation and Residual Impacts

No impact would result. Therefore, no mitigation is required.

18.0 FIRE HAZARDS

18.1 SETTING

Ventura County is characterized by a Mediterranean-type climate, featuring wet winters and very dry summers. In addition, the local meteorological phenomenon of Santa Ana winds contributes to the high incidence of wildfires in this area.

The project site is mainly in orchard production; however, non-irrigated natural vegetation exists on the slope adjacent to Stockton Road at the proposed tank site and across Stockton Road from the proposed tank site. This natural vegetation is a wildfire hazard.

18.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

Policy	Consistency Determination
County Policy 2.13.2.1: All discretionary permits shall be required, as a condition of approval, to provide adequate water supply and access for fire protection and evacuation purposes.	Consistent - The proposed Project is water infrastructure and not subject to fire hazards. Furthermore, it would provide an additional source of water to the Project area.
County Policy 2.13.2.2: All discretionary permits in fire hazard areas shall be conditioned to include fire-resistant vegetation, cleared firebreaks, or a long-term comprehensive fuel management program as a condition of approval. Fire hazard reduction measures shall be incorporated into the design of any project in a fire hazard area.	Consistent - See response above.

18.3 IMPACT DISCUSSION

18.3.1 Significance Thresholds

The County Guidelines indicate that the fire hazard section focuses on the rural or wildland areas of the County. The fire hazard area extends into all areas where native brush can be found growing in pure natural stands, which is most common on undeveloped hillside areas.

Ventura County Building Code, Article IV Section UBC Code 1601 identifies high fire hazard areas as any within 500 feet of uncultivated brush, grass, or forest covered land wherein an authorized representative of the Fire District determines that a potential fire hazard exists due to the presence of such flammable growth. Projects located within a high fire hazard area may have a significant impact. The impact can be mitigated by compliance with Building and Safety requirements for structures and the Fire District Weed Abatement program which calls for the clearing of brush, flammable vegetation, or combustible growth located within 100 feet of structures or buildings. Projects not located within a high fire hazard zone will not have a significant impact.

18.3.2 Impacts

The Project consists of a steel water tank and subsurface water pipeline. Although the Project site may be considered to be in wildfire hazard area, due to the nature of the Project, it would not cause an increase in exposure of people or structures to risks of wildland fires. Available water supply and fire flow would not be adversely affected by the development of the Project either during construction (continuity of available flow would be maintained) or over the life of the Project. Water availability to the Project area would be improved by the Project. The Project would not have a less than significant fire hazard impact and would not contribute considerably to any cumulative fire hazard impacts.

18.3.3 Mitigation and Residual Impacts

No significant impact would result; therefore no mitigation is required.

19.0 AVIATION HAZARDS

19.1 SETTING

The Project is not located in an area addressed in an Airport Land Use Plan. The Project is located roughly 12 miles from the closest public use airport, Camarillo Airport, and is not near any private airstrip.

19.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No aviation hazard policies from the Ventura County General Plan are applicable to the proposed Project.

19.3 IMPACT DISCUSSION

The Project area is not identified in any Airport Land Use Plans hazard zone, nor is it located within two miles of a public or private airport. No aviation hazard impacts are anticipated on a project-specific basis, nor would the Project contribute to cumulative impacts for this issue. No significant impact would result; therefore, no mitigation is required.

20.0 HAZARDOUS MATERIALS/WASTE (A AND B)

20.1 SETTING

By definition, hazardous material is any substance that, if improperly handled, can be damaging to the health and well being of humans. A hazardous material becomes hazardous

waste when the material has been used for its original intended purpose and is going to be discarded or recycled.

The proposed tank site is located within an agricultural parcel currently in citrus production. This property can be assumed to have residual levels of persistent agricultural chemicals present in the soil.

An electrical power line is located on the edge of the westbound lane of Stockton Road and a power pole with three transformers is located at the proposed access entry to the replacement reservoir site. During a field visit on July 14, 2014, the transformers appeared to be in good condition. The presence of transformers is of interest because well into the 1970s, polychlorinated biphenyls (PCBs) were often used as a dielectric fluid in transformers since they are not flammable. PCBs do not break down when released into the environment and are known to accumulate in the tissues of plants and animals, where they can have hormone-like effects. PCBs are regulated under the Toxic Substances Control Act. It is not known if the transformers at the site contain PCBs.

A review of the California Department of Toxic Substances Control (DTSC) Envirostor database (accessed July 8, 2014) covering Federal Superfund Sites (NPL), State Response Sites, Voluntary Cleanup Sites, School Cleanup Sites, Evaluation Site School Investigation Sites, Military Investigation Sites, Tiered Permits, Hazardous Waste Permits, Corrective Action Sites, Monitoring Wells, for the Moorpark area revealed no active sites within a two-mile radius of the Project site.

A review of the Geotracker[1] web site for the Moorpark area conducted on July 8, 2014 covering Leaking Underground Storage Sites, Land Disposal Sites, Military Sites, Permitted Underground Storage Tanks (UST), Waste Discharge Sites, Monitoring Wells, Department of Toxic Substances Control (DTSC) Cleanup Sites, and DTSC Hazardous Waste Permit Sites revealed no active sites within 2 miles of the Project site with the exception of a hazardous materials incident report associated with Taiwan Plant Corporation (WDR100000693) located at 12120 Stockton Road. The incident appears to be related to a violation of waste discharge requirements for a small commercial and multifamily residential septic system, specifically non-conformance with the

Pole mounted transformers at the Project site.

[1] GeoTracker is the California Water Boards' data management system for managing sites that impact groundwater, especially those that require groundwater cleanup (Underground Storage Tanks [USTs], Department of Defense, Site Cleanup Program) as well as permitted facilities such as operating USTs and land disposal sites.

requirements for submittal of information pertaining to environmental monitoring.

20.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No hazardous waste or hazardous materials policies apply to the Project as it does not require hazardous materials beyond fuels and lubricants for construction equipment, nor would it generate hazardous wastes.

20.3 IMPACT DISCUSSION

20.3.1 Significance Thresholds

As stated in the County Environmental Thresholds Manual, a project that is designed to meet all of the applicable requirements set forth in the following authorities shall not be considered to have a significant impact in this environmental area:

- Underground Storage Tanks - California Health and Safety Code, Division 20, Chapter 6.7 and the California Code of Regulations Title 23, Division 3, Chapter 16.
- Business Plan (BP) - California Health and Safety Code Section 25504.
- Risk Management Plan (RMP) - California Health and Safety Code, Division 20, Chapter 6.95, Article 2.
- California Unified Program Agencies (CUPA) - California Health and Safety Code, Division 20, Chapter 6.11.
- Fire Code - The Fire Code adopted by the Ventura County Fire Protection District in regards to aboveground hazardous materials. Reference California Health and Safety Code, Division 12, part 2.7

20.3.2 Impacts

During construction, the potential exists for workers to be exposed to residual pesticides located within agricultural soils during soil-disturbing construction-related activities in any areas that have been under recent agricultural production. This is a potentially significant impact. Additionally, undocumented dump sites are not uncommon within agricultural parcels. Exposure of workers or the public to such sites as a result of Project construction, should they include hazardous materials, is considered a potentially significant impact. Because hazardous materials are ubiquitous in our environment, potential exposure to such in association with the Project may be considered cumulatively significant.

It is not known if the pole-mounted transformers located on Stockton Road near the proposed entry to the replacement reservoir site contain PCBs. However, at present the transformers appear to be fully intact, no leaks were noted by Padre staff during a July 2014 field visit. Therefore, Project construction is not expected to result in worker or public exposure to PCBs. However, any unanticipated worker or public exposure to PCBs would be considered a significant impact.

No hazardous sites as reported on the DTSC Envirostor database or SWRCB Geotracker list are located in proximity to the Project site. Therefore, no impacts to workers or the public from such sites would result in association with the proposed Project.

Over the long-term, the Project would not result in the use or storage of hazardous materials or generation of hazardous wastes.

20.3.3 Mitigation and Residual Impacts

The following measure will be implemented to ensure that potential impacts associated with short-term exposure to hazardous materials are reduced to a less than significant level (project-specific and cumulative).

HAZ1 Ventura County Waterworks District No. 1 shall ensure that soil disturbing activities in agricultural areas will be done under the assumption that residual pesticides exist within these soils, and appropriate safety precautions as required under the applicable Occupational Safety and Health Administration (OSHA) regulations will be followed. Additionally, if during construction of the Project, any other type of soil contamination is suspected by the construction contractor, construction in the area shall stop and appropriate health and safety procedures shall be implemented including contact with the Ventura County Environmental Health Department. If determined necessary by the Ventura County Health Department or other regulatory agency with jurisdiction over the environmental resources affected, appropriate remedial activity shall be conducted prior to the resumption of work in the area of concern. Remediation could involve removal and proper disposal of contaminated materials, on-site treatment, etc.

The following measure is recommended to ensure that at the time of construction no presently unanticipated worker or public exposure to PCBs would result due to a future release of PCBs to the environment from the pole-mounted transformer at the proposed reservoir site.

HAZ2 Prior to Project construction and as part of the coordination with Southern California Edison regarding the Project, the District will request information regarding the PCB (historical and current) content of the pole-mounted transformers located at the Project site. If the transformers contain PCBs, then a qualified environmental consultant will visually inspect the transformers and ground surface underneath the transformers for any evidence of leakage. In the event there is evidence of leakage, then chemical analyses of the soil will be conducted in accordance with all applicable regulations to determine if the soil contains regulated quantities of PCBs. Should regulated quantities of PCBs exist at the Project site, then the Project site will be remediated to regulatory standards by appropriately trained hazardous materials remediation personnel prior to any construction work at the site including site preparation activities.

21.0 NOISE AND VIBRATION

21.1 SETTING

21.1.1 Noise

Noise is defined as any unwanted sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying (Ventura County, 2010). Physically, sound magnitude is measured and quantified in terms of the decibel (dB), which is a unit on a logarithmic scale based on the ratio of the measured sound pressure to the reference sound pressure of 20 micropascals. The decibel system can be confusing to people since it is logarithmic and not arithmetic. For example, doubling or halving the number of sources of equal sound (a two-fold change in acoustic energy) changes the receptor sound level by only 3 dB, which is a barely perceptible sound loudness change for humans. However, a doubling or halving of the sound *loudness* at the receiver results from a 10 dB change, which also represents a 10-fold change in the acoustic energy (Advanced Engineering Acoustics, 2005). A loudness comparison chart for common indoor and outdoor activities developed by the California Department of Transportation is provided as Figure C.21-1.

The duration of noise and the time period at which it occurs are important factors in determining the impact of noise on sensitive land uses. Noise is more disturbing at night than during the day and noise indices have been developed to account for the varying duration of noise events over time as well as community response to them. The Community Noise Level Equivalent (CNEL) and the Day-Night Average Level (DNL or Ldn) are such indices. They are time-weighted average values based on the equivalent sound level (Leq), which is a constant sound level that equals the same amount of acoustic energy as actual time-varying sound over a particular period. The CNEL penalizes noise levels during the night (10 p.m. to 7 a.m.) by 10 dB to account for the increased sensitivity of people to noise after dark. Evening noise levels (7 p.m. to 10 p.m.) are penalized 5 dB by the CNEL. Appropriately weighted hourly Leqs are then combined over a 24-hour period to result in a CNEL. The Ldn also penalizes nighttime noise levels, but does not penalize evening levels. These two indices are generally equivalent.

In general, the CNEL may be thought qualitatively as an accumulation of the noise associated with individual events occurring throughout a 24-hour period. The noise of each individual event is accounted for in a separate, discrete measurement that integrates the changing sound level over time as, for example, when an aircraft approaches, flies overhead, then continues off into the distance. These integrated sound levels for individual operations are referred to as Sound Exposure Levels or SELs. The accumulation of the SELs from each individual operation during a 24-hour period determines the CNEL for the day.

To limit population exposure to physically and/or psychologically significant noise levels, the State of California, various County governments, and most cites in the state have established guidelines and ordinances to control noise. Based upon the County of Ventura General Plan Hazards Appendix, an exterior noise level of 60 to 65 dBA CNEL is considered "normally acceptable" for residential uses. A noise level of 70 dBA CNEL is considered to be "conditionally acceptable" and a noise level of greater than 75 dBA CNEL is considered "clearly unacceptable" for residences. The 70 dBA CNEL noise level is considered to be the upper limit

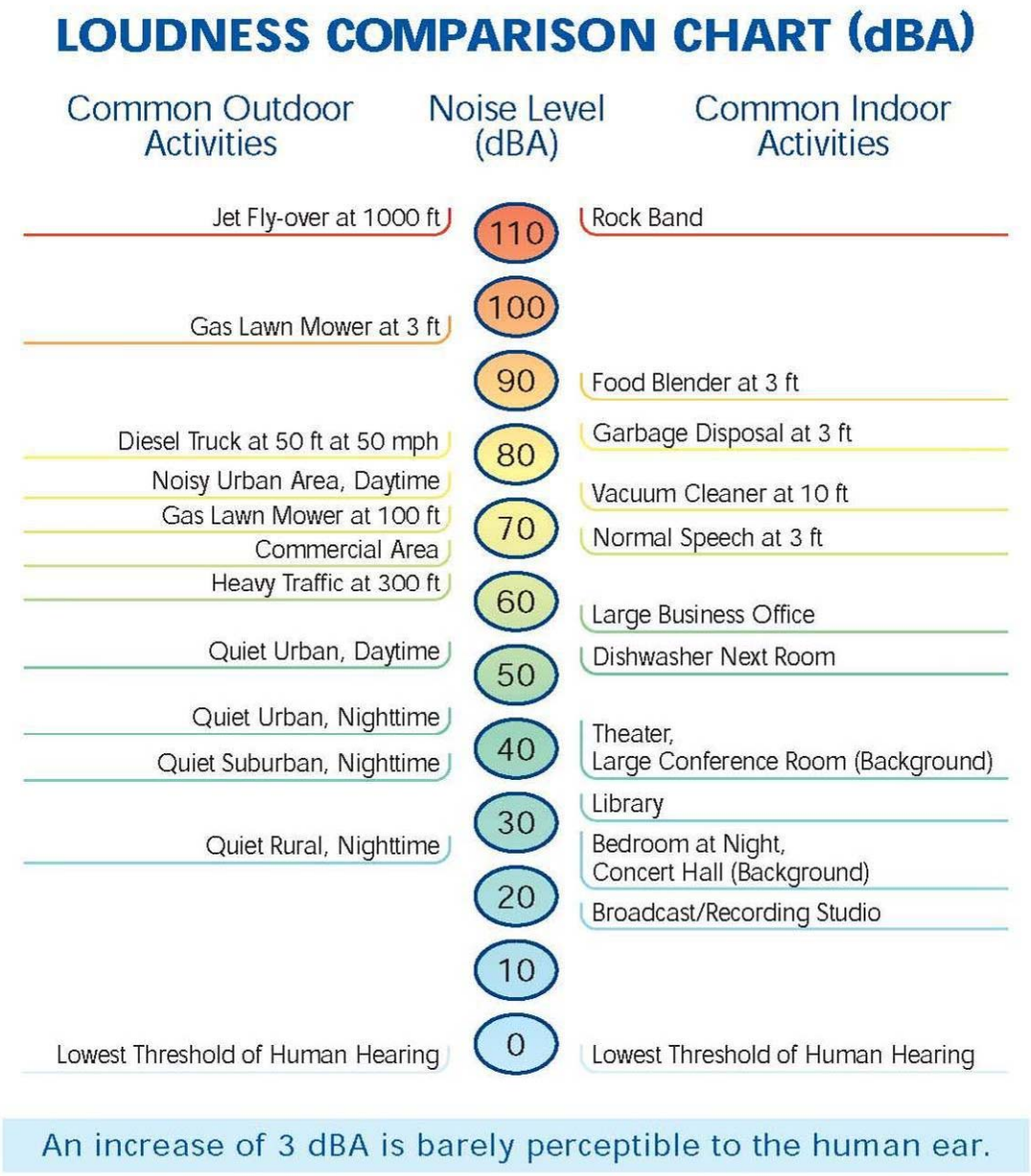

Figure C.21-1. Loudness Comparison Chart

of "normally acceptable" noise levels for other sensitive uses such as schools, libraries, hospitals, nursing homes, churches, and parks. These noise criteria are based upon the California Office of Noise Control land use compatibility guidelines. A noise level of less than 70 dBA CNEL is considered normally compatible with open space and open space uses such as golf courses.

The Ventura County General Plan (Section 2.16.2-1 of the Goals, Policies and Programs) also establishes policies pertaining to noise. These policies are reflected in the

County Guidelines, threshold criteria for noise as presented below in the impact analysis section of this noise discussion.

The closest noise sensitive land uses adjacent to the Project site are residences. The closest residence with a clear line-of site to the proposed Project site is located about 1,250 feet northwest of the project along Stockton Road. Other nearby residences are blocked from the Project site by intervening topography. Noise sources in the Project area include roadway traffic (particularly heavy truck traffic), aircraft over-flight noise, and daily activities conducted at the various land uses (mainly agricultural).

Ambient noise levels were measured at specific locations in the Project area during the day on Monday, July 14, 2014 using a Larson Davis Type LXT Precision Sound Level Meter. Table C.21-1 shows the results of these ambient noise measurements. Data presented in Table C.21-1 are representative of single event fifteen minute Leq noise measurements only.

Table C.21-1. Ambient Noise Levels within the Project Area

Noise Measurement Locations	Time	Noise Sources	Ambient Noise Level Measured in dBA LEQ (15 min.)
Existing Stockton Reservoir, 55 ft. from the centerline of Stockton Road	1:05 – 1:20 PM	Truck and vehicular traffic on Stockton Road, and farm equipment	51.3
Driveway of residence at 104585 Stockton Road, 35 feet from the centerline of Stockton Road (northwest of Project site)	2:00-2:15 PM	Truck and vehicular traffic on Stockton Road and overhead aircraft	62.0
Near intersection of Broadway and Stockton Roads (25 feet east of the centerline of Stockton Road and 125 ft north of the centerline of Broadway Road)	2:20 – 2:35 PM	Truck ,vehicular an tractor (1) traffic on Stockton Road/Broadway Road; mowing; unidentified wood banging sounds; and birds	63.4

21.1.2 Vibration

Vibration from construction activity is caused by general equipment operations and is usually highest during pile driving, blasting, soil compacting, jack hammering and construction related demolition. Although vibration is sometimes noticeable outdoors, it is almost exclusively an indoor problem (Transit Link Consultants, January 2007). Ground vibrations from construction activities do not often reach the levels that can damage structures (with the exception of fragile buildings), but they can achieve the audible and feelable ranges in buildings very close to the site (Federal Transit Administration, May 2006). A vibration that causes annoyance will be well below the damage threshold for normal buildings. Annoyance from vibrations can occur when the vibration exceeds the threshold of perception by only a small margin.

Construction vibration consists of a composite or spectrum of many frequencies, and is generally classified as broadband. The normal frequency range of most ground-borne vibration that can be felt generally ranges from 1 Hertz (Hz) to 200 Hz. Vibration energy spreads out as it travels through the ground. Therefore, vibration levels diminish with distance away from the source. High frequency vibration levels reduce more rapidly than low frequency vibrations. Therefore, low frequencies tend to dominate the vibration spectrum at large distances from the source. When a vibration encounters a building, a ground-to-foundation coupling loss will usually reduce the overall level of vibration that propagates into the building.

To evaluate construction vibration impacts to buildings, the peak particle velocity (ppv) in inches per second is the metric of interest. The peak particle velocity is defined as the maximum instantaneous positive or negative peak of the vibration event. Although ppv is the appropriate metric for evaluating the potential for building damage, it is not suitable for evaluating human response to vibration. Because it takes some time for the human body to respond to vibration signals, the average or root mean square (rms) vibration level expressed in VdB is used in the Federal Transit Authority guidance manual to evaluate vibration impacts in terms of annoyance to humans. The threshold of perception for humans is around 65 VdB. If the vibration level in a residence reached 85 VdB, most people will be strongly annoyed by the vibration. The relationship of ppv to rms velocity is expressed in terms of the "crest factor", defined as the ratio of the ppv amplitude to the rms amplitude. Peak particle velocity is typically a factor of 1.7 to 6 times greater than rms vibration velocity.

21.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

Policy	Consistency Determination
County Policy 2.16.2.1. All discretionary development shall be reviewed for noise compatibility with surrounding uses. Noise compatibility shall be determined from a consistent set of criteria based on the standards listed below.	Consistent - The following analysis ensures Project consistency with this policy.

21.3 IMPACT DISCUSSION

21.3.1 Noise

21.3.1.1 Significance Thresholds

The County Guidelines state the following. "Any project that produces noise in excess of the standards for noise in the Ventura County General Plan Goals, Policies and Programs (Section 2.16) or the applicable Area Plan has the potential to cause a significant noise impact. Noise-generating uses that either individually or when combined with other recently approved, pending, and probable future projects, exceeds the noise thresholds of General Plan Noise Policy 2.16.2-1(4) are considered to have a potentially significant impact."

Pursuant to the statement above, the County Guidelines establish the following noise threshold (from General Plan Section 2.16.2-1 of the Goals, Policies, and Programs) criteria, above which significant noise impacts would be anticipated.

Noise generators proposed to be located near any noise sensitive use shall incorporate noise control measures so that outdoor noise levels at the sensitive receptor do not exceed:

a. Leq 1H of 55 dBA or ambient noise level plus 3 dBA, whichever is greater during any hour from 6:00 am to 7:00 pm.

b. Leq 1H of 50 dBA or ambient noise level plus 3 dBA, whichever is greater, during any hour from 7:00 pm to 10 pm.

c. Leq 1H of 45 dBA or ambient noise level plus 3 dBA, whichever is greater during any hour from 10 pm to 6 am.

Discretionary development which would be impacted by noise or generate project related noise which cannot be reduced to meet the above standards, shall be prohibited. However, this criteria is not applicable to increased traffic noise identified along any of the roads identified within the 2020 Regional Roadway Network (Figure 4.2.3 of the Public Facilities Appendix of the Ventura County General Plan). In addition, State and Federal highways, all railroad line operations, aircraft in flight, and public utility facilities are noise generators having Federal and State Regulations that preempt local regulations.

General Plan Policy 2.16.2-1(5) requires construction noise to be evaluated and mitigated in accordance with the Construction Noise Threshold Criteria and Control Measures prepared by Advanced Engineering Acoustics (2005). Based on this document, the following list identifies noise-sensitive uses along with their typical periods of sensitivity to construction noise:

- Hospitals and nursing homes (sensitive 24 hours/day);
- Residences (sensitive during evening and nighttime - 7 pm to 7 am);
- Hotels and motels (sensitive during evening and nighttime); and
- Schools, churches and libraries (daytime and evening, when in use).

Construction noise threshold criteria are provided in the County of Ventura Construction Noise Threshold Criteria and Control Measures and are presented below.

- During daytime hours, construction work should comply with the County of Ventura construction noise threshold criteria (NTC), defined hereafter. Normally, no evening or nighttime construction activity is permitted in areas having noise-sensitive receptors. However, in the event such activity is deemed necessary and is permitted, reduced noise threshold criteria are provided for construction that must occur during evening and/or nighttime hours. Emergency construction work is exempt from these construction noise thresholds.
- Daytime Construction - Daytime (7:00 a.m. to 7:00 p.m. Monday through Friday, and from 9:00 a.m. to 7:00 p.m. Saturday, Sunday and local holidays) generally means any time period not specifically defined as a more noise-sensitive time period. The daytime construction noise threshold criteria are given below. Depending on project duration, the daytime noise threshold criteria shall be the greater of the fixed $L_{eq}(h)$ limit (which includes non-construction evening and nighttime noise) or the measured ambient $L_{eq}(h)$ plus 3 dB.
- Evening Construction - Evening hours (7:00 p.m. to 10:00 p.m.) are more noise-sensitive time periods. Therefore, evening construction noise threshold criteria

differ from the daytime criteria. Overall project construction noise, for the noise-sensitive hours specified, shall not exceed the noise threshold criteria listed below, at the nearest noise-sensitive receptor area or 10 feet from the façade of the nearest noise-sensitive building.

- Nighttime Construction - Nighttime hours (10:00 p.m. to 7:00 a.m. Monday through Friday, and from 10:00 p.m. to 9:00 a.m. Saturday, Sunday and local holidays) are the most noise-sensitive time periods. Therefore, nighttime and holiday construction noise threshold criteria differ from the daytime and evening criteria. Overall project construction noise, for the noise-sensitive hours specified, shall not exceed the noise threshold criteria listed below, at the nearest noise-sensitive receptor area or 10 feet from the façade of the nearest noise-sensitive building.
- Maximum Construction Noise - In addition, the construction-related, slow response, instantaneous maximum noise (L_{max}) shall not exceed the noise threshold criteria by 20 dBA more than eight times per daytime hour, more than six times per evening hour and more than four times per nighttime hour.
- Determination of Compliance - The construction noise at sensitive receptor locations for each construction phase is due to the contributions of each piece of noise producing equipment used in each construction phase. The resulting construction phase noise must be compared to the construction noise threshold criteria to determine whether noise mitigation measures are required. The construction noise monitoring methods are discussed in Appendix C of the County of Ventura Construction Noise Threshold Criteria and Control Measures and typical noise mitigation measures are given in Appendix D. During periods of greater construction noise activity, the construction noise shall be monitored by a designated person trained in the use of a sound meter in accordance with the methods of Appendix C of the County of Ventura Construction Noise Threshold Criteria and Control Measures. When construction noise fails to comply with the appropriate noise threshold criteria, or falls out of compliance during use, the designated noise monitor shall immediately identify the non-compliant activity or equipment. Either the non-compliant activity must be stopped and the equipment removed from service or effective remedial action must be taken, similar to the noise mitigation measures of Appendix D (of the County of Ventura Construction Noise Threshold Criteria and Control Measures), to restore compliance with the respective noise threshold criteria.

Daytime Construction Activity Noise Threshold Criteria

Construction Duration Affecting Noise-sensitive Receptors	*Noise Threshold Criteria shall be the greater of these noise levels at the nearest receptor area or 10 feet from the nearest noise-sensitive building*	
	Fixed Leq(h), dBA	*Hourly Equivalent Noise Level (Leq), dBA*[1, 2]
0 to 3 days	*75*	*Ambient Leq(h) + 3 dB*
4 to 7 days	*70*	*Ambient Leq(h) + 3 dB*
1 to 2 weeks	*65*	*Ambient Leq(h) + 3 dB*
2 to 8 weeks	*60*	*Ambient Leq(h) + 3 dB*
Longer than 8 weeks	*55*	*Ambient Leq(h) + 3 dB*

Note 1. The instantaneous L_{max} shall not exceed the NTC by 20 dBA more than 8 times per daytime hour.
Note 2. Local ambient Leq measurements shall be made on any mid-week day prior to project work.

Evening Construction Activity Noise Threshold Criteria

Receptor Location	*Evening Noise Threshold Criteria shall be the greater of these noise levels at the nearest receptor area or 10 feet from the nearest noise-sensitive building*	
	Fixed Leq(h), dBA	*Hourly Equivalent Noise Level (Leq), dBA*[1, 2]
Residential	*50*	*Ambient Leq(h) + 3 dB*

Note 1. The instantaneous L_{max} shall not exceed the NTC by 20 dBA more than 6 times per evening hour.
Note 2. Hourly evening local ambient noise measurements shall be made on a typical mid-week evening prior to project work.

Nighttime Construction Activity Noise Threshold Criteria

Receptor Location	*Nighttime Threshold Criteria shall be the greater of these noise levels at the nearest receptor area or 10 feet from the nearest noise-sensitive building*	
	Fixed Leq(h), dBA	*Hourly Equivalent Noise Level (Leq), dBA,* [1,2]
Resident, Live-in Institutional	*45*	*Ambient Leq(h) + 3 dB*

Note 1. The instantaneous Lmax shall not exceed the NTC by 20 dBA more than 4 times per nighttime hour.
Note 2. Hourly nighttime local ambient noise measurements shall be made on a typical mid-week night prior to project work.

21.3.1.2 Impacts

The only sensitive receptors in the area are residential which are considered sensitive during evening and nighttime - 7 pm to 7 am. Project construction is scheduled for 7 am to 4 pm and would therefore avoid the sensitive period for this use.

The use of construction equipment would generate noise in the short term (nine month period). Noise produced by construction equipment varies substantially depending on the type of equipment, and its operation and maintenance.

The Federal Highway Administration Roadway Construction Noise Model (RCNM - a computer-modeling program to estimate noise levels from construction activity) was used to estimate short-term noise levels that would result at the nearest existing noise sensitive land use (residence at 1,250 feet from the site) during tank construction. The computed construction noise level estimate for the closest residence is 54.3 dBA Leq which is about 6.3 dBA over the estimated ambient noise level of 48 dBA (which is based upon the short-term ambient noise sample as adjusted for distance to the sensitive receptor). An increase in noise of 3 dBA or more is noticeable to most listeners. (Actual noise levels would vary depending upon the types and numbers of equipment operating at any given time.) However, as indicated above, because construction work would occur only during daytime hours and residential uses are considered to be noise sensitive from 7 pm to 7 am, construction noise impacts are considered to be adverse, but less than significant.

In addition to construction noise from the operation of construction equipment at the work sites, the construction phase would cause minor increases in traffic noise along access routes to and from the site from the movement of equipment, materials and workers. This short-term effect is considered to be a less than significant impact. There are no other construction projects that are expected to be constructed in physical or temporal proximity to the proposed project such that cumulative noise impacts would result with the exception of possible increases in noise levels on area roads from cumulative construction traffic.

The proposed tank site would not include any long-term noise generating devises. Therefore, it would not result in any significant long-term noise impacts on a project-specific or cumulative basis.

21.3.1.2 Mitigation and Residual Impacts

No significant noise impacts would result; therefore, no mitigation is required.

21.3.2 VIBRATION

21.3.2.1 Significance Thresholds

The following vibration construction threshold from the County Guidelines is applicable to the proposed Project. “Any project that either individually or when combined with other recently approved, pending, and probable future projects, includes construction activities involving blasting, pile-driving, vibratory compaction, demolition, and drilling or excavation which exceed the threshold criteria provided in the Transit Noise and Vibration Impact Assessment (Section 12.2), is considered to have a potentially significant impact.”

21.3.2.2 Impacts

Project construction will generally involve the temporary movement and use of trucks, and heavy equipment. These activities will result in some level of vibration. However, due to the lack of sensitive receptors in close proximity to the Project site, no significant vibration impacts are anticipated. Construction traffic would generate vibrations on the roads along the

traffic route; however, these vibrations are expected to be similar to that associated with the normal heavy duty truck traffic on Stockton Road and other roadways.

21.3.2.3 Mitigation and Residual Impacts

No significant vibration impacts would result. Therefore, no vibration mitigation is required.

22.0 DAYTIME GLARE

22.1 SETTING

As defined by the County Guidelines, glare is intense light that is blinding or discomforting to humans. Glare has a potentially significant effect on motorists.

Conditions that create daytime glare are typically caused by the reflection of sunlight from highly reflective surfaces at or above eye level. Daytime glare is caused by the reflective surfaces of buildings with materials such as metal or glass that lead to disability glare or discomfort glare for motorists travelling on County's roads where the traffic volumes/speeds are generally high (e.g. Regional Road Network).

No highly reflective materials are present in the immediate vicinity of the Project site.

22.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

There are no General Plan policies for this issue area that are relevant to the proposed Project.

22.3 IMPACT DISCUSSION

22.3.1 Significance Thresholds

A proposed project will be considered to have a significant project-specific or cumulative glare impact if the project will create a new source of disability glare or discomfort for motorist traveling along any road of the County Regional Road Network. A project would be considered significant when the glare source to the median of background radiation exceeds 3:1 in a luminance histogram.

22.3.2 Impacts

There are no highly reflective materials or lighting that would be required as part of the proposed Project that would create a source of light or glare that would cause community discomfort. Because the Project would not result in a project-specific glare impact, it would not contribute to any cumulative glare impacts.

22.3.3 Mitigation and Residual Impacts

No impact would result. Therefore, no mitigation is required. However, it is recommended that the District consider painting the tank a flat green to help it visually blend into its surroundings.

23.0 PUBLIC HEALTH

23.1 SETTING

A public health issue is defined by the County's Initial Study Assessment Guidelines as a human health related issue, such as, but not limited to, vectors, bioaerosols, and other pathogens or environmental factors that may pose a substantial present or potential hazard to public health.

23.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No policies from the Ventura County's General Plan that relate to public health are applicable to the proposed Project.

23.3 IMPACT DISCUSSION

As described in Section 20 (Hazardous Materials), the proposed tank site has historically been used for agriculture and may contain residual agricultural chemicals. Also, unknown sources of contamination may be encountered during construction. As such, during construction there is a potential to expose workers to hazardous materials should such materials be present within the proposed excavation areas. Mitigation as proposed in Section 20 would reduce health impacts to less than significant.

24.0 GREENHOUSE GASES

24.1 SETTING

24.1.1 Definition

Greenhouse gases (GHGs) are defined as any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). These greenhouse gases lead to the trapping and buildup of heat in the atmosphere near the earth's surface, commonly known as the Greenhouse Effect. There is increasing evidence that the Greenhouse Effect is leading to global climate change.

24.1.2 Regulatory Framework

The California Global Warming Solutions Act (State Assembly Bill 32) focuses on reducing GHG emissions in California. GHG as defined under AB 32 include: water vapor, carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 requires the CARB to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. In addition, two State-level Executive Orders have been enacted by the Governor (Executive Order S-3-05, signed June 1, 2005, and Executive Order S-01-07, signed January 18, 2007) that mandate reductions in GHG emissions.

In June 2008, CARB developed a Draft Scoping Plan for Climate Change, pursuant to AB-32. The Scoping Plan was approved at the Board hearing on December 12, 2008. The Scoping Plan proposes a comprehensive set of actions designed to reduce overall carbon emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, and enhance public health while creating new jobs and enhancing

the growth in California's economy. Key elements of the Scoping Plan for reducing California's greenhouse gas emissions to 1990 levels by 2020 include:

- Expansion and strengthening of existing energy efficiency programs and building and appliance standards;
- Expansion of the Renewables Portfolio Standard to 33 percent;
- Development of a California cap-and-trade program that links with other Western climate Initiative Partner programs to create a regional market system;
- Implementation of existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Targeted fees to fund the State's long-term commitment to AB 32 administration.

The First Update to the Scoping Plan was approved by the Board on May 22, 2014, and builds upon the initial Scoping Plan with new strategies and recommendations. The First Update identifies:

- Opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments.
- Defines ARB's climate change priorities for the next five years.
- Sets the groundwork to reach long-term goals set forth in Executive Orders S-3-05 and B-16-2012.
- Highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the initial Scoping Plan.
- Evaluates how to align the State's "longer-term" GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

24.1.3 GHG and CEQA

From 2007 to 2009, CARB has promulgated several discrete early action measures to reduce GHG emissions prior to the full and final adoption of a plan to reduce aggregate California GHG emissions to 1990 levels by 2020. Senate Bill 97, enacted in 2007, amends the CEQA statute to clearly establish that greenhouse gas emissions and the effects of GHG emissions are appropriate for CEQA analysis. It directs the California Office of Planning and Research (OPR) to develop guidelines *"for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by this division."* (Pub. Res. Code § 21083.05(a)).

In December of 2009, the California Natural Resources Agency adopted amendments to the CEQA Guidelines (Title 14, Cal. Code of Regulations, §15000 et seq.) to comply with the mandate set forth in Public Resources Code §21083.05. These revisions became effective March 18, 2010. According to GHG amendments to the CEQA Guidelines, each public agency that is a CEQA lead agency needs to develop its own approach to performing a climate change

analysis for projects that generate GHG emissions. A consistent approach should be applied for the analysis of all such projects, and the analysis must be based on best available information.

The CEQA Guideline amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. They do not, however, establish a specific threshold of significance. The amendments do identify a general methodology for assessing the significance of impacts from Project GHG emissions. Specifically, CEQA Guideline Section 15064.4 states:

> *(a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:*
>
> *(1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or*
>
> *(2) Rely on a qualitative analysis or performance based standards.*
>
> *(b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:*
>
> *(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;*
>
> *(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.*
>
> *(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.*

24.1.4 Climate Change Action Plans

Many California counties have developed a climate change action plan focusing on reducing GHGs from local sources, to facilitate meeting the State reduction targets of AB 32. To date, Ventura County has not published any draft documents related to GHG emissions reduction in the County.

24.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

There are no County policies on greenhouse gases that are relevant to the proposed Project.

24.3 IMPACT DISCUSSION

24.3.1 Thresholds of Significance

To date, GHG thresholds of significance have not been adopted by Ventura County. On November 8, 2011, the Ventura County APCD completed a staff report assessing several options and strategies in developing GHG thresholds for land development projects. Although no GHG thresholds were developed, the November 8, 2011 staff report stated that consistency with any GHG thresholds developed by the South Coast Air Quality Management District (SCAQMD) is preferred. On December 5, 2008, the SCAQMD governing board adopted interim GHG significance thresholds for industrial sources. This document also included a suggestion of a potential threshold of 10,000 $MTCO_2E$ (metric tons, CO_2 equivalent) for industrial projects. Due to the lack of any other applicable threshold, this value will be used in this Study to determine the significance of the contribution of the Project to global climate change.

24.3.2 Impacts

Implementation of the proposed Project would result in direct and indirect greenhouse gas emissions associated with Project construction and operation. Construction equipment GHG emissions were calculated using load factors and emission factors from the Nonroad Engine and Vehicle Emissions Study (USEPA, 1991). On-road GHG emissions were estimated using the EMFAC2007 model. Table C.24-1 provides a summary of construction-related GHG emissions.

Table C.24-1. Total Construction Greenhouse Gas Emissions

Source	CO_2 (tons)	CH_4 (tons)	N_2O (tons)	Metric Tons CO_2 equivalent
Construction equipment	325.6	0.045	0.003	297.2
Worker & materials transportation	75.4	0.006	0.006	70.2
Total	**401.0**	**0.051**	**0.009**	**367.4**
Amortized over 30 years				**12.2**
SCAQMD-suggested GHG significance threshold				10,000

Over the long-term, no annual greenhouse gas emissions would be associated with implementation of the proposed Project as it is a replacement tank and emissions associated with weekly inspection and maintenance already occur. Total Project annual GHG emissions would be less than the SCAQMD suggested GHG significance threshold, and considered as a less than significant impact to global climate change.

24.3.3 Mitigation and Residual Impacts.

No significant impacts would result; therefore, no mitigation is required.

25.0 COMMUNITY CHARACTER

25.1 SETTING

As defined by the County Guidelines, a community is a particular area within which people with common interests reside. Community character consists of the image of a community, as defined by such factors as its built environment, natural features, architectural form and style, existing uses (e.g., agricultural, residential, commercial, industrial, or institutional), and density and intensity of development. Central to the concept of community character is a sense of place, or the characteristics of a location that make it readily recognizable as being unique and different from its surroundings and that provides a feeling of belonging to, or being identified with, that particular place.

The Project is located within a rural agricultural area that includes a variety of agricultural uses such as orchard, row crop and hoop house uses. Additionally, areas of undeveloped open space remain in the Project area.

25.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

Policy	Consistency Determination
County Policy 3.1.2.3: Consistency of Land Use: Any land use shall be deemed consistent with the General Plan if it is permitted under a zoning designation which is consistent with Policy Number 2 above, and if the land use does not conflict with any other policy of the County General Plan.	Consistent – Because the proposed Project is construction of water storage and transmission facilities it is not subject to the County Zoning Ordinance pursuant to California Government Code §53091(e). Project policy consistency has been evaluated throughout this Initial Study under the individual environmental issue categories.

25.3 IMPACT DISCUSSION

25.3.1 Significance Thresholds

The threshold of significance criteria in the County Guidelines for community character states that:

1. *A project that is inconsistent with any of the policies or development standards relating to community character of the Ventura County General Plan, Policies and Programs or Saticoy Area Plan is regarded as having potentially significant environmental impact; and/or*
2. *A project has the potential to have a significant impact on community character, if it either individually or cumulatively when combined with recently approved, current and reasonably foreseeable probable future projects would introduce physical development that is incompatible with existing land uses, architecture form or style, site design/layout, or density/parcel sizes with the community in which the project is located.*

25.3.2 Impacts

The Project would involve the development of a 1 MG above ground water storage tank. Such tanks are not uncommon in the rural areas of Ventura County. The existing Stockton Reservoir has been on Stockton Road since its construction in 1974. The introduction of

another tank would intensify this land use in the Project vicinity because the exiting reservoir would not be removed until such time as an additional 1.0 MG reservoir is sited within the 994 Pressure Zone. However, it would not be out of character with the existing community.

As indicated above, because the proposed Project is construction of water storage and transmission facilities it is not subject to the County Zoning Ordinance pursuant to California Government Code §53091(e). However, the proposed tank would be located in the AE Zone. The intent of the AE Zone, in part, is to maintain agriculture as a major industry in Ventura County. As a water storage and transmission project, the proposed Project supports the uses in the AE Zone in which it would be located.

Based upon the assessment above, community character impacts would be less than significant for the Project. No other pending or approved projects are in the general Project area that together with the Project would result in cumulative impacts to community character.

25.3.3 Mitigation and Residual Impacts

No mitigation measures are required. However, measures SR1 and SR2 would reduce the effects of the Project on community character.

26.0 HOUSING

26.1 SETTING

The Project is located within unincorporated Ventura County. No existing housing exists at the proposed Project site

26.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No housing-related policies from Ventura County's General Plan are applicable to the proposed Project.

26.3 IMPACT DISCUSSION

26.3.1 Significance Thresholds

The County Guidelines indicate that any project that would eliminate existing dwelling units would have an impact.

The County Guidelines also state that *any project that involves construction has an impact on the demand for additional housing due to potential housing demand created by construction workers. However, construction worker demand is a less than significant project-specific and cumulative impact because construction work is short-term and there is a sufficient pool of construction workers within Ventura County and the Los Angeles metropolitan regions*.

Additionally, the County Guidelines state that *pursuant to General Plan Policy 3.4.2-9, projects that would result in new jobs in the County have an impact on the demand for housing. However, only projects that result in 30 or more new full-time-equivalent ("FTE") lower-income employees would have a significant project-specific and cumulative impact on the demand for housing because the General Plan shows that there is potentially insufficient inventory of land to develop lower-income housing*.

26.3.2 Impacts

The Project would not involve the removal of any existing housing. However, the Project would require short-term construction employees. Their demand for housing is expected to be met by existing housing supplies in Ventura and Los Angeles metropolitan regions. Over the long-term, the Project would not result in the need for additional permanent employees and therefore, would not create a significant demand for housing on a Project-specific or cumulative basis.

26.3.3 Mitigation and Residual Impacts

No significant impact to housing would result; therefore, no mitigation is required.

27.0 TRANSPORTATION/CIRCULATION

27.A ROADS AND HIGHWAYS (1-3)

27.A.1 Setting

The quality of traffic service provided by a roadway system can be described through the Level of Service (LOS) concept. LOS is a standardized means of describing traffic conditions by comparing traffic volumes in a roadway system with the system's capacity. A LOS rating of A-C indicates that the roadway is operating efficiently. Minor delays are possible on an arterial with a LOS of D. LOS E represents traffic volumes at or near the capacity of the highway, resulting in possible delays and unstable flow. LOS F represents the least favorable level of service.

Stockton Road would be directly affected by pipeline construction and use by construction-related vehicles. Other roads that may be impacted by construction traffic include but are not necessarily limited to: Balcom Canyon Road, Broadway Road, State Route (SR) 23, SR 118 (Los Angeles Avenue), SR 126, SR 34 (Somis Road).

Roadway segments and intersections in the Project area with level of service constraints include SR 118/Los Angeles Avenue between Moorpark Avenue and Spring Road and the SR 111/SR 34 intersection. The Los Angeles Avenue/Moorpark Road intersection and Los Angeles Avenue/Spring Road intersections operate at LOS C and D, and E and E during the AM and PM peak periods respectively (2012 projections reported in Caltrans 2009). The SR 118/SR 34 intersection operates at LOS F in both the AM and PM peak periods (CalTrans, June 2010).

27.A.2 Project Consistency with Applicable Policies

Policy	Consistency Determination
County Policy 4.2.2.3: The minimum acceptable Level of Service (LOS) for road segments and intersections within the Regional Road Network and Local Road Network shall be as follows: *(a) LOS-'D' for all County thoroughfares and Federal highways and State highways in the unincorporated area of the County, except as otherwise provided in subparagraph (b);* *(b) LOS-'E' for State Route 33 between the northerly end*	Consistent - With the implementation of traffic mitigation incorporated into the project as described below, the Project is not considered to significantly impact LOS.

Policy	Consistency Determination
of the Ojai Freeway and the City of Ojai, Santa Rosa Road, Moorpark Road north of Santa Rosa Road, State Route 34 north of the City of Camarillo and State Route 118 between Santa Clara Avenue and the City of Moorpark; *(c) LOS-'C' for all County-maintained local roads; and* *(d) The LOS prescribed by the applicable city for all Federal highways, State highways, city thoroughfares and city-maintained local roads located within that city, if the city has formally adopted General Plan policies, ordinances, or a reciprocal agreement with the County (similar to Policies 4.2.2-3 through 4.2.2-6) respecting development in the city that would individually or cumulatively affect the LOS of Federal highways, State highways, County thoroughfares and County-maintained local roads in the unincorporated area of the County.* *At any intersection between two roads, each of which has a prescribed minimum acceptable LOS, the lower LOS of the two shall be the minimum acceptable LOS for that intersection.*	
County Policy 4.2.2.6: Development that would generate additional traffic shall pay its pro rata share of the costs of necessary improvements to the Regional Road Network per the County's Traffic Impact Mitigation Fee Ordinance as amended time to time.	Consistent: Due to the nature of the Project, transportation mitigation fees are not required.

27.A.3 Impact Discussion

27.A.3.1 Level of Service

a. Significance Thresholds. The County Guidelines state that the minimum acceptable level of service for road segments within the Regional Road Network and the Local Road Network is as shown in Table C.27.A-1.

Table C.27-1. Minimum Acceptable Level of Service for Roadway Segments (Table 1 from Ventura Initial Study Assessment Guidelines Section 27A(1) Roads and Highways - Levels of Service)

County of Ventura - Minimum Acceptable Level of Service	
Minimum LOS	**Description**
C	All County maintained local roads.
D	All County thoroughfares and state highways within the unincorporated area of the County accept as provided below.
E	1. State Route 33 between the end of the freeway and the City of Ojai. 2. State Route between 118 between Santa Clara Avenue and the city of Moorpark 3. State Route 34 (Somis Road) north of the City of Camarillo. 4. Santa Rosa Road between the Camarillo city limits line and Thousand Oaks city limits line.

County of Ventura - Minimum Acceptable Level of Service	
Minimum LOS	**Description**
	5. Moorpark Road north of Santa Rosa Road to Moorpark city limits line.
Varies	The LOS prescribed by the applicable city for all State highways, city thoroughfares, and the city maintained local roads located within that city, if the city has formally adopted General Plan policies, ordinances, or a reciprocal agreement with the County, pertaining to development in the city that would individually or cumulatively affect the LOS of state highways, county thoroughfares and county-maintained local roads in the unincorporated area of the County
	County LOS standards are applicable for any city that has not adopted its own standards.

At any intersection between two roads, each of which has a prescribed minimum acceptable LOS, the less stringent LOS of the two shall be the minimum acceptable LOS of that intersection.

The County considers any project that would cause the existing LOS on a roadway segment to fall to an unacceptable level, or any project that adds one or more peak hour trips to a roadway operating at an unacceptable LOS to have a significant project-specific impact. The County guidelines further state that if a project will add one or more peak hour trips to a roadway segment that is part of the regional road network and is currently operating at an unacceptable LOS; or 10 or more peak hour trips to a roadway segment that is part of the regional road network and is projected to fall to a less-than-acceptable level LOS by the year 2020, it will result in a significant cumulative impact.

b. Impacts. The Project will generate an estimated 242 truck trips for import of concrete, asphalt and other construction material, and export of earth materials (Table 6.4-2). Additional truck trips will be required for mobilization and demobilizations of equipment. Worker vehicle trips will also be generated during the construction period. These trips would be spread throughout the construction period which is expected to last about 9 months during the period between April 2016 and December 2016. Due to the poor LOS on Highway 118 within the City of Moorpark and specifically the Los Angeles Avenue/Spring Road intersection which operates at LOS E during the peak AM and PM periods, short-term traffic LOS impacts may be considered to be significant on a project-specific and cumulative basis.

Project implementation would not require additional permanent staff. Therefore, no increase in long-term trips would be generated by additional employees. Existing staff will be required to do periodic maintenance on the proposed facilities. However, only one vehicle trip per week day would be required during the operational phase of the replacement reservoir; however, staff already visits the existing Stockton Reservoir, thus no long-term impacts to LOS on the local roadway network are anticipated. Any occasional additional trip generated for Project repair or maintenance would not constitute a considerable contribution to any long-term cumulative increase in traffic. Therefore, any cumulative impact on LOS would be less than significant.

c. Mitigation and Residual Impacts. The following measures will be incorporated into the Project to ensure that short-term LOS impacts would be less than significant.

T1 The District shall make a condition of the construction contractor bid specifications that during the construction phase of the Project, all construction-related trips affecting State Highways will occur outside of the peak hours to the maximum extent feasible. Peak hours are 6:30 to 9:30 am and 3:30 to 6:30 p.m. weekdays.

27.A.3.2 Safety and Design of Public Roads

a. Impacts. The Project consists of construction of a new above ground water tank and subsurface pipeline segment in Stockton Road. The new tank would include an access driveway from Stockton Road.

The Project would result in potentially significant short-term safety impacts associated with the encroachment into public roads during construction of the water pipeline segment. However, compliance with required road encroachment permit requirements and additional measures identified below would reduce this impact to a less than significant level.

The proposed reservoir driveway would enter Stockton Road just north of a point in the road where it makes a 120 degree angle. Due to this condition ingress and egress from the site is most safely taken driving forward. Because the proposed reservoir site has an access road that would circle the tank, workers visiting the site would be able to exit the site without backing onto Stockton Road. To ensure safe operation of the driveway and considering that Stockton Road has less than 1,000 trips per day, the driveway must be constructed per County Road Standard (CRS) Plate E-7 and the District should maintain clear sight visibility north and south of the driveway. These standard measures are incorporated as mitigation measures below for the purposes of tracking their implementation.

b. Mitigation and Residual Impacts. The following measures will be incorporated into the Project to ensure that short-term roadway safety impacts would be less than significant.

T2 The District shall apply for Encroachment Permits from the Permits Division of the County Transportation Department for work on County roads. The District should contact the Permits Division at 805-654-2055 for the requirements of this permit.

T3 A Traffic Control Plan shall be prepared by a traffic engineer, submitted, reviewed and approved by the County for any road closure or partial road closure. The Plan shall be shall be designed to mitigate any potential disruptions to vehicle, pedestrian and bicycle movements, as well as property access during construction within the road right-of-way. The Plan must be approved the required minimum number of days (seven calendar days for the County) prior to the actual road closure, or detour. The Traffic Control Plan should include, but not necessarily be limited to the following as appropriate:

- Use of a flagger at work access areas;
- Maintain two-way traffic at all times, where feasible;
- Provide safety measures to separate motorists from the construction workers and the work zone;

- Ensure access for emergency vehicles at all times;
- Provide access to adjacent residences and businesses to the extent feasible;
- Open lanes as soon as possible to restore normal traffic patterns;
- Provide advance notification of the construction Project to owners and occupants of land in the affected area;
- Notify the public during construction, using methods such as large electronic monitoring signs, notification to impacted residents, appropriate detour signs, and notifications to schools and emergency providers;
- Provide an information hotline to be manned during business hours;
- Provide a designated traffic control coordinator to ensure compliance with the Traffic Control Plan;
- During construction, cover open trenches with metal plates at the end of the work day;
- After construction, restore the roads to their pre-construction condition;
- During the hauling of material to or from the Project site, the trucks shall be covered to secure all material so that any nuisance or danger to the public from flying debris can be avoided, and
- Inspect and maintain truck safety equipment.

T4 Provide the County Transportation Department a Site Plan that shows the proximity of trenching operation, construction equipment, and storage of materials to the Stockton Road right-of-way and road edge.

T5 Oversize vehicle permits shall be obtained from Caltrans, the County of Ventura and any other impacted jurisdiction as appropriate if such vehicles are to be used in the truck hauling operations.

T6 All construction within the roadway right-of-way shall conform to the applicable County Road Standards.

T7 Any wide loads or unusual loads (e.g., excessively long loads) to be transported on State highways will require a Transportation Permit from Caltrans.

T8 The District shall comply with the Ventura County Transportation Department policy regarding a moratorium on trenching on recently paved roads. If the road has been paved in the last five years, then the District will be responsible for overlaying the entire width of the road. (Stockton Road was paved in 2011.)

T9 The District shall require the construction contractor(s) for the Project to protect pavement, berms, and drainage structures within the Project work area from damage that may be caused by trucks and construction-related trips. Any portion damaged during construction, in the opinion of the Transportation Department or Designee, shall be replaced in accordance with the current Standard Construction Details and/or in a manner acceptable to the Transportation

Department or designee of the affected roadway within 30 days of completion of the Project.

T10 The Project driveway shall be constructed per County Road Standard Plate E-7.

T11 The Project shall maintain clear sight visibility north and south of the driveway.

27.A.3.3 Safety and Design of Private Access, and Tactical Access

The Project does not include any habitable structures. The Project does include a proposed access driveway/road to and around the tank. Because only a water tank is proposed, Ventura County Fire Protection District Private Road Guidelines are not applicable No impact would result; therefore, no mitigation is required.

27.B PEDESTRIAN/BICYCLE

27.B.1 Setting

Based upon a review of the Ventura County Transportation Commission's on-line bike map, there are no designated pedestrian or bicycle facilities along Stockton Road.

27.B.2 Project Consistency with Applicable Policies

County Policy	Consistency Determination
County Policy 4.2.2.8: Discretionary development shall be conditioned, where feasible, to minimize traffic impacts by incorporating pedestrian and bicycle pathways, bicycle racks and lockers, ridesharing programs, transit improvements (bus turnouts, shelters, benches), and/or transit subsidies for employees or residents of the proposed development.	Consistent - The Project does not include the type of development that requires alternative transportation facilities.

27.B.3 Impact Discussion

27.B.3.1 Significance Thresholds

County Guidelines state that a project that will cause actual or potential barriers to existing or planned pedestrian/bicycle facilities may have a significant impact. Additionally, projects that generate or attract pedestrian/bicycle traffic volumes meeting requirements for protected highway crossings or pedestrian and bicycle facilities may have a significant impact.

27.B.3.2 Impacts

The proposed Project would not impact existing or planned pedestrian or bicycle facilities. Additionally, the Project will not create a demand for pedestrian or bicycle facilities.

27.B.3.2 Mitigation and Residual Impacts

No impact would result therefore, no mitigation is required.

27.C BUS TRANSIT

27.C.1 Setting

Based upon a review of public transit information on the Ventura County Transportation Commission web site, there is no public transit in the Project area. Additionally, staff from Padre did not observe transit stops in proximity to the Project site during a field visits in July of 2014. However, Stockton Road may be used by school buses.

27.C.2 Project Consistency with Applicable Policies

See policy discussion for 27B.

27.C.3 Impact Discussion

According to the County Guidelines a project will have a significant impact on bus transit if it would interfere with existing bus transportation or if it would increase demand for new bus transit services. The Project would not individually or cumulatively impact public transit because it would not create a demand for bus transit, and currently there are no public transit routes in the Project area. Any impacts on school bus traffic would be due to short term encroachments into Stockton Road and are addressed by item 27.A.3.2. No impact would result; therefore, no mitigation is required.

27.D RAILROADS

27.D.1 Setting

There are no railroads in the Project area. The closest railroad line is located north of Los Angeles Avenue in the City of Moorpark.

27.D.2 Project Consistency with Applicable Policies

No policies from the Ventura County's General Plan with respect to railroads are applicable to the proposed Project.

27.D.3 Impact Discussion

According to the County Guidelines, a project would have a significant impact on a railroad if it would substantially interfere with an existing railroad's facilities or operations. The Project would not impact railroad facilities or operations on either a project-specific or cumulative basis. No impact would result; therefore, no mitigation is required.

27.E AIRPORTS

27.E.1 Setting

There are no airports near the Project site; therefore, there are no impacts due to airport transportation. (For further information please refer to Section 19 of Aviation Hazards).

27.E.2 Project Consistency with Applicable Policies

Policy	Consistency Determination
County Policy 4.2.2.10: Discretionary development that would endanger the efficient, safe operation of an airport or would result in significant land use incompatibility with an airport shall be prohibited.	Consistent - The Project would not impact airport operations.

27.E.3 Impact Discussion

The Project site is not near an existing airport and would not directly, indirectly or cumulatively impact such a facility. No impact would result; therefore, no mitigation is required.

27.F HARBORS

27.F.1 Setting

There are no harbors in the vicinity of the Project area as it about 18 miles from the ocean.

27.F.2 Project Consistency with Applicable Policies

The General Plan does not include any harbor-related policies that are applicable to the proposed Project.

27.F.3 Impact Discussion

The Project area is not near an existing harbor and would not directly, indirectly or cumulatively impact such a facility. No impact would result; therefore, no mitigation is required.

27.G PIPELINES

27.G.1 Setting

Based upon a review of the online U. S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration National Pipeline Information System - Mapping for Ventura County (July 23, 2014), a Southern California Gas transmission pipeline is located in the Project area; however, the exact location was not provided. Padre staff noted what appears to be markers for a gas line crossing Stockton Road in the Project area during a field visit in July 2014.

27.G.2 Project Consistency with Applicable Policies

No General Plan policies relating to pipelines are applicable to the proposed Project.

27.G.3 Impact Discussion

It is likely that a gas pipeline is located within the potential area of impact for the Project (proposed water line segment). However, prior to construction-related excavation; the standard precaution of contacting Dig Alert to determine the presence of such lines and their location would be performed. If pipelines are identified, they would then be avoided. Using this standard precaution, exposure to hazards from oil and gas pipes as well as other pipelines would be less than significant on a project-specific and cumulative basis. No significant impact would result. Therefore, no mitigation is required.

28.0 WATER SUPPLY

28.A QUALITY

28.A.1 Setting

According to the Ventura County General Plan Public Facilities and Services Appendix (1988 last amended May 2007), local water supply is divided between groundwater, imported water (from Metropolitan Water District of Southern California provided through local wholesale agency Calleguas Municipal Water District), and surface water, with groundwater being the largest single source of water (67 percent of total). A small amount of reclaimed water is also used. Ventura County consumes more groundwater than is available locally, resulting in an overdraft of groundwater resources and increasing dependence on imported water supplies.

VCWD No. 1 water supplies include approximately 80 percent imported water. However, in times of drought or limited groundwater allocations, the District must rely almost completely on imported water (VCWD No. 1, June 1, 2011).

28.A.2 Project Consistency with Applicable Policies

There are no water quality policies from the Ventura County's General Plan that are applicable to the Project.

28.A.3 Impact Discussion

The County Guidelines thresholds for water quality state that the quality of water available to development must be in compliance with: the applicable State Drinking Water Standards as described in Title 22 of the California Code of Regulations, Section 64421 et seq.; California Health and Safety Code, Division 104, Part 13, Chapter 4; Ventura County ordinance Code, Division 4, Chapter 8; and Ventura County Building Code, Article 1, Article 6.

The Project includes development of a replacement reservoir for potable water storage. The District is responsible for ensuring that water supplies for public distribution by the District meet State and local health requirements. This project would not alter water treatment processes. No impact would result; therefore, no mitigation is required.

28.B QUANTITY

28.B.1 Setting

Ventura County Waterworks District No. 1 is responsible for providing potable water within the Project area.

28.B.2 Project Consistency with Applicable Policies

Policy	Consistency Determination
County Policy 4.3.2.3: Discretionary development shall be conditioned to incorporate water conservation techniques and the use of drought resistant native plants pursuant to the County's Guide to Landscape Plans.	Consistent - The Project does not include landscaping plans. However, to ensure consistency with this policy, measure WS1 below is proposed

28.B.3 Impact Discussion

Limited short-term water demands may result during construction operations for dust suppression and irrigation of revegetated areas after construction. However, this short-term impact to water supplies would be less than significant and not cumulatively considerable due to its limited nature.

As the Project involves construction and operation of water infrastructure, it will not require a new source of domestic water and would not require an additional long-term water supply.

No mitigation measures are required; however, the following measures are recommended to provide Project consistency with Policy 4.3.2.3 and to reduce the Project's potential short-term demand on water supplies.

WS1 Project impact areas requiring revegetation, shall be revegetated using drought-tolerant native plants and water conserving techniques.

WS2 Short-term Project construction water demands shall be met using reclaimed water (e.g., dust suppression and irrigation of revegetated areas).

28.C FIRE FLOW REQUIREMENTS

28.C.1 Setting

Fire flow is defined as the number of gallons per minute (gpm) of water at a minimum residual pressure of 20 pounds per square inch (psi) for a designated duration available from a fire hydrant in the event of an emergency situation.

28.C.2 Applicable Policies

No policies relating to fire flow from the Ventura County's General Plan are applicable to the Project.

28.C.3 Impact Discussion

The proposed Project is limited to construction of a replacement water tank and pipeline segment which would not require fire flow for fire suppression. VCWWD No. 1 works with the Ventura County Fire Protection District in providing adequate fire flow within the District's boundaries. The Project would not result in fire flow impacts on a project-specific or cumulative basis. No significant adverse impact would result therefore no mitigation is required.

29.0 WASTE TREATMENT/DISPOSAL

29.A INDIVIDUAL SEWAGE DISPOSAL SYSTEM

The Project site is not served by an individual sewage disposal system. No impacts pertaining to individual sewage disposal would result.

29.B SEWAGE COLLECTION/TREATMENT FACILITIES

The wastewater treatment provider for the Project area is the VCWWD No 1. No new employees would be required for the proposed Project. Additional wastewater collection and

treatment demand will be limited to that generated during Project construction. This impact to wastewater collection and treatment facilities would be less than significant and is not cumulatively considerable. No significant adverse impact would result. Therefore, no mitigation is required.

29.C SOLID WASTE MANAGEMENT

29.C.1 Setting

The Simi Valley Landfill and Recycling Center serves the solid waste disposal needs of the Moorpark Project area. Simi Valley Landfill and Recycling Center is located at 2801 Madera Road, in the City of Simi Valley. Currently, this facility is permitted 3,000 tons per day of municipal solid waste and 6,250 tons per day of recyclables. As of April 2012 the landfill had a remaining capacity of 119,600,000 cubic yards (CalRecycle website, 2014). The estimated closure date as identified on the facilities Solid Waste Facility Permit (56-AA-0007) is 2052.

29.C.2 Project Consistency with Applicable Policies

Policy	Consistency Determination
County Policy 4.4.2-6: Applicants for discretionary development shall be encouraged to employ practices that reduce the quantities of wastes generated and shall be requested to engage in recycling activities to further reduce the volume of waste disposed of in landfills.	Consistent – With implementation of the solid waste reduction measures as described below.

29.C.3 Impact Discussion

The County Guidelines indicate that a project that has a direct or indirect adverse effect on a landfill such that it impairs the landfill‘s disposal capacity in terms of reducing its useful life to less than 15 years has a potentially significant impact on the demand for solid waste disposal capacity. In addition, Ventura County Ordinance 4445 minimizes the potential solid waste disposal capacity impacts for any project by mandating the recycling of materials found on the “Director’s List of Recyclables”.

Project construction-related waste that would require disposal is expected to be minimal due to the nature of the Project which requires no demolition activities. Similarly, over the long-term, the Project would result in the generation of only very minor amounts of incidental solid waste as a result of maintenance and repair activities. Thus the Project would have a less than significant project-specific and cumulative impact on solid waste management.

29.C.4 Mitigation and Residual Impacts

Impacts would be less than significant. Therefore, no mitigation is required. However, the District shall comply with the general requirements of Ventura County Ordinance 4421 to assist the County in its efforts to meet and exceed the requirements of Assembly Bill 939, which mandates statewide jurisdictions to divert a minimum of 50 percent of their solid waste from landfills. Per Ventura County Ordinance 4421, permit applicants working on construction and/or demolition projects within the County’s unincorporated area must practice waste prevention, and recycle, reuse, or salvage recyclable construction and demolition (C&D) debris generated by

their project. All residual non-recyclable debris must be disposed at a permitted solid waste facility. Ordinance 4421 may be reviewed at:

www.vcpublicworks.org/ord4421

Specifically, the District shall implement the following measures/contract specification to the extent practicable which are provided here to ensure inclusion in the mitigation monitoring program for the Project.

SW1 Recyclable Construction Materials: Contract specifications for this project must require that all recyclable materials generated during the demolition and/or construction phases of the project (e.g., concrete, asphalt, rebar, wood, and metal) be recycled at an appropriate, permitted, recycling facility. A complete list of permitted construction and demolition debris recycling facilities in Ventura County is available at: www.vcpublicworks.org/C&D. All non-recyclable materials must be disposed at a permitted solid waste disposal facility.

SW2 Soil - Recycling & Reuse: Contract specifications for this project must include a requirement that soil and sand not reused on-site during the construction phase of the project be transported to an authorized or permitted organics facility for recycling or reuse. Illegal disposal and landfilling of soil is prohibited. A complete list of facilities in Ventura County that recycle soil is available at: www.vcpublicworks.org/C&D.

SW3 Green Materials - Recycling & Reuse: The Contract Specifications for this **project must include a requirement that all wood waste and vegetation removed** during the construction phase of this project must be diverted from the landfill. This can be accomplished by on-site chipping and land-application at various project sites, or by transporting the materials to an authorized or permitted greenwaste facility in Ventura County. A complete list of authorized greenwaste facilities is located at: www.vcpublicworks.org/greenwaste.

SW4 Recyclable Construction & Demolition Debris – Required Report: Contractors shall submit a ***Form B – Recycling Plan*** to the IWMD for approval prior to the issuance of the Notice to Proceed, as provided in Section 6-7.4. of the VCSS. The ***Recycling Plan*** must specify how all recyclable materials generated by the project (e.g., metal, concrete, wood, greenwaste, and soil) will be diverted from the landfill. A copy of IWMD's ***Form B – Recycling Plan*** is available at: www.vcpublicworks.org/formsB&C.

SW5 Recyclable Construction & Demolition Debris – Required Report: Contractors shall submit a Form C – Recycling Report to the IWMD for approval prior to the Engineer's preparation of the final estimate, as provided in Section 9-3.2 of the VCSS. The Form C – Recycling Report must have original recycling facility receipts and/or other documentation attached to verify recycling, on-site reuse, or salvage occurred. A copy of IWMD's Form C – Recycling Report is available at: www.vcpublicworks.org/formsB&C.

29.D SOLID WASTE FACILITIES

The Project does not include any new solid waste facilities. Thus an evaluation of this issue is not necessary.

30.0 UTILITIES

30.1 SETTING

Utilities include electrical, gas and communication facilities. Within the Project area, electrical services are provided by Southern California Edison (SCE). Gas services are provided by Southern California Gas Company. Multiple communication providers service the Project area including those for telephone, cable and other communications equipment.

30.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

There are no relevant policies.

30.3 IMPACT DISCUSSION

No utilities are required as part of the Project. Additionally, Project implementation is not expected to result in the disruption of utility service as standard procedures for calling Dig Alert would be conducted prior to any excavation. Thus impacts to utilities would be less than significant and not cumulatively considerable. No significant impact would result; therefore, no mitigation is required.

31.0 FLOOD CONTROL FACILITIES/WATER SOURCES

31.A WATERSHED PROTECTION DISTRICT (WPD)

31.A.1 Setting

The Ventura County Watershed Protection District (previously known as the Ventura County Flood Control District) was formed on September 12, 1944, when the California State Legislature approved the Ventura County Flood Control Act. The Watershed Protection District was formed, in part, to provide for the control and conservation of flood and storm waters and for the protection of watercourses, watersheds, public highways, life and property in the district from damage or destruction from these waters.

The Watershed Protection District's authority over its jurisdictional channels is established through a number of ordinances and policies passed by its Board of Supervisors. The primary ordinance establishing the Watershed Protection District's authority and the requirement to obtain permits for any encroachment into jurisdictional channels, including rights-of-way, is Ventura County Ordinance (VC Ord. WP-1), An Ordinance Relating to the Protection and Regulation of Flood Control Facilities and Watercourses. The Watershed Protection District also implements the Flood Plain Management Ordinance 3841 on behalf of the County of Ventura to ensure compliance with the National Flood Insurance Program. This includes permit review for structures built in the floodplain and evaluation of site plans for developments that include identified floodplains.

The Project area is located within the Calleguas Watershed, and Ventura County Watershed Protection District Zone 3. An unnamed blue-line stream channel, as shown on the U.S. Geologic Survey 7.5 minute series Moorpark Quadrangle Map, is located approximately 500 feet east of the proposed reservoir site. This small intermittent channel also runs east of and parallel to Stockton Road south of the Project site and north of Broadway Road. This channel is known as the Shekell Road Drain. Shekell Road Drain is not maintained by the County in the immediate Project area; however it is a red line channel (maintained by the County) south of Broadway Road (approximately 0.5 mile south of the Project site).

31.A.2 Project Consistency with Applicable Policies

See policy discussion presented in Section 17B.2.

31.A.3 Impact Discussion

31.A.3.1 Significance Thresholds

According to the County Guidelines, any project that will, either directly or indirectly, impact flood control facilities and watercourses by obstructing, impairing, diverting, impeding, or altering the characteristics of the flow of water, resulting in exposing adjacent property and the community to increased risk for flood hazards shall be considered to have a potentially significant impact.

31.A.3.2 Impacts

As discussed above in Section 17.A.3.2, following construction, the drainage pattern at the proposed reservoir site will be channeled to an 18-inch storm drain that would extend from the proposed perimeter road around the tank and down the access driveway. The drain would discharge onsite at the agricultural road at the toe of the Stockton Road embankment. A culvert is also proposed to be located onsite which would channel onsite runoff. Stormwater discharge from the site would follow the natural surface flow pattern to the southeast from that point and would enter the Shekell Road Drain. Runoff volumes and flow rates from the proposed reservoir site would have the potential to increase due to the introduction of impervious surfaces (tank and road) to the site, and the potential for runoff-caused erosion at the discharge point would increase due to the channeling of runoff to a drain and culvert. However, the District proposes to include runoff detention mechanism(s) (e.g., swales or basin) and runoff energy dissipation to ensure that post-Project runoff maintains pre-Project volumes and the erosive potential of the Project site runoff will be minimized.

As indicated above, the closest Ventura County Watershed Protection District-maintained watercourse that could potentially be affected by Project site runoff is the Shekell Road Drain south of Broadway Road. The Project would not substantially change the characteristics of water flow within any watercourse or flood control facility. Thus the Project would not significantly impact the County-maintained Shekell Road Drain or any other downstream facilities, nor cause increase flood hazards to adjacent properties.

31.A.3.3 Mitigation and Residual Impacts

No significant impact would result; therefore, no mitigation measures are necessary.

31.B OTHER FACILITIES

31.B.1 Setting

Please see description in Section 31.A.1.

31.B.2 Project Consistency with Applicable Policies

See policy discussion presented in Section 17B.2.

31.B.3 Impact Discussion

The Project is not expected to impede flows of any non-WPD maintained watercourse, nor would it result in increased runoff which would significantly affect the capacity of non-WPD maintained flood channels or Areas of Special Flood Hazard on a project-specific or cumulative basis. No significant impact will result. Therefore no mitigation is necessary.

32.0 LAW ENFORCEMENT/EMERGENCY SERVICES

32.1 SETTING

The Ventura County Sheriff's Department provides law enforcement services to the unincorporated Project area. The nearest local office is located at 610 Spring Road, in the City of Moorpark. The City is divided into two primary beats which are patrolled by deputies 24 hours a day, seven days a week. An additional overlapping patrol deputy is provided during peak hours (11:00 a.m. to 3:00 a.m.) seven days a week.

32.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

Policy	Consistency Determination
County Policy 4.7.2.2: Discretionary development shall be conditioned to provide adequate site security during the construction phase (e.g., licensed security guard and/or fencing around the construction site, and all construction equipment, tools, and appliances to be properly secured and serial numbers recorded for identification purposes).	Consistent - Material and equipment storage is anticipated to occur at secured District facilities overnight. Additionally, a measure has been provided below to ensure Project consistency with this condition.
County Policy 4.7.2.3: Discretionary development shall be conditioned to provide adequate security lighting (e.g., parking lots to be well lighted with a minimum 1 foot candle of light at ground level, lighting devices to be protected from the elements and constructed of vandal resistant materials and located high enough to discourage anyone on the ground from tampering with them).	Consistent - The proposed reservoir site will include security fencing and lighting. Water pipelines are subsurface and do not require security lighting.

Policy	Consistency Determination
County Policy 4.7.2.4: Discretionary development shall be conditioned to avoid landscaping which interferes with police surveillance (e.g., landscaping must not cover any exterior door or window, landscaping at entrances and exits or at any parking lot intersection must not block or screen the view of a seated driver from another moving vehicle or pedestrian, trees must not be placed underneath any overhead light fixture which would cause a loss of light at ground level).	Consistent - No landscaping that would be detrimental to security is proposed.

32.3 IMPACT DISCUSSION

Water infrastructure is not identified on the list of development types that have the potential to increase demand for law enforcement or emergency services as identified in the County Initial Study Assessment Guidelines. No significant impacts relating to police protection to personnel, equipment and facilities are expected. The Project would, therefore, not contribute to any cumulative police protection impacts.

No significant impacts are anticipated. Therefore, no mitigation is required. However, the following measure shall be implemented to ensure Project consistency with applicable policies.

L1 The District shall ensure that proper security measures (e.g. provision of secured storage areas) are followed during the construction phase of the Project to protect materials, tools and equipment.

33.0 FIRE PROTECTION - (A) DISTANCE AND RESPONSE; AND (B) PERSONNEL, EQUIPMENT AND FACILITIES

33.1 SETTING

The Project is located within the Ventura County Fire Protection District (VCFPD). The VCFPD was formed in 1928 in order to protect life and property by providing fire prevention, fire education fire suppression and rescue services. The VCFPD operates 32 fire stations within the County including two within the City of Moorpark (Stations 40 and 42).

33.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

Policy	Consistency Determination
County Policy 4.8.2.1: Discretionary development shall be permitted only if adequate water supply, access and response time for fire protection can be made available.	Consistent - The Project facilities are water infrastructure that are not anticipated to require fire protection services.

33.3 IMPACT DISCUSSION

33.3.1 Significance Thresholds

According to the County Guidelines, project distance from a full time paid fire department is considered a significant impact if the project is in excess of five (5) miles, measured from the apron of the fire station to the structure or pad of the proposed structure. The Guidelines also indicate that response time of more than 12 minutes would be considered significant.

The County thresholds of significance for fire-fighting personnel are based on population to firefighter ratios. However, the Guidelines state that most projects will have an impact on personnel due to increased needs for service, but it would not be significant due to increases in assessed value to compensate for increases in staffing. The County Guidelines further state that equipment and facility concerns become significant when the magnitude of the project or the distance from existing facilities indicates that a new facility or additional equipment would be required within the proposed Project.

33.3.2 Impacts

Based upon MapQuest calculations, the Project site is located 8 miles from Station 40 - Mountain Meadows which is located at 4185 Cedar Springs Street, Moorpark, CA, 93021 (via Grimes Canyon Road). However, the proposed Project is a steel water tank and would not be subject to destruction by fire. The Project would not introduce a new population requiring fire protection services. No impact on fire protection personnel, equipment or facilities is anticipated.

33.3.2 Mitigation and Residual Impacts

No impact would result. Therefore, no mitigation is required.

34.0 EDUCATION - (A) SCHOOLS AND (B) LIBRARIES

34.1 SETTING

The Project is located in southeastern Ventura County. Ventura County encompasses 21 school districts, three community colleges, and two four-year universities. Elementary, middle and high schools within the Project vicinity are managed by the Moorpark Unified School District (MUSD). The MUSD serves students within the City of Moorpark and surrounding rural areas. The closest school to the Project site is Walnut Canyon Elementary School located at 280 Casey Road in the City of Moorpark, about 3.25 miles southeast of the Project site.

The closest library to the Project site is the Moorpark City Library located at 699 Moorpark Avenue in the City of Moorpark approximately 3.5 miles southeast of the Project site.

34.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

No education-related policies from Ventura County's General Plan are applicable to the proposed Project.

34.3 IMPACT DISCUSSION

34.3.1 Significance Thresholds

According to the County Guidelines, a project will normally have a significant impact on school facilities if it would substantially interfere with the operations of an existing school facility. A project has a significant project-specific impact on public library facilities and services if it would substantially interfere with the operations of an existing public library facility, put additional demands on a public library facility which is currently deemed overcrowded, or limit the ability of individuals to access public library facilities by private vehicle or alternative transportation modes.

34.3.2 Impacts

Due to the distance between the Project site and school and library facilities, no short-term construction impacts on educational facilities are expected. The minimal number of construction personnel required are expected to come from the local population or if from outside of the area would only reside locally on a temporary basis and would not create a substantive new demand for local educational facilities on a project-specific or cumulative basis. The proposed Project is not expected to cause an increase in demand for educational facilities (schools and libraries) over the long-term as no housing or commercial/industrial development would be constructed, and no direct or indirect increase in population would result.

34.3.3 Mitigation and Residual Impacts

No significant impact would result. Therefore, no mitigation is required.

35.0 RECREATION

35.1 SETTING

The Project site is located within unincorporated Ventura County and west of the City of Moorpark. Park and recreation facilities in Ventura County area are provided by a wide array of agencies. These facilities enhance the quality of life of County residents as well as stimulate the County's tourist industry. Within the City of Moorpark, the Parks, Recreation and Community Services Department is responsible for maintaining the grounds, equipment, and facilities of City parks; coordinating the design and construction of park improvements; and planning future parks. This department is also responsible for all the development, implementation, and promotion of all recreation activities.

The County public recreational facilities closest to the Project site include Happy Camp Regional Park, and Rustic Canyon Golf Course (approximately 3 miles east of the Project site). The City of Moorpark public parks closest to the Project site are also approximately 3 miles or more east and southeast of the site (e.g., Mammoth Highlands, Community Center Park and Poindexter Park).

35.2 PROJECT CONSISTENCY WITH APPLICABLE POLICIES

Policy	Consistency Determination
County Policy 4.10.2.2: Discretionary development which would obstruct or adversely impact access to a public recreation resource shall be conditioned to provide public access as appropriate.	Consistent – Due to the distance of the proposed Project from public parks and recreation facilities, it would not obstruct or adversely impact such facilities.

35.3 IMPACT DISCUSSION

35.3.1 Significance Thresholds

According to the County Guidelines, a project will have a significant impact on recreation if it would cause an increase in the demand for recreation, parks, and/or trails and corridors or would cause a decrease in recreation, parks, and/or trails or corridors when measured against specific standards provided in the Guidelines. A project will also have a significant impact on recreation if it would impede future development of Recreation Parks/Facilities and/or Regional Trails/Corridors.

35.3.2 Impacts

The proposed Project would not cause an increase in demand for recreational facilities (including regional and local parks and trails), as no housing, commercial or industrial development would be constructed, and no direct or indirect increase in population would result. The minimal number of construction personnel are expected to come from the local population or if from outside of the area would only reside on a temporary basis locally. Any Project demand for recreational facilities would be minimal and short-term. The Project's contribution to cumulative impacts on recreational facilities is not considerable and is less than significant.

35.3.3 Mitigation and Residual Impacts

No significant impact would result. Therefore, no mitigation is required.

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36.1 AGENCIES AND INDIVIDUALS CONSULTED

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Subconsultant to Padre Associates, Inc.

Conejo Archaeological Consultants, Mary Maki, Principal Archaeologist

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SECTION D - MANDATORY FINDINGS OF SIGNIFICANCE

MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

SECTION E - DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature:  Date: 2/2/15

David J. Sasek

Title: Director, County of Ventura Water and Sanitation Department

APPENDICES

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AIR QUALITY AND GREENHOUSE GASES

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Project: VCWWD no. 1 Stockton Reservoir (peak day)
Date: 7/28/14

Title : Ventura County Subarea Summer CYr 2014
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2013/04/19 13:47:48
Scen Year: 2014 -- All model years in the range 1970 to 2014 selected
Season : Summer
Area : Ventura

Daily one-way trips: 32
Miles per trip: 20

Percent Autos: 5
Percent LDT: 70
Percent MDT: 5
Percent HDT: 20
Sum 100

****

Year: 2014 -- Model Years 1970 to 2014 Inclusive -- Summer
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Ventura County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 75F Relative Humidity: 60%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
25	5.449	0.037	0.166	0.044	5.676	0.046	0.086	0.075	5.53	0.063	0.124	0.071	7.193	0.089	0.079	0.11	3.857	0.178	0.156	0.178	3.857	0.114	0.217	0.165	5.833	0.349	0.175	0.215	15.786	3.475	0.817	0.911	5.833	0.523	0.139	0.358	7.384	1.436	0.62	1.024	2.595	1.662	0	2.092	5.833	2.024	0.381	0.817	5.833	0.254	0.097	0.286	3.681	0.067	0.401	0.101
30	4.639	0.029	0.142	0.036	4.833	0.037	0.074	0.062	4.709	0.05	0.106	0.057	6.129	0.07	0.068	0.088	2.962	0.136	0.133	0.139	2.962	0.087	0.186	0.135	4.491	0.265	0.15	0.177	12.189	2.669	0.675	0.746	4.491	0.394	0.119	0.276	5.69	1.102	0.518	0.807	2.453	1.505	0	1.942	4.491	1.548	0.327	0.655	4.491	0.193	0.083	0.219	3.286	0.053	0.335	0.084
35	4.135	0.024	0.125	0.03	4.308	0.031	0.064	0.053	4.198	0.042	0.093	0.048	5.466	0.058	0.059	0.074	2.371	0.109	0.117	0.113	2.371	0.069	0.163	0.115	3.602	0.21	0.131	0.151	9.809	2.136	0.567	0.622	3.602	0.309	0.105	0.222	4.569	0.882	0.447	0.663	2.43	1.441	0	1.897	3.602	1.235	0.286	0.544	3.602	0.153	0.073	0.174	3.082	0.045	0.284	0.073
40	3.861	0.021	0.112	0.027	4.023	0.028	0.058	0.048	3.919	0.037	0.083	0.043	5.105	0.051	0.053	0.066	1.978	0.091	0.105	0.096	1.978	0.057	0.146	0.1	3.013	0.173	0.117	0.132	8.229	1.783	0.491	0.537	3.013	0.254	0.094	0.186	3.825	0.736	0.4	0.567	2.523	1.458	0	1.949	3.013	1.027	0.256	0.468	3.013	0.127	0.065	0.145	3.039	0.041	0.249	0.066
45	3.776	0.02	0.102	0.025	3.934	0.026	0.053	0.046	3.833	0.034	0.076	0.04	4.994	0.048	0.049	0.062	1.722	0.079	0.096	0.084	1.722	0.05	0.134	0.09	2.628	0.149	0.108	0.119	7.198	1.553	0.449	0.488	2.628	0.218	0.086	0.163	3.34	0.641	0.371	0.505	2.746	1.559	0	2.106	2.628	0.892	0.235	0.417	2.628	0.11	0.06	0.126	3.15	0.038	0.228	0.064
50	3.869	0.02	0.096	0.025	4.031	0.025	0.05	0.046	3.927	0.034	0.071	0.039	5.116	0.047	0.046	0.062	1.565	0.071	0.09	0.077	1.565	0.045	0.125	0.084	2.392	0.135	0.101	0.11	6.565	1.412	0.44	0.475	2.392	0.196	0.08	0.148	3.042	0.582	0.356	0.468	3.131	1.761	0	2.393	2.392	0.81	0.22	0.384	2.392	0.099	0.056	0.115	3.432	0.038	0.22	0.065

Pounds/day																																	SUM
25	0.001	0.003	0.000		0.000	0.012	0.001		0.000	0.045	0.000		0.000	0.004	0.000		0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.231	0.000	0.301
30	0.001	0.002	0.000		0.000	0.010	0.001		0.000	0.036	0.000		0.000	0.003	0.000		0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.190	0.000	0.246
35	0.001	0.002	0.000		0.000	0.008	0.001		0.000	0.030	0.000		0.000	0.002	0.000		0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.160	0.000	0.207
40	0.001	0.001	0.000		0.000	0.007	0.001		0.000	0.026	0.000		0.000	0.002	0.000		0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.139	0.000	0.180
45	0.001	0.001	0.000		0.000	0.007	0.001		0.000	0.024	0.000		0.000	0.002	0.000		0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.127	0.000	0.165
50	0.001	0.001	0.000		0.000	0.007	0.001		0.000	0.024	0.000		0.000	0.002	0.000		0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.124	0.000	0.162

Pollutant Name: Carbon Monoxide Temperature: 75F Relative Humidity: 60%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
25	54.467	1.712	0.807	1.785	54.743	2.268	0.634	2.481	53.324	2.742	0.738	2.813	97.008	3.142	0.615	3.414	79.984	1.983	0.863	1.842	79.984	1.453	0.987	1.313	119.976	5.319	1.651	2.504	442.211	42.396	3.453	4.903	119.976	8.323	1.357	5.373	139.838	16.854	2.949	9.836	22.672	10.262	0	15.983	119.976	29.728	3.216	11.297	119.976	6.188	0.919	6.609	37.397	2.308	2.022	2.501
30	48.83	1.572	0.667	1.638	49.077	2.077	0.524	2.265	47.805	2.513	0.61	2.577	86.967	2.88	0.508	3.124	66.309	1.644	0.714	1.527	66.309	1.205	0.816	1.088	99.464	4.41	1.365	2.073	366.606	35.147	3.029	4.226	99.464	6.9	1.123	4.453	115.93	13.973	2.36	8.112	22.871	9.738	0	15.793	99.464	24.646	2.66	9.361	99.464	5.13	0.76	5.479	35.03	2.106	1.734	2.284
35	46.101	1.452	0.578	1.514	46.334	1.918	0.454	2.096	45.133	2.319	0.528	2.379	82.106	2.661	0.44	2.892	58.08	1.44	0.618	1.336	58.08	1.055	0.707	0.949	87.121	3.862	1.182	1.805	321.111	30.786	2.696	3.743	87.121	6.044	0.972	3.895	101.544	12.239	2.005	7.074	24.297	9.418	0	16.278	87.121	21.587	2.303	8.177	87.121	4.493	0.658	4.798	34.711	1.942	1.527	2.117
40	45.835	1.348	0.523	1.41	46.067	1.787	0.411	1.966	44.873	2.155	0.479	2.215	81.634	2.479	0.399	2.71	53.749	1.333	0.56	1.234	53.749	0.976	0.64	0.872	80.624	3.574	1.071	1.651	297.165	28.49	2.453	3.423	80.624	5.593	0.88	3.595	93.971	11.326	1.808	6.523	27.182	9.323	0	17.557	80.624	19.977	2.087	7.53	80.624	4.158	0.596	4.439	36.384	1.807	1.388	1.993
45	47.992	1.26	0.496	1.325	48.235	1.68	0.39	1.873	46.985	2.016	0.454	2.079	85.476	2.33	0.378	2.573	52.553	1.303	0.531	1.203	52.553	0.955	0.607	0.844	78.83	3.495	1.015	1.589	290.553	27.856	2.301	3.253	78.83	5.469	0.835	3.503	91.88	11.074	1.732	6.359	32.026	9.507	0	19.889	78.83	19.533	1.978	7.312	78.83	4.066	0.565	4.338	40.337	1.7	1.307	1.91
50	52.92	1.185	0.492	1.257	53.187	1.596	0.387	1.817	51.809	1.901	0.45	1.972	94.252	2.213	0.375	2.482	54.289	1.346	0.527	1.238	54.289	0.986	0.602	0.86	81.434	3.61	1.007	1.608	300.151	28.776	2.239	3.227	81.434	5.649	0.828	3.603	94.916	11.44	1.762	6.556	39.736	10.074	0	23.749	81.434	20.178	1.963	7.488	81.434	4.2	0.561	4.479	47.292	1.618	1.281	1.871

Pounds/day																																	SUM
25	0.009	0.120	0.000		0.000	0.598	0.006		0.000	1.958	0.000		0.000	0.126	0.000		0.000	0.055	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.974	0.000	3.849
30	0.008	0.110	0.000		0.000	0.547	0.005		0.000	1.794	0.000		0.000	0.116	0.000		0.000	0.045	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.855	0.000	3.483
35	0.007	0.102	0.000		0.000	0.506	0.005		0.000	1.656	0.000		0.000	0.107	0.000		0.000	0.040	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.761	0.000	3.185
40	0.007	0.095	0.000		0.000	0.471	0.004		0.000	1.539	0.000		0.000	0.100	0.000		0.000	0.037	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.692	0.000	2.946
45	0.008	0.088	0.000		0.000	0.443	0.004		0.000	1.440	0.000		0.000	0.094	0.000		0.000	0.036	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.649	0.000	2.763
50	0.008	0.083	0.000		0.000	0.421	0.004		0.000	1.357	0.000		0.000	0.089	0.000		0.000	0.037	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.632	0.000	2.633

Pollutant Name: Carbon Dioxide Temperature: 75F Relative Humidity: 60%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
25	550.299	413.684	355.531	413.814	544.038	517.483	346.749	512.689	544.816	519.909	350.093	519.796	692.155	710.198	346.406	709.286	685.012	685.012	519.521	651.018	685.012	685.012	524.848	611.231	685.012	685.012	1505	1351.632	685.012	685.012	2042.685	1996.428	685.012	685.011	1505	1075.402	685.012	685.012	2604.373	1653.852	134.674	159.834	0	148.234	685.012	685.012	1505	1356.437	685.012	685.012	1505	772.548	284.844	496.475	1342.805	528.858
30	483.454	363.449	355.531	363.611	477.524	454.609	346.749	451.611	478.212	456.739	350.093	456.676	607.61	623.909	346.406	623.205	567.895	567.895	519.521	557.958	567.895	567.895	524.848	548.065	567.895	567.895	1505	1329.727	567.895	567.895	1924.234	1878.022	567.895	567.894	1505	1014.043	567.895	567.895	2604.373	1595.852	122.564	151.669	0	138.251	567.895	567.895	1505	1335.218	567.895	567.895	1505	667.933	252.173	434.884	1300.566	468.205
35	440.799	331.732	355.531	331.913	435.014	414.89	346.749	413.024	435.645	416.831	350.093	416.8	553.589	569.396	346.406	568.823	497.421	497.421	519.521	501.96	497.421	497.421	524.848	510.055	497.421	497.421	1505	1316.546	497.421	497.421	1827.808	1782.481	497.421	497.42	1505	977.121	497.421	497.421	2604.373	1560.951	113.279	149.039	0	132.553	497.421	497.421	1505	1322.449	497.421	497.421	1505	604.983	230.377	396.134	1266.18	429.727
40	417.046	314.393	355.531	314.584	411.26	393.155	346.749	391.906	411.86	394.992	350.093	394.977	523.417	539.566	346.406	539.062	460.326	460.326	519.521	472.486	460.326	460.326	524.848	490.049	460.326	460.326	1505	1309.608	460.326	460.326	1753.407	1709.351	460.326	460.326	1505	957.687	460.326	460.326	2604.373	1542.581	106.328	151.731	0	130.799	460.326	460.327	1505	1315.729	460.326	460.327	1505	571.848	217.09	375.015	1239.649	408.439
45	409.378	309.184	355.531	309.377	403.463	386.595	346.749	385.529	404.054	388.399	350.093	388.388	513.536	530.563	346.406	530.078	450.085	450.085	519.521	464.348	450.085	450.085	524.848	484.525	450.085	450.085	1505	1307.693	450.085	450.085	1701.031	1658.41	450.085	450.085	1505	952.322	450.085	450.085	2604.373	1537.509	101.358	160.117	0	133.027	450.085	450.085	1505	1313.873	450.085	450.085	1505	562.7	211.002	368.726	1220.971	401.659
50	416.874	315.263	355.531	315.451	410.709	394.165	346.749	392.88	411.312	396.004	350.093	395.985	522.785	540.954	346.406	540.441	464.953	464.953	519.521	476.162	464.953	464.953	524.848	492.544	464.953	464.953	1505	1310.473	464.953	464.953	1670.679	1629.599	464.953	464.953	1505	960.111	464.953	464.953	2604.373	1544.872	98.124	175.24	0	139.687	464.953	464.953	1505	1316.567	464.953	464.953	1505	575.981	211.608	376.254	1210.148	408.418

Pounds/day																																	SUM
25	0.087	29.053	0.056		0.000	136.407	3.471		0.000	371.240	0.000		0.000	28.591	0.000		0.000	18.910	1.394	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	576.419	0.000	1165.628
30	0.076	25.525	0.056		0.000	119.834	3.471		0.000	326.133	0.000		0.000	25.117	0.000		0.000	15.677	1.394	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	542.994	0.000	1060.278
35	0.070	23.298	0.056		0.000	109.364	3.471		0.000	297.637	0.000		0.000	22.923	0.000		0.000	13.731	1.394	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	515.784	0.000	987.727
40	0.066	22.080	0.056		0.000	103.634	3.471		0.000	282.043	0.000		0.000	21.722	0.000		0.000	12.707	1.394	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	494.789	0.000	941.963
45	0.065	21.714	0.056		0.000	101.905	3.471		0.000	277.335	0.000		0.000	21.359	0.000		0.000	12.425	1.394	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	480.009	0.000	919.734
50	0.066	22.141	0.056		0.000	103.901	3.471		0.000	282.766	0.000		0.000	21.778	0.000		0.000	12.835	1.394	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	471.444	0.000	919.851

Pollutant Name: Oxides of Nitrogen Temperature: 75F Relative Humidity: 60%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
25	3.273	0.107	1.108	0.113	3.252	0.14	1.142	0.185	3.183	0.247	1.108	0.252	5.303	0.321	1.148	0.338	1.576	0.351	2.373	0.767	1.576	0.333	3.038	1.58	2.364	1.17	4.039	3.504	13.662	7.358	8.277	8.248	2.364	2.134	3.418	2.746	3.09	4.218	13.292	8.798	1	0.819	0	0.902	2.364	3.203	11.671	10.106	2.364	0.692	5.052	1.171	1.859	0.194	5.062	0.397
30	3.423	0.1	1.06	0.106	3.401	0.131	1.092	0.175	3.329	0.23	1.059	0.235	5.546	0.3	1.098	0.318	1.642	0.365	2.269	0.758	1.642	0.347	2.905	1.526	2.463	1.22	3.862	3.37	14.238	7.668	7.831	7.827	2.463	2.224	3.269	2.722	3.221	4.395	12.418	8.445	1.042	0.805	0	0.914	2.463	3.338	11.16	9.711	2.463	0.721	4.831	1.175	1.942	0.183	4.809	0.378
35	3.575	0.095	1.05	0.101	3.552	0.125	1.082	0.17	3.476	0.219	1.05	0.224	5.792	0.286	1.087	0.305	1.709	0.38	2.248	0.765	1.709	0.361	2.878	1.522	2.563	1.269	3.827	3.35	14.814	7.978	7.484	7.503	2.563	2.314	3.238	2.755	3.351	4.573	12.196	8.421	1.085	0.802	0	0.932	2.563	3.473	11.057	9.65	2.563	0.75	4.787	1.196	2.026	0.177	4.667	0.366
40	3.729	0.092	1.078	0.099	3.705	0.122	1.11	0.168	3.626	0.212	1.078	0.218	6.042	0.278	1.116	0.298	1.775	0.395	2.308	0.789	1.775	0.375	2.955	1.565	2.663	1.318	3.928	3.442	15.39	8.288	7.237	7.275	2.663	2.404	3.325	2.843	3.481	4.751	12.593	8.709	1.128	0.808	0	0.956	2.663	3.608	11.351	9.914	2.663	0.779	4.914	1.237	2.11	0.174	4.632	0.362
45	3.884	0.091	1.147	0.098	3.859	0.121	1.181	0.17	3.777	0.21	1.146	0.216	6.293	0.276	1.187	0.296	1.842	0.41	2.455	0.831	1.842	0.389	3.143	1.659	2.762	1.368	4.179	3.655	15.965	8.598	7.09	7.144	2.762	2.494	3.536	2.991	3.611	4.929	13.669	9.341	1.172	0.825	0	0.985	2.762	3.743	12.074	10.529	2.762	0.808	5.227	1.297	2.195	0.173	4.711	0.365
50	4.04	0.092	1.264	0.099	4.014	0.123	1.302	0.176	3.929	0.212	1.263	0.218	6.546	0.28	1.309	0.301	1.908	0.424	2.706	0.895	1.908	0.403	3.464	1.814	2.862	1.417	4.606	4.011	16.541	8.908	7.042	7.108	2.862	2.584	3.898	3.21	3.742	5.106	15.598	10.402	1.215	0.853	0	1.02	2.862	3.878	13.308	11.562	2.862	0.837	5.761	1.38	2.281	0.176	4.92	0.376

Pounds/day

																												SUM
25	0.001	0.008	0.000	0.000	0.037	0.011	0.000	0.176	0.000	0.000	0.013	0.000	0.000	0.010	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.336	0.000	2.598
30	0.001	0.007	0.000	0.000	0.035	0.011	0.000	0.164	0.000	0.000	0.012	0.000	0.000	0.010	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.210	0.000	2.455
35	0.001	0.007	0.000	0.000	0.033	0.011	0.000	0.156	0.000	0.000	0.012	0.000	0.000	0.010	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.112	0.000	2.347
40	0.001	0.006	0.000	0.000	0.032	0.011	0.000	0.151	0.000	0.000	0.011	0.000	0.000	0.011	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.042	0.000	2.272
45	0.001	0.006	0.000	0.000	0.032	0.012	0.000	0.150	0.000	0.000	0.011	0.000	0.000	0.011	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.001	0.000	2.231
50	0.001	0.006	0.000	0.000	0.032	0.013	0.000	0.151	0.000	0.000	0.011	0.000	0.000	0.012	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.987	0.000	2.222

Pollutant Name: PM10 Temperature: 75F Relative Humidity: 60%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
25	0.035	0.011	0.122	0.011	0.034	0.013	0.056	0.014	0.036	0.027	0.087	0.027	0.036	0.028	0.051	0.028	0.024	0.01	0.038	0.016	0.024	0.011	0.048	0.028	0.024	0.011	0.217	0.178	0.024	0.024	0.324	0.314
30	0.03	0.009	0.105	0.009	0.029	0.01	0.048	0.011	0.03	0.022	0.074	0.022	0.031	0.023	0.043	0.023	0.019	0.008	0.033	0.013	0.019	0.008	0.041	0.023	0.019	0.009	0.186	0.153	0.019	0.019	0.287	0.278
35	0.027	0.007	0.092	0.008	0.026	0.009	0.042	0.01	0.027	0.018	0.065	0.019	0.028	0.019	0.038	0.019	0.015	0.006	0.028	0.011	0.015	0.007	0.036	0.02	0.015	0.007	0.163	0.134	0.015	0.015	0.266	0.257
40	0.025	0.007	0.082	0.007	0.025	0.008	0.037	0.009	0.025	0.016	0.058	0.017	0.026	0.017	0.034	0.017	0.013	0.005	0.026	0.01	0.013	0.006	0.032	0.018	0.013	0.006	0.146	0.12	0.013	0.013	0.262	0.253
45	0.024	0.006	0.075	0.006	0.024	0.007	0.034	0.008	0.025	0.015	0.053	0.016	0.025	0.016	0.031	0.016	0.011	0.005	0.023	0.009	0.011	0.005	0.03	0.016	0.011	0.005	0.134	0.11	0.011	0.011	0.274	0.265
50	0.025	0.006	0.071	0.006	0.025	0.007	0.032	0.008	0.025	0.015	0.05	0.015	0.026	0.016	0.029	0.016	0.01	0.004	0.022	0.008	0.01	0.004	0.028	0.015	0.01	0.005	0.125	0.103	0.01	0.01	0.302	0.292

Speed MPH	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
25	0.024	0.013	0.184	0.094	0.024	0.02	0.258	0.14	0.041	0.002	0	0.02	0.024	0.018	0.545	0.45	0.024	0.004	0.165	0.021	0.039	0.017	0.199	0.025
30	0.019	0.01	0.158	0.08	0.019	0.016	0.216	0.117	0.039	0.002	0	0.019	0.019	0.014	0.468	0.386	0.019	0.003	0.142	0.018	0.036	0.014	0.174	0.02
35	0.015	0.008	0.138	0.07	0.015	0.013	0.186	0.1	0.038	0.002	0	0.019	0.015	0.011	0.41	0.338	0.015	0.002	0.124	0.015	0.034	0.012	0.158	0.018
40	0.013	0.007	0.124	0.062	0.013	0.011	0.167	0.089	0.04	0.002	0	0.019	0.013	0.01	0.367	0.302	0.013	0.002	0.111	0.014	0.035	0.01	0.149	0.016
45	0.011	0.006	0.113	0.057	0.011	0.009	0.155	0.083	0.043	0.002	0	0.021	0.011	0.008	0.336	0.277	0.011	0.002	0.102	0.012	0.037	0.01	0.149	0.015
50	0.01	0.005	0.106	0.053	0.01	0.008	0.148	0.079	0.049	0.002	0	0.024	0.01	0.008	0.315	0.259	0.01	0.001	0.095	0.012	0.041	0.01	0.156	0.016

Pounds/day

																												SUM
25	0.000	0.001	0.000	0.000	0.003	0.001	0.000	0.019	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.091	0.000	0.117
30	0.000	0.001	0.000	0.000	0.003	0.000	0.000	0.016	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.081	0.000	0.102
35	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.013	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.075	0.000	0.092
40	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.011	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.074	0.000	0.089
45	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.011	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.077	0.000	0.091
50	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.011	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.085	0.000	0.099

Pollutant Name: PM10 - Tire Wear Temperature: 75F Relative Humidity: 60%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
25	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.035
30	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.035
35	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.035
40	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.035
45	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.035
50	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.035

Speed MPH	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
25	0.012	0.012	0.012	0.012	0.012	0.012	0.008	0.01	0.004	0.004	0	0.004	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.005	0.008	0.02	0.009
30	0.012	0.012	0.012	0.012	0.012	0.012	0.008	0.01	0.004	0.004	0	0.004	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.005	0.008	0.02	0.009
35	0.012	0.012	0.012	0.012	0.012	0.012	0.008	0.01	0.004	0.004	0	0.004	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.005	0.008	0.02	0.009
40	0.012	0.012	0.012	0.012	0.012	0.012	0.008	0.01	0.004	0.004	0	0.004	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.005	0.008	0.02	0.009
45	0.012	0.012	0.012	0.012	0.012	0.012	0.008	0.01	0.004	0.004	0	0.004	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.005	0.008	0.02	0.009
50	0.012	0.012	0.012	0.012	0.012	0.012	0.008	0.01	0.004	0.004	0	0.004	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.005	0.008	0.02	0.009

Pollutant Name: PM10 - Brake Wear Temperature: 75F Relative Humidity: 60%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
25	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028
30	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028
35	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028
40	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028
45	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028
50	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028

Speed MPH	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
25	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.006	0.006	0	0.006	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.008	0.013	0.018	0.013
30	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.006	0.006	0	0.006	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.008	0.013	0.018	0.013
35	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.006	0.006	0	0.006	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.008	0.013	0.018	0.013
40	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.006	0.006	0	0.006	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.008	0.013	0.018	0.013
45	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.006	0.006	0	0.006	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.008	0.013	0.018	0.013
50	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.006	0.006	0	0.006	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.008	0.013	0.018	0.013

Pounds/day: tires & brakes

																												SUM
25	0.000	0.001	0.000	0.000	0.006	0.000	0.000	0.015	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.000	0.042
30	0.000	0.001	0.000	0.000	0.006	0.000	0.000	0.015	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.000	0.042
35	0.000	0.001	0.000	0.000	0.006	0.000	0.000	0.015	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.000	0.042
40	0.000	0.001	0.000	0.000	0.006	0.000	0.000	0.015	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.000	0.042
45	0.000	0.001	0.000	0.000	0.006	0.000	0.000	0.015	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.000	0.042
50	0.000	0.001	0.000	0.000	0.006	0.000	0.000	0.015	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.000	0.042

Table 2: Starting Emissions (grams/trip)

Pollutant Name: Reactive Org Gases   Temperature: 75F   Relative Humidity: ALL

Time min	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL
5	2.659	0.027	0	0.033	2.759	0.026	0	0.041	2.637	0.036	0	0.04	3.295	0.049	0	0.06
10	2.636	0.052	0	0.058	2.735	0.05	0	0.064	2.614	0.071	0	0.075	3.267	0.096	0	0.107
20	2.662	0.1	0	0.106	2.761	0.096	0	0.109	2.639	0.135	0	0.139	3.298	0.185	0	0.195
30	2.781	0.143	0	0.15	2.885	0.138	0	0.15	2.758	0.194	0	0.198	3.446	0.266	0	0.276
40	2.995	0.182	0	0.189	3.107	0.176	0	0.187	2.97	0.247	0	0.251	3.712	0.339	0	0.35
50	3.304	0.217	0	0.224	3.427	0.21	0	0.222	3.276	0.293	0	0.298	4.094	0.404	0	0.416
60	3.435	0.247	0	0.254	3.563	0.24	0	0.251	3.406	0.334	0	0.339	4.256	0.462	0	0.474
120	3.768	0.343	0	0.35	3.909	0.342	0	0.351	3.737	0.468	0	0.473	4.67	0.66	0	0.672
180	4.102	0.365	0	0.373	4.256	0.364	0	0.374	4.068	0.498	0	0.504	5.083	0.703	0	0.716
240	4.436	0.386	0	0.395	4.602	0.386	0	0.397	4.399	0.528	0	0.534	5.497	0.745	0	0.76
300	4.77	0.407	0	0.417	4.948	0.407	0	0.42	4.729	0.557	0	0.563	5.911	0.787	0	0.802
360	5.103	0.428	0	0.439	5.294	0.428	0	0.442	5.06	0.585	0	0.592	6.324	0.827	0	0.844
420	5.437	0.448	0	0.46	5.641	0.449	0	0.464	5.391	0.613	0	0.621	6.738	0.867	0	0.885
480	5.771	0.468	0	0.48	5.987	0.469	0	0.485	5.722	0.64	0	0.648	7.151	0.906	0	0.925
540	6.105	0.487	0	0.5	6.333	0.489	0	0.506	6.053	0.667	0	0.676	7.565	0.945	0	0.965
600	6.438	0.506	0	0.52	6.679	0.508	0	0.527	6.384	0.693	0	0.702	7.978	0.982	0	1.004
660	6.772	0.525	0	0.539	7.025	0.527	0	0.547	6.715	0.719	0	0.728	8.392	1.019	0	1.042
720	7.106	0.543	0	0.558	7.372	0.546	0	0.567	7.046	0.744	0	0.754	8.806	1.056	0	1.079
Pounds/day: 180 min soak	3.2442E-05	0.001282	0		0	0.0047975	0		0	0.01778	0		0	0.001415	0	

Time min	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
5	4.369	0.129	0	0.128	4.369	0.127	0	0.107	6.554	0.322	0	0.199	10.295	1.049	0	0.792
10	4.332	0.252	0	0.24	4.332	0.248	0	0.197	6.498	0.627	0	0.297	10.207	2.045	0	1.27
20	4.373	0.483	0	0.45	4.373	0.475	0	0.366	6.56	1.189	0	0.481	10.305	3.876	0	2.156
30	4.57	0.692	0	0.641	4.57	0.681	0	0.52	6.855	1.685	0	0.646	10.768	5.495	0	2.949
40	4.921	0.879	0	0.813	4.921	0.865	0	0.659	7.382	2.116	0	0.794	11.596	6.901	0	3.65
50	5.428	1.046	0	0.965	5.428	1.029	0	0.782	8.142	2.482	0	0.924	12.79	8.093	0	4.259
60	5.643	1.191	0	1.098	5.643	1.171	0	0.889	8.465	2.783	0	1.026	13.298	9.073	0	4.745
120	6.192	1.656	0	1.523	6.192	1.625	0	1.229	9.288	3.397	0	1.238	14.59	11.077	0	5.748
180	6.74	1.763	0	1.621	6.74	1.729	0	1.308	10.11	3.605	0	1.317	15.882	11.753	0	6.11
240	7.289	1.867	0	1.717	7.289	1.832	0	1.386	10.933	3.806	0	1.394	17.174	12.408	0	6.462
300	7.837	1.97	0	1.812	7.837	1.932	0	1.462	11.755	4	0	1.469	18.466	13.041	0	6.803
360	8.385	2.07	0	1.904	8.385	2.03	0	1.537	12.578	4.188	0	1.542	19.758	13.653	0	7.134
420	8.934	2.168	0	1.995	8.934	2.126	0	1.61	13.401	4.369	0	1.613	21.05	14.244	0	7.455
480	9.482	2.264	0	2.084	9.482	2.22	0	1.682	14.223	4.543	0	1.682	22.342	14.813	0	7.765
540	10.03	2.358	0	2.171	10.03	2.312	0	1.752	15.046	4.711	0	1.748	23.634	15.361	0	8.065
600	10.579	2.45	0	2.256	10.579	2.403	0	1.82	15.868	4.872	0	1.812	24.926	15.887	0	8.355
660	11.127	2.54	0	2.339	11.127	2.491	0	1.888	16.691	5.027	0	1.874	26.218	16.392	0	8.634
720	11.676	2.628	0	2.421	11.676	2.576	0	1.953	17.513	5.175	0	1.934	27.511	16.875	0	8.903
Pounds/day: 180 min soak	0	0.002433	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Time min	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL
5	6.554	0.372	0	0.41	8.268	0.587	0	0.291	1.3	0.222	0	0.786	6.554	0.599	0	0.325
10	6.498	0.725	0	0.658	8.197	1.144	0	0.567	1.288	0.433	0	0.881	6.498	1.168	0	0.405
20	6.56	1.375	0	1.117	8.275	2.17	0	1.075	1.301	0.82	0	1.072	6.56	2.214	0	0.559
30	6.855	1.948	0	1.528	8.647	3.076	0	1.523	1.359	1.163	0	1.266	6.855	3.139	0	0.704
40	7.382	2.447	0	1.892	9.313	3.862	0	1.913	1.464	1.461	0	1.462	7.382	3.942	0	0.839
50	8.142	2.87	0	2.207	10.272	4.53	0	2.243	1.615	1.713	0	1.661	8.142	4.623	0	0.965
60	8.465	3.217	0	2.459	10.679	5.078	0	2.515	1.679	1.92	0	1.794	8.465	5.182	0	1.058
120	9.288	3.928	0	2.979	11.717	6.2	0	3.07	1.842	2.344	0	2.081	9.288	6.327	0	1.254
180	10.11	4.168	0	3.166	12.754	6.579	0	3.258	2.005	2.488	0	2.235	10.11	6.713	0	1.34
240	10.933	4.4	0	3.349	13.792	6.945	0	3.44	2.168	2.626	0	2.386	10.933	7.088	0	1.424
300	11.755	4.624	0	3.526	14.829	7.3	0	3.615	2.331	2.76	0	2.536	11.755	7.449	0	1.506
360	12.578	4.841	0	3.697	15.867	7.642	0	3.785	2.494	2.89	0	2.683	12.578	7.799	0	1.587
420	13.401	5.051	0	3.863	16.905	7.973	0	3.948	2.657	3.015	0	2.828	13.401	8.136	0	1.665
480	14.223	5.253	0	4.024	17.942	8.291	0	4.106	2.82	3.135	0	2.97	14.223	8.461	0	1.742
540	15.046	5.447	0	4.18	18.98	8.598	0	4.258	2.983	3.251	0	3.111	15.046	8.774	0	1.817
600	15.868	5.633	0	4.33	20.018	8.892	0	4.404	3.147	3.363	0	3.25	15.868	9.075	0	1.891
660	16.691	5.812	0	4.474	21.055	9.175	0	4.544	3.31	3.469	0	3.386	16.691	9.363	0	1.962
720	17.513	5.984	0	4.614	22.093	9.445	0	4.678	3.473	3.572	0	3.52	17.513	9.639	0	2.032
	SUM															
Pounds/day: 180 min soak	0.0277398															

Time min	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
5	6.554	0.196	0	0.249	2.079	0.047	0	0.066
10	6.498	0.382	0	0.412	2.061	0.093	0	0.109
20	6.56	0.725	0	0.715	2.081	0.178	0	0.189
30	6.855	1.027	0	0.985	2.174	0.254	0	0.263
40	7.382	1.29	0	1.222	2.342	0.323	0	0.33
50	8.142	1.513	0	1.428	2.583	0.383	0	0.389
60	8.465	1.696	0	1.593	2.685	0.435	0	0.44
120	9.288	2.07	0	1.933	2.946	0.597	0	0.596
180	10.11	2.197	0	2.054	3.207	0.635	0	0.635
240	10.933	2.319	0	2.171	3.468	0.673	0	0.673
300	11.755	2.438	0	2.285	3.729	0.709	0	0.711
360	12.578	2.552	0	2.395	3.99	0.745	0	0.747
420	13.401	2.662	0	2.502	4.251	0.78	0	0.783
480	14.223	2.769	0	2.605	4.512	0.815	0	0.818
540	15.046	2.871	0	2.705	4.773	0.848	0	0.853
600	15.868	2.969	0	2.801	5.034	0.881	0	0.886
660	16.691	3.064	0	2.894	5.295	0.913	0	0.919
720	17.513	3.154	0	2.983	5.556	0.944	0	0.951

Pollutant Name: Carbon Monoxide   Temperature: 75F   Relative Humidity: ALL

Time min	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL
5	23.157	0.276	0	0.33	24.134	0.318	0	0.447	23.573	0.394	0	0.433	45.241	0.493	0	0.645
10	20.506	0.542	0	0.59	21.371	0.626	0	0.727	20.875	0.775	0	0.808	40.062	0.971	0	1.102
20	15.83	1.049	0	1.083	16.497	1.213	0	1.261	16.114	1.499	0	1.522	30.925	1.877	0	1.971
30	11.987	1.522	0	1.544	12.493	1.759	0	1.762	12.202	2.173	0	2.188	23.418	2.718	0	2.781
40	8.978	1.959	0	1.972	9.356	2.265	0	2.229	9.139	2.796	0	2.804	17.539	3.494	0	3.533
50	6.802	2.36	0	2.367	7.089	2.731	0	2.663	6.925	3.369	0	3.372	13.29	4.206	0	4.226
60	5.461	2.727	0	2.73	5.691	3.157	0	3.064	5.559	3.892	0	3.891	10.669	4.853	0	4.86
120	14.722	4.086	0	4.105	15.343	4.745	0	4.644	14.987	5.822	0	5.831	28.762	7.208	0	7.262
180	23.262	4.389	0	4.428	24.244	5.104	0	5.041	23.68	6.249	0	6.272	45.446	7.713	0	7.821
240	30.897	4.667	0	4.723	32.201	5.433	0	5.404	31.453	6.642	0	6.677	60.362	8.178	0	8.334
300	37.627	4.921	0	4.992	39.215	5.732	0	5.731	38.303	7	0	7.045	73.51	8.604	0	8.802
360	43.452	5.149	0	5.233	45.285	6	0	6.025	44.233	7.322	0	7.377	84.89	8.99	0	9.225
420	48.372	5.351	0	5.447	50.412	6.238	0	6.283	49.241	7.609	0	7.672	94.501	9.336	0	9.602
480	52.386	5.529	0	5.633	54.596	6.446	0	6.507	53.328	7.861	0	7.93	102.344	9.643	0	9.934
540	55.496	5.681	0	5.793	57.837	6.623	0	6.696	56.493	8.078	0	8.152	108.419	9.911	0	10.221
600	57.7	5.809	0	5.925	60.134	6.77	0	6.851	58.737	8.26	0	8.337	112.725	10.139	0	10.462
660	58.999	5.911	0	6.03	61.488	6.887	0	6.971	60.06	8.407	0	8.486	115.263	10.327	0	10.658
720	59.394	5.988	0	6.107	61.899	6.974	0	7.056	60.461	8.519	0	8.598	116.033	10.476	0	10.808
Pounds/day: 180 min soak	0.000183975	0.015412	0		0	0.0672699	0		0	0.223104	0		0	0.015525	0	

Time min	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
5	40.99	1.352	0	1.335	40.99	1.199	0	1.008	61.485	4.766	0	2.434	235.197	12.751	0	12.69
10	36.297	2.658	0	2.511	36.297	2.358	0	1.858	54.446	9.338	0	3.819	208.272	24.984	0	17.84
20	28.02	5.13	0	4.739	28.02	4.552	0	3.471	42.029	17.901	0	6.424	160.774	47.895	0	27.569
30	21.217	7.416	0	6.801	21.217	6.582	0	4.966	31.826	25.69	0	8.809	121.744	68.735	0	36.534
40	15.891	9.516	0	8.698	15.891	8.45	0	6.344	23.837	32.704	0	10.974	91.182	87.501	0	44.735
50	12.041	11.43	0	10.429	12.041	10.154	0	7.603	18.061	38.943	0	12.919	69.089	104.196	0	52.171
60	9.666	13.157	0	11.995	9.666	11.694	0	8.745	14.499	44.408	0	14.645	55.464	118.818	0	58.844
120	26.059	19.242	0	17.573	26.059	17.158	0	12.864	39.089	60.884	0	20.354	149.527	162.899	0	82.719
180	41.176	20.444	0	18.705	41.176	18.257	0	13.725	61.764	62.664	0	21.259	236.264	167.661	0	87.427
240	54.69	21.562	0	19.757	54.69	19.278	0	14.524	82.035	64.502	0	22.148	313.809	172.58	0	91.956
300	66.603	22.599	0	20.73	66.603	20.221	0	15.26	99.904	66.399	0	23.022	382.161	177.656	0	96.304
360	76.913	23.553	0	21.624	76.913	21.086	0	15.933	115.369	68.355	0	23.881	441.32	182.888	0	100.473
420	85.621	24.424	0	22.44	85.621	21.873	0	16.544	128.431	70.369	0	24.723	491.287	188.278	0	104.462
480	92.727	25.213	0	23.175	92.727	22.582	0	17.093	139.09	72.442	0	25.551	532.061	193.825	0	108.271
540	98.231	25.919	0	23.832	98.231	23.213	0	17.579	147.346	74.574	0	26.362	563.642	199.529	0	111.899
600	102.133	26.543	0	24.41	102.133	23.767	0	18.002	153.199	76.765	0	27.159	586.03	205.389	0	115.348
660	104.433	27.085	0	24.908	104.433	24.242	0	18.363	156.649	79.014	0	27.939	599.226	211.407	0	118.618
720	105.13	27.544	0	25.327	105.13	24.64	0	18.661	157.695	81.322	0	28.705	603.229	217.582	0	121.707
Pounds/day: 180 min soak	0	0.028218	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Time min	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL
5	61.485	5.558	0	5.305	71.664	7.849	0	3.888	6.35	1.139	0	3.866	61.485	8.482	0	3.462
10	54.446	10.889	0	8.905	63.46	15.379	0	7.617	5.623	2.231	0	4.006	54.446	16.62	0	4.385
20	42.029	20.875	0	15.666	48.987	29.483	0	14.601	4.34	4.278	0	4.311	42.029	31.861	0	6.142
30	31.826	29.958	0	21.84	37.095	42.311	0	20.954	3.287	6.139	0	4.646	31.826	45.723	0	7.779
40	23.837	38.137	0	27.427	27.783	53.864	0	26.675	2.462	7.815	0	5.013	23.837	58.207	0	9.298
50	18.061	45.414	0	32.427	21.051	64.14	0	31.764	1.865	9.306	0	5.412	18.061	69.313	0	10.697
60	14.499	51.787	0	36.84	16.9	73.141	0	36.221	1.497	10.612	0	5.842	14.499	79.039	0	11.976
120	39.089	70.999	0	50.94	45.56	100.276	0	49.659	4.037	14.549	0	9.047	39.089	108.363	0	17.117
180	61.764	73.075	0	52.915	71.989	103.208	0	51.111	6.379	14.974	0	10.475	61.764	111.53	0	18.4
240	82.035	75.219	0	54.883	95.617	106.236	0	52.611	8.472	15.414	0	11.781	82.035	114.803	0	19.61
300	99.904	77.431	0	56.846	116.443	109.36	0	54.158	10.317	15.867	0	12.962	99.904	118.179	0	20.748
360	115.369	79.712	0	58.803	134.469	112.581	0	55.754	11.915	16.334	0	14.021	115.369	121.66	0	21.814
420	128.431	82.061	0	60.754	149.693	115.899	0	57.397	13.263	16.816	0	14.957	128.431	125.245	0	22.807
480	139.09	84.479	0	62.699	162.117	119.314	0	59.088	14.364	17.311	0	15.769	139.09	128.935	0	23.729
540	147.346	86.965	0	64.638	171.74	122.825	0	60.827	15.217	17.82	0	16.458	147.346	132.729	0	24.578
600	153.199	89.519	0	66.571	178.561	126.433	0	62.613	15.821	18.344	0	17.024	153.199	136.628	0	25.356
660	156.649	92.142	0	68.497	182.582	130.137	0	64.448	16.178	18.881	0	17.466	156.649	140.631	0	26.061
720	157.695	94.833	0	70.419	183.802	133.938	0	66.33	16.286	19.433	0	17.786	157.695	144.739	0	26.694
	SUM															
Pounds/day: 180 min soak	0.3497135															

Time min	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
5	61.485	3.172	0	3.508	16.811	0.514	0	0.657
10	54.446	6.216	0	6.109	14.887	1.01	0	1.108
20	42.029	11.916	0	10.991	11.492	1.949	0	1.965
30	31.826	17.1	0	15.443	8.702	2.818	0	2.761
40	23.837	21.769	0	19.467	6.517	3.618	0	3.497
50	18.061	25.922	0	23.061	4.938	4.346	0	4.172
60	14.499	29.56	0	26.227	3.964	5.005	0	4.787
120	39.089	40.527	0	36.179	10.688	7.337	0	7.066
180	61.764	41.712	0	37.486	16.887	7.804	0	7.572
240	82.035	42.935	0	38.799	22.43	8.238	0	8.039
300	99.904	44.198	0	40.119	27.315	8.639	0	8.469
360	115.369	45.5	0	41.446	31.544	9.007	0	8.861
420	128.431	46.841	0	42.779	35.115	9.342	0	9.215
480	139.09	48.221	0	44.119	38.03	9.645	0	9.532
540	147.346	49.64	0	45.465	40.287	9.915	0	9.811
600	153.199	51.098	0	46.818	41.887	10.152	0	10.052
660	156.649	52.595	0	48.178	42.83	10.356	0	10.255
720	157.695	54.131	0	49.544	43.116	10.527	0	10.42

Pollutant Name: Oxides of Nitrogen   Temperature: 75F   Relative Humidity: ALL

Time min	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL
5	1.039	0.144	0	0.146	1.043	0.164	0	0.163	1.026	0.292	0	0.293	1.72	0.371	0	0.375
10	1.13	0.162	0	0.164	1.134	0.181	0	0.18	1.115	0.327	0	0.328	1.869	0.414	0	0.418
20	1.294	0.195	0	0.197	1.299	0.212	0	0.211	1.278	0.388	0	0.389	2.141	0.49	0	0.495
30	1.437	0.222	0	0.225	1.442	0.237	0	0.236	1.418	0.44	0	0.441	2.377	0.554	0	0.559
40	1.557	0.244	0	0.247	1.563	0.258	0	0.257	1.537	0.481	0	0.482	2.576	0.605	0	0.61
50	1.656	0.26	0	0.263	1.662	0.273	0	0.272	1.634	0.512	0	0.513	2.74	0.644	0	0.649
60	1.732	0.271	0	0.274	1.739	0.284	0	0.283	1.71	0.532	0	0.534	2.866	0.669	0	0.675
120	1.736	0.286	0	0.289	1.743	0.302	0	0.3	1.714	0.564	0	0.565	2.873	0.71	0	0.715
180	1.695	0.285	0	0.288	1.701	0.301	0	0.299	1.673	0.562	0	0.563	2.804	0.707	0	0.713
240	1.64	0.283	0	0.286	1.646	0.299	0	0.297	1.619	0.558	0	0.559	2.713	0.702	0	0.707
300	1.571	0.28	0	0.283	1.578	0.296	0	0.293	1.551	0.552	0	0.553	2.6	0.695	0	0.699
360	1.49	0.276	0	0.278	1.495	0.291	0	0.288	1.47	0.543	0	0.544	2.465	0.684	0	0.688
420	1.394	0.271	0	0.273	1.4	0.285	0	0.282	1.376	0.533	0	0.534	2.307	0.671	0	0.674
480	1.286	0.264	0	0.266	1.291	0.278	0	0.274	1.269	0.52	0	0.521	2.127	0.654	0	0.658
540	1.164	0.257	0	0.259	1.168	0.27	0	0.266	1.149	0.505	0	0.506	1.926	0.635	0	0.638
600	1.028	0.248	0	0.25	1.032	0.26	0	0.256	1.015	0.488	0	0.488	1.701	0.614	0	0.616
660	0.879	0.239	0	0.24	0.883	0.249	0	0.245	0.868	0.469	0	0.469	1.455	0.589	0	0.59
720	0.717	0.228	0	0.229	0.72	0.237	0	0.232	0.708	0.447	0	0.447	1.186	0.562	0	0.562
Pounds/day: 180 min soak																
	1.34055E-05	0.001001	0		0	0.0039671	0		0	0.020065	0		0	0.001423	0	

Time min	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
5	0.505	1.356	0	1.235	0.505	1.374	0	1.025	0.758	1.256	0	0.419	2.954	3.86	0	1.944
10	0.549	1.55	0	1.412	0.549	1.591	0	1.188	0.824	1.892	0	0.627	3.211	5.816	0	2.894
20	0.629	1.895	0	1.726	0.629	1.976	0	1.475	0.944	3.01	0	0.992	3.678	9.251	0	4.564
30	0.698	2.182	0	1.987	0.698	2.295	0	1.713	1.047	3.921	0	1.29	4.083	12.05	0	5.925
40	0.757	2.409	0	2.194	0.757	2.547	0	1.901	1.135	4.625	0	1.52	4.425	14.213	0	6.977
50	0.805	2.577	0	2.347	0.805	2.732	0	2.039	1.207	5.121	0	1.682	4.705	15.74	0	7.722
60	0.842	2.687	0	2.447	0.842	2.852	0	2.128	1.263	5.411	0	1.777	4.923	16.631	0	8.157
120	0.844	2.824	0	2.572	0.844	2.986	0	2.229	1.266	5.43	0	1.783	4.934	16.688	0	8.185
180	0.824	2.816	0	2.564	0.824	2.977	0	2.222	1.235	5.41	0	1.776	4.816	16.627	0	8.152
240	0.797	2.796	0	2.546	0.797	2.957	0	2.207	1.195	5.379	0	1.766	4.66	16.533	0	8.103
300	0.764	2.767	0	2.519	0.764	2.926	0	2.184	1.146	5.338	0	1.752	4.466	16.407	0	8.037
360	0.724	2.727	0	2.483	0.724	2.885	0	2.153	1.086	5.287	0	1.734	4.233	16.248	0	7.954
420	0.678	2.677	0	2.437	0.678	2.834	0	2.114	1.017	5.225	0	1.713	3.963	16.058	0	7.854
480	0.625	2.616	0	2.382	0.625	2.772	0	2.068	0.937	5.152	0	1.688	3.654	15.834	0	7.738
540	0.566	2.545	0	2.317	0.566	2.699	0	2.014	0.848	5.069	0	1.66	3.307	15.579	0	7.605
600	0.5	2.464	0	2.243	0.5	2.616	0	1.952	0.75	4.975	0	1.628	2.922	15.291	0	7.456
660	0.427	2.373	0	2.16	0.427	2.522	0	1.882	0.641	4.871	0	1.593	2.499	14.971	0	7.289
720	0.349	2.271	0	2.067	0.349	2.418	0	1.804	0.523	4.756	0	1.554	2.038	14.618	0	7.106
	0	0.003887	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Time min	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
5	0.758	1.545	0	1.106	0.991	2.976	0	1.474	0.258	0.083	0	0.175	0.758	1.756	0	0.282	0.758	0.678	0	0.607	0.514	0.335	0	0.323
10	0.824	2.327	0	1.659	1.077	4.483	0	2.22	0.281	0.125	0	0.207	0.824	2.646	0	0.413	0.824	1.022	0	0.91	0.559	0.388	0	0.373
20	0.944	3.702	0	2.631	1.234	7.131	0	3.532	0.322	0.2	0	0.264	0.944	4.208	0	0.644	0.944	1.625	0	1.443	0.64	0.482	0	0.463
30	1.047	4.822	0	3.423	1.369	9.289	0	4.6	0.357	0.26	0	0.311	1.047	5.482	0	0.832	1.047	2.117	0	1.878	0.711	0.559	0	0.537
40	1.135	5.688	0	4.036	1.484	10.956	0	5.426	0.387	0.307	0	0.349	1.135	6.466	0	0.978	1.135	2.497	0	2.214	0.77	0.621	0	0.596
50	1.207	6.299	0	4.468	1.578	12.134	0	6.009	0.412	0.34	0	0.377	1.207	7.16	0	1.081	1.207	2.765	0	2.451	0.819	0.666	0	0.64
60	1.263	6.655	0	4.721	1.651	12.82	0	6.349	0.431	0.359	0	0.397	1.263	7.566	0	1.142	1.263	2.921	0	2.59	0.857	0.695	0	0.668
120	1.266	6.678	0	4.737	1.655	12.864	0	6.371	0.432	0.36	0	0.398	1.266	7.592	0	1.146	1.266	2.931	0	2.599	0.859	0.728	0	0.699
180	1.235	6.653	0	4.719	1.615	12.817	0	6.347	0.421	0.359	0	0.392	1.235	7.564	0	1.141	1.235	2.921	0	2.589	0.838	0.725	0	0.696
240	1.195	6.616	0	4.692	1.563	12.745	0	6.311	0.408	0.357	0	0.383	1.195	7.521	0	1.133	1.195	2.904	0	2.574	0.811	0.72	0	0.691
300	1.146	6.566	0	4.655	1.498	12.648	0	6.263	0.391	0.354	0	0.373	1.146	7.464	0	1.123	1.146	2.882	0	2.554	0.777	0.713	0	0.684
360	1.086	6.502	0	4.609	1.42	12.526	0	6.203	0.37	0.351	0	0.361	1.086	7.392	0	1.11	1.086	2.854	0	2.529	0.737	0.703	0	0.674
420	1.017	6.426	0	4.553	1.329	12.378	0	6.13	0.347	0.346	0	0.347	1.017	7.305	0	1.095	1.017	2.821	0	2.498	0.69	0.69	0	0.662
480	0.937	6.336	0	4.489	1.226	12.206	0	6.045	0.32	0.342	0	0.33	0.937	7.203	0	1.078	0.937	2.782	0	2.463	0.636	0.675	0	0.647
540	0.848	6.234	0	4.415	1.109	12.009	0	5.947	0.289	0.336	0	0.312	0.848	7.087	0	1.057	0.848	2.737	0	2.422	0.576	0.658	0	0.629
600	0.75	6.119	0	4.331	0.98	11.787	0	5.837	0.256	0.33	0	0.291	0.75	6.956	0	1.035	0.75	2.686	0	2.377	0.509	0.637	0	0.61
660	0.641	5.991	0	4.238	0.838	11.54	0	5.715	0.219	0.323	0	0.268	0.641	6.81	0	1.01	0.641	2.63	0	2.326	0.435	0.615	0	0.587
720	0.523	5.85	0	4.136	0.684	11.269	0	5.58	0.178	0.315	0	0.244	0.523	6.65	0	0.982	0.523	2.568	0	2.27	0.355	0.589	0	0.562
	SUM																							
	0.030356																							

Pollutant Name: PM10   Temperature: 75F   Relative Humidity: ALL

Time min	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL
5	0.011	0.001	0	0.001	0.011	0.001	0	0.001	0.011	0.001	0	0.001	0.012	0.001	0	0.001
10	0.01	0.001	0	0.001	0.01	0.001	0	0.001	0.01	0.002	0	0.002	0.01	0.003	0	0.003
20	0.008	0.002	0	0.002	0.008	0.002	0	0.002	0.008	0.005	0	0.005	0.008	0.005	0	0.005
30	0.006	0.003	0	0.003	0.006	0.003	0	0.003	0.006	0.007	0	0.007	0.006	0.007	0	0.007
40	0.004	0.004	0	0.004	0.004	0.004	0	0.004	0.004	0.009	0	0.009	0.005	0.009	0	0.009
50	0.003	0.004	0	0.004	0.003	0.005	0	0.005	0.003	0.011	0	0.011	0.003	0.011	0	0.011
60	0.003	0.005	0	0.005	0.003	0.006	0	0.005	0.003	0.013	0	0.013	0.003	0.013	0	0.013
120	0.007	0.008	0	0.008	0.007	0.009	0	0.008	0.007	0.019	0	0.019	0.007	0.02	0	0.02
180	0.011	0.008	0	0.008	0.011	0.01	0	0.009	0.011	0.021	0	0.021	0.012	0.022	0	0.021
240	0.015	0.009	0	0.009	0.015	0.01	0	0.01	0.015	0.022	0	0.022	0.016	0.023	0	0.023
300	0.018	0.01	0	0.01	0.018	0.011	0	0.011	0.019	0.024	0	0.024	0.019	0.024	0	0.024
360	0.021	0.01	0	0.01	0.021	0.012	0	0.011	0.021	0.025	0	0.025	0.022	0.026	0	0.025
420	0.023	0.011	0	0.011	0.023	0.012	0	0.012	0.024	0.026	0	0.026	0.024	0.027	0	0.027
480	0.025	0.011	0	0.011	0.025	0.012	0	0.012	0.026	0.027	0	0.027	0.026	0.028	0	0.027
540	0.027	0.011	0	0.011	0.027	0.013	0	0.012	0.027	0.028	0	0.027	0.028	0.028	0	0.028
600	0.028	0.011	0	0.011	0.028	0.013	0	0.013	0.028	0.028	0	0.028	0.029	0.029	0	0.029
660	0.029	0.012	0	0.012	0.028	0.013	0	0.013	0.029	0.029	0	0.028	0.03	0.029	0	0.029
720	0.029	0.012	0	0.012	0.028	0.013	0	0.013	0.029	0.029	0	0.029	0.03	0.03	0	0.03
Pounds/day: 180 min soak																
	8.69971E-08	2.81E-05	0		0	0.0001318	0		0	0.00075	0		0	4.43E-05	0	

Time min	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
5	0.011	0.001	0	0.001	0.011	0.001	0	0.001	0.011	0.001	0	0.001	0.011	0.002	0	0.001
10	0.01	0.002	0	0.001	0.01	0.002	0	0.001	0.01	0.002	0	0.001	0.01	0.004	0	0.002
20	0.008	0.003	0	0.003	0.008	0.003	0	0.002	0.008	0.004	0	0.002	0.008	0.007	0	0.003
30	0.006	0.004	0	0.004	0.006	0.005	0	0.004	0.006	0.006	0	0.002	0.006	0.01	0	0.005
40	0.004	0.005	0	0.005	0.004	0.006	0	0.004	0.004	0.008	0	0.003	0.004	0.012	0	0.006
50	0.003	0.007	0	0.006	0.003	0.007	0	0.005	0.003	0.01	0	0.003	0.003	0.015	0	0.007
60	0.003	0.008	0	0.007	0.003	0.008	0	0.006	0.003	0.011	0	0.004	0.003	0.017	0	0.008
120	0.007	0.011	0	0.01	0.007	0.012	0	0.009	0.007	0.015	0	0.005	0.007	0.023	0	0.011
180	0.011	0.012	0	0.011	0.011	0.013	0	0.01	0.011	0.016	0	0.005	0.011	0.024	0	0.012
240	0.015	0.013	0	0.012	0.015	0.014	0	0.01	0.015	0.016	0	0.005	0.015	0.024	0	0.012
300	0.018	0.013	0	0.012	0.018	0.014	0	0.011	0.018	0.017	0	0.006	0.018	0.025	0	0.013
360	0.021	0.014	0	0.013	0.021	0.015	0	0.011	0.021	0.017	0	0.006	0.021	0.026	0	0.013
420	0.023	0.015	0	0.013	0.023	0.016	0	0.012	0.023	0.018	0	0.006	0.023	0.026	0	0.013
480	0.025	0.015	0	0.014	0.025	0.016	0	0.012	0.025	0.018	0	0.006	0.025	0.027	0	0.014
540	0.027	0.015	0	0.014	0.027	0.017	0	0.012	0.027	0.019	0	0.006	0.027	0.028	0	0.014
600	0.028	0.016	0	0.014	0.028	0.017	0	0.013	0.028	0.019	0	0.007	0.028	0.029	0	0.015
660	0.029	0.016	0	0.015	0.029	0.017	0	0.013	0.029	0.02	0	0.007	0.029	0.03	0	0.015
720	0.029	0.016	0	0.015	0.029	0.018	0	0.013	0.029	0.02	0	0.007	0.029	0.031	0	0.016
	0	1.66E-05	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Time min	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
5	0.011	0.001	0	0.001	0.011	0.002	0	0.001	0.02	0	0	0.01	0.011	0.002	0	0.001	0.011	0	0	0	0.017	0.001	0	0.001
10	0.01	0.003	0	0.002	0.01	0.003	0	0.001	0.017	0	0	0.009	0.01	0.003	0	0.001	0.01	0.001	0	0.001	0.015	0.002	0	0.002
20	0.008	0.005	0	0.004	0.008	0.006	0	0.003	0.013	0.001	0	0.007	0.008	0.006	0	0.001	0.008	0.001	0	0.001	0.012	0.003	0	0.003
30	0.006	0.007	0	0.005	0.006	0.008	0	0.004	0.01	0.001	0	0.006	0.006	0.008	0	0.001	0.006	0.002	0	0.001	0.009	0.004	0	0.004
40	0.004	0.009	0	0.007	0.004	0.01	0	0.005	0.008	0.001	0	0.005	0.004	0.011	0	0.002	0.004	0.002	0	0.002	0.007	0.006	0	0.005
50	0.003	0.011	0	0.008	0.003	0.012	0	0.006	0.006	0.002	0	0.004	0.003	0.013	0	0.002	0.003	0.002	0	0.002	0.005	0.007	0	0.007
60	0.003	0.013	0	0.009	0.003	0.014	0	0.007	0.005	0.002	0	0.003	0.003	0.015	0	0.002	0.003	0.003	0	0.002	0.004	0.008	0	0.008
120	0.007	0.017	0	0.012	0.007	0.019	0	0.01	0.013	0.002	0	0.008	0.007	0.02	0	0.003	0.007	0.004	0	0.003	0.011	0.012	0	0.012
180	0.011	0.018	0	0.013	0.011	0.02	0	0.01	0.02	0.002	0	0.012	0.011	0.021	0	0.003	0.011	0.004	0	0.003	0.017	0.013	0	0.013
240	0.015	0.018	0	0.013	0.015	0.02	0	0.01	0.026	0.002	0	0.015	0.015	0.021	0	0.004	0.015	0.004	0	0.004	0.023	0.014	0	0.014
300	0.018	0.019	0	0.014	0.018	0.021	0	0.01	0.032	0.003	0	0.018	0.018	0.022	0	0.004	0.018	0.004	0	0.004	0.028	0.015	0	0.014
360	0.021	0.019	0	0.014	0.021	0.022	0	0.011	0.037	0.003	0	0.021	0.021	0.022	0	0.004	0.021	0.004	0	0.004	0.032	0.016	0	0.015
420	0.023	0.02	0	0.015	0.023	0.022	0	0.011	0.041	0.003	0	0.023	0.023	0.023	0	0.004	0.023	0.004	0	0.004	0.036	0.016	0	0.016
480	0.025	0.02	0	0.015	0.025	0.023	0	0.011	0.045	0.003	0	0.025	0.025	0.024	0	0.004	0.025	0.004	0	0.004	0.039	0.017	0	0.016
540	0.027	0.021	0	0.015	0.027	0.024	0	0.012	0.047	0.003	0	0.026	0.027	0.024	0	0.005	0.027	0.004	0	0.004	0.041	0.017	0	0.017
600	0.028	0.022	0	0.016	0.028	0.024	0	0.012	0.049	0.003	0	0.027	0.028	0.025	0	0.005	0.028	0.004	0	0.004	0.043	0.018	0	0.017
660	0.029	0.022	0	0.016	0.029	0.025	0	0.012	0.05	0.003	0	0.028	0.029	0.026	0	0.005	0.029	0.005	0	0.004	0.044	0.018	0	0.018
720	0.029	0.023	0	0.017	0.029	0.026	0	0.013	0.051	0.003	0	0.028	0.029	0.027	0	0.005	0.029	0.005	0	0.005	0.044	0.018	0	0.018
	SUM																							
	0.0009706																							

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 75F Relative Humidity: ALL

Time min	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
5	0.865	0.056	0	0.058	0.902	0.055	0	0.058	0.894	0.06	0	0.061	0.296	0.056	0	0.056	0.383	0.017	0	0.016	0.384	0.017	0	0.014	0.221	0.015	0	0.008	0.22	0.017	0	0.014	0.221	0.018	0	0.018	0.921	0.129	0	0.064	0.039	0.183	0	0.108	0.221	0.081	0	0.02	0.218	0.038	0	0.036	0.228	0.053	0	0.053
10	1.594	0.103	0	0.107	1.66	0.101	0	0.107	1.646	0.111	0	0.114	0.545	0.103	0	0.104	0.706	0.031	0	0.03	0.706	0.032	0	0.026	0.407	0.028	0	0.015	0.405	0.032	0	0.027	0.406	0.034	0	0.033	1.696	0.238	0	0.118	0.073	0.34	0	0.2	0.406	0.151	0	0.037	0.402	0.07	0	0.067	0.42	0.099	0	0.098
20	2.706	0.177	0	0.182	2.818	0.173	0	0.183	2.794	0.19	0	0.194	0.925	0.176	0	0.178	1.198	0.054	0	0.052	1.199	0.055	0	0.045	0.69	0.049	0	0.026	0.688	0.055	0	0.046	0.689	0.058	0	0.056	2.879	0.406	0	0.201	0.124	0.589	0	0.346	0.689	0.257	0	0.062	0.682	0.12	0	0.113	0.713	0.169	0	0.168
30	3.457	0.227	0	0.234	3.597	0.223	0	0.235	3.567	0.245	0	0.25	1.181	0.227	0	0.23	1.53	0.071	0	0.068	1.53	0.072	0	0.058	0.881	0.064	0	0.034	0.878	0.072	0	0.059	0.88	0.074	0	0.072	3.675	0.522	0	0.258	0.158	0.772	0	0.451	0.88	0.331	0	0.08	0.871	0.154	0	0.146	0.911	0.218	0	0.216
40	3.73	0.246	0	0.254	3.88	0.241	0	0.255	3.847	0.265	0	0.271	1.273	0.246	0	0.249	1.65	0.077	0	0.074	1.651	0.079	0	0.063	0.95	0.07	0	0.037	0.947	0.079	0	0.065	0.949	0.081	0	0.078	3.964	0.564	0	0.279	0.171	0.844	0	0.492	0.949	0.359	0	0.086	0.94	0.166	0	0.157	0.983	0.236	0	0.234

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Pounds/day: 30 min																																																										SUM
	2.73408E-05	0.000797	0		0	0.0029391	0		0	0.008747	0		0	0.000457	0		0	9.8E-05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0130656

Table 7: Estimated Travel Fractions

Pollutant Name: Temperature: ALL Relative Humidity: ALL

	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL	
%VMT	0.001	0.467	0.001	0.468	0	0.088	0.003	0.091	0	0.237	0	0.238	0	0.12	0	0.121	0	0.024	0.006	0.031	0	0.005	0.004	0.009	0	0.002	0.01	0.013	0	0	0.014	0.015	0	0	0	0	0	0	0	0	0.004	0.005	0	0.008	0	0	0	0.001	0	0.005	0.001	0.006	0.006	0.954	0.04	1
%TRIP	0.001	0.444	0.001	0.446	0	0.079	0.003	0.082	0	0.214	0	0.215	0	0.105	0	0.105	0	0.072	0.007	0.079	0	0.014	0.005	0.019	0.001	0.012	0.024	0.036	0	0.001	0.001	0.003	0	0.002	0.001	0.002	0	0	0	0	0	0.007	0.006	0	0.013	0	0	0	0	0	0	0	0	0.01	0.948	0.042	1
%VEH	0.002	0.474	0.001	0.476	0.001	0.084	0.003	0.088	0.001	0.229	0	0.23	0.001	0.112	0	0.113	0	0.014	0.004	0.018	0	0.003	0.003	0.005	0	0.002	0.006	0.007	0	0	0.002	0.002	0	0	0	0	0	0	0	0	0	0	0.013	0.002	0.015	0.027	0.952	0.02	1								

Project:	0.000	0.050	0.000		0.000	0.187	0.007		0.000	0.506	0.000		0.000	0.029	0.000		0.000	0.020	0.002														0.2		SUM:	1.000

Table 8: Evaporative Running Loss Emissions (grams/minute)

Pollutant Name: Reactive Org Gases Temperature: 75F Relative Humidity: ALL

Time min	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL	LHV NCAT	LHV CAT	LHV DSL	LHV ALL	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT	SBUS DSL	SBUS ALL	MH NCAT	MH CAT	MH DSL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
1	1.426	0.012	0	0.014	1.996	0.36	0	0.358	1.857	0.446	0	0.447	0.504	0.385	0	0.385	2.258	0.301	0	0.241	2.294	0.311	0	0.169	1.921	0.529	0	0.101	3.338	0.408	0	0.015	1.918	0.411	0	0.22	3.359	1.089	0	0.539	0.05	0.003	0	0.025	2.092	4.607	0	0.743	1.533	1.95	0	1.738	0.535	0.221	0	0.214
2	1.288	0.014	0	0.016	1.216	0.183	0	0.183	1.129	0.226	0	0.227	0.299	0.196	0	0.196	1.261	0.158	0	0.127	1.362	0.161	0	0.088	1.159	0.277	0	0.053	1.879	0.216	0	0.008	1.179	0.213	0	0.115	1.909	0.55	0	0.273	0.05	0.07	0	0.061	1.243	2.382	0	0.39	0.992	1.006	0	0.899	0.386	0.116	0	0.113
3	1.239	0.017	0	0.019	0.955	0.126	0	0.126	0.885	0.155	0	0.156	0.23	0.135	0	0.135	0.928	0.111	0	0.089	1.05	0.113	0	0.062	0.904	0.196	0	0.038	1.391	0.155	0	0.006	0.931	0.15	0	0.081	1.424	0.375	0	0.186	0.051	0.103	0	0.079	0.959	1.642	0	0.273	0.815	0.694	0	0.621	0.336	0.084	0	0.082
4	1.212	0.02	0	0.022	0.823	0.099	0	0.1	0.762	0.121	0	0.122	0.196	0.106	0	0.106	0.761	0.089	0	0.071	0.893	0.09	0	0.049	0.775	0.156	0	0.03	1.146	0.126	0	0.005	0.806	0.121	0	0.066	1.181	0.291	0	0.144	0.051	0.121	0	0.089	0.816	1.272	0	0.214	0.729	0.54	0	0.484	0.31	0.069	0	0.068
5	1.194	0.022	0	0.024	0.743	0.084	0	0.085	0.687	0.101	0	0.101	0.175	0.089	0	0.089	0.66	0.076	0	0.061	0.798	0.076	0	0.042	0.697	0.132	0	0.026	0.999	0.109	0	0.004	0.73	0.104	0	0.057	1.034	0.241	0	0.119	0.052	0.132	0	0.095	0.729	1.051	0	0.179	0.677	0.447	0	0.401	0.295	0.061	0	0.06
10	1.146	0.026	0	0.028	0.577	0.054	0	0.055	0.533	0.062	0	0.063	0.132	0.056	0	0.057	0.456	0.05	0	0.041	0.601	0.05	0	0.028	0.536	0.086	0	0.017	0.697	0.075	0	0.003	0.572	0.071	0	0.039	0.733	0.144	0	0.071	0.054	0.149	0	0.105	0.551	0.608	0	0.108	0.565	0.263	0	0.238	0.263	0.044	0	0.044
15	1.116	0.027	0	0.029	0.515	0.045	0	0.046	0.475	0.051	0	0.051	0.117	0.047	0	0.047	0.385	0.043	0	0.035	0.53	0.042	0	0.023	0.477	0.072	0	0.014	0.591	0.065	0	0.002	0.512	0.06	0	0.033	0.625	0.116	0	0.057	0.056	0.149	0	0.106	0.486	0.462	0	0.085	0.52	0.203	0	0.184	0.25	0.039	0	0.039
20	1.092	0.028	0	0.029	0.48	0.041	0	0.042	0.443	0.046	0	0.046	0.108	0.043	0	0.043	0.347	0.04	0	0.032	0.489	0.039	0	0.022	0.443	0.065	0	0.013	0.533	0.06	0	0.002	0.478	0.056	0	0.031	0.567	0.104	0	0.052	0.058	0.144	0	0.105	0.449	0.388	0	0.073	0.493	0.173	0	0.158	0.243	0.037	0	0.037
25	1.071	0.028	0	0.029	0.455	0.039	0	0.04	0.42	0.044	0	0.044	0.102	0.041	0	0.041	0.323	0.038	0	0.031	0.462	0.037	0	0.021	0.42	0.062	0	0.012	0.495	0.057	0	0.002	0.454	0.054	0	0.029	0.528	0.098	0	0.049	0.06	0.139	0	0.102	0.425	0.344	0	0.065	0.473	0.156	0	0.142	0.238	0.036	0	0.036
30	1.053	0.027	0	0.028	0.445	0.037	0	0.038	0.411	0.042	0	0.042	0.1	0.039	0	0.04	0.317	0.037	0	0.03	0.451	0.036	0	0.02	0.411	0.06	0	0.012	0.484	0.055	0	0.002	0.444	0.052	0	0.028	0.516	0.094	0	0.047	0.059	0.131	0	0.098	0.415	0.334	0	0.063	0.462	0.151	0	0.137	0.233	0.035	0	0.034
35	1.036	0.026	0	0.027	0.435	0.036	0	0.037	0.402	0.04	0	0.04	0.099	0.038	0	0.038	0.311	0.036	0	0.029	0.441	0.035	0	0.019	0.402	0.058	0	0.011	0.473	0.054	0	0.002	0.434	0.05	0	0.028	0.504	0.09	0	0.045	0.058	0.124	0	0.094	0.406	0.324	0	0.062	0.452	0.146	0	0.133	0.229	0.033	0	0.033
40	1.02	0.025	0	0.027	0.425	0.034	0	0.035	0.393	0.038	0	0.039	0.097	0.036	0	0.036	0.306	0.034	0	0.028	0.432	0.034	0	0.018	0.394	0.056	0	0.011	0.463	0.052	0	0.002	0.425	0.049	0	0.027	0.492	0.087	0	0.043	0.057	0.117	0	0.09	0.398	0.314	0	0.06	0.442	0.142	0	0.129	0.225	0.032	0	0.032
45	1.004	0.024	0	0.026	0.417	0.033	0	0.034	0.385	0.037	0	0.037	0.095	0.035	0	0.035	0.3	0.033	0	0.027	0.423	0.032	0	0.018	0.386	0.054	0	0.011	0.453	0.051	0	0.002	0.416	0.047	0	0.026	0.481	0.083	0	0.041	0.056	0.111	0	0.086	0.39	0.305	0	0.058	0.433	0.138	0	0.126	0.221	0.031	0	0.031
50	0.961	0.024	0	0.025	0.408	0.032	0	0.033	0.378	0.035	0	0.036	0.094	0.034	0	0.034	0.295	0.032	0	0.026	0.414	0.031	0	0.017	0.378	0.053	0	0.01	0.443	0.049	0	0.002	0.407	0.046	0	0.025	0.471	0.08	0	0.039	0.054	0.105	0	0.081	0.382	0.297	0	0.057	0.424	0.134	0	0.122	0.213	0.03	0	0.03
55	0.907	0.023	0	0.024	0.4	0.03	0	0.031	0.37	0.034	0	0.034	0.092	0.032	0	0.032	0.29	0.031	0	0.025	0.406	0.03	0	0.017	0.371	0.051	0	0.01	0.434	0.048	0	0.002	0.399	0.044	0	0.024	0.461	0.077	0	0.038	0.051	0.099	0	0.077	0.375	0.289	0	0.055	0.416	0.13	0	0.118	0.204	0.029	0	0.029
60	0.86	0.022	0	0.023	0.392	0.029	0	0.03	0.363	0.032	0	0.033	0.091	0.031	0	0.031	0.286	0.03	0	0.024	0.398	0.029	0	0.016	0.364	0.049	0	0.01	0.425	0.047	0	0.002	0.392	0.043	0	0.024	0.452	0.073	0	0.036	0.048	0.093	0	0.072	0.368	0.281	0	0.054	0.408	0.126	0	0.115	0.196	0.028	0	0.027

Pounds/day: 30 min per trip																																																										SUM
	8.32799E-06	9.48E-05	0		0	0.0004877	0		0	0.001499	0		0	7.85E-05	0		0	5.11E-05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0022199

RESULTS: pounds per day

Days/year 160

Speed	ROG	CO	NOx	PM10	CO2
25	0.34	4.20	2.63	0.16	1165.63
30	0.29	3.83	2.49	0.14	1060.28
35	0.25	3.53	2.38	0.14	987.73
40	0.22	3.30	2.30	0.13	941.96
45	0.21	3.11	2.26	0.13	919.73
50	0.20	2.98	2.25	0.14	919.85

	CO2	N2O	CH4
lb/day	942.0	0.080	0.073
tons/year	75.4	0.006	0.006
CO2e			70.2

Greenhouse gases

Vehicle Type	Total VMT	N2O g/mile	CH4 g/mile	N2O lb/day	CH4 lb/day
Auto	32	0.04	0.04	0.003	0.003
LDT	448	0.06	0.05	0.059	0.049
MDT	32	0.05	0.06	0.004	0.004
HDT	128	0.05	0.06	0.014	0.017
SUM				0.080	0.073

GHG emissions factors from California Climate Action Registry General Reporting Protocol, Table C5

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HEAVY EQUIPMENT EMISSIONS

Project: VCWWD no. 1 Stockton Reservoir
Date: 7/28/2014
Scenario: Tank construction - peak day (earthwork)

INPUTS AND EMISSION FACTORS

							Emission Factors (lb/BHP-hr)					Daily		Total	
					Load Factor							Diesel	Gasoline	Diesel	Gasoline
Equipment Type	Model	Fuel	BHP	Number	(Percent)	Hours/Day	NOx	ROC	CO	PM10	CO2	BHP-hr	BHP-hr	BHP-hr	BHP-hr
Tracked tractor	Caterpillar D6	Diesel	140	0	64	8	0.023	0.002	0.011	0.0010	1.150	0	0	0	0
Tracked tractor	Caterpillar D8N	Diesel	285	1	64	8	0.023	0.002	0.011	0.0010	1.150	1459.2	0	0	0
Tracked tractor (cert.)	Caterpillar D8	Diesel	285	0	64	8	0.015	0.002	0.011	0.0009	1.150	0	0	0	0
Pipelayer	Caterpillar 527G	Diesel	200	0	64	8	0.023	0.002	0.011	0.0010	1.150	0	0	0	0
Wheeled tractor	Caterpillar 824C	Diesel	315	0	59	8	0.021	0.002	0.010	0.0005	1.150	0	0	0	0
Soil compactor	Caterpillar 815B	Diesel	216	1	59	8	0.021	0.002	0.010	0.0005	1.150	1019.52	0	0	0
Elevating scraper	Caterpillar 623E	Diesel	365	1	72	8	0.019	0.001	0.011	0.0015	1.150	2102.4	0	0	0
Elevating scraper (cert.)	Caterpillar 623	Diesel	365	0	72	8	0.015	0.002	0.011	0.0009	1.150	0	0	0	0
Tandem scraper	Caterpillar 637E	Diesel	700	0	72	8	0.019	0.001	0.011	0.0015	1.150	0	0	0	0
Standard scraper	Caterpillar 631E	Diesel	450	0	72	8	0.019	0.001	0.011	0.0015	1.150	0	0	0	0
Grader	Caterpillar 140G	Diesel	150	0	61	8	0.021	0.001	0.011	0.0015	1.150	0	0	0	0
Backhoe	Caterpillar 426	Diesel	70	0	55	8	0.022	0.003	0.015	0.0010	1.150	0	0	0	0
Wheeled loader	Bobcat	Diesel	65	0	68	8	0.023	0.002	0.011	0.0015	1.150	0	0	0	0
Wheeled loader	Caterpillar 950E	Diesel	160	0	68	8	0.023	0.002	0.011	0.0015	1.150	0	0	0	0
Wheeled loader	Caterpillar 966E	Diesel	216	1	68	8	0.023	0.002	0.011	0.0015	1.150	1175.04	0	0	0
Wheeled loader	Caterpillar 988B	Diesel	375	0	68	8	0.023	0.002	0.011	0.0015	1.150	0	0	0	0
Excavator	Caterpillar 235	Diesel	250	0	57	8	0.024	0.001	0.011	0.0015	1.150	0	0	0	0
Excavator	Caterpillar 245	Diesel	360	0	57	8	0.024	0.001	0.011	0.0015	1.150	0	0	0	0
Off-highway truck	Caterpillar 773B	Diesel	650	0	57	8	0.026	0.005	0.032	0.0020	1.150	0	0	0	0
Crane	Cummins	Diesel	230	0	43	8	0.023	0.003	0.009	0.0015	1.150	0	0	0	0
Rock Crusher		Diesel	400	0	78	8	0.024	0.003	0.020	0.0015	1.150	0	0	0	0
Generator	Caterpillar 3114	Diesel	109	0	74	4	0.018	0.002	0.011	0.0010	1.150	0	0	0	0
Air compressor		Diesel	109	0	48	8	0.018	0.002	0.011	0.0010	1.150	0	0	0	0
Asphalt paver	Caterpillar AP-1200	Diesel	145	0	62	8	0.023	0.001	0.007	0.0010	1.150	0	0	0	0
Welding machine	Perkins 4-236	Diesel	63	0	45	8	0.018	0.002	0.011	0.0010	1.150	0	0	0	0
Water wagon	Caterpillar 3406B	Diesel	350	0	57	8	0.026	0.005	0.032	0.0020	1.150	0	0	0	0
Roller	Caterpillar CS-431B	Diesel	102	0	56	8	0.020	0.002	0.007	0.0010	1.150	0	0	0	0
Dewatering pumps		Gasoline	5	0	74	4	0.002	0.054	1.479	0.0003	1.080	0	0	0	0
												5756.16	0	0	0

DAILY AND TOTAL EMISSIONS

	Emissions (lb/day)					Total	Emissions (Total Tons)				
Equipment Type	NOx	ROC	CO	PM10	CO2	Days	NOx	ROC	CO	PM10	CO2
Tracked tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tracked tractor	33.6	2.9	16.1	1.5	1678.1	0	0.00	0.00	0.00	0.00	0.00
Tracked tractor (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Pipelayer	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Soil compactor	21.4	2.0	10.2	0.5	1172.4	0	0.00	0.00	0.00	0.00	0.00
Elevating scraper	39.9	2.1	23.1	3.2	2417.8	0	0.00	0.00	0.00	0.00	0.00
Elevating scraper (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tandem scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Standard scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Grader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Backhoe	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	27.0	2.4	12.9	1.8	1351.3	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Excavator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Excavator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Off-highway truck	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Crane	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Rock Crusher	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Generator	0.0	0.0	0.0	0.0	0.0	30	0.00	0.00	0.00	0.00	0.00
Air compressor	0.0	0.0	0.0	0.0	0.0	30	0.00	0.00	0.00	0.00	0.00
Asphalt paver	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Welding machine	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Water wagon	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Roller	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Dewatering pumps	0.0	0.0	0.0	0.0	0.0	20	0.00	0.00	0.00	0.00	0.00
SUM	121.9	9.4	62.3	6.9	6619.6		0.00	0.00	0.00	0.00	0.00

Emissions = BHP*Number*Load factor/100*Hours/day*lb/BHP-hr

Emission factors from Nonroad Engine and Vehicle Emissions Study (EPA, 1991)
Load factors from EPA NONROAD Model (in prep): Average Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling (Report No. NR-005, Dec 1997)
1996 Federal Stds: 0.015 NOx, 0.0009 PM, 0.002 THC lb/BHP-hr

Fuel	Total Daily BHP-hr	N2O g/gal	CH4 g/gal	N2O g/BHP-hr	CH4 g/BHP-hr	Daily lbs N2O	Daily lbs CH4	Total tons N2O	Total tons CH4	CO2	TOTAL
Diesel	5756.16	0.1	1.4	0.0051	0.0720	0.065	0.914	0.0000	0.0000		
Gasoline	0	0.1	1.3	0.0056	0.0727	0.000	0.000	0.0000	0.0000		

GHG Summary (metric tons)	0.0000	0.0000	0.00	
GHG CO2 Eq	0.0000	0.0000	0.00	**0.0**

CH4 and N2O emissions factors from California Climate Action Registry General Reporting Protocol, Table C5

HEAVY EQUIPMENT EMISSIONS

Project: VCWWD no. 1 Stockton Reservoir
Date: 7/28/2014
Scenario: Total construction period

INPUTS AND EMISSION FACTORS

							Emission Factors (lb/BHP-hr)					Daily		Total	
Equipment Type	Model	Fuel	BHP	Number	Load Factor (Percent)	Hours/Day	NOx	ROC	CO	PM10	CO2	Diesel BHP-hr	Gasoline BHP-hr	Diesel BHP-hr	Gasoline BHP-hr
Tracked tractor	Caterpillar D6	Diesel	140	0	64	8	0.023	0.002	0.011	0.0010	1.150	0	0	0	0
Tracked tractor	Caterpillar D8N	Diesel	285	1	64	8	0.023	0.002	0.011	0.0010	1.150	1459.2	0	87552	0
Tracked tractor (cert.)	Caterpillar D8	Diesel	285	0	64	8	0.015	0.002	0.011	0.0009	1.150	0	0	0	0
Pipelayer	Caterpillar 527G	Diesel	200	0	64	8	0.023	0.002	0.011	0.0010	1.150	0	0	0	0
Wheeled tractor	Caterpillar 824C	Diesel	315	0	59	8	0.021	0.002	0.010	0.0005	1.150	0	0	0	0
Soil compactor	Caterpillar 815B	Diesel	216	1	59	8	0.021	0.002	0.010	0.0005	1.150	1019.52	0	61171.2	0
Elevating scraper	Caterpillar 623E	Diesel	365	1	72	8	0.019	0.001	0.011	0.0015	1.150	2102.4	0	126144	0
Elevating scraper (cert.)	Caterpillar 623	Diesel	365	0	72	8	0.015	0.002	0.011	0.0009	1.150	0	0	0	0
Tandem scraper	Caterpillar 637E	Diesel	700	0	72	8	0.019	0.001	0.011	0.0015	1.150	0	0	0	0
Standard scraper	Caterpillar 631E	Diesel	450	0	72	8	0.019	0.001	0.011	0.0015	1.150	0	0	0	0
Grader	Caterpillar 140G	Diesel	150	1	61	8	0.021	0.001	0.011	0.0015	1.150	732	0	14640	0
Backhoe	Caterpillar 426	Diesel	70	1	55	8	0.022	0.003	0.015	0.0010	1.150	308	0	36960	0
Wheeled loader	Bobcat	Diesel	65	0	68	8	0.023	0.002	0.011	0.0015	1.150	0	0	0	0
Wheeled loader	Caterpillar 950E	Diesel	160	0	68	8	0.023	0.002	0.011	0.0015	1.150	0	0	0	0
Wheeled loader	Caterpillar 966E	Diesel	216	1	68	8	0.023	0.002	0.011	0.0015	1.150	1175.04	0	70502.4	0
Wheeled loader	Caterpillar 988B	Diesel	375	0	68	8	0.023	0.002	0.011	0.0015	1.150	0	0	0	0
Excavator	Caterpillar 235	Diesel	250	1	57	8	0.024	0.001	0.011	0.0015	1.150	1140	0	68400	0
Excavator	Caterpillar 245	Diesel	360	0	57	8	0.024	0.001	0.011	0.0015	1.150	0	0	0	0
Off-highway truck	Caterpillar 773B	Diesel	650	0	57	8	0.026	0.005	0.032	0.0020	1.150	0	0	0	0
Crane	Cummins	Diesel	230	1	43	8	0.023	0.003	0.009	0.0015	1.150	791.2	0	94944	0
Rock Crusher		Diesel	400	0	78	8	0.024	0.003	0.020	0.0015	1.150	0	0	0	0
Generator	Caterpillar 3114	Diesel	109	0	74	4	0.018	0.002	0.011	0.0010	1.150	0	0	0	0
Air compressor		Diesel	109	0	48	8	0.018	0.002	0.011	0.0010	1.150	0	0	0	0
Asphalt paver	Caterpillar AP-1200	Diesel	145	1	62	8	0.023	0.001	0.007	0.0010	1.150	719.2	0	3596	0
Welding machine	Perkins 4-236	Diesel	63	0	45	8	0.018	0.002	0.011	0.0010	1.150	0	0	0	0
Water wagon	Caterpillar 3406B	Diesel	350	0	57	8	0.026	0.005	0.032	0.0020	1.150	0	0	0	0
Roller	Caterpillar CS-431B	Diesel	102	1	56	8	0.020	0.002	0.007	0.0010	1.150	456.96	0	2284.8	0
Dewatering pumps		Gasoline	5	0	74	4	0.002	0.054	1.479	0.0003	1.080	0	0	0	0
												9903.52	0	566194.4	0

DAILY AND TOTAL EMISSIONS

	Emissions (lb/day)					Total	Emissions (Total Tons)				
Equipment Type	NOx	ROC	CO	PM10	CO2	Days	NOx	ROC	CO	PM10	CO2
Tracked tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tracked tractor	33.6	2.9	16.1	1.5	1678.1	60	1.01	0.09	0.48	0.04	50.34
Tracked tractor (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Pipelayer	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Soil compactor	21.4	2.0	10.2	0.5	1172.4	60	0.64	0.06	0.31	0.02	35.17
Elevating scraper	39.9	2.1	23.1	3.2	2417.8	60	1.20	0.06	0.69	0.09	72.53
Elevating scraper (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tandem scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Standard scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Grader	15.4	0.7	8.1	1.1	841.8	20	0.15	0.01	0.08	0.01	8.42
Backhoe	6.8	0.9	4.6	0.3	354.2	120	0.41	0.06	0.28	0.02	21.25
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	27.0	2.4	12.9	1.8	1351.3	60	0.81	0.07	0.39	0.05	40.54
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Excavator	27.4	1.1	12.5	1.7	1311.0	60	0.82	0.03	0.38	0.05	39.33
Excavator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Off-highway truck	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Crane	18.2	2.4	7.1	1.2	909.9	120	1.09	0.14	0.43	0.07	54.59
Rock Crusher	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Generator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Air compressor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Asphalt paver	16.5	0.7	5.0	0.7	827.1	5	0.04	0.00	0.01	0.00	2.07
Welding machine	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Water wagon	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Roller	9.1	0.9	3.2	0.5	525.5	5	0.02	0.00	0.01	0.00	1.31
Dewatering pumps	0.0	0.0	0.0	0.0	0.0	20	0.00	0.00	0.00	0.00	0.00
SUM	215.3	16.2	102.9	12.4	11389.0		6.20	0.53	3.05	0.36	325.56

Emissions = BHP*Number*Load factor/100*Hours/day*lb/BHP-hr

Emission factors from Nonroad Engine and Vehicle Emissions Study (EPA, 1991)
Load factors from EPA NONROAD Model (in prep): Average Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling (Report No. NR-005, Dec 1997)
1996 Federal Stds: 0.015 NOx, 0.0009 PM, 0.002 THC lb/BHP-hr

Fuel	Total Daily BHP-hr	N2O g/gal	CH4 g/gal	N2O g/BHP-hr	CH4 g/BHP-hr	Daily lbs N2O	Daily lbs CH4	Total tons N2O	Total tons CH4	CO2	TOTAL
Diesel	9903.52	0.1	1.4	0.0051	0.0720	0.112	1.572	0.0032	0.0449		
Gasoline	0	0.1	1.3	0.0056	0.0727	0.000	0.000	0.0000	0.0000		

GHG Summary (metric tons)	0.0029	0.0408	295.35	
GHG CO2 Eq	0.8679	1.0194	295.35	**297.2**

CH4 and N2O emissions factors from California Climate Action Registry General Reporting Protocol, Table C5

BIOLOGICAL RESOURCES

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Multiple Occurrences per Page

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (Moorpark (3411838))

Spea hammondii **Element Code:** AAABF02020

western spadefoot

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G3
	State:	None		**State:**	S3
	Other:	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened			
Habitat:	**General:**	OCCURS PRIMARILY IN GRASSLAND HABITATS, BUT CAN BE FOUND IN VALLEY-FOOTHILL HARDWOOD WOODLANDS.			
	Micro:	VERNAL POOLS ARE ESSENTIAL FOR BREEDING AND EGG-LAYING.			

Occurrence No.	290	**Map Index:** 55430	**EO Index:** 55430	**Element Last Seen:**	2004-04-29
Occ. Rank:	Excellent		**Presence:** Presumed Extant	**Site Last Seen:**	2004-04-29
Occ. Type:	Natural/Native occurrence		**Trend:** Unknown	**Record Last Updated:**	2004-05-11

Quad Summary: Moorpark (3411838)

County Summary: Ventura

Lat/Long:	34.33618 / -118.87951	**Accuracy:**	80 meters
UTM:	Zone-11 N3801032 E327106	**Elevation (ft):**	1500
PLSS:	T03N, R19W, Sec. 16 (S)	**Acres:**	0.0

Location: ALONG ROSELAND AVENUE, WEST OF HAPPY CAMP CANYON REGIONAL PARK, NORTH OF MOORPARK

Detailed Location:

Ecological: HABITAT CONSISTS OF A MAN-MADE BASIN WHICH CREATED A POND WITH A HEAVY SILT/CLAY STRUCTURE. DRYING SEDIMENT CREATES LARGE CRACKS WHERE JUVENILE TOADS CAN BE FOUND.

General: 100'S OF TADPOLES OBSERVED ON 29 APR 2004.

Owner/Manager: PVT

Empidonax traillii extimus

Element Code: ABPAE33043

southwestern willow flycatcher

Listing Status:	**Federal:**	Endangered	**CNDDB Element Ranks:**	**Global:**	G5T1T2
	State:	Endangered		**State:**	S1
	Other:	ABC_WLBCC-Watch List of Birds of Conservation Concern			
Habitat:	**General:**	RIPARIAN WOODLANDS IN SOUTHERN CALIFORNIA.			
	Micro:				

Occurrence No.	57	**Map Index:** 75755	**EO Index:** 76769	**Element Last Seen:**	2009-05-16
Occ. Rank:	Excellent		**Presence:** Presumed Extant	**Site Last Seen:**	2009-05-16
Occ. Type:	Natural/Native occurrence		**Trend:** Unknown	**Record Last Updated:**	2009-07-06

Quad Summary: Moorpark (3411838)

County Summary: Ventura

Lat/Long:	34.36224 / -118.99802	**Accuracy:**	80 meters
UTM:	Zone-11 N3804130 E316259	**Elevation (ft):**	305
PLSS:	T03N, R20W, Sec. 08 (S)	**Acres:**	0.0

Location: SANTA CLARA RIVER, SOUTH OF THE END OF GLANVILLE RD, ~3.0 MI EAST OF SANTA PAULA.

Detailed Location:

Ecological: RIPARIAN WOODLAND. NATURE PRESERVE BORDERED BY SANTA CLARA RIVER AND AGRICULTURAL LAND.

General: 1 MALE OBSERVED AND HEARD SINGING IN WILLOW FOREST ON 16 MAY 2009.

Owner/Manager: FRIENDS OF THE SANTA CLARA RIV

Riparia riparia

Element Code: ABPAU08010

bank swallow

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G5
	State:	Threatened		**State:**	S2S3
	Other:	BLM_S-Sensitive, IUCN_LC-Least Concern			
Habitat:	**General:**	COLONIAL NESTER; NESTS PRIMARILY IN RIPARIAN AND OTHER LOWLAND HABITATS WEST OF THE DESERT.			
	Micro:	REQUIRES VERTICAL BANKS/CLIFFS WITH FINE-TEXTURED/SANDY SOILS NEAR STREAMS, RIVERS, LAKES, OCEAN TO DIG NESTING HOLE.			

Occurrence No.	112	**Map Index:**	84175	**EO Index:**	85196	**Element Last Seen:**	1926-05-13
Occ. Rank:	None			**Presence:**	Extirpated	**Site Last Seen:**	1926-05-13
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2013-07-12

Quad Summary: Moorpark (3411838), Fillmore (3411848)

County Summary: Ventura

Lat/Long:	34.38728 / -118.94483	**Accuracy:**	1 mile
UTM:	Zone-11 N3806812 E321205	**Elevation (ft):**	380
PLSS:	T04N, R20W, Sec. 35 (S)	**Acres:**	0.0

Location: SANTA CLARA RIVER NEAR SESPE.

Detailed Location: WFVZ COLLECTIONS: "EAST OF SANTA PAULA" AND "SESPE; HOLES IN THE BANK OF THE SANTA CLARA RIVER NEAR STATION." FMNH COLLECTIONS: "SESPE." EXACT LOCATION UNKNOWN. MAPPED TO THE SANTA CLARA RIVER NEAR SESPE VILLAGE AND SW OF FILLMORE.

Ecological: REPORTED TO BE "A LARGE COLONY NESTING" DURING 1926. ONE NEST DESCRIBED AS "MADE OF BARLEY STRAW AND WEEDS LINED WITH FEATHERS." SOME NESTS ABOUT 20 FEET ABOVE RIVER.

General: EGGS COLLECTED 5 MAY 1904. H.C. BURT COLL 2 EGG SETS (5 EGGS EACH) 8 MAY 1910. S. PEYTON COLL 1 EGG SET (5 EGGS) 20 MAY 1910. E.T. BADGER COLL 2 EGG SETS (4 EGGS EACH) 13 MAY 1926. CONSIDERED EXTIRPATED AS A BREEDER IN S CALIFORNIA (SCH92).

Owner/Manager: UNKNOWN

Vireo bellii pusillus

Element Code: ABPBW01114

least Bell's vireo

Listing Status:	**Federal:**	Endangered	**CNDDB Element Ranks:**	**Global:**	G5T2
	State:	Endangered		**State:**	S2
	Other:	ABC_WLBCC-Watch List of Birds of Conservation Concern, IUCN_NT-Near Threatened			
Habitat:	**General:**	SUMMER RESIDENT OF SOUTHERN CALIFORNIA IN LOW RIPARIAN IN VICINITY OF WATER OR IN DRY RIVER BOTTOMS; BELOW 2000 FT.			
	Micro:	NESTS PLACED ALONG MARGINS OF BUSHES OR ON TWIGS PROJECTING INTO PATHWAYS, USUALLY WILLOW, BACCHARIS, MESQUITE.			

Occurrence No.	123	**Map Index:**	15934	**EO Index:**	14263	**Element Last Seen:**	2011-05-06
Occ. Rank:	Good			**Presence:**	Presumed Extant	**Site Last Seen:**	2011-05-06
Occ. Type:	Natural/Native occurrence			**Trend:**	Increasing	**Record Last Updated:**	2014-05-01

Quad Summary:	Moorpark (3411838), Santa Paula (3411931)
County Summary:	Ventura

Lat/Long:	34.36279 / -119.00852	**Accuracy:**	nonspecific area
UTM:	Zone-11 N3804210 E315295	**Elevation (ft):**	300
PLSS:	T03N, R20W, Sec. 07 (S)	**Acres:**	449.0

Location:	SANTA CLARA RIVER, NEAR DUCK PONDS AND N END OF GLANVILLE RD, APPROXIMATELY 3.3 MILES EAST OF SANTA PAULA POST OFFICE.
Detailed Location:	EGG COLLECTION (WFVZ# 136053) LOCATION WAS "3 MILES EAST OF SANTA PAULA." 2011 DETECTIONS WERE PART OF A POINT COUNT SURVEY, IT WAS UNCLEAR IF BIRDS WERE COUNTED MORE THAN ONCE. MAPPED TO PROVIDED MAPS AND 2011 SURVEY SITE.
Ecological:	WILLOW-MULEFAT RIPARIAN WOODLAND WITH SOME COTTONWOOD. NATURE PRESERVE BORDERED BY SANTA CLARA RIVER AND AGRICULTURAL LAND. 5 PAIRS AND 1 TERRITORIAL MALE DETECTED AT AN UNKNOWN DATE IN THE 1900'S, LIKELY LATE 1990'S.
General:	EGGS COLLECTED IN 1925. 1 PAIR & 1 TERRITORIAL MALE OBSERVED IN 1990. 3 PAIRS & 3 TERRITORIAL MALES OBS IN 1991. 0 OBS IN 1992. 1 SINGING MALE HEARD & OBS ON 16 MAY 2009. 4 MALES/TERRITORIES DETECTED IN 2010. UP TO 24 ADULTS DET. IN 2011.
Owner/Manager:	FRIENDS OF THE SANTA CLARA RIV

Occurrence No.	540	**Map Index:**	91908	**EO Index:**	92984	**Element Last Seen:**	2007-08-02
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	2007-08-02
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	2014-03-20

Quad Summary:	Moorpark (3411838)
County Summary:	Ventura

Lat/Long:	34.26817 / -118.93423	**Accuracy:**	nonspecific area
UTM:	Zone-11 N3793583 E321927	**Elevation (ft):**	370
PLSS:	T02N, R20W, Sec. 12 (S)	**Acres:**	52.0

Location:	ARROYO LAS POSAS (CREEK), VICINITY OF HISTORICAL TERNEZ, 0.6 MILES SW OF LOS ANGELES AVE & HITCH BLVD INTERSECTION.
Detailed Location:	PROVIDED COORDINATES WERE FOR CENTER OF MOORPARK WASTEWATER TREATMENT PLANT. MAPPED TO PROVIDED LOCATION DESCRIPTION OF "MOORPARK, ARROYO LAS POSAS, MOORPARK WASTEWATER TREATMENT PLANT."
Ecological:	CREEK IS ON SOUTH SIDE OF TREATMENT PLANT. AGRICULTURAL LAND IN THE SURROUNDING AREA (BASED ON 2003-2012 AERIAL PHOTOS).
General:	1 EGG/NEST COLLECTION MADE ON 2 AUG 2007 BY J.M. GREAVES (WFVZ# 177742).
Owner/Manager:	UNKNOWN, PVT

Occurrence No.	541	**Map Index:** 91909	**EO Index:**	92985	**Element Last Seen:**	2009-06-22
Occ. Rank:	Good		**Presence:**	Presumed Extant	**Site Last Seen:**	2009-06-22
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2014-04-22

Quad Summary: Moorpark (3411838)

County Summary: Ventura

Lat/Long:	34.25906 / -118.98851	**Accuracy:**	specific area
UTM:	Zone-11 N3792670 E316910	**Elevation (ft):**	275
PLSS:	T02N, R20W, Sec. 16 (S)	**Acres:**	8.0

Location: NEAR CONFLUENCE OF COYOTE CANYON CREEK & ARROYO LAS POSAS, ABOUT 0.5 MILES SE OF LOS ANGELES AVE AT SOMIS RD.

Detailed Location: MAPPED TO PROVIDED COORDINATES. DETECTION LOCATION WAS JUST EAST OF SOMIS ON NORTHERN SIDE OF SOUTHERN PACIFIC RAILROAD TRACKS.

Ecological: RIPARIAN CORRIDOR PRIMARILY COMPOSED OF DENSE WILLOWS WITH AN OVERSTORY OF EUCALYPTUS TREES.

General: TERRITORIAL AND MATING CALLS HEARD FROM 2 MALES ON 22 JUN 2009; CALLS WERE HEARD FOR OVER 2 HOURS.

Owner/Manager: UNKNOWN

Catostomus santaanae

Element Code: AFCJC02190

Santa Ana sucker

Listing Status:	**Federal:**	Threatened	**CNDDB Element Ranks:**	**Global:**	G1
	State:	None		**State:**	S1
	Other:	AFS_TH-Threatened, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable			
Habitat:	**General:**	ENDEMIC TO LOS ANGELES BASIN SOUTH COASTAL STREAMS.			
	Micro:	HABITAT GENERALISTS, BUT PREFER SAND-RUBBLE-BOULDER BOTTOMS, COOL, CLEAR WATER, & ALGAE.			

Occurrence No.	9	**Map Index:** 00497	**EO Index:**	13484	**Element Last Seen:**	2007-10-09
Occ. Rank:	Good		**Presence:**	Presumed Extant	**Site Last Seen:**	2007-10-09
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	2010-05-03

Quad Summary: Moorpark (3411838), Newhall (3411845), Val Verde (3411846), Piru (3411847), Fillmore (3411848), Santa Paula (3411931)

County Summary: Los Angeles, Ventura

Lat/Long:	34.39926 / -118.78686	**Accuracy:**	nonspecific area
UTM:	Zone-11 N3807874 E335753	**Elevation (ft):**	650
PLSS:	T04N, R18W, Sec. 29 (S)	**Acres:**	3770.0

Location: SANTA CLARA RVR FROM SANTA PAULA TO VALENCIA, 9MI OF SESPEE CRK, PIRU CRK S OF LAKE, & CASTAIC CRK FROM 126 TO COMMERCE.

Detailed Location: FAW: "SESPE CRK AT RR CROSSING." WEL STATIONS WITH OBS: #4-5, 7-12, 28-29 & 31. LACM: "SANTA CLARA RIVER @ FILLMORE" & "SANTA CLARA RIVER BETWEEN HWY23 & SESPE CRK." COU05F0005: "CASTAIC CRK U/S OF HWY 126 & D/S OF COMMERCE CENTER BRIDGE."

Ecological: HYBRIDIZES W/OWENS SUCKER IN LOWER PARTS OF DRAINAGE (S OF FILMORE).

General: 18 OBS AT STATION #8 & 14 AT #4 IN JUL '75 (WEL/CSU).4 OBS IN '92. 2 OBS IN '96, 22 IN '97, 455 IN '98, 1 IN '99. 51 IN 2000. 60 PIT IN DEC '00. 80 COLL IN '03; DEP @ LACM. 1 OBS IN '04 & 111 IN '05. COMMON OBS IN '07. 39 DEAD OBS OCT '07.

Owner/Manager: PVT

Gasterosteus aculeatus williamsoni **Element Code:** AFCPA03011

unarmored threespine stickleback

Listing Status:	**Federal:**	Endangered	**CNDDB Element Ranks:**	**Global:**	G5T1
	State:	Endangered		**State:**	S1
	Other:	AFS_EN-Endangered, CDFW_FP-Fully Protected			
Habitat:	**General:**	WEEDY POOLS, BACKWATERS, AND AMONG EMERGENT VEGETATION AT THE STREAM EDGE IN SMALL SOUTHERN CALIFORNIA STREAMS.			
	Micro:	COOL (<24 C), CLEAR WATER WITH ABUNDANT VEGETATION.			

Occurrence No.	3	**Map Index:** 78887	**EO Index:** 1204	**Element Last Seen:**	2007-10-17
Occ. Rank:	Unknown		**Presence:** Presumed Extant	**Site Last Seen:**	2007-10-17
Occ. Type:	Natural/Native occurrence		**Trend:** Fluctuating	**Record Last Updated:**	2010-08-11

Quad Summary: Moorpark (3411838), Newhall (3411845), Val Verde (3411846), Piru (3411847), Fillmore (3411848), Santa Paula (3411931), Saticoy (3411932)

County Summary: Los Angeles, Ventura

Lat/Long:	34.38793 / -118.89418	**Accuracy:**	nonspecific area
UTM:	Zone-11 N3806796 E325863	**Elevation (ft):**	950
PLSS:	T04N, R19W, Sec. 32 (S)	**Acres:**	2610.0

Location: SANTA CLARA RIVER FROM JUST WEST OF HWY 118, EAST TO MOUTH OF SAN FRANCISQUITO CREEK, EAST OF I-5. LA & VENTURA COUNTIES

Detailed Location: INCLUDES REFUGE AREA DESIGNATED IN 1991 JUST NORTH OF MAGIC MOUNTAIN PARKING LOT ALONG BLUFF. HIGHER NUMBERS OF FISH BETWEEN 2003 & 2007 HAVE BEEN IN THE EASTERN PART OF THE FEATURE IN THE VICINITY OF I-5.

Ecological: MANY SURVEYS IN DIFFERENT PARTS OF THE RIVER OVER THE YEARS.

General: 20 JUL & 2 AUG 1994:195 OBS. '95: 9 COLL. '97: 200 OBS. 2 SEP '98: 5 OBS. 9 MAY & 13 OCT 2000: 66 OBS. SEPT '03: 522 RELOCATED. NOV 8 '04: 8 DIPNETTED FROM LONG CYN TO HWY 126. 2 FEB '05: 1 OBS. '06: COMMON IN REFUGE. '07: 630 RELOCATED.

Owner/Manager: PVT, OTHER

Neotoma lepida intermedia **Element Code:** AMAFF08041

San Diego desert woodrat

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G5T3?
	State:	None		**State:**	S3?
	Other:	CDFW_SSC-Species of Special Concern			
Habitat:	**General:**	COASTAL SCRUB OF SOUTHERN CALIFORNIA FROM SAN DIEGO COUNTY TO SAN LUIS OBISPO COUNTY.			
	Micro:	MODERATE TO DENSE CANOPIES PREFERRED. THEY ARE PARTICULARLY ABUNDANT IN ROCK OUTCROPS & ROCKY CLIFFS & SLOPES.			

Occurrence No.	19 **Map Index:** 33555	**EO Index:**	29702	**Element Last Seen:**	1992-07-16
Occ. Rank:	Fair	**Presence:**	Presumed Extant	**Site Last Seen:**	1992-07-16
Occ. Type:	Natural/Native occurrence	**Trend:**	Unknown	**Record Last Updated:**	1996-11-06

Quad Summary: Moorpark (3411838)

County Summary: Ventura

Lat/Long:	34.28057 / -118.91394	**Accuracy:**	80 meters
UTM:	Zone-11 N3794923 E323822	**Elevation (ft):**	450
PLSS:	T02N, R19W, Sec. 06 (S)	**Acres:**	0.0

Location: 0.6 MILE WEST OF THE INTERSECTION OF GABBERT ROAD AND SPRR-ROW, SIMI VALLEY.

Detailed Location:

Ecological: HABITAT CONSISTS OF COASTAL SAGE SCRUB, COMPOSED OF SCATTERED EPHYDRA SP, BACCHARIS PILULARIS, AND OPUNTIA SP, IN SANDY SOIL.

General: 3 ADULT MALES, 1 ADULT FEMALE, 1 SUB-ADULT, AND 1 IMMATURE MALE CAPTURED ON 16 JULY 1992.

Owner/Manager: PVT-SPRR

Phrynosoma blainvillii **Element Code:** ARACF12100

coast horned lizard

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G3G4
	State:	None		**State:**	S3S4
	Other:	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive			
Habitat:	**General:**	FREQUENTS A WIDE VARIETY OF HABITATS, MOST COMMON IN LOWLANDS ALONG SANDY WASHES WITH SCATTERED LOW BUSHES.			
	Micro:	OPEN AREAS FOR SUNNING, BUSHES FOR COVER, PATCHES OF LOOSE SOIL FOR BURIAL, & ABUNDANT SUPPLY OF ANTS & OTHER INSECTS.			

Occurrence No.	497	**Map Index:** 52864	**EO Index:** 52864	**Element Last Seen:**	2003-10-10
Occ. Rank:	Good		**Presence:** Presumed Extant	**Site Last Seen:**	2003-10-10
Occ. Type:	Natural/Native occurrence		**Trend:** Unknown	**Record Last Updated:**	2003-11-06

Quad Summary: Moorpark (3411838), Fillmore (3411848)

County Summary: Ventura

Lat/Long:	34.37641 / -118.96915	**Accuracy:**	specific area
UTM:	Zone-11 N3805650 E318945	**Elevation (ft):**	400
PLSS:	T03N, R20W, Sec. 03 (S)	**Acres:**	28.0

Location: BETWEEN TELEGRAPH ROAD (HIGHWAY 126) AND THE SANTA CLARA RIVER, 3 MILES SW OF FILLMORE

Detailed Location: LIZARDS FOUND IN THE VICINITY OF A DRY STREAMBED AND WITHIN A COMMERCIAL NURSERY.

Ecological: HABITAT CONSISTS OF A SANDY STREAMBED WITH NEARBY SOUTHERN RIPARIAN SCRUB AND COASTAL SAGE SCRUB.

General: 2 JUVENILES OBSERVED ON 30 SEP 2003; 1 JUVENILE OBSERVED ON 7 OCT 2003; 1 JUVENILE OBSERVED ON 10 OCT 2003.

Owner/Manager: PVT-VALLEY CREST TREE CO

Southern Coast Live Oak Riparian Forest

Element Code: CTT61310CA

Southern Coast Live Oak Riparian Forest

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G4
	State:	None		**State:**	S4
	Other:				
Habitat:	**General:**				
	Micro:				

Occurrence No.	15	**Map Index:**	00153	**EO Index:**	16018	**Element Last Seen:**	1987-01-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1987-01-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1998-08-31

Quad Summary: Moorpark (3411838)

County Summary: Ventura

Lat/Long:	34.34141 / -118.92356	**Accuracy:**	specific area
UTM:	Zone-11 N3801688 E323064	**Elevation (ft):**	940
PLSS:	T03N, R20W, Sec. 13 (S)	**Acres:**	67.8

Location: TRIBUTARY TO GRIMES CANYON, WEST OF HWY 23, ABOVE QUARRY.

Detailed Location: MAPPED PER INTERPRETATION OF 1987 AERIAL PHOTOS.

Ecological:

General: SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

Owner/Manager: UNKNOWN

Southern Riparian Scrub

Element Code: CTT63300CA

Southern Riparian Scrub

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G3
	State:	None		**State:**	S3.2
	Other:				
Habitat:	**General:**				
	Micro:				

Occurrence No.	18	**Map Index:**	00063	**EO Index:**	28814	**Element Last Seen:**	1987-01-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1987-01-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1998-07-23

Quad Summary: Moorpark (3411838)

County Summary: Ventura

Lat/Long:	34.26129 / -118.96723	**Accuracy:**	1/5 mile
UTM:	Zone-11 N3792879 E318875	**Elevation (ft):**	300
PLSS:	T02N, R20W, Sec. 15 (S)	**Acres:**	0.0

Location: ARROYO LAS POSAS, ABOUT 1.7 MILES EAST OF SOMIS.

Detailed Location: SMALL PATCH SCRUB AS INTERPRETED FROM 1987 AERIAL PHOTOGRAPHS.

Ecological: UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.

General: SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

Owner/Manager: UNKNOWN

Occurrence No.	19	**Map Index:**	00088	**EO Index:**	28812	**Element Last Seen:**	1987-01-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1987-01-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1998-07-23

Quad Summary:	Moorpark (3411838)
County Summary:	Ventura

Lat/Long:	34.26500 / -118.95732	**Accuracy:**	1/5 mile
UTM:	Zone-11 N3793272 E319795	**Elevation (ft):**	340
PLSS:	T02N, R20W, Sec. 10 (S)	**Acres:**	0.0

Location:	ARROYO LAS POSAS, ABOUT 1.7 MILES WEST OF JUNCTION OF GRIMES CANYON ROAD & HWY 118.
Detailed Location:	SMALL PATCH OF SCRUB AS INTERPRETED FROM 1987 AERIAL PHOTOGRAPHS.
Ecological:	UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
General:	SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.
Owner/Manager:	UNKNOWN

Occurrence No.	20	**Map Index:**	00224	**EO Index:**	13368	**Element Last Seen:**	1987-01-XX
Occ. Rank:	Unknown			**Presence:**	Presumed Extant	**Site Last Seen:**	1987-01-XX
Occ. Type:	Natural/Native occurrence			**Trend:**	Unknown	**Record Last Updated:**	1998-07-23

Quad Summary:	Moorpark (3411838)
County Summary:	Ventura

Lat/Long:	34.34926 / -118.89308	**Accuracy:**	specific area
UTM:	Zone-11 N3802505 E325885	**Elevation (ft):**	1300
PLSS:	T03N, R19W, Sec. 17 (S)	**Acres:**	33.7

Location:	GRIMES CANYON, U/S OF GRIMES CANYON ROAD ABOUT 0.6-1.0 MILE.
Detailed Location:	1987 EXTENT MAPPED PER INTERPRETATION OF AERIAL PHOTOS; FORMERLY EXTENDED D/S ABOUT 1.5 MILES FARTHER.
Ecological:	OPEN QUERCUS AGRIFOLIA OVER ARTEMISIA CALIFORNICA & SALVIA LEUCOPHYLLA ACCORDING TO WIESLANDER SURVEY.
General:	SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.
Owner/Manager:	UNKNOWN

Occurrence No.	25	**Map Index:** 00106	**EO Index:**	15318	**Element Last Seen:**	1986-12-10
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	1986-12-10
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	1998-07-23

Quad Summary: Moorpark (3411838), Piru (3411847), Fillmore (3411848), Santa Paula (3411931), Saticoy (3411932)

County Summary: Ventura

Lat/Long:	34.34567 / -119.05895	**Accuracy:**	specific area
UTM:	Zone-11 N3802404 E310618	**Elevation (ft):**	360
PLSS:	T03N, R21W, Sec. 14 (S)	**Acres:**	4299.3

Location: SANTA CLARA RIVER BED FROM NEAR CONFLUENCE CALUMET CANYON D/S TO VICINITY OF SATICOY.

Detailed Location: SEEN IN 1986 AERIALS.

Ecological: MAPPED BY WIESLANDER SURVEY AS SCRUB W/DOMINANTS BACCHARIS VIMINEA, NICOTIANA GLAUCA, LEPIDOSPARTUM SQUAMATUM, ERIOGONUM FASCICULATUM, CORETHROGYNE FILAGINIFOLIA, GRASSES AND WILLOWS. DOMINANCE CHANGES ALONG STREAM COURSE.

General: SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

Owner/Manager: UNKNOWN

Southern Willow Scrub

Element Code: CTT63320CA

Southern Willow Scrub

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G3
	State:	None		**State:**	S2.1
	Other:				
Habitat:	**General:**				
	Micro:				

Occurrence No.	17	**Map Index:** 00034	**EO Index:**	28808	**Element Last Seen:**	1987-01-XX
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:**	1987-01-XX
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:**	1998-07-21

Quad Summary: Moorpark (3411838)

County Summary: Ventura

Lat/Long:	34.34416 / -118.97887	**Accuracy:**	nonspecific area
UTM:	Zone-11 N3802090 E317982	**Elevation (ft):**	425
PLSS:	T03N, R20W, Sec. 16 (S)	**Acres:**	26.8

Location: BALCOM CANYON, ABOUT 0.6 MILE OF SOUTH MOUNTAIN ROAD.

Detailed Location: INTERPRETED FROM AERIAL PHOTOS.

Ecological: UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.

General: SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

Owner/Manager: UNKNOWN

Monardella sinuata ssp. sinuata **Element Code:** PDLAM18161

southern curly-leaved monardella

Listing Status:	**Federal:**	None	**CNDDB Element Ranks:**	**Global:**	G3T2
	State:	None		**State:**	S2
	Other:	Rare Plant Rank - 1B.2			
Habitat:	**General:**	COASTAL DUNES, COASTAL SCRUB, CHAPARRAL, CISMONTANE WOODLANDS.			
	Micro:	SANDY SOILS. 0-300 M.			

Occurrence No.	1	**Map Index:** 91620	**EO Index:**	92637	**Element Last Seen:** 1976-06-02
Occ. Rank:	Unknown		**Presence:**	Presumed Extant	**Site Last Seen:** 1976-06-02
Occ. Type:	Natural/Native occurrence		**Trend:**	Unknown	**Record Last Updated:** 2014-02-25

Quad Summary: Newbury Park (3411828), Moorpark (3411838)

County Summary: Ventura

Lat/Long:	34.24586 / -118.90465	**Accuracy:**	2/5 mile
UTM:	Zone-11 N3791058 E324605	**Elevation (ft):**	700
PLSS:	T02N, R19W, Sec. 19 (S)	**Acres:**	0.0

Location: ON LAS POSAS ROAD, 0.5 MILE NORTH OF SANTA ROSA VALLEY ROAD, SANTA ROSA VALLEY.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS A BEST GUESS TO ENCOMPASS THE AREA ABOUT 0.5 ROAD MILE NORTH OF SANTA ROSA VALLEY ROAD ON LAS POSAS ROAD AND AN ELEVATION OF 700 FEET BASED ON LOCATION DESCRIPTION AND ELEVATION ON LABEL.

Ecological:

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1976 HOWE COLLECTION. LITTLE SUITABLE HABITAT REMAINS IN THIS AREA ACCORDING TO ELVIN & SANDERS, 2009. NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

CULTURAL RESOURCES

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ARCHAEOLOGICAL SURVEY REPORT OF APPROXIMATELY 0.68 ACRES FOR THE VENTURA COUNTY WATERWORKS DISTRICT No. 1 STOCKTON RESERVOIR REPLACEMENT PROJECT MOORPARK, VENTURA COUNTY, CALIFORNIA

(USGS 7.5' Thousand Oaks Quadrangle)

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CAC Document No. 14-661
July 11, 2014

CONTENTS

PHASE 1 ARCHAEOLOGICAL INVESTIGATION
VCWWD No. 1 STOCKTON RESERVOIR REPLACEMENT PROJECT
MOORPARK, VENTURA COUNTY

1.0 INTRODUCTION

The Ventura County Waterworks District No. 1 Stockton Reservoir Replacement Project (Project) includes the construction of a new 1 million-gallon reservoir off of Stockton Road in the Moorpark area of Ventura County (See Figures 1, 2 & 3). In addition, 420 linear feet of 12-inch diameter pipeline shall be constructed to connect the new tank to an existing waterline in Stockton Road. The Project site is 0.68-acres in size and is currently planted with citrus trees.

Conejo Archaeological Consultants (Conejo) was retained to determine if the Project could result in any potentially significant effects to prehistoric or historic cultural resources and, if so, present recommendations that would reduce any such effects to a less than significant level. In addition to an intensive field survey of the Project site, this investigation included a records search at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System, a Native American Heritage Commission (NAHC) sacred lands file check, Native American notification, and historic land use research.

The SCCIC records search indentified no prehistoric or historic resources within a 0.5-mile radius of the Project site. The NAHC failed to identify any sacred lands within the project area and Native American notification did not result in the identification of any resources within the Project vicinity. Conejo's field survey identified no prehistoric or historic resources within the Project site. The ground surface throughout the entire Project site was previously disturbed by orchard cultivation and road construction.

Based on this investigation's findings, project implementation will not impact archaeological resources. Therefore, no further archaeological investigations are warranted prior to project approval. In the event that buried prehistoric or historic materials are encountered during construction, all earth disturbing work within the vicinity of the find must be temporarily halted until a qualified archaeologist can evaluate the nature and significance of the find, as detailed in Section 5.0 of this report.

2.0 BACKGROUND

2.1 PROJECT DESCRIPTION & LOCATION

The Ventura County Waterworks District No. 1 proposes to implement the Project to meet the water storage requirements for Pressure Zone 994 and replace an existing reservoir that is at the end of its useful life. Since the construction of the existing Stockton Reservoir in 1974, the population within the service area for the reservoir has increased. Fire flow demand within the service area has also increased.

Therefore, the proposed replacement reservoir is designed to accommodate increased water and fire safety needs.

The existing Stockton Reservoir is located on the south side of Stockton Road in unincorporated Ventura County. The reservoir replacement site is located on the east side of Stockton Road slightly northwest of the existing Stockton Reservoir and about 0.5-mile north of Broadway Road. The Assessor Parcel No. is 108-0-170-115. Additionally, a segment of water pipeline is proposed to be installed in Stockton Road between the existing and proposed reservoir sites. The Project's regional site location is shown in Figure 1. An aerial view of the Project site is provided on Figure 2. The Project site is located within Township 3 North, R 20 W, Section No. 24 on the USGS 7.5' Moorpark Quadrangles (Figure 3).

The new reservoir will be an above-ground, welded steel tank, 80-feet in diameter, 30-feet in height with a knuckled roof. It is anticipated that the tank will be founded on a concrete rig wall and soil pad at an approximate elevation of 974 feet. There will be a concrete berm and asphalt road around the perimeter of the tank. Other elements of the proposed tank replacement include construction/installation of:

- Paved access road from Stockton Road to the tank;
- Pipeline (420 linear feet, 12-inch diameter, from the new tank to connect with an existing 12-inch water line located approximately 300 feet west of the intersection of the proposed tank access road and Stockton Road near the existing tank);
- Road culvert;
- Storm drain (18-inch to carry water from the pad to existing drainage channel on Stockton Road);
- Fencing (6-feet high chain link with three strands of barbed wire on top);
- Retaining wall;
- Solar-powered supervisory control and data acquisition (SCADA) system;
- Solar-powered lighting;
- Seeding of the site for erosion control.

Once the proposed reservoir is operational, the existing reservoir will be decommissioned and placed on standby for emergency use.

2.2 Survey Personnel

The record search and pedestrian survey were conducted by Mary Maki, who also authored this report. Ms. Maki has over 23 years of archaeological experience in California (RPA # 10389).

3.0 AFFECTED ENVIRONMENT

3.1 ECOLOGICAL SETTING

The Project lies within the Oak Ridge Mountains to the northwest of Moorpark in an unincorporated area of Ventura County. This area is part of the Transverse Range, a region in which most main physiographic features are aligned in an east-west direction. Soils within the Project site consist primarily of a sandy loam. Ranching, agriculture and development have significantly altered the setting of the Project site from prehistoric times. The Project site is currently planted in lemon trees and is part of a much larger orchard.

3.2 CULTURAL SETTING

Regional Prehistoric Overview

The archaeological record indicates that sedentary populations occupied the coastal regions of California more than 9,000 years ago (Greenwood 1972). Several chronological frameworks have been developed for the Chumash region. One of the most definitive works on Chumash chronology is that of King (1990). King postulates three major periods -- Early, Middle and Late. Based on artifact typologies from a great number of sites, he was able to discern numerous style changes within each of the major periods.

The Early Period (8000 to 3350 Before Present [B.P.]) is characterized by a primarily seed processing subsistence economy. The Middle Period (3350 to 800 B.P.) is marked by a shift in the economic/subsistence focus from plant gathering and the use of hard seeds, to a more generalized hunting-maritime-gathering adaptation, with an increased focus on acorns. The full development of the Chumash culture, one of the most socially and economically complex hunting and gathering groups in North America, occurred during the Late Period (800 to 150 B.P.).

Regional Ethnographic Overview

The Project area lies within the historic territory of the Native American Indian group known as the Chumash. The Chumash occupied the region from San Luis Obispo County to Malibu Canyon on the coast, and inland as far as the western edge of the San Joaquin Valley, and the four northern Channel Islands (Grant 1978:505). The Chumash are subdivided into factions based on distinct dialects. The general Project area lies within the historic territory of the Ventureño Chumash.

The Ventureño were the southernmost Chumash group, occupying most of the area of present day Ventura County and the southwest corner of Los Angeles County. The name Ventureño is derived from the mission with local jurisdiction, San Buenaventura.

The Chumash aboriginal way of life ended with Spanish colonization. As neophytes brought into the mission system, they were transformed from hunters and gatherers into agricultural laborers and exposed to diseases to which they had no resistance. By the end of the Mission Period in 1834, the Chumash population had been decimated by disease and declining birthrates. Population loss as a result of disease and economic deprivation continued into the next century. Today many people claim their Chumash heritage in Ventura County. In general, they place high value on objects and places associated with their past history, especially burials, grave goods, and archaeological sites.

Regional Historic Overview

In 1769, the Portola Expedition departed the newly established San Diego settlement and marched northward toward Monterey, with the objective to secure that port and establish five missions along the route. The City of Moorpark area is located approximately halfway between Mission San Buenaventura to the west, founded by Father Serra in 1782, and Mission San Fernando to the east, which was founded in 1797 by Father Lasuen.

The Project area is located in a marginal zone that did not exhibit any historical incidents or developments during the Spanish and Mexican Periods. The Mexican Period ended with the signing of the Treaty of Guadalupe Hidalgo on February 2, 1848, which transferred control of California, New Mexico, Texas, and other western properties to the United States.

During the early American Period, live stock grazing continued to be the major activity within the project region. A few years after Noriega's death in 1858, Rancho Simi was purchased by the Philadelphia and California Petroleum Company headed by Pennsylvania Railroad president, Thomas A. Scoot. Oil in quantity was not found, therefore, the Simi Land & Water Company was formed and the land began to be sold off in parcels. Orchards and row crops began to replace former grazing lands. Apricots, walnuts, citrus, and black-eyed peas were the early major crops in the Moorpark area. The townsite of Moorpark was laid out by Madeline R. Poindexter in 1900 in anticipation of the coming railroad (Triem 1985:112). The town grew after the 1904 completion of a 2246 meter (7,369 ft.) tunnel through the Santa Susana Mountains, which allowed the Southern Pacific Railroad to establish a depot in Moorpark.

The town and surrounding area remained a rural ranching and farming community up to the late 1950s , but with better roads and imported water Moorpark began to grow into a bedroom community for the Los Angeles Metropolitan Area. The City of Moorpark was incorporated in 1983. The 2000 census

determined that Moorpark was the fastest growing city in Ventura County. The Project site is located in an agricultural area northwest of the City of Moorpark and will help meet the increased demand for water.

4.0 CULTURAL RESOURCES INVESTIGATION/METHODS

4.1 RECORDS SEARCH

A records search was conducted by Ms. Maki at the SCCIC on June 25, 2014.

Archaeological Sites

No prehistoric or historic archaeological sites are recorded within a one-mile radius of the Project site.

Previous Archaeological Investigations

Only three previous archaeological investigations have been conducted within a 0.5-mile radius of the Project site. None of these surveys included or were adjacent to the Project site.

Federal, State & County Historic Listings

The National Register of Historic Places (NRHP) listings includes no properties within a 0.5-mile radius of the Project site (National Park Service 2014). No California Historical Landmarks or California Points of Historical Interest are located within a 0.5-mile radius of the Project site (Office of Historic Preservation 2014, 1992). The California State Historic Resources Inventory lists no properties within a 0.5-mile radius of the Project site (Office of Historic Preservation 2012). There are no Ventura County Landmarks within a 0.5-mile radius of the Project site (Ventura County 2004).

Historic Maps

Stockton Road is present on the 1921 USGS 15' Piru Quadrangle, but no development is evident within the Project site. The 1941 USGS 15' Piru Quadrangle indicates that Stockton Canyon Road was improved and that the Project site lies within an orchard.

4.2 ARCHAEOLOGICAL FIELD SURVEY METHODOLOGY & FINDINGS

Ms. Maki conducted an archaeological survey of the approximate 0.68-acre Project site on July 10, 2014 (Figures 2 & 3). The objective of the survey was the visual detection of historical resources, including lithic debris and aboriginal artifacts, midden deposits, archaeological features, historical-era foundations or refuse, and other evidence of past land use.

Survey boundaries were determined using aerial photographs provided by the client. Survey methodology within the proposed reservoir site consisted of walking all the citrus rows, both up and back to maximize ground surface coverage, within the Project's area of potential ground disturbance. The

surveyed rows were spaced approximately 10 meters (33 ft.) apart. Survey methodology for the proposed pipeline route consisted of surveying both shoulders of Stockton Road.

Ground surface visibility ranged from fair to good and was adequate enough throughout the Project site to have confidence in the field survey findings. No evidence of prehistoric or historic resources was observed. Previous ground disturbances within the Project site included the planting of citrus trees and the construction of Stockton Road.

4.3 NATIVE AMERICAN CONSULTATION

The Native American Heritage Commission (NAHC) sacred lands file search failed to indicate the presence of Native American sacred places/site in the Project area (Singleton 2014) (See Appendix A).

The following NAHC list of recommended Chumash contacts were emailed or mailed a project description letter dated June 25, 2014, and asked to respond with any comments or concerns regarding the project:

- Alva-Padilla, Adelina, Chair Woman, Santa Ynez Tribal Elders Council;
- Armenta, Vincent, Santa Ynez Band of Mission Indians;
- Arredondo, Frank;
- Baker, Crystal, Coastal Band of the Chumash Nation;
- Banuelos, Raudel Joe Jr., Barbareño/Ventureño Band of Mission Indians;
- Cordero, Michael, Chairperson, Coastal Band of the Chumash Nation;
- Cordero, Toni, Coastal Band of the Chumash Nation;
- Folkes, Beverly Salazar;
- Garcia, Janet, Coastal Band of the Chumash Nation;
- Guzman-Folkes, Randy;
- Miller, Stephen William;
- Owl Clan;
- Pappo, Kathleen, Barbareño/Ventureño Band of Mission Indians;
- Parra, Charles;
- Parra-Hernandez, Melissa;
- Pulido, Carol;
- Romero, Freddie, Santa Ynez Elders Council;
- Salas, Ronnie, Fernandeno Tataviam Band of Mission Indians;
- Tumamait, Julie, Barbareño/Ventureño Band of Mission Indians;
- Tumamait, Patrick;
- Tribal Administrator, Santa Ynez Band of Mission Indians;
- Vigil, Chief Mark Steven, San Luis Obispo County Chumash Council;

To date, three Native American responses have been received. On June 25, 2013, Ms. Tumamait of the Barbareño/Ventureño Band of Mission Indians emailed that she was not familiar with the Project area. On June 27, 2013, Mr. Romero of the Santa Ynez Band of Mission Indians emailed:

> *SYBCI Elders will not be commenting on this project, but will be deferring all comments to the local tribes.*

Mr. Tumamait telephoned on July 10, 2014 and indicated that he was not aware of any cultural resources in the immediate project vicinity. Any future Native American responses received shall be forwarded to Padre Associates, attention Donna Hebert, Senior Project Manager.

5.0 SUMMARY AND RECOMMENDATIONS

Conejo's background research and intensive onsite archaeological survey failed to identify any prehistoric or historic resources within or adjacent to the Project site. The Native American Heritage Commission and Native Americans contacted also had no knowledge of any cultural resources within the Project site. The ground surface throughout the Project site has been disturbed by orchard planting and the grading of Stockton Road. The Project is not expected to impact any prehistoric or historic archaeological resources and, therefore, no further archaeological investigation is warranted as long as the following two recommendations are included as conditions of project approval.

1. *In the event that archaeological resources are unearthed during project construction, all earth disturbing work within 30 meters (100 ft) of the find must be temporarily suspended until an archaeologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume. A Chumash representative should monitor any archaeological field work associated with Native American materials.*

2. *If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the Ventura County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC).*

6.0 SOURCES CITED

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1990 *The Evolution of Chumash Society: A Comparative Study of Artifacts Used in the Social Maintenance of the Santa Barbara Channel Islands Region Before A.D. 1804.* Garland Publishing, Inc., New York.

Moratto, Michael

1984 *California Archaeology.* Academic Press, San Diego, California.

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Office of Historic Preservation

2014 California Historical Landmarks, Ventura County. http://ohp.parks.ca.gov/listed_resources/?view=county&criteria=42

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1992 *California Points of Historical Interest.* Department of Parks and Recreation, Sacramento, California.

Ventura County, Planning Division

2004 Ventura County Historical landmarks & Points of Interest. http://www.ventura.org/rma/planning/pdf/programs/CHB/Points_of_Interest.pdf.

Individuals and Institutions Contacted

Alva-Padilla, Adelina, Chair Woman, Santa Ynez Tribal Elders Council, letter dated June 25, 2014.

Baker, Crystal, Coastal Band of the Chumash Nation, letter dated June 25, 2014.

Banuelos, Raudel Joe Jr., Barbareño/Ventureño Band of Mission Indians, letter dated June 25, 2014.

Armenta, Vincent, Santa Ynez Band of Mission Indians, letter dated June 25, 2014.

Arredondo, Frank, letter dated June 25, 2014.

Cordero, Michael, Coastal Band of the Chumash Nation, letter dated June 25, 2014.

Cordero, Toni, Coastal Band of the Chumash Nation, letter dated June 25, 2014.

Folkes, Beverly Salazar, letter dated June 25, 2014.

Garcia, Janet, Chairperson, Coastal Band of the Chumash Nation, letter dated June 25, 2014.

Guzman-Folkes, Randy, letter dated June 25, 2014.

Miller, Stephen William, letter dated June 25, 2014.

Owl Clan, letter dated June 25, 2014.

Pappo, Kathleen, Barbareño/Ventureño Band of Mission Indians, letter dated June 25, 2014.

Parra, Charles, letter dated June 25, 2014.

Parra-Hernandez, Melissa, letter dated June 25, 2014.

Pulido, Carol, letter dated June 25, 2014.

Romero, Freddie, Santa Ynez Elders Council, letter dated June 25, 2014, email response June 27, 2014.

Salas, Ronnie, Fernandeno Tataviam Band of Mission Indians, letter dated June 25, 2014.

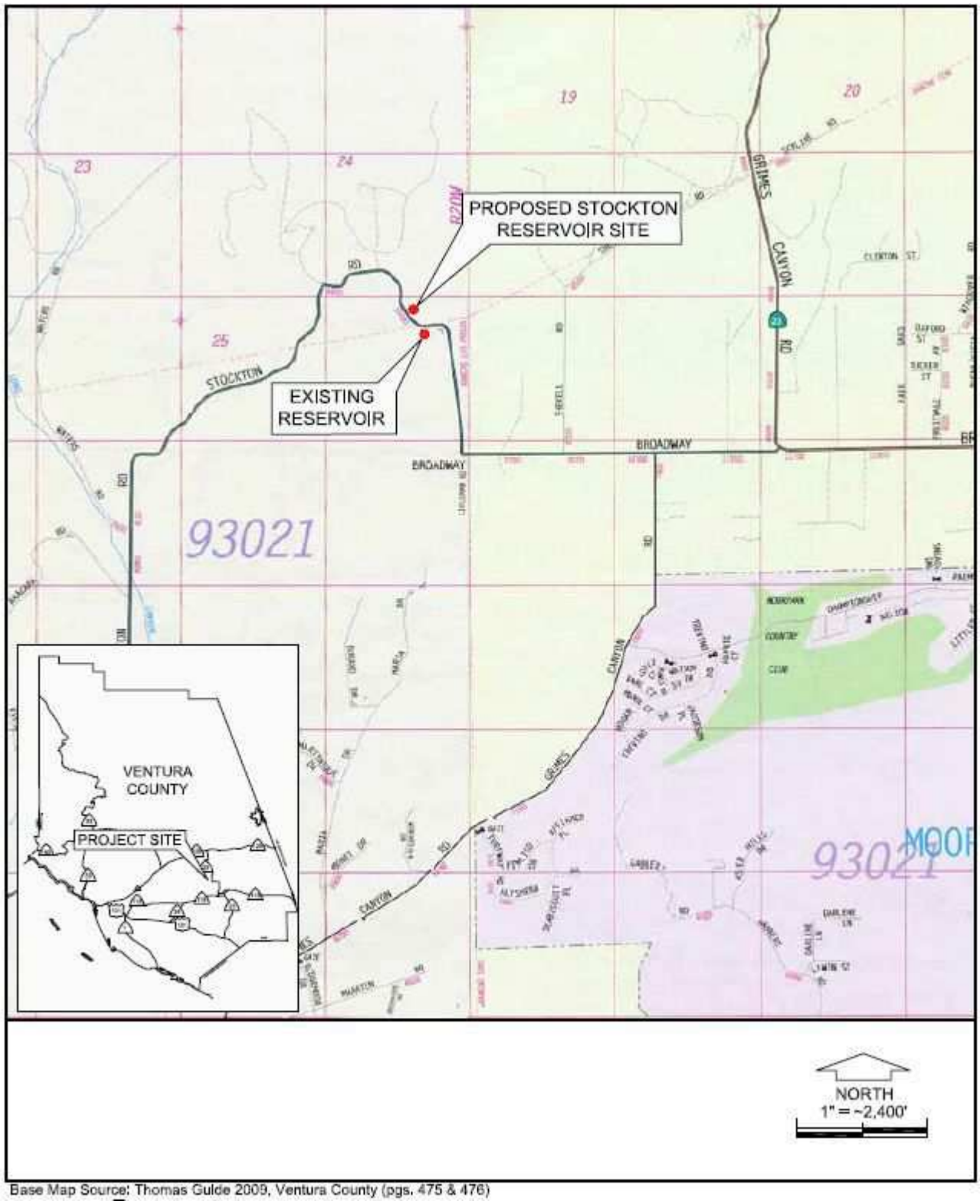
Singleton, Dave, Program Analyst, Native American Heritage Commission, Sacred Lands File Check letter dated July 1, 2014.

Tumamait, Julie, Barbareño/Ventureño Band of Mission Indians, letter dated June 25, 2014, email response June 25, 2014.

Tumamait, Patrick, letter dated June 25, 2014, telephone call July 10, 2014.

Tribal Administrator, Santa Ynez Band of Mission Indians, letter dated June 25, 2014.

Vigil, Chief Mark Steven, San Luis Obispo County Chumash Council, letter dated June 25, 2014.



Source: Padre Associates

Figure 1: Regional Location Map

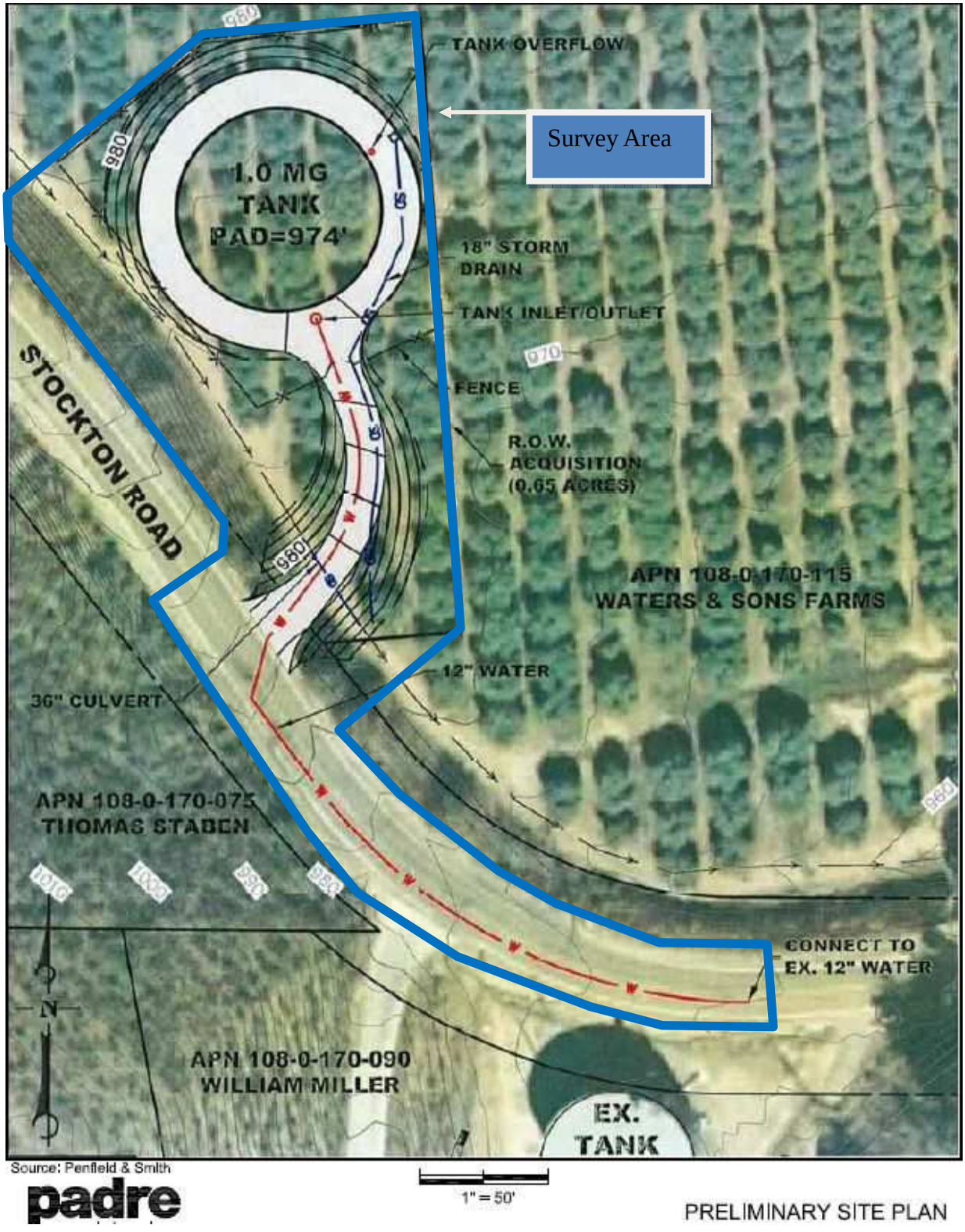
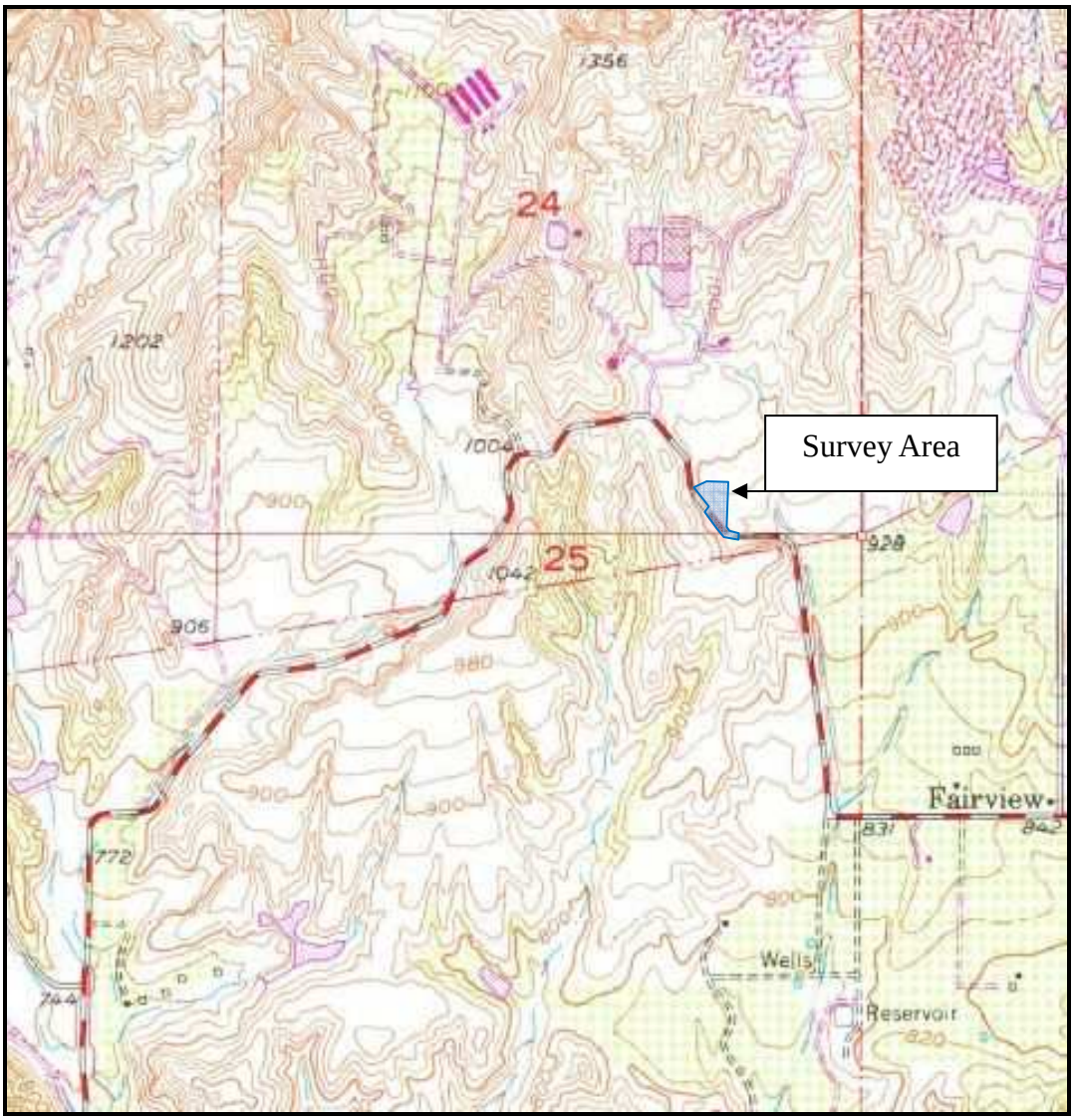


Figure 2: Project Site Location Map



Source: USGS 7.5' Moorpark Quadrangle

Figure 3: Archaeological Survey Area

Appendix A

Native American Heritage Commission

Sacred Lands File Search

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691
(916) 373-3715
Fax (916) 373-5471
Web Site www.nahc.ca.gov
Ds_nahc@pacbell.net

July 1, 2014

Ms. Mary Maki, M.A., RPA
CONEJO ARCHAEOLOGICAL CONSULTANTS
2321 Goldsmith Avenue
Thousand Oaks, CA 91360

Sent by FAX to: 805-518-9520
No. of Pages: 5

RE: Sacred Lands File Search and Native American Contacts list for the **"Stockton Reservoir Replacement Project, Ventura County;"** located in the Moorpark area; Ventura County, California

Dear Ms. Maki:

A record search of the NAHC Sacred Lands Inventory **failed to indicate** the presence of Native American traditional sites/places of the Project site(s) or 'areas of Potential effect' (APEs), submitted to this office. Note also that the absence of archaeological features, Native American cultural resources does not preclude their existence at the subsurface level.

In the 1985 Appellate Court decision (170 Cal App 3rd 604), the Court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources impacted by proposed projects, including archaeological places of religious significance to Native Americans, and to Native American burial sites.

When the project becomes public, please inform the Native American contacts as to the nature of the project (e.g. residential, renewable energy, infrastructure or other appropriate type). Attached is a list of Native American tribes, Native American individuals or organizations that may have knowledge of cultural resources in or near the proposed project area (APE). As part of the consultation process, the NAHC recommends that local government and project developers contact the tribal governments and Native American individuals on the list in order to determine if the proposed action might impact any cultural places or sacred sites. If a response from those listed on the attachment is not received in two weeks of notification, the NAHC recommends that a follow-up telephone call be made to ensure the project information has been received.

California Government Code Sections 65040.12(e) defines 'environmental justice' to provide "fair treatment of people...with respect to the development, adoption,

implementation, and enforcement of environmental laws, regulations and policies." Also, Executive Order B-10-11 requires that state agencies "consult with Native American tribes, their elected officials and other representatives of tribal governments in order to provide meaningful input into…the development of legislation, regulations, rules and policies on matter that may affect tribal communities."

If you have any questions or need additional information, please contact me at (916) 373-3715.

Sincerely,

Dave Singleton
Program Analyst

Attachments

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Report date: 7/16/2014
Case Description: Stockton Reservoir

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
closest sensitive receiver	Residential	48	40	30

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	1250	0
Front End Loader	No	40		79.1	1250	0
Crane	No	16		80.6	1250	0
Dump Truck	No	40		76.5	1250	0
Concrete Pump Truck	No	20		81.4	1250	0
Pickup Truck	No	40		75	1250	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq
Backhoe	49.6	45.6	N/A	N/A	N/A	N/A
Front End Loader	51.2	47.2	N/A	N/A	N/A	N/A
Crane	52.6	44.6	N/A	N/A	N/A	N/A
Dump Truck	48.5	44.5	N/A	N/A	N/A	N/A
Concrete Pump Truck	53.4	46.5	N/A	N/A	N/A	N/A
Pickup Truck	47	43.1	N/A	N/A	N/A	N/A
Total	53.4	53.2	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Combining Noise Levels -
Construction 53.2 - Ambient 48.0 = 5.2 ∴ Add 1.1 to highest: 53.2 + 1.1 = 54.3

54.3 - 48 = 6.3 above ambient

TO DETERMINE NOISE CONTOURS FOR A GIVEN NOISE LEVEL

ATTENUATION RATE: 4.5 dBA/DOUBLING OF DISTANCE
(choice: 3, 4.5, or 6)
NOISE LEVEL: 62 dBA
REFERENCE DISTANCE: 35 FEET

NOISE CONTOUR	DISTANCE FROM SOURCE	SPECIFIC DISTANCE	NOISE LEVEL
75	5	50	59.7
70	10	100	55.2
65	22	150	52.5
63	30	300	48.0
60	48	300	48.0
55	103	400	46.1
50	221	1760	36.5

Ambient noise level at closest receptor assuming ambient noise measurement reflected just traffic and accounting for the distance from the centerline of the road to the home.

Combining Sound Levels in Decibels — Worksheet A

The noise environment at a site is determined by combining the contributions of different noise sources. In these Guidelines, Workcharts are provided to estimate the contribution of aircraft, automobile, truck, and train noise to the total day-night average sound level (DNL) at a site. The DNL contributions from each source are expressed in decibels and entered on Worksheet A. The combined DNL from all the sources is the DNL for the site and is the value used to determine the acceptability of the noise environment.

Sound levels in decibels ARE NOT COMBINED BY SIMPLE ADDITION! The following table shows how to combine sound levels:

Table 1

Difference in Sound Level	Add to Larger Level
0	3.0
1	2.5
2	2.1
3	1.8
4	1.5
5	1.2
6	1.0
7	0.8
8	0.6
9	0.5
10	0.4
12	0.3
14	0.2
16	0.1
greater than 16	0

Use the table by first finding the numerical difference in sound level between two levels being combined. Entering the table with this value, find the value to be added to the larger of the two levels, add this value to the larger level to determine the total. Where more than two levels are to be combined use the same procedure to combine any two levels, then use this subtotal and combine it with any other level, and so on. Fractional numerical values may be interpolated from the table; however, the final result should be rounded to the nearest whole number.

Example 1: In performing a site evaluation, the separate DNL values for airports, road traffic, and railroads have been listed on Worksheet A as 56, 63, and 61 decibels. In order to complete the final evaluation of the site, these separate DNL values must be combined. The difference between 63 and 56 is 7; from the table you find that 0.8 should be added to 63, for a subtotal of 63.8. The difference between 63.8 and 61 is 2.8; from the table you interpolate that approximately 1.9 should be added to 63.8 for a total of 65.7 or 66 dB when rounded to whole numbers. This example shows how noise from different sources may be Acceptable, individually, at a site, but when combined, the total noise environment may exceed the Acceptable DNL limit of 65 decibels.

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