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DOCKET 09-AFC-2	
DATE	9/14/2009
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September 14, 2009

383194.AP.PM

Ms. Felicia Miller
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: Almond 2 Power Plant (09-AFC-02)
Data Response Set 1A, Responses to CEC Staff Data Requests 1 through 84 and Staff Query 1

Dear Ms. Miller:

Attached please find the Almond 2 Power Plant's Data Response Set 1A. This Data Response Set was prepared in response to California Energy Commission Staff Data Requests 1 through 84 for the Application for Certification for the Almond 2 Power Plant (09-AFC-02) dated August 13, 2009. In addition, Staff Query 1 (SQ-1) is being provided as well; it addresses visual resources as a result of a site visit conducted by CEC Staff and TID representatives on August 28, 2009. Both are being submitted to respond to the Staff's requests for additional information.

Also attached are 13 hard copies and 1 electronic copy on CD-ROM. Due to size, 3 hard copies of Attachment DR21-1, Draft EIR for the Hughson-Grayson 115-kV Transmission Line and Substation Project, and 5 hard copies of DR66-1, Draft Drainage Erosion and Sedimentation Control Plan, have been provided. Additional electronic copies are available upon request.

If you have any questions about this matter, please contact me at (916) 286-0249 or contact Susan Strachan at (530) 757-7038.

Sincerely,

CH2M HILL

Sarah Madams
AFC Project Manager

Attachment
cc: S. Strachan, Strachan Consulting
R. Baysinger, TID

APPLICATION FOR CERTIFICATION

   

SUBMITTED TO

California
Energy Commission

FOR

TID Almond 2 Power Plant

SUBMITTED BY

Turlock Irrigation District

TECHNICAL ASSISTANCE BY

CH2MHILL

September 2009

Data Request Set 1A

Almond 2 Power Plant

(09-AFC-02)

Data Responses, Set 1A

(Response to Data Requests 1 to 84, and Staff Query 1)

Submitted to

California Energy Commission

Submitted by

WATER & POWER
Serving Central California since 1887

With Assistance from

CH2MHILL

2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833

September 2009

Contents

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Introduction

Attached are Turlock Irrigation District's (TID or the Applicant) responses to the California Energy Commission (CEC) Data Request Set 1 (numbers 1 through 84) and Staff Query 1 (SQ-1) regarding the Almond 2 Power Plant (A2PP) (09-AFC-02) Application for Certification (AFC). SQ-1 has been included as a result of a site visit conducted by Staff and TID representatives on August 28, 2009.

The responses are grouped by individual discipline or topic area. Within each discipline area, the responses are presented in the same order as the CEC presented them and are keyed to the Data Request numbers (1 through 84). New or revised graphics or tables are numbered in reference to the Data Request number. For example, the first table used in response to Data Request 36 would be numbered Table DR36-1. The first figure used in response to Data Request 42 would be Figure DR42-1, and so on.

Additional tables, figures, or documents submitted in response to a data request or workshop query (supporting data, stand-alone documents such as plans, folding graphics, etc.) are found at the end of each discipline-specific section and are not sequentially page-numbered consistently with the remainder of the document, though they may have their own internal page numbering system.

Air Quality (1–15)

Background

The proposed project will require permits (the Preliminary Determination of Compliance and Final Determination of Compliance) from the San Joaquin Valley Air Pollution Control District (SJVAPCD or "District"). These permits are integrated into the staff analysis. Therefore, staff will need copies of all correspondence between the applicant and the District in a timely manner in order to stay up to date on any permit issues that arise prior to completion of the Preliminary or Final Staff Analysis.

Data Request

1. Please provide copies of all substantive District correspondence regarding the permit application, including e-mails, within one week of submittal or receipt. This request is in effect until the final Commission Decision has been recorded.

Response: As requested, Applicant will provide copies of substantive District correspondence, including e-mail messages, related to the permit application within 1 week of submittal or receipt, provided that those emails do not contain information that is privileged, confidential, or otherwise not subject to discovery. Copies will be provided until the final Commission Decision has been recorded. Copies of recent District correspondence are provided in Attachment DR1-1.

Background

The site of the proposed A2PP includes the existing Almond Power Plant (APP) with one General Electric (GE) LM 6000 natural gas-fired, steam-injected, combined-cycle combustion gas turbine and one 240 HP Cummins diesel fire pump engine. The existing potential to emit is shown in the Application for Certification (AFC) Table 5.1-13 and the existing unit and fire pump engine are considered in the May 2009 cumulative impact analysis in AFC Appendix 5.1G, but the existing baseline emissions from the APP have not been identified. Additionally, although the AFC Section 5.1.3.1 and existing permits (in AFC Attachment 5.1A-1) show up to 100 hours per year for fire pump engine maintenance and testing, the California Air Resources Board standards for toxic emissions for new emergency diesel engines allows up to 50 hours per year (Cal. Admin. Code tit. 17, Sec. 93115.6) (Cal. Code of Regs., tit. 17, Sec. 93115.6(3)(a)(c)).

Data Requests

2. Please quantify the historical operating hours and actual emissions from the existing APP combustion turbine for at least a two-year period prior to filing the AFC.

Response: Historical operating hours and actual emissions from the existing Almond Power Plant combustion turbine for 2007-08 are provided in Attachment DR2-1. Operating hours were obtained from the EPA Clean Air Markets—Data (CAMD) and Maps website.[1] Actual

[1] Accessible at http://camddataandmaps.epa.gov/gdm/

emissions are as reported to the SJVAPCD. NOx emissions differ slightly from those reported to EPA CAMD due to the use of acid rain missing data protocols for the CAMD reports.

3. Please describe whether the existing APP is likely to change its operational patterns as a result of the proposed A2PP.

Response: As discussed in the Executive Summary of the AFC for A2PP, the basic objectives for the A2PP include providing reserves, balancing and firming capabilities and additional generating capacity within TID's service territory. As TID reported at the informational hearing held on July 30, the proposed project is expected to allow for the more efficient dispatch of the existing Walnut Energy Center (WEC), approved by the Commission in 2004, and the existing Almond Power Plant, with some reduction in operation of the Almond Power Plant. The effects of A2PP on the operations of the TID system are described in more detail in Response 15 below.

4. Please discuss whether the existing fire pump engine would be subject to recent requirements that allow up to 50 hours per year for emergency engine maintenance and testing, rather than up to 100 hours/year as noted in the AFC.

Response: The existing fire pump engine is not subject to the 50 hours per year limit of 17 CCR 93115, based on the following exemption:

> **§ 93115.3 ATCM for Stationary CI Engines – Exemptions.**
>
> (n) The requirements of section 93115.6(b)(3) do not apply to in-use emergency fire pump assemblies that are driven directly by stationary diesel-fueled Cl engines and only operated the number of hours necessary to comply with the testing requirements of National Fire Protection Association (NFPA) 25 "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 2002 edition, which is incorporated herein by reference.

Background

The AFC for A2PP shows potential impacts at the fence line of greater than 10 in one million cancer cases during construction (AFC Appendix 5.1E, Fig 5.1E-5) due primarily to diesel particulate matter. The emission estimates for diesel particulate matter and other emissions in construction equipment exhaust are based on all construction equipment engines rated over 100 horsepower being able to meet the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines. However, this level of control is not identified as a feasible control strategy in the Available Mitigation Measures of AFC Appendix 5.1E. Additionally, there appears to be a typo in Table 5.1E-2, because PM2.5 should not be higher than PM10, which the AFC finds to be 0.4 tons per year for the construction equipment exhaust.

Data Requests

5. Please confirm that it would be feasible to comply with a condition of certification requiring all construction equipment engines rated over 100 horsepower to meet the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines.

Response: Yes, the Applicant expects that it will be feasible to comply with such a condition of certification assuming that the usual exemptions are provided. The following is a proposed condition that includes the needed exemptions:

A. All construction diesel engines with a rating of 100 hp or higher shall meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines, as specified in California Code of Regulations, Title 13, section 2423(b)(1), unless certified by the on-site AQCMM that such engine is not available for a particular item of equipment. In the event that a Tier 3 engine is not available for a particular off-road engine larger than 100 hp, that engine shall be a Tier 2 engine. In the event that a Tier 2 engine is not available for a particular off-road engine larger than 100 hp, that engine shall be a Tier 1 engine. In the event a Tier 1 engine is not available for a particular off-road engine larger than 100 hp, that engine shall be equipped with a diesel particulate filter (DPF) unless certified by engine manufacturers or the on-site AQCMM that the use of such devices is not practical for the specific engine types. For purposes of this condition, the use of such devices is "not practical" for the following, as well as other reasons.

   1. There is no available DPF that has been verified by either the California Air Resources Board or U.S. Environmental Protection Agency for the engine in question; or

   2. The construction equipment is intended to be onsite for 10 days or less.

   3. The CPM may grant relief from this requirement if the AQCMM can demonstrate a good faith effort to comply with this requirement and that compliance is not possible.

B. The use of a soot filter may be terminated immediately if one of the following conditions exists, provided that the CPM is informed within 10 working days of the termination:

   1. The use of the soot filter is excessively reducing the normal availability of the construction equipment due to increased down time for maintenance, and/or reduced power output due to an excessive increase in back pressure.

   2. The soot filter is causing or is reasonably expected to cause significant engine damage.

   3. The soot filter is causing or is reasonably expected to cause a significant risk to workers or the public.

   4. Any other seriously detrimental cause which has the approval of the CPM prior to implementation of the termination.

6. Please confirm that there is a typo in the PM2.5 emission rate of Table 5.1E-2, and if so, correct the typo.

Response: Yes, there is a typographical error in Table 5.1E-2—the PM_{10} and $PM_{2.5}$ emissions from onsite construction equipment should both be 0.4 tpy. The corrected table is shown below as Table 5.1E-2R. The typographical error was introduced when copying the calculated emissions from a spreadsheet table to the table shown in the appendix. Since the modeling inputs were taken directly from the spreadsheet, the typo in the appendix table does not affect the modeling results.

TABLE 5.1E-2R (REVISED SEPTEMBER 1, 2009)
Peak Annual Emissions During Project Construction, Tons Per Year

	NOx	CO	VOC	SOx	PM_{10}	$PM_{2.5}$
Onsite						
Construction Equipment	6.9	10.3	0.7	0.05	0.4	0.4
Fugitive Dust	—	—	—	—	1.1	0.4
Offsite						
Worker Travel, Truck Deliveries*	3.4	2.9	0.4	0.01	0.1	0.1
Total Emissions	**10.3**	**13.2**	**1.2**	**0.06**	**1.6**	**0.9**

*Offsite emissions.

Background

Energy Commission staff plans to describe the quantity of greenhouse gases (GHG) emissions during construction of the project based on the construction activity estimates and fuel use projections in AFC Appendix 5.1E. These include emissions from carbon dioxide, nitrous oxide, and methane. The GHG emissions estimates should consider activity related to onsite construction, construction of linear facilities, worker travel, and material deliveries using diesel trucks during construction. The AFC only provides a brief summary of the GHG emissions during the construction in Table 5.1E-5 of Appendix 5.1E, and it does not provide the calculation details for GHG in Attachment 5.1E-1.

Data Request

7. Please show the detailed calculations for total and annual GHG emissions for the construction phase of the proposed project including all activities at the construction site and any construction activities for linear facilities (gas pipeline and transmission lines), worker travel, and trucked material deliveries.

Response: Detailed GHG emissions calculations from construction activities were inadvertently omitted from Attachment 5.1E-1 of the AFC. GHG calculation assumptions and emission factors for construction activities are provided in Attachment DR7-1.

Background

The AFC (Section 5.1.8 and Appendix 5.1G) describes a cumulative impacts analysis including only the existing APP along with the proposed A2PP. A complete cumulative impacts analysis should consider all stationary sources that are not included in the background conditions, such as the reasonably foreseeable projects in the area that may contribute to the air quality impacts of the proposed project. A list of reasonably foreseeable projects within six miles of A2PP has not been provided by the SJVAPCD.

Data Requests

8. Please provide a copy of the District's correspondence regarding recent and planned cumulative sources located within six miles of the A2PP site.

Response: Copies of all District correspondence related to potential cumulative impacts are provided in Attachment DR8-1.

9. Please provide the cumulative modeling analysis, including APP, A2PP, other identified recent and planned projects within 6 miles of the A2PP site as promised in the modeling protocol in AFC Appendix 5.1B.

Response: To evaluate potential cumulative impacts of A2PP in combination with other projects in the area, the Applicant requested from the SJVAPCD information regarding projects within a radius of 10 km (6 miles) of the project.

Within this search area, three categories of projects with combustion sources were used as criteria for identification:

1. Existing projects that have been in operation since at least 2007;
2. Projects for which air pollution permits to construct have been issued and that began operation after July 1, 2008; and
3. Projects for which air pollution permits to construct have not been issued, but that are reasonably foreseeable.

Existing projects that have been in operation since at least 2007 are reflected in the ambient air quality data that has been used to represent background concentrations; consequently, no further analysis of the emissions from this category of facilities was performed. The cumulative impacts analysis adds the modeled impacts of selected facilities to the maximum measured background air quality levels, thus ensuring that these existing projects are taken into account.

Response: The initial list provided by the SJVAPCD staff included 72 existing facilities and 159 proposed projects. The Applicant reviewed the SJVAPCD's list after obtaining additional information from the SJVAPCD staff, removed projects that met the following screening criteria:

1. Projects that resulted in no increases in emissions;
2. Projects that involved only VOC emissions; or
3. Projects that involved only administrative changes of the permits, such as a renewal, a Title V permit or ERCs.

Finally, projects for which the emission changes were less than 0.5 tons per year and were located more than 5 km away from the A2PP facility were assumed to be *de minimis* and were also removed based on these additional screening criteria. The information provided by the District is provided in Attachment DR8-1.

Response: In addition to the Almond Power Plant and A2PP, five projects are included in the modeling analysis. The five projects are identified in Attachment DR9-1.A dispersion modeling analysis was performed to evaluate combined future emissions from A2PP, Almond Power Plant and the five other emission sources for NO_2, SOx, CO and PM_{10}. Daily and annual emissions data and stack parameters for the five facilities were provided by the SJVAPCD. Hourly emissions were obtained by dividing the daily emissions rate by 24 hours per day.

Table 5.1G-3 of the AFC provided emission rates and stack parameters used for modeling APP and A2PP. Attachment DR9-1 provides the emission rates and stack parameters for the additional sources included in the cumulative impacts analysis. The modeling results are summarized in Table DR9-1. The modeling results indicate that the maximum modeled impacts from the old and new plants overlap very little, if at all. Figures DR9-1 and DR9-2 show the locations of the cumulative impacts sources and of the modeled cumulative 1-hour average NO_2 and 24-hour average PM_{10} impacts.

Five electronic copies of the modeling files are being provided to Staff.

TABLE DR9-1
Modeled Maximum Cumulative Project Impacts

		Maximum Localized Impacts (µg/m³)							
Pollutant	**Averaging Time**	**A2PP Alone**	**Existing APP Facility[a]**	**Other Cum. Impact Sources**	**Total**	**Background (µg/m³)**	**Total Impact (µg/m³)**	**State Standard (µg/m³)**	**Federal Standard (µg/m³)**
NO_2	1-hour[b,c]	17.9	2.3	98.7	98.7	118.4	217	338	–
	Annual	0.3	0.5	0.6	0.6	24.5	25	–	100
SO_2	1-hour[c]	1.4	0.6	3.6	3.6	46.8	52	650	–
	3-hour	1.1	3.2	2.9	3.2	33.8	37	–	1300
	24-hour	0.5	1.5	1.3	1.5	18.4	20	109	365
	Annual	0.1	<0.1	0.5	0.5	5.3	6	–	80
CO	1-hour[c]	65.9	5.6	56.8	66.1	8,625	8,691	23,000	40,000
	8-hour[d]	6.4	144.6	45.1	144.7	4,144	4,289	10,000	10,000
PM_{10}	24-hour	1.2	8.2	5.2	8.2	111	119	50	150
	Annual	0.1	0.1	1.3	1.4	38	39	20	–
$PM_{2.5}$	24-Hour	1.2	8.2	5.2	8.2	64.5	73	–	35
	Annual	0.1	0.1	1.3	1.4	16.0	17	12	15

Notes:

[a]Existing APP facility includes CTG and fire pump engine.

[b]1-hour average NO_2 impacts modeled using OLM.

[c]1-hour average impacts assume A2PP in startup and fire pump engine not in operation.

[d]8-hour average CO impacts include 2 hours of startup for A2PP.

Background

Energy Commission staff expects to see that volatile organic compounds (VOC) emissions during initial facility commissioning and testing would be similar to those of routine operation, because they tend to be a function of fuel use. During routine operation, the applicant proposes an emission factor of 0.0025 lb/ MMBtu, and no explanation is given for the proposal to allow 30 times this level during commissioning (0.0758 lb/MMBtu as in AFC Table 5.1B-7a).

Data Request

10. Please provide vendor specifications and a description of the basis for the proposed emission factors during commissioning as shown in AFC Table 5.1B-7a.

Response: Vendors do not provide specifications for commissioning emissions for LM6000 gas turbines, so the requested vendor specifications for the proposed emission factors during commissioning are not available. The assumption that VOC emissions may be up to 30 times the controlled emission rate of 2 ppm during the "Full Speed/No Load" phases of commissioning activities is conservative (i.e., overstates the potential impacts), but it is consistent with the assumption regarding CO emissions during this phase of commissioning as combustion conditions that produce elevated CO levels (such as incomplete combustion) also produce elevated VOC emissions. The assumption regarding the VOC emission rate during this commissioning phase has also been used in other LM6000 peaker project proceedings, including SFERP (04-AFC-01).

Background

The description of the cooling system indicates evaporative cooling of the inlet air for each combustion turbine (AFC Section 2.1.7). Although relatively small, if evaporative cooling towers would be used for cooling the inlet air, then the source parameters and potential drift emissions from those cooling tower cells should be identified.

Data Requests

11. Please provide complete information describing the potential drift emissions and source parameters (including exhaust velocity and temperature) from any proposed evaporative cooling system for the combustion turbine inlet air.

Response: While evaporative coolers will be used as part of the inlet air system, no cooling towers, evaporative or otherwise, are associated with this cooling system.

12. Please analyze and describe the potential air quality impacts due to drift emissions from the proposed evaporative cooling system.

Response: There will be no "drift" emissions into the ambient air from the proposed evaporative cooling systems. Please see the evaporative cooler brochure in Attachment DR12-1. Any "drift" that results from entrained water droplets that are not eliminated by the demisters will be drawn into the gas turbine with the inlet air (see Figure 5 of the attached brochure) and would be measured as and accounted for in the 2.5 lb/hr of particulate emissions from the gas turbine exhaust. The evaporative coolers will be supplied with water from the reverse osmosis system.

Background

Heat rates in the AFC Section 2 are only shown on the basis of the fuel lower heating value (LHV). Energy Commission staff requests that heat input information and thermal efficiency of the proposed power plant be stated in higher heating value (HHV) as well as LHV.

Data Request

13. Please provide the heat rate information for the proposed combustion turbines (in AFC Project Description, Figure 2.1-3) in terms of higher heating value, to better facilitate comparisons with other power plant data used by staff in determining greenhouse gas impacts.

Response: The heat rate information for the proposed combustion turbine is shown in terms of HHV in Table DR13-1 (adapted from Figure 2.1-3 of the AFC). [2]

TABLE DR13-1
Gas Turbine Heat Rates (in terms of HHV)

Measurement	Units	100% Load	100% Load	100% Load	100% Load
Ambient Temperature	EF	20	60	68	110
Relative Humidity	%	80	60	60	15
Gross Power Output	kW	56,073	55,636	53,884	49,948
Gross Heat Rate (HHV)	Btu/kW-hr	9,550	9,600	9,593	9,627

Figure 2.1-3 has been updated, and is provided as Figure DR13-1, to provide the higher heating values for the various loading conditions.

Background

The modeling protocol of December 2008 (AFC Appendix 5.1B) and the impact analysis in the AFC rely on four years of meteorological data gathered at Modesto. Each of the four years of data have more than 5 percent of the hours missing, and data from 2001 has nearly 14 percent of the hours missing.1 While this may be sufficient data for Energy Commission staff to complete our impact assessment, it may not satisfy the federal review process, which normally requires five years of meteorological data for analysis under the Prevention of Significant Deterioration (PSD) program (as in U.S. EPA, New Source Review Workshop Manual, Draft October 1990).

[2] The modeling output submitted on May 11, 2009 by TID on the CD with the AFC reports: "Data May Not Be Acceptable for Regulatory Applications. See Section 5.3.2 of Meteorological Monitoring Guidance for Regulatory Modeling Applications" (EPA-454/R-99-005)."

Data Request

14. Please confirm that the meteorological data used in the impact assessment is likely to satisfy guidance from the U.S. Environmental Protection Agency (US EPA). If not, supply additional data to meet US EPA program requirements.

Response: The meteorological data has been provided by, and is acceptable to, the SJVAPCD. Subsequent to the determination that the A2PP permit application was complete, the SJVAPCD posted new meteorological data sets on their website. However, the SJVAPCD staff indicates that for applications accepted as complete prior to July 2009, modeling may be based on the older meteorological data sets. The A2PP application was accepted as complete on May 21, 2009. The proposed A2PP project is not subject to federal review, so the meteorological data is not required to satisfy US EPA guidance.

Background

Turlock Irrigation District (TID) also operates the Walnut Energy Center and other generating units as part of the transmission control area, which is outside of the jurisdiction of the California Independent System Operator.

Data Request

15. Please describe whether existing generating units in the TID control area, including the Walnut Energy Center, are likely to change their operational patterns as a result of the proposed A2PP and describe the expected net effects on greenhouse gas emissions from the system.

Response: TID has articulated several objectives for the A2PP.[3] Some of these objectives are:

- To provide firming sources for TID's existing and future intermittent renewable resources in support of TID's Renewable Portfolio Standard (RPS) and GHG goals;
- To provide fast-starting, load-following peaking generating units to help maintain TID's Balancing Authority tie line (interconnection) schedules with neighboring Balancing Authorities (the CAISO and SMUD); and
- To allow for better economic dispatch of TID's existing generation fleet system-wide.

The project must also be consistent with local system reliability and reserve requirements as well as statewide goals and policies related to electric generation. To design a project that meets all of these project objectives, TID selected advanced simple-cycle natural gas-fired combustion turbine technology. The project's consistency with these objectives is described in the following sections.

Background

TID operates its own electric service Balancing Authority under certification by the Western Electricity Coordinating Council (WECC). TID has full responsibility for generating, securing, scheduling, balancing, and delivering power to its customers on a 24-hour basis. To become a Balancing Authority, the District was required to

[3] Sections 1 (Executive Summary) and 6 (Alternatives), Application for Certification for TID Almond 2 Power Plant, 09-AFC-4, May 2009.

demonstrate that it possesses adequate resources to meet the total power demand of its customers.

The District's responsibilities as a Balancing Authority include, among other responsibilities, balancing energy resources at all times with actual customer demand.[4] Therefore, TID must own or have access to sufficient resources in a form that will allow it to meet its Balancing Authority base load as well as to respond to rapid load changes. Approximately 20 percent of TID's generation comes from hydroelectric resources, with most of the remainder coming from 3 natural gas-fired power plants (Walnut Energy Center, Walnut Power Plant and Almond Power Plant). Energy is also purchased under long- and short-term contracts from other in-state and out-of-state suppliers as needed. In July 2009, TID finalized the purchase of the Tuolumne Wind Project, which consists of 136.6 megawatts of renewable wind power located in Klickitat County, Washington along the Columbia River.

The A2PP is a proposed addition to TID's electricity system. It is designed to be a peaking project that would operate infrequently, during periods when local electricity demand is high and local grid reliability support is needed. A2PP is also intended to firm TID's newly acquired wind resource. The addition of A2PP to the TID system would facilitate the integration of renewable resources and allow existing TID power plants to operate more efficiently, displacing less efficient plants. Because the project will improve the efficiency of existing system resources, the addition of A2PP would contribute to a reduction of the California and overall TID system greenhouse gas (GHG) emissions and GHG emission rate average, as discussed below.

As the 2007 IEPR and a recent Siting Committee Report[5] acknowledged, "new gas-fired power plants are more efficient than older power plants, and they displace these older facilities in the dispatch order." The CEC's 2009 consultant report[6] further discussed the role of new gas-fired power plants in displacing GHG emissions, and furthering the State's efforts to reduce GHG emissions. The 2009 consultant report concludes that as California expands renewable energy generation to achieve its GHG emissions reduction goals, it cannot simply retire natural-gas fired power plants: rather, new natural-gas fired power plants may be needed.

Net GHG emissions for the integrated electric system will decline when new gas-fired power plants are added that: (1) serve load growth or capacity needs more efficiently than the existing fleet; (2) improve the overall efficiency of the electric system; and/or (3) permit increased penetration of renewable generation.[7] Because of its location and operational characteristics, the A2PP will contribute to the reduction of GHG emissions

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[4] The NERC Glossary defines "Balancing Authority" as "The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time." (NERC Glossary, available at: http://www.nerc.com/files/Glossary_12Feb08.pdf.

[5] CEC-700-2009-004, "Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts In Power Plant Siting Applications," March 2009.

[6] CEC-700-2009-009, "Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California," May 2009.

[7] California Energy Commission, "Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California," May 2009.

because it will achieve all of these goals. A2PP will result in a net reduction in system wide GHG emissions for all of these reasons. The more efficient operation and dispatch of WEC is one example of how A2PP will improve the overall efficiency of TID's system.

While A2PP would emit GHG emissions, the relative efficiency and dispatchability of A2PP and the project's role in integrating additional renewable wind resources in the TID system would result in a net cumulative reduction of electricity generation and GHG emissions from new and existing fossil resources. Electricity is produced by operation of inter-connected generation resources. Operation of one power plant, like A2PP, affects all other power plants in the interconnected TID system. The operation of A2PP will have an impact upon system operation and GHG emissions in several ways:

- A2PP would displace less efficient peaking capacity in the dispatch order of gas-fired facilities that are required to provide electricity reliability in the TID system;
- A2PP would allow WEC to operate more efficiently at higher loads because WEC will no longer have to operate at lower loads in order to provide operating margin for fast-responding spinning reserve power;
- A2PP would provide flexible firming power necessary to integrate the growing generation from its new intermittent renewable wind generation resources; and
- A2PP is consistent with the State's "Loading Order."

The Role of A2PP in Local Displacement of Less Efficient Units

The proposed A2PP would have a net heat rate of 8,650 Btu/kWhr (LHV)[8] and a CO_2 emission rate of 0.510 $MTCO_2$/MWh.

Response: As discussed at the informational hearing held on July 30, Walnut Energy Center (WEC) will be able to operate more efficiently as a result of the proposed A2PP. TID evaluated 2008 system operations assuming A2PP had been available, and determined that WEC: (1) would have operated more at higher loads and better heat rates since it would not have had to provide spinning reserve; and (2) would have displaced conventional simple cycle units from outside the TID system that were dispatched to provide this marginal power. Under this scenario, TID calculated that CO_2 emissions from WEC and A2PP would have been approximately 56,000 metric tonnes/yr lower than actual CO_2 emissions in 2008 from WEC and conventional simple cycle units (with a heat rate of about 9,300 Btu/kWh (LHV)). Under this scenario, the heat rate for WEC improved from 7,900 to 7,600 Btu/kWh (LHV). Therefore, A2PP will allow TID to serve system needs more efficiently and will improve the overall efficiency of TID's generating resources. Calculations are provided in Attachment DR15-1.

The Role of A2PP in Providing Flexible Peaking Power to Integrate Intermittent Generation

Response: As electricity demand grows in the TID service area, A2PP will assist in meeting local peak demand and reliability needs. However, given established targets for selected preferred (i.e., renewable) resources, the amount electricity generated using gas-fired

[8] Figure 2.1-3 of the AFC.

generation in service of TID loads through 2020 will not necessarily increase. California's Renewables Portfolio Standard (RPS) program requires PUC-regulated electric corporations to increase procurement from eligible renewable energy resources by at least 1 percent of their retail sales annually, until they reach 20 percent by 2010. A 33 percent renewable portfolio standard by 2020 was subsequently endorsed by the Governor in Executive Order S-14-08 (November 2008).

In 2004, the TID Board adopted its own goal of providing 20 percent of its energy from renewable resources by 2017. The acquisition of the wind project brings the amount of renewable energy in TID's portfolio to 28 percent. Thus, TID has easily met its own internal renewable energy goals and is well on its way to meeting a 33 percent RPS standard.

The CEC's 2009 consultant report[9] regarding the role of natural gas-fired power plants in the state's efforts to reduce GHG emissions describes the challenges involved in integrating intermittent renewable resources into the state's energy supply system. Wind and solar generating resources are classified as variable or intermittent resources because they rely on the availability of an external fuel source (that is, the wind or the sun) that cannot be controlled. While peak energy demand in California occurs in the summer (warm-weather months, especially in the central valley) on an annual basis and between 5:00 and 7:00 p.m. on a daily basis, peak wind output tends to be lower in the summer and winter, and higher in the spring and fall[10] while daily peak wind output generally occurs in the morning and evening.[11] Over the short term, output from a single wind turbine or small wind plant can be highly variable on a minute-to-minute basis. The 2007 IEPR[12] acknowledges that

> "Intermittent renewable technologies, such as wind and solar, are a challenge to traditional reliability planning, particularly given the "peakiness" of the state's electricity load." (p. 115.)

If a particular generating resource cannot be relied upon to be available when needed to meet utility system loads, that particular resource cannot be counted toward the utility's required reserves for reliability purposes. Therefore, intermittent resources such as wind and solar projects generally need to be "firmed" by providing quick-starting backup resources. As discussed above, TID has added 136.6 MW of wind generation to its electric system. However, because wind generation is an intermittent resource, it must also firm this renewable energy source with fully-dispatchable capacity to guarantee the District's ability to meet system demands.

A2PP will serve as an important firming source for TID's existing and future intermittent renewable resources in support of TID's RPS and GHG goals. Increased levels of renewable generation in the TID service area will necessitate increases in flexible generation. Because many renewable resources are only intermittently available, Balancing Authorities, like TID, must be able to call upon generators with quick start, fast ramping and regulation capabilities and a wider operating range (lower minimum operation) to successfully

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9 CEC-700-2009-009, "Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California," May 2009.

10 North American Electric Reliability Corporation. *Accommodating High Levels of Variable Generation*. April 2009; cited in Ref. 3.

11 See, for example, Figure 5 in Ref. 3.

12 CEC-100-2007-008-CMF, "2007 Integrated Energy Policy Report," adopted December 5, 2007; cited in Ref. 3.

integrate high levels of renewables.[13] Similarly, because renewable resources are generally remotely located (away from population centers), having a fast-starting, flexible resource within TID's Balancing Authority provides additional operational control and local voltage support. It must also be sized to meet the District's dispatch requirements; that is, the units must be dispatchable in increments that are sized to meet TID's loads Therefore, a firming resource like the A2PP must meet these four performance criteria: (1) it must be quick starting, (2) it must be fast ramping, (3) it must be local, and (4) it must be sized to meet system dispatch requirements.

The A2PP will provide this quick start, fast ramping and regulation capability for the TID Balancing Authority, allowing TID to make full use of its northwest wind resource and other renewable resources in the most efficient manner possible. Without A2PP, TID would need to "fill in" during low- or no-wind periods using spinning reserve and/or conventional simple-cycle generation that would result in higher system-wide GHG emissions.

The natural gas-fired simple cycle LM6000PG gas turbines proposed for the A2PP are the best fit for these criteria. As discussed in greater detail in Section 6, Alternatives, the other technologies considered for use do not meet these criteria.

Combined-cycle gas turbines: While combined cycle gas turbine technology is in general more efficient than simple cycle technology, most combined cycle gas turbines are not able to start up as quickly as simple cycle turbines because of HRSG and steam turbine operational and thermal inertia. Combined cycle units can take up to six hours from a cold start to be able to come up to stable operating loads. While several gas turbine manufacturers have made great progress in developing quick-start combined cycle gas turbine packages, these packages are based on combustion turbines that are too large to meet TID's dispatch requirements. The GE Rapid Response and Siemens Flex-Plant configurations are based on 180+ MW combustion turbines with minimum loads of 90 MW or more. This compares with the A2PP's 53-MW units with minimum loads of approximately 25 MW. Therefore, combined cycle gas turbines do not meet both the quick starting and load increment criteria simultaneously.

Biomass: Biomass fuel can only be used with boiler technology and must be gasified for use in turbines. Boilers have very high thermal inertia, so are not quick-starting or fast ramping. Boiler technology is generally used for baseload power. If a biomass plant were to be used in a quick start role, it would need to be maintained on hot standby at all times to be able to provide the fast response necessary to back up the intermittent wind resource. Being kept on hot standby requires a boiler to operate at very low load, consuming fuel and emitting GHG and criteria and toxic air pollutants without producing usable electricity. This process is extremely inefficient. Additionally, there are operational complexities with well-controlled biomass boilers that may make it difficult to ramp the units quickly. Load following requires frequent and/or rapid load changes. Load following is not a normal operating mode for biomass boilers, and would likely result in emissions compliance issues.

TID has also been in contact with local orchard growers to determine whether local biomass in the form of orchard clippings would be available in the quantities needed for a biomass-

[13] California Independent System Operator, Integration of Renewable Resources, November 2007.

fueled project. TID found that the growers are not willing to sell the clippings because they are using it for nutrient growth for their orchards. They have a need for the clippings themselves. Therefore, even if biomass boiler technology were identified that would meet the project's need for quick starts, it is not clear that an adequate and reliable local supply of biomass fuel would be available.

Response: Thus, in the context of the Energy Commission's conclusions about the role of new gas fired power plants and system-wide GHG emissions[14], the TID A2PP project furthers the state's strategy to promote generation system efficiency and reduce fuel use and GHG emissions because it will allow TID to make full use of renewable wind resources and will allow Walnut Energy Center to operate more efficiently. Alternative generation technologies and fuels would not meet these project objectives.

Consistency of A2PP with the Loading Order

Response: The A2PP is also consistent with California's "Loading Order." The California Loading Order is focused on prioritizing the use of energy resources, not eliminating conventional power plants as a source of electricity.

The Loading Order was initially conceived in California's 2003 Energy Action Plan ("EAP I"), jointly adopted by the CEC, the California Public Utilities Commission ("CPUC") and the California Power and Conservation Financing Authority. EAP I described the California Loading Order this way:

> The Action Plan envisions a "Loading Order" of energy resources that will guide decisions made by the agencies jointly and singly. First, the agencies want to optimize all strategies for increasing conservation and energy efficiency to minimize increases in electricity and natural gas demand. Second, recognizing that new generation is both necessary and desirable, the agencies would like to see these needs met first by renewable energy resources and distributed generation. Third, because the preferred resources require both sufficient investment and adequate time to "get to scale," *the agencies also will support additional clean, fossil fuel, central-station generation.* Simultaneously, the agencies intend to improve the bulk electricity transmission grid and distribution facility infrastructure to support growing demand centers and the interconnection of new generation.[15]

Note that the Loading Order, as initially conceived and adopted, expressly includes "additional clean fossil fuel, central-station generation."

In October 2005, the CPUC and CEC updated the Energy Action Plan by issuing Energy Action Plan II ("EAP II")[16]. Again, the agencies endorsed the Loading Order and acknowledged that "to the extent efficiency, demand response, renewable resources and distributed generation are unable to satisfy increasing energy and capacity needs, *we support clean and efficient fossil-fired generation*."[17]

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[14] CEC, 2007 Integrated Energy Policy Report , op cit.

[15] EPA I (http://www.energy.ca.gov/energy_action_plan/2003-05-08_ACTION_PLAN.DOC) at 3; emphasis added.

[16] EAP II (http://www.energy.ca.gov/energy_action_plan/2005-09-21_EAP2_FINAL.DOC).

[17] EAP II at 2; emphasis added.

In February of 2008, the CPUC and CEC adopted the Energy Action Plan 2008 Update ("2008 Update")[18]. For a third time, the agencies endorsed the Loading Order and recognized that "even with energy efficiency, demand response, and renewable resources *investments in conventional power plants and transmission and distribution will still be needed*."[19]

The 2008 Update also discusses two landmark energy policies that the State is pursuing: AB 32 greenhouse gas reductions and a 33 percent by 2020 RPS. A 33 percent RPS is a cornerstone policy in the AB 32 Scoping Plan. In addition to recognizing a need for more renewable energy to further AB 32 goals, the 2008 Update also recognizes that "we face operational challenges in achieving our renewable energy goals. Wind energy comprises a significant amount of the new renewable resources being developed but is intermittent in nature, which presents integration issues . . . ."[20]

Currently, conventional power plants are the most viable option to solve these integration issues. Specifically, peaking power facilities ("peakers"), like the TID A2PP, enhance the reliability of renewable generation by being available to operate when the sun is not shining due to transient cloud cover or the wind is temporarily not blowing. Without sufficient peaking resources, the state cannot integrate sufficient renewable generation to meet its aggressive 33 percent RPS goal. Simply put, conventional fossil fueled resources are needed to adhere to the Loading Order because without them, the State will be unable to maintain grid reliability and also meet demand with renewable energy.

As the 2008 Update and previous iterations of the Energy Action Plan makes clear, conventional power plants are needed, especially when they are able to firm renewable resources and provide reliability services. TID A2PP will not only provide greater reliability to the TID grid, the TID A2PP will integrate more renewable, wind power into the TID resource mix. The TID A2PP is therefore consistent with the Loading Order.

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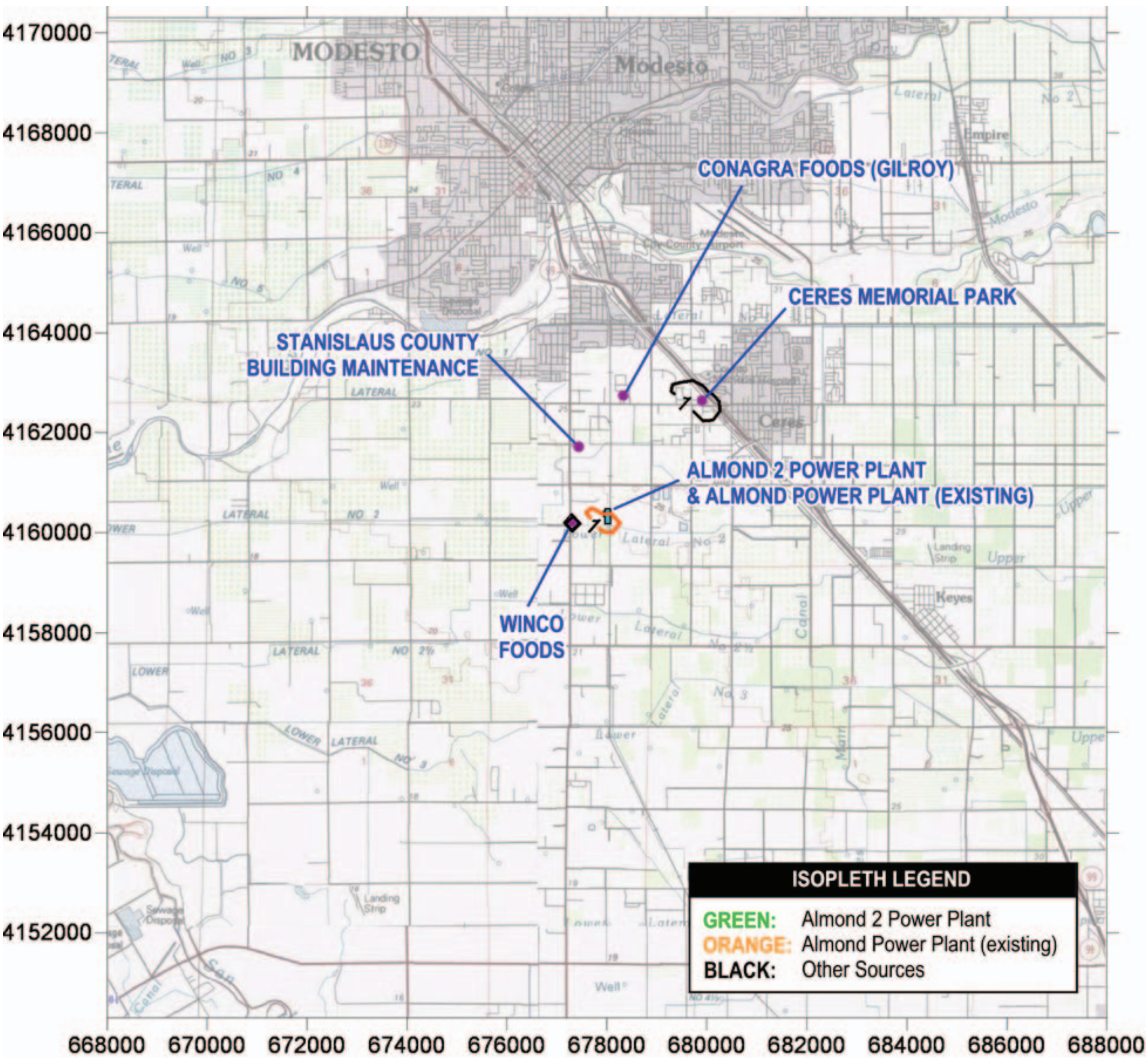
[18] 2008 Update (http://www.energy.ca.gov/2008publications/CEC-100-2008-001/CEC-100-2008-001.PDF).

[19] 2008 Update at 15; emphasis added.

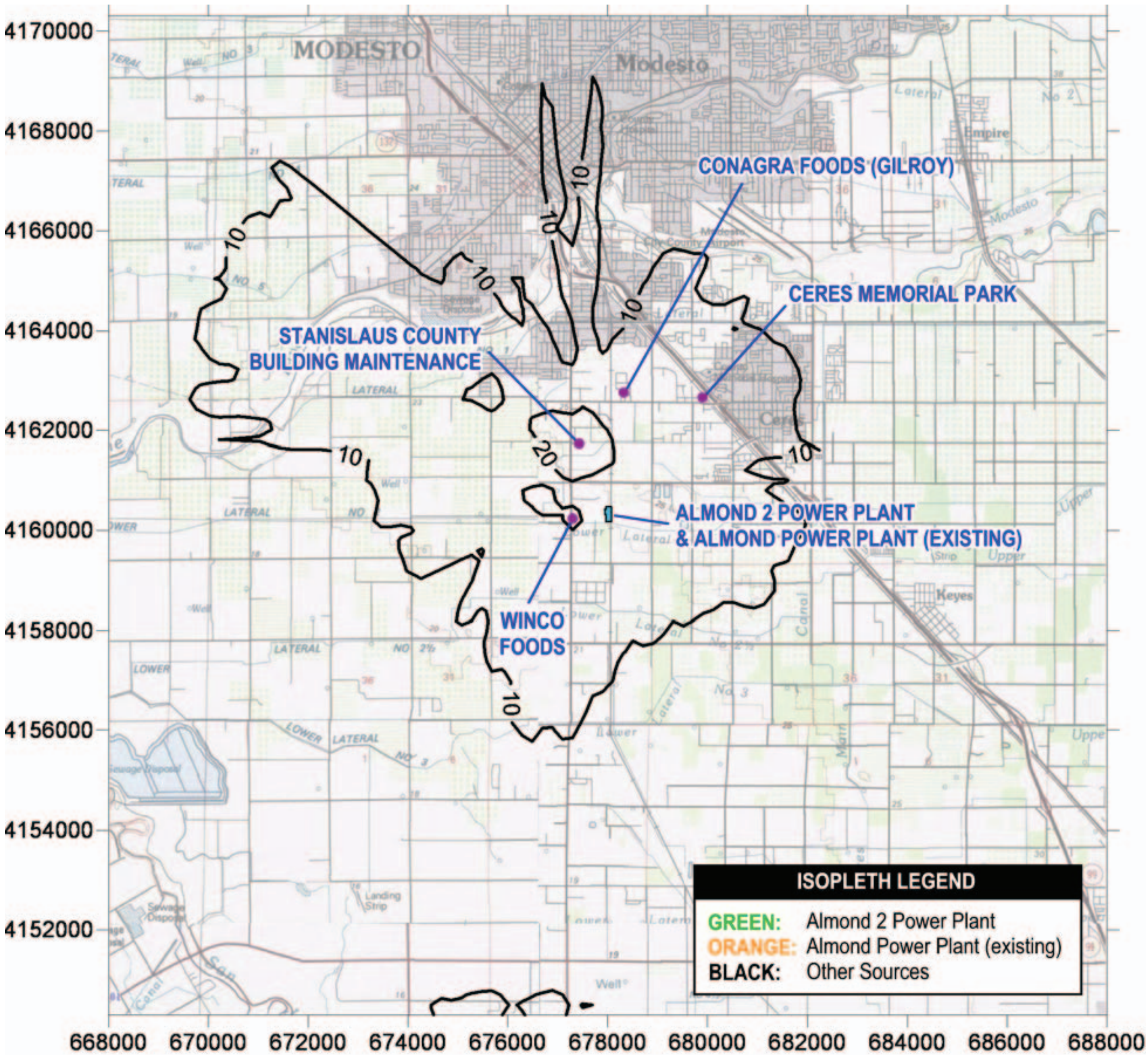
[20] Id.



Isopleths show concentrations in units of μg/m^3.

FIGURE DR9-1
CUMULATIVE IMPACT MODELING RESULTS, 24 HOUR AVERAGE
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

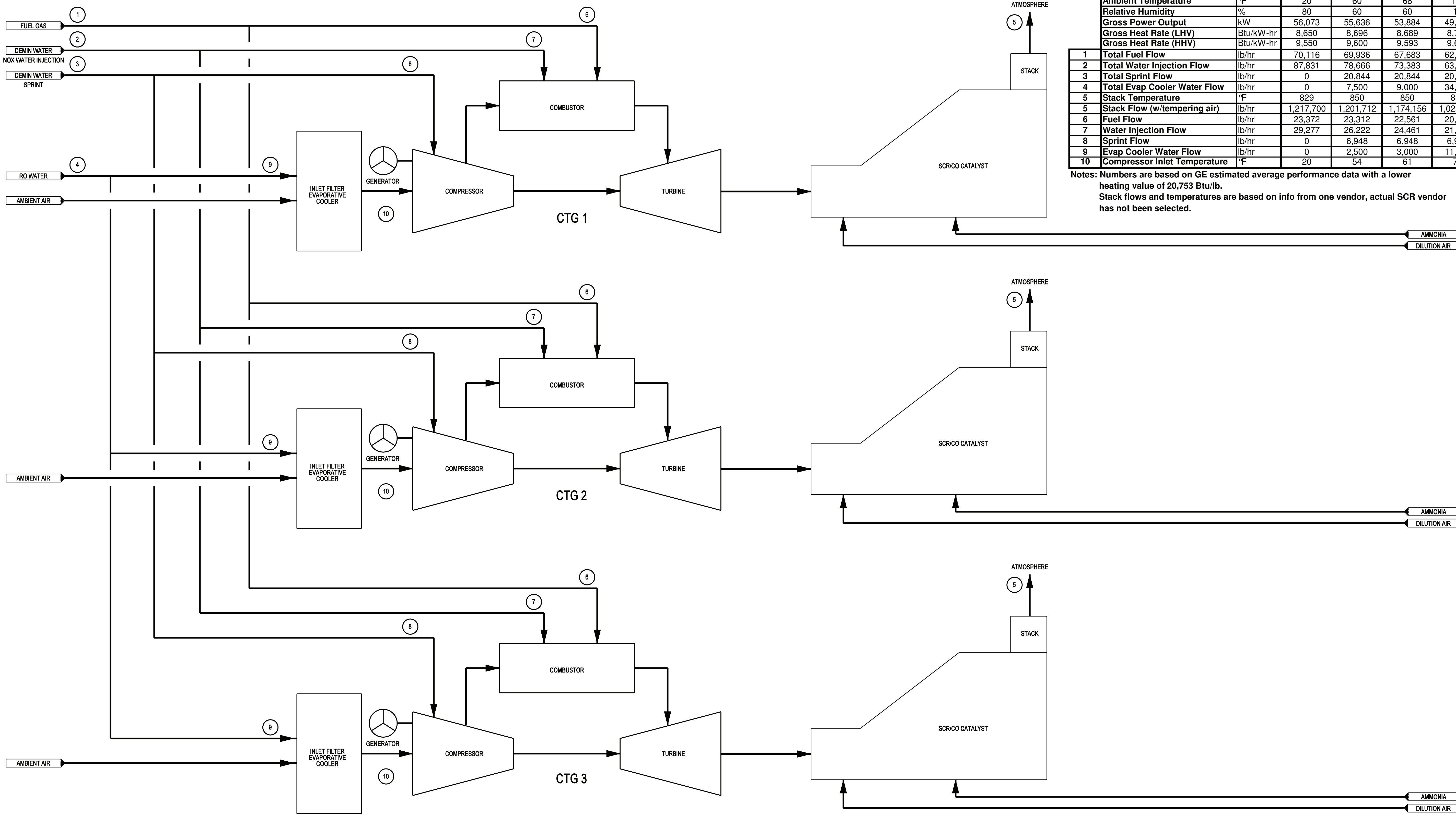
CH2MHILL



Isopleths show concentrations in units of μg/m^3.

FIGURE DR9-2
CUMULATIVE IMPACT MODELING RESULTS, 1 HOUR AVERAGE
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

CH2MHILL



	Measurement	Units	100% Load	100% Load	100% Load	100% Load
	Ambient Temperature	°F	20	60	68	110
	Relative Humidity	%	80	60	60	15
	Gross Power Output	kW	56,073	55,636	53,884	49,948
	Gross Heat Rate (LHV)	Btu/kW-hr	8,650	8,696	8,689	8,720
	Gross Heat Rate (HHV)	Btu/kW-hr	9,550	9,600	9,593	9,627
1	**Total Fuel Flow**	lb/hr	70,116	69,936	67,683	62,964
2	**Total Water Injection Flow**	lb/hr	87,831	78,666	73,383	63,036
3	**Total Sprint Flow**	lb/hr	0	20,844	20,844	20,844
4	**Total Evap Cooler Water Flow**	lb/hr	0	7,500	9,000	34,500
5	**Stack Temperature**	°F	829	850	850	850
5	**Stack Flow (w/tempering air)**	lb/hr	1,217,700	1,201,712	1,174,156	1,023,724
6	**Fuel Flow**	lb/hr	23,372	23,312	22,561	20,988
7	**Water Injection Flow**	lb/hr	29,277	26,222	24,461	21,012
8	**Sprint Flow**	lb/hr	0	6,948	6,948	6,948
9	**Evap Cooler Water Flow**	lb/hr	0	2,500	3,000	11,500
10	**Compressor Inlet Temperature**	°F	20	54	61	78

Notes: Numbers are based on GE estimated average performance data with a lower heating value of 20,753 Btu/lb.
Stack flows and temperatures are based on info from one vendor, actual SCR vendor has not been selected.

FIGURE DR13-1
PRELIMINARY HEAT BALANCE DIAGRAM
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

CH2MHILL

ATTACHMENT DR1-1

District Correspondence

Nancy L. Matthews

From: Jag Kahlon [jagmeet.kahlon@valleyair.org]
Sent: Monday, July 20, 2009 11:03 AM
To: Nancy L. Matthews
Subject: RE: TID Almond 2 schedule

Nancy,

We are not planning to attend an informational hearing and a site visit. PDOC for this project is expected to be published by October 1, 2009.

Thanks,

Jagmeet Kahlon
Air Quality Engineer
San Joaquin Valley Air Pollution Control District
4800 Enterprise Way | Modesto, CA | 95356-8718
(209) 557-6452 | Fax (209) 557-6475

HEALTHY AIR LIVING
www.healthyairliving.com
Make one change for clean air!

From: Nancy L. Matthews [mailto:NMatthews@sierraresearch.com]
Sent: Monday, July 20, 2009 10:46 AM
To: Jag Kahlon
Cc: Nancy L. Matthews
Subject: TID Almond 2 schedule

Hi, Jag--

A couple of things related to TID Almond 2... The CEC is having its informational hearing and site visit on July 30 in the late afternoon (notice attached). Will you and/or Rupi be attending? Jeff will be there.

And we are going to propose a project schedule to the CEC that shows the PDOC being published by October 1. Are you still comfortable with that date?

Please call me if you have any questions or concerns about this.

Thank you--

Nancy
New direct dial phone no: 916-273-5124

Nancy L. Matthews

From: Jag Kahlon [jagmeet.kahlon@valleyair.org]

Sent: Monday, August 17, 2009 11:50 AM

To: Nancy L. Matthews

Subject: RE: Almond 2

Nancy,

Yes. PDOC is expected to be ready by October 1.

Thanks,

Jagmeet Kahlon
Air Quality Engineer
San Joaquin Valley Air Pollution Control District
4800 Enterprise Way | Modesto, CA | 95356-8718
(209) 557-6452 | Fax (209) 557-6475

HEALTHY AIR LIVING
www.healthyairliving.com
Make one change for clean air!

From: Nancy L. Matthews [mailto:NMatthews@sierraresearch.com]
Sent: Monday, August 17, 2009 9:39 AM
To: Jag Kahlon
Cc: Nancy L. Matthews
Subject: Almond 2

Hi, Jag--

We're having our weekly call on the TID Almond 2 project today so I'm checking in to see whether anything has changed since we last spoke-- October 1 is still a good date to expect the PDOC?

Thanks--

Nancy
New direct dial phone no: 916-273-5124

ATTACHMENT DR2-1

Almond Power Plant Historical Operating Hours and Emissions

Turlock Irrigation District: Almond Power Plant
Unit 1 Operating Hours

Month	Operating Hours, 2007	Operating Hours, 2008
January	157	248
February	438	101
March	83	37
April	3	166
May	105	69
June	186	192
July	396	228
August	348	350
September	231	394
October	332	183
November	215	82
December	352	304
Total	2,846	2,354

Almond Power-Plant

Turlock Irrigation District

12-Month Rolling Mass Emissions Report

12-Month Rolling Emission Limits

NOx lb/year - 52049

VOC lb/year - 10454

Month	NOx lbs	CO lbs	SO2 lbs	PM-10 lbs	VOC lbs
January 2007	583.9	87.7	32	207	122
February 2007	1546.9	176.9	86	640	377
March 2007	308.3	48.9	15	102	60
April 2007	62.6	4.1	0	4	2
May 2007	721.3	60.5	24	161	94
June 2007	1122.9	105.3	41	276	162
July 2007	1634.4	228.1	78	488	286
August 2007	1773.4	185.3	78	520	306
September 2007	1226.4	160.8	46	321	188
October 2007	1389.5	223.6	69	458	271
November 2007	948.4	147.4	41	257	153
December 2007	1514.7	253.2	68	412	245
12-Month Total	12832.7				2266.0

Almond Power-Plant

Turlock Irrigation District

12-Month Rolling Mass Emissions Report

12-Month Rolling Emission Limits
NOx lb/year - 52049
VOC lb/year - 10454

Month	NOx lbs	CO lbs	SO2 lbs	PM-10 lbs	VOC lbs
January 2008	1182.5	171.9	48	321	189
February 2008	479.0	82.6	19	118	70
March 2008	221.5	33.8	7	45	27
April 2008	972.1	159.7	36	249	147
May 2008	401.4	62.8	14	97	57
June 2008	963.6	235.0	32	236	139
July 2008	1188.9	224.9	40	262	155
August 2008	1683.0	393.9	65	434	256
September 2008	1767.5	489.5	76	520	305
October 2008	807.0	236.0	31	218	128
November 2008	435.2	112.1	11	92	55
December 2008	1038.9	433.2	53	390	229
12-Month Total	11140.6				1757.0

ATTACHMENT DR7-1

Construction GHG Emissions Calculations

Onsite Construction Delivery Trucks & Workers Travel - GHG Emissions

Vehicle	Annual Vehicle Trips	Average Round Trip Haul Distance (miles)	Vehicle Miles Traveled Per Year	GHG Emission Factors (lbs/mile) CO2[a]	CH4[b]	N20[b]	Global Warming Potential Factor[c] for CO2	Global Warming Potential Factor[c] for CH4	Global Warming Potential Factor[c] for N2O	Global Warming Potential CO2 Emiss. as CO2e (lbs/year)	Global Warming Potential CH4 Emiss. as CO2e (lbs/year)	Global Warming Potential N2O Emiss. as CO2e (lbs/year)	Total CO2e (lbs/year)	Total CO2e (MT/year)
Truck	12,096	15	181,440	4.2	1.12E-05	1.06E-05	1	21	310	753,611	43	595	754,248	342
Worker	204,446	15	3,066,689	0.9	3.92E-05	6.01E-05	1	21	310	2,766,050	2,525	57,166	2,825,741	1,282
Total										3,519,661	2,568	57,761	3,579,989	1,624

Notes:

a. Emfac2007 V2.3, Stanislaus County, all HHD Diesel and light duty gasoline vehicle models in the range from1966 to 2010

b. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, emission factors onroad vehicles, heavy Diesel trucks and gasoline light duty vehicles (2000 average model

c. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, global warming potential table.

Natural Gas Pipeline Construction - Trucks and Workers Travel - GHG Emissions

Vehicle	Annual Vehicle Trips	Average Round Trip Haul Distance (miles)	Vehicle Miles Traveled Per Year	GHG Emission Factors (lbs/mile) CO2[a]	CH4[b]	N20[b]	Global Warming Potential Factor[c] for CO2	Global Warming Potential Factor[c] for CH4	Global Warming Potential Factor[c] for N2O	Global Warming Potential CO2 Emiss. as CO2e (lbs/year)	Global Warming Potential CH4 Emiss. as CO2e (lbs/year)	Global Warming Potential N2O Emiss. as CO2e (lbs/year)	Total CO2e (lbs/year)	Total CO2e (MT/year)
Truck	100	15	1,500	4.2	1.12E-05	1.06E-05	1	21	310	6,230	0	5	6,236	3
Worker	17,514	15	262,703	0.9	3.92E-05	6.01E-05	1	21	310	236,949	216	4,897	242,062	110
Total										243,179	217	4,902	248,298	113

Notes:

a. Emfac2007 V2.3, Stanislaus County, all HHD Diesel and light duty gasoline vehicle models in the range from1966 to 2010

b. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, emission factors onroad vehicles, heavy Diesel trucks and gasoline light duty vehicles (2000 average model

c. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, global warming potential table.

New Transmission Line Construction - Trucks and Workers Travel - GHG Emissions

Vehicle	Annual Vehicle Trips	Average Round Trip Haul Distance (miles)	Vehicle Miles Traveled Per Year	GHG Emission Factors (lbs/mile) CO2[a]	CH4[b]	N20[b]	Global Warming Potential Factor[c] for CO2	Global Warming Potential Factor[c] for CH4	Global Warming Potential Factor[c] for N2O	Global Warming Potential CO2 Emiss. as CO2e (lbs/year)	Global Warming Potential CH4 Emiss. as CO2e (lbs/year)	Global Warming Potential N2O Emiss. as CO2e (lbs/year)	Total CO2e (lbs/year)	Total CO2e (MT/year)
Truck	50	15	750	4.2	1.12E-05	1.06E-05	1	21	310	3,115	0	2	3,118	1
Worker	5,405	15	81,081	0.9	3.92E-05	6.01E-05	1	21	310	73,132	67	1,511	74,711	34
Total										76,248	67	1,514	77,828	35

Notes:

a. Emfac2007 V2.3, Stanislaus County, all HHD Diesel and light duty gasoline vehicle models in the range from1966 to 2010

b. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, emission factors onroad vehicles, heavy Diesel trucks and gasoline light duty vehicles (2000 average model

c. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, global warming potential table.

Reconductor Crows Landing/Almond 69-kV - Trucks and Workers Travel - GHG Emissions

Vehicle	Annual Vehicle Trips	Average Round Trip Haul Distance (miles)	Vehicle Miles Traveled Per Year	GHG Emission Factors (lbs/mile) CO2[a]	CH4[b]	N20[b]	Global Warming Potential Factor[c] for CO2	Global Warming Potential Factor[c] for CH4	Global Warming Potential Factor[c] for N2O	Global Warming Potential CO2 Emiss. as CO2e (lbs/year)	Global Warming Potential CH4 Emiss. as CO2e (lbs/year)	Global Warming Potential N2O Emiss. as CO2e (lbs/year)	Total CO2e (lbs/year)	Total CO2e (MT/year)
Truck	25	15	375	4.2	1.12E-05	1.06E-05	1	21	310	1,558	0	1	1,559	1
Worker	1,946	15	29,189	0.9	3.92E-05	6.01E-05	1	21	310	26,328	24	544	26,896	12
Total										27,885	24	545	28,455	13

Notes:

a. Emfac2007 V2.3, Stanislaus County, all HHD Diesel and light duty gasoline vehicle models in the range from1966 to 2010

b. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, emission factors onroad vehicles, heavy Diesel trucks and gasoline light duty vehicles (2000 average model y

c. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, global warming potential table.

Almond 115-kV Switchyard Construction - Trucks and Workers Travel - GHG Emissions

Vehicle	Annual Vehicle Trips	Average Round Trip Haul Distance (miles)	Vehicle Miles Traveled Per Year	GHG Emission Factors (lbs/mile) CO2[a]	CH4[b]	N20[b]	Global Warming Potential Factor[c] for CO2	Global Warming Potential Factor[c] for CH4	Global Warming Potential Factor[c] for N2O	Global Warming Potential CO2 Emiss. as CO2e (lbs/year)	Global Warming Potential CH4 Emiss. as CO2e (lbs/year)	Global Warming Potential N2O Emiss. as CO2e (lbs/year)	Total CO2e (lbs/year)	Total CO2e (MT/year)
Truck	100	15	1,500	4.2	1.12E-05	1.06E-05	1	21	310	6,230	0	5	6,236	3
Worker	662	15	9,932	0.9	3.92E-05	6.01E-05	1	21	310	8,959	8	185	9,152	4
Total										15,189	9	190	15,388	7

Notes:

a. Emfac2007 V2.3, Stanislaus County, all HHD Diesel and light duty gasoline vehicle models in the range from1966 to 2010

b. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, emission factors onroad vehicles, heavy Diesel trucks and gasoline light duty vehicles (2000 average model y

c. CARB Final Emission Factors for Mandatory Reporting Program, December 2, 2008, global warming potential table.

Onsite Construction Equipment - GHG Emissions

Diesel Fuel Used (gallons/ year)	Diesel HHV (MMBtu/ gallon)	CO_2 Emission Factor[a] (kg/gallon)	CH_4 Emission Factor[b] (kg/MMBtu)	N_2O Emission Factor[b] (kg/MMBtu)	Global Warming Potential Factor[c] for CO_2	Global Warming Potential Factor[c] for CH_4	Global Warming Potential Factor[c] for N_2O	Global Warming Potential CO_2 Emissions as CO_2e (MT/year)	Global Warming Potential CH_4 Emissions as CO_2e (MT/year)	Global Warming Potential N_2O Emissions as CO_2e (MT/year)	Total (MT/year)
107,094	0.137	9.96	0.003	0.0006	1	21	310	1,067	1	3	1,070

Notes:

[a] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 7.

[b] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6.

[c] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6.

Natural Gas Pipeline Construction Equipment - GHG Emissions

Diesel Fuel Used (gallons/ year)	Diesel HHV (MMBtu/ gallon)	CO_2 Emission Factor[a] (kg/gallon)	CH_4 Emission Factor[b] (kg/MMBtu)	N_2O Emission Factor[b] (kg/MMBtu)	Global Warming Potential Factor[c] for CO_2	Global Warming Potential Factor[c] for CH_4	Global Warming Potential Factor[c] for N_2O	Global Warming Potential CO_2 Emissions as CO_2e (MT/year)	Global Warming Potential CH_4 Emissions as CO_2e (MT/year)	Global Warming Potential N_2O Emissions as CO_2e (MT/year)	Total (MT/year)
923	0.137	9.96	0.003	0.0006	1	21	310	9	0	0	9

Notes:
[a] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 7.
[b] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6.
[c] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6.

Transmission Line Construction Equipment - GHG Emissions

Diesel Fuel Used (gallons/ year)	Diesel HHV (MMBtu/ gallon)	CO_2 Emission Factor[a] (kg/gallon)	CH_4 Emission Factor[b] (kg/MMBtu)	N_2O Emission Factor[b] (kg/MMBtu)	Global Warming Potential Factor[c] for CO_2	Global Warming Potential Factor[c] for CH_4	Global Warming Potential Factor[c] for N_2O	Global Warming Potential CO_2 Emissions as CO_2e (MT/year)	Global Warming Potential CH_4 Emissions as CO_2e (MT/year)	Global Warming Potential N_2O Emissions as CO_2e (MT/year)	Total (MT/year)
180	0.137	9.96	0.003	0.0006	1	21	310	2	0	0	2

Notes:
[a] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 7.
[b] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6.
[c] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6.

Reconductor Crows Landing/Almond 69-kV Construction Equipment - GHG Emissions

Diesel Fuel Used (gallons/ year)	Diesel HHV (MMBtu/ gallon)	CO_2 Emission Factor[a] (kg/gallon)	CH_4 Emission Factor[b] (kg/MMBtu)	N_2O Emission Factor[b] (kg/MMBtu)	Global Warming Potential Factor[c] for CO_2	Global Warming Potential Factor[c] for CH_4	Global Warming Potential Factor[c] for N_2O	Global Warming Potential CO_2 Emissions as CO_2e (MT/year)	Global Warming Potential CH_4 Emissions as CO_2e (MT/year)	Global Warming Potential N_2O Emissions as CO_2e (MT/year)	Total (MT/year)
235	0.137	9.96	0.003	0.0006	1	21	310	2	0	0	2

Notes:
[a] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 7.
[b] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6.
[c] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6.

Almond 115-kV Switchyard Construction Equipment - GHG Emissions

Diesel Fuel Used (gallons/ year)	Diesel HHV (MMBtu/ gallon)	CO_2 Emission Factor[a] (kg/gallon)	CH_4 Emission Factor[b] (kg/MMBtu)	N_2O Emission Factor[b] (kg/MMBtu)	Global Warming Potential Factor[c] for CO_2	Global Warming Potential Factor[c] for CH_4	Global Warming Potential Factor[c] for N_2O	Global Warming Potential CO_2 Emissions as CO_2e (MT/year)	Global Warming Potential CH_4 Emissions as CO_2e (MT/year)	Global Warming Potential N_2O Emissions as CO_2e (MT/year)	Total (MT/year)
126	0.137	9.96	0.003	0.0006	1	21	310	1	0	0	1

Notes:

[a] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 7.

[b] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6.

[c] CARB Regulation for the Mandatory reporting of Greenhouse Gas Emissions, December 2, 2008, Appendix A, Table 6.

ATTACHMENT DR8-1

District Correspondence Related to Potential Cumulative Impacts

Nancy L. Matthews

From:	Kai Chan [Kai.Chan@valleyair.org]
Sent:	Wednesday, March 11, 2009 4:15 PM
To:	Nancy L. Matthews
Cc:	Jeff Adkins; Rupi Gill
Subject:	RE: zip codes in 6 mile radius of TID Almond 2 Power Plant project
Attachments:	Projects Within 6 Miles to N-3299 Rev.pdf

Nancy,

Attached is a file which contains a list of District projects, which are within 6 miles of TID's proposed Almond 2 power plant at 4500 Crows Landing Road in Modesto, CA. The list contains District projects submitted and/or finalized from Jan. 1, 2006 through March 10, 2009. Please sort and provide me with a list of the facilities that you want more specific emissions and stack parameters information. For your purposes the project type you want information for is under ATC (Authority to Construct). The "Distance To Location" indicates the distance from 4500 Crows Landing Road to the indicated facility in meters. The following is the definitions of the abbreviations listed on the "Status" column of the attached list:

ATC = Authority to Construct applications
COMPLE = Application Complete
DENY PE = Project denial pending
FINAL = Project finalized and ATC permit issued.
FR-ASSI = Assigned for final review.
FR-IN PR = Final review in process.
NEW PR = New project
PR-ASSI = Preliminary review assigned.
PR-INCO = Project under preliminary review and is incomplete.
PR-IN PR = Preliminary review in process.
SUPRV R = Project under supervisor review.

Please contact me with any questions.

Regards,
Kai Chan
San Joaquin Valley APCD
Permit Services Division - Northern Region
Phone: (209) 557-6451
Fax: (209) 557-6475
E-Mail: kai.chan@valleyair.org

From: Nancy L. Matthews [mailto:NMatthews@sierraresearch.com]
Sent: Tuesday, March 10, 2009 5:27 PM
To: Kai Chan
Cc: Jeff Adkins; Nancy L. Matthews
Subject: zip codes in 6 mile radius of TID Almond 2 Power Plant project

Hello, Kai--

Here is the list of zip codes of areas that are within 6 miles of the TID Almond 2 Power Plant project location. If you can provide us the list of projects that have these zip codes and for which permits to construct have been issued since January 1, 2008, OR for which permits have not yet been issued but are reasonably foreseeable, we will sort them further to determine whether they are physically within 6 miles of our project. Then we will ask you for additional, more detailed information regarding the equipment at those projects.

95355, 95350, 95354, 95357, 95351, 95358, 95326, 95328, 95307, 95358, 95382, 95313, and 95380

Thank you very much for your assistance. If you have any questions regarding this request, please feel free to contact me.

Nancy

From: Nancy L. Matthews
Sent: Tuesday, February 03, 2009 11:32 AM
To: kai.chan@valleyair.org
Cc: Nancy L. Matthews; Josh Willter
Subject: map showing project location and 6 mile radius for TID Almond 2 Power Plant project

Kai--

As you requested in our phone conversation yesterday afternoon, attached is a map showing the location of the proposed new TID Almond 2 Power Plant project and the 6-mile radius surrounding the plant site to allow you to respond to our request for information regarding other projects within 6 miles.

I hope that this map provides the information that you need. If you have additional questions or need more detail, please do not hesitate to call.

Thank you--

Nancy
Nancy Matthews
Sierra Research
1801 J Street
Sacramento, CA 95811

916-444-6666 (phone)
916-444-8373 (fax)

ATC Within 6 Miles

APPs Received Between 1/1/2006 and 3/11/2009

Region N

Facility ID *1626*

Distance To Location 9717.502

Degrees 49.90041

Facility Name DEL MONTE FOODS/MODESTO PLNT 1

Facility Type FRUIT AND VEGETABLE PROCESSING

Received	Type	Status	Description
4/11/2007	ERC T/O	FINAL	ERC certificate N-328-5 to Gulf Capital Partners, Inc.
4/9/2008	ERC T/O	FINAL	ERC certificate N-58-2 T/O to Northern California Power Agency
1/24/2007	ATC	FINAL	Modification of two existing boilers to comply with District Rule 4306. Install an SCR system to 180.76 MMBtu/hr boiler (N1626-3) and raise the CO limit to 100 ppmvd. Limited fuel consumption of the 178 MMBtu/hr boiler (N1626-4)to 30 billion Btu per year.

Facility ID *1662*

Distance To Location 6310.231

Degrees 76.157

Facility Name GALLO GLASS COMPANY

Facility Type GLASS MANUFACTURING PLANT

Received	Type	Status	Description
9/26/2007	ATC	FINAL	the rebricking of glass melting furnace #3
2/26/2009	AMEND TV	NEW PR	Administrative Amendment
12/24/2008	AMEND TV	NEW PR	Administrative amendment for the Praxair equipment
8/13/2008	MINOR MOD.	FINAL	convert ATC N-1662-2-10, 3-10
6/16/2008	ATC	FINAL	rebrick glass melting furnace #1
4/23/2008	ERC T/O	FINAL	ERC transfer of NOx credits from Gallo Glass Company to CantorCO2e LP (N-7890)

11/2/2007	ATC	FINAL	modifications to batch plant #2 and glass melting furnace #5
4/30/2007	ERC T/O	FINAL	ERC T/O from Gallo to Gulf Capital
1/26/2007	TV RENEWAL	COMPLE	TV Renewal appl DROP DEAD DATE: 7/26/09
1/26/2007	MINOR MOD.	FINAL	convert ATC N-1662-13-3 [1041119]
10/26/2006	AMEND TV	FINAL	Modify N-1662-1-9, -2-9, -3-9, and -4-11. Approvable? - facility has not yet shown they can comply with the opacity limit of 20% while the ECP is down for repair or maintenance on unit N-1662-4-11) bclerico 1/15/08
8/14/2006	ATC	FINAL	rebrick furnace #2
3/25/2008	MINOR MOD.	FINAL	Convert ATC -8-8, -14-5

Facility ID *1668*

Distance To Location 8016.914

Facility Name GAS & MARKET

Degrees 66.98523

Facility Type GASOLINE DISPENSING

Received	*Type*	*Status*	*Description*
8/25/2006	ATC	FINAL	modification to previous ATC (N-1668-1-3) to change compartment size of split tank
6/7/2006	ATC	FINAL	JF

Facility ID *1670*

Distance To Location 8082.943

Facility Name GEORGIA-PACIFIC

Degrees 65.04895

Facility Type CORRUGATED BOX MANUFACTURING

Received	*Type*	*Status*	*Description*
3/15/2006	ATC	FINAL	modification of the graphic arts printing operation consisting of a Marquip Ward United Model SV-2000 flexographic printing press and die cutter to add a 4th color print station

Facility ID *1680*

Facility Name STANISLAUS FOOD PRODUCTS

Facility Type TOMATO PROCESSING FACILITY

Distance To Location 5836.934

Degrees 86.95814

Received	Type	Status	Description
8/16/2007	ATC	FINAL	GEAR: Emergency IC engine
8/20/2007	ATC	FINAL	replacing the existing CSI burner with a Todd Variflame low-NOx burner, eliminating flue gas recirculation, and installing an SCR system
4/8/2008	ATC	FINAL	modification of a boiler to replace the burner
9/11/2008	ATC	FINAL	modification of the boiler permitted under N-1680-3 to lower the NOx limit for District Rule 4306 compliance
1/21/2009	ATC	SUPRV R	either of two specified rental emergency IC engines powering electrical generators

Facility ID *1683*

Facility Name STANISLAUS COUNTY BLDG. MAINT.

Facility Type GOVERNMENT SERVICES

Distance To Location 1695.751

Degrees 89.94965

Received	Type	Status	Description
7/22/2008	ATC	PR-INCO	500 hp diesel-fired emergency standby IC engine powering an electric generator
2/9/2009	ATC	FR-ASSI	the installation of a new emergency engine

Facility ID *1710*

Distance To Location 4744.254

Degrees 60.44882

Facility Name ARCO #05627-BP WEST COAST PRODUCTS LLC

Facility Type GASOLINE DISPENSING

Received	Type	Status	Description
3/22/2006	ATC	FINAL	modify gdf - replace riser(s)
8/7/2008	ATC	FINAL	the replacement of the phase II vapor recovery system with a Healy phase II vapor recovery system with ISD

Facility ID *1717*

Distance To Location 7743.623

Degrees 62.20219

Facility Name SILGAN CONTAINER CORP.

Facility Type METAL CANS

Received	Type	Status	Description
8/7/2006	ATC	FINAL	replace bodymaker/welder, change from liquid stripe to powder stripe

Facility ID *1730*

Distance To Location 4709.954

Degrees 32.61133

Facility Name ARCO #05421 - MINHAS CORP

Facility Type GASOLINE DISPENSING

Received	Type	Status	Description
7/10/2006	ATC	FINAL	gdf
5/22/2007	ATC	FINAL	modify gdf to install a Healy Phase II VRS with an ISD system

Facility ID *1746*

Facility Name BOYETT PETROLEUM

Facility Type GASOLINE DESPENSING

Distance To Location 5363.048

Degrees 28.51878

Received	Type	Status	Description
10/4/2007	ATC	FINAL	GDF

Facility ID *1752*

Facility Name BK'S LIQUOR

Facility Type GASOLINE DISPENSING

Distance To Location 8425.204

Degrees 62.67464

Received	Type	Status	Description
1/22/2009	ATC	FINAL	GDF - Install Healy VP-1000 retrofit kits

Facility ID *1755*

Facility Name CERES GAS INC

Facility Type GASOLINE DISPENSING FACILITY

Distance To Location 5341.976

Degrees 29.0006

Received	Type	Status	Description
2/15/2007	ATC	FINAL	Modification to gdf to add EVR Phase II VRS with ISD. Also list EVR Phase I VRS modification from previous ATC that was not implemented by previous facility owner. The equipment was installed, but testing was never completed by the previous owner.

Facility ID *1757*

Facility Name DOWNTOWN VALERO

Facility Type GASOLINE DISPENSING

Distance To Location 7131.474

Degrees 353.4286

Received	Type	Status	Description
1/23/2009	ATC	FINAL	modify gdf

Facility ID *1758*

Facility Name BERRY SEED & FEED COMPANY

Facility Type ANIMAL FEED PROCESSING

Distance To Location 7320.208

Degrees 107.3499

Received	Type	Status	Description
6/16/2008	ATC	FINAL	modification of the railcar grain receiving and storage operation #2 to install three new baghouses serving the grain transfer elevators/conveyors and storage silos.
1/17/2008	ERC WITHDRA	FINAL	partial ERC withdrawal to offset combined PM10 emissions increase from permits "N-1758-8-4, N-1758-10-5, N-1758-11-4 and N-1758-16-4"
1/17/2008	ERC WITHDRA	FINAL	complete ERC withdrawal to offset PM10 emissions increase from permits "N-1758-8-4, N-1758-10-5, N-1758-11-4 and N-1758-16-4"
1/17/2008	ATC	FINAL	modify processing rates
6/7/2006	ATC	FINAL	modify the railcar grain receiving and storage operation #2 to install a 2nd 650,000 cubic feet storage silo and associated conveyors

Facility ID 1787

Distance To Location 2574.407

Facility Name CONAGRA FOODS

Facility Type VEGETABLE PROCESSING AND DEHYDRATING

Degrees 78.19309

Received	Type	Status	Description
1/29/2009	TV RENEWAL	COMPLE	TV renewal App DROP DEAD DATE: 7/29/2010 Include unit -15-0.
1/27/2009	ERC WITHDRA	NEW PR	
1/27/2009	ERC WITHDRA	PR-ASSI	ERC withdrawal
8/5/2008	ATC	FINAL	modification of the 22.0 MMBtu/hr natural gas-fired Proctor and Schwartz (P&S 2) vegetable dehydrator to include recordkeeping and maintenance conditions for District Rule 4309 compliance
4/14/2008	ATC	FINAL	install a new vegetable branding and roasting operation
4/11/2007	MINOR MOD.	COMPL	Convert ATC N-1787-6-2, -7-2, -8-3, -9-2, -10-2
6/30/2006	ATC	FINAL	4309 compliance
5/15/2006	MINOR MOD.	FINAL	convert ATC N-1787-4-5 [1052284]

Facility ID 1794

Distance To Location 9439.952

Facility Name ARCO #05493 - SUKHMINDER SINGH DOSANJH

Facility Type GASOLINE DISPENSING

Degrees 338.1536

Received	Type	Status	Description
1/22/2009	ATC	FINAL	GDF - Install Healy VP-1000 retrofit kits

Facility ID 1804

Facility Name CERES MEMORIAL PARK
Facility Type FUNERAL SERVICE AND CREMATORIES

Distance To Location 3763.94
Degrees 42.01234

Received	Type	Status	Description
3/22/2006	ATC	FINAL	new crematory chamber
11/14/2008	ATC	FINAL	the installation of new crematory unit that will replace the crematory unit covered by permit N-1804-1-0

Facility ID 1812

Facility Name CHEVRON USA PRODUCTS COMPANY
Facility Type GASOLINE DISPENSING

Distance To Location 4412.026
Degrees 68.68584

Received	Type	Status	Description
9/27/2007	ATC	FINAL	modification of gasoline dispensing facility to replace Phase II vapor recovery system with a Healy Phase II vapor recovery system with in-station diagnostics
9/19/2008	ATC	FINAL	upgrade Phase II with Healy EVR with Incon ISD
10/31/2008	ATC	FINAL	upgrade the existing phase II system from Balance (G-70-52-AM) to a VST EVR with Veeder Root vapor polisher and Veeder Root ISD

Facility ID 1838

Facility Name INDALEX WEST INC.
Facility Type METAL DOORS, SASH, FRAMES, MOLDING, AND TRIM MANU

Distance To Location 8002.196
Degrees 353.468

Received	Type	Status	Description
7/11/2008	ERC	DENY PE	emission reduction credits for the shut down of the plant

Received	Type	Status	Description
2/8/2007	ATC	FINAL	the installation of a bright dip aluminum finishing operation
10/11/2007	ATC	FINAL	modification of the Bright Dip metal surface finishing operation to revise permit conditions based on source test results
3/25/2008	PEER	FINAL	PEER for 1 boiler

Facility ID *1849*

Distance To Location 3953.536

Facility Name OLSEN SERVICE STATION/STEVE HEZAM YEHYA

Degrees 358.4609

Facility Type GASOLINE DISPENSING

Received	Type	Status	Description
9/17/2007	ATC	FINAL	modify gdf to convert one 10,000 gal underground storage tank from gasoline to diesel
1/8/2009	ATC	FINAL	GEAR: GDF UPGRADE

Facility ID *1855*

Distance To Location 8026.237

Facility Name USA PETROLEUM CORPORATION

Degrees 350.8255

Facility Type GASOLINE DISPENSING

Received	Type	Status	Description
3/6/2007	ATC	FINAL	Relocate vent rack

Facility ID *1856*

Distance To Location 7743.872

Facility Name E-Z MART & GAS

Degrees 76.66362

Facility Type GASOLINE DISPENSING

Received	Type	Status	Description

3/4/2009	ATC	PR-IN PR	modification to an existing GDF to install a Healy enhanced Phase II vapor recovery system without an ISD system

Facility ID *1857*

Facility Name HOT STAR GAS & MART

Facility Type GASOLINE DISPENSING

Distance To Location 4241.425

Degrees 71.4556

Received	Type	Status	Description
3/6/2007	ATC	FINAL	Relocate vent rack
3/2/2009	ATC	FINAL	modify gdf to install VR-201

Facility ID *1883*

Facility Name E & J ARCO

Facility Type GASOLINE DISPENSING

Distance To Location 7629.355

Degrees 73.92831

Received	Type	Status	Description
1/7/2009	ATC	FINAL	modify GDF to install a Healy EVR Phase II vapor recovery system without ISD (VR-201)

Facility ID *1910*

Facility Name FOSTER FARMS

Facility Type DAIRY PRODUCTS

Distance To Location 8186.208

Degrees 348.7981

Received	Type	Status	Description
6/28/2007	ATC	FINAL	a modification to replace the 15 ppmvd burner with a 9 ppmvd burner in the boiler covered by permit N-1910-3 and to increase the annual fuel usage limit for this boiler

Received	Type	Status	Description
10/21/2008	ATC	FR-IN PR	modification of a milk spray drying operation

Facility ID 1919

Facility Name FRITO-LAY NORTH AMERICA INC

Facility Type FOOD PROCESSING FACILITY

Distance To Location 8001.969

Degrees 353.4823

Received	Type	Status	Description
4/5/2006	ATC	FINAL	installation of a 12.6 MMBtu/hr temporary boiler
12/29/2008	ATC	FINAL	modify boiler as covered by permit N-1919-6 to remove the use of LPG fuel as a primary fuel and to use LPG as a curtailment fuel only
3/7/2008	ATC	FINAL	modification of tortilla chip ovens to replace burners
4/23/2008	ATC	FINAL	upgrade dryer, increase production, remove sun chip oven, add rotoclone

Facility ID 1983

Facility Name JACKPOT MINI MART

Facility Type GASOLINE DISPENSING

Distance To Location 4049.063

Degrees 38.69008

Received	Type	Status	Description
1/13/2006	ATC	FINAL	upgrade Phase II vapor recovery system to Healy vrs (G-70-191-AA) for ORVR compatibility.
4/29/2008	ATC	FINAL	GDF - phase II EVR upgrade

Facility ID *1986*

Facility Name AN AND MING ENTERPRISES, LLC
Facility Type GASOLINE DISPENSING

Distance To Location 5563.126
Degrees 341.7485

Received	Type	Status	Description
9/30/2008	ATC	FINAL	modify an existing gasoline dispensing operation to replace existing balance Phase II vapor recovery system and install a Healy Phase II vapor recovery system with an ISD system

Facility ID *1989*

Facility Name QUICK FOOD & GASOLINE INC
Facility Type GASOLINE DISPENSING

Distance To Location 7486.186
Degrees 346.9978

Received	Type	Status	Description
2/20/2009	ATC	FINAL	GDF

Facility ID *1991*

Facility Name FAIRVIEW GENERAL STORE
Facility Type GASOLINE DISPENSING

Distance To Location 3397.122
Degrees 50.44851

Received	Type	Status	Description
5/3/2007	ATC	FINAL	modification to existing gasoline dispensing operation to replace dispensers damaged by an end user
7/3/2007	ATC	FINAL	Issue ATC to reflect the installation of Healy EVR system (VR-201) instead of Healy ORVR system (G-70-191-AA)

Facility ID 2042

Facility Name MODESTO PLATING
Facility Type DECORATIVE CHROME PLATING FACILITY

Distance To Location 7505.933
Degrees 65.78674

Received	Type	Status	Description
11/27/2007	ATC	FINAL	modifying an existing decorative chrome plating operation, permit unit -1, by limiting operation to 500,000 amp-hr per year

Facility ID 2051

Facility Name MODESTO IRRIGATION DISTRICT
Facility Type WATER SUPPLY

Distance To Location 9283.347
Degrees 344.0762

Received	Type	Status	Description
1/31/2008	ATC	FINAL	modification to connect PV relief valve piping to the vapor piping, install a condensate tank

Facility ID 2052

Facility Name MODESTO IRRIGATION DISTRICT
Facility Type ELECTRIC POWER GENERATION

Distance To Location 8460.959
Degrees 49.55985

Received	Type	Status	Description
3/26/2007	AMEND TV	FR-ASSI	convert ATC -1-5, -2-5, -2-6
11/15/2007	ATC	FINAL	modify to include NOx and CO emission limits for shutdown periods
8/22/2008	MINOR MOD.	PR-IN PR	Incorporate ATC N-2052-1-8 and -2-9 into TV Permit (C/O submitted)
2/24/2009	AMEND TV	NEW PR	C/O 1-5, 2-5
4/2/2007	TV RENEWAL	COMPLE	TV renewal app DROP DEAD DATE 10/02/08

Facility ID *2104*

Facility Name PENNY WISE GAS/MINI MART
Facility Type GASOLINE DISPENSING

Distance To Location 4373.789
Degrees 358.7756

Received	Type	Status	Description
3/2/2006	ATC	FINAL	modify GDF to upgrade to Balance Phase II
2/10/2009	ATC	FINAL	gdf

Facility ID *2105*

Facility Name PENNY WISE GAS
Facility Type GASOLINE DESPENSING FACILITY

Distance To Location 6005.842
Degrees 335.5294

Received	Type	Status	Description
2/10/2009	ATC	FINAL	gdf

Facility ID *2114*

Facility Name QUIK STOP #71
Facility Type GASOLINE DISPENSING

Distance To Location 8004.083
Degrees 88.87149

Received	Type	Status	Description
5/29/2007	ATC	FINAL	modify gdf - install Healy EVR w/ISD

Facility ID 2116

Facility Name QUICK STOP MARKET #156

Facility Type GASOLINE DISPENSING

Distance To Location 1729.663

Degrees 32.35999

Received	Type	Status	Description
1/10/2008	ATC	FINAL	upgrade the Phase II Vapor Recovery System to Healy Phase II EVR with ISD (VR-202-E)

Facility ID 2117

Facility Name QUIK STOP #87

Facility Type GASOLINE DISPENSING FACILITY

Distance To Location 4093.102

Degrees 358.8312

Received	Type	Status	Description
10/22/2007	ATC	FINAL	upgrade the Phase II Vapor Recovery System to Healy Phase II EVR with ISD (VR-202-C)

Facility ID 2118

Facility Name QUIK STOP #83

Facility Type GASOLINE DISPENSING FACILITY

Distance To Location 5856.498

Degrees 325.6859

Received	Type	Status	Description
5/29/2007	ATC	FINAL	modify gdf - install Healy EVR w/ISD

Facility ID *2125*

Facility Name QUIK STOP #45

Facility Type GASOLINE DISPENSING

Distance To Location 8835.52

Degrees 337.329

Received	Type	Status	Description
5/29/2007	ATC	FINAL	modify gdf - install Healy EVR w/ISD

Facility ID *2203*

Facility Name STOP N SAVE LIQUORS #10

Facility Type GASOLINE DISPENSING FACILITY - RETAIL

Distance To Location 8275.99

Degrees 63.01966

Received	Type	Status	Description
2/2/2006	ATC	FINAL	installing new dispensers and upgrading the Phase II vapor recovery system to the Healy enhanced vapor recovery system (VR-201-A).

Facility ID *2209*

Facility Name STOP N SAVE LIQUORS #1

Facility Type GASOLINE DISPENSING

Distance To Location 4247.775

Degrees 76.31867

Received	Type	Status	Description
6/19/2008	ATC	FINAL	the replacement of the phase II vapor recovery system with a Healy phase II vapor recovery system

Facility ID 2232

Facility Name SIGNATURE FRUIT COMPANY, LLC

Facility Type FRUIT CANNING FACILITY

Distance To Location 7205.394

Degrees 53.38658

Received	Type	Status	Description
7/11/2007	ATC	FINAL	installing two TREU boilers while unit N-2232-8-4 is being repaired
9/7/2007	ATC	FINAL	installation of selective catalytic reduction on a boiler
6/23/2008	ATC	FINAL	installation of selective catalytic reduction on a boiler for Rule 4306 compliance
10/25/2006	ATC	FINAL	retrofit the existing boiler permitted under N-2232-8 to comply with District Rule 4306
4/12/2006	ATC	FINAL	modification of the boiler permitted under N-2232-7 to comply with District Rule 4306
4/19/2007	ATC	FINAL	modify 72 MMBtu/hr boiler unit -6 to add SCR system for Rule 4306 compliance

Facility ID 2236

Facility Name SIGNATURE FRUIT COMPANY, LLC -

Facility Type FRUIT AND VEGETABLE PROCESSING

Distance To Location 8269.098

Degrees 52.24084

Received	Type	Status	Description
6/15/2006	ATC	FINAL	the installation of a selective catalytic reduction system
12/11/2008	ATC	FINAL	the replacement of a Compu-NOx system and the addition of a selective catalytic reduction system to a 150 MMBtu/hr boiler

Facility ID 2265

Distance To Location 3838.728

Degrees 358.9075

Facility Name USA PETROLEUM #61

Facility Type GASOLINE DISPENSING FACILITY

Received	Type	Status	Description
9/10/2007	ATC	FINAL	UPGRADE PHASE I VAPOR RECOVERY SYSTEM FROM OPW (VR-102-E) TO PHIL-TITE (VR-101-E).
1/24/2008	ATC	FINAL	modify existing GDF by upgrading phase II vapor recovery system to Healy EVR with ISD (VR-202-E)

Facility ID 2278

Distance To Location 5654.301

Degrees 355.5768

Facility Name YOSEMITE MEAT CO.

Facility Type MEAT PACKING FACILITY

Received	Type	Status	Description
7/27/2006	ATC	FINAL	Hog hair diesel-fired incinerator served by an afterburner
6/28/2007	ATC	FINAL	a natural gas-fired hog hair incinerator

Facility ID 2282

Distance To Location 3763.684

Degrees 35.94154

Facility Name E.R. VINE & SONS

Facility Type GASOLINE BULK PLANT

Received	Type	Status	Description
2/5/2008	ATC	FINAL	upgrade the existing Phase II Vapor Recovery System from Balance (G-70-52-AM)to Healy EVR not including ISD system (VR-201-E)

Facility ID *2306*

Facility Name WH BRESHEARS INC

Facility Type GASOLINE DISPENSING FACILITY

Distance To Location 6725.219

Degrees 356.509

Received	Type	Status	Description
1/21/2009	ATC	FINAL	modify GDF to install Healy EVR Phase II VPR without ISD

Facility ID *2307*

Facility Name WH BRESHEARS INC.

Facility Type BULK PLANT

Distance To Location 6481.908

Degrees 358.0934

Received	Type	Status	Description
5/16/2008	ATC	FINAL	the installation of a soil and groundwater remediation system served by carbon canisters

Facility ID *2338*

Facility Name CITY OF MODESTO, PUBLIC WORKS

Facility Type PUBLIC WORKS

Distance To Location 8001.969

Degrees 353.4823

Received	Type	Status	Description
1/31/2008	INHOUSE PTO	NEW PR	
6/29/2007	ATC	FINAL	modification of an existing 3.3 MMBtu/hr natural gas fired boiler to also utilize digester gas fuel served by a dry scrubber for H2S control

Facility ID 2360

Distance To Location 6680.956

Facility Name PRAXAIR INC.

Degrees 76.9565

Facility Type NONCLASSIFIABLE ESTABLISHMENTS

Received	Type	Status	Description
12/24/2008	INITIAL TV	FR-ASSI	TV Minor Modification
12/24/2008	INITIAL TV	COMPLE	TV Minor Modification

Facility ID 3062

Distance To Location 4951.225

Facility Name ARCO #05732-BP WEST COAST PRODUCTS LLC

Degrees 12.46846

Facility Type GASOLINE DISPENSING

Received	Type	Status	Description
3/22/2006	ATC	FINAL	modify gdf - replace riser(s)
8/7/2008	ATC	FINAL	the replacement of the phase II vapor recovery system with a Healy phase II vapor recovery system with ISD

Facility ID 3233

Distance To Location 9252.185

Facility Name MODESTO IRRIGATION DISTRICT

Degrees 344.0695

Facility Type POWER GENERATION FACILITY

Received	Type	Status	Description
8/16/2006	MINOR MOD.	SUPRV R	Change TVP limit for permits N-3233-2 and -3
9/8/2008	ATC	FR-IN PR	six 11,667 bhp natural gas fired IC engines powering generators, a 302 bhp IC engine powering an emergency generator and a 62 bhp IC engine powering an emergency water pump

Facility ID 3268

Facility Name BOYETT PETROLEUM
Facility Type GASOLINE DISPENSING

Distance To Location 6835.695
Degrees 358.1443

Received	Type	Status	Description
6/4/2008	ATC	FINAL	Upgrade Phase II vapor recovery system from Balance to Healy EVR without ISD (VR-201-F)
2/15/2007	ATC	FINAL	modify gdf to correctly indicate that the operation utilizes a 4,000 gal. instead of an 8,000 gal. underground gasoline storage tank and 9 fueling points instead of 6 fueling points

Facility ID 3299

Facility Name TURLOCK IRRIGATION DISTRICT
Facility Type POWER GENERATION FACILITY

Distance To Location 0
Degrees

Received	Type	Status	Description
12/12/2008	TV RENEWAL	COMPLE	TV Renewal applic DROP DEAD DATE=6/17/2010

Facility ID 3332

Facility Name GILTON RESOURCE RECOVERY
Facility Type RECYCLING FACILITY

Distance To Location 8049.201
Degrees 46.68797

Received	Type	Status	Description
1/10/2008	INHOUSE PTO	NEW PR	

Facility ID *3386*

Facility Name E & J GALLO WINERY

Facility Type WINERY

Distance To Location 7339.547

Degrees 83.61918

Received	Type	Status	Description
12/1/2008	ERC WITHDRA	SUPRV R	ERC WITHDRAWAL
1/28/2009	ATC	FINAL	the modification of a gasoline dispensing operation to replace the phase II vapor recovery system with a Healy phase II vapor recovery system without ISD
9/23/2008	MINOR MOD.	COMPLE	Convert ATC N-3386-23-4
6/2/2008	MINOR MOD.	PR-IN PR	convert ATC -469-0
2/19/2008	ATC	FINAL	modify/add PM10 emission factor for unit -23-2
11/21/2007	ATC	FINAL	a new metal coating operation using HVLP spray guns and a paint spray booth
9/26/2007	MINOR MOD.	FINAL	Convert N-3386-23-2
9/20/2007	AMEND TV	SUPRV R	Convert N-3386-2-6, -11-5
3/13/2006	MINOR MOD.	FINAL	convert ATC -1-6
1/28/2009	PEER	FINAL	PEER boiler

Facility ID *3434*

Facility Name BILLINGTON WELDING & MFG.

Facility Type INDUSTRIAL MACHINERY AND EQUIPMENT

Distance To Location 9711.894

Degrees 340.9724

Received	Type	Status	Description
11/10/2008	ATC	FR-IN PR	a new plasma cutting operation served by a baghouse shared with the existing laser cutting operation

Facility ID 3492

Distance To Location 3127.846

Facility Name BILL'S SPORT & BAIT SHOP

Facility Type GASOLINE DISPENSING

Degrees 358.6594

Received	Type	Status	Description
1/8/2009	ATC	FINAL	GEAR: GDF UPGRADE

Facility ID 3590

Distance To Location 7603.16

Facility Name THE MODESTO BEE

Facility Type NEWSPAPER PUBLISHING AND PRINTING FACILITY

Degrees 357.8687

Received	Type	Status	Description
5/1/2006	ATC	FINAL	Emergency Diesel IC engine powering a firewater pump

Facility ID 3606

Distance To Location 9468.595

Facility Name PACIFIC SOUTHWEST CONTAINER

Facility Type PRINTING OF CONTAINERS & PACKAGING MATERIALS

Degrees 42.87316

Received	Type	Status	Description
12/24/2008	PEER	FINAL	PEER: ONE (1) NG BOILER
10/23/2008	TV RENEWAL	COMPLE	TV renewal DROPDEAD DATE: 4/23/10
10/3/2008	MINOR MOD.	FINAL	incorporate permit N-3606-27-0 into Title V permit
3/20/2008	ATC	FINAL	a new Standard Max 1100 folder gluer

12/20/2006	ATC	FINAL	correction to install a new non-heatset offset lithographic printing press (N-3606-24-0) to replace the existing printer under permit N-3606-10 instead of permit N-3606-9 and include the emissions in SLC for the facilities graphic arts printing operations
12/6/2006	MINOR MOD.	FINAL	convert ATC -26-2
10/5/2006	ATC	FINAL	modification of the graphic arts printing operation consisting of a KBA Model Rapida 162A 64" non-heatset offset lithographic printing press (S/N 368-24) to limit the daily VOC emissions to 99 lb and include the annual VOC emissions in their current SLC
5/4/2006	AMEND TV	FINAL	Convert ATCs N-3606-3-1, -19-0, -21-0, and -25-0
1/27/2006	SIG. MOD.	FINAL	Convert ATCs N-3606-2-1, '-3-1, '-4-1, '-9-1, '-9-3, '-10-1, '-10-3, '-10-4, '-11-1, '-11-3, '-11-4, '-12-1, '-13-0, '-13-1, '-13-2, '-14-0, '-14-1, '-14-2, '-15-0, '-15-1, '-15-2, '-16-0, '-16-1, '-16-2, '-19-0, '-21-0, '-23-0, '-23-1, and '-24-0
4/17/2006	ATC	FINAL	Install a new corrugated box manufacturing operation (N-3606-25) to replace the existing unit under permit N-3606-2 and to modify the existing corrugated box manufacturing operations under permits N-3606-3, -19, & -21 to include it's emissions in the SLC

Facility ID *3657*

Distance To Location 8002.196

Degrees 353.468

Facility Name CAPITOL DOOR SALES

Facility Type MANUFACTURER OF WOODEN DOORS

Received	*Type*	*Status*	*Description*
8/28/2006	ATC	FINAL	to modify your woodworking operation

Facility ID *3819*

Distance To Location 3411.53

Degrees 48.30256

Facility Name PROMPT PRECISION METALS INC

Facility Type METAL PARTS & PRODUCTS COATING OPERATION

Received	*Type*	*Status*	*Description*
10/11/2007	ATC	FINAL	installation of a new powder coating spray booth with dry exhaust filter system and electrostatic spray gun

Received	Type	Status	Description
3/30/2006	ATC	FINAL	to install a metal parts and products powder coating operation with curing oven

Facility ID 3949

Facility Name DW DIR INVEST INC DBA WILLINGERS/CHEVRON
Facility Type GASOLINE DISPENSING

Distance To Location 9583.314
Degrees 338.655

Received	Type	Status	Description
2/3/2009	ATC	FINAL	GEAR: GDF MODIFICATION

Facility ID 3993

Facility Name CITY OF MODESTO, COMPOST FAC
Facility Type GOVERNMENT SERVICES

Distance To Location 8074.707
Degrees 353.2339

Received	Type	Status	Description
5/8/2007	ATC	FINAL	install a new woodwaste grinding operation consisting of a transportable grinder powered by an 1050 hp diesel-fired IC engine (replacement of permit unit N-3993-1-0) and modify permit unit N-3993-2-0 to include the emissions of the new grinder in the SLC

Facility ID 4569

Facility Name MITCHELL GAS & LUBE
Facility Type GASOLINE DISPENSING

Distance To Location 6035.115
Degrees 38.12712

Received	Type	Status	Description
3/20/2006	ATC	FINAL	GDF - Replace existing existing non-ORVR compatible Phase II system with ORVR compatible Healy EVR Phase II system (VR-201-A).

5/3/2006	ATC	FINAL	GDF
11/7/2007	ATC	FINAL	gdf - install EVR Phase II (Healy) w/ISD

Facility ID 4711

Facility Name MGVCP RETAIL II INC/ AMERICAN GAS & MART
Facility Type GASOLINE DISPENSING

Distance To Location 7560.96
Degrees 350.0977

Received	Type	Status	Description
2/23/2009	ATC	FR-ASSI	modify gdf to install a VST Phase II VRS with an ISD system and a Veeder-Root vapor polisher

Facility ID 4813

Facility Name BURGER KING #9761
Facility Type RESTAURANT - FAST FOOD

Distance To Location 9134.228
Degrees 54.44823

Received	Type	Status	Description
2/17/2009	ATC	FINAL	replace the existing charbroiler with a new 0.126 MMBtu/hr Nieco model MPB94 charbroiler served by a Nieco model MPB94 catalytic oxidizer, and increase daily meat processed throughput to 700 pounds

Facility ID 4814

Facility Name BURGER KING #9762
Facility Type RESTAURANT - FAST FOOD

Distance To Location 5345.677
Degrees 28.28049

Received	Type	Status	Description
2/17/2009	ATC	FINAL	replace the existing charbroiler with a new 0.126 MMBtu/hr Nieco model MPB94 charbroiler served by a Nieco model MPB94 catalytic oxidizer, and increase daily meat processed throughput to 700 pounds

Facility ID *4818*

Facility Name BURGER KING #11062

Facility Type RESTAURANT - FAST FOOD

Distance To Location 9181.936

Degrees 338.6273

Received	Type	Status	Description
2/17/2009	ATC	FINAL	replace the existing charbroiler with a new 0.126 MMBtu/hr Nieco model MPB94 charbroiler served by a Nieco model MPB94 catalytic oxidizer, and increase daily meat processed throughput to 700 pounds

Facility ID *4970*

Facility Name CITY OF CERES

Facility Type GOVERMENT SERVICES

Distance To Location 1724.348

Degrees 23.25304

Received	Type	Status	Description
11/21/2007	INHOUSE PTO	NEW PR	compost mailer response
2/12/2007	ATC	FINAL	emergency IC engine

Facility ID *5367*

Facility Name WINCO FOODS

Facility Type RETAIL - GROCERY

Distance To Location 3120.333

Degrees 178.4423

Received	Type	Status	Description
4/24/2008	ATC	FINAL	GEAR: emergency IC engine

Nancy L. Matthews

From: Kai Chan [Kai.Chan@valleyair.org]

Sent: Tuesday, July 21, 2009 9:43 AM

To: Nancy L. Matthews

Subject: RE: zip codes in 6 mile radius of TID Almond 2 Power Plant project

Nancy,

The following are additional information regarding the projects you have questions about:

Facility ID: N-1662 (Gallo Glass Co.)

Project #N-1083250, is a minor modification to the facilities Title V permit to convert and issue permit units N-1662-2-12 & N-1662-3-12. The Authority to Construct (ATC) permits related to this minor modification is N-1662-2-10 (which was issued on 12/28/06) and N-1662-3-10 (which was issued on 3/4/08). These ATC permits were issued to rebrick glass melting furnaces #2 and #3, which did not result in an increase in emissions for any pollutant.

Project #N-1082526, is a modification to issue an ATC permit N-1662-1-11 to rebrick glass melting furnace #1, which did not result in an increase in emissions for any pollutant. The ATC permit was issued on 9/29/08.

Project #N-1080708, is a minor modification to the facilities Title V permit to convert and issue permit units N-1662-8-9 & N-1662-14-6. The ATC permits related to this minor modification is N-1662-8-8 and N-1662-14-5, which were issued on 2/22/08. ATC permit N-1662-8-8 was issued to increase the melt area of the furnace, which results in an increase in emissions for NOx, SOx, PM10, and CO. ATC Permit N-1662-14-5 was issued to establish a daily emission limit and did not result in an increase in emissions for any pollutant. Since the ATCs related to this minor modification were issued before 7/1/08, please let me know if you still need the emissions information and stack parameters for ATC permit N-1662-8-8.

Facility ID: N-1680 (Stanislaus Food Products)

Project #N-1081077, is a modification to issue an ATC permit N-1680-1-8 to replace the burner on a boiler, which did not result in an increase in emissions for any pollutant. The ATC permit was issued on 7/2/09.

Project #N-1090191, is an application to issue ATC permit N-1680-15-0 to install a 480 hp emergency standby diesel-fired IC engine. There will be an increase in emissions due to this project at the following emission rates: NOx of 62.5 lb/day & 132 lb/year; SOx of 0.1 lb/day & 0 lb/year; PM10 of 2.3 lb/day & 5 lb/year; CO of 11.4 lb/day & 24 lb/year; VOC of 4.3 lb/day & 9 lb/year. The stack parameters are: Stack Height of 10 ft; Stack Diameter of 6 inches; Exhaust Flow Rate of 2,486 acfm; Exhaust Exit Temp. of 770 degrees F.

Facility ID: N-1683 (Stanislaus County Bldg. Maint.)

Project #N-1083139, is an application to issue ATC permit N-1683-4-0 to install a 500 hp diesel-fired emergency standby IC engine. This application was cancelled by the applicant on 3/24/09.

Project #N-1090522, is an application to issue ATC permit N-1683-5-0 to install a 900 hp Caterpillar Model C27 diesel-fired emergency standby IC engine. There will be an increase in emissions due to this project at the following emission rates: NOx of 200.7 lb/day & 418 lb/year; SOx of 0.3 lb/day & 1 lb/year; PM10 of 3.2 lb/day & 7 lb/year; CO of 47.0 lb/day & 98 lb/year; VOC of 13.7 lb/day & 29 lb/year. The stack parameters are: Stack Height of 10.52 ft; Stack Diameter of 10 inches; Exhaust Exit Velocity of 150.9 ft/sec; Exhaust Exit Temp. of 959.9 degrees F.

Facility ID: N-1758 (Berry Seed & Feed Company)

Project #N-1082540, is an application to issue ATC permit N-1758-33-2 for the modification of the railcar grain receiving and storage operation #2 to install three additional baghouses to capture any fugitive particulate matter (PM) emissions during the conveying and storage of grain into the two 650,000 cu.ft. storage silos. There are no increases in emissions due to this project and the ATC permit was issued on 11/20/08.

Project #N-1080120, is an application to issue ATC permits N-1758-8-4, -10-5, -11-4, & -16-4 to increase the processing rates of these grain milling operations. There is only an increase in PM10 emissions due to this project for each ATC Permit of 8.4 lb/day and 3,066 lb/year. The total PM10 emissions for each permit unit is 25.1 lb/day and 9,162 lb/year. The stack parameters are the following: Roller Mill Cyclones - Stack Ht. of 35 ft, Stack Dia. of 24 inches, Exhaust Exit Flow Rate of 10,000 cfm, Exhaust Exit Temp. of 190 degrees F; Grain Cooler Cyclones - Stack Ht. of 35 feet, Stack Dia. of 24 inches, Exhaust Exit Flow Rate of 13,000 cfm, Exhaust Exit Temp of 150 degrees F. The ATC permits were issued on 5/22/08.

Facility ID: N-1787 (Gilroy Foods)

Project #N-1081108 is an application to issue ATC permit N-1787-15-0 for a new vegetable branding and roasting operation consisting of a conveyorized branding/roasting chamber served by one 0.576 MMBtu/hr natural gas fired ribbon burner (brander unit) and five 0.576 MMBtu/hr natural gas fired ribbon burners (roaster unit). There will be an increase in emissions due to this project at the following emission rates: NOx of 3.1 lb/day & 1,087 lb/year; SOx of 0.2 lb/day & 85 lb/year; PM10 of 0.6 lb/day & 227 lb/year; CO of 1.2 lb/day & 442 lb/year; VOC of 0.5 lb/day & 164 lb/year. The stack parameters are the following: Exhaust Stack Ht. of 33 ft; Exhaust Stack Dia. of 42 inches; Exhaust Exit Flow Rate of 3,000 cfm; Exhaust Stack Temp. of 400 degrees F. The ATC permit was issued on 7/1/08.

Facility ID: N-1804 (Ceres Memorial Park)

Project #N-1084279, is an application to issue ATC permit N-1804-4-0 for a new Hartwick Combustion Technologies, Inc. Model APEX-250 crematory incinerator consisting of a 0.6 MMBtu/hr primary burner and a 1.2 MMBtu/hr secondary burner (afterburner). The new crematory unit that will replace the crematory unit covered by permit N-1804-1-0. The emissions from the new crematory incinerator is the following: NOx of 5.9 lb/day & 2,135 lb/year; SOx of 4.9 lb/day & 1,779 lb/year; PM10 of 13.7 lb/day & 4,982 lb/year; CO of 19.5 lb/day & 7,118 lb/year; VOC of 5.9 lb/day & 2,135 lb/year. The stack parameters are the following: Exhaust Stack Ht. of 19.33 ft; Exhaust Stack Dia. of 20 inches; Exhaust Exit Flow Rate of 1,207.8 cfm; Exhaust Exit Temp. of 1,158 degrees F. The ATC permit was issued on 1/23/09.

Facility ID: N-1838 (Indalex West Inc.)

This facility is now shut down and all active permits were cancelled on 10/02/08.

Facility ID: N-1910 (Foster Farms)

Project #N-1084001, is an application to issue ATC permit N-1910-4-2 for the modification of the 12 MMBtu/hr milk evaporator served by a Flex-Kleen baghouse to: Establish NOx and CO emission limits, install and maintain an alternate emissions monitoring plan for Rule 4309 compliance; consolidate permits N-1910-4-0 and N-1910-5-1 into one permit. The post-project equipment description will become: Powdered milk production lime consisting of one 12 MMBtu/hr C.E. Rogers natural gas-fired dryer served by a Flex-Kleen baghouse and powdered milk pneumatic conveying system with two 50,000 lb-capacity silos all served by a Flex-Kleen baghouse. There will only be an increase in the daily PM10 emissions due to this project of 13.2 lb/day without an increase to the annual emissions. The applicant is not proposing any changes to their current annual processing rate limit due to this project. The total emissions for ATC permit N-1910-4-2 is the following: NOx of 0.9 lb/day & 4,100 lb/year; SOx of 4.7 lb/day & 335 lb/year; PM10 of 47 lb/day & 12,328 lb/year; CO of 82.4 lb/day & 30,064 lb/year; VOC of 2.9 lb/day & 590 lb/year. No stack parameters information were available for this project. The ATC permit was issued on 3/22/09.

Facility ID: N-1919 (Frito-Lay North America Inc.)

Project #N-1084600, is an application to issue ATC permit N-1919-6-7 for the modification of the 50.5 MMBtu/hr Nebraska Model NS-C-58 boiler with a Natcom Ultra Low NOx burner and FGR to only use LPG as a curtailment fuel (no longer use LPG as a primary fuel). There were no increases in emissions for any pollutant due to this proposed project.

Project #N-1080543, is an application to issue ATC permits N-1919-1-5 and -2-5 to modify the tortilla chip line #3 and #4 to replace the existing burners with new IET Ultra Glo Infra Red burners. There were no increases in emissions for any pollutant due to this project.

Project #N-1081277, is an application to issue ATC permits N-1919-7-5, -11-2, & -13-2 for the following modifications:

N-1919-7-5 (Sun Chip Manufacturing Line #5) - Modification to remove the existing 1.2 MMBtu/hr Wenger dryer and all associated bucket conveying equipment. Install a new pneumatic corn transfer system and an AAF W-Type (wet) Rotoclone emissions control system. The Rotoclone emissions control system will serve the existing hammermill. No modification to the existing fryer and oil mist eliminator is proposed. This modification will result in a decrease in emissions due to the removal of the existing dryer and installation of a Rotoclone emissions control system on the existing hammermill.

N-1919-11-2 (Potato Starch Drying Operation) - Modification to replace the existing Holt Ring-Type potato starch dryer (steam-heated) with a larger sized Hot dryer (steam-heated) and increase the process rate from 1,000 lb/hr to 1,500 lb/hr. In addition, a new Mac Equipment Inc. dust collector will also replace the existing cyclone to control the PM10 emissions from the starch drying operation. Even though the applicant is proposing an increase in the hourly processing rate, the replacement of the existing cyclone with a baghouse will result in a decrease in emissions.

N-1919-13-2 (Potato Starch Transfer and Storage Operation) - Modification to increase the quantity of potato starch transferred from 24,000 lb/day to 36,000 lb/day. No changes to the physical equipment configuration of the existing starch transfer and storage process are proposed. The proposed modification will result in an increase in PM10 emissions of 0.2 lb/day and 73 lb/year. The total PM10 emissions for the modified permit unit is 0.5 lb/day and 183 lb/year. No stack parameters information were available for this permit unit.

The ATC permits were issued on 7/1/08.

Facility ID: N-2051 (Modesto Irrigation District)

Project #N-1080196, is an application to issue ATC permit N-2051-1-2 to modify the existing 12,000 gallon convault aboveground gasoline storage tank served by a two-point Phase I vapor recovery system and 2 fueling points with 2 gasoline dispensing nozzles served by a Hirt Phase II vapor recovery system to connect the pressure/vacuum relief valve piping to vapor piping and install a condensate intercept tank in accordance with CARB executive order G-70-139. The proposed modification did not result in an increase emissions for any pollutant.

Facility ID: N-2307 (WH Breshears Inc.)

Project #N-1082026, is an application to issue ATC permit N-2307-8-0 to install a soil and groundwater remediation system served by activated carbon canisters connected in series. This project will only result in the increase in VOC emissions. Please let me know if you will need the emission rates and stack parameters for this project.

Facility ID: N-2338 (City of Modesto, Public Works)

Project #N-1092005, is an application to issue a Permit Exempt Equipment Registration (PEER) for an existing 3.347 MMBtu/hr Cleaver Brooks natural gas fired boiler with a low NOx burner and flue gas recirculation. This an existing boiler which is being issued a PEER for compliance with District Rule 4307. The boiler is exempt from District Rule 2201 and it's emissions are not included as part of the stationary source under Rule 2201. Please let me know if you will need the emissions information for this unit.

Project #N-1080199, is an application to permit their existing onsite organic waste processing operation (land application of biosolids). As of this date the project is pending and no emissions information are available at this time.

Facility ID: N-3233 (Modesto Irrigation District)

Project #N-1083510, is an application to issue ATC permits for six 11,667 hp natural gas fired IC engines powering electric generators (ATC Permits N-3233-6-0 through -11-0), one 302 hp emergency standby diesel-fired IC engine powering an electric generator (ATC Permit N-3233-12-0), and one 62 hp emergency standby diesel-fired IC engine powering a fire water pump (ATC Permit N-3233-13-0). This is a pending project and as of this date the ATC permits have not been issued. Therefore, emissions information and stack data are not available at this time.

Facility ID: N-3332 (Gilton Resource Recovery)

Project #N-1080050, is an application to permit their existing onsite organic waste processing operation (green waste composting operation). As of this date the project is pending and no emissions information are available at this time.

Facility ID: N-3386 (E & J Gallo Winery)

Project #N-1083686, is a minor modification to the facility's Title V permit to convert and issue permit unit N-3386-23-5. The Authority to Construct (ATC) permit related to this minor modification is N-3386-23-4, which was issued on 6/23/08. This ATC permit was issued to add a PM10 emission rate limit as well as provisions of District Rule 4702 and the state Airborne Toxic Control Measure (ATCM) to the current permit. The project will result not result in an increase in daily emissions, but will result in an increase in annual emissions for NOx of 36 lb/year, PM10 of 2 lb/year, CO of 45 lb/year, and VOC of 5 lb/year. Since the ATC related to this minor modification were issued before 7/1/08, please let me know if you still need the stack parameters for ATC permit N-3386-23-4.

Project #N-1082242, is a minor modification to the facility's Title V permit to convert and issue permit unit N-3386-469-1. The Authority to Construct (ATC) permit related to this minor modification is N-3386-469-0, which was issued on 6/2/08. This ATC permit was issued for the installation of a new metal parts and products coating operation served by a paint booth. The project results in an increase in PM10 emissions of 1.7 lb/day & 143 lb/year along with an increase in VOC of 7.6 lb/day & 633 lb/year. Since the ATC related to this minor modification were issued before 7/1/08, please let me know if you still need the stack parameters for ATC permit N-3386-469-0.

Project #N-1080395, is an application to issue ATC permit N-3886-23-4 to modify their 240 hp diesel-fired emergency standby engine powering an electric generator for compliance with District Rule 4702 and the state ATCM as discussed above under project #N-1083686. This ATC was issued on 6/23/08 and as stated above please let me know if the stack parameters are still needed.

Project #N-1090282, is an application to issue a PEER for an existing 4.5 MMBtu/hr Ajax natural gas fired boiler with a low NOx burner. This an existing boiler which is being issued a PEER for compliance with District Rule 4307. The boiler is exempt from District Rule 2201 and it's emissions are not included as part of the stationary source under Rule 2201. Please let me know if you will need the emissions information for this unit.

<u>Facility ID:</u> N-3434 (Billington Welding & Mfg.)

Project #N-1084169, is an application to issue ATC permit N-3434-7-0 to install a new plasma cutting operation served by a shared baghouse. The new plasma cutting operation will only result in the emissions of PM10 at 0.1 lb/day and 37 lb/year. The stack parameters are the following: Exhaust Stack Ht. of 15 ft; Exhaust Stack Dia. of 6 inches; Exhaust Exit Flow Rate of 900 cfm; Exhaust Exit Temp. of 70 degrees F. The ATC permit was issued on 5/27/09.

<u>Facility ID:</u> N-3606 (Pacific Southwest Container)

Project #N-1084578, is an application to issue a PEER for an existing 4.082 MMBtu/hr Clayton natural gas fired boiler with a low NOx burner and FGR. This an existing boiler which is being issued a PEER for compliance with District Rule 4307. The boiler is exempt from District Rule 2201 and it's emissions are not included as part of the stationary source under Rule 2201. Please let me know if you will need the emissions information for this unit.

Project #N-1080685, is an application to issue ATC permit N-3606-27-0 to install a new folder-gluer for a new corrugated box manufacturing line. The unit will only result in VOC emissions of 30 lb/day and 950 lb/year. Please let me know if additional information is required for this project. The ATC permit was issued on 6/18/08.

<u>Facility ID:</u> N-4813 (Central Valley Group II, Inc. - Burger King #9761)

Project #N-1090653, is an application to issue ATC permit N-4813-1-2 to replace the existing charboiler and catalytic oxidizer with a new 0.126 MMBtu/hr Nieco natural gas-fired charbroiler and catalytic oxidizer along with increasing the daily meat processing rate limit from 260 lbs to 700 lbs. The modification will result in the following increase in emissions: NOx of 0.1 lb/day & 37 lb/year; PM10 of 0.6 lb/day & 219 lb/year; VOC of 0.1 lb/day & 36 lb/year. The total emissions for the modified unit is the following: NOx of 0.3 lb/day & 110 lb/year; SOx of lb/day 0 lb/day & 0 lb/year; PM10 of 0.9 lb/day & 329 lb/year; CO of 0.1 lb/day & 37 lb/year; VOC of 0.2 lb/day & 73 lb/year. The stack parameters are the following: Exhaust Stack Ht. of 8 ft; Exhaust Stack Dia. of 10 inches; Exhaust Exit Flow Rate of 1,000 cfm; Exhaust Exit Temp. of 600 degrees F. The ATC permit was issued on 3/2/09.

<u>Facility ID:</u> N-4814 (Central Valley Group II, Inc. - Burger King #9762)

Project #N-1090656, is an application to issue ATC permit N-4814-1-2 to replace the existing charboiler and catalytic oxidizer with a new 0.126 MMBtu/hr Nieco natural gas-fired charbroiler and catalytic oxidizer along with increasing the daily meat processing rate limit from 250 lbs to 700 lbs. The modification will result in the following increase in emissions: NOx of 0.1 lb/day & 37 lb/year; PM10 of 0.6 lb/day & 219 lb/year; VOC of 0.1 lb/day & 36 lb/year. The total emissions for the modified unit is the following: NOx of 0.3 lb/day & 110 lb/year; SOx of lb/day 0 lb/day & 0 lb/year; PM10 of 0.9 lb/day & 329 lb/year; CO of 0.1 lb/day & 37 lb/year; VOC of 0.2 lb/day & 73 lb/year. The stack parameters are the following: Exhaust Stack Ht. of 8 ft; Exhaust Stack Dia. of 10 inches; Exhaust Exit Flow Rate of 1,000 cfm; Exhaust Exit Temp. of 600 degrees F. The ATC permit was issued on 3/2/09.

<u>Facility ID:</u> N-4818 (Central Valley Group II, Inc. - Burger King #11062)

Project #N-1090650, is an application to issue ATC permit N-4814-1-2 to replace the existing charboiler and catalytic oxidizer with a new 0.126 MMBtu/hr Nieco natural gas-fired charbroiler and catalytic oxidizer along with increasing the daily meat processing rate limit from 275 lbs to 700 lbs. The modification will result in the following increase in emissions: NOx of 0.1 lb/day & 37 lb/year; PM10 of 0.6 lb/day & 219 lb/year; VOC of 0.1 lb/day & 36 lb/year. The total emissions for the modified unit is the following: NOx of 0.3 lb/day & 110 lb/year; SOx of lb/day 0 lb/day & 0 lb/year; PM10 of 0.9 lb/day & 329 lb/year; CO of 0.1 lb/day & 37 lb/year; VOC of 0.2 lb/day & 73 lb/year. The stack parameters are the following: Exhaust Stack Ht. of 8 ft; Exhaust Stack Dia. of 10 inches; Exhaust Exit Flow Rate of 1,000 cfm; Exhaust Exit Temp. of 600 degrees F. The ATC permit was issued on 3/2/09.

Facility ID: N-5367 (Winco Foods)

Project #N-1081297, is an application to issue ATC permits N-5367-6-0 & -7-0 for the installation of a 480 hp Caterpillar Model C9 Tier 3 certified diesel-fired emergency standby IC engine powering an electric generator and a 1,372 hp Caterpillar Model C32 Tier 2 certified diesel-fired emergency standby IC engine powering an electric generator, respectively. These ATC permits were issued on 9/2/08.

For ATC permit N-5367-6-0, the emissions are the following: NOx emissions of 62.5 lb/day & 130 lb/year; SOx of 0.1 lb/day & 0 lb/year; PM10 of 2.3 lb/day & 5 lb/year; CO of 11.4 lb/day & 24 lb/year; VOC of 4.3 lb/day & 9 lb/year. For ATC permit N-5467-7-0, the emissions are the following: NOx emissions of 288.9 lb/day & 602 lb/year; SOx emissions of 0.4 lb/day & 1 lb/year; PM10 emissions 4.4 lb/day & 9 lb/year; CO emissions of 33.4 lb/day & 70 lb/year; VOC emissions of 5.1 lb/day & 11 lb/year.

For ATC permit N-5367-6-0, the stack parameters are the following: Exhaust Stack Ht. of 9.2 ft; Exhaust Stack Dia. of 7 inches; Exhaust Exit Follow Rate of 2,461 cfm; Exhaust Exit Temp. of 931 degrees F. For ATC permit N-5367-7-0, the stack parameters are the following: Exhaust Stack Ht. of 14 ft; Exhaust Stack Dia. of 10 inches; Exhaust Exit Follow Rate of 7,603 cfm; Exhaust Exit Temp. of 864 degrees F.

Please contact with any questions regarding the above information.

Regards,
Kai Chan
Air Quality Engineer
Permit Services, Northern Region

San Joaquin Valley Air Pollution Control District
4800 Enterprise Way / Modesto, CA 95356-8718
Phone: (209) 557-6451 / Fax: (209) 557-6475
E-Mail: kai.chan@valleyair.org

From: Nancy L. Matthews [mailto:NMatthews@sierraresearch.com]
Sent: Monday, April 06, 2009 10:41 AM
To: Kai Chan
Cc: Jeff Adkins; Rupi Gill; Nancy L. Matthews
Subject: RE: zip codes in 6 mile radius of TID Almond 2 Power Plant project

Hello, Kai--

Thank you for providing the list of District projects. We have gone through the list and narrowed down the number of projects somewhat. The edited list is attached. As you will see, there are still questions about some of them, so we may be able to eliminate more facilities. Specifically, for the transactions highlighted in purple we couldn't tell whether the ATC was actually issued prior to 7/1/08. If it was, we can eliminate that facility. For the transactions highlighted in yellow, we couldn't tell whether the transaction resulted in an increase in emissions. If there was no change in emissions, or if there was a decrease as a result of the permit transaction, we can eliminate that facility as well.

If it would be easier to simply provide us with emissions, stack parameters and engineering evaluations for all of the listed facilities, we will do the additional filtering based on the additional information.

Thanks again for your help with this. If you have any questions, feel free to call.

Nancy
Nancy Matthews
Sierra Research
1801 J Street
Sacramento, CA 95811
[please note new zip code]
916-444-6666 (phone)
916-444-8373 (fax)

From: Kai Chan [mailto:Kai.Chan@valleyair.org]
Sent: Wednesday, March 11, 2009 4:15 PM
To: Nancy L. Matthews
Cc: Jeff Adkins; Rupi Gill
Subject: RE: zip codes in 6 mile radius of TID Almond 2 Power Plant project

Nancy,

Attached is a file which contains a list of District projects, which are within 6 miles of TID's proposed Almond 2 power plant at 4500 Crows Landing Road in Modesto, CA. The list contains District projects submitted and/or finalized from Jan. 1, 2006 through March 10, 2009. Please sort and provide me with a list of the facilities that you want more specific emissions and stack parameters information. For your purposes the project type you want information for is under ATC (Authority to Construct). The "Distance To Location" indicates the distance from 4500 Crows Landing Road to the indicated facility in meters. The following is the definitions of the abbreviations listed on the "Status" column of the attached list:

ATC = Authority to Construct applications
COMPLE = Application Complete
DENY PE = Project denial pending
FINAL = Project finalized and ATC permit issued.
FR-ASSI = Assigned for final review.
FR-IN PR = Final review in process.
NEW PR = New project
PR-ASSI = Preliminary review assigned.
PR-INCO = Project under preliminary review and is incomplete.
PR-IN PR = Preliminary review in process.
SUPRV R = Project under supervisor review.

Please contact me with any questions.

Regards,
Kai Chan
San Joaquin Valley APCD
Permit Services Division - Northern Region
Phone: (209) 557-6451
Fax: (209) 557-6475
E-Mail: kai.chan@valleyair.org

From: Nancy L. Matthews [mailto:NMatthews@sierraresearch.com]
Sent: Tuesday, March 10, 2009 5:27 PM
To: Kai Chan
Cc: Jeff Adkins; Nancy L. Matthews
Subject: zip codes in 6 mile radius of TID Almond 2 Power Plant project

Hello, Kai--

Here is the list of zip codes of areas that are within 6 miles of the TID Almond 2 Power Plant project location. If you can provide us the list of projects that have these zip codes and for which permits to construct have been issued since January 1, 2008, OR for which permits have not yet been issued but are reasonably foreseeable, we will sort them further to determine whether they are physically within 6 miles of our project. Then we will ask you for additional, more detailed information regarding the equipment at those projects.

95355, 95350, 95354, 95357, 95351, 95358, 95326, 95328, 95307, 95358, 95382, 95313, and 95380

Thank you very much for your assistance. If you have any questions regarding this request, please feel free to contact me.

Nancy

From: Nancy L. Matthews
Sent: Tuesday, February 03, 2009 11:32 AM
To: kai.chan@valleyair.org
Cc: Nancy L. Matthews; Josh Willter
Subject: map showing project location and 6 mile radius for TID Almond 2 Power Plant project

Kai--

As you requested in our phone conversation yesterday afternoon, attached is a map showing the location of the proposed new TID Almond 2 Power Plant project and the 6-mile radius surrounding the plant site to allow you to respond to our request for information regarding other projects within 6 miles.

I hope that this map provides the information that you need. If you have additional questions or need more detail, please do not hesitate to call.

Thank you--

Nancy
Nancy Matthews
Sierra Research
1801 J Street
Sacramento, CA 95811

916-444-6666 (phone)
916-444-8373 (fax)

Nancy L. Matthews

From: Kai Chan [Kai.Chan@valleyair.org]

Sent: Monday, August 03, 2009 8:17 AM

To: Nancy L. Matthews

Subject: RE: zip codes in 6 mile radius of TID Almond 2 Power Plant project

Hello Nancy,

According to the application review for project N-1084279, there will be a stationary source increase in potential emissions due to the replacement of permit unit N-1804-1-0 with N-1804-4-0. The net annual increase is the following: NOx of 1,478 lb/year; SOx of 1,779 lb/year; PM10 of 4,252 lb/year; CO of 6,753 lb/year; VOC of 2,025 lb/year. Please let me know if there is anything else you need.

Regards,

Kai Chan
Air Quality Engineer
Permit Services, Northern Region

San Joaquin Valley Air Pollution Control District
4800 Enterprise Way / Modesto, CA 95356-8718
Phone: (209) 557-6451 / Fax: (209) 557-6475
E-Mail: kai.chan@valleyair.org

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Make one change for clean air!

From: Nancy L. Matthews [mailto:NMatthews@sierraresearch.com]
Sent: Friday, July 31, 2009 1:35 PM
To: Kai Chan
Cc: Nancy L. Matthews
Subject: RE: zip codes in 6 mile radius of TID Almond 2 Power Plant project

Kai--

I am sorry to be so long in responding to your message. I have been on vacation and just returned to the office today.

I believe this gives us everything we need, with the exception of one question regarding the following facility:

Facility ID: N-1804 (Ceres Memorial Park)

Project #N-1084279, is an application to issue ATC permit N-1804-4-0 for a new Hartwick Combustion Technologies, Inc. Model APEX-250 crematory incinerator consisting of a 0.6 MMBtu/hr primary burner and a 1.2 MMBtu/hr secondary burner (afterburner). The new crematory unit that will replace the crematory unit covered by permit N-1804-1-0. The emissions from the new crematory incinerator is the following: NOx of 5.9 lb/day & 2,135 lb/year; SOx of 4.9 lb/day & 1,779 lb/year; PM10 of 13.7 lb/day & 4,982 lb/year; CO of 19.5 lb/day & 7,118 lb/year; VOC of 5.9 lb/day & 2,135 lb/year. The stack parameters are the following: Exhaust Stack Ht. of 19.33 ft; Exhaust Stack Dia. of 20 inches; Exhaust Exit Flow Rate of 1,207.8 cfm; Exhaust Exit Temp. of 1,158 degrees F. The ATC permit was issued on 1/23/09.

You indicate that this new crematory unit will replace the unit covered by permit N-1804-1-0. Is there a net increase in emissions from this replacement project?

Thank you--

Nancy
New direct dial phone no: 916-273-5124

From: Kai Chan [mailto:Kai.Chan@valleyair.org]
Sent: Tuesday, July 21, 2009 9:43 AM
To: Nancy L. Matthews
Subject: RE: zip codes in 6 mile radius of TID Almond 2 Power Plant project

Nancy,

The following are additional information regarding the projects you have questions about:

Facility ID: N-1662 (Gallo Glass Co.)

Project #N-1083250, is a minor modification to the facilities Title V permit to convert and issue permit units N-1662-2-12 & N-1662-3-12. The Authority to Construct (ATC) permits related to this minor modification is N-1662-2-10 (which was issued on 12/28/06) and N-1662-3-10 (which was issued on 3/4/08). These ATC permits were issued to rebrick glass melting furnaces #2 and #3, which did not result in an increase in emissions for any pollutant.

Project #N-1082526, is a modification to issue an ATC permit N-1662-1-11 to rebrick glass melting furnace #1, which did not result in an increase in emissions for any pollutant. The ATC permit was issued on 9/29/08.

Project #N-1080708, is a minor modification to the facilities Title V permit to convert and issue permit units N-1662-8-9 & N-1662-14-6. The ATC permits related to this minor modification is N-1662-8-8 and N-1662-14-5, which were issued on 2/22/08. ATC permit N-1662-8-8 was issued to increase the melt area of the furnace, which results in an increase in emissions for NOx, SOx, PM10, and CO. ATC Permit N-1662-14-5 was issued to establish a daily emission limit and did not result in an increase in emissions for any pollutant. Since the ATCs related to this minor modification were issued before 7/1/08, please let me know if you still need the emissions information and stack parameters for ATC permit N-1662-8-8.

Facility ID: N-1680 (Stanislaus Food Products)

Project #N-1081077, is a modification to issue an ATC permit N-1680-1-8 to replace the burner on a boiler, which did not result in an increase in emissions for any pollutant. The ATC permit was issued on 7/2/09.

Project #N-1090191, is an application to issue ATC permit N-1680-15-0 to install a 480 hp emergency standby diesel-fired IC engine. There will be an increase in emissions due to this project at the following emission rates: NOx of 62.5 lb/day & 132 lb/year; SOx of 0.1 lb/day & 0 lb/year; PM10 of 2.3 lb/day & 5 lb/year; CO of 11.4 lb/day & 24 lb/year; VOC of 4.3 lb/day & 9 lb/year. The stack parameters are: Stack Height of 10 ft; Stack Diameter of 6 inches; Exhaust Flow Rate of 2,486 acfm; Exhaust Exit Temp. of 770 degrees F.

Facility ID: N-1683 (Stanislaus County Bldg. Maint.)

Project #N-1083139, is an application to issue ATC permit N-1683-4-0 to install a 500 hp diesel-fired emergency standby IC engine. This application was cancelled by the applicant on 3/24/09.

Project #N-1090522, is an application to issue ATC permit N-1683-5-0 to install a 900 hp Caterpillar Model C27 diesel-fired emergency standby IC engine. There will be an increase in emissions due to this project at the following emission rates: NOx of 200.7 lb/day & 418 lb/year; SOx of 0.3 lb/day & 1 lb/year; PM10 of 3.2 lb/day & 7 lb/year; CO of 47.0 lb/day & 98 lb/year; VOC of 13.7 lb/day & 29 lb/year. The stack parameters are: Stack Height of 10.52 ft; Stack Diameter of 10 inches; Exhaust Exit Velocity of 150.9 ft/sec; Exhaust Exit Temp. of 959.9 degrees F.

Facility ID: N-1758 (Berry Seed & Feed Company)

Project #N-1082540, is an application to issue ATC permit N-1758-33-2 for the modification of the railcar grain receiving and storage operation #2 to install three additional baghouses to capture any fugitive particulate matter (PM) emissions during the conveying and storage of grain into the two 650,000 cu.ft. storage silos. There are no increases in emissions due to this project and the ATC permit was issued on 11/20/08.

Project #N-1080120, is an application to issue ATC permits N-1758-8-4, -10-5, -11-4, & -16-4 to increase the processing rates of these grain milling operations. There is only an increase in PM10 emissions due to this project for each ATC Permit of 8.4 lb/day and 3,066 lb/year. The total PM10 emissions for each permit unit is 25.1 lb/day and 9,162 lb/year. The stack parameters are the following: Roller Mill Cyclones - Stack Ht. of 35 ft, Stack Dia. of 24 inches, Exhaust Exit Flow Rate of 10,000 cfm, Exhaust Exit Temp. of 190 degrees F; Grain Cooler Cyclones - Stack Ht. of 35 feet, Stack Dia. of 24 inches, Exhaust Exit Flow Rate of 13,000 cfm, Exhaust Exit Temp of 150 degrees F. The ATC permits were issued on 5/22/08.

Facility ID: N-1787 (Gilroy Foods)

Project #N-1081108 is an application to issue ATC permit N-1787-15-0 for a new vegetable branding and roasting operation consisting of a conveyorized branding/roasting chamber served by one 0.576 MMBtu/hr natural gas fired ribbon burner (brander unit) and five 0.576 MMBtu/hr natural gas fired ribbon burners (roaster unit). There will be an increase in emissions due to this project at the following emission rates: NOx of 3.1 lb/day & 1,087 lb/year; SOx of 0.2 lb/day & 85 lb/year; PM10 of 0.6 lb/day & 227 lb/year; CO of 1.2 lb/day & 442 lb/year; VOC of 0.5 lb/day & 164 lb/year. The stack parameters are the following: Exhaust Stack Ht. of 33 ft; Exhaust Stack Dia. of 42 inches; Exhaust Exit Flow Rate of 3,000 cfm; Exhaust Stack Temp. of 400 degrees F. The ATC permit was issued on 7/1/08.

Facility ID: N-1804 (Ceres Memorial Park)

Project #N-1084279, is an application to issue ATC permit N-1804-4-0 for a new Hartwick Combustion Technologies, Inc. Model APEX-250 crematory incinerator consisting of a 0.6 MMBtu/hr primary burner and a 1.2 MMBtu/hr secondary burner (afterburner). The new crematory unit that will replace the crematory unit covered by permit N-1804-1-0. The emissions from the new crematory incinerator is the following: NOx of 5.9 lb/day & 2,135 lb/year; SOx of 4.9 lb/day & 1,779 lb/year; PM10 of 13.7 lb/day & 4,982 lb/year; CO of 19.5 lb/day & 7,118 lb/year; VOC of 5.9 lb/day & 2,135 lb/year. The stack parameters are the following: Exhaust Stack Ht. of 19.33 ft; Exhaust Stack Dia. of 20 inches; Exhaust Exit Flow Rate of 1,207.8 cfm; Exhaust Exit Temp. of 1,158 degrees F. The ATC permit was issued on 1/23/09.

Facility ID: N-1838 (Indalex West Inc.)

This facility is now shut down and all active permits were cancelled on 10/02/08.

Facility ID: N-1910 (Foster Farms)

Project #N-1084001, is an application to issue ATC permit N-1910-4-2 for the modification of the 12 MMBtu/hr milk evaporator served by a Flex-Kleen baghouse to: Establish NOx and CO emission limits, install and maintain an alternate emissions monitoring plan for Rule 4309 compliance; consolidate permits N-1910-4-0 and N-1910-5-1 into one permit. The post-project equipment description will become: Powdered milk production lime consisting of one 12 MMBtu/hr C.E. Rogers natural gas-fired dryer served by a Flex-Kleen baghouse and powdered milk pneumatic conveying system with two 50,000 lb-capacity silos all served by a Flex-Kleen baghouse. There will only be an increase in the daily PM10 emissions due to this project of 13.2 lb/day without an increase to the annual emissions. The applicant is not proposing any changes to their current annual processing rate limit due to this project. The total emissions for ATC permit N-1910-4-2 is the following: NOx of 0.9 lb/day & 4,100 lb/year; SOx of 4.7 lb/day & 335 lb/year; PM10 of 47 lb/day & 12,328 lb/year; CO of 82.4 lb/day & 30,064 lb/year; VOC of 2.9 lb/day & 590 lb/year. No stack parameters information were available for this project. The ATC permit was issued on 3/22/09.

Facility ID: N-1919 (Frito-Lay North America Inc.)

Project #N-1084600, is an application to issue ATC permit N-1919-6-7 for the modification of the 50.5 MMBtu/hr Nebraska Model NS-C-58 boiler with a Natcom Ultra Low NOx burner and FGR to only use LPG as a curtailment fuel (no longer use LPG as a primary fuel). There were no increases in emissions for any pollutant due to this proposed project.

Project #N-1080543, is an application to issue ATC permits N-1919-1-5 and -2-5 to modify the tortilla chip line #3 and #4 to replace the existing burners with new IET Ultra Glo Infra Red burners. There were no increases in emissions for any pollutant due to this project.

Project #N-1081277, is an application to issue ATC permits N-1919-7-5, -11-2, & -13-2 for the following modifications:

N-1919-7-5 (Sun Chip Manufacturing Line #5) - Modification to remove the existing 1.2 MMBtu/hr Wenger dryer and all associated bucket conveying equipment. Install a new pneumatic corn transfer system and an AAF W-Type (wet) Rotoclone emissions control system. The Rotoclone emissions control system will serve the existing hammermill. No modification to the existing fryer and oil mist eliminator is proposed. This modification will result in a decrease in emissions due to the removal of the existing dryer and installation of a Rotoclone emissions control system on the existing hammermill.

N-1919-11-2 (Potato Starch Drying Operation) - Modification to replace the existing Holt Ring-Type potato starch dryer (steam-heated) with a larger sized Hot dryer (steam-heated) and increase the process rate from 1,000 lb/hr to 1,500 lb/hr. In addition, a new Mac Equipment Inc. dust collector will also replace the existing cyclone to control the PM10 emissions from the starch drying operation. Even though the applicant is proposing an increase in the hourly processing rate, the replacement of the existing cyclone with a baghouse will result in a decrease in emissions.

N-1919-13-2 (Potato Starch Transfer and Storage Operation) - Modification to increase the quantity of potato starch transferred from 24,000 lb/day to 36,000 lb/day. No changes to the physical equipment configuration of the existing starch transfer and storage process are proposed. The proposed modification will result in an increase in PM10 emissions of 0.2 lb/day and 73 lb/year. The total PM10 emissions for the modified permit unit is 0.5 lb/day and 183 lb/year. No stack parameters information were available for this permit unit.

The ATC permits were issued on 7/1/08.

Facility ID: N-2051 (Modesto Irrigation District)

Project #N-1080196, is an application to issue ATC permit N-2051-1-2 to modify the existing 12,000 gallon convault aboveground gasoline storage tank served by a two-point Phase I vapor recovery system and 2 fueling points with 2 gasoline dispensing nozzles served by a Hirt Phase II vapor recovery system to connect the pressure/vacuum relief valve piping to vapor piping and install a condensate intercept tank in accordance with CARB executive order G-70-139. The proposed modification did not result in an increase emissions for any pollutant.

Facility ID: N-2307 (WH Breshears Inc.)

Project #N-1082026, is an application to issue ATC permit N-2307-8-0 to install a soil and groundwater remediation system served by activated carbon canisters connected in series. This project will only result in the increase in VOC emissions. Please let me know if you will need the emission rates and stack parameters for this project.

Facility ID: N-2338 (City of Modesto, Public Works)

Project #N-1092005, is an application to issue a Permit Exempt Equipment Registration (PEER) for an existing 3.347 MMBtu/hr Cleaver Brooks natural gas fired boiler with a low NOx burner and flue gas recirculation. This an existing boiler which is being issued a PEER for compliance with District Rule 4307. The boiler is exempt from District Rule 2201 and it's emissions are not included as part of the stationary source under Rule 2201. Please let me know if you will need the emissions information for this unit.

Project #N-1080199, is an application to permit their existing onsite organic waste processing operation (land application of biosolids). As of this date the project is pending and no emissions information are available at this time.

Facility ID: N-3233 (Modesto Irrigation District)

Project #N-1083510, is an application to issue ATC permits for six 11,667 hp natural gas fired IC engines powering electric generators (ATC Permits N-3233-6-0 through -11-0), one 302 hp emergency standby diesel-fired IC engine powering an electric generator (ATC Permit N-3233-12-0), and one 62 hp emergency standby diesel-fired IC engine powering a fire water pump (ATC Permit N-3233-13-0). This is a pending project and as of this date the ATC permits have not been issued. Therefore, emissions information and stack data are not available at this time.

Facility ID: N-3332 (Gilton Resource Recovery)

Project #N-1080050, is an application to permit their existing onsite organic waste processing operation (green waste composting operation). As of this date the project is pending and no emissions information are available at this time.

Facility ID: N-3386 (E & J Gallo Winery)

Project #N-1083686, is a minor modification to the facility's Title V permit to convert and issue permit unit N-3386-23-5. The

Authority to Construct (ATC) permit related to this minor modification is N-3386-23-4, which was issued on 6/23/08. This ATC permit was issued to add a PM10 emission rate limit as well as provisions of District Rule 4702 and the state Airborne Toxic Control Measure (ATCM) to the current permit. The project will result not result in an increase in daily emissions, but will result in an increase in annual emissions for NOx of 36 lb/year, PM10 of 2 lb/year, CO of 45 lb/year, and VOC of 5 lb/year. Since the ATC related to this minor modification were issued before 7/1/08, please let me know if you still need the stack parameters for ATC permit N-3386-23-4.

Project #N-1082242, is a minor modification to the facility's Title V permit to convert and issue permit unit N-3386-469-1. The Authority to Construct (ATC) permit related to this minor modification is N-3386-469-0, which was issued on 6/2/08. This ATC permit was issued for the installation of a new metal parts and products coating operation served by a paint booth. The project results in an increase in PM10 emissions of 1.7 lb/day & 143 lb/year along with an increase in VOC of 7.6 lb/day & 633 lb/year. Since the ATC related to this minor modification were issued before 7/1/08, please let me know if you still need the stack parameters for ATC permit N-3386-469-0.

Project #N-1080395, is an application to issue ATC permit N-3886-23-4 to modify their 240 hp diesel-fired emergency standby engine powering an electric generator for compliance with District Rule 4702 and the state ATCM as discussed above under project #N-1083686. This ATC was issued on 6/23/08 and as stated above please let me know if the stack parameters are still needed.

Project #N-1090282, is an application to issue a PEER for an existing 4.5 MMBtu/hr Ajax natural gas fired boiler with a low NOx burner. This an existing boiler which is being issued a PEER for compliance with District Rule 4307. The boiler is exempt from District Rule 2201 and it's emissions are not included as part of the stationary source under Rule 2201. Please let me know if you will need the emissions information for this unit.

Facility ID: N-3434 (Billington Welding & Mfg.)

Project #N-1084169, is an application to issue ATC permit N-3434-7-0 to install a new plasma cutting operation served by a shared baghouse. The new plasma cutting operation will only result in the emissions of PM10 at 0.1 lb/day and 37 lb/year. The stack parameters are the following: Exhaust Stack Ht. of 15 ft; Exhaust Stack Dia. of 6 inches; Exhaust Exit Flow Rate of 900 cfm; Exhaust Exit Temp. of 70 degrees F. The ATC permit was issued on 5/27/09.

Facility ID: N-3606 (Pacific Southwest Container)

Project #N-1084578, is an application to issue a PEER for an existing 4.082 MMBtu/hr Clayton natural gas fired boiler with a low NOx burner and FGR. This an existing boiler which is being issued a PEER for compliance with District Rule 4307. The boiler is exempt from District Rule 2201 and it's emissions are not included as part of the stationary source under Rule 2201. Please let me know if you will need the emissions information for this unit.

Project #N-1080685, is an application to issue ATC permit N-3606-27-0 to install a new folder-gluer for a new corrugated box manufacturing line. The unit will only result in VOC emissions of 30 lb/day and 950 lb/year. Please let me know if additional information is required for this project. The ATC permit was issued on 6/18/08.

Facility ID: N-4813 (Central Valley Group II, Inc. - Burger King #9761)

Project #N-1090653, is an application to issue ATC permit N-4813-1-2 to replace the existing charboiler and catalytic oxidizer with a new 0.126 MMBtu/hr Nieco natural gas-fired charbroiler and catalytic oxidizer along with increasing the daily meat processing rate limit from 260 lbs to 700 lbs. The modification will result in the following increase in emissions: NOx of 0.1 lb/day & 37 lb/year; PM10 of 0.6 lb/day & 219 lb/year; VOC of 0.1 lb/day & 36 lb/year. The total emissions for the modified unit is the following: NOx of 0.3 lb/day & 110 lb/year; SOx of lb/day 0 lb/day & 0 lb/year; PM10 of 0.9 lb/day & 329 lb/year; CO of 0.1 lb/day & 37 lb/year; VOC of 0.2 lb/day & 73 lb/year. The stack parameters are the following: Exhaust Stack Ht. of 8 ft; Exhaust Stack Dia. of 10 inches; Exhaust Exit Flow Rate of 1,000 cfm; Exhaust Exit Temp. of 600 degrees F. The ATC permit was issued on 3/2/09.

Facility ID: N-4814 (Central Valley Group II, Inc. - Burger King #9762)

Project #N-1090656, is an application to issue ATC permit N-4814-1-2 to replace the existing charboiler and catalytic oxidizer with a new 0.126 MMBtu/hr Nieco natural gas-fired charbroiler and catalytic oxidizer along with increasing the daily meat processing rate limit from 250 lbs to 700 lbs. The modification will result in the following increase in emissions: NOx of 0.1 lb/day & 37 lb/year; PM10 of 0.6 lb/day & 219 lb/year; VOC of 0.1 lb/day & 36 lb/year. The total emissions for the modified unit is the following: NOx of 0.3 lb/day & 110 lb/year; SOx of lb/day 0 lb/day & 0 lb/year; PM10 of 0.9 lb/day & 329 lb/year; CO of 0.1 lb/day & 37 lb/year; VOC of 0.2 lb/day & 73 lb/year. The stack parameters are the following: Exhaust Stack Ht. of 8 ft; Exhaust Stack Dia. of 10 inches; Exhaust Exit Flow Rate of 1,000 cfm; Exhaust Exit Temp. of 600 degrees F. The ATC permit was issued on 3/2/09.

Facility ID: N-4818 (Central Valley Group II, Inc. - Burger King #11062)

Project #N-1090650, is an application to issue ATC permit N-4814-1-2 to replace the existing charboiler and catalytic oxidizer with a new 0.126 MMBtu/hr Nieco natural gas-fired charbroiler and catalytic oxidizer along with increasing the daily meat processing rate limit from 275 lbs to 700 lbs. The modification will result in the following increase in emissions: NOx of 0.1 lb/day & 37 lb/year; PM10 of 0.6 lb/day & 219 lb/year; VOC of 0.1 lb/day & 36 lb/year. The total emissions for the modified unit is the following: NOx of 0.3 lb/day & 110 lb/year; SOx of lb/day 0 lb/day & 0 lb/year; PM10 of 0.9 lb/day & 329 lb/year; CO of 0.1 lb/day & 37 lb/year; VOC of 0.2 lb/day & 73 lb/year. The stack parameters are the following: Exhaust Stack Ht. of 8 ft; Exhaust Stack Dia. of 10 inches; Exhaust Exit Flow Rate of 1,000 cfm; Exhaust Exit Temp. of 600 degrees F. The ATC permit was issued on 3/2/09.

Facility ID: N-5367 (Winco Foods)

Project #N-1081297, is an application to issue ATC permits N-5367-6-0 & -7-0 for the installation of a 480 hp Caterpillar Model C9 Tier 3 certified diesel-fired emergency standby IC engine powering an electric generator and a 1,372 hp Caterpillar Model C32 Tier 2 certified diesel-fired emergency standby IC engine powering an electric generator, respectively. These ATC permits were issued on 9/2/08.

For ATC permit N-5367-6-0, the emissions are the following: NOx emissions of 62.5 lb/day & 130 lb/year; SOx of 0.1 lb/day & 0 lb/year; PM10 of 2.3 lb/day & 5 lb/year; CO of 11.4 lb/day & 24 lb/year; VOC of 4.3 lb/day & 9 lb/year. For ATC permit N-5467-7-0, the emissions are the following: NOx emissions of 288.9 lb/day & 602 lb/year; SOx emissions of 0.4 lb/day & 1 lb/year; PM10 emissions 4.4 lb/day & 9 lb/year; CO emissions of 33.4 lb/day & 70 lb/year; VOC emissions of 5.1 lb/day & 11 lb/year.

For ATC permit N-5367-6-0, the stack parameters are the following: Exhaust Stack Ht. of 9.2 ft; Exhaust Stack Dia. of 7 inches; Exhaust Exit Follow Rate of 2,461 cfm; Exhaust Exit Temp. of 931 degrees F. For ATC permit N-5367-7-0, the stack parameters are the following: Exhaust Stack Ht. of 14 ft; Exhaust Stack Dia. of 10 inches; Exhaust Exit Follow Rate of 7,603 cfm; Exhaust Exit Temp. of 864 degrees F.

Please contact with any questions regarding the above information.

Regards,
Kai Chan
Air Quality Engineer
Permit Services, Northern Region

San Joaquin Valley Air Pollution Control District
4800 Enterprise Way / Modesto, CA 95356-8718
Phone: (209) 557-6451 / Fax: (209) 557-6475
E-Mail: kai.chan@valleyair.org

From: Nancy L. Matthews [mailto:NMatthews@sierraresearch.com]
Sent: Monday, April 06, 2009 10:41 AM
To: Kai Chan
Cc: Jeff Adkins; Rupi Gill; Nancy L. Matthews
Subject: RE: zip codes in 6 mile radius of TID Almond 2 Power Plant project

Hello, Kai--

Thank you for providing the list of District projects. We have gone through the list and narrowed down the number of projects somewhat. The edited list is attached. As you will see, there are still questions about some of them, so we may be able to eliminate more facilities. Specifically, for the transactions highlighted in purple we couldn't tell whether the ATC was actually issued prior to 7/1/08. If it was, we can eliminate that facility. For the transactions highlighted in yellow, we couldn't tell whether the transaction resulted in an increase in emissions. If there was no change in emissions, or if there was a decrease as a result of the permit transaction, we can eliminate that facility as well.

If it would be easier to simply provide us with emissions, stack parameters and engineering evaluations for all of the listed facilities, we will do the additional filtering based on the additional information.

Thanks again for your help with this. If you have any questions, feel free to call.

Nancy
Nancy Matthews
Sierra Research
1801 J Street
Sacramento, CA 95811
[please note new zip code]
916-444-6666 (phone)
916-444-8373 (fax)

From: Kai Chan [mailto:Kai.Chan@valleyair.org]
Sent: Wednesday, March 11, 2009 4:15 PM
To: Nancy L. Matthews
Cc: Jeff Adkins; Rupi Gill
Subject: RE: zip codes in 6 mile radius of TID Almond 2 Power Plant project

Nancy,

Attached is a file which contains a list of District projects, which are within 6 miles of TID's proposed Almond 2 power plant at 4500 Crows Landing Road in Modesto, CA. The list contains District projects submitted and/or finalized from Jan. 1, 2006 through March 10, 2009. Please sort and provide me with a list of the facilities that you want more specific emissions and stack parameters information. For your purposes the project type you want information for is under ATC (Authority to Construct). The "Distance To Location" indicates the distance from 4500 Crows Landing Road to the indicated facility in meters. The following is the definitions of the abbreviations listed on the "Status" column of the attached list:

ATC = Authority to Construct applications
COMPLE = Application Complete
DENY PE = Project denial pending
FINAL = Project finalized and ATC permit issued.
FR-ASSI = Assigned for final review.
FR-IN PR = Final review in process.
NEW PR = New project
PR-ASSI = Preliminary review assigned.
PR-INCO = Project under preliminary review and is incomplete.
PR-IN PR = Preliminary review in process.
SUPRV R = Project under supervisor review.

Please contact me with any questions.

Regards,
Kai Chan
San Joaquin Valley APCD
Permit Services Division - Northern Region
Phone: (209) 557-6451
Fax: (209) 557-6475
E-Mail: kai.chan@valleyair.org

From: Nancy L. Matthews [mailto:NMatthews@sierraresearch.com]
Sent: Tuesday, March 10, 2009 5:27 PM

To: Kai Chan
Cc: Jeff Adkins; Nancy L. Matthews
Subject: zip codes in 6 mile radius of TID Almond 2 Power Plant project

Hello, Kai--

Here is the list of zip codes of areas that are within 6 miles of the TID Almond 2 Power Plant project location. If you can provide us the list of projects that have these zip codes and for which permits to construct have been issued since January 1, 2008, OR for which permits have not yet been issued but are reasonably foreseeable, we will sort them further to determine whether they are physically within 6 miles of our project. Then we will ask you for additional, more detailed information regarding the equipment at those projects.

95355, 95350, 95354, 95357, 95351, 95358, 95326, 95328, 95307, 95358, 95382, 95313, and 95380

Thank you very much for your assistance. If you have any questions regarding this request, please feel free to contact me.

Nancy

From: Nancy L. Matthews
Sent: Tuesday, February 03, 2009 11:32 AM
To: kai.chan@valleyair.org
Cc: Nancy L. Matthews; Josh Willter
Subject: map showing project location and 6 mile radius for TID Almond 2 Power Plant project

Kai--

As you requested in our phone conversation yesterday afternoon, attached is a map showing the location of the proposed new TID Almond 2 Power Plant project and the 6-mile radius surrounding the plant site to allow you to respond to our request for information regarding other projects within 6 miles.

I hope that this map provides the information that you need. If you have additional questions or need more detail, please do not hesitate to call.

Thank you--

Nancy
Nancy Matthews
Sierra Research
1801 J Street
Sacramento, CA 95811

916-444-6666 (phone)
916-444-8373 (fax)

From:	Kai Chan [Kai.Chan@valleyair.org]
Sent:	Monday, August 10, 2009 11:09 AM
To:	Wei Liu
Cc:	Nancy L. Matthews
Subject:	RE: ::::TID Almond 2 Power Plant project Cumulative source List
Attachments:	TID cumulative impact sources addresses.xls

Hello Wei,

Attached is the updated Excel file with the addresses for the facilities you are interested in. Please contact me with any addition questions.

Regards,

Kai Chan
Air Quality Engineer
Permit Services, Northern Region
San Joaquin Valley Air Pollution Control District
4800 Enterprise Way / Modesto, CA 95356-8718
Phone: (209) 557-6451 / Fax: (209) 557-6475
E-Mail: kai.chan@valleyair.org

HEALTHY AIR LIVING
www.healthyairliving.com
Make one change for clean air!

From: Wei Liu [mailto:WLiu@sierraresearch.com]
Sent: Monday, August 10, 2009 9:53 AM
To: Kai Chan
Cc: Nancy L. Matthews
Subject: ::::TID Almond 2 Power Plant project Cumulative source List

Kai,

Thank you for talking with me in response to my inquiry about Cumulative source locations for TID Almond 2 power plant project. Following up the conversation, here is the Cumulative source list that we are interested in. We would be highly appreciated if you could provide those addresses to us.

Thank you very much for your help.

Wei Liu

Sierra Research 916-444-6666

1801 J Street
Sacramento, CA 95811
Tel: 916-444-6666
Direct: 916-273-5143
Fax: 916-444-8373
Email: wliu@sierraresearch.com

Facility Name	Facility ID	Facility Address
STANISLAUS COUNTY BLDG. MAINT.	1683	200 E. Hackett Road, Modesto, CA 95351
CONAGRA (GILROY) FOODS	1787	705 E. Whitmore Avenue, Modesto, CA 95358-9408
CERES MEMORIAL PARK	1804	1801 E. Whitmore Avenue, Ceres, CA 95307
WINCO FOODS	5367	4400 Crows Landing Road, Modesto, CA 95358-9304
WINCO FOODS	5367	4400 Crows Landing Road, Modesto, CA 95358-9304

ATTACHMENT DR9-1

Emission Rates and Stack Parameters for Additional Sources Included in the Cumulative Impacts Analysis

Table DR9-1A

TID Almond 2 Power Plant

Emission Rates and Stack Parameters for Cumulative Impacts Modeling: Additional Sources

		Stack Parameters					Emission Rates, g/s			
Source Location	Source Type	Stack Diam, m	Release Height m	Temp, deg K	Exhaust Flow, m3/s	Exhaust Velocity, m/s	NOx	SO2	CO	PM10
Averaging Period: 1, 3, 8 and 24 hours										
STANISLAUS COUNTY BLDG. MAINT.	emergency standby engine	0.254	3.206	788.50	2.331	45.994	1.054E+00	1.575E-03	2.468E-01	1.680E-02
CONAGRA (GILROY) FOODS	vegetable branding/roasting	1.067	10.058	477.44	1.416	1.584	1.628E-02	1.050E-03	6.300E-03	3.150E-03
CERES MEMORIAL PARK	replacement crematory	0.508	5.892	898.56	0.570	2.812	3.098E-02	2.573E-02	1.024E-01	7.193E-02
WINCO FOODS	emergency standby engine	0.178	2.804	772.44	1.161	46.779	3.281E-01	5.250E-04	5.985E-02	1.208E-02
WINCO FOODS	emergency standby engine	0.254	4.267	735.22	3.588	70.814	1.517E+00	2.100E-03	1.754E-01	2.310E-02
Averaging Period: Annual										
STANISLAUS COUNTY BLDG. MAINT.	emergency standby engine	0.254	3.206	788.50	2.331	45.994	6.012E-03	1.438E-05	n/a	1.007E-04
CONAGRA FOODS	vegetable branding/roasting	1.067	10.058	477.44	1.416	1.584	1.563E-02	1.223E-03	n/a	3.265E-03
CERES MEMORIAL PARK	replacement crematory	0.508	5.892	898.56	0.570	2.812	3.071E-02	2.559E-02	n/a	7.166E-02
WINCO FOODS	emergency standby engine	0.178	2.804	772.44	1.161	46.779	1.870E-03	0.000E+00	n/a	7.192E-05
WINCO FOODS	emergency standby engine	0.254	4.267	735.22	3.588	70.814	8.659E-03	1.438E-05	n/a	1.295E-04

Table 5.1G-3

TID Almond 2 Power Plant

Emission Rates and Stack Parameters for Cumulative Impacts Modeling

	Stack Diam, m	Release Height m	Temp, deg K	Exhaust Flow, m3/s	Exhaust Velocity, m/s	Emission Rates, g/s NOx	SO2	CO	PM10
Averaging Period: One hour (1)									
A2PP Gas Turbines (each)	3.658	24.384	727.44	214.600	20.424	3.1500	0.1085	5.040	n/a
Existing APP CTG	2.788	28.042	408.00	316.972	51.934	0.6362	1.651E-01	1.521	n/a
Existing APP Fire Pump Engine	0.127	4.572	714.11	0.387	30.550	0.0	0.0	0.0	n/a
Averaging Period: Three hours									
A2PP Gas Turbines (each)	3.658	24.384	718.00	330.467	31.452	n/a	0.1966	n/a	n/a
Existing APP CTG	2.788	28.042	408.00	316.972	51.934	n/a	1.651E-01	n/a	n/a
Existing APP Fire Pump Engine	0.127	4.572	714.11	0.387	30.550	n/a	3.149E-03	n/a	n/a
Averaging Period: Eight hours									
A2PP Gas Turbines (each)	3.658	24.384	718.00	330.467	31.452	n/a	n/a	1.722	n/a
Existing APP CTG	2.788	28.042	408.00	316.972	51.934	n/a	n/a	1.521	n/a
Existing APP Fire Pump Engine	0.127	4.572	714.11	0.387	30.550	n/a	n/a	0.185	n/a
Averaging Period: 24 hours, SO2									
A2PP Gas Turbines (each)	3.658	24.384	718.00	330.467	31.452	n/a	0.1966	n/a	n/a
Existing APP CTG	2.788	28.042	408.00	316.972	51.934	n/a	1.651E-01	n/a	n/a
Existing APP Fire Pump Engine	0.127	4.572	714.11	0.387	30.550	n/a	3.149E-03	n/a	n/a
Averaging Period: 24 hours, PM10									
A2PP Gas Turbines (each)	3.658	24.384	727.44	213.693	20.338	n/a	n/a	n/a	0.315
Existing APP CTG	2.788	28.042	408.00	316.972	51.934	n/a	n/a	n/a	2.520E-01
Existing APP Fire Pump Engine	0.127	4.572	714.11	0.387	30.550	n/a	n/a	n/a	1.667E-02
Averaging Period: Annual									
A2PP Gas Turbines (each)	3.658	24.384	694.11	315.473	30.025	0.6783	0.1859	n/a	0.315
Existing APP CTG	2.788	28.042	408.00	316.972	51.934	7.487E-01	1.651E-01	n/a	2.520E-01
Existing APP Fire Pump Engine	0.127	4.572	714.11	0.387	30.550	3.828E-03	3.595E-05	n/a	1.903E-04

Notes

1. For maximum 1-hour impacts, A2PP CTGs are in startup; existing APP fire pump engine is not in operation.

ATTACHMENT DR12-1

Evaporative Cooler Brochure

EVAPORATIVE COOLER

INTRODUCTION

An evaporative cooling system for turbine inlet air is an useful option for installations where high ambient temperatures and low relative humidities are common. With an evaporative cooler, water is added to the inlet air of a gas turbine. Part of the water evaporates absorbing latent heat from the air. As a result, the air, which gives up sensible heat, cools and increases in density. This gives the machine a higher mass flow rate and pressure ratio resulting in an increase in turbine output and efficiency.

For example, considering a dry-bulb temperature of 40°C with 20% relative humidity, the output power can be increased by about 12% if an 80% effective evaporative cooler is used. Correspondingly, the heat rate decreases by about 4%.

The benefit of an evaporative cooler system from an economic point of view is strictly related to the potential average annual increase in output.

APPLICATION

All Heavy Duty gas turbines

TECHNICAL DESCRIPTION

The amount of water required for evaporative cooling depends upon the inlet airflow, the temperature, pressure and humidity of the ambient air and the hardness of the water. The increase in power available from a turbine with an evaporative cooler depends upon the turbine model and ambient conditions (pressure, temperature and humidity). As previously mentioned, the greatest advantages are obtained in hot, dry climates.

Obviously, the temperature drop realized by the cooler is not only a function of atmospheric conditions, but is also related to the cooler design, and particularly to the effectiveness of a cooler, which is defined a follows:

$$\text{Cooler effectiveness} = \frac{T_{1DB} - T_{2DB}}{T_{1DB} - T_{2WB}}$$

Subscript 1 refers to entering conditions and 2 to the exit. DB means Dry Bulb and WB means Wet Bulb.

The effectiveness of coolers available on the market is generally 80% or higher.

Evaporative cooling has the advantage that it can be installed with no modification to the gas turbine.

The components it requires and the control system are also easy to install.

COOLER OPERATION

Water is pumped from a tank at the bottom of a module to a header above the heat exchanging media. A spray system wets the top of the media. The water flows in the channels in the media, which are made of corrugated layers of fibrous material. The layers of channels in the media alternately contain water and air. The water flows down by gravity through the channels, wetting the material of the walls.

The air absorbs the water which evaporates from the walls. Excess water collects in the tank below together with makeup water. The level is maintained by a valve which admits makeup water when the water drops below a certain level.

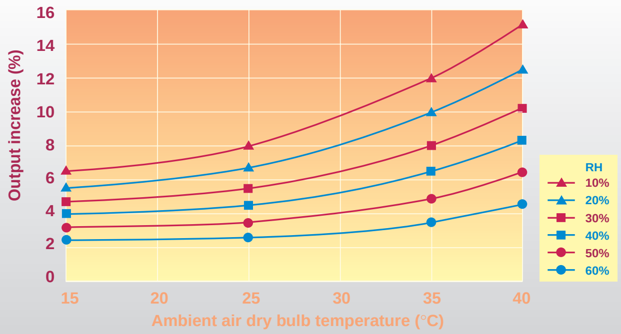

Figure 1 - Effect of an evaporative cooler on available output (80% effective)

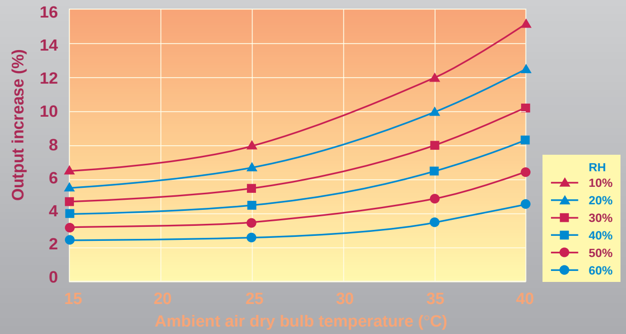

Figure 2 - Effect of an evaporative cooler on Heat Rate (80% effective)

EVAPORATIVE COOLER

WATER SYSTEM

The amount of water which must be provided as makeup is the sum of evaporation, carryover and blowdown.
The rate at which the water is evaporated into the air stream depends upon ambient temperature, humidity and pressure, cooler effectiveness and turbine airflow.
A certain amount of water is entrained in the form of droplets by the airstream entering the turbine.
It may either have escaped from the channels or have dripped from the media retainers. To reduce carryover, mist eliminators are installed on the downstream side of the media. By impinging the airflow, these capture the droplets and drain them to the cooler tank. Since the cooling water recirculates, part of it must be drained periodically (termed blowdown) and made up with new water. This makes it possible to control the concentration of substances present in the water supply which could cause scaling and corrosion if excessive. The total amount of water required is the sum of the evaporated and the blowdown water (make-up water).
In the figure 3 is shown the make-up water request for different turbine models, referring to an 80% effective evaporative cooler operating at 35°C, 20% R.H.
The amount of make up is calculated considering a blend of 50% treated water (low $CaCO_3$ hardness) and 50% raw water (high $CaCO_3$ hardness), resulting in a 140 PPM of $CaCO_3$ water hardness.

SCOPE OF SUPPLY

This uprate is very customer/site specific and must be engineered on individual basis.
The scope of supply comprises:

- Header
- Media retainers
- Mist eliminator
- Instrumentation
- Evaporative cooler arrangement
- Control system
- Modification & installation drawings

Demineralized water supply system can be supplied upon request.

BENEFITS

- Increase in output
- Increase in efficiency / Decrease in Heat Rate
- No modifications to the gas turbine

NOTES

The evaporative cooler system installation shall primarily depend on the plant where it shall be installed. It must be noted that adding an evaporative cooler causes an additional pressure drop in the inlet ducts. This increase is limited however, being approximately 15 mmH2O.
This system requires a supply of suitably treated water therefore a water treating system must be installed if not available. At low temperatures the system must be deactivated and drained to avoid the risk of icing.

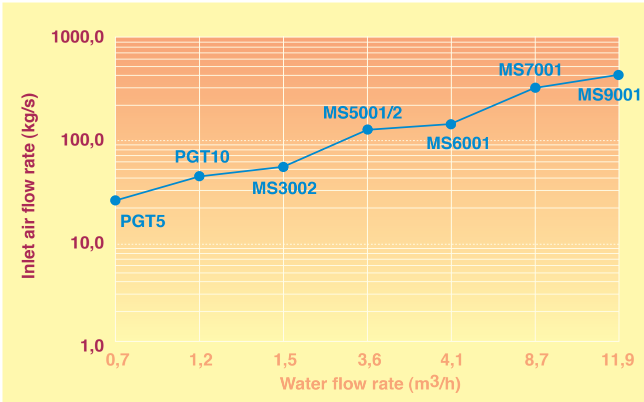

Figure 4 - Evaporative cooler make up water flow rate

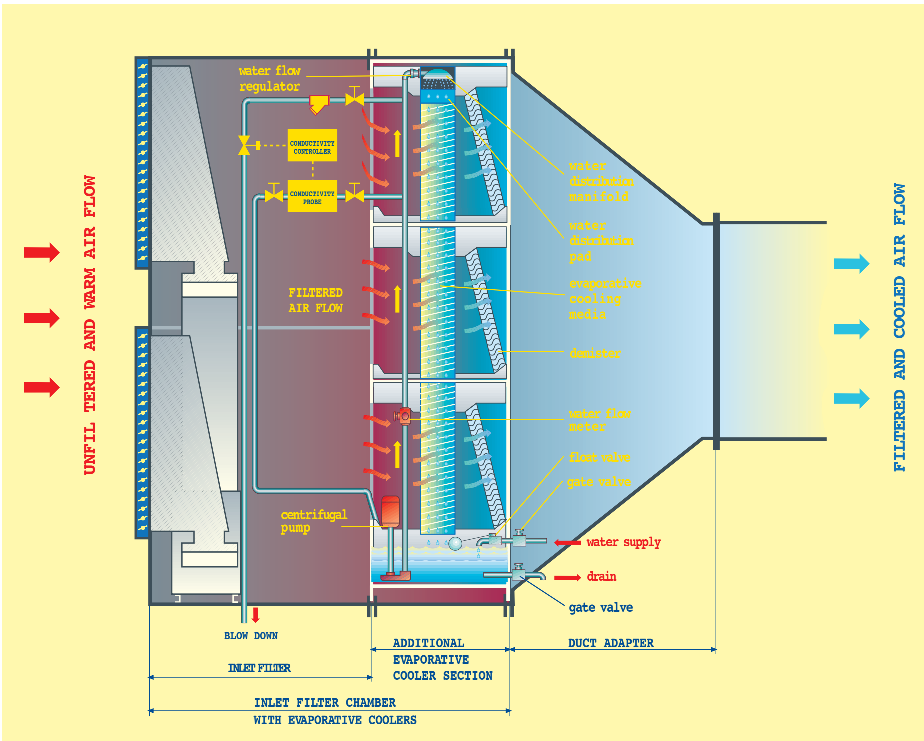

Figure 3 - Evaporative cooler schematic

Headquarters

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ATTACHMENT DR15-1

Greenhouse Gas Calculations

		Walnut Energy Center (MWh) 2008 Actual Generation				Simple Cycle Req'd (at margin)	Optimum WEC Dispatch Case	A2PP as Peaking Resource (10% CF, 25 MW min load)	
Date	***Op Days/Month***	***Gross MWh***	***Max Capacity MWh***	***Balance MWh***	***Req'd for Balance***	***Balance MWh***	***Max Capacity MWh***	***# Units "On"***	***MWh***
Jan-2008	31	160,842	201,624	40,782	55	40,782	201,624	2	3,720
Feb-2008	28	147,972	182,112	34,140	51	34,140	182,112	2	3,360
Mar-2008	31	161,114	201,624	40,510	54	40,510	201,624	2	3,720
Apr-2008	30	170,240	195,120	24,880	35	24,880	195,120	1	1,800
May-2008	9	45,385	58,536	13,151	61	13,151	58,536	2	1,080
Jun-2008	19	93,305	123,576	30,271	66	30,271	123,576	2	2,280
Jul-2008	31	151,116	201,624	50,508	68	50,508	201,624	2	3,720
Aug-2008	31	151,421	201,624	50,203	67	50,203	201,624	2	3,720
Sep-2008	30	125,335	195,120	69,785	97	69,785	195,120	3	5,400
Oct-2008	31	149,166	201,624	52,458	71	52,458	201,624	3	5,580
Nov-2008	30	149,227	195,120	45,893	64	45,893	195,120	2	3,600
Dec-2008	22	109,031	143,088	34,057	65	34,057	143,088	2	2,640
Total		1,614,154	2,100,792	486,638		486,638	2,100,792		40,620
Heat Rate (Btu/kW LHV)		7,900				9,266	7,600		8,550
Heat Rate	Btu/kW HHV	8,755				10,269	8,422		9,475
Heat Rate	MMBtu/MWh	8.75				10.27	8.42		9.48
ARB Factor	kg CO2/MMBtu	52.87				52.87	52.87		52.87
	kg CO2/MWh	462.87				542.90	445.29		500.95
Gross Generation	MWh	1,614,154				486,638	2,100,792		40,620
Total CO2	kg	747,135,687				264,195,782	935,457,591		20,348,551
Total CO2	tonnes	747,136				264,196	935,458		20,349

Summary of GHG Emissions Change		
2008 Actual WEC plus Marginal Simple Cycle	1,011,331	tonnes
Optimum WEC Dispatch Case	(935,458)	tonnes
A2PP as a Peaking Resource	(20,349)	tonnes
Change in CO2 Emissions	**55,525**	**tonnes/yr CO2**

5.5% reduction in CO2

Cultural Resources (16–24)

Background

The project description in the AFC states that the proposed A2PP site was previously used as a borrow pit for the construction of the WinCo distribution center to the north, then backfilled with commercial fill (p. 2-1). The paleontology section in the AFC states that the fill on the project site extends to approximately 6.5 feet below the surface across the entire site, and that soils disturbed by agriculture extend to 4 feet below the surface along the project's proposed linear facilities (pp. 5.8-9–5.8-10).

Staff assumes that some of the equipment that would be installed on the plant site would require foundations capable of considerable weight-bearing and that such foundations would have to extend to some depth in the ground. Staff additionally expects that over-excavation of the holes for these foundations and filling with engineered fill could be required to ensure the stability of the foundations. Auxiliary feature construction, such as excavating the retention pond and trenching for pipe installations, are also likely to require excavation to some depth. To assess potential project impacts to possible buried archaeological resources, staff needs information on the greatest depth in excess of 6.5 feet below the present surface to which excavations at the site would extend and the greatest depth in excess of 4.0 feet below the present surface to which excavations along the linear facilities would extend.

Data Requests

16. Please provide a table listing the features, installations, and foundations for equipment on the proposed plant site for which excavations would exceed 6.5 feet below the present ground surface and indicating the depth that would be reached for each.

Response: Figure DR16-1 identifies those areas on the plant site that are anticipated to require excavations exceeding 6.5 feet below ground surface. The expected depth for each area is provided in a table on Figure DR16-1.

17. Please provide a project site plan, by shading or other such convention, showing the locations where excavation would exceed 6.5 feet below the surface.

Response: Please see Data Response 16.

18. Please provide a table listing the installations along the proposed routes of the linear facilities for which excavations would exceed 4.0 feet and indicating the depth that would be reached for each.

Response: Transmission line Corridor 1 and Corridor 2 will each have approximately 18 poles for a total of 36 poles. Tangent poles (those with zero degrees or no turns) are buried to a depth of 9 feet. Approximately 11 poles on Corridor 1 and 13 poles on Corridor 2 will be tangent poles. The remaining poles (7 on Corridor 1, and 5 on Corridor 2) will be angle poles (used for where the line turns). Angle poles will be placed on concrete foundations which are typically 25 feet deep.

In terms of the gas line route, please see Applicant's letter dated September 2, 2009, requesting additional time for this request. The PG&E and the Applicant are in the process of finalizing the gas line route, and will provide the final linear route as Data Response Set 1B[21]. This response is currently under preparation and will be submitted to Staff as soon as improvements to the PG&E system to serve the A2PP are finalized (expected in late September /early October 2009). This response will address anticipated excavations depths for the gas pipeline.

Background

According to the AFC's paleontology section, the uppermost 10-20 feet of undisturbed sediments in the proposed project vicinity are Tuolumne River alluvial fan deposits known as the Modesto Formation, dating from 75,000 to 10,000 years before the present. The proposed project's two alternative natural gas pipeline routes, extending south to the floodplain of the San Joaquin River, traverse the same Modesto Formation deposits and cut across the toe of the fan (p. 5.8-5).

As noted in the previous Background, fill on the A2PP project site extends to approximately 6.5 feet below the surface across the entire site, and soils disturbed by agriculture extend to 4.0 feet below the surface along the project's proposed linear facilities (p. 5.8-9). So the proposed project's potential to impact buried archaeological deposits, which would date no earlier than 14,000 years ago, depends on how much geologic time is represented by the displaced 6.5 feet on the project site and the disturbed 4.0 feet along the linear facility routes.

Data Request

19. Please have the author of the Paleontological section of the AFC provide an assessment, along with the evidence on which the assessment is based, on whether the sediments below 6.5 feet (from the ground surface) at the project site and below 4.0 feet (from the ground surface) along the linear facility routes and at the end of the natural gas line routes are of a geologic age young enough to contain archaeological deposits.

Response: See Applicant's letter of September 2, 2009, requesting additional time for this request. The Applicant will provide an assessment of the geologic age of the sediments at the project site in late September. In addition, PG&E and the Applicant are in the process of finalizing the gas line route and will be submitted to Staff as soon as improvements to the PG&E system to serve the A2PP are finalized (expected in late September /early October 2009). This response will provide an assessment on the geologic age of the sediments below the 4 foot anticipated excavation depth of the gas pipeline.

Background

In order to meet Energy Commission Data Adequacy requirements, the applicant sent letters inquiring about known local cultural resources to Stanislaus County, to local historical

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[21] The Applicant will provide requested information not fully presented herein as soon as possible, per our letter of September 2, 2009. Since the Applicant and Staff may wish to have the Applicant submit information as soon as possible (as opposed to bundling responses to include all subjects), any additions, clarifications, or enhancements will be lettered sequentially as Set 1B, Set 1C, etc.

and archaeological societies, and to representative Native Americans. Staff needs copies of any responses to these letters received since the AFC was submitted.

Data Request

20. Please provide copies of any letters received from Stanislaus County, or from local historical and archaeological societies, or from contacted Native Americans in response to the applicant's inquiries about local cultural resources.

Response: CH2M HILL contacted the Planning Department of Stanislaus County on August 20, 2009. The County does not maintain a list of historic resources. The City of Ceres Planning Department was also contacted by CH2M HILL on August 20, 2009. The City does not maintain a list of historic resources. No additional responses from any of the historical societies contacted or any of the previously contacted Native Americans have been received since the original submittal of the AFC. If letters are received, copies will be forwarded to the CEC.

Background

Another Turlock Irrigation District (TID) project, the Hughson-Grayson 115-kV Transmission Line and Substation Project, is under environmental review (State Clearinghouse No. 2009012075). This project includes the Grayson Substation, into which the A2PP will connect, and three transmission lines in the vicinity of the APP. TID stated that the draft Environmental Impact Report (EIR) for this project was expected in July, 2009 (AFC, p. 2-1). In that this project may affect cultural resources in the vicinity of the A2PP, please provide staff with a copy of this report.

Data Request

21. When it is available, please provide to staff a copy of the draft EIR for the Hughson-Grayson 115-kV Transmission Line and Substation Project.

Response: The Draft EIR for the Hughson-Grayson 115-kV Transmission Line and Substation Project is provided as Attachment DR21-1. Due to the large size of this document, three hard copies and one electronic copy have been provided to Staff. Additional electronic copies will be provided on request.

Background

The "Geologic Hazards and Resources" section of the AFC notes that a geotechnical study of the proposed plant site will be prepared at some future time (p. 5.3-1). Staff needs to review this report for evidence of the potential for subsurface archaeological deposits.

Data Request

22. Please provide a copy of the project's geotechnical study when it is available.

Response: A copy of the geotechnical report is provided as Attachment DR22-1.

Background

The proposed project's natural gas pipeline would cross several TID canals. The Cultural Resources section of the AFC addresses these canals and other TID system features as individual cultural resources, but does not consider the TID system in its entirety as a potential historic district. To ensure that all cultural resources that could be impacted by the proposed project are identified and evaluated for potential California Register of Historical Resources (CRHR) eligibility, staff needs the applicant's consulting architectural historian to address the possibility that the TID irrigation system, as a historic district, could be eligible for the CRHR, making it a historical resource under CEQA.

Data Request

23. Please have a qualified architectural historian discuss the TID irrigation system as a potential historic district and make a recommendation, with appropriate justification, on its eligibility for the CRHR. Additionally, if the architectural historian recommends that the TID irrigation system is a potentially significant historic district, please have that person recommend which of the canals that could be impacted by the proposed project are contributors to that district.

Response: The Turlock Irrigation District's (TID) water service territory encompasses 307 square miles in the San Joaquin Valley. The district is bounded by the Merced River to the south, the San Joaquin River on the west and the Tuolumne River on the north. Its boundaries overlap both Merced and Stanislaus Counties. Per JRP's historic context and evaluation procedures from *Water Conveyance Systems in California*, the boundaries of a water system will begin with its water source (or sources) and continue in a linear manner, encompassing associated elements such as canals, drains and ditches, as well as check dams and maintenance roads, before ending at the location of the end users.

The TID canal system begins with the construction of the La Grange Dam, the original intake of the TID system. The main Turlock diversion canal leads from the La Grange Dam along the south bank of the Tuolumne River for about 7 miles to Turlock Lake (formerly Owen Reservoir). The Main Supply Canal diverts near the west end of Turlock Lake and carries water to the northeast edge of the Turlock District a few miles east of Hickman. From here, the Ceres Main Canal carries water west on the highland above the Tuolumne channel, and then south through the center of the Turlock Irrigation District. The Turlock Main Canal diverts at the same gate as the Ceres Main, flows south for about 10 miles, and then the main laterals divert at intervals of 2 and 3 miles, running west to the San Joaquin River. The Highline Canal, added to the TID system in 1911, connects directly to the Main Canal above Hickman, runs south to the Turlock Main Canal until a point east of Delhi where it runs along the Merced River, eventually emptying into the river.

The primary components of the TID irrigation system were completed prior to 1920. Although modifications have been made to all parts of the TID, major additions to the system have not been made since the Don Pedro Dam, located upstream of LaGrange, was constructed in 1971.

The Turlock Irrigation District (TID) irrigation system may be eligible for listing in the California Register of Historical Resources (CRHR) under Criterion 1, for its association with the irrigation agriculture in California. The TID is one of the first irrigation districts created following the passage of the Wright Act in 1887, and one of only three irrigation districts that formed early and that is still in operation. It may also be eligible under Criterion 1 as an example of the open canals that characterized the irrigation infrastructure enabling the Turlock region to open up to irrigation agriculture in the early 20th century. The district would encompass only linear features and associated elements that were developed between 1893 and 1920. Although the TID irrigation system may be eligible as a whole for listing under Criterion 1, none of the individual canal segments are important examples of a type or method of construction (Criterion C) and because of repeated repairs and extensive upgrades, they cannot serve as a source of important information about historic canal construction or technology (Criterion D).

A site record for the TID irrigation system is provided as Attachment DR23-1. The natural gas pipeline crosses several laterals of the TID; however these laterals will be crossed through the use of a trenchless construction method such as jack and bore or horizontal directional drilling, and will not be impacted by installation of gas pipelines for the A2PP.

Background

The Cultural Resources Technical Report's (AFC, Vol. 2, App. 5.3-B) References section lists several CHRIS Primary record forms for the Tidewater Southern Railroad and for the canals that are part of the TID irrigation system. Staff needs these forms to make an independent assessment of the potential CRHR eligibility of these resources.

Data Request

24. Please provide completed copies of the following forms:

    a) Bard and Calvit, Primary Record Form Lateral 5, TID, 2002;

    b) Hatoff, Primary Record Form P-50-000083 (Segment of the Tidewater Southern Railroad), 1995;

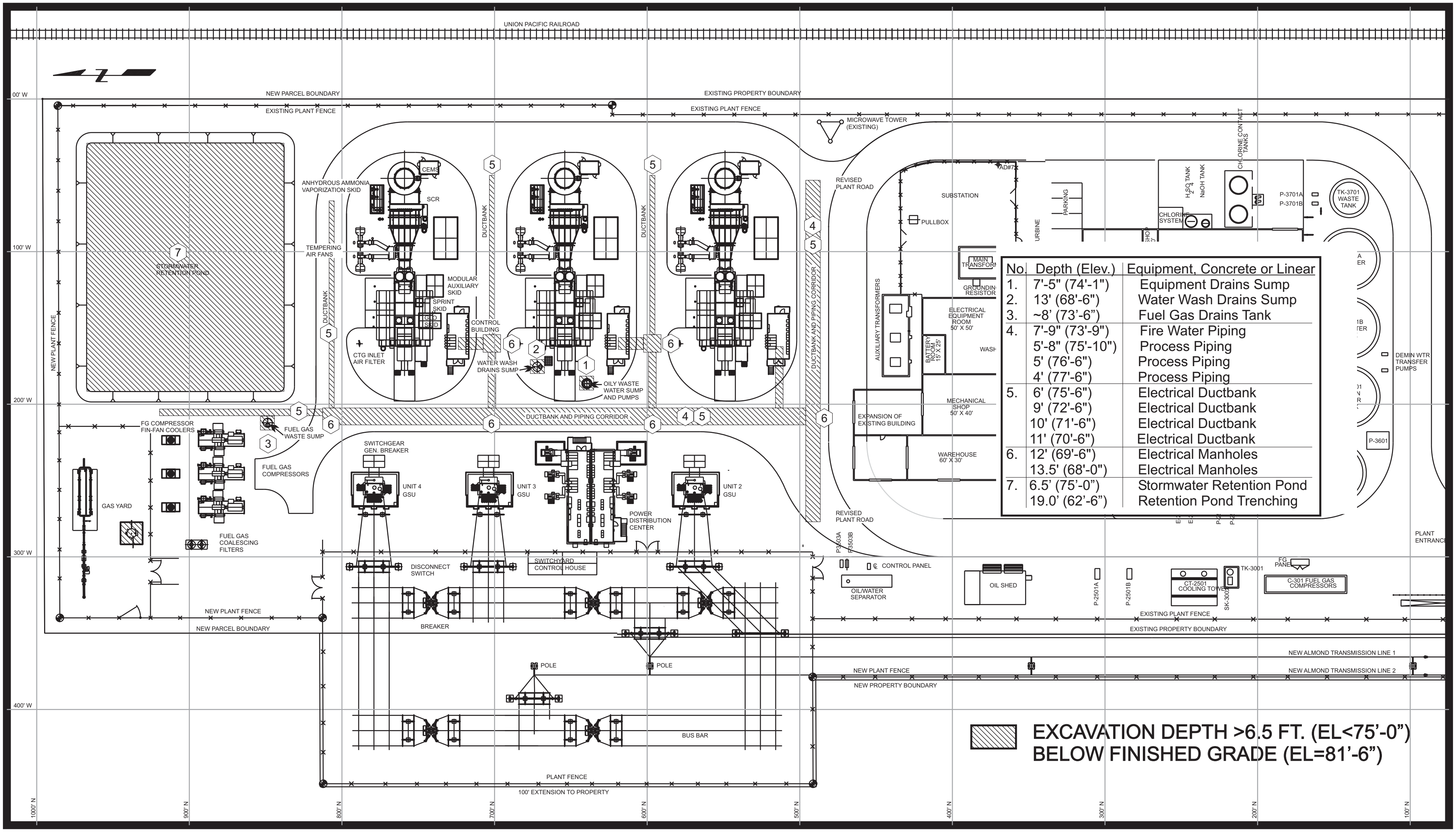
    c) JRP, Primary Record Form P-50-000071 (Segment of Lateral No. 2 ½), 1993;

    d) JRP, Primary Record Form P-50-000072 (Segment of Lateral No. 3), 1993;

    e) Napton, Primary Record Form P-39-15 (X-ajo-256h)—Tidewater Southern Railway (between Lathrop Road and Spreckles Road, Manteca, CA), 1994; and

    f) Sharpe, Primary Record Form P-50-000083 (Segment of the Tidewater Southern Railroad), 2003.

Response: Complete copies, as provided by the Southern San Joaquin Valley Information Center, of each of these forms have been provided under a request for confidentiality as Confidential Attachment DR24-1. Additionally, a new site record, submitted to the SSJVIC after the initial literature searches for the A2PP were conducted, was obtained. This record is for the Turlock Irrigation District. This record is included in Confidential Attachment DR24-1.



No.	Depth (Elev.)	Equipment, Concrete or Linear
1.	7'-5" (74'-1")	Equipment Drains Sump
2.	13' (68'-6")	Water Wash Drains Sump
3.	~8' (73'-6")	Fuel Gas Drains Tank
4.	7'-9" (73'-9")	Fire Water Piping
	5'-8" (75'-10")	Process Piping
	5' (76'-6")	Process Piping
	4' (77'-6")	Process Piping
5.	6' (75'-6")	Electrical Ductbank
	9' (72'-6")	Electrical Ductbank
	10' (71'-6")	Electrical Ductbank
	11' (70'-6")	Electrical Ductbank
6.	12' (69'-6")	Electrical Manholes
	13.5' (68'-0")	Electrical Manholes
7.	6.5' (75'-0")	Stormwater Retention Pond
	19.0' (62'-6")	Retention Pond Trenching

FIGURE DR16-1
LOCATIONS ANTICIPATED TO REQUIRE EXCAVATIONS EXCEEDING 6.5 FEET BGS
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

CH2MHILL

EY012009003SAC Figure_DR_16-1.ai 09.10.09 tdaus

ATTACHMENT DR21-1

Draft EIR for the Hughson-Grayson 115-kV Transmission Line and Substation Project

ATTACHMENT DR21-1

Draft EIR for the Hughson-Grayson 115-kV Transmission Line and Substation Project

Due to the size of this document, three hard copies and one electronic copy on CD have been provided to the California Energy Commission. Additional electronic copies will be provided upon request.

ATTACHMENT DR22-1

Geotechnical Report

GEOTECHNICAL SERVICES REPORT
PROPOSED EXPANSION
TURLOCK IRRIGATION DISTRICT
ALMOND POWER PLANT
CERES, CALIFORNIA

May 6, 2009

KLEINFELDER
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File No. 102885.G01
May 6, 2009

Mr. Alex Buenrostro
Turlock Irrigation District
333 East Canal Drive
Turlock, CA 95381

Subject: **Geotechnical Services Report**
Proposed Expansion
Turlock Irrigation District
Almond Power Plant
Ceres, California

Dear Mr. Buenrostro:

Kleinfelder is pleased to present the results of our geotechnical services performed for the proposed expansion of the Turlock Irrigation District (TID) Almond Power Plant located off Crows Landing Road in Ceres, California. The accompanying report includes background information regarding the anticipated construction, the purpose of our services, and scope of services provided. In addition, discussions regarding our investigative procedures and the site conditions encountered during our field exploration are presented. Finally, geotechnical conclusions and recommendations are provided for project design and construction. The appendix of the report includes logs of borings and a summary of laboratory tests. We have also included an information sheet published by ASFE. Our firm is a member of ASFE, and we feel this sheet will help you better understand geotechnical engineering reports.

We appreciate the opportunity of providing our services for this project. If you have questions regarding this report or if we may be of further assistance, please call us.

Respectfully submitted,

KLEINFELDER WEST, INC.

Brock Campbell

Brock E. Campbell, C.E. No. 71578
Staff Engineer

Reviewed by:

Carl Henderson

Carl Henderson, Ph.D., C.E. No. 71115
Geotechnical Department Manager

REGISTERED PROFESSIONAL ENGINEER
CARL FRANCISCO HENDERSON
No. 71115
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

BEC:lr 4c: Client

KLEINFELDER
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PROPOSED EXPANSION
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CERES, CALIFORNIA

1.0 INTRODUCTION

In this report we present the results of our geotechnical services performed for the proposed expansion of the Turlock Irrigation District (TID) Almond Power Plant located off Crows Landing Road in Ceres, California. The site location relative to existing streets is shown on Plate 1.

A site plan provided to our firm by TID indicates that the proposed expansion will include construction of three new turbines and associated transformer pads, a power distribution center, and a switchyard. We understand that the equipment will be supported on concrete mat-type foundations. The anticipated structural loads have not been provided to Kleinfelder as of this time. However, we understand that a minimum soil bearing pressure of 2,000 pounds per square foot will be acceptable to the design engineer. A storm water retention basin is planned at the northeast corner of the proposed expansion area. Additional details of the proposed construction are not known to our firm at this time.

A site plan showing the proposed project layout is presented on Plate 1. In the event these structural details are inconsistent with the final design criteria, our firm should be contacted prior to final design in order that we may update our recommendations as needed.

2.0 PURPOSE AND SCOPE OF SERVICES

The purpose of our services was to explore and evaluate the subsurface conditions at the proposed structure locations in order to develop recommendations related to the geotechnical aspects of project design and construction.

The scope of our services was outlined in our proposal dated March 19, 2009 (Proposal No. 02002PROP603) and included the following:

- A visual site reconnaissance to observe the surface conditions at the proposed structure locations
- A field investigation that consisted of drilling borings within the area of the proposed structures to explore the subsurface conditions
- Laboratory testing of representative samples obtained during the field investigation to evaluate relevant physical and engineering parameters of the subsurface soils
- Evaluation of the data obtained and an engineering analysis to develop our geotechnical conclusions and recommendations
- Preparation of this report which includes:
  - A description of the proposed project
  - A description of the field and laboratory investigations
  - A description of the surface and subsurface conditions encountered during our field investigation
  - Conclusions and recommendations related to the geotechnical aspects of the project design and construction
  - A site plan, and
  - An appendix that includes logs of borings and a summary of laboratory tests.

3.0 FIELD AND LABORATORY INVESTIGATIONS

3.1 FIELD INVESTIGATION

The subsurface conditions at the proposed structure locations were explored on March 31, 2009, by drilling four borings to depths between approximately 16½ and 51½ feet below existing grade. The borings were drilled using a CME 75 truck-mounted drill rig equipped with 8-inch O.D. hollow-stem auger. The approximate boring locations are presented on Plate 1.

In addition, on April 28, 2009, two resistivity tests were performed at the site. The tests were performed with a Bison 2350B earth resistivity meter using the Wenner 4-point configuration.

During the drilling operations, penetration tests were performed in accordance with ASTM D-1586 at regular intervals using California and Standard Penetration Samplers to evaluate the relative density of coarse-grained (cohesionless) soil, the consistency of fine-grained (cohesive) soil, and to retain soil samples for laboratory testing. The penetration tests were performed by initially driving the sampler 6 inches into the bottom of the bore hole using a 140 pound automatic trip-hammer falling 30 inches to penetrate loose soil cuttings and "seat" the sampler. Thereafter, the sampler was progressively driven an additional 12 inches, with the results recorded as the corresponding number of blows required to advance the sampler 12 inches, or any part thereof. A representative with our firm maintained logs of the borings and visually classified the soils encountered according to the Unified Soil Classification System (see Plate A-1 of the appendix). Soil samples obtained from the borings were packaged and sealed in the field to reduce moisture loss and disturbance and brought to our laboratory for testing.

A key to the logs of borings is presented on Plate A-2 of the appendix. The logs of borings are presented on Plates A-3 through A-6 of the appendix. The borings were located in the field by visual sighting and/or pacing from existing site features; therefore, the locations shown on Plate 1 should be considered approximate. The penetration resistance (blows/foot) shown on the logs of borings represent field penetration that has not been corrected for overburden pressure, sampler size, hammer type, borehole diameter, rod length, sampling method or any other correction factor.

3.2 LABORATORY INVESTIGATION

Laboratory tests were performed in accordance with current ASTM standards on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory testing program was formulated with emphasis on the evaluation of natural moisture content, in-place density, and percent soil passing the #200 sieve of the materials encountered.

The results of laboratory tests are summarized on Plate A-7 in the appendix. This information, along with the field observations, was used to prepare the final test boring logs.

4.0 SITE CONDITIONS

4.1 SURFACE CONDITIONS

At the time of our field explorations, the proposed expansion site consisted of a relatively flat, barren parcel adjacent to the north fence of the existing Almond Power Plant. The parcel consists of the south portion of a basin that was backfilled in May 2008 with approximately 6 to 7 feet of engineered fill. The fill was keyed into the original basin banks on the east, south, and west, and a relatively steep fill slope was created on the north which is now the south bank of the remaining basin. Some erosion has occurred on the new fill slope along the north edge of the site. Kleinfelder monitored and tested the engineered fill as it was placed. All engineered fill tested exceeded 90 percent relative compaction. The site is bounded by basins of the Winco facility to the north and west, railroad tracks to the east, and the Almond Power Plant to the south.

4.2 SUBSURFACE CONDITIONS

The near surface soils encountered in our borings consisted of medium-dense to dense silty sand and stiff to very-stiff sandy silt fill from the surface to depths of approximately 6 to 7 feet below existing grade. The near-surface fill was underlain by interbedded and discontinuous strata of stiff to hard sandy silt and medium-dense to dense silty sand that extended to the depths explored. Exceptions were strata of relatively "clean" sand encountered between depths of approximately 21 and 29 feet in boring B-1 and 11 and 14 feet in boring B-2 and clayey sand encountered in boring B-1 between depths of approximately 14 and 18 feet.

The test borings were checked for the presence of groundwater during and immediately following drilling operations. Groundwater was encountered in borings B-1, B-2, and B-4 at depths of approximately 22, 15½, and 15½ feet, respectively. It appeared that the groundwater in boring B-1 may have been trapped beneath clayey sand and silt layers encountered between depths of about 15 and 21 feet. Groundwater elevations and soil moisture conditions within the project area will vary depending on seasonal rainfall, irrigation practices, land use, the level of water in adjacent basins, and/or runoff conditions not apparent at the time of our field investigation. The evaluation of such factors is beyond the scope of this investigation.

Detailed descriptions of the subsurface conditions encountered during our field investigation are presented on the Logs of Borings, Plates A-3 through A-6 of the appendix.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 GENERAL

Based on our findings, it is our professional opinion that the site should be suitable from a geotechnical standpoint for support of the proposed structures provided the recommendations contained herein are incorporated into the project design. Given the site conditions encountered, we believe the planned reinforced mat foundations bearing on the existing engineered fill should provide adequate support for the proposed structures. The structures should be constructed a minimum of 15 feet away horizontally from the edge of the existing adjacent basin slopes and the proposed basin slopes. If structures will be closer than 15 feet from the slopes, Kleinfelder should be contacted to review the design and provide additional recommendations if required. Specific conclusions and recommendations regarding the geotechnical aspects of design and construction are presented in the following sections.

5.2 MAT FOUNDATIONS

The proposed structures may be supported on mat foundations bearing on the existing engineered fill as planned. If any portions of the structures will extend outside the engineered fill area (i.e., on previous basin banks), prior to placement of reinforcing steel and concrete in the foundation excavation, the upper 12 inches of soil exposed on the bottom of the foundation excavation should be <u>uniformly</u> moisture conditioned to between 1 and 4 percentage points above the optimum moisture content and compacted as engineered fill to a minimum of 90 percent of the maximum dry density as determined by the ASTM D-1557 test method. The net allowable bearing pressure used for design of the mat foundations supported by these materials should not exceed 2,000 pounds per square foot (psf) for dead plus sustained live loading. A net allowable bearing pressure of 2,650 psf may be used for dead plus sustained live loads plus seismic loads.

Based on this allowable bearing pressure and the anticipated foundation dimensions, we estimate the maximum total settlement of the structures should be less than ¾ inch. The maximum differential settlements, assuming that the mat is designed to act as a rigid unit, should be less than ½ inch.

If the mat foundations are designed using approximate flexible methods (Winkler foundation), a coefficient of subgrade reaction (k-value) of 200 pounds per square inch per inch (assuming a square plate measuring 1 foot by 1 foot), a Young's modulus of soil (E_s) of 2,500 pounds per square inch, and a soil Poisson's ratio (μ_s) of 0.30 may be used for design. These values were determined based on published correlations for the soil types encountered at the site. The k-value used for design should be adjusted appropriately depending on the length, width and embedment of the mat foundation. Field plate load tests should be performed to better define the subgrade modulus if the mat foundation will be critical or sensitive to loading and deflection.

5.3 LATERAL RESISTANCE

Resistance to lateral loads (including those due to wind or seismic forces) may be determined using an at-rest coefficient of friction of 0.55 between the bottom of the concrete mat foundations and the underlying soils. As an alternative, the passive soil pressure acting against the vertical face of the foundations can provide the lateral resistance for the foundations. The passive pressures available in native soils and engineered fill may be taken as equivalent to pressures exerted by fluids weighing 350 and 400 pounds per cubic foot (pcf), respectively. These two modes of resistance can be combined. However, since horizontal movement is required to mobilize passive resistance, the allowable at-rest frictional resistance should be reduced by 50 percent.

Lateral resistance parameters provided above are ultimate values. Therefore, a suitable factor of safety should be applied for design purposes. The appropriate factor of safety will depend on the design condition and should be determined by the project Structural Engineer.

5.4 CBC SEISMIC DESIGN CRITERIA

The 2007 CBC is based on the 2006 IBC and on ASCE 7-05. The following seismic design parameters are based on the 2007 CBC and were calculated from the USGS website. The Maximum Considered Earthquake (MCE) mapped spectral accelerations for 0.2 second and 1 second periods (S_s and S_1) were estimated using Section 1613 of 2007 CBC and the estimated latitude of 37.5749° N and longitude of 120.9852° W The mapped acceleration values and associated soil amplification factors (F_a and F_V) based on 2007 CBC are presented in the table below. Corresponding site modified (S_{MS} and S_{M1}) and design spectral accelerations (S_{DS} and S_{D1}) are also presented in the table below.

Ground Motion Parameters Based on 2007 CBC

Parameter	Value	2007 CBC Reference
S_S	0.930g	Section 1613.5.1
S_1	0.324g	Section 1613.5.1
Site Class	D	Table 1613.5.2
F_a	1.128	Table 1613.5.3(1)
F_v	1.752	Table 1613.5.3(2)
S_{MS}	1.049g	Section 1613.5.3
S_{M1}	0.567g	Section 1613.5.3
S_{DS}	0.699g	Section 1613.5.4
S_{D1}	0.378g	Section 1613.5.4

According to Section 1802.2.7 of 2007 CBC, PGA can be estimated using a site-specific study or PGA can be taken as S_{DS} /2.5, where S_{DS} is determined using Section 1613 of 2007 CBC as presented in the table above. A site specific study was beyond our proposed scope of services. Using S_{DS} /2.5 results in a PGA of 0.280g.

5.5 LIQUEFACTION

A common secondary hazard of strong ground shaking is the potential for soil liquefaction. Liquefaction describes a phenomenon in which saturated soil loses shear strength and deforms as a result of increased pore water pressure induced by strong ground shaking during an earthquake. Dissipation of the excess pore pressures will produce volume changes within the liquefied soil layer, which can manifest at the ground surface as settlement of structures, floating of buried structures, failure of retaining walls, lateral migration (lateral spreading), and extensional ground cracking of liquefied material. Factors known to influence liquefaction include soil type, structure, grain size, relative density, confining pressure, depth to groundwater, and the intensity and duration of ground shaking. Soils most susceptible to liquefaction are saturated, loose, sandy soils.

Based on the results of our investigation, the site is underlain by medium-dense to dense silty sand and stiff to very-stiff sandy silt engineered fill to depths of about 6 to 7 feet. Below those depths, stiff to hard sandy and clayey silt and medium-dense to dense silty and relatively "clean" sand were encountered to the depths explored. Groundwater was encountered in our borings at depths of approximately 15½ to 22 feet below the ground surface.

Our results indicate that, with the exception of a medium-dense silty sand layer encountered at a depth of about 45 to 51½ feet, the factor of safety against liquefaction is greater than 1.3 in the soil layers below the estimated high groundwater. However, for the silty sand layer encountered at about 45 feet, our analysis estimates a factor of safety against liquefaction of 0.4. According to Martin and Lew (1999), safe factors of safety for settlement, surface disruption, and lateral spreading are 1.1, 1.2, and 1.3, respectively. Therefore, the potential for liquefaction-induced settlement is a possibility at this site. Our settlement calculations using Seed et al. (2003) and Idriss and Boulanger (2008) indicate a total settlement of 1.00 and 0.19 inches, respectively, in the potentially liquefiable layer. According to Martin and Lew (1999), differential settlement can be taken as half of the total settlement between adjacent supports. In addition, because of the presence of about 45 feet of non-liquefiable soil above the potentially liquefiable stratum, the potential for surface disruption is negligible according to Ishihara (1985) and Youd and Garris (1995).

5.6 SOIL CORROSION

Kleinfelder is not a corrosion consultant or expert. You may wish to retain a competent corrosion engineer to design corrosion protection systems appropriate for this project.

5.7 RESISTIVITY TESTING

Two resistivity tests were performed at the approximate locations shown on Plate 1 using a Bison 2350B earth resistivity meter. The Wenner 4-point configuration was used. The tests were performed with electrode spacing as requested of 2½, 5, 10 and 15 feet. The test results are summarized below.

FIELD RESISTIVITY TEST RESULTS

				Apparent Resistivity, ohm-cm	
Location	Electrode Spacing, Feet	Layer Depth, Feet	Layer Thickness, Feet	Layer	Surface to Layer Bottom
R-1	2½	0 - 2½	2½	7445	7445
	5	2½ - 5	2½	7075	7255
	10	5 - 10	5	7825	7530
	15	10 - 15	5	7305	7450
R-2	2½	0 - 2½	2½	7590	7590
	5	2½ - 5	2½	6980	7270
	10	5 - 10	5	11890	9020
	15	10 - 15	5	8450	8825

5.8 GENERAL EARTHWORK

The following presents recommendations for general earthwork criteria. Previous sections should be reviewed for specific or supplemental earthwork recommendations.

5.8.1 Site Stripping

Prior to general site grading, all surface vegetation and debris should be removed and disposed of outside the construction limits. The depth of stripping should be determined in the field by a representative of Kleinfelder at the time of grading. Stripped vegetation should not be incorporated into any engineered fill.

5.8.2 Subgrade Preparation

Previous sections discuss specific subgrade preparation recommendations related to foundations. Where not specifically addressed by these previous sections, all subgrade areas that will receive engineered fill for support of structures should be scarified to a depth of at least 12 inches, uniformly moisture conditioned to a moisture content ranging from 1 to 4 percentage points above the optimum moisture content, and compacted as engineered fill to at least 90 percent of the maximum dry density as determined by the ASTM D-1557 test method.

In-place scarification and compaction may not be adequate to densify all disturbed soil within areas grubbed or otherwise disturbed below a depth of approximately 6 inches. Therefore, overexcavation of disturbed soil, scarification and compaction of the exposed subgrade, and replacement with engineered fill may be required to sufficiently densify all disturbed soil.

Following rough grading, construction and trenching activities often loosen or otherwise disturb the subgrade soils. On occasion, this disturbance can lead to isolated movement of the subgrade soils following construction and cracking of overlying slabs and pavement. Accordingly, loose/disturbed areas should be repaired and trench backfill should be properly compacted prior to placement of concrete.

5.8.3 Temporary Excavations

Construction site safety generally is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. The Contractor should be aware that slope height, slope inclination, or excavation depths (including utility trench excavations) should in no case exceed those specified in local, state, and/or federal safety regulations (e.g., OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations). Flatter slopes and/or trench shields may be required if loose, cohesionless soils and/or water are encountered along the slope face. Heavy construction equipment, building materials, excavated soil, and vehicular traffic should not be allowed within a lateral distance equal to one-third the slope height from the top of any excavation. During wet weather, earthen berms or other methods should be used to prevent runoff water from entering all excavations. All runoff water, seepage, and/or groundwater encountered within excavations should be collected and disposed of outside the construction limits.

5.8.4 Fill Materials

The near-surface soils encountered in our borings, minus organics, debris and/or other deleterious materials, should be suitable for use as engineered fill in proposed structure areas. All import fill soils should be nearly free of organic or other deleterious debris, essentially non-plastic, and less than 3 inches in maximum dimension. In general, well-graded mixtures of gravel, sand, non-plastic silt, and small quantities of cobbles, rock fragments, and/or clay are acceptable for use as import fill. All imported fill materials to be used for engineered fill should be sampled and tested by the project Geotechnical Engineer prior to being transported to the site. Guidelines for import fill are provided below.

IMPORT FILL GUIDELINES

Gradation (ASTM C136)	
Sieve Size	Percent Passing
3-inch	100
No. 4	50 – 100
No. 200	15 – 70
Plasticity (ASTM D4318)	
Liquid Limit	Plasticity Index
Less than 30	Less than 12
Organic Content (ASTM D2974)	
Less than 3 percent	

Trench backfill and bedding placed within existing or future city or county right-of-ways should meet or exceed the requirements outlined in the current city or county specifications. Trench backfill or bedding placed outside existing or future right-of-ways could consist of native or imported soil that meets the requirements for fill material provided above. However, coarse-grained sand and/or gravel should be avoided for pipe bedding or trench zone backfill unless the material is fully enclosed in a geotextile filter fabric such as Mirafi 140N or an equivalent substitute. In a very moist or saturated condition, fine-grained soil can migrate into the coarse sand or gravel voids and cause "loss of ground" or differential settlement along and/or adjacent to the trenches, thereby leading to pipe joint displacement and pavement distress.

Consideration should be given to using watertight joints where pipes and culverts are placed below groundwater and in highly erodible soil, i.e., sand and silt.

Trench backfill recommendations provided above should be considered minimum requirements only. More stringent material specifications may be required to fulfill bedding requirements for specific types of pipe. The project Civil Engineer should develop these material specifications based on planned pipe types, bedding conditions, and other factors beyond the scope of this study.

5.8.5 Engineered Fill

All fill soils, either native or imported, required to bring the site to final grade should be compacted as engineered fill. The fill should be uniformly moisture conditioned to a moisture content ranging from 1 to 4 percentage points above the optimum moisture content, placed in horizontal lifts less than 12 inches in loose thickness, and compacted to at least 90 percent of the maximum dry density as determined by ASTM Test Method D 1557[1]. Additional fill lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable. Discing and/or blending may be required to uniformly moisture condition soils used for engineered fill.

All trench backfill in building or other structural areas should be placed and compacted in accordance with the recommendations provided above for engineered fill. During backfill, mechanical compaction of engineered fill is recommended.

5.8.6 Wet/Unstable Subgrade Mitigation

Based on our findings, groundwater levels are not anticipated to rise near the surface or impede general grading operations at the site. However, if site grading is performed during or following extended periods of rainfall, the moisture content of the near-surface soils may be significantly above optimum. This condition, if encountered, could seriously delay grading by causing an unstable subgrade condition. Typical remedial measures include discing and aerating the soils during dry weather, mixing the soils with dryer materials, removing and replacing the soils with an approved fill material, stabilization with a geotextile fabric or grid, or mixing the soils with an

[1] *This test procedure should be used wherever relative compaction, maximum dry density, or optimum moisture content is referenced within this report.*

approved hydrating agent such as a lime or cement product. Our firm should be consulted prior to implementing any remedial measure to observe the unstable subgrade condition and provide site-specific recommendations.

5.8.7 Existing Fill Slopes

As noted, a relatively steep fill slope was created on the north side of the site during backfilling of the basin. One area of significant erosion and numerous areas of minor erosion were observed on the slope. In addition to the minimum 15-foot set-back recommended for structures near the slope, the eroded areas should be repaired prior to construction. The risk of future erosion can be reduced by flattening the slope (2:1 or flatter) and by planting vegetation on the slope face. In addition, the flow of surface water should be diverted away from the slope face by grading, constructing channels or curbs, or through piping.

6.0 ADDITIONAL SERVICES

The review of plans and specifications, field observations, and testing by Kleinfelder is an integral part of the conclusions and recommendations made in this report. If Kleinfelder is not retained for these services, the client agrees to assume Kleinfelder's responsibility for any potential claims that may arise during construction. The actual tests and observations by Kleinfelder during construction will vary depending on the type of project and soil conditions. The tests and observations would be additional services provided by our firm. The costs for these services are not included in our current fee arrangements.

As a minimum, our construction services should include observation and testing during site preparation, grading, and placement of engineered fill and observation and testing of foundation excavations prior to placement of reinforcing steel. Many of our clients are finding it helpful to have concrete compressive tests performed even though this information may not be required by any agency.

7.0 LIMITATIONS

1. The conclusions and recommendations of this report are for design purposes for the TID Almond Power Plant expansion project as described in the text of this report. The conclusions and recommendations in this report are invalid if:

   - The assumed structural or grading details change
   - The report is used for adjacent or other property
   - Changes of grades and/or groundwater occur between the issuance of this report and construction
   - Any other change is implemented which materially alters the project from that proposed at the time this report was prepared

2. The conclusions and recommendations in this report are based on the borings drilled for this investigation. It is possible that variations in the soil conditions exist between or beyond the points of exploration, or the groundwater elevation may change, both of which may require additional investigations, consultation, and possible design revisions.

3. We are not corrosion engineers. A competent corrosion engineer should be retained to design corrosion protection systems appropriate for the project.

4. This report was prepared in accordance with the generally accepted standard of practice that existed in San Joaquin County at the time the report was written. No warranty, expressed or implied, is made.

5. It is the CLIENT'S responsibility to see that all parties to the project, including the designer, contractor, subcontractor, etc., are made aware of this report in its entirety.

6. This report may be used only by the client and only for the purposes stated within a reasonable time from its issuance, but in no event later than three years from the date of the report. Land use, site conditions (both on- and off-site), or other factors may change over time, and additional work may be required. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else, unless specifically agreed to in advance by Kleinfelder in writing, will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

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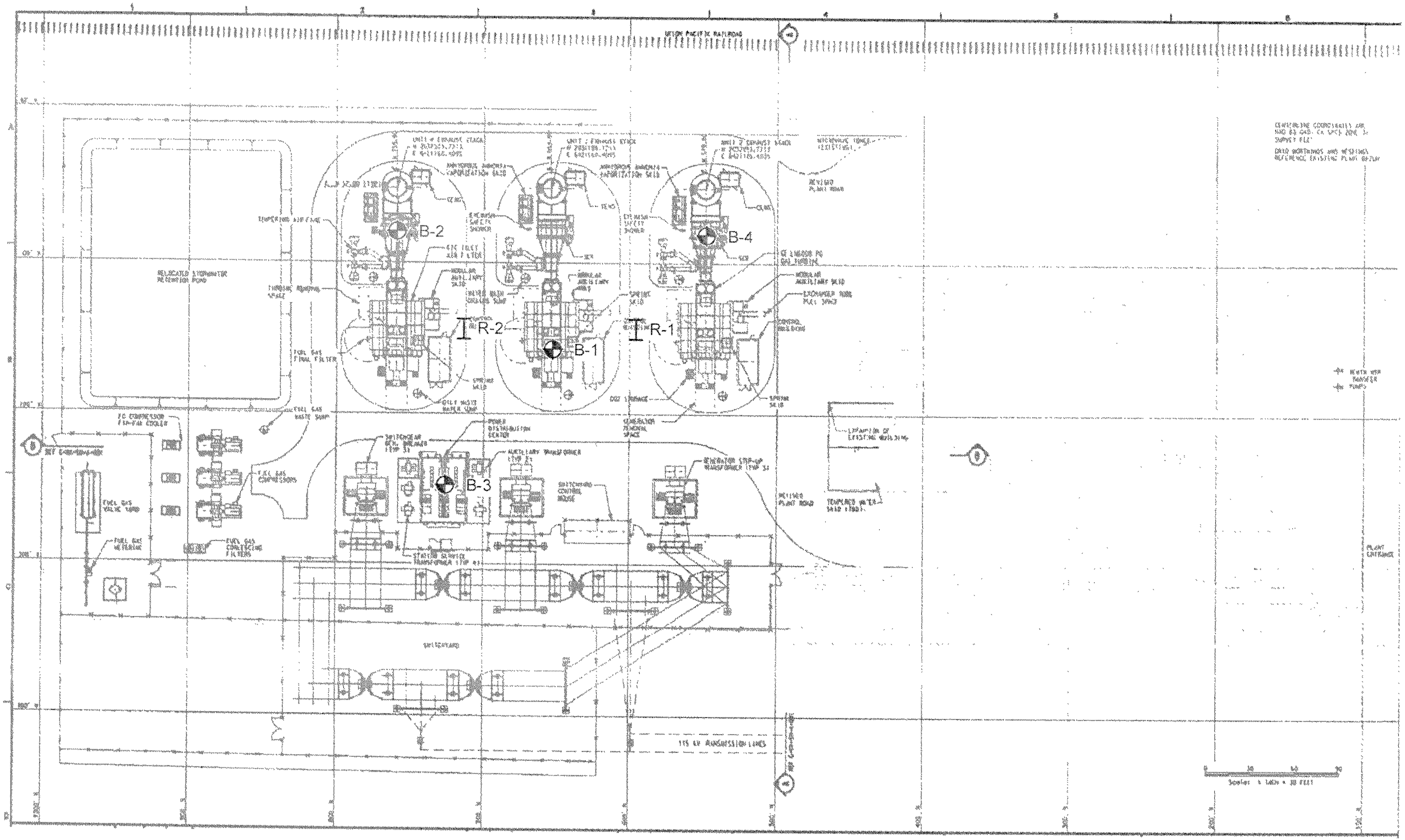
APPENDIX
LOGS OF BORINGS AND
SUMMARY OF LABORATORY TESTS

LIST OF ATTACHMENTS

The following plates are attached and complete this appendix.



B-1 DENOTES NUMBERS AND APPROXIMATE LOCATIONS OF BORINGS DRILLED FOR THIS INVESTIGATION

R-1 DENOTES NUMBERS AND APPROXIMATE LOCATIONS OF FEILD RESISTIVITY TESTS PERFORMED FOR THIS INVESTIGATION

NOT TO SCALE

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Project Number: 102885.G01	SITE PLAN PROPOSED EXPANSION TID ALMOND POWER PLANT CERES, CALIFORNIA	Plate 1
Graphic Date: 4/8/09		
Graphic By: G. GOMEZ		
Checked By:		
File Name: MOD9D007.fh11		

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2488)

MAJOR DIVISIONS				GRAPHIC LOG	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	GRAVELS (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVELS WITH <5% FINES	Cu≥4 and 1≤Cc≤3	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/or 1>Cc>3	GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5 to 12% FINES	Cu≥4 and 1≤Cc≤3	GW-GM	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
				GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/or 1>Cc>3	GP-GM	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
				GP-GC	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH >12% FINES		GM	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
				GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3	SW	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/or 1>Cc>3	SP	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5 to 12% FINES	Cu≥6 and 1≤Cc≤3	SW-SM	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/or 1>Cc>3	SP-SM	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				SP-SC	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH >12% FINES		SM	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
				SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES
FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid limit less than 50)			ML	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY,
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid limit greater than 50)			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

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Drafted By: G. GOMEZ Project No.: 102885.G01
Date: 4/14/2009 File Number: STO9G022

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2488)
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
A-1

USCS (2487) STO9G022.GPJ 4/14/09

LOG SYMBOLS

	BULK / BAG SAMPLE	-4	PERCENT FINER THAN THE NO. 4 SIEVE (ASTM Test Method C 136)
	MODIFIED CALIFORNIA SAMPLER (2-1/2 inch outside diameter)	-200	PERCENT FINER THAN THE NO. 200 SIEVE (ASTM Test Method C 117)
	CALIFORNIA SAMPLER (3 inch outside diameter)	LL	LIQUID LIMIT (ASTM Test Method D 4318)
	STANDARD PENETRATION SPLIT SPOON SAMPLER (2 inch outside diameter)	PI	PLASTICITY INDEX (ASTM Test Method D 4318)
	CONTINUOUS CORE	TXCU	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (EM 1110-1-1906)
	SHELBY TUBE	EI	EXPANSION INDEX (UBC STANDARD 18-2)
	ROCK CORE	COL	COLLAPSE POTENTIAL
	WATER LEVEL (level where first encountered)	UC	UNCONFINED COMPRESSION (ASTM Test Method D 2166)
	WATER LEVEL (level after completion)		
	SEEPAGE	MC	MOISTURE CONTENT (ASTM Test Method D 2216)

GENERAL NOTES

1. *Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual.*
2. *No warranty is provided as to the continuity of soil conditions between individual sample locations.*
3. *Logs represent general soil conditions observed at the point of exploration on the date indicated.*
4. *In general, Unified Soil Classification System designations presented on the logs were evaluated by visual methods. Where laboratory tests were performed, the designations reflect the laboratory test results.*

KLEINFELDER Bright People. Right Solutions.	**LOG KEY** PROPOSED EXPANSION TID ALMOND POWER PLANT CERES, CALIFORNIA	PLATE A-2
Drafted By: G. GOMEZ Project No.: 102885.G01		
Date: 4/14/2009 File Number: STO9G022		

KA-LOG_KEY STO9G022.GPJ 4/14/09

Surface Conditions:	Graded lot	Date Completed:	3/31/2009
Groundwater:	Groundwater encountered at a depth of about 22 feet below existing site grade.	Logged By:	MB
		Total Depth:	51.5 feet
Method:	Hollow stem auger	Boring Diameter:	8 inches
Equipment:	CME 75 truck mounted drill rig equipped with automatic hammer		

Depth (feet)	FIELD: Sample Type	Sample No.	Blows/Foot	Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests	Graphic Log	DESCRIPTION
													(SM) SILTY SAND - Brown, moist, medium dense, fine to medium grained, FILL
		1-1-1	29										
													(ML) SANDY SILT - Gray, moist, stiff, FILL
5		1-5-1	14		109	7							
													(SM) SILTY SAND - Brown, moist, medium dense, fine to medium grained
													Gray-brown, fine grained sand
10		1-10-1	17										
													(SC) CLAYEY SAND - Brown, moist, medium dense, fine to coarse grained
15		1-15-1	23										
													(SM) SILTY SAND - Gray-brown, moist, medium dense, fine grained sand
20		1-20-1	19										**(ML) SANDY SILT** - Gray-brown, moist, medium dense, fine grained sand
													(SM) SILTY SAND - Brown, moist, medium dense, fine to medium grained
													(SP) SAND - Brown, wet, very dense, fine to coarse grained
25		1-25-1	80										
													(SM) SILTY SAND - Brown, wet, medium

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Drafted By: G. GOMEZ Project No.: 102885.G01
Date: 5/13/2009 File Number: STO9G022

LOG OF BORING B-1
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE

A-3

P-LOG_2007 BLOWS PER 6 INCHES STO9G022.GPJ 5/13/09

Depth (feet)	Sample Type	Sample No.	Blows/Foot	Pocket Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests	Graphic Log	DESCRIPTION
30		1-30-1	24										dense, fine grained
													More dense
35		1-35-1	38										**(ML) SANDY SILT** - Gary-brown, moist, hard, fine grained sand
40		1-40-1	28										**(SM) SILTY SAND** - Gray, wet, medium dense, gravel for 6"
													Very dense
45		1-45-1	48										
													Less dense
50		1-50-1	15										
													Boring completed at a depth of 51.5 feet below existing site grade.
55													
60													

(FIELD: Sample Type through Pocket Penetrometer; LABORATORY: Dry Density through Other Tests)

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Drafted By: G. GOMEZ Project No.: 102885.G01
Date: 5/13/2009 File Number: STO9G022

LOG OF BORING B-1
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
2 of 2
A-3

Surface Conditions:	Graded lot	Date Completed:	3/31/2009
		Logged By:	MB
Groundwater:	Groundwater encountered at a depth of about 15.5 feet below existing site grade.	Total Depth:	21.5 feet
Method:	Hollow stem auger	Boring Diameter:	8 inches
Equipment:	CME 75 truck mounted drill rig equipped with automatic hammer		

Depth (feet)	FIELD: Sample Type	FIELD: Sample No.	FIELD: Blows/Foot	FIELD: Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	LABORATORY: Moisture Content (%)	LABORATORY: Liquid Limit	LABORATORY: Plasticity Index	LABORATORY: Passing #4 Sieve (%)	LABORATORY: Passing #200 Sieve (%)	LABORATORY: Other Tests	Graphic Log	DESCRIPTION
0													**(SM) SILTY SAND** - Brown, moist, medium dense to dense, fine to medium grained, FILL
		2-1-1	27		117	10							
5		2-5-1	39										
													(SM) SILTY SAND - Brown, moist, medium dense, fine to medium grained
10		2-10-1	23										**(SP-SM) SAND WITH SILT** - Light brown, moist, medium dense, fine to medium grained
													(SM) SILTY SAND - Brown, moist, medium dense, fine to medium grained
15		2-15-1	20										
													Less dense
20		2-20-1	37										**(ML) SANDY SILT** - Gray, moist, medium dense
													(SM) SILTY SAND - Brown, moist, medium dense, fine grained
													Boring completed at a depth of 21.5 feet below existing site grade.
25													

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Drafted By: G. GOMEZ Project No.: 102885.G01
Date: 5/13/2009 File Number: STO9G022

LOG OF BORING B-2
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-4

Surface Conditions: Graded lot

Groundwater: Groundwater not encountered during drilling.

Method: Hollow stem auger

Equipment: CME 75 truck mounted drill rig equipped with automatic hammer

Date Completed: 3/31/2009

Logged By: MB

Total Depth: 16.5 feet

Boring Diameter: 8 inches

Depth (feet)	FIELD: Sample Type	Sample No.	Blows/Foot	Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests	Graphic Log	DESCRIPTION
0													**(SM) SILTY SAND** - Brown, moist, medium dense to dense, fine to medium grained, FILL
		3-1-1	19		114	8				29			
5		3-5-1	43										
													(SM) SILTY SAND - Brown, moist, medium dense, fine to medium grained
10		3-10-1	30										**(ML) SANDY SILT** - Gray, moist, medium dense
													(SM) SILTY SAND - Light brown, moist, medium dense, fine grained
15		3-15-1	15										Wet
													Boring completed at a depth of 16.5 feet below existing site grade.
20													
25													

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Drafted By: G. GOMEZ
Date: 5/13/2009

Project No.: 102885.G01
File Number: STO9G022

LOG OF BORING B-3
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-5

Surface Conditions:	Basin	Date Completed:	3/31/2009
Groundwater:	Groundwater encountered at a depth of about 15.5 feet below existing site grade.	Logged By:	MB
Method:	Hollow stem auger	Total Depth:	16.5 feet
Equipment:	CME 75 truck mounted drill rig equipped with automatic hammer	Boring Diameter:	8 inches

Depth (feet)	FIELD: Sample Type	FIELD: Sample No.	FIELD: Blows/Foot	FIELD: Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	LABORATORY: Moisture Content (%)	LABORATORY: Liquid Limit	LABORATORY: Plasticity Index	LABORATORY: Passing #4 Sieve (%)	LABORATORY: Passing #200 Sieve (%)	Other Tests	Graphic Log	DESCRIPTION
													(SM) SILTY SAND - Brown, moist, medium dense, fine to medium grained, FILL
		4-1-1	16		114	7							
													(ML) SANDY SILT - Gray-brown, moist, very stiff, FILL
5		4-5-1	19		97	23							
													(SM) SILTY SAND - Brown, moist, medium dense, fine to medium grained
10		4-10-1	25										
													Wet
15		4-15-1	27								▼		
													Boring completed at a depth of 16.5 feet below existing site grade.
20													
25													

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Drafted By: G. GOMEZ Project No.: 102885.G01
Date: 5/13/2009 File Number: STO9G022

LOG OF BORING B-4
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-6

BORING NO.	SAMPLE DEPTH (ft)	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (% of dry weight)	PARTICLE SIZE SIEVE SIZE (percent passing)							ATTERBERG LIMITS		OTHER TESTS
				#4	#8	#16	#30	#50	#100	#200	L.L.	P.I.	
B-1	5.0	109	7										
B-2	1.0	117	10										
B-3	1.0	114	8							29			
B-4	1.0	114	7										
B-4	5.0	97	23										

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Drafted By: G. GOMEZ
Date: 4/14/2009
Project No.: 102885.G01
File Number: STO9G022

SUMMARY OF LABORATORY TESTS
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-7

KA-LABSUM STO9G022.GPJ 4/14/09

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File No. 102885.G01
July 21, 2009

Mr. Alex Buenrostro
Turlock Irrigation District
333 East Canal Drive
Turlock, CA 95381

Subject: **Geotechnical Services Report Addendum**
Proposed Expansion
Almond Power Plant 2
Turlock Irrigation District
Ceres, California

Dear Mr. Buenrostro:

INTRODUCTION

This addendum presents the results of soil borings, percolation testing, Resistance-value (R-value) testing, and corrosion testing performed for the proposed expansion of the Turlock Irrigation District (TID) Almond Power Plant located off Crows Landing Road in Ceres, California. A site plan and vicinity map showing the approximate location of the site is presented on attached Plate 1.

A site plan provided to our firm by TID indicates that the proposed expansion will include construction of three new turbines and associated transformer pads, a power distribution center, and a switchyard. The structures will be surrounded by asphalt concrete pavements. A storm water drainage basin is planned at the northeast corner of the proposed expansion area. Additional details of the proposed construction are not known to our firm at this time.

The purpose of our soil borings and percolation testing has been to evaluate the subsurface soil and groundwater conditions and percolation characteristics within the proposed storm water drainage basin. The R-values were performed in order to provide pavement section recommendations. Corrosion testing was performed for use in a corrosion evaluation by others. The scope of our services was outlined in our work requisition dated June 17, 2009.

FIELD EXPLORATIONS

The field explorations for this project were performed on May 22 and June 25 and 29, 2009 and consisted of drilling four soil borings and performing six percolation tests at the approximate locations indicated on Plate 1. The borings were extended to depths of approximately 15 to 25 feet, and the percolation test holes were extended to depths of approximately 4 to 11½ feet below existing grade. The borings and percolation test holes were drilled with a truck-mounted drill rig equipped with 6-inch diameter continuous-flight auger. Continuous logs of the soils encountered in the borings and percolation test holes were maintained by a representative of our firm. The percolation tests were performed following accepted regulatory guidelines.

Two bulk samples of the near-surface soils were obtained on June 25, 2009 from the approximate locations indicated on Plate 1. The samples were used for R-value testing for use in pavement sections design. The test results are discussed in the "Pavements" section of this report and are presented on attached Plates A-13 and A-14 of Appendix A. Also, a composite sample of the near-surface soils was obtained for corrosion testing. The test results are discussed in the "Corrosion Potential" section of this report and are presented in Appendix B.

SUBSURFACE CONDITIONS

The near-surface soils encountered in the borings and the percolation test holes consisted of silty sand fill from the surface to depths of approximately 6 to 8 feet. As noted in our geotechnical report, the fill was placed and compacted to backfill a previous basin excavation. The near-surface fill was underlain by sandy silt that extended to depths varying from approximately 7 to 9 feet. An exception was in boring B-4 where the fill was underlain by relatively "clean" sand to a depth of approximately 12 feet. The relatively "clean" sand in boring B-4 and in the remaining borings was underlain by interbedded and discontinuous strata of silty sand and sandy silt that extended to the depths explored.

Free groundwater was encountered in borings B-1 and B-2 at a depth of approximately 19 feet below existing ground surface. However, it is possible that changes in groundwater conditions may occur at the site in the future because of variations in rainfall, groundwater withdrawal, construction activities, or other factors not apparent at the time the borings were drilled.

The above is a general summary of the soil and groundwater conditions encountered in the soil borings and percolation test holes drilled. Logs of the soils encountered in the borings and percolation test holes are presented on attached Plates A-3 through A-12 of Appendix A. The soils have been classified according to the Unified Soil Classification System described on Plate A-1 of Appendix A. A key to the Logs of Borings is presented on Plate A-2 of Appendix A.

PERCOLATION TESTING

Three percolation tests (tests P-1, P-2, and P-3) were performed on May 22, 2009, and three additional percolation tests (tests P-4, P-5, and P-6) were performed on June 29, 2009 at the approximate locations indicated on Plate 1. The percolation tests were performed following accepted regulatory guidelines, using relatively "clean" water. The test procedure calls for maintaining a head of water approximately 2 to 3 feet above the bottom of the test holes. We were able to maintain the desired head of water in the test holes, and the rate of water level drop was monitored for approximately 4 hours. The following table presents the calculated percolation rates in gallons per square foot per day (gfd) for the tests based on the last 30 minutes of the tests.

STORM DRAINAGE SYSTEM PERCOLATION TEST RESULTS

Test No.	Depth (feet)	Percolation Rate (gfd)	Soil Type
P-1	3½ - 6	3.8	Silty Sand Fill
P-2	6½ - 9½	5.0	Silty Sand/Sandy Silt
P-3	1½ - 4	7.3	Silty Sand Fill
P-4	5 - 8	8.4	Silty Sand/Sandy Silt
P-5	8½ - 11½	4.2	Silty Sand/Sandy Silt
P-6	5 – 8½	7.3	Silty Sand/Sandy Silt

There are many factors that influence storm water disposal. Clean water was used in our tests, however, silt, leaves, and other deleterious material will likely be included in the actual storm water. Variations in the soil conditions within the drainage system will also likely affect the percolation characteristics. Based on these factors and our experience with other drainage systems and as typically required by most regulatory agencies, for design purposes we recommend a Factor of Safety (FOS) of at least 2 be applied to the percolation rates for use in design.

For use in preliminary design, in our opinion the average of the percolation tests can be used. After applying the FOS, the recommended design rate is 3 gfd for the near-surface silty sand/sandy.

It has been our experience that silt buildup in basins can severely restrict percolation through the basin sides and bottom. Vegetation growing within the basins can help reduce the sealing effect of silt buildup. The construction of drainage trenches in the bottom of the basin would increase the percolation capacity of the basin and help reduce the effect of silt buildup on the basin capacity. Adjacent drainage trenches should be no closer than approximately twice the depth of the deepest trench. If only the basin sides and/or bottom will be used in the design calculations, we recommend the design rate be further reduced (to 1 or 2 gfd). If vegetation will not be planted within the basin, we recommend the design value be further reduced for the basin sides and bottom, and an aggressive schedule of discing the slopes and bottom be planned to maintain the basin.

Typical drainage trenches consist of 3- to 5-foot wide (minimum of 1-foot beyond each side of drain pipe), 6- to 12-foot deep excavations backfilled with ¾- to 1½-inch clean crushed or drain rock. Perforated drain pipe is placed preferably near the bottom of the trench (minimum of 1 to 2 feet of rock beneath pipe) to facilitate faster distribution of water throughout the trenches and provide additional storage area. The actual configuration of the drainage system will be dependant on site limitations, the volume of water to be disposed, the actual soil and groundwater conditions, and other regulatory requirements.

Once the storm drainage system design, location, and depth of basin and trenches have been finalized, a copy of the final design plans should be submitted to our firm for review and to determine if additional field explorations are appropriate. Depending on the final design and required percolation rate, additional soil borings and/or additional percolation tests may be warranted to confirm the actual soil conditions present at the storm drainage system locations.

In our opinion, filter fabric should not be placed along the sides and bottom of the trenches around the drain rock. Since the trenches are designed to have water flow out of the trenches, fabric often traps sediment from the storm water which eventually plugs the fabric and can severely restrict percolation. In addition, if the fabric is fine enough to trap sediment (as it is supposed to do), it often has a percolation rate (infiltration rate) lower than the design rate of the soils which again can restrict percolation. Fabric would reduce contamination of the drain rock from migration of sediment into the trenches, which could reduce the capacity/percolation of the trench; however, the predominant flow of water out of the trenches would reduce this risk. We do recommend fabric be placed over the top of the drain rock beneath the overlying soil backfill.

PAVEMENTS

Subgrade Preparation

Following site stripping, all subgrade soils to support pavements should be scarified to a minimum depth of 6 inches below the finished subgrade elevation, uniformly moisture conditioned to between 1 and 4 percentage points above the optimum moisture content, and compacted as engineered fill to at least 95 percent relative compaction. The subgrade soils should be in a stable, non-pumping condition at the time aggregate base materials are placed and compacted.

Pavement Sections

The results of our laboratory tests indicate that the subgrade soils tested should exhibit good support characteristics for pavements as represented by the two R-values of 70 and 67. In our opinion, the R-values obtained are representative of the silty sand soils.

Pavement sections (determined in units of inches rounded up to the nearest ½-inch) are presented below based on the generally accepted maximum allowable R-value of 50. The pavement sections are also based on current Caltrans design procedures, traffic indices (T.I.) ranging from 4 to 9, and our assumption that Caltrans construction tolerances are acceptable. Pavement sections for a traffic index greater than 7 include a Gravel Equivalent Safety Factor of 2.4 inches per Caltrans highway design criteria.

PAVEMENT SECTIONS

Traffic Index	Asphalt-Concrete (inches)	Class 2 Aggregate Base (inches)
4	2	4
4½	2	4
5	2	4½
5½	2	5½
6	2½	5½
6½	2½	6½
7	3	6½
8	5	5
9	5½	6½

The pavement sections provided above are contingent on the following recommendations being implemented during and following construction.

- Aggregate base and asphalt concrete materials and placement methods should conform to the current Caltrans Standard Specifications. Class 2 aggregate should be compacted as engineered fill to at least 95 percent relative compaction.
- Adequate drainage (both surface and subsurface) should be provided such that the subgrade soils and aggregate base materials are not allowed to become wet. Pavement sections should be isolated from intrusion of water at all locations where pavements are adjacent to irrigated landscaping or areas that may pond water. For long-term performance, pavement edge drains should be placed to collect water and to convey it to a storm drain or other drainage facility. As an alternative, but one that tends to be less

effective, edge barriers, such as concrete curbs, polyethylene membranes and the like, should be placed that extend a minimum of 4-inches below the aggregate base and into the subgrade soil. Additional details regarding these systems can be provided upon request.

- Periodic maintenance should be performed to repair degraded areas and seal cracks with appropriate filler.

CORROSION POTENTIAL

Chemical tests performed on a composite sample of the near-surface soil indicated a pH of 6.3, a water soluble sulfate content of 28 parts per million (ppm) or milligrams per kilogram, a sulfide content that was not detectable, and a chloride concentration of 11 ppm. The ACI Manual of Concrete Practice, Section 201.2R-92, recommends using a Type I or II cement for foundations placed in these soils. In accordance with California Test 532, "if the chloride concentration is determined to be less than 500 ppm," "the influence of the chloride-ion at this level is considered to be non-corrosive." The test results are included in Appendix B of this report.

Minimum resistivity tests performed on the same soil sample indicated that the soil is moderately corrosive to buried metal objects as indicated by a result of 4,415 ohm-centimeters. A commonly accepted correlation between soil resistivity and corrosivity towards ferrous metals is provided below:

Soil Resistivity	Corrosivity
0 to 1,000 ohm-cm	Severely corrosive
1,000 to 2,000 ohm-cm	Corrosive
2,000 to 10,000 ohm-cm	Moderately corrosive
Over 10,000 ohm-cm	Mildly corrosive

Kleinfelder has performed these soil corrosivity tests as requested by the client. These tests are only an indicator of soil corrosivity. You may wish to retain a competent corrosion engineer to design corrosion protection systems appropriate for the project.

COEFFICIENT OF SUBGRADE REACTION

If the mat foundations are designed using approximate flexible methods (Winkler foundation), a coefficient of subgrade reaction (k-value) of 150 pounds per square inch per inch (assuming a square plate measuring 1 foot by 1 foot), a Young's modulus of soil (E_s) of 2,500 pounds per square inch, and a soil Poisson's ratio (μ_s) of 0.30 may be used for design. These values were determined based on published correlations for the soil types encountered at the site. The k-value used for design should be adjusted appropriately depending on the length, width and embedment of the mat foundation. Field plate load tests should be performed to better define the subgrade modulus if the mat foundation will be critical or sensitive to loading and deflection.

LIMITATIONS

The scope of services was limited to drilling four soil borings, performing six percolation tests and limited laboratory tests. It should be recognized that definition and evaluation of subsurface conditions are difficult. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. The conclusions of this assessment are based on subsurface exploration including borings drilled to a maximum depth of 25 feet and percolation test holes drilled to a maximum depth of 11½ feet.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. Although risk can never be eliminated, more-detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involve greater expense, our clients participate in determining levels of service which provide information for their purposes at acceptable levels of risk. The client and key members of the design team should discuss the issues covered in this report with Kleinfelder so that the issues are understood and applied in a manner consistent with the owner's budget, tolerance of risk, and expectations for future performance and maintenance.

Recommendations contained in this report are based on our field observations and subsurface explorations, limited laboratory tests, and our present knowledge of the proposed construction. It is possible that soil or groundwater conditions could vary between or beyond the points explored. If soil or groundwater conditions are encountered during construction that differ from those described herein, the client is responsible for ensuring that Kleinfelder is notified immediately so that we may reevaluate the recommendations of this report. If the scope of the proposed construction changes from that described in this report, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed and the conclusions of this report are modified or approved in writing by Kleinfelder.

This report was prepared in accordance with the generally accepted standard of practice which existed in Stanislaus County at the time the report was written. No warranty, express or implied, is made.

We trust this report presents the information required at this time. If you have any questions or require additional information, please contact us.

Respectfully submitted,

KLEINFELDER WEST, INC.

Brock Campbell

Brock Campbell, C.E., No. 71578
Staff Engineer

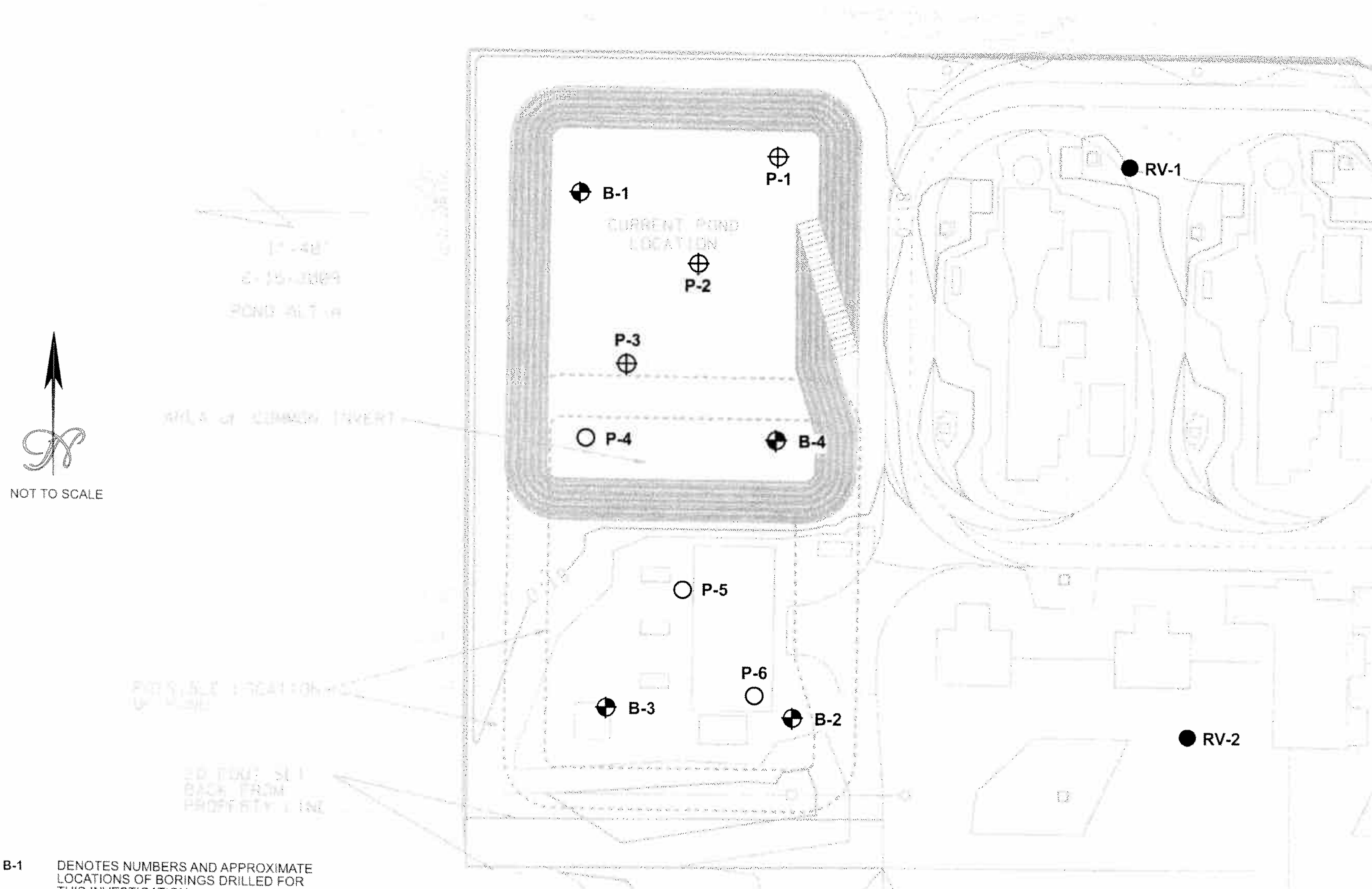
Reviewed by:

Carl Henderson

Carl Henderson, Ph.D., C.E., No. 71115
Area Manager

REGISTERED PROFESSIONAL ENGINEER
CARL FRANCISCO HENDERSON
No. 71115
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

BC:lr
Attachments



B-1	DENOTES NUMBERS AND APPROXIMATE LOCATIONS OF BORINGS DRILLED FOR THIS INVESTIGATION
P-4	DENOTES NUMBERS AND APPROXIMATE LOCATIONS OF PERCOLATION TESTS PERFORMED FOR THIS INVESTIGATION
RV-1	DENOTES NUMBERS AND APPROXIMATE LOCATIONS OF RESISTANCE VALUE SAMPLES OBTAINED FOR THIS INVESTIGATION
P-1	DENOTES NUMBERS AND APPROXIMATE LOCATIONS OF PERCOLATION TESTS PERFORMED FOR OUR 5/22/09 INVESTIGATION

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Project Number: 102885.G01	**SITE PLAN**
Graphic Date: 7/1/09	**PROPOSED EXPANSION**
Graphic By: G. GOMEZ	**TID ALMOND POWER PLANT**
Checked By: S. Davis	**CERES, CALIFORNIA**
File Name: MOD9D028.fh11	

Plate 1

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2488)

MAJOR DIVISIONS				GRAPHIC LOG	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	GRAVELS (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVELS WITH <5% FINES	Cu≥4 and 1≤Cc≤3	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/or 1>Cc>3	GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5 to 12% FINES	Cu≥4 and 1≤Cc≤3	GW-GM	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
				GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/or 1>Cc>3	GP-GM	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
				GP-GC	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH >12% FINES		GM	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
				GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3	SW	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/or 1>Cc>3	SP	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5 to 12% FINES	Cu≥6 and 1≤Cc≤3	SW-SM	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/or 1>Cc>3	SP-SM	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				SP-SC	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH >12% FINES		SM	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
				SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES
FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid limit less than 50)			ML	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY,
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid limit greater than 50)			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

USCS (2487) STO9G056.GPJ 7/1/09

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Date: 7/1/2009 File Number: STO9G056

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2488)
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
A-1

LOG SYMBOLS

BULK / BAG SAMPLE		-4	PERCENT FINER THAN THE NO. 4 SIEVE (ASTM Test Method C 136)
MODIFIED CALIFORNIA SAMPLER (2-1/2 inch outside diameter)		-200	PERCENT FINER THAN THE NO. 200 SIEVE (ASTM Test Method C 117)
CALIFORNIA SAMPLER (3 inch outside diameter)		LL	LIQUID LIMIT (ASTM Test Method D 4318)
STANDARD PENETRATION SPLIT SPOON SAMPLER (2 inch outside diameter)		PI	PLASTICITY INDEX (ASTM Test Method D 4318)
CONTINUOUS CORE		TXCU	CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (EM 1110-1-1906)
SHELBY TUBE		EI	EXPANSION INDEX (UBC STANDARD 18-2)
ROCK CORE		COL	COLLAPSE POTENTIAL
WATER LEVEL (level where first encountered)		UC	UNCONFINED COMPRESSION (ASTM Test Method D 2166)
WATER LEVEL (level after completion)			
SEEPAGE		MC	MOISTURE CONTENT (ASTM Test Method D 2216)

GENERAL NOTES

1. *Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual.*
2. *No warranty is provided as to the continuity of soil conditions between individual sample locations.*
3. *Logs represent general soil conditions observed at the point of exploration on the date indicated.*
4. *In general, Unified Soil Classification System designations presented on the logs were evaluated by visual methods. Where laboratory tests were performed, the designations reflect the laboratory test results.*

KA-LOG_KEY STO9G056.GPJ 7/1/09

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Drafted By: G. GOMEZ Project No.: 102885.G01
Date: 7/1/2009 File Number: STO9G056

LOG KEY
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
A-2

Surface Conditions:	Building pad, silty sand	Date Completed:	6/25/2009
Groundwater:	Groundwater encountered at a depth of about 19 feet below existing site grade.	Logged By:	AA
Method:	Solid stem auger	Total Depth:	25 feet
Equipment:	Simco 2800 truck mounted drill rig with 140lb. trip hammer	Boring Diameter:	6 inches

Depth (feet)	FIELD: Sample Type	Sample No.	Blows/Foot	Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests	Graphic Log	DESCRIPTION
													(SM) SILTY SAND - Brown, moist, fine to medium grained, FILL
													Dark brown
5													Brown
													(ML) SANDY SILT - Gray-brown, moist
													(SM) SILTY SAND - Gray-brown, moist, fine grained
10													**(ML) SANDY SILT** - Gray-brown, moist
15													**(SM) SILTY SAND** - Brown, moist, fine to medium grained
20											▼		**(ML) SANDY SILT** - Brown, wet
													(SM) SILTY SAND - Brown, wet, fine grained
25													Boring completed at a depth of 25 feet below existing site grade.

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Drafted By: G. GOMEZ Project No.: 102885.G01
Date: 7/15/2009 File Number: STO9G056

LOG OF BORING B-1
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-3

Surface Conditions:	Building pad, silty sand	Date Completed:	6/25/2009
Groundwater:	Groundwater encountered at a depth of about 19 feet below existing site grade.	Logged By:	AA
		Total Depth:	25 feet
Method:	Solid stem auger	Boring Diameter:	6 inches
Equipment:	Simco 2800 truck mounted drill rig with 140lb. trip hammer		

FIELD: Sample Type, Sample No., Blows/Foot, Pocket Penetrometer (tsf)

LABORATORY: Dry Density (pcf), Moisture Content (%), Liquid Limit, Plasticity Index, Passing #4 Sieve (%), Passing #200 Sieve (%), Other Tests

Depth (feet)	Graphic Log	DESCRIPTION
0		**(SM) SILTY SAND** - Brown, moist, fine to medium grained, FILL
7		Dark brown
8		**(ML) SANDY SILT** - Gray-brown, moist
9		**(SM) SILTY SAND** - Dark brown, moist, fine grained
12		**(ML) SANDY SILT** - Gray-brown, moist
13		**(SM) SILTY SAND** - Brown, moist, fine grained
19	▼	**(ML) SANDY SILT** - Brown, wet
21		**(SM) SILTY SAND** - Brown, wet, fine grained
25		Boring completed at a depth of 25 feet below existing site grade.

Depth scale: 5, 10, 15, 20, 25

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Date: 7/15/2009 File Number: STO9G056

LOG OF BORING B-2
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-4

Surface Conditions:	Building pad, silty sand	Date Completed:	6/25/2009
		Logged By:	AA
Groundwater:	Groundwater not encountered during drilling.	Total Depth:	15 feet
Method:	Solid stem auger	Boring Diameter:	6 inches
Equipment:	Simco 2800 truck mounted drill rig with 140lb. trip hammer		

Depth (feet)	FIELD: Sample Type	Sample No.	Blows/Foot	Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests	Graphic Log	DESCRIPTION
0–7													**(SM) SILTY SAND** - Brown, moist, fine to medium grained, FILL
7–8													**(ML) SANDY SILT** - Gray, moist
8–10													**(SM) SILTY SAND** - Brown, moist, fine grained
10–13													**(ML) SANDY SILT** - Gray-brown, moist
13–15													**(SM) SILTY SAND** - Brown, moist, fine to medium grained
15													Boring completed at a depth of 15 feet below existing site grade.

Depth scale: 5, 10, 15, 20, 25

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Date: 7/15/2009 File Number: STO9G056

LOG OF BORING B-3
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-5

P-LOG_2007 BLOWS PER 6 INCHES STO9G056.GPJ 7/15/09

Surface Conditions:	Building pad, silty sand	Date Completed:	6/25/2009
Groundwater:	Groundwater not encountered during drilling.	Logged By:	AA
Method:	Solid stem auger	Total Depth:	15 feet
Equipment:	Simco 2800 truck mounted drill rig with 140lb. trip hammer	Boring Diameter:	6 inches

Depth (feet)	FIELD: Sample Type	Sample No.	Blows/Foot	Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests	Graphic Log	DESCRIPTION
0													**(SM) SILTY SAND** - Brown, moist, fine to medium grained, FILL
6													Dark brown
7.5													**(SP-SM) SAND** - Brown, moist, fine to medium grained, some silt
10													**(SP) SAND** - Light brown, moist, fine to medium grained
12													**(SM) SILTY SAND** - Brown, moist, fine to medium grained
15													Boring completed at a depth of 15 feet below existing site grade.
20													
25													

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Date: 7/15/2009 File Number: STO9G056

LOG OF BORING B-4
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-6

P-LOG_2007 BLOWS PER 6 INCHES STO9G056.GPJ 7/15/09

Surface Conditions:	Building pad, silty sand	Date Completed:	5/22/2009
		Logged By:	AA
Groundwater:	Groundwater not encountered during drilling.	Total Depth:	6 feet
Method:	Solid stem auger	Boring Diameter:	6 inches
Equipment:	Simco 2800 truck mounted drill rig with 140lb. trip hammer		

Depth (feet)	FIELD: Sample Type	FIELD: Sample No.	FIELD: Blows/Foot	FIELD: Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	LABORATORY: Moisture Content (%)	LABORATORY: Liquid Limit	LABORATORY: Plasticity Index	LABORATORY: Passing #4 Sieve (%)	LABORATORY: Passing #200 Sieve (%)	LABORATORY: Other Tests	Graphic Log	DESCRIPTION
0–6													**(SM) SILTY SAND** - Brown, moist, fine grained, FILL
5													
6													Percolation Test Hole completed at a depth of 6 feet below existing site grade.
10													
15													
20													
25													

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Drafted By: G. GOMEZ Project No.: 102885.G01
Date: 7/15/2009 File Number: STO9G056

LOG OF PERCOLATION TEST HOLE P-1
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-7

Surface Conditions:	Building pad, silty sand	Date Completed:	5/22/2009
		Logged By:	AA
Groundwater:	Groundwater not encountered during drilling.	Total Depth:	10 feet
Method:	Solid stem auger	Boring Diameter:	6 inches
Equipment:	Simco 2800 truck mounted drill rig with 140lb. trip hammer		

Depth (feet)	FIELD: Sample Type	Sample No.	Blows/Foot	Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests	Graphic Log	DESCRIPTION
0–8													**(SM) SILTY SAND** - Brown, moist, fine grained, FILL
8–9													**(ML) SANDY SILT** - Gray-brown, moist
9–10													**(SM) SANDY SILT** - Gray-brown, moist, fine grained
10													Percolation Test Hole completed at a depth of 10 feet below existing site grade.

Depth scale: 5, 10, 15, 20, 25

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Drafted By: G. GOMEZ Project No.: 102885.G01
Date: 7/15/2009 File Number: STO9G056

LOG OF PERCOLATION TEST HOLE P-2
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-8

Surface Conditions:	Building pad, silty sand	Date Completed:	5/22/2009
		Logged By:	AA
Groundwater:	Groundwater not encountered during drilling.	Total Depth:	4 feet
Method:	Solid stem auger	Boring Diameter:	6 inches
Equipment:	Simco 2800 truck mounted drill rig with 140lb. trip hammer		

Depth (feet)	FIELD				LABORATORY							Graphic Log	DESCRIPTION
	Sample Type	Sample No.	Blows/Foot	Pocket Penetrometer (tsf)	Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests		
0–4													**(SM) SILTY SAND** - Brown, moist, fine grained, FILL
4													Percolation Test Hole completed at a depth of 4 feet below existing site grade.
5													
10													
15													
20													
25													

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Drafted By: G. GOMEZ Project No.: 102885.G01
Date: 7/15/2009 File Number: STO9G056

LOG OF PERCOLATION TEST HOLE P-3
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-9

Surface Conditions:	Building pad, silty sand	Date Completed:	6/25/2009
		Logged By:	AA
Groundwater:	Groundwater not encountered during drilling.	Total Depth:	9 feet
Method:	Solid stem auger	Boring Diameter:	6 inches
Equipment:	Simco 2800 truck mounted drill rig with 140lb. trip hammer		

Depth (feet)	FIELD: Sample Type	FIELD: Sample No.	FIELD: Blows/Foot	FIELD: Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	LABORATORY: Moisture Content (%)	LABORATORY: Liquid Limit	LABORATORY: Plasticity Index	LABORATORY: Passing #4 Sieve (%)	LABORATORY: Passing #200 Sieve (%)	LABORATORY: Other Tests	Graphic Log	DESCRIPTION
													(SM) SILTY SAND - Brown, moist, fine to medium grained, FILL
5													
													(ML) SANDY SILT - Gray-brown, moist
													(SM) SILTY SAND - Gray-brown, moist, fine grained
10													Percolation Test Hole completed at a depth of 9 feet below existing site grade.
15													
20													
25													

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Drafted By: G. GOMEZ Project No.: 102885.G01
Date: 7/15/2009 File Number: STO9G056

LOG OF PERCOLATION TEST HOLE P-4
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-10

Surface Conditions:	Building pad, silty sand	Date Completed:	6/25/2009
		Logged By:	AA
Groundwater:	Groundwater not encountered during drilling.	Total Depth:	12.5 feet
Method:	Solid stem auger	Boring Diameter:	6 inches
Equipment:	Simco 2800 truck mounted drill rig with 140lb. trip hammer		

Depth (feet)	FIELD: Sample Type	Sample No.	Blows/Foot	Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests	Graphic Log	DESCRIPTION
0													**(SM) SILTY SAND** - Brown, moist, fine to medium grained, FILL
6													Dark brown
7													Gray-brown
8													**(ML) SANDY SILT** - Gray-brown, moist
9													**(SM) SILTY SAND** - Brown, moist, fine grained
10													**(ML) SANDY SILT** - Gray-brown, moist
12.5													Percolation Test Hole completed at a depth of 12.5 feet below existing site grade.

Depth scale: 5, 10, 15, 20, 25

P-LOG_2007 BLOWS PER 6 INCHES STO9G056.GPJ 7/15/09

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LOG OF PERCOLATION TEST HOLE P-5
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-11

Drafted By: G. GOMEZ Project No.: 102885.G01
Date: 7/15/2009 File Number: STO9G056

Surface Conditions:	Building pad, silty sand	Date Completed:	6/25/2009
		Logged By:	AA
Groundwater:	Groundwater not encountered during drilling.	Total Depth:	9 feet
Method:	Solid stem auger	Boring Diameter:	6 inches
Equipment:	Simco 2800 truck mounted drill rig with 140lb. trip hammer		

Depth (feet)	FIELD: Sample Type	Sample No.	Blows/Foot	Pocket Penetrometer (tsf)	LABORATORY: Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests	Graphic Log	DESCRIPTION
													(SM) SILTY SAND - Brown, moist, fine to medium grained, FILL
5													
													Gray-brown
													(ML) SANDY SILT - Gray-brown, moist
													Percolation Test Hole completed at a depth of 9 feet below existing site grade.
10													
15													
20													
25													

KLEINFELDER
Bright People. Right Solutions

Drafted By: G. GOMEZ Project No.: 102885.G01
Date: 7/15/2009 File Number: STO9G056

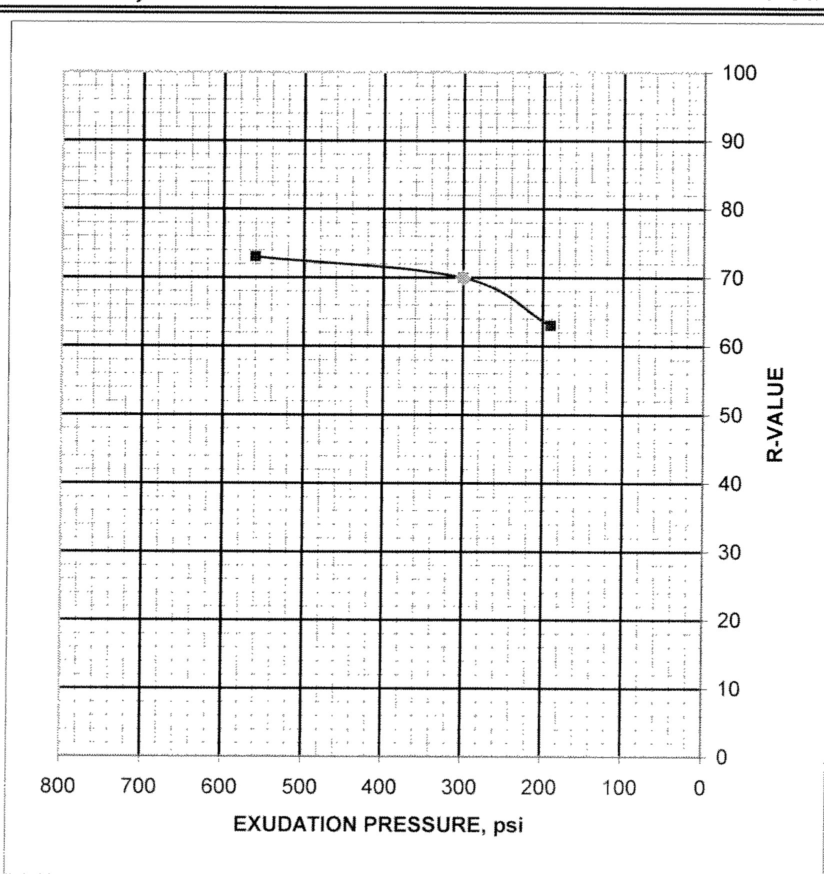
LOG OF PERCOLATION TEST HOLE P-6
PROPOSED EXPANSION
TID ALMOND POWER PLANT
CERES, CALIFORNIA

PLATE
1 of 1
A-12

KLEINFELDER
Bright People. Right Solutions.

Project Name: TID Almond 2 Power Plant
Project Number: 102885.G01
Sample Date: June 25, 2009
Laboratory Test Number: 0907003
Sample Description: Light Brown Sand with Silt
Sample Location: RV-1

CTM 301, Resistance "R" Value of Treated and Untreated Bases



LABORATORY DATA

Specimen	A	B	C
Exudation Pressure, psi	560	300	190
Expansion Pressure, psf	0	0	0
Resistance Value, R	73	70	63
Moisture at Test, %	8.3	8.8	9.4
Dry Density at Test, pcf	122.6	122.9	123.0
R-Value at 300 psi Exudation Pressure			**70**

PLATE A-13

KLEINFELDER
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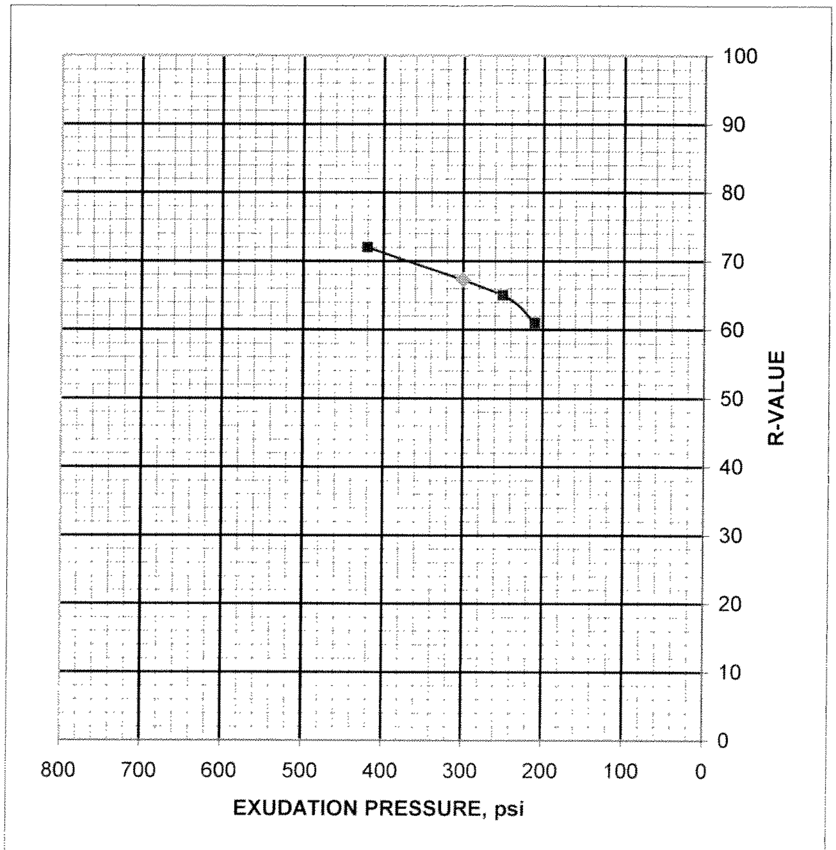
Project Name: TID Almond 2 Power Plant
Project Number: 102885.G01
Sample Date: June 25, 2009
Laboratory Test Number: 0907003
Sample Description: Light Brown Sand with Silt
Sample Location: RV-2

CTM 301, Resistance "R" Value of Treated and Untreated Bases



LABORATORY DATA

Specimen	A	B	C
Exudation Pressure, psi	420	250	210
Expansion Pressure, psf	0	0	0
Resistance Value, R	72	65	61
Moisture at Test, %	8.4	9.0	9.4
Dry Density at Test, pcf	123.5	123.1	124.1
R-Value at 300 psi Exudation Pressure			**67**

PLATE A-14

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

July 08, 2009

CLS Work Order #: CSG0114
COC #: 09483

Patricia Morales
Kleinfelder (Stockton)
2001 Arch-Airport Road, suite 100
Stockton, CA 95206

RECEIVED
JUL 14 2009
KLEINFELDER, INC.

Project Name: TID Almond 2 Power Plant

Enclosed are the results of analyses for samples received by the laboratory on 07/02/09 16:30. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

KLEINFELDER
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CSG00114

PROJECT NO.	PROJECT NAME	RECEIVING LAB:
102885-G01	TID Almond 2 Power Plant	CLS

L.P. NO. (PO. NO.):

SAMPLERS (Signature/Number): PMorales

INSTRUCTIONS/REMARKS

ANALYSIS: Sulfate, Chloride, Sulfide

	DATE MM/DD/YY	SAMPLE I.D. TIME HH-MM-SS	SAMPLE I.D.	MATRIX	NO. OF CON-TAINERS	TYPE OF CON-TAINERS	Sulfate	Chloride	Sulfide	INSTRUCTIONS/REMARKS
1	07/01/09	09:00:00	00837	Soil	1	Baggie	/	/	/	
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	7/2/09 3:00	[signature]
Relinquished by: (Signature) [signature]	7/2/09 1630	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature) Jon R 7-2-9 1630 6.1°C

Instructions/Remarks: Please e-mail Results pmorales@kleinfelder.com

Send Results To:

KLEINFELDER, INC.
2001 Arch-Airport Road, Suite 100
Stockton, CA 95206
Tel. (209) 948-1345
Fax (209) 234-4700

Attn: patricia morales

ENV-02 REV 05/08)

White – Sampler   Canary – Return Copy To Shipper   Pink – Lab Copy

CHAIN OF CUSTODY

COC № 09483

CALIFORNIA LABORATORY SERVICES

07/08/09 12:01

Kleinfelder (Stockton) 2001 Arch-Airport Road, suite 100 Stockton CA, 95206	Project: TID Almond 2 Power Plant Project Number: 102885-G01 Project Manager: Patricia Morales	 **CLS Work Order #: CSG0114** COC #: 09483

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
00837 (CSG0114-01) Soil	**Sampled: 07/01/09 09:00**	**Received: 07/02/09 16:30**							
Chloride	**11**	5.0	mg/kg	1	CS04997	07/07/09	07/07/09	EPA 300.0	
Sulfate as SO4	**28**	5.0	"	"	"	"	"	"	
Sulfide	ND	10	"	"	CS04962	07/06/09	07/06/09	EPA 9030B	

Kleinfelder (Stockton) 2001 Arch-Airport Road, suite 100 Stockton CA, 95206	Project: TID Almond 2 Power Plant Project Number: 102885-G01 Project Manager: Patricia Morales	 **CLS Work Order #: CSG0114** COC #: 09483

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CS04962 - General Preparation										
Blank (CS04962-BLK1)				Prepared & Analyzed: 07/06/09						
Sulfide	ND	10	mg/kg							
LCS (CS04962-BS1)				Prepared & Analyzed: 07/06/09						
Sulfide	148	10	mg/kg	134		110	50-120			
LCS Dup (CS04962-BSD1)				Prepared & Analyzed: 07/06/09						
Sulfide	148	10	mg/kg	134		110	50-120	0	25	
Batch CS04997 - General Prep										
Blank (CS04997-BLK1)				Prepared & Analyzed: 07/07/09						
Sulfate as SO4	ND	5.0	mg/kg							
Chloride	ND	5.0	"							
LCS (CS04997-BS1)				Prepared & Analyzed: 07/07/09						
Sulfate as SO4	55.0	5.0	mg/kg	50.0		110	75-125			
Chloride	22.0	5.0	"	20.0		110	75-125			
LCS Dup (CS04997-BSD1)				Prepared & Analyzed: 07/07/09						
Sulfate as SO4	53.6	5.0	mg/kg	50.0		107	75-125	3	25	
Chloride	21.5	5.0	"	20.0		108	75-125	2	25	
Matrix Spike (CS04997-MS1)	**Source: CSG0114-01**			Prepared & Analyzed: 07/07/09						
Sulfate as SO4	89.6	5.0	mg/kg	50.0	28.1	123	75-125			
Chloride	38.8	5.0	"	20.0	11.1	139	75-125			QM-5
Matrix Spike Dup (CS04997-MSD1)	**Source: CSG0114-01**			Prepared & Analyzed: 07/07/09						
Sulfate as SO4	88.8	5.0	mg/kg	50.0	28.1	121	75-125	0.8	30	
Chloride	30.0	5.0	"	20.0	11.1	94	75-125	26	30	

Kleinfelder (Stockton)	Project: TID Almond 2 Power Plant	
2001 Arch-Airport Road, suite 100	Project Number: 102885-G01	**CLS Work Order #: CSG0114**
Stockton CA, 95206	Project Manager: Patricia Morales	COC #: 09483

Notes and Definitions

QM-5	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

KLEINFELDER
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Project Name: TID Almond 2 Power Plant
Project Number: 102885.G01
Report Date: July 7, 2009
Laboratory Test Number: 0907003
Sample Location: Bulk 1
Sample Description: Light Brown Poorly Graded S

CTM 643 RESISTIVITY OF SOIL

Minimum Resistivity, ohm-cm	pH
4415	**6.3**

Reviewed By: K C Crawford
K. Crawford
Project Manager

ATTACHMENT DR23-1

TID District Record

DISTRICT RECORD

***NRHP Status Code:** 3CS

***Resource Name or #** (Assigned by recorder)**:** Turlock Irrigation District

D1. Historic Name: Turlock Irrigation District D2. Common Name: Turlock Irrigation District

***D3. Detailed Description** (Discuss overall coherence of the district, its setting, visual characteristics, and minor features. List all elements of district.):

The Turlock Irrigation District (TID) is located in the San Joaquin Valley, bounded on three sides by rivers, the San Joaquin and two of its tributaries, the Tuolumne and the Merced. The current setting is a mixture of irrigated fields, associated residences and auxiliary structures, as well as large industrial and commercial buildings and several communities, such as Ceres, Turlock and Delhi. Elements that could contribute to the historical significance of the TID are located on Continuation Sheet, Page 2.

***D4. Boundary Description** (Describe limits of district and attach map showing boundary and district elements.):
The Turlock Irrigation District (TID) water service territory encompasses 307 square miles in the San Joaquin Valley. The District is bounded by the Merced River to the south, the San Joaquin River on the west and the Tuolumne River on the north. Its boundaries overlap both Merced and Stanislaus Counties. Per JRP's historic context and evaluation procedures from *Water Conveyance Systems in California*, the boundaries of a water system will begin with its water source (or sources) and continue in a linear manner, encompassing associated elements such as canals, drains and ditches, as well as check dams and maintenance roads, before ending at the location of the end users.

The TID begins with the construction of the La Grange Dam, the original intake of the TID system. The main Turlock diversion canal leads from the La Grange Dam along the south bank of the Tuolumne River for about 7 miles to Turlock Lake (formerly Owen Reservoir). The Main Supply Canal diverts near the west end of Turlock Lake and carries water to the northeast edge of the Turlock District a few miles east of Hickman. From here, the Ceres Main Canal carries water west on the highland above the Tuolumne channel, and then south through the center of the Turlock Irrigation District. The Turlock Main Canal diverts at the same gate as the Ceres Main, flows south for about 10 miles, and then the main laterals divert at intervals of two and three miles, running west to the San Joaquin River. The Highline Canal, added to the TID system in 1911, connects directly to the Main Canal, east of the Ceres Main Canal and carries water south to the high areas along the Merced River.

A map of this system can be found on Continuation Sheet, Page 4.

***D5. Boundary Justification:**
The primary components of the TID were completed prior to 1920. Although modifications have been made to all parts of the TID, major additions to the system have not been made since the Don Pedro Dam construction in 1971. [note: the original Don Pedro dam was constructed in 1924. A new Don Pedro Dam was constructed downstream of the original and inundated the original dam and reservoir with a bigger reservoir. Both Don Pedro's are located upstream of LaGrange]

***D6. Significance: Theme:** Irrigation/Agriculture **Area:** Ceres and Turlock
Period of Significance: 1893-1920 **Applicable Criteria:** CRHR Criterion 1
(Discuss district's importance in terms of its historical context as defined by theme, period of significance, and geographic scope. Also address the integrity of the district as a whole.)

The Turlock Irrigation District (TID) may be eligible for listing in the California Register of Historical Resources (CRHR) under Criterion 1, for its association with the irrigation agriculture in California. The TID is one of the first irrigation districts created following the passage of the Wright Act in 1887, and one of only three irrigation districts that formed early and that is still in operation. It may also be eligible under Criterion 1 as an example of the open canals that characterized the irrigation infrastructure that enable the Turlock region to open up to irrigation agriculture in the early 20th century. The district would encompass only linear features and associated elements that were developed between 1893 and 1920. The discontiguous district does not appear to eligible for the CRHR under Criteria 2 and 3, as there are no known person considered important in local or California history directly associated with this property, and does not appear to be a true representative example of a particular type, period or method of construction.

Please see Continuation Sheet, Page 3 for additional discussion of significance.

***D7. References** (Give full citations including the names and addresses of any informants, where possible.):
JRP Historical Consulting Services and California Department of Transportation. 2000. Water Conveyance Systems in California.
Paterson, A.M., 1989. Land, Water, and Power: A History of the Turlock Irrigation District 1887-1987. The Arthur H. Clark Company, Spokane, Washington.
Hohenthal, H.A., J.E. Caswell, and V. Sonntag. 1972. *Streams in a Thirsty Land*. City of Turlock, California.

***D8. Evaluator:** Natalie Lawson and Jessica B. Feldman **Date:** August 24, 2009
Affiliation and Address: CH2M HILL, 6 Hutton Centre, Suite 700, Santa Ana, CA 92707

*Recorded by: Natalie Lawson and Jessica B. Feldman, CH2M HILL *Date: August 24, 2009 ☒ Continuation ☐ Update

D3. Detailed Description – continuation - List of District Elements:

1. La Grange Dam: The dam was constructed between 1891 and 1893 and was evaluated in 1979. The Office of Historic Preservation database provided data that the dam received a "7L" status, which indicates that is a State Historical Landmark (1-769) designated prior to January 1998 and that it needs to be reevaluated using current standards.
2. Turlock Diversion Canals
3. Main Supply Canal: constructed so that water could flow through the canal in 1898; additional work was done in 1904. All wooden flumes were replaced by 1913, and the canal was widened and lined with concrete by 1914. Additional upgrade work was completed in 1937.
4. Ceres Main Canal: completed in 1900 and lined with concrete in 1917. The original canal was extended further south in 1913-1914. Determined individually ineligible for the NRHP in 2009.
5. Turlock Main Canal: completed in 1900
6. Highline Canal: completed in 1911, was constructed to serve the high ground near the Merced River.
7. Laterals: Segments of these many of these laterals have been previously evaluated and found ineligible for the NRHP due to lack of integrity. However, collectively, these laterals represents a significant element of the integrity of the TID, providing support for the argument that the TID retains integrity of design, feeling and association. Furthermore, although individually these lateral segments were thought ineligible due in part of a loss of materials and workmanship (concrete lining), this particular action began as early a 1917, within the period of significance and may be looked at as an improvement to the system overall.
   a. Lateral 0: completed in 1899; no longer extant. The first water to irrigate fields in the TID flowed out of Lateral 0.
   a. Lateral 1: pre-1903
   b. Lateral 2: constructed in 1889/1890.
   c. Lateral 2 ½: constructed in 1889/1890, expanded in 1913-1914.
   d. Lateral 3: constructed in 1889.
   e. Lateral 4: constructed in 1903.
   f. Lateral 4 ½: completed pre-1920
   g. Lateral 5: constructed in 1903.
   h. Lateral 5 ½: constructed in 1913/1914.
   i. Lateral 6: constructed in 1903, additional work was done on this lateral in 1937.
   j. Lateral 7: completed 1903
   k. Lateral 8: completed 1904
8. Drains: At this time, not all drains within the TID that may or may not be contributing elements have been identified. The following list includes the first drain constructed within the TID, the drain which was intended to deal with the largest of the lakes created by the TID, and two of the drains recorded for the A2PP project.
   a. Moore Drain, constructed around 1907 was the first of the drains dug within the TID to combat the rising water table.
   b. Gilstrap Drain: drained Gilstrap Lake, the largest lake created by the newly formed TID and the rising water table. By 1909, the TID had created 11 miles of drains, but the first drains were of limited effectiveness.
   c. Westport Drain constructed between 1916 and 1918
   d. Harding Drain: constructed between 1916 and 1918.
9. Ditches: At this time, specific ditches that may or may not be contributing elements have not been identified.

Continued on Page 3

***Recorded by:** Natalie Lawson and Jessica B. Feldman, CH2M HILL ***Date:** August 24, 2009 ☒ Continuation ☐ Update

D3. Detailed Description (continued from Page 2) - List of District Elements:

11. Associated road structures, such as bridges and culverts: At this time, specific road structures that may or may not be contributing elements have not been identified.
12. Check dams/flow controls: At this time, specific check dams/flow controls that may or may not be contributing elements have not been identified.
13. Diversion features such as regulator gates, valves, checks, drops and chutes: At this time, specific diversion features that may or may not be contributing elements have not been identified.
14. Tunnels: At this time, specific tunnels that may or may not be contributing elements have not been identified.

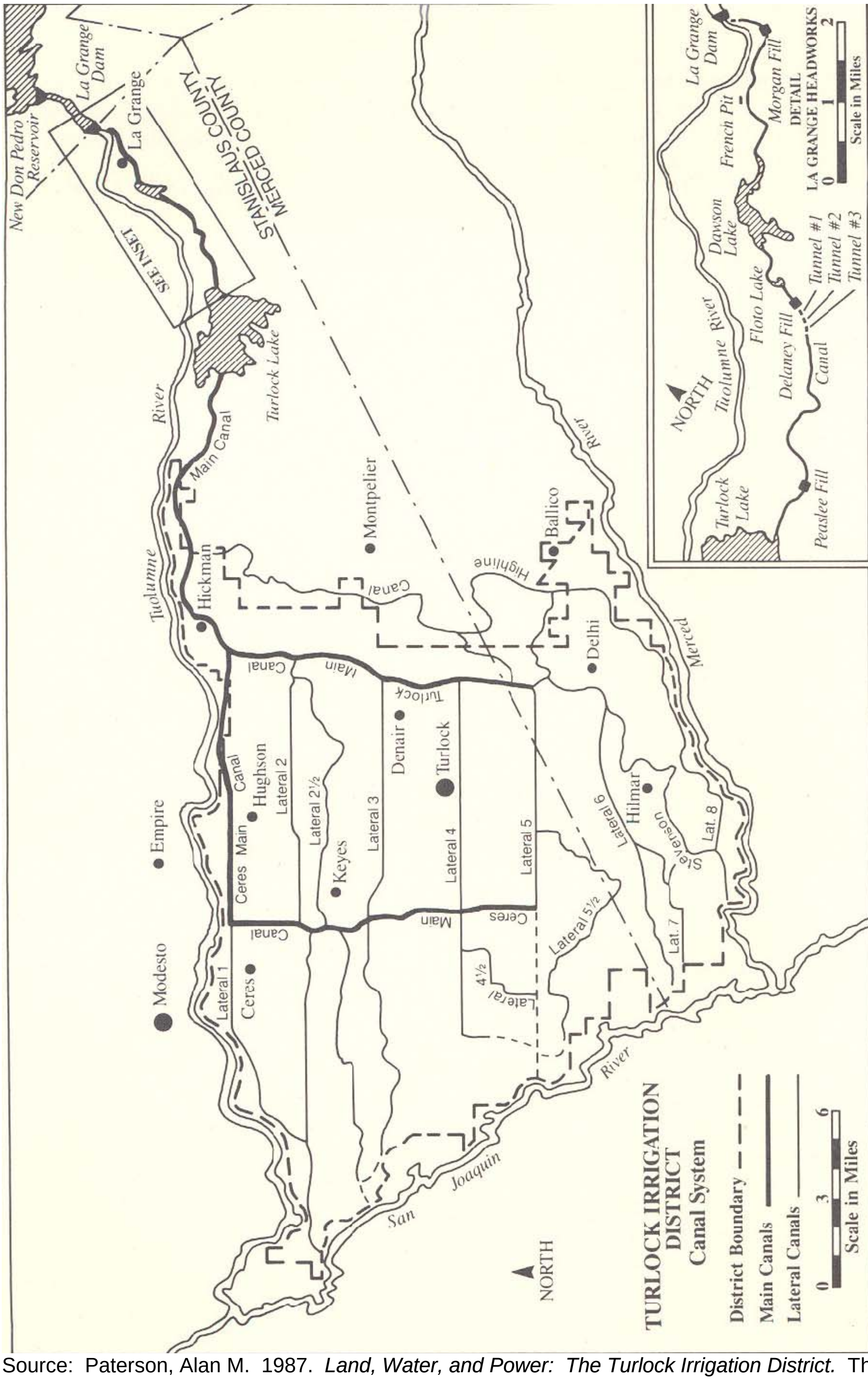
D6. Significance (continued from Page 1)

JRP Historical Consulting provided a framework for the identification and evaluation of water systems in California, which provides an important statement:" While the water system's setting can contribute to the property's integrity, the setting is by definition outside the boundaries and should not be included within them (JRP, 1989, p.96). Given this, the setting of the TID, which has changed dramatically in some sections and very little in others since it was first constructed in the late nineteenth century, is one aspect of integrity that is viewed with lesser importance than the other six aspects of integrity. The TID does retain integrity of location, design, and association within the period of significance. It lacks some integrity of feeling, materials and workmanship, due to the changes caused when the canals were lined with concrete as well as other routine maintenance which removed and/or replaced original materials. Previous evaluation of Lateral No. 5 (P-50-001927) noted that the concrete lining of that canal did not change it, but added another layer of history and that its original use was maintained. This second "layer" of history may have significance in its own time. The evaluator stated: "Changed in technology do not preclude eligibility," and it would need to be established what changes are likely to have diminished the integrity of feeling, materials and workmanship of elements of the system on a case by case basis. As an example of open canals that characterized the irrigation infrastructure and as one of the first irrigation districts, it retains overall integrity of location, design, setting, and association, with some diminished integrity of materials, workmanship and feeling.

***Resource Name or #** (Assigned by recorder) Turlock Irrigation District

***Recorded by:** Natalie Lawson and Jessica B. Feldman, CH2M HILL ***Date:** August 24, 2009 ☒ Continuation ☐ Update

D4. Boundary Description and D5. Boundary Justification:



Source: Paterson, Alan M. 1987. *Land, Water, and Power: The Turlock Irrigation District.* The Arthur H. Clarke Company, Spokane.

Hazardous Materials (25–29)

Background

The AFC (Section 5.5.4.2.2) states that the existing APP anhydrous ammonia storage tank that will be used for the proposed A2PP. The existing power plant already has a current Risk Management Plan (RMP) and Hazardous Materials Business Plan (HMBP) and staff assumes that the existing RMP also contains a Process Safety Management Plan (PSMP). Staff needs the information contained in these plans in order to conduct its assessment and consider necessary and appropriate Conditions of Certification to protect workers and the off-site public.

Data Requests

25. Please provide the current RMP (containing the PSMP) addressing the anhydrous ammonia storage tank at the APP site.

Response: A copy of the current Risk Management Plan for the TID Almond Power Plant is located on site and is available for review at the plant. Contact information for the TID Almond Power Plant will be emailed to Staff.

26. Please provide the existing Hazardous Materials Business Plan.

Response: A copy of the current certification forms, hazardous materials inventory and map from the Hazardous Materials Business Plan for the TID Almond Power Plant is provided as Attachment DR26-1.

27. Please provide a written description and schematic drawing of the proposed connections and piping from the existing anhydrous ammonia storage tank to the proposed A2PP facility. Please be sure to identify all control valves (manual or remote activated) and ammonia sensors located at the tank, loading pad, ammonia skid, and along the piping route from the tank to A2PP.

Response: The anhydrous ammonia supply piping for A2PP is routed from the existing ammonia storage tank for the Almond Power Plant. There are sensors located near the existing tank set to alarm at 20ppm. An existing 2" tank vent line will be used as the connection point for the supply piping to the A2PP. The new pipe contains pressure control and flow control valves near the tank as well as manual valves; refer to the provided schematic flow diagram. The piping is routed to an ammonia skid for each CTG before continuing on to the SCR's. Each ammonia skid will contain ammonia sensors. An anhydrous ammonia schematic flow diagram is provided as Figure DR27-1.

28. Please identify the person responsible for existing APP and proposed A2PP site security by name and phone number so that staff may call and discuss site security measures.

Response: Contact information for the site security specialist for the TID Almond Power Plant will be emailed to Staff.

29. Please provide a narrative description, including references to all training manuals, for any joint exercise the existing APP facility has conducted with responsible agencies (e.g., Ceres Emergency Services - Fire Division, Stanislaus County Environmental Resources Department Hazardous Materials Division, Ceres Police Department., Stanislaus County Sherriff's Department, the California Highway Patrol, the Federal Bureau of Investigation, the California Office of Homeland Security) on emergency response procedures for fire, confined space rescue, hazardous materials releases, terrorist attacks, and/or the need for emergency medical services. Also include dates of these joint training exercises and a list of agencies involved.

Response: Training manuals and Incident Commander reports for emergency response training activities are provided as Attachment DR-29-1.

The Almond Power Plant conducted training on November 12, 1997 for emergency situations on site with participation from the following agencies: Ceres Fire Department, American Medical Response, Stanislaus County Department of Environmental Resources, and Stanislaus County Hazardous Materials Response Team. Additional agencies notified of the training included: 911 Dispatch, Modesto Fire Department Hazmat Division, and Ceres Department of Public Safety. This exercise simulated an ammonia release emergency involving a victim and rescue. The simulation was of an ammonia leak during the off-loading process while transferring ammonia from a vendor truck to a TID storage tank and a full plant evacuation.

A hazardous materials release and rescue operations training exercise was conducted at the Almond Power Plant on February 10, 2009. The following agencies participated in the training exercise: Modesto Fire Department, Turlock Fire Department, and Stanislaus Consolidated Fire Protection District. A description of each position's function, and an activity training log including participants and roles, were included in a reference packet for each of the following team positions:

- Incident Commander (duty checklist),
- Technical Specialist (instructions for completing a Hazardous Materials Data Sheet, which provides product information, properties, toxicology and health, evacuation distances, personal protective equipment (PPE), decontamination, and control measures about each specific hazardous material),
- Hazardous Materials Group Supervisor (Incident Objectives Form, which includes information such as who was notified, a brief hazard assessment, actions, and PPE),
- Entry Team Leader (Work Mission Duration Form Instructions, which includes information on air supply, safety, travel time, environmental conditions, work load, decontamination, and operating work time),
- Decontamination Leader (control zone layout figure), and
- Assistant Safety Officer – Haz Mat (Site Safety Plan Instructions including information on mitigation actions, safety, monitoring, PPE, decontamination, training, and health).

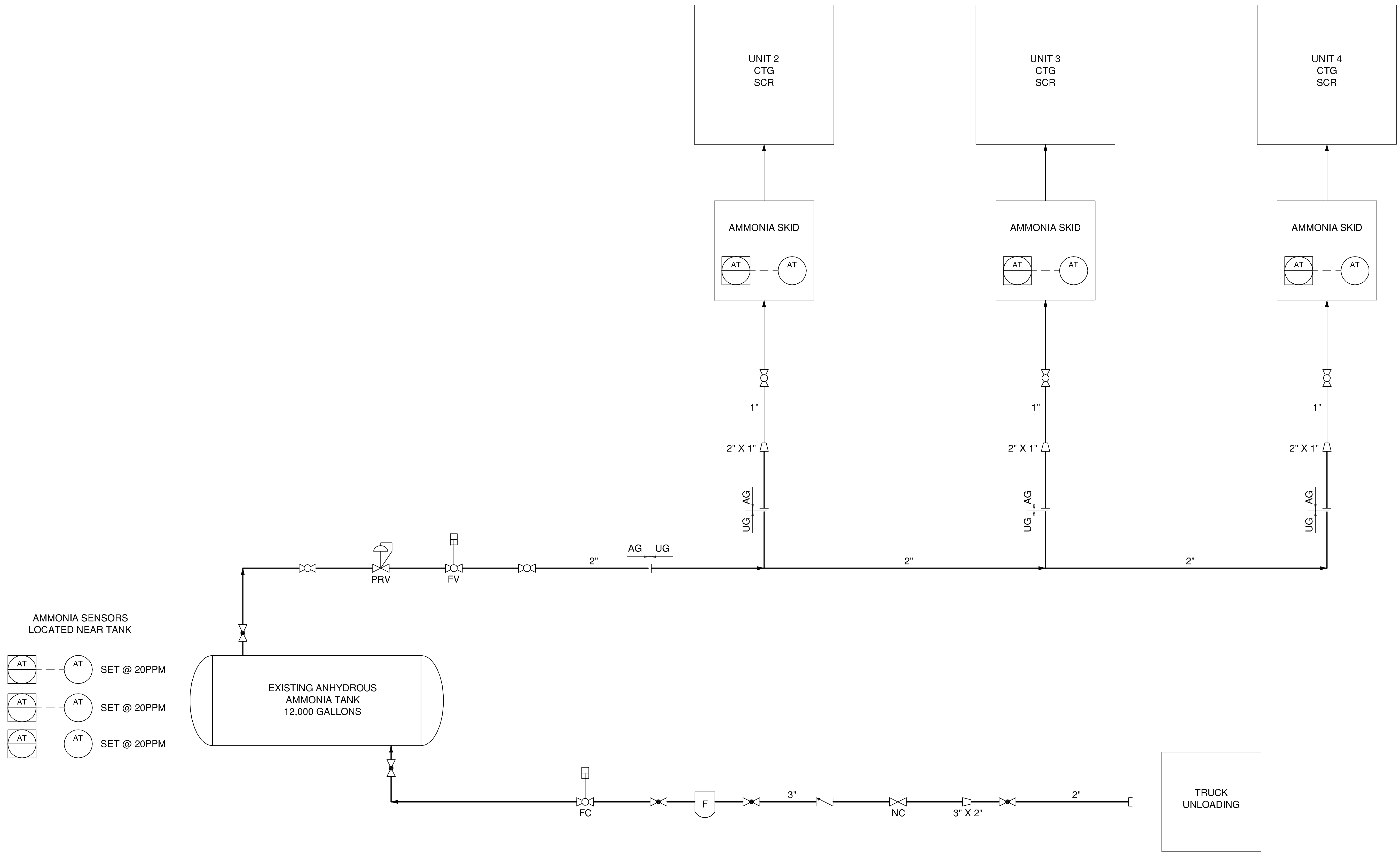


FIGURE DR27-1
ANHYDROUS AMMONIA SCHEMATIC DRAWING
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

ATTACHMENT DR26-1

Hazardous Materials Business Plan for the TID Almond Power Plant

TURLOCK IRRIGATION DISTRICT
333 EAST CANAL DRIVE
POST OFFICE BOX 949
TURLOCK, CALIFORNIA 95381
(209) 883-8300

Don Pedro Dam a
Powerhouse

December 22, 2008

Mr. Robert Riess
Stanislaus County Department of Environmental Resources
Hazardous Materials Division
3800 Cornucopia Way, Suite 3
Modesto CA 95358-9492

Subject: **TURLOCK IRRIGATION DISTRICT**
ALMOND POWER PLANT
2009 HAZARDOUS MATERIALS BUSINESS PLAN INVENTORY FORMS

Mr. Riess,

Attached are the updated Hazardous Materials Annual Owner/Operator Forms and Inventory Certification Forms for the TID operated facility at 4500 Crows Landing Road Modesto, CA 95358. Some minor corrections have been made to the Inventory Forms.

Please feel free to contact me at (209) 883-3451 if you have any questions, or require additional information.

Sincerely,

George A. Davies IV
Combustion Turbine Department Manager

Enclosure

cc Rich Eastman, TID
WEC

Files

TID

Stanislaus County DER

2009 CUPA Inventory Certification Form

ID #: 6844 District 3

Hazardous Materials Plan Annual Owner/Operator Form

Please check the change box and fill in the new address information in the lines provided if there are any changes in the addresses below.

PLEASE FILL IN THE ADDRESS INFORMATION IF THE ADDRESS ON THE LEFT IS BLANK.

Change **Mailing Address**

☐ TURLOCK IRRIGATION DISTRICT /ALMOND POWER
☐ ATTN
☐ PO BOX 949
☐ TURLOCK CA 95381

Site Address

☐ 4500 CROWS LANDING
☐ MODESTO CA 95358
☐ Phone

Owner Address

Owner Name	TURLOCK IRRIGATION DISTRICT		
	PO BOX 949		
TURLOCK		CA	95381
Phone	209-883-8300	Cell	

Billing Address

Contact Name			
	PO BOX 949		
TURLOCK		CA	95381

The Emergency and Alternate Emergency Coordinator for your business are listed below. Please review and update if any changes have occurred. If blank, please provide the information.

Emergency Coordinator	Work Phone #	24 Hour Phone #	Pager/Cell Phone #
TID POWER CONTROL CENTER	209-883-8480	209-883-8480	

Alternate Emergency Coordinator	Work Phone #	24 Hour Phone #	Pager/Cell Phone #
RICHARD EASTMAN	209-883-8317	209-678-3498	

Business Email Address

I, Owner/Operator or Representative, certify that the information submitted is true and accurate and that inaccurate information constitutes perjury under the law.

George Davies
PRINT NAME

C.T. Dept. Mngr
TITLE

[signature]
SIGNATURE

4/25/08
DATE

Stanislaus County DER **2009 CUPA Inventory Certification Form**

ID #: 6844 District 3

Business Plan

Only list hazardous materials in quantities equal to or greater than 55 gallons, 500 lbs., or 200 cu.ft. Check the 'Change' box and note any differences underneath for each material that has changed. Include new hazardous materials by writing them in below the existing list and provide MSDS. Cross out any hazardous materials that are no longer stored at your facility.

PLEASE SIGN BELOW AND RETURN IN THE ENCLOSED ENVELOPE.

Change	Stat	ID	Common Name/Location	Max/Amount	UN #	NFPA
☐		9391	OXYGEN SCAVENGER	75 Cu Ft		---
☐		27	HYDRAULIC OIL	600 Gals	1270	0-1-0-
☐		1024	LUBE OIL	775 Gals	1271	0-2-0-
☐		24	INSULATING OIL	74639 Gal	1268	1-2-0-
☐		9384	SULFURIC ACID	1950 Gals	1830	---
☐		9287	SODIUM HYDROXIDE 50%	400 Gals	1824	3-0-1-
☐		9389	BLEACH, CHLORINE	800 Gals	1017	---
☐		9390	CARB DIESEL	250 Gals		0-2-0-
☐		9392	CORROSION INHIBITOR (356 AMINE)	75 Gals		---
☐		9397	CO CATALYST	9500 Lbs		---
☐		7418	STABREX ST70	100 Gals	3266	3-0-0-
☐	E	190	ANHYDROUS AMMONIA	8000 Gals	1005	3-1-0-
☐		13	OXYGEN	562 Cu Ft	1072	1-0-0-
☐		11009	NALCO 3DT 183 COOLING TREATMENT ALMOND POWER PLANT	400 Gals		---
☑		9395	~~LITHIUM BROMIDE SOLUTION~~ ADUA Guard 750 Lithium Bromide Solution	700 Gals	1415	0-1-0-

Stanislaus County DER

2009 CUPA Inventory Certification Form

ID #: 6844 **District** 3

Change	Stat	ID	Common Name/Location	Max/Amount	UN #	NFPA
☐		9371	DIELECTRIC INSULATING OIL	8000 Gals	1268	0-1-0-
☐		5856	BATTERIES/LEAD ACID TYPE	25650 Lbs	2794	3-0-2-
☐		9394	AVIATION ENGINE OIL	250 Gals		1-1-0-
☐		17	ARGON	450 Cu Ft	1006	1-0-0-
☐		14	ACETYLENE	435 Cu Ft	1001	0-4-2-
☐		3189	ARGON/CARBON DIOXIDE	342 Cu Ft	1006	—
☒		2366	NALCO ~~#1720~~ 1742 Boiler Internal Treatment	75 Gals	2693	1-0-0-
☐		8110	CARBON DIOXIDE	250 Gals	2187	1-0-0-
☐		8196	NITROGEN, COMPRESSED GAS	250 Gals		2-0-0-
☐		9396	SCR SYSTEM NOx CATALYST	40645 Lbs		---

Stanislaus County DER

2009 CUPA Inventory Certification Form

ID #: 6844 District 3

Certification: Check the appropriate box:

☐ I have personally reviewed the Hazardous Materials Plan (HMP) currently on file with your agency, dated ______________, and hereby certify, *under penalty of perjury*, that:

- the information contained in the most recent HMP submission is complete, accurate and up to date,
- a copy of the facility's most current HMP Business Activities and Owner/Operator identification Pages is being submitted with this certification form,
- there have been no significant changes (100% increase or decrease) in the quantities of any previously reported hazardous materials/hazardous wastes as shown on current Hazardous Materials Inventory Forms,
- the facility has not begun handling any hazardous materials/hazardous wastes in reportable quantities that are not currently listed in the submitted Hazardous Materials Inventory, and
- there have been no significant changes in the facility's personnel or operations that would require revision of the current HMP.

☒ HMP revisions, amendments or additions are necessary and are being submitted with this document. Please check the following areas of the HMP that are affected:

☐ Entire HMP revision	☐ Site Map
☐ Consolidated Contingency Plan	☐ Owner/Operator Identification Page
☒ Hazardous Materials Inventory	☐ Other (Specify):

I understand that whenever there are changes in address, ownership, business name, or operations (closure, addition of undisclosed reportable hazardous materials or hazardous wastes, or significant changes to inventory quantities and/or contingency planning provisions), a notification of such must be made to the Hazardous Materials Division within 30 days of the change.

George A. Davies | G A Davies Jr

Name of Owner/Operator (Print): | **Signature of Owner/Operator:**

C.T. Dept. Mngr | 11/25/08

Title: | **Date:**

Hazardous Waste Generator

If your business generates ANY AMOUNT of hazardous waste, you must comply with certain transportation, disposal and record-keeping requirements according to Health . Safety Codes, Chapter 6.5 and the California Code of Regulations Title 22. Therefore, you MUST report all hazardous waste that your facility generates to our office. Hazardous waste includes, but is not limited to: used oil, spent solvent, cleaning compounds, discarded paint, by-products of chemical processes and discarded chemical formulations.

Please list all waste and the amount generated per month and provide your EPA ID number in the space provided below. To obtain an EPA ID number, contact the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), at 1-800-618-6942 or you can go to idnumber@dtsc.ca.gov. You can fax your application to 916-255-4703 or mail it to:

Dept of Toxic Substance Control
CCI_GISS
P.O. BOX 806
Sacramento, CA 95812-0806

If your facility does not generate hazardous waste, please write NO HAZARDOUS WASTE GENERATED.

PLEASE SIGN BELOW AND RETURN IN THE ENCLOSED ENVELOPE.

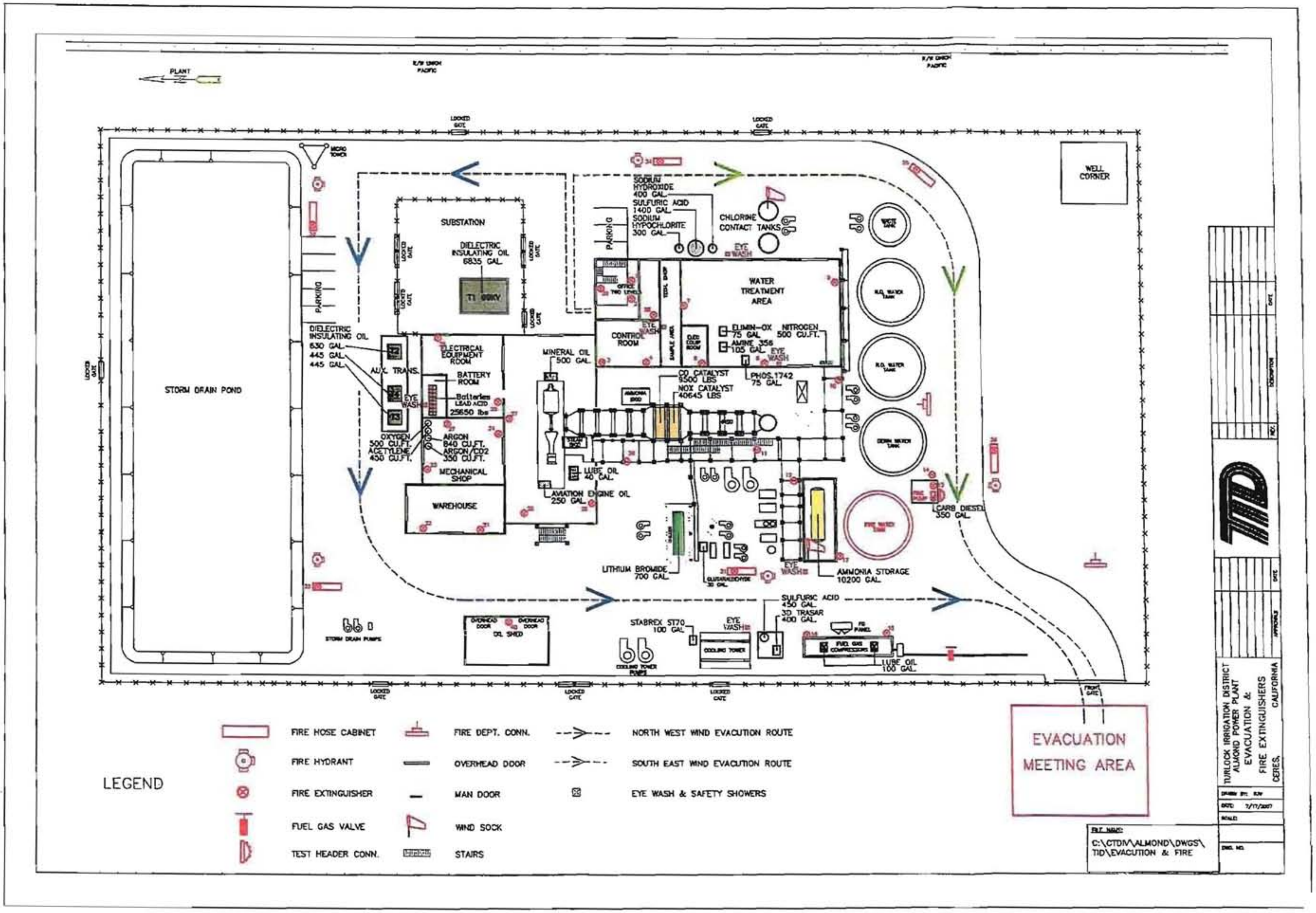
EPA ID NUMBER _ _ _ _ _ _ _ _ _ _ _ _

Waste Name	Location	Amt/Month	Lbs/Gal

I, Owner/Operator or Representative, certify that the information submitted is true and accurate and that inaccurate information constitutes perjury under the law.

PRINT NAME TITLE

SIGNATURE DATE



STORM DRAIN POND
SUBSTATION
DIELECTRIC INSULATING OIL 6835 GAL.
DIELECTRIC INSULATING OIL 630 GAL. 445 GAL. 445 GAL.
AUX. TRANS.
ELECTRICAL EQUIPMENT ROOM
BATTERY ROOM
Batteries LEAD ACID 25650 lbs
OXYGEN 500 CU.FT.
ACETYLENE 450 CU.FT.
ARGON 840 CU.FT.
ARGON/CO2 350 CU.FT.
MECHANICAL SHOP
WAREHOUSE
MINERAL OIL 500 GAL.
LUBE OIL 40 GAL.
AVIATION ENGINE OIL 250 GAL.
SODIUM HYDROXIDE 400 GAL.
SULFURIC ACID 1400 GAL.
SODIUM HYPOCHLORITE 300 GAL.
CHLORINE CONTACT TANKS
WATER TREATMENT AREA
CONTROL ROOM
ELIMIN-OX 75 GAL.
AMINE 356 105 GAL.
NITROGEN 500 CU.FT.
CO CATALYST 5500 LBS
NOX CATALYST 40645 LBS
PHOS.1742 75 GAL.
EYE WASH
LITHIUM BROMIDE 700 GAL.
AMMONIA STORAGE 10200 GAL.
CARB DIESEL 350 GAL.
WELL CORNER
SULFURIC ACID 450 GAL.
3D TRASAR 400 GAL.
STABREX ST70 100 GAL.
LUBE OIL 100 GAL.
OIL SHED
PARKING
LOCKED GATE
FRONT GATE
PLANT
EVACUATION MEETING AREA
LEGEND
FIRE HOSE CABINET
FIRE HYDRANT
FIRE EXTINGUISHER
FUEL GAS VALVE
TEST HEADER CONN.
FIRE DEPT. CONN.
OVERHEAD DOOR
MAN DOOR
WIND SOCK
STAIRS
NORTH WEST WIND EVACUTION ROUTE
SOUTH EAST WIND EVACUTION ROUTE
EYE WASH & SAFETY SHOWERS
C:\CTDM\ALMOND\DWGS\TID\EVACUTION & FIRE
TURLOCK IRRIGATION DISTRICT
ALMOND POWER PLANT
EVACUATION & FIRE EXTINGUISHERS
CERES, CALIFORNIA

ATTACHMENT DR29-1

Training Manual and Incident Commander Documentation for Joint Training Activities

Robert B. Beckhart, Firefighter
2727 Third Street
Ceres, CA 95307
http://www.ci.ceres.ca.us/ces

Office: (209) 538-5709
Pgr: (209) 236-2321

Wednesday, August 27, 1997

George A. Davies, IV
Turlock Irrigation District
P.O. Box 949
Turlock, CA 95381-0949
(209) 883-8568

Dear Mr. Davies,

This letter is intended to be a reminder of the discussion that I had with you on Monday, August 25, 1997 regarding some training at your facility.

I realize that you had stated that you still had to get permission from your supervisor to do the training. This letter is intended to remind you of the date and time that we discussed and will also cover what the drill will consist of.

The drill will be on Wednesday, November 12, 1997 at 7:00 P.M. It will run approximately 4-5 hours. If possible we would like to use your personnel on-site as they would be used in an actual emergency. We would like to do a simulated ammonia emergency involving a victim. At the present time the agencies that are involved are: Ceres Fire Department, American Medical Response, Stanislaus County Department of Environmental Resources, and Stanislaus County Hazardous Materials Response Team.

I am sure that I will be in contact with you in the coming weeks. If you have any more questions or concerns please do not hesitate to contact me.

Sincerely,

Robert B. Beckhart, Firefighter

FEBRUARY 10th 2009 HAZMAT DRILL
TURLOCK IRRIGATION DISTRICT
ALMOND POWER PLANT
4500 Crows Landing Road Modesto, CA 95358

SCENARIO

Ammonia leak during the off-loading process while transferring ammonia from vendor truck to TID storage tank.
Leak to be on the hose between truck and TID storage tank.
Time of incident will be 08:10 AM
On site personnel: 1-Plant Supervisor, 1-I/C Technician 3-Plant Technicians 1-GE Water Tech and 1-Delivery Driver.

The ammonia delivery truck has just started a full load delivery. The liquid fill line between the truck and TID storage tank has partially ruptured and is releasing ammonia at a rate that is not sufficient to trip any of the excess flow valves.
A man is down near the loading station and is believed to be alive.
Actual weather conditions of the day's event will be observed.
A full plant evacuation will be required.
The plant will be considered online operating smoothly at the time of incident.

A fog machine will be used to simulate the release of ammonia.
An actual dummy will be used to simulate the man down.

NOTIFICATIONS PRIOR TO THE DRILL

TID Power Control Center
911 Dispatch
Modesto Fire Department Hazmat Division
Ceres Department of Public Safety
Notify WINCO Foods (for courtesy)

NOTIFICATIONS DURING THE DRILL

Almond Technician will activate the plant wide evacuation tone from the DCS.
Almond Technician will notify the TID Power Control Center via 98-911 to inform them of an ammonia leak and that a man is down near the ammonia tank. Injuries to victim will be unknown other than ammonia inhalation.
TID Power Control Center Operator will notify emergency services. NOTE: (911 Dispatch is aware of the training)
Emergency services (Dispatch) will notify Ceres Station #3 (Service Road)
All County HAZMAT Team members will assemble at Ceres Station #3 prior to the drill.
Ceres Fire Department Station #3 will be the first responders.
When first responders arrive Ceres Fire Department will request the Hazmat Team.
The HAZMAT Team will have a delayed response from Ceres Fire Station #3 to simulate actual response time.

Devin will simulate the phone call to the following:
-National Response Center 1-800-424-8802
-Chemtrec 1-800-424-9300
-State Office of Emergency Services 1-800-852-7550
-CUPA 525-6700

HAZMAT TEAM RESPONSIBILITIES DURING THE DRILL

Isolate **Yellow** and **Red** valves at TID ammonia fill station.
Body recovery if determined.
A "Pipe Tree" with water leaks will be used to give the HAZMAT Team more training with plugging.

INCIDENT COMMANDER

10,000 gal.

Haz Mat ICS Position Description Checklist

ICS Position Title: Incident Commander

Major Responsibility: Overall "Macro" management of all operational and support activities of the incident, including the development and implementation of strategic decisions and the ultimate approval of ordering and releasing resources.

Duty Checklist:

X 1. Assume formal, verbal, visual and firm command, and get briefing.

X 2. Assess current problems, resources, actions and organization.

X 3. Assign needed ICS command and general staff positions.

- X a. Knowledgeable Safety Officer required for haz mat incident.

X 4. Hold planning meetings as needed.

X 5. Develop and communicate strategic control objectives.

- ____ a. For haz mat objectives use.

X 6. Approve Incident Action Plan and Site Safety Plan.

____ 7. Ensure briefing and safety meetings are given to assigned resources before beginning haz mat actions/operations.

____ 8. Manage and monitor overall incident per CCR 5192 requirements.

- X a. Assess all hazards.
- X b. Take appropriate operations in line with proper safety equipment.
- X c. If inhalation hazard, ensure use of SCBAs.
- X d. Limit number of personnel within exclusion zone, but ensure buddy system.
- X e. Ensure backups and standby EMS unit.
- X f. Designate a knowledgeable safety official that can stop unsafe acts.
- X g. Implement appropriate decon procedures.

X 9. Make decisions and adjustments throughout incident as needed.

X 10. Aggressively approve news releases to media through PIO.

X 11. Ultimately approve all ordering and releasing of resources.

X 12. Approve plan for demobilization and transition to cleanup phase.

5800 lbs.

UNIT LOG ICS-214	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
	TID	2-10-09	0919

4. UNIT NAME/DESIGNATOR	5. UNIT LEADER (NAME AND POSITION)	6. OPERATIONAL PERIOD
IC	Berbena	

PERSONNEL ROSTER ASSIGNED

NAME	ICS POSITION	HOME BASE
Tony, Lucian	Group Supp	
Sterling	Entry Team	
Alfonso	ASO	
~~De~~ Larry Moore	Decon Unit	
Baronial	Tech Ref	
Devin Chapin	Plant Manager	

Eric Holley

ACTIVITY LOG (CONTINUE ON REVERSE)

TIME	MAJOR EVENTS
0900	Rescue in progress
0900	Made Assignment's
0930	Update from Plant manager
	Work HazMat Tac 11
1015	Entry Team Making Entry
1018	Asked for update on leak
1030	Update From Entry Team
1031	Man down
1032	Back up team activated
1033	" " " In
1034	" " " Bringing out victim
1035	Anther Team Ready to take care of
	Leak

7540-130-0293

TIME	MAJOR EVENTS

214 ICS 5-80	9. PREPARED BY (NAME AND POSITION)

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED

4. MAP SKETCH

201 ICS 3-82	PAGE 1	8. PREPARED BY (NAME AND POSITION)

7. SUMMARY OF CURRENT ACTIONS

926 Rescue Complete
927 Entry Deconed
930 Update Manager
931 Preparing for Entry

201 ICS 3-82	PAGE 2	

ICS 201 HAZMAT ORGANIZATION

Incident Name: ______________ *Date:* ____________

INCIDENT COMMANDER

Barbara

PIO:

Liaison:

ASSISTANT SAFETY OFFICER

Alfonso Zamora

HAZMAT GROUP SUPERVISOR

Tony

ENTRY LEADER

Sterling Butts

DECON LEADER

Larry Meow

TECH. REF.

Berania

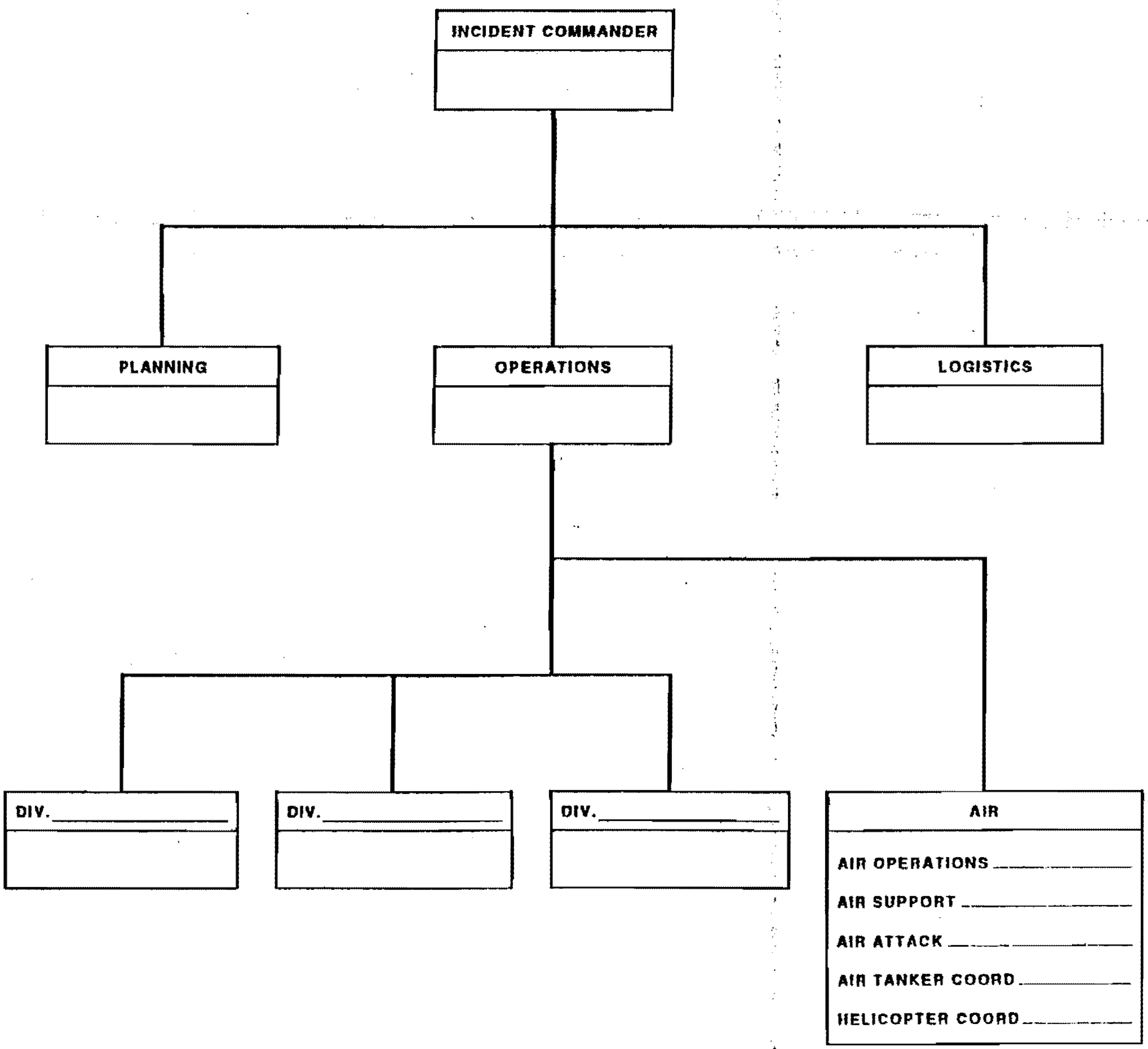
SITE ACCESS CONTROL

MEDICAL LEADER

SAFE REFUGE AREA

 Form completed by:

6. CURRENT ORGANIZATION



5. RESOURCES SUMMARY				
RESOURCES ORDERED	RESOURCE IDENTIFICATION	ETA	ON SCENE ✓	LOCATION / ASSIGNMENT
201 ICS 3-82	PAGE 4			

91 62316

INCIDENT RADIO COMMUNICATIONS PLAN

1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME

4. BASIC RADIO CHANNEL UTILIZATION

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS

205 ICS 8-78	5. PREPARED BY (COMMUNICATIONS UNIT)

7540-130-0286

TECHNICAL REFERENCE

Hazardous Materials Position Descriptions and Functions

Technical Specialist (Hazardous Materials Reference) - Reports to the Hazardous Materials Group Supervisor (or Hazardous Materials Branch Director if activated). This position provides technical information and assistance to the Hazardous Materials Group using various reference sources such as computer data bases, technical journals, CHEMTREC, and phone contact with facility representatives. The Technical Specialist-Hazardous Materials Reference may provide product identification using hazardous categorization tests and/or any other means of identifying unknown materials.

A. Check-in and obtain briefing from the Hazardous Materials Group Supervisor.

B. Obtain briefing from the Planning Section Chief.

C. Provide technical support to the Hazardous Materials Group Supervisor.

D. Maintain communications and coordinate operations with the Entry Leader.

E. Provide and interpret environmental monitoring information.

F. Provide analysis of hazardous material sample.

G. Determine personal protective equipment compatibility to hazardous material.

H. Provide technical information of the incident for documentation.

I. Provide technical information management with public and private agencies i.e.: Poison Control Center, Tox Center, CHEMTREC, State Department of Food and Agriculture, National Response Team.

J. Assist Planning Section with projecting the potential environmental effects of the release.

K. Maintain Unit Log (ICS Form 214).

UNIT LOG ICS-214	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED

4. UNIT NAME/DESIGNATOR	5. UNIT LEADER (NAME AND POSITION)	6. OPERATIONAL PERIOD

PERSONNEL ROSTER ASSIGNED

NAME	ICS POSITION	HOME BASE

ACTIVITY LOG (CONTINUE ON REVERSE)

TIME	MAJOR EVENTS

7540-130-0293

TIME	MAJOR EVENTS

214 ICS 5-80	9. PREPARED BY (NAME AND POSITION)

Hazardous Materials Data Sheet Instructions

Purpose

To record pertinent information for site hazard and risk assessment.

To be utilized as Hazard Communication document for site workers.

General Instructions

1. Complete one page for each Hazardous Material.
2. Fill in all applicable data. Place a check in the box [ ] provided when applicable. Indicate "N/A" if the listed item is not applicable to the material.
3. Cite at least 3 reference sources and appropriate page numbers for each.
4. Attach copies of Material Safety Data Sheets (MSDS) or CAMEO RIDS if utilized as reference sources.
5. Utilize the reverse side of the form for additional recommendations.
6. Attach the completed Hazardous Materials Data Sheet to the incident Site Safety Plan.

Section Instructions

The Hazardous Materials Data Sheet should be self-explanatory. The following instructions are provided for further clarification.

Section	Instructions
Product Information	List the material by product name, chemical name and identification numbers as appropriate. Identify container type and approximate amount of product involved. Identify at least three reference sources used to complete the remainder of the data sheet.
Properties	Place a check mark in the boxes [ ] as appropriate. Indicate Fahrenheit or Celsius for temperatures.
Toxicology and Health	List all values in the spaces provided.
Evacuation Distances and Control Zones	Complete the section with appropriate data.
Personal Protective Equipment	Indicate appropriate personal protective equipment for both entry/backup and decon teams. Identify appropriate monitoring instruments to be utilized.
Decontamination	Identify the appropriate decon solution to be utilized. Indicate if equipment is to be decontaminated with an alternate solution.
Control Measures	Complete the section with appropriate data.

Hazardous Materials Data Worksheet

Name:		**Date:**	2-10-09
Chemical Name:	Ammonia	**UN #**	1005
Common Name (s):	Anhydrous Ammonia	**CAS #**	7664-41-7
Synonyms:			
Molecular Formula: NH_3	**Weight:** 17.0	**Structure:**	H-N(H)-H

Physical, Chemical and Toxicological Properties (Based on STP)			
	Source #1	**Source #2**	**Source #3**
Reference Source	NIOSH	ERG (196-197)	Dangerous Prop. of Industrial Materials
Page #	15		
Physical Properties			
State/form:	Gas		
Flammable Limits	**LEL** 15% **UEL** 28%	**LEL** 15 **UEL** 78	**LEL** **UEL**
Ignition Temp	15-28		
Flash Point	N/A	N/A	
Boiling Point	-28°F	?	-28°F
Melting Point	N/A		
Vapor Density	0.6		.6
Specific Gravity	NA		.07
Solubilities	34%		
Vapor Pressure	8.5 atm		
Chemical Properties			
Reactivities/ Incompatibles	explosive compounds; Chlorides; strong oxidizers; acids	strong oxidizers; Acids	Bleaches, Mercury, silver
Corrosivity (pH)	14.0	7?	
Other			
Toxicological Properties			
TLV-TWA, -C, -STEL	25 ppm (8 hr)		
PEL or REL	50 ppm		
IDLH	300 ppm		
Routes of Entry	inhalation; skin contact		
Carc./Mut./Tera.	NO		
Target Organs	eyes, skin, respiratory		Skin, eyes
LD_{lo}, LD_{50}			
LC_{lo}, LC_{50}			
Radioactivity	N/A		N/A
Toxic Products of Combustion	N/A		

Use the back side of this form to summarize the data.

Summary of Data	
Reference & Page	ERG Guide 125
Primary Hazard	Inhalation
Secondary Hazard	Mucus membranes, eyes, skin
Other Hazard	possible flammable explosive
Recommended CPC Materials	Level A suit, SCBA, Butyl gloves
Decon Solution	Soap & H_2O
Reference & Page	
Primary Hazard	
Secondary Hazard	
Other Hazard	
Recommended CPC Materials	
Decon Solution	
Reference & Page	
Primary Hazard	
Secondary Hazard	
Other Hazard	
Recommended CPC Materials	
Decon Solution	

HAZARDOUS MATERIALS GROUP SUPERVISOR

Hazardous Materials Positions Descriptions and Functions

Hazardous Materials Group Supervisor - The Hazardous Materials Group Supervisor reports to the Operations Section Chief. The Hazardous Materials Group Supervisor is responsible for the implementation of the phases of the Incident Action Plan dealing with the Hazardous Materials Group operations. The Hazardous Materials Group Supervisor is responsible for the assignment of resources within the Hazardous Materials Group, reporting on the progress of control operations and the status of resources within the Group. The Hazardous Materials Group Supervisor directs the overall operations of the Hazardous Materials Group.

A. Check-in and obtain briefing from the Operations Section Chief or Hazardous Materials Branch Director (if activated).

B. Ensure the development of Control Zones and Access Control Points and the placement of appropriate control lines.

C. Evaluate and recommend public protection action options to the Operations Chief or Branch Director (if activated).

D. Ensure that current weather data and future weather predictions are obtained.

E. Establish environmental monitoring of the hazard site for contaminants.

F. Ensure that a Site Safety Plan is developed and implemented.

G. Conduct safety meetings with the Hazardous Materials Group.

H. Participate, when requested, in the development of the Incident Action Plan.

I. Ensure that recommended safe operational procedures are followed.

J. Ensure that the proper Personal Protective Equipment is selected and used.

K. Ensure that the appropriate agencies are notified through the Incident Commander.

L. Maintain Unit Log (ICS Form 214).

UNIT LOG ICS-214	1. INCIDENT NAME TID	2. DATE PREPARED 2-10-09	3. TIME PREPARED
4. UNIT NAME/DESIGNATOR	5. UNIT LEADER (NAME AND POSITION)	6. OPERATIONAL PERIOD	

PERSONNEL ROSTER ASSIGNED

NAME	ICS POSITION	HOME BASE
IC	Berbena	
Sterling	Entry Team lead	
ASO	Alfonso	
Haz Mat Corp	Tony Moniz	
Decon Leader	Larry Manu	
Beronica	Tech Ref.	

ACTIVITY LOG (CONTINUE ON REVERSE)

TIME	MAJOR EVENTS
9:15	On scene
9:26	rescue Complete
	Confirmed with TID - No other chemical hazards
9:32	No other chemical hazards. Natural gas pipeline not a factor
9:35	Tank when full 58,000 lbs.
*	Tactical 11 - Hazmat
	liquid leak turning into vapor on pipe or
	Drain located North of leak → where ammonia will be going.
9:40	+ Rescue yielded good visibility - straight shot in and out
10:05	Meeting
10:15	5 minutes until 1st entry.
10:17	1st entry
10:35	Man down signaled & communicated
10:36	Crew #2 entry. One man from crew #1 exits → decon.
10:40	Man down deconed and removed from suit.

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TAC-12
Com-3

Low press < 20 psi
Wind N @ 1-2

TIME	MAJOR EVENTS
Team 2 1041	cleared

214 ICS 5-98	5. PREPARED BY (NAME AND POSITION)

INCIDENT OBJECTIVES

INCIDENT OBJECTIVES	1. INCIDENT NAME TID	2. DATE PREPARED 2-10-09	2. TIME PREPARED 9AM-10AM

4. OPERATIONAL PERIOD (DATE/TIME)

5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)

SAFETY APPROACH/OFFICER Alfonso

ISOLATE & DENY ENTRY Established

NOTIFICATIONS WinCo/Stanislaus Farm Supply/Surrounding facilities

COMMAND Berbena (MFD)

I.D. HAZ ASSESSMENT Ammonia only/one (1) rescue/affect mitigate leak

ASSIGNMENTS

PROTECTIVE ACTIONS (EVAC/S.I.P.) site secured

CONTROL/CONTAINMENT none as of 9:45 AM

P.P.E. Level A

DECON gross/2 pool

DOCUMENT

DISPOSAL

6. WEATHER FORECAST FOR OPERATIONAL PERIOD

Sunny/winds from N 1-2 mph

7. GENERAL/SAFETY MESSAGE

WATCH FOR PHYSICAL & ENVIRONMENTAL HAZARDS. INSURE ALL PERSONNEL STAY HYDRATED.

8. ATTACHMENTS (✓ IF ATTACHED)

- ☒ ORGANIZATION LIST (ICS 203)
- ☒ DIVISION ASSIGNMENT LISTS (ICS 204)
- ☐ COMMUNICATIONS PLAN (ICS 205)
- ☐ MEDICAL PLAN (ICS 206)
- ☒ INCIDENT MAP
- ☐ TRAFFIC PLAN
- ☐ ________
- ☐ ________
- ☐ ________

202 ICS 3/80	9. PREPARED BY (PLANNING SECTION CHIEF) Lucien Musso	10. APPROVED BY (INCIDENT COMMANDER)

NFES 1326

ENTRY TEAM LEADER

Hazardous Materials Position Descriptions and Functions

Entry Leader - Reports to the Hazardous Materials Group Supervisor. The Entry Leader is responsible for the overall entry operations of assigned personnel within the Exclusion Zone.

A. Check-in and obtain briefing from the Hazardous Materials Group Supervisor.

B. Supervise entry operations.

C. Recommend actions to mitigate the situation within the Exclusion Zone.

D. Carry out actions, as directed by the Hazardous Materials Group Supervisor, to mitigate the hazardous materials release or threatened release.

E. Maintain communications and coordinate operations with the Decontamination Leader.

F. Maintain communications and coordinate operations with the Site Access Control Leader and the Safe Refuge Area Manager (if activated).

G. Maintain communications and coordinate operations with Technical Specialist-Hazardous Materials Reference.

H. Maintain control of the movement of people and equipment within the Exclusion Zone, including contaminated victims.

I. Direct rescue operations, as needed, in the Exclusion Zone.

J. Maintain Unit Log (ICS Form 214).

UNIT LOG ICS-214	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
	TID	2/10/09	

4. UNIT NAME/DESIGNATOR	5. UNIT LEADER (NAME AND POSITION)	6. OPERATIONAL PERIOD
		Days

PERSONNEL ROSTER ASSIGNED

NAME	ICS POSITION	HOME BASE
Sterling Butts	Entry Team leader	
Kevin Forsythe	Entry Team	
Andy Hunter	Entry Team	
Dale Melden	Backup	
Don Hawkins	Backup	

ACTIVITY LOG (CONTINUE ON REVERSE)

TIME	MAJOR EVENTS
09:00	Assigned To Entry Team leader
09:20	Picked Entry Team
09:40	completed Briefing with Command STAFF
10:05	Briefing with Whole Team
10:15	Entry made Team on Air
10:29	mandown announced Backup sent in to rescue
10:30	First Entry Team member deconned
10:33	man down deconned
10:37	Back up Team deconned
10:40	Drill Called
11:00	Debriefing

TIME	MAJOR EVENTS

214 ICS 5-80	9. PREPARED BY (NAME AND POSITION)

Work Mission Duration
Form Instructions

Each part of the Work Mission Duration Form which needs to be completed is explained below:

1. **Air Supply:** Across the top of the form are standard air supplies (30/45/60 minute air bottles and umbilical air). When completing the form, enter information into the column that corresponds to the air supply being used by the Haz Mat Team.

2. **Safety Factor:** A standard rule of thumb is that personnel should be able to perform the task, exit the zone, complete decontamination, and begin doffing before the low-air alarm bell sounds. On most SCBAs the bell will alarm with approximately a 5 minute reserve. Therefore, 5 minutes is an acceptable standard entry in this portion of the form.

3. **Travel Time:** This should be a close estimation of the travel time to and from the site. 1

4. **Environmental Conditions:** Environmental conditions impact emergency response personnel before they don PPE, while they are working, and after they doff the garments. Temperature and humidity are the primary factors to be concerned about. The recommended entries are as follows:

Entry	Environmental Condition
0	Cool and Dry
5	Warm and Moist
10	Hot and Wet

5. **Work Load:** The type of work is another measurable factor. The greater the work load, the greater the impact. The recommended entries are as follows:

Entry	Work Load
0	Light
5	Moderate
10	Heavy

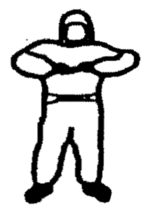
6. **Decontamination:** Decon takes time to accomplish. The more people who need decontamination, the more time will be required. The number entered into this row should account for the time that it takes to decontaminate *all* team members.

7. **Other:** This row provides a place to account for other factors which impact air supply such as age, obesity or personal habits.

8. **Operating Work Time:** The estimated operating work time is entered at the bottom of the form. To determine the operating work time, add the entries from all the previous rows, then subtract that number from the total air supply available.

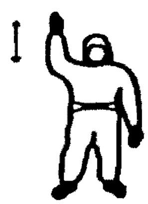
Work Mission Duration

Incident Name: TID   Date: ____________ Location: ____________

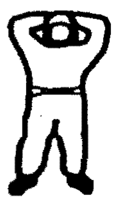


Out of Air

Need Help

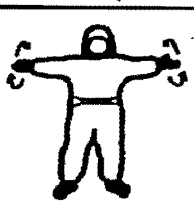


Evacuate



O.K.

Need Assistance with Repair



Situation Under Control

Air Supply	30 Minutes	ACTUAL TIME	60 Minutes	LOWEST AIR PRES
Safety Factor			5	
Travel Time (times 2)			7	
Environmental Conditions (L-0, M-5, H-10)			3	
Work Load (L-0, M-5, H-10)			5	
Decontamination (maximum)			5	
Other			0	
Operating Work Time (To be amended during incident as dictated by actual air supply.)			35 min	

Recommended Work Time (Between Rest Periods) *

When wearing impermeable or semi-impermeable Chemical Protective Clothing

Air Temperature (Maximum)	Sunshine (Radiant Heat Exposure)		
	Full Sun	Partly Sunny	Full Shade
70°F	60 min. of work	90 min. of work	120 min. of work
75°F	30 min. of work	60 min. of work	90 min. of work
80°F	20 min. of work	30 min. of work	60 min. of work
85°F	15 min. of work	20 min. of work	30 min. of work
90°F	15 min. light work	15 min. of work	20 min. of work
95°F	Extreme Danger	Danger	15 min. of work

* Reference: Occupational Safety & Health (OSHA) Guidance Manual for Hazwaste Site Activity (Table 8-10)

DECONTAMINATION LEADER

Hazardous Materials Position Descriptions and Functions

Decontamination Leader - Reports to the Hazardous Materials Group Supervisor. The Decontamination Leader is responsible for the operations of the decontamination element, providing decontamination as required by the Incident Action Plan.

A. Check-in and obtain briefing from the Hazardous Materials Group Supervisor.

B. Establish the Contamination Reduction Corridor(s).

C. Identify contaminated people and equipment.

D. Supervise the operations of the decontamination element in the process of decontaminating people and equipment.

E. Maintain control of movement of people and equipment within the Contamination Reduction Zone.

F. Maintain communications and coordinate operations with the Entry Leader.

G. Maintain communications and coordinate operations with the Site Access Control Leader and the Safe Refuge Area Manager (if activated).

H. Coordinate the transfer of contaminated patients requiring medical attention (after decontamination) to the Medical Group.

I. Coordinate handling, storage, and transfer of contaminants within the Contamination Reduction Zone.

J. Maintain Unit Log (ICS Form 214).

TAC 11

UNIT LOG ICS-214	1. INCIDENT NAME TID	2. DATE PREPARED 2-10-09	3. TIME PREPARED
4. UNIT NAME/DESIGNATOR Decon Unit	5. UNIT LEADER (NAME AND POSITION) Larry Mown Decon Unit Leader	6. OPERATIONAL PERIOD	

PERSONNEL ROSTER ASSIGNED

NAME	ICS POSITION	HOME BASE
Larry Mown	Haz Mat Decon Unit	TFD
Dale Melden	~~Decon~~ Backup	TFD
Tim Huber	Decon	TFD
Brandon Skull	Decon	~~TFD~~ OFD
Don Hankins II	~~Decon~~ Backup	SCFPD
Dave Wason	Decon	SCFPD

ACTIVITY LOG (CONTINUE ON REVERSE)

TIME	MAJOR EVENTS
9:20	Set up decon
9:40	Decon set up
9:40	Melden / Hankins sent as back up
9:45	Level B for Decon
9:46	Medical Monitoring / Suit up
10:05	Briefing
10:15	Entry Team in / Decon Ready
10:32	Gross Decon → Man Down
10:40	~~[illegible]~~ Decon Complete - Drill Called

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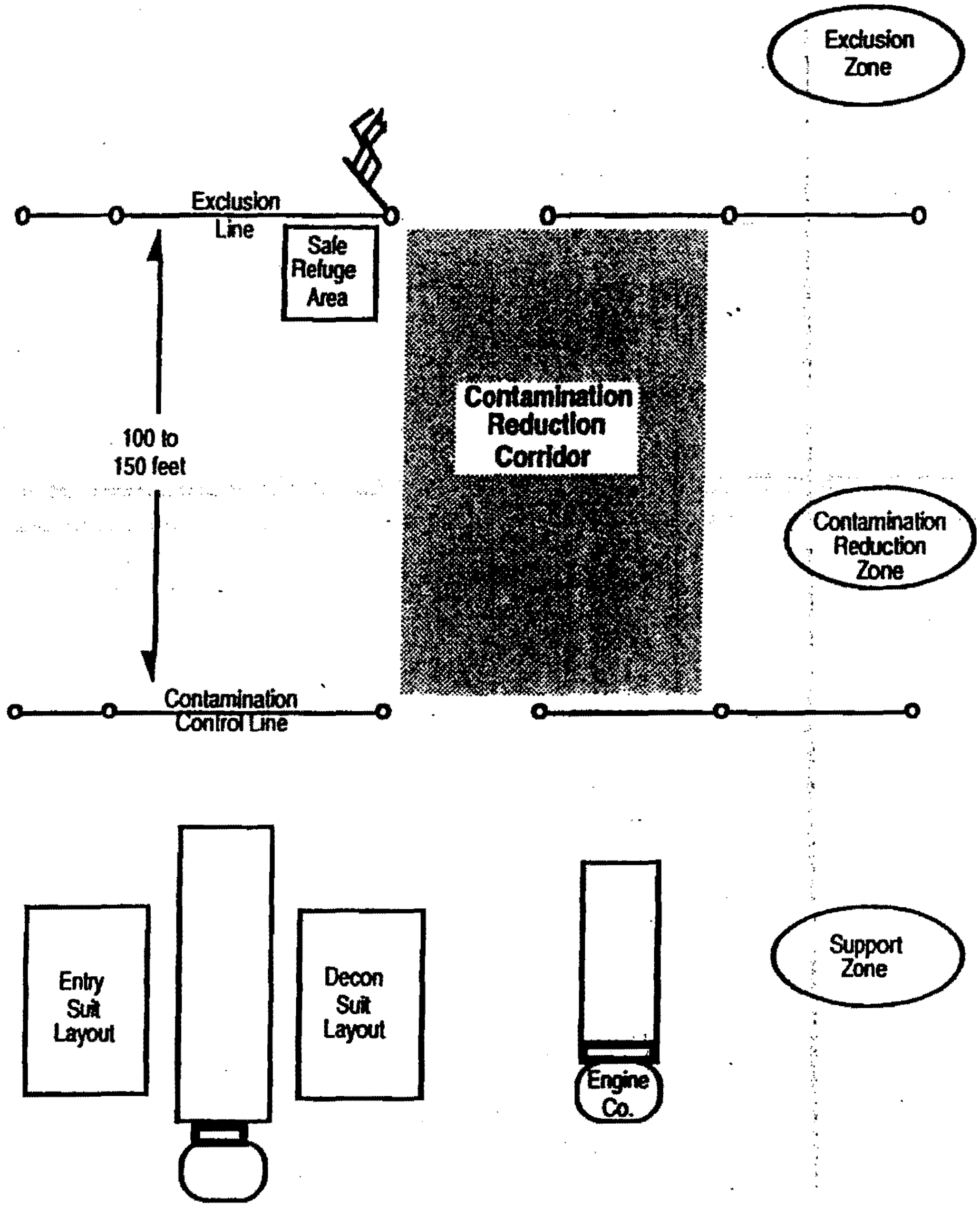
TIME	MAJOR EVENTS

214 ICS 5-80	9. PREPARED BY (NAME AND POSITION)

Control Zone Layout



ASSISTANT SAFETY OFFICER – HAZ MAT

Hazardous Materials Position Descriptions and Functions

Assistant Safety Officer (Hazardous Materials) - Reports to the incident Safety Officer as an Assistant Safety Officer and coordinates with the Hazardous Materials Group Supervisor (or Hazardous Materials Branch Director if activated). The Assistant Safety Officer-Hazardous Materials coordinates safety related activities directly relating to the Hazardous Materials Group operations as mandated by 29 CFR part 1910.120 and applicable State and local laws. This position advises the Hazardous Materials Group Supervisor (or Hazardous Materials Branch Director) on all aspects of health and safety and has the authority to stop or prevent unsafe acts. It is mandatory that a Assistant Safety Officer-Hazardous Materials be appointed at all hazardous materials incidents. In a multi-activity incident the Assistant Safety Officer-Hazardous Materials does not act as the Safety Officer for the overall incident.

A. Check-in and obtain briefing from the Incident Safety Officer.

B. Obtain briefing from the Hazardous Materials Group Supervisor.

C. Participate in the preparation of, and implement the Site Safety Plan.

D. Advise the Hazardous Materials Group Supervisor (or Hazardous Materials Branch Director) of deviations from the Site Safety Plan or any dangerous situations.

E. Has authority to alter, suspend, or terminate any activity that may be judged to be unsafe.

F. Ensure the protection of the Hazardous Materials Group personnel from physical, environmental, and chemical hazards/exposures.

G. Ensure the provision of required emergency medical services for assigned personnel and coordinate with the Medical Unit Leader.

H. Ensure that medical related records for the Hazardous Materials Group personnel are maintained.

I. Maintain Unit Log (ICS Form 214).

UNIT LOG ICS-214	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
	TJD	2 10 09	0900

4. UNIT NAME/DESIGNATOR	5. UNIT LEADER (NAME AND POSITION)	6. OPERATIONAL PERIOD
ASO	ASO	2-10-09 -0900

PERSONNEL ROSTER ASSIGNED

NAME	ICS POSITION	HOME BASE
ALFONSO ZAMORA	ASO	MFD

ACTIVITY LOG (CONTINUE ON REVERSE)

TIME	MAJOR EVENTS
.900	ASSIGNED ASO
0930	UPDATE FROM GROUP SUPE
0935	OPS BRIEFING WITH IC, GS, ENTRY LEADER, DECON LEADER
0950	PRE ENTRY BRIEFING
1004	ENTRY ON AIR
1009	NO WIND PLUME TRAVELING UP
10 22	RESCUE INN HOT ZONE
	ENTRY #1 DECONED
10 24	ENTRY #2 OUT OF AIR + REMOVED

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TIME	MAJOR EVENTS
	ENTRY NOTES
7.	ON SCENE
10 11	ONE LEAK SECURED WORKING ON SECOND
10 19	3 LEAKS ESCALATING 1/2 TANK AIR
10 20	MAN DOWN EXECUTE RESCUE
	1. DECON EMERGENCY PLAN?
	HOW TO DECON
	WHAT IS IN PLACE

214 ICS 5-90

9. PREPARED BY (NAME AND POSITION)

Site Safety Plan Instructions

General Instructions

1. Complete all sections of the plan, entering information on the lines provided. Place a check in the box [ ] provided when applicable.

2. Key safety points are indicated with the following symbol: ☞

3. Items requiring additional documentation are indicated with the following symbol: ✍

   Additional documentation required includes a Hazardous Materials Data Sheet, a site map (ICS Form 201), a Medical Monitoring Form, and a Site Safety Plan Amendment (as needed).

4. Review contents of the Plan at the Safety Briefing.

5. Submit copies of the completed Plan to the Command Post for dissemination to responding resources.

Section Instructions

The Site Safety Plan should be self-explanatory. The following instructions are provided for further clarification.

Section	Instructions
Site Information	Provide information about the site and prevailing weather conditions. Indicate how Control Zones are identified (e.g. barrier tape, traffic cones, chain link fence surrounding property). Attach a copy of the ICS Form 201 with a site map.
Organization	Enter the names of personnel assigned to each position.
Hazard Evaluation	Complete and attach a Hazardous Materials Data Sheet. (This is required for risk assessment and Hazard Communication to the workers.) Enter the information from the Hazardous Materials Data Sheet in this section.
Mitigation Actions	Enter the actions taken to mitigate the existing hazards. (Incident Objectives are identified on ICS Form 202.)
Safety	Identify general hazards and the appropriate safety precautions.
Monitoring	Identify the specific instruments to be used. Identify the monitoring frequency if monitoring will not be continuous.
Protective Clothing	Enter the level of suit, the suit type and the glove type recommended from the Hazardous Materials Data Sheet.
Decontamination	Enter the information from the Site Map and the Hazardous Materials Data Sheet. Indicate whether standard decontamination layout is used, or identify the alternate decon setup and procedure.

Communications	Indicate the radio frequencies assigned.
Health	Pre-Entry and Post-Entry Vitals shall be taken on all Entry and Decon Personnel by a qualified individual. This information is to be entered on a Medical Monitoring Form which shall be attached to the Site Safety Plan. Health Hazards and appropriate treatment information shall be entered on the attached Hazardous Materials Data Sheet.
Emergency Procedures	Complete the remaining portions of the Emergency Procedures section.
Training	Deviation from the training requirements should be documented on the ICS Form 214 by the Unit Leader in charge and the Assistant Safety Officer / Hazmat. The Entry Team shall be briefed on facility specific information by a facility representative. Place a check in the box [ ] to indicate that the personnel on site have the appropriate training. Use the line provided for special requirements or modifications if necessary.
Plan Review	All Entry, Backup and Decon personnel must briefed on the plan prior to entry. The plan shall be available for review by all personnel. The Assistant Safety Officer shall review and approve the plan.
Site Safety Plan Amendment	
Check Amended Sections	Indicate which sections have been amended.
Items	Provide details on amendments made to the original plan.
Plan Review	The Assistant Safety Officer shall prepare the plan. The Haz Mat Group Supervisor shall review the plan. The Incident Commander shall approve the plan. The plan shall be available for review by all personnel.

Site Safety Plan

Incident Name: TID	Incident #:	Date: 2-010-09	Operational Period: 0910

Site Information

Incident Location: TID

Safe Access Route to the Site: WESTERN PROPERTY ACCESS ALONG CANAL

Command Post Location: WEST OF INCIDENT ALONG CANAL

Control Zones are indicated on the ICS 201 Site Map and identified by:

- Exclusion Line: YELLOW TAPE @ CE T73
- Contamination Control Line: YELLOW TAPE @ MFD HM4
- Support Line: BEHIND H4

Weather Conditions: CLEAR SUNNY

Wind Direction: NW Speed: 2-5 mph Temp/Time: 68°

Forecast: CURRENT WEATHER + 2°-3°

ICS Form 201 - Site Map shall be completed and attached.

Organization

Incident Commander: MFD BERBENA

HM Group Supervisor: DER TONY	Safety Officer: —
HM Tech. Reference: DER	Asst. Safety / Hazmat: MFD ZAMORA
Safe Refuge Area Mgr.: N-A	Site Access Control: MPD / SO

Entry Leader: MFD BUTTS		Decon Leader: ~~[illegible]~~ MONUW
Entry FORESITH	Back-Up MELDON	Decon SKULC
Entry HUNTER	Back-Up HASKINS	Decon HUBER
Entry	Back-Up	Decon WASON
Entry	Back-Up	Decon

Hazard Evaluation

Chemical Name(s): ANHYDROUS AMMONIA

Hazards: INHALATION / SKIN IRRITANT
MUCCOSE MEMBRANE IRRITANT

Hazardous Material Data Sheet(s) shall be completed and attached.

Mitigation Actions

Health

☞ Emergency First Aid and transportation will be provided by AMR
and the medical facility will be notified of the situation resulting in the injury.

Medical Unit: AMR | Location: ~~Support Zone~~ MODESTO

☞ ✍ Entry and Decon Personnel shall have Pre-Entry and Post-Entry Vitals completed by qualified personnel. This information shall be recorded on a Medical Monitoring Form. The Medical Monitoring Form shall be attached to the Site Safety Plan.

Poison Control Center Notified: [ ] Yes [X] No

☞ ✍ Toxicology, signs and symptoms, and exposure treatment information is contained within the attached Hazardous Materials Data Sheet. This information shall be:
- provided prior to work activities for known involved materials
- provided following testing of unknown materials
- reviewed at the Post Incident Debriefing
- available upon request

Hygiene and rest room facilities are located at: IN HM4

Emergency Procedures

☞ Citizens within the Exclusion Zone shall be directed to the Safe Refuge Area to await assessment and instructions for appropriate protective actions. The Safe Refuge Area is located at:
NOT NEEDED

☞ **Equipment Failure:** In the event of equipment failure that effects the safety of the personnel working in the Exclusion Zone, Entry personnel shall immediately leave the Exclusion Zone. Re-entry is not permitted until the equipment is repaired or replaced.

☞ **Rescue:** In the event a rescue of the Entry Personnel is required, the Backup Team shall be notified by RADIO COMMUNICATION and receive final instructions.

☞ **Fire:** In the event of a fire or explosion, the Fire Suppression Group will be:
CE T 73

☞ **Escape/Evacuation Alarm:**
SOUND OF AIR HORN

☞ **Entry Team Escape Route:**
SAME ROUT AS ENTRY

☞ **All support personnel shall evacuate to:**
WEST ALONG CANAL BANK

The situation will then be assessed for appropriate corrective actions.

Training

All personnel:
1. have the required or equivalent training to perform the task or function assigned.
2. have the required or equivalent training to wear and/or operate assigned protective equipment.

[X] Yes:

Plan Review

☞ All Entry, Backup and Decon personnel have been briefed on the plan prior to entry.
The Plan shall be available for review by all personnel.
Changes shall NOT be made to this plan without the approval of the Asst. Safety Officer/Hazmat.

Asst. Safety Officer / Haz Mat, SIGNATURE [signature]	Date 2/10	Time 935
Haz Mat Group Supervisor, SIGNATURE [signature]	Date 2/10	Time 954
Incident Commander, SIGNATURE [signature]	Date 2-10	Time 954

Documents Required to Complete This Plan

✍ Attach required amendment(s) to document changes in this plan
[✓] ICS 201 - Site Map [✓] ICS 202 - Incident Objectives [✓] Hazardous Materials Data Sheet
[✓] Medical Monitoring form with Pre-Entry and Post-Entry Vitals for Entry and Decon Personnel

Safety

☞	Personnel shall not enter the Exclusion Zone without proper protective equipment and authorization from the Entry Leader.

General Hazards and Safety Precautions:

☞	Lighting shall be provided, in accordance with OSHA regulations, to maintain a safe working environment. (The specifications are listed in 29 CFR 1910.120, table H-120.1.)

Monitoring

LEL Instrument(s): ~~MULTI RAE~~ N/A	[X] continuous, or:
O2 Instrument(s): ~~MULTI RAE~~ N/A	[X] continuous, or:
Toxicity /PPM instrument(s): ~~MULTI RAE~~ DRAGER TUBE	[X] continuous, or: / SAMPLE
Radiological instrument(s): [✓] alpha [✓] beta [✓] gamma	[✓] continuous, or:
Ground Water Monitoring: [ ] Yes [✓] No	Comments:

☞	Proper protective precautions shall be employed for personnel working where sound levels exceed limits. (The specifications are listed in 29 CFR 1910.95.)

Protective Clothing

Entry: "A"

Backup: "A"

Decon: "B"

☞	Recommended guidelines shall be followed for personnel in chemical protective clothing.

Decontamination

Decon Corridor Location: IN WARM ZONE IN FRONT OF HM4

Standard Department Decontamination Layout utilized: [X] YES [X] NO

The modified layout and procedure will consist of: AIR DECON w/ PH TEST ON SUIT IF NEEDED THEN 2 POOL DECON

Decon solution for Personnel: WATER

Decon solution for Equipment: WATER

☞	Decon Procedures shall be followed for personnel and equipment exiting the Exclusion Zone.

Communications

Radio Frequencies assigned:	Command: X	Tactical (Entry Team): 11

Additional Communications utilized:

☞	Visual contact with the Entry Team shall be maintained at ALL times, or as follows:
☞	Emergency Hand Signals shall be reviewed with the Entry and Decon teams.
☞	ONLY the Entry and Backup Team, Decon Leader and Asst. Safety Officer / Hazmat shall utilize the assigned Tactical Channel.

Site Safety Plan Amendment

Incident Name:	Incident #:	Date:	Operational Period:

Check Amended Section(s)

[ ] Site Information	[ ] Organization	[ ] Hazard Evaluation
[ ] Mitigation Actions	[ ] Safety	[ ] Monitoring
[ ] Protective Clothing	[ ] Decontamination	[ ] Communications
[ ] Training	[ ] Health	[ ] Emergency Procedures

Item(s)

Plan Review

☞ Changes shall NOT be made to this plan without the approval of the Asst. Safety Officer/Hazmat. Plan amendments shall be documented, attached, reviewed by all personnel and made available upon request.

Prepared by (Asst. Safety Officer / Haz Mat)	Date	Time
Reviewed by (Haz Mat Group Supervisor)	Date	Time
Approved by (Incident Commander)	Date	Time

Public Health (30–33)

Background

An applicant's health risk assessment should include emissions of Toxic Air Contaminants (TACs) from all sources. The AFC mentions that process water obtained from the City of Ceres Wastewater Treatment Plant will be used for, among other uses, "evaporative cooling" (section 21.7.2). Since reclaimed water will be used for evaporative cooling, staff needs to know more about the nature of the evaporative cooler and if drift or emissions are possible. Staff notes that emissions from the evaporative cooler were not included in the health risk assessment and thus more information is needed to justify that omission.

Data Requests

30. Please provide a description of the evaporative cooling system.

Response: Please see Data Response 12.

31. If airborne emissions from the evaporative cooling system are possible, please provide a revised health risk assessment that includes emissions factors, risk, and hazard from the evaporative cooler.

Response: Airborne emissions from the evaporative cooling system are not possible. Please see Data Responses 11 and 12.

Background

The HARP model is used to assess cancer risk and chronic and acute impacts for this proposed project. Several HARP-generated files have been provided on the "Air Quality and Public Health Modeling Files" CD. However, in order to facilitate evaluation of the modeling effort, the HARP transaction file (.tra) is required.

Data Request

32. Please provide the HARP transaction file (.tra) which includes the proposed and existing facilities.

Response: The HRA modeling was conducted using USEPA's AERMOD dispersion model and the ARB Hotspots Analysis Reporting Program (HARP, Version 1.4a, July 2008), along with the ARB HARP On-Ramp software (Version 1.0, May 2008). Although AERMOD is the current USEPA-approved dispersion model, HARP does not contain an AERMOD module. Therefore, the On-Ramp must be used to integrate the AERMOD dispersion results into the HARP risk analysis module.

Dilution factors (χ/Q, in units of $\mu g/m^3$ per g/sec) at each receptor location are calculated by AERMOD, in the form of AERMOD plot files. These results are imported to HARP On-Ramp to generate a source-receptor file that contains the χ/Q values corresponding to each emission source for each receptor location. HARP reads the source-receptor file and, for each release point, calculates the air toxic concentrations at each receptor location. HARP then computes health risks for each receptor location based on the air toxic concentrations attributable to each release point and the corresponding air toxic risk factors. When the HARP On-Ramp is used, the procedure of entering facility, stacks, devices, processes and emission information into HARP is not necessary and no .tra file is created. Therefore, no .tra file is available for the screening health risk assessment prepared for the project. As part of the AFC, the Applicant submitted the detailed AERMOD and HARP files for the HRA modeling analysis.

To facilitate evaluation of the modeling effort, the Applicant is providing the following outline of how the HARP On-Ramp-generated files are used in performing the screening HRA:

1. AERMOD modeling run: Model unit emission rates (1 g/s) for all sources to compute 1-hour and annual average concentrations for each source at each receptor. These unit impact concentrations (also known as the air dilution factors, X /Q) are written to AERMOD plot (.PLT) files.

2. HARP On-Ramp procedure:

    a. Select modeling systems and default settings: Make the following selections:

        - modeling system: AERMOD

        - UTM: NAD 27

        - UTM ZONE: 10

        - COUNTY: 24

        - AIR BASIN: SJV

        - DISTRICT: SJU

    b. Add source data: Add the source information by importing the AERMOD input file (.ADI) to the program

    c. Add emission data: Add the toxic pollutant emission information for each source by importing the air toxic emission (.CSV) file

    d. Add concentration data: Add the unit impact concentration (χ/Q) data by importing the .PLT file.

    e. Run On-Ramp to create the following output files:

        - The source-receptor (.SRC) file that consists of the UTM coordinates and elevation for each source and each receptor;

        - The χ/Q (.XOQ) file that contains the χ/Q values corresponding to each emission source for each receptor location;

        - The emission (.EMS) file that includes the air toxic emission rate for each source.

3. HARP procedure:

    a. Open HARP, select Analysis\Risk Analysis from the main menu;

    b. Select File\Open Source-Receptor File (Dispersion Analysis Results). Browse to the location where your Source Receptor file (*.SRC) is located and click Open. Since the emission data is not in HARP, you will get several warning messages about no chemical emissions listed in the database, and cannot open a risk file. Say OK to all. The Dilution Factors File (*.XOQ) will automatically load with the Source Receptor file. Load the Emission File From the HARP risk analysis module;

    c. Load the emissions file (*.EMS). Click on the Emissions tab and click Open on the tab page. In the open file dialog, select the .EMS file created in HARP On-Ramp (as described above);

    d. Set up the appropriate pathways for the multi-pathway analysis (the risk characterization for this HRA considered the inhalation (default), home grown produce, dermal absorption, soil ingestion, and mother's milk ingestion pathways) and perform the risk analysis (short term/acute and long term/cancer and chronic) by selecting the appropriate risk estimate methods.

Background

The AFC (Figure 5.9-4A) shows the locations of sensitive receptors (schools, pre-school/day care centers, houses of worship, parks, nursing homes and hospitals) within a 3-mile radius of the proposed power plant (north half of radius). It shows two pre-schools/day care centers on Crows Landing Road a few blocks south of SR-99. It does not show any schools located on Crows Landing Road. However, Figure 5.9-2C depicts the location of schools within the 3-mile radius and it shows a school on Crows Landing Road about 5 blocks south of SR-99. Since Crows Landing Road is the proposed hazardous materials delivery route for anhydrous ammonia, staff needs to know which map is correct and where all concentrations of sensitive receptors are located.

Data Request

33. Please provide accurate information regarding the location of all sensitive receptors (schools, pre-school/day care centers, parks, nursing homes, houses of worship and hospitals) located along or within ¼ block of Crows Landing Road.

Response: After additional discussion with staff, the Applicant understands that the information request is focused on sensitive receptors within 500 feet of the portion of Crows Landing Road between SR-99 and the entrance to the power plant. Table DR33-1 lists these sensitive receptors.

TABLE DR33-1
Additional Sensitive Receptors

Receptor Name	Receptor Type	Receptor Location	Distance from Crows Landing Road
Shackelford Elementary School	Elementary school	100 School Avenue, Modesto	214 ft
Shackelford Elementary School/Head Start	Preschool/daycare center	100 School Avenue, Modesto	214 ft
Shackelford Early Learning Center	Preschool/daycare center	116 El Paso Avenue, Modesto	230 ft
Sunshine Tabernacle	Place of worship	1535 Eureka Street, Modesto	550 ft

To further address potential concerns regarding ammonia delivery routes, several alternatives were evaluated and compared to the proposed routes described in Section 5.12.3.4 of the AFC. Further, the Applicant is aware that the California Highway Patrol (CHP) "designates the through routes, safe stopping places, required inspections stops, and inspection stops to be used for the transportation of inhalation hazards [like ammonia] in bulk packaging pursuant to Division 14.3 (commencing with Section 32100) of the Vehicle Code." (13 CCR § 1157(a).)

The Applicant would like to note its considerable concerns related to the potential for narrowly prescribed routing requirements in the potential Conditions of Certification. First, and foremost, the Applicant is a customer of ammonia delivery services. Those services in turn are closely regulated by the U.S. Department of Transportation, the CHP, and CalTrans, among others. The ammonia providers have the responsibilities to move their product consistent with their regulatory programs. The Applicant is concerned, from a liability perspective, about becoming liable for the actions of those providers if the Commission too narrowly prescribes how those independent businesses may operate. Is there the potential liability to be borne by the Applicant's ratepayer owners that could otherwise be avoided? There may also be commercial implications (additional costs or restrictions) associated with narrow prescriptions.

To be clear, the Applicant does not believe that specific ammonia truck routes are a difficult issue to resolve. The Applicant also does not want to appear to be inflexible and welcomes the opportunity to discuss these issues further. Further, the Applicant has the highest respect for the Commission's Staff and their informed insights and opinions in this connection. Accordingly, the Applicant respectfully requests that the opportunity afforded by the Staff Workshop be used to discuss how a reasonable accommodation on these issues might be reached.

Alternative Routes

Response: The list of proposed alternate routes for the transportation of ammonia and potential issues associated with each of the routes (Figure DR33-1) are listed below. The use of Routes 1 and 2 is recommended, subject to CHP and Caltrans approval. These routes are described below.

From SR-99:

Current Route (Proposed Route 1): Exit Crows Landing Rd heading south, turn east on the existing Almond Power Plant access road. This route goes through parts of the cities of Modesto and Ceres, and passes within 500 feet of two schools, but is direct with few turns. The distance from the freeway is approximately 3.5 miles.

Exit East Keyes Road (Alternate Route 1A)

Head west on E. Keyes Rd., turn north on Morgan Rd, turn west on Grayson Rd, turn north on Crows Landing Rd, turn east on the existing Almond Power Plant access road. This route does not pass any residential communities, schools, or places of worship, but does pass approximately 30 homes/farm houses along the route. This route has four additional sharp turns compared to Proposed Route 1 from the freeway to A2PP. Additionally, trucks using this alternate route would pass within 500 feet of two schools, two preschool/daycare facilities, and one place of worship as they traveled along SR-99 between Crows Landing and the East Keyes Road exit. The distance from the freeway is approximately 6.8 miles.

From I-5:

Current Route (Proposed Route 2) – Exit Fink Rd heading east (becomes Crows Landing Road), turn east on the existing Almond Power Plant access road. This route goes through the town of Crows Landing and a small community east of Crows Landing Rd between Keyes Rd and Grayson Rd. Two schools and a place of worship are within 500 feet of this route. The route is relatively straight, with minimal turns. The distance from the freeway is approximately 18.8 miles.

Exit W. Stuhr Road (Alternative Route 2A)

Head east on W. Stuhr Road, turn north on SR-33, turn east on Crows Landing Road, turn east on the existing Almond Power Plant access road. The only way to get to A2PP is to backtrack up to Crows Landing Road. This route has more turns, and goes by the town of Crows Landing at SR-33 and Crows Landing Road, and the small community east of Crows Landing Rd between Keyes Rd and Grayson Rd. This is not a preferred option, as it is longer than and has the same issues as the current route (Proposed Route 2) past SR-33. The distance from the freeway is approximately 24.3 miles.

Exit Sperry Ave. (Alternative Route 2B)

Head east on Sperry Ave., turn north on 2nd St., turn east on E Las Palmas Ave. (becomes W. Main Ave.), turn north on Crows Landing Rd., turn east on the existing Almond Power Plant access road. This route goes through the city of Patterson, and the small community east of Crows Landing Rd between Keyes Rd and Grayson Rd. The route has two additional sharp turns to the Proposed Route 2. Alternate Route 2B would not be as good an option as

Proposed Route 2 because the route will go through a large portion of the city of Patterson, passing several blocks of residential neighborhoods, and is within 500 feet of two schools and a place of worship. The distance from the freeway is approximately 17.5 miles.

Exit Ingram Creek Rd/Howard Rd (or McCracken Rd) (Alternative Route 2C)

Head east on Ingram Creek Rd., turn south on Howard Rd., continue straight on Frank Cox Rd., turn north on SR-33, turn east on Grayson Rd., turn north on Crows Landing Rd., turn east on the existing Almond Power Plant access road. This route goes by a small community at Grayson Rd. and SR-33, near a small community off of Grayson Rd. and River Rd., and by several farm houses along Grayson Rd. There are three additional sharp turns on this route as compared to the Proposed Route 2, and it passes within 500 feet of a place of worship. The distance from the freeway is approximately 17.8 miles.

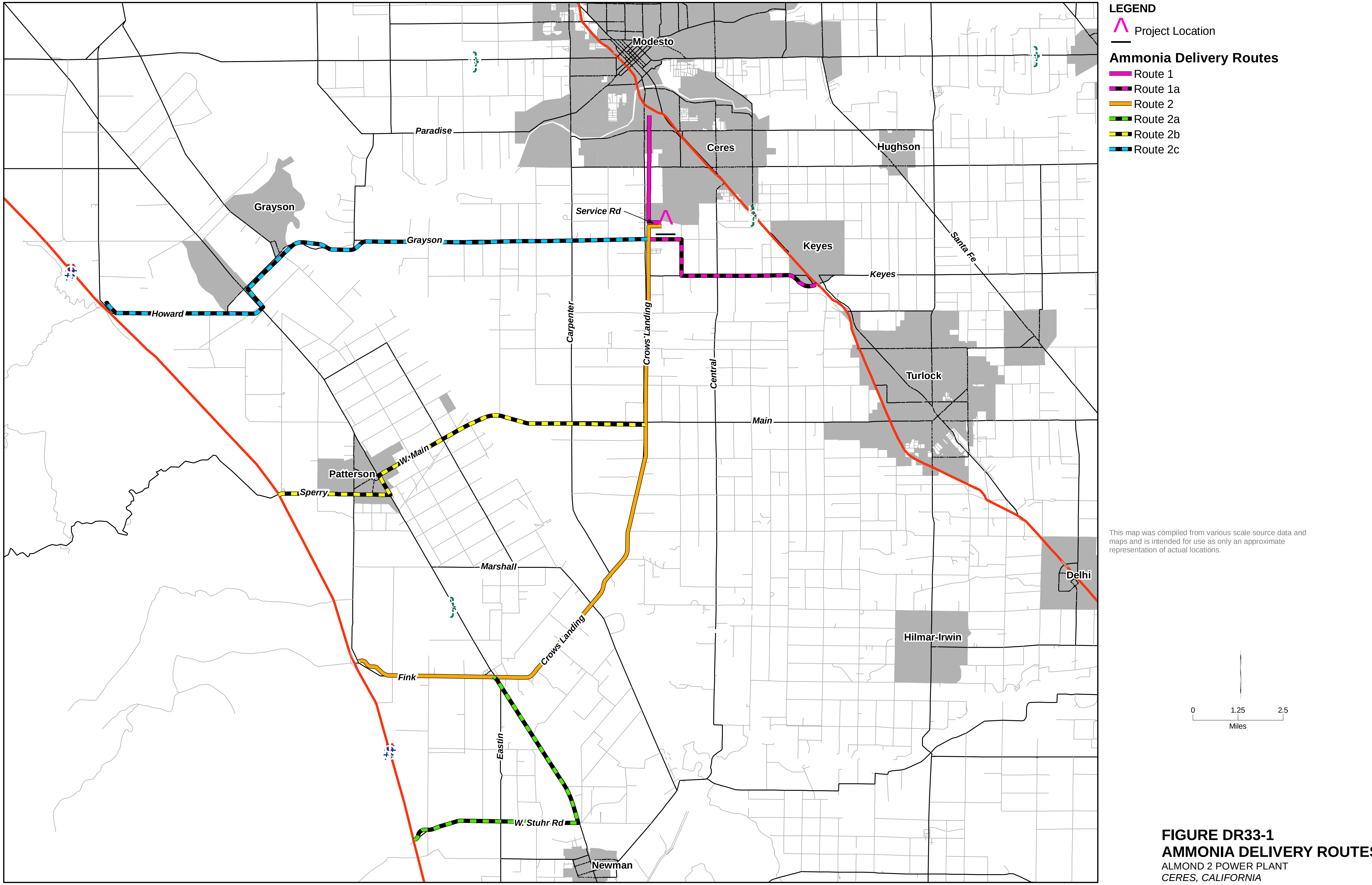


FIGURE DR33-1
AMMONIA DELIVERY ROUTES
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

Soils and Water Resources (34–69)

Background

The water to be used for A2PP power plant process water would be supplied to the site through an existing system used for APP. Water for APP is pumped from approximately 35 to 65 feet below ground surface near the City of Ceres WWTP percolation-evaporation (P-E) basins. Water is delivered to the power plant site via a 6-inch diameter pipeline between the APP and the City of Ceres Waste Water Treatment Plant (WWTP). A2PP's average daily water use would be approximately 319 gallons of water per minute (gpm) assuming 60ºF. The annual power plant process water would be about 293 acre-feet per year assuming typical expected operation of 5,000 hours per year (57 percent capacity factor). The case for operating 8,760 hours per year was also evaluated. Total water use for this case would be approximately 514 acre-feet per year (100 percent capacity factor). A Water Balance Diagram was provided in Section 2.1.7 Water Supply and Use. When temperatures increase to 110ºF, the expected water use increases to 349 gpm. Staff needs additional information on the exact location of the well with respect to the Ceres WWTP P-E basins. Staff needs information on any wells within a one-half mile influence of the A2PP supply well.

The Applicant has stated that there is a —high level of reliability of water from the Ceres WWTP (AFC 5.15.1.4.1) and that no backup water supply is required. Staff spoke with Michael Riddell, City of Ceres WWTP Supervisor to confirm the process water supply budget. The Ceres WWTP has the process capacity for 3.1 million gallons per day (mgd) of wastewater but currently generates roughly 2.0 mgd of primary treated effluent. The WWTP discharges approximately 1.0 mgd into the WWTP P-E basins while the A2PP maximum demand is roughly 0.9 mgd. Another 1.0 mgd is piped to Turlock WWTP, which is about 12 miles away. According to Mr. Riddell, Turlock WWTP has an agreement to receive up to 2.0 mgd from Ceres WWTP. Currently the Turlock WWTP facilities require an upgraded before they will accept the full 2.0 mgd. Staff is concerned that the full utilization of the Ceres-Turlock agreement would significantly reduce effluent to the Ceres WWTP P-E basins, which A2PP relies on for supply. Staff is concerned that evaporation from the P-E basins further reduces the amount of available reclaimed effluent that would otherwise percolate into the ground and be available to A2PP. Staff is concerned that these reductions may reduce the reliability of reclaimed water identified by the Applicant as their only source of supply water.

Ceres WWTP Water Quality Data (from the existing extraction well) was provided in Table 5.15-4 of the AFC. Assuming that only Ceres WWTP effluent is extracted from the well, this water quality data represents primary treated effluent that has settled-out solids in the P-E basin, percolated into the ground, is filtered through soil, and has not mixed with fresh water supplies. This water quality data could change with the additional demand from A2PP. Staff is concerned that the additional demand and increased pumping could draw from fresh groundwater sources near the well. Staff needs information on the Ceres WWTP groundwater water quality to compare to the data supplied in Table 5.15-4. Staff also requires information on the groundwater table and mounding levels at the location of the extraction well.

Data Requests

34. Referring to AFC Figure 2.1-5 Water Balance Diagram described in Section 2.1.7 Water Supply and Use, assuming temperatures at 110ºF and 60ºF, please quantify:

    a. the total estimated – Evaporation to Atmosphere in gpm from each CTG;

    b. the discharge stream, in gpm, from the existing APP plant. Please provide a record of peak discharge flows or an estimate if unknown.

Response:

a. The evaporation to atmosphere for each CTG is provided as the difference of point 4 and point 16 on Figure 2.1-5 Water Balance Diagram provided in the AFC. The evaporation per CTG at 110°F is 15 gpm, and the evaporation per CTG at 60°F is 3 gpm.

b. The peak discharge from the Almond Power Plant is estimated to be 97 gpm.

35. Please identify:

    a. the location of the City of Ceres WWTP, APP extraction well, meters (if any), and the alignments of the supply pipeline and discharge pipeline to the APP site on a map;

    b. ownership and/or easements for the existing 6-inch diameter pipeline, well, and pump between APP and the City of Ceres WWTP; and

    c the entity responsible for maintenance of the supply and discharge pipelines.

Response:

a. Figure DR35-1 identifies the location of the City of Ceres WWTP, the Almond Power Plant extraction well and the alignments of the supply pipeline and discharge pipeline to the Almond Power Plant site. The supply pipeline and discharge pipeline have inline flow meters.

b. The water supply line is owned by the Turlock Irrigation District and was constructed in an existing TID utility easement for the process water discharge to the Ceres WWTP. The TID designed and constructed the extraction well water supply line and pumping facilities. The City of Ceres allowed for the installation of the facilities located on their wastewater treatment plant property. TID owns and is responsible for the right-of-way, including acquisition, for the water supply line. Facilities exist within property owned in fee title by the District and utility easements. The Almond Power Plant well is located inside the fence line of the Almond Power Plant, on TID property.

c. The entity responsible for maintenance of the reclaimed water supply and discharge pipelines is the Turlock Irrigation District.

36. Please quantify:

    a. the "high level of reliability of water from the Ceres WWTP" (AFC 5.15.1.4.1) in average daily and total annual withdrawal capacity of the Ceres Wastewater

Treatment Plant (WWTP) percolation ponds. Include in your discussion periodic fluctuations in water available from the Ceres WWTP correlated to anticipated high water usage needs at the power plant site;

b. the average volume of effluent water from the Ceres WWTP, in mgd, lost to evaporation; and

c. the maximum pumping capacity from the extraction well located near the Ceres WWTP percolation-evaporation basins.

Response:

a. The water supply is provided by an extraction well that is underground approximately 35 feet away from the percolation ponds. As a result, there is some drawdown in two of the eight percolation/evaporation ponds. There is no average daily and total annual withdrawal from the percolation ponds to the water supply line because the water is extracted underground.

The average annual effluent discharge at the Ceres WWTP is 2.1 million gallons per day (mgd) (pers. comm. Ceres WWTP). Based on the pumping capacity described in part c of this data response the maximum extraction well pumping capacity is 800 gallons per minute (gpm); at this pumping rate the maximum extraction capacity is 1,152,000 mgd. However, the well production is limited to 550 gpm due to the sand filter (792,000 gallons per day).

b. The average volume of effluent water from the Ceres WWTP, in mgd, lost to evaporation between June and October is 0.64 inches which equates to 0.537 mgd (pers. comm. Ceres WWTP).

c. The maximum pumping capacity from the extraction well located near the Ceres WWTP percolation-evaporation basins is approximately 550 gpm through the sand filter; however, the pump is rated at 800 gpm.

37. Please provide a list of wells that could be affected by the project's use of groundwater and subsequent aquifer drawdown.

Response: To estimate the effect of the current level of operation of the Extraction Well at the WWTP, it was conservatively assumed that the radius of influence for the current level of operation is radial. Since the well has a shallow well screen (30 to 70 feet and 80 to 90 feet below grade), a shallow water table (initial depth to water of 12 feet below grade when it was drilled), and an essentially unlimited source of recharge from the adjacent WWTP percolation ponds, assuming this radial flow provides a conservative assumption for local groundwater impacts.

Assuming a 25 percent effective porosity for the Modesto Formation (the screened interval of the Extraction Well and the surficial unit exposed in the vicinity of the A2PP facility) and a saturated thickness of 60 feet, the increase in pumping at the extraction well is expected to increase from the currently estimated zone of influence from 1750 feet to 2865 feet over 10 years. However, it is anticipated that the majority of this additionally extracted water will originate in the WWTP ponds.

To determine the potential wells that could be affected by increasing the pumping rate at the Extraction Well, a review of available Well Completion Reports from the Department of Water Resources was conducted. In addition, other readily available data sources (such as Geotracker, Envirostor, and the Turlock Subbasin Groundwater Management Plan) were reviewed to determine if other wells may occur in the area. This review indicated that there are currently no wells within the area influenced by the current operation of the Extraction Well that are not owned by either TID or the City of Ceres. Increasing the operation of the Extraction Well to 550 gpm could influence domestic wells located along portions of Grayson and Blaker Roads (Well Completion Reports were not available from DWR for most of these wells). This effect is anticipated to be minimal because these wells are in the opposite direction of the percolation ponds, which will act as the primary source of recharge to the increased production at the Extraction Well. Figure DR 37-1 shows the location of the Extraction Well, the current and 550 gpm zone of influence, and locations of wells for which Well Completion Reports are available at DWR.

38. Using a groundwater computer model, please quantify the impact on wells affected by the project and identify all assumptions and data used. The model should be tested using several groundwater level scenarios, variability in the discharge rate for Ceres WWTP effluent, and be able to estimate impacts to fresh groundwater resources.

Response: See Applicant’s letter of September 2, 2009, objecting to this request. Without waiving any of these objections, Applicant reserves the right to provide responses, in whole or in part, to some or all of these Requests. Moreover, Applicant believes that discussions with Staff and interested parties at the workshop may make these objections irrelevant if we are able to reach agreement with Staff on meeting their informational needs.

The A2PP plant will be supplied using an existing operating well. Because of the shallow well screen and the immediate proximity of the ponds, the primary contributor to the extraction well is percolated water from the ponds. In addition, there is a lack of available site-specific aquifer parameters and actual well pumping rates, so development of a groundwater model would be highly speculative.

39. Please provide groundwater quality data, reported from the City of Ceres WWTP for comparison to the data provided in Table 5.15-4.

Response: The City of Ceres is only required to test groundwater samples from its three monitoring wells for a limited suite of analyses. The analyses for Morgan South #2 are included in Table DR39-1, which is the closest monitoring well to the extraction well. Both wells were sampled in December 2008 and are screened in similar intervals. In addition, the December 2008 results for the WWTP effluent (as measured at the WWTP, not the ponds) are also included for comparison.

The results for these parameters indicate a strong similarity, especially when considering that these factors each vary seasonally depending on WWTP inflows, climatic influences, and local groundwater conditions. This finding supports the conclusion that the primary contributor to the Extraction Well is infiltration from the adjacent ponds.

TABLE DR 39-1
Comparison of Extraction Well Water to Ceres Wastewater Treatment Plant Groundwater and Effluent

Parameter	Units	APP Extraction Well Value	Morgan South #2	Ceres WWTP Effluent
Total Alkalinity ($CaCO_3$)	mg/L	256	–	–
Bicarbonate (HCO_3)	mg/L	313	–	–
Carbonate (CO_3)	mg/L	ND	–	–
Hydroxide (OH)	mg/L	ND	–	–
Barium	µg/L	233	–	–
Chloride	µg/L	233	242.5	165.8
Fluoride	mg/L	0.14	–	–
Calcium	mg/L	69	–	–
Magnesium	mg/L	23	–	–
Iron	µg/L	ND	–	–
Nitrate (NO_3)	mg/L	3.6	3.52	ND
pH	Standard units	7.3	7.28	7.70
Phosphate	mg/L	ND	–	–
Potassium	mg/L	7.7	–	–
Silica	mg/L	48.6	–	–
Sodium	mg/L	162	–	–
Sulfate (SO4)	mg/L	47.3	–	–
Total Dissolved Solids	mg/L	833	–	–
Specific Conductance	µmhos	1,570	1,664	1,298
Free CO2	mg/L	15	–	–
Total Cations	mg/L $CaCO_3$	12.5	–	–
Total Anions	mg/L $CaCO_3$	12.7	–	–
Total Hardness	mg/L $CaCO_3$	270	–	–

ND = Analyte not detected at or above the reporting limit
Data provided by the City of Ceres

Background

Groundwater wells in the Turlock subbasin vary from 50 to 350 feet below ground surface with average yields of 1,000 to 2,000 gallons per minute (gpm). APP currently draws 16,000 gallons per day (gpd) for sanitary service water to the plant and the proposed A2PP would continue using this source. The City of Ceres also utilizes groundwater as its sole source of drinking water. The proposed use of groundwater near the Ceres WWTP can affect the water levels and storage volumes of a nearby potable groundwater supply. Staff is concerned that project groundwater pumping could result in well interference and impact nearby groundwater users.

The Applicant's response to DA-20 in the Almond 2 Power Plant's Supplement A – Data Adequacy stated the A2PP project will not pump groundwater. A copy of the well development pump test for APP was provided (Attachment DA5.15-2). The pump test included a 10/03/00 letter from JL Analytical Services, Inc. describing that the water sample taken ―Does Not Meet standards of California and US Public Health Service (standards).

Data Requests

40. The Applicant's AFC Supplement A states no ground water would be pumped. In fact, groundwater will be pumped from an existing well near the Ceres WWTP to provide service water for A2PP.

    a. Please explain the Supplement A statement.

    b. Please provide evidence that the groundwater supply will meet title 22 requirements for the proposed industrial use.

Response:

a. The statement in the Data Adequacy Filing, Supplement A, did not reflect increasing the pumping rate of the Extraction Well to its capacity. Although the pumping rate is increasing, the proximity of the percolation ponds will allow for a sustained source of recharge to the Extraction Well which should minimize local groundwater impacts.

b. The water used at the A2PP plant is to be treated at the Almond Power Plant treatment facilities prior to use at the A2PP, and will be treated identically as water is currently treated at the Almond Power Plant. The existing cooling tower at the Almond Power Plant does not use Title 22 water, thus neither will the A2PP.

41. Please demonstrate that during the maximum water use scenario the drawdown would not result in fresh groundwater use and impact adjacent users.

Response: As discussed in Data Response #37 and 38, the proximity of the percolation ponds minimizes the impact of the additional pumping on local groundwater conditions.

Relative to the impact of potential adjacent users, currently there are no groundwater users within the existing 10-year radius of influence of the Extraction Well (see Figure DR37-1). With the increased pumping rate of the extraction well, the radius of influence will expand to include some groundwater users along Grayson and Blaker Roads. However, these wells are in the opposite direction from the WWTP and approximately ½ mile distant from the Extraction Well. Negligible impact to these wells is expected.

42. Fire water for A2PP will come from the APP site well. This well has been tested and does not meet CDPH standards. Please explain the treatment methods used for A2PP's fire water supply.

Response: The Almond Power Plant site well will be used for service and fire water at the A2PP and is not used for potable water uses. Potable water is brought to the site via an outside contractor (i.e. Alhambra). The Almond Power Plant site well water is not currently tested to meet CDPH standards as it is not a potable water source for the plant. Therefore, there are no plans to treat the fire water supply.

43. Please discuss the existing groundwater table variability at the existing supply pump to include contributing factors (Ceres WWTP P-E Basin infiltration, rainfall infiltration, etc) affect the groundwater levels. Please demonstrate that the groundwater pumping near the Ceres WWTP will solely be from the wastewater zone of mounding.

Response: The groundwater levels in the vicinity of the WWTP have been relatively stable over time, based on the long time groundwater level records of a TID well located near the WWTP (see Exhibit 1).

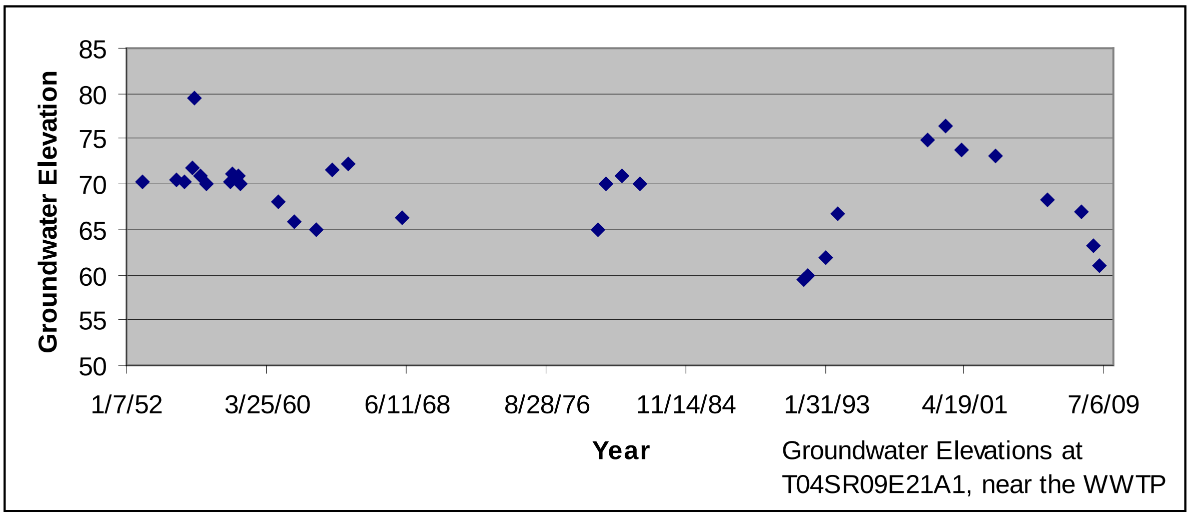


EXHIBIT 1:
Groundwater Elevations at TO4SR09E21A1, near the WWTP

Additionally, quarterly water levels measured at the WWTP monitoring wells show additional stability with some seasonal variability, as seen in Exhibit 2.

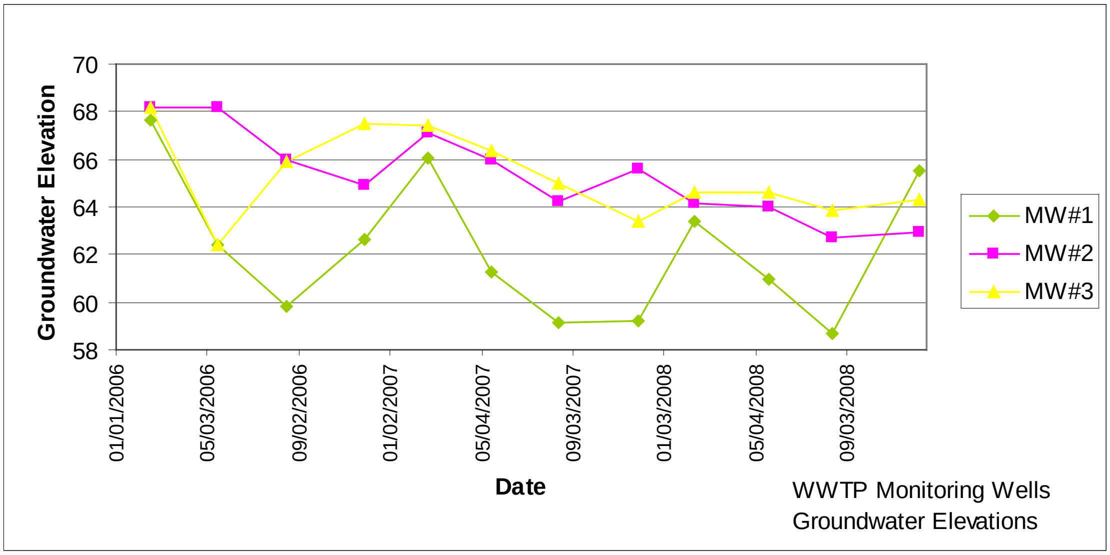


EXHIBIT 2:
WWTP Monitoring Wells Groundwater Elevations

Background

The Applicant estimates construction water use of 161.3 acre feet during the 12 month construction period. Construction water supply would come from the onsite fire system at the APP or the TID irrigation canal to the south (AFC, 5.15.1.4.3 and 5.15.2.1.3).

The AFC did not provide information on the volume and source of water needed for pipeline/tank hydrostatic testing.

Data Requests

44. Please discuss whether any agreements are needed for access to or delivery from the TID irrigation canal and if those agreements have been executed or are in negotiation.

Response: No agreements are needed for access to or delivery from the TID irrigation canal. TID will be both the owner/operator of the A2PP project, and also is the owner/operator of the TID irrigation canal system.

45. Please provide information on the volume and source of water needed for pipeline/tank hydrostatic testing.

Response: The volume of water needed for pipeline /tank hydrostatic testing at the project site is calculated at 18,200 gallons. The volume of water for flushing the pipelines is estimated to be two times the internal volume of the pipes and tank or 36,400 gallons. Therefore, the total volume of water required is 54,600 gallons. This calculation assumes all systems will be water tested.

The water source for stainless steel systems should be from RO or demin to minimize chlorides and in any other systems where cleanliness or heat exchanger fouling is a concern. Other systems may use plant service water, RO or demin water.

Per PG&E, the volume of water needed for gas pipeline testing is as follows:

- 8-inch pipeline: Approximately 14,000 gallons/mile
- 12-inch pipeline: Approximately 31,000 gallons/mile
- 16-inch pipeline: Approximately 55,000 gallons/mile

Anticipated source of water for gas pipeline testing is irrigation water from the TID Lateral 2. In addition, PG&E and the Applicant are in the process of finalizing the gas line route and will be submitted to Staff in as soon as improvements to the PG&E system to serve the A2PP are finalized (expected in late September 2009/early October 2009). This response will contain the exact length of the natural gas pipeline.

46. Please provide information describing the potential impacts of freshwater use for construction.

Response: Freshwater use for construction water will be temporary (approximately 12 months). The Turlock Irrigation District owns and operates the Lateral #2 irrigation canal that is located adjacent to the proposed project. Maximum flow in the canal is 110 cfs. Normal flow during the irrigation season is 60 to 80 cfs. During the non-irrigation season (mid-October to mid-March) the canal flow is 5 cfs due to the drainage pumps located in the vicinity. The drainage pumps are used to remove water from the root zones of plants and orchards and the water is then drained into TID irrigation canals. Average use during construction is anticipated to be less than 50 gallons per minute and use would be intermittent as needed for dust control and compaction needs. Impacts of freshwater use for construction will be temporary and less than significant. The onsite hydrants at the Almond Power Plant are an alternative water source for construction.

Background

AFC Section 6.0 Alternatives discussed alternative sites and the water supply alternatives for each site. Staff requires more thorough discussion of than provided in Section 6.0 regarding potential water supply options or alternative cooling technologies at the (preferred) A2PP site. To be consistent with state water policy found in State Water Resources Control Board (SWRCB) Resolution 75-58, and the Energy Commission's 2003 Integrated Energy Policy Report (IEPR) water policy, Staff is requesting additional information on potential alternatives to wet cooling technologies and local water source alternatives. Staff is interested in understanding why these available alternatives, which would reduce the plant's water demand and protect water resources from power plant wastewater discharges, were not considered.

Staff requires additional information on back-up water supply and water supply alternatives for A2PP. Staff has identified a potential supply of tertiary-treated, Title 22-quality recycled water. Turlock WWTP, the same plant that receives primary effluent from Ceres WWTP, produces 13.1 mgd of tertiary treated wastewater that meets Title 22 recycled water quality requirements.

Data Requests

47. Please identify potential alternative cooling technologies (e.g. air-cooling, air-cooling in combination with a mechanical air-chiller) and alternative water

supply options (e.g. Title 22 recycled water from Turlock WWTP) for A2PP and demonstrate that these alternatives are not economically feasible or environmentally desirable.

Response: Evaporative cooling will be used as part of the inlet air system for the combustion turbines. No cooling towers, evaporative or otherwise, are associated with this cooling system.

Use of the inlet air evaporative cooling increases both energy production and efficiency. If direct air cooling were relied upon, these benefits could not be achieved. Mechanical chilling could be employed, but the chillers are very expensive, have a large parasitic load, and involve hazardous chemicals such as Freon. Evaporative cooling with water is the usual and customary way of cooling inlet air to combustion turbines.

In terms of alternative water supplies, it is the Applicant's position that in the extremely unlikely event of interruption of supply, the Applicant would take an outage rather than permit use of an alternative supply. ′′

48. Please provide an economic and environmental analysis of the feasibility of obtaining tertiary-treated recycled water from Turlock WWTP for process water at A2PP. Please identify the volume of recycled water from Turlock WWTP currently committed to other uses.

Response: The Turlock WWTP is located approximately 9 miles from Almond 2 Power Plant. Economic disadvantages of using water from the Turlock WWTP are obvious. The cost of construction of new piping and other works make this supply economically unreasonable. Construction of such a pipeline and associated systems would result in temporary construction impacts to air, traffic, and other environmental disciplines. It is also important to remember that the A2PP has no cooling towers and thus no need for Title 22 water for use in cooling towers. A2PP has no need for Title 22 quality water for "process water".

49. Please describe the power plant operations if the existing pump or service pipeline had an interruption in service due to pump failure, maintenance, etc. If a back-up system of water delivery or other means of supply is planned, please provide a detailed description of that service alternative.

Response: Interruptions in service due to pump failure, maintenance, or pipeline failure are anticipated to occur over the life of the project. The Almond Power Plant well was constructed to provide for facility service water and fire protection and this resource will be available to A2PP. The on-site well can produce water up to 1000 gpm. The A2PP will use existing on-site water storage tanks for both demin water and RO water in the normal process of operation. There is sufficient water on hand to support continued operation for an extended period of time dependant on the level of megawatt production. If there is an extended interruption in water make-up service, then the A2PP would be identified as unavailable for power production.

However, TID keeps an inventory of parts for maintenance of pumps and pipelines. Maintenance crews are on staff to promptly respond to repair needs. In the event of larger repairs, there are local contractors and vendors that provide service and can respond to maintenance needs quickly.

Background

A2PP general plant wastewater from containment area washdown, sample drains, and facility equipment drains, as well as non-reclaimable process wastewater, would be discharged via the existing 6-inch diameter pipeline between the APP and the City of Ceres WWTP. The wastewater would not be treated by the WWTP prior to discharge to the P-E basins. This discharge of wastewater to surface or groundwater would be permitted under the existing City of Ceres Waste Discharge Requirements (WDRs) set by the Central Valley Regional Water Quality Control Board (RWQCB). These WDRs are roughly 15 years old and expected to be updated or renewed with new prescribed requirements for effluent in the next 12 to 24 months. This WDR change could have a significant impact on the A2PP plan to discharge untreated effluent, high in TDS, salinity, nitrates, and other constituents, to the Ceres WWTP P-E basins.

Drains that could potentially contain oil or grease would first be routed through an oil-water separator and hazardous wastewater would be hauled offsite for appropriate disposal. A2PP would utilize the existing onsite septic tank and leach field at APP to discharge sanitary wastewater. All wastewater-routing and disposal would comply with the Porter-Cologne Water Quality Control Act. This Act controls discharge of wastewater to surface or groundwater in California and is administered by the Central Valley RWQCB.

Data Requests

50. Please provide a copy of the Ceres WWTP Waste Discharge Requirements (WDR).

Response: A copy of the Ceres WWTP Waste Discharge Requirements is provided as Attachment DR50-1.

51. Please provide copies of all correspondence between TID and the Central Valley RWQCB regarding increased discharge of plant process wastewater to the Ceres WWTP P-E Basins.

Response: As TID is a client of the Ceres WWTP, TID has not contacted the Central Valley RWQCB, and has been working directly with the City of Ceres WWTP. Therefore, there has been no correspondence between TID and the RWQCB.

52. Please describe the hydraulics of the 6-inch wastewater pipeline (gravity or pressure flow) and confirm that the pipeline has the capacity to convey the expected maximum daily discharge of 174,240 gpd.

Response: The waste water is pumped to the water treatment plant. The peak discharge from A2PP is 174,240 gallons/day and the peak discharge from APP is 139,679 gallons/ day, for a total of 313,919 gallons/day. The existing 6-inch pipeline is capable of supporting this flow.

53. Referring to Table 5.15-6 in AFC Section 5.15.1.5 Wastewater Collection, Treatment, Discharge, and Disposal; many of the constituent levels described in the expected wastewater are high relative to the (expected) prescribed requirements of the Central Valley RWQCB. Please describe what treatment processes are being examined by TID to ensure that the APP and A2PP facilities would comply with the future, likely more stringent Central Valley RWQCB WDR requirements.

Response: See Applicant's letter of September 2, 2009, objecting to this request.

54. Please discuss the feasibility of using a zero liquid (wastewater) discharge system at A2PP or operating the plant so that reuse of wastewater discharge is maximized.

Response: A zero liquid discharge system at A2PP is not practicable because the process is problematic in a peaking facility. The starting and stopping of a zero liquid discharge system is difficult to manage. It is also very expensive. Reuse of the wastewater discharge is also problematic in that it is high in total dissolved solids. Disposal of high brine wastewater or salt cake requires additional trucking (with resultant diesel air pollution and added cost) to a suitable disposal site. A2PP will be very efficient in treating the water up front, and will use a minimal amount of water in the first place.

55. Please show the current (approximate) location of the existing septic tank and leach field on a site map.

Response: The existing septic tank and leach field are not located in the footprint of the A2PP project. In addition, all restroom facilities are located at the existing Almond Power Plant and are not part of the A2PP project.

56. Please provide the capacity of the existing septic tank and leach field.

Response: Please see Data Response #55. The addition of four full-time employees will not overwhelm the existing sanitary system.

Background

AFC Sections 5.15.1.5 and 5.14.1.2.2 describe the collection of A2PP contact water through the use of floor drains, hub drains, sumps, and the oil-water separator (OWS) during general facility drainage. Section 5.14.1.2.2 says that "if needed, water from this sump will be sampled and analyzed at an approved lab. If contamination is present, the water will be trucked off site for disposal at an approved wastewater disposal facility" rather than discharged to the Ceres WWTP.

Data Requests

57. Based on the Grading and Drainage Plan map provided in AFC Supplement A, it appears the APP stormwater collection system is conveyed to the OWS. Please confirm that all stormwater from A2PP "contact areas" will be collected and conveyed toward the existing OWS located on the APP site. From the map provided it appears that A2PP stormwater will drain directly to the proposed retention storage pond.

Response: All contact areas that have the potential for contamination will have the stormwater either collected and conveyed to the existing OWS or will be designated for collection and periodic pump-out. Non-contaminated stormwater is directly conveyed to the retention storage pond.

58. Please describe what "if needed" means as it is used in AFC Section 5.14.1.2.2.

Response: Water from the sump generally would not require sampling under normal operating conditions because the water is discharged into the oil/water separator. Sampling may be necessary under unusual circumstances such as a chemical or hazardous materials spill and would be conducted according to all applicable laws, ordinances, regulations and standards and as otherwise instructed by the local regulatory authority.

When the oil/water separator requires servicing and/or disposal of liquid waste or sludge build up, the sampling requirements are dictated by the receiving facility. A2PP may choose to hire a professional vendor to regularly service the oil/water separator; any sampling, analysis and disposal would be included in the service agreement. Sampling for disposal to the City of Ceres Wastewater Treatment Plant will be conducted consistent with conditions set forth in the pending water services agreement and/or the sewer system ordinance. Disposal at any other wastewater disposal facility will be conducted consistent with specific requirements determined by the disposal facility accepting the waste.

59. Please describe the method of analysis and detection limits to be used for sump samples.

Response: Sample analysis will be conducted at a certified lab with the appropriate USEPA test method for the actual sample taken (e.g., liquid, sludge, chemical compound). USEPA test methods are approved procedures for measuring the presence and concentration of physical and chemical pollutants; evaluating properties, such as toxic properties, of chemical substances; or measuring the effects of substances under various conditions. Detection limits are specified in each USEPA test method for the substance being sampled. Constituents that may be sampled and analyzed are specific to the disposal receiving facility rules and regulations; or are based upon the need for the sample and cannot be predetermined.

Background

In the AFC, under a subsection of Section 5.15.1.4 Water Supply, the Applicant stated that a will serve letter from the City of Ceres was included in Appendix 2A of the submittal. This will serve letter did not discuss —water supply.

The City's Will Serve Letter for Almond Power Generation Facility Process Wastewater (AFC, Appendix 2A) dated April 7, 2009 includes the following text:

> *The City of Ceres is willing to provide service to the Turlock Irrigation District Almond Power Generation Facility in the form of receiving process wastewater and disposing of it in the Treatment Plant evaporation ponds. However, this service will be contingent upon the City and TID agreeing on mutually beneficial terms in the form of a Second Amendment to the Water Services Agreement dated September 14, 1992.*
>
> *The amendment must include provisions defining maximum gallons per day and per annum wastewater flows and an "Out" clause should the Regional Board impose new restrictions to treatment or receipt of wastewater flows that would prevent the City from accepting the process wastewater. In such an event TID must be prepared to follow an alternate course of action for disposal of the Power Generation Facility process wastewater.*

This letter primarily addresses acceptance of the APP and A2PP process wastewater and does not describe the City's willingness to provide wastewater to the WWTP. The City's WWTP will benefit from groundwater withdrawals near the P-E basins because the drawdown from pumping will increase percolation and improve storage capacity in the P-E basins. Staff is concerned that there is no agreement in place to ensure an adequate water supply is available to meet the needs of the APP and A2PP. Staff is also concerned that the pump near the Ceres WWTP may extract high quality groundwater in the vicinity of the WWTP P-E basins.

Data Requests

60. Please provide written notification in the form of a letter of intent or Will Serve Letter from the City of Ceres describing their commitment to provide reclaimed WWTP water for use at A2PP, or describe why A2PP would not require a Will Serve Letter.

Response: The letter from City of Ceres does provide commitments for both water service and water disposal. The letter is intended to communicate that the "City of Ceres is willing to provide service in the form of [TID] receiving [via the existing delivery system process wastewater [from the City] and [service in the form of] disposing of it [by return to the WWTP]". The intent is confirmed by the existing practices set forth in the Water Services Agreement provided as Attachments DR61-1 and DR61-2. Under the existing agreements, the City of Ceres provides both water supply and wastewater services.

61. Please provide:

    a. A copy of the September 14, 1992 Water Services Agreement and all subsequent amendments.

    b. If the second amendment has not been settled, provide staff with a status update on when approval of an amendment would be expected.

    c. Describe what is meant by "mutually beneficial terms" of the City of Ceres Will-Serve Letter, Second Amendment.

Response:

a. A copy of the September 14, 1992 Water Services Agreement and the first amendment are provided as Attachment DR61-1 and Attachment DR61-2, respectively.

b. The second amendment is expected to be completed by the end of this year.

c. The "mutually beneficial terms" of the City of Ceres Will-Serve Letter, Second Amendment means the amendment will be acceptable to both TID and the City of Ceres. While the Applicant understands the Commission Staff's interest in evaluating potential environmental effects and will provide the necessary information for that purpose, the Applicant respectfully requests that the Commission Staff take great care to not unintentionally interfere in the commercial relationships between these two public agencies.

62. Please describe any potential alternative methods for disposing the plant process wastewater currently being evaluated by TID in the event the wastewater would no longer meet the requirements for discharge to the Ceres WWTP.

Response: Alternative methods for wastewater disposal are not being explored. In the event that wastewater will no longer meet the requirements for discharge to the Ceres WWTP, TID will reevaluate wastewater disposal methods.

Background

A2PP would use and/or share existing elements of the APP's infrastructure. The following shared elements are related to the expanded plant's water use and would not be modified as part of the A2PP Project:

- the fire protection system, including the fire water storage tank and diesel-fired emergency fire pump;
- the well water for service water and emergency shower / eyewash stations;
- the water treatment system;
- the process water supply and wastewater discharge system;
- the oil/water separator; and
- the demineralized and reverse osmosis water storage tanks.

In the A2PP AFC Supplement A – Data Adequacy response to DA-20, the Applicant stated, "Service water and fire water will be provided by an existing well at the Almond Power Plant, and is not part of the A2PP project."

Data Requests

63. Please verify:

    a. The existing fire protection system, including the fire water storage tank and diesel-fired emergency fire pump are adequate for the plant expansion;

    b. the capacity of the existing water treatment system to process the additional supply needed for A2PP's peak daily demand; and

    c. the existing wastewater discharge system has the capacity for the additional peak daily discharge from A2PP.

Response:

a. The existing fire protection system is adequate to support the A2PP expansion. Please see the related response to Data Requests #80 and #82.

b. The existing water treatment system can produce 350 gallons per minute of demin water. This is not enough feed capacity to handle the demands of the existing plant and the new plant operating at full load, continuously. The water treatment system would need to have the capacity increased / system redesigned in order to provide the necessary water for continuous full load operation.

c. The existing waste water discharge pipeline can support the additional flow produced by A2PP. Please see the related response to Data Request #52.

64. Please identify the storage capacity (volume) of the demineralized and reverse osmosis water storage tanks and verify this volume would continue to provide the necessary storage for project needs.

Response: The two demineralized water tanks have a volume of 240,000 gallons each for a total of 480,000 gallons. The maximum use of demin water at A2PP is 213 gpm. Considering the demin recovery rate, the volume of demin water is adequate to support plant operation.

The one reverse osmosis storage tank is 240,000 gallons. The maximum use of RO water at A2PP is 69 gpm. Therefore, the volume of RO water is adequate to support plant operation.

Background

The proposed A2PP facility will mitigate storm runoff with a series of inlets and storm drain pipes which will convey the runoff to a new onsite retention pond located on the north end of the site. Per the AFC, the new basin would be sized at 2.41 acre-feet (AF) capacity. The stormwater retention basin is sized to capture and detain the runoff resulting from a 100-sayear 24-hour rainfall event. All runoff would be either infiltrated to the subsurface or evaporated; hence, no stormwater discharges would be released to surface waters or to the surrounding ground surface.

Data Requests

65. While the AFC states the size of the stormwater retention basin as 2.41 AF with 2.65 feet of freeboard, the Preliminary Drainage Calculations (Applicant Supplement A - Data Adequacy Responses) suggest two alternative basin volumes: 2.83 AF with 2.74 feet of freeboard (Calculation Summary Sheet) and 2.38 AF (Grading and Drainage Plan Figure). Please confirm the capacity of the onsite stormwater retention basin.

Response: The calculations provided in Supplement A were incorrect. The stormwater retention basin has been designed for 2.41 AF with 2.65 feet of freeboard. Calculations are provided in Attachment DR65-1.

Background

During construction, approximately 6.45 acres of land associated with the A2PP project would be disturbed for proposed project laydown, temporary parking, and the proposed A2PP site. The General Permit for Stormwater Discharges associated with Construction Activity, administered by the SWRCB, requires a Stormwater Pollution Prevention Plan (SWPPP) be prepared for the construction site. The SWPPP would include best management practices (BMPs) for erosion and sediment control. The SWPPP would be prepared prior to construction of the A2PP project. The draft Construction SWPPP was not provided with the AFC.

To mitigate potential impacts to water and soil resources from the construction of the A2PP project, the Energy Commission requires preparation and implementation of a Drainage Erosion and Sediment Control Plan (DESCP). The DESCP would be updated and revised as the project moves through the design process. The DESCP is a complement to the Construction SWPPP. The DESCP submitted prior to site mobilization must be designed and sealed by a professional engineer/erosion control specialist.

Data Requests

66. Please provide a draft DESCP containing elements A through I below outlining site management activities and erosion/sediment control BMPs to be implemented during site mobilization, excavation/demolition, construction, and post-construction activities. The level of detail in the draft DESCP should be commensurate with the current level of planning for site grading and drainage. The DESCP should contain:

    A. Vicinity Map – map(s) at a minimum scale 1" = 100' indicating the location of all project elements (construction site, laydown area, pipelines, etc.) with depictions of all significant geographic features including swales, storm drains, and sensitive areas;

    B. Site Delineation – descriptions of all areas subject to soil disturbance for the CGS (project site, laydown area, all linear facilities, landscaping areas, and any other project elements) delineated to show boundary lines of all construction/demolition areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities;

    C. Watercourses and Critical Areas – the location of all nearby watercourses including swales, storm drains, and drainage ditches. Indicate the proximity of those features to the CGS construction, laydown, and landscape areas and all transmission and pipeline construction corridors;

    D. Drainage Map – topographic site map(s) at a minimum scale 1" = 100' showing all existing, interim and proposed drainage systems and drainage area boundaries, spot elevations where relatively flat conditions exist, and spot elevations and contours, extended off-site for a minimum distance of 100 feet in flat terrain;

    E. Drainage of Project Site Narrative –a narrative of the drainage measures to be taken to protect the site and downstream facilities, including summary pages from the hydraulic analysis prepared by a professional engineer/erosion control specialist, watershed size(s) in acres used in the calculation of drainage measures, and hydraulic analysis used to support the selection of BMPs and structural controls to divert off-site and onsite drainage around or through the CGS construction and laydown areas;

    F. Clearing and Grading Plans –a delineation of all areas to be cleared of vegetation and areas to be preserved, including elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross sections or other means locations of any disposal areas, fills, or other special features,. Illustrations of existing and proposed topography that link proposed contours with existing topography;

    G. Clearing and Grading Narrative –a table with the quantities of material excavated or filled for the site and all project elements of the CGS project (project site, lay down area, transmission corridors, and pipeline corridors), whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported;

H. Best Management Practices Plan –locations on the topographic site map(s) of the site specific BMPs to be employed during each phase of construction (initial grading/demolition, project element excavation and construction, and final grading/stabilization), including BMP measures designed to prevent wind and water erosion;

I. Best management practices narrative –the location (as identified in H above), timing, and maintenance schedule of all erosion and sediment control BMPs to be used prior to initial grading, for all project elements (site, pipelines, etc.) related to excavations and construction, final grading/stabilization, and post-construction, separate BMP implementation schedules for each project element for each phase of construction, the maintenance schedule including post-construction maintenance of structural control BMPs or a statement provided when such information will be available, and provisions for wet-season work.

Response: The Draft DESCP is provided as Attachment DR66-1.

67. Please provide all conceptual erosion control information for those phases of construction and post-construction that have been developed, or provide a statement when such information will be available.

Response: Conceptual erosion control information is contained in the Draft DESCP, provided as Attachment DR66-1.

68. Please provide a draft construction SWPPP.

Response: See Applicant's letter of September 2, 2009, requesting additional time for this request. The Applicant is informed that the State Water Resources Control Board adopted a new Draft General Permit on September 2, 2009. Accordingly, per the Applicant's discussions with Staff, a draft construction SWPPP will be provided to Staff incorporating the new requirements. Applicant also believes that during project construction, it is preferable to have a single, consolidated document for construction personnel to follow related to stormwater management. Accordingly, the Applicant has an interest in seeing the SWPPP and the DESCP consolidated into a single document. (Applicant will work with the Commission's compliance staff on this issue post-approval. It need not affect the certification proceeding.)

Background

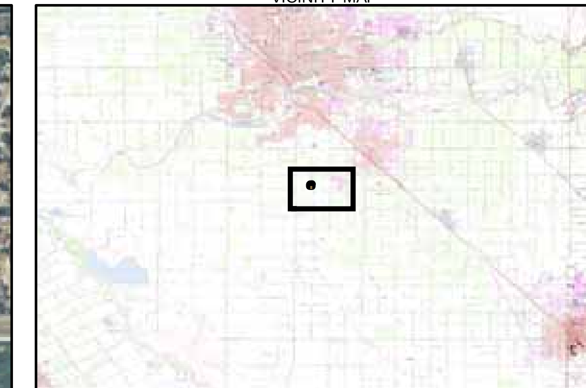
It is believed that the majority of the soil in the A2PP project site has been disturbed and the soil characteristics are likely to be different than those described in the soil survey. The AFC states that a geotechnical evaluation has recently been performed to "ensure that the non-native fill soils are suitable for supporting the A2PP, and is to be provided to the California Energy Commission when available."

Data Requests

69. Please provide staff with a status update for the Geotechnical Report.

Response: A Geotechnical Report is included as Attachment DR22-1.

VICINITY MAP



LEGEND

- Almond Power Plant Extraction Well
- Wastewater Discharge Line
- Water Supply Line
- Project Site
- Existing Almond 1

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

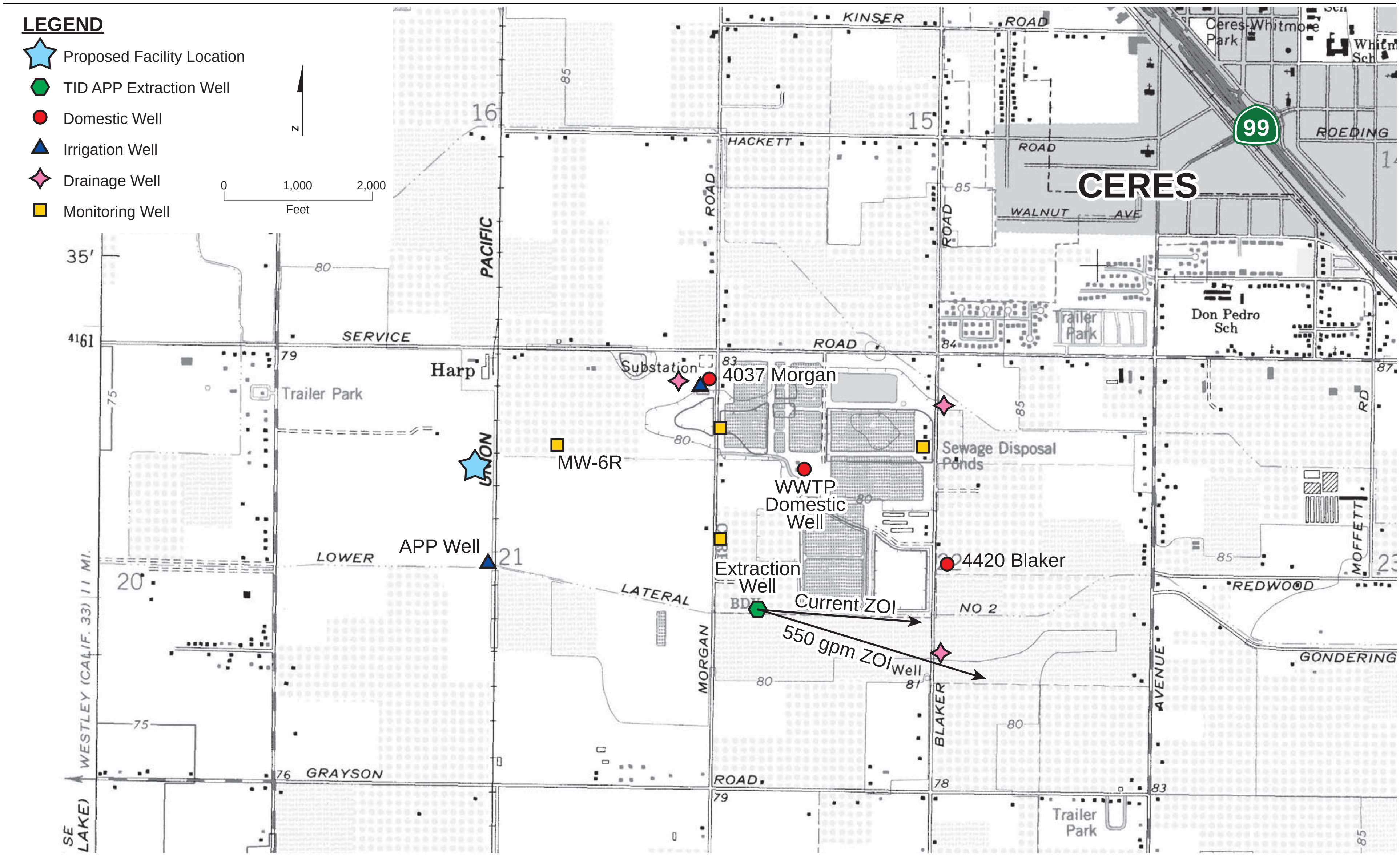
0 400 800
Feet

FIGURE DR35-1
LOCATION OF EXISTING WATER LINES AND EXTRACTION WELL

ALMOND 2 POWER PLANT
CERES, CALIFORNIA

\\ZION\SACGIS\PROJ\TURLOCKIRRIGATIONDIS\383194\MAPFILES\TID_WATER_LINES..MXD KSWANSO3 9/10/2009 13:48:58

CH2MHILL



Basemap source: Ceres USGS 7½ minute quadrangle

FIGURE DR37-1
WELL LOCATIONS IN THE VICINITY OF A2PP AND THE CERES WWTP[a]
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

[a]Well locations were estimated from Well Completion Records provided by the CA DWR and available reports or maps. Some locations were estimated and others were not able to be located with the existing description. Other wells may exist, but Well Completion Records were not submitted to DWR.

ATTACHMENT DR50-1

Ceres Waste Water Treatment Plant Waste Discharge Requirements

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 93-237

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF CERES
WASTEWATER TREATMENT PLANT
STANISLAUS COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. The City of Ceres (hereafter Discharger), operates a wastewater treatment and disposal facility. The property (Assessor's Parcel No. 41-083-4000) is owned by the City of Ceres.

2. Waste Discharge Requirements Order No. 75-279, adopted by the Board on 21 November 1975, prescribes requirements for a discharge from the City of Ceres for disposal by ponding and irrigation.

3. Order No. 75-279 is neither adequate nor consistent with current plans and policies of the Board.

4. Order No. 79-53 established wastewater reclamation requirements for treated effluent from the City to be used for off-site crop irrigation. The contract to supply irrigation water to the neighbor expired and will not be renewed by the City. Order 79-53 was rescinded by the Board on 4 December 1992.

5. The Discharger discharges 2.2 million gallons per day of aerated lagoon effluent to conventional evaporation/percolation ponds. Total average daily design flow is 2.5 million gallons per day. Turlock Irrigation District is proposing to build a 49.9 MW power plant near the City's wastewater treatment plant. The power plant is designed to use 0.3 million gallons per day treated effluent from the City.

6. The facility is in Section 22, T4S, R9E, MDB&M, with surface water drainage to the San Joaquin River, as shown in Attachment A, which is attached hereto and part of the Order by reference.

7. The Board adopted a Water Quality Control Plan, Second Edition, for the Sacramento-San Joaquin Basin (hereafter Basin Plan), which contains water quality objectives for all waters of the Basin. These requirements implement the Basin Plan.

8. The beneficial uses of the San Joaquin River are municipal, industrial, and agricultural supply; recreation; esthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources.

9. The beneficial uses of underlying ground water are domestic, industrial, and agricultural supply.

10. The action to update waste discharge requirements for this facility is exempt from the provisions of the California Environmental Quality Act (CEQA), in accordance with Title 14, California Code of Regulations (CCR), Section 15301.

11. This discharge is exempt from the requirements of Title 23, CCR, Section 2510, et seq. (hereafter Chapter 15). The exemption, pursuant to Section 2511(b), is based on the following:

    a. The Board is issuing waste discharge requirements, and

    b. The discharge complies with the Basin Plan, and

    c. The wastewater does not need to be managed according to 22 CCR, Division 4, Chapter 30, as a hazardous waste.

12. The Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

13. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Order No. 75-279 is rescinded and the City of Ceres, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. Bypass or overflow of untreated or partially treated waste is prohibited.

3. Discharge of waste classified as 'hazardous' or 'designated', as defined in Sections 2521(a) and 2522(a) of Chapter 15, is prohibited.

B. Discharge Specifications:

1. The monthly average dry weather discharge flow shall not exceed 2.5 million gallons/day.

2. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the property owned by the Discharger.

3. As a means of discerning compliance with Discharge Specification No. 2, the dissolved oxygen content in the upper zone (1 foot) of wastewater in ponds shall not be less than 1.0 mg/l.

4. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

5. Ponds shall be managed to prevent breeding of mosquitos. In particular,

   a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.

   b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.

   c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

6. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.

7. Ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the

nonirrigation season. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns. Freeboard shall never be less than two feet (measured vertically to the lowest point of overflow).

8. On or about **1 October** of each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specification 7.

C. **Sludge Disposal:**

1. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner that is consistent with Chapter 15, Division 3, Title 23, of the California Code of Regulations and approved by the Executive Officer.

2. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer and U.S. Environmental Protection Agency (EPA) Regional Administrator at least 90 days in advance of the change.

3. Use and disposal of sewage shall comply with existing Federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR 503.

   If the State Water Resources Control Board and the Regional Water Quality Control Boards are given the authority to implement regulations contained in 40 CFR 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR 503 whether or not they have been incorporated into this Order.

4. The Discharger is encouraged to comply with the State Guidance Manual issued by the Department of Health Services titled *Manual of Good Practice for Landspreading of Sewage Sludge.*

5. By **30 January** of each year, the Discharger shall submit a sludge disposal plan describing the annual volume of sludge generated by the plant and specifying the disposal practices.

D. Ground Water Limitations:

The discharge shall not cause underlying ground water to:

1. Contain waste constituents in concentrations statistically greater than background water quality. (For purposes of comparison, background water quality shall be determined when background monitoring provides sufficient data. Quality determined in this manner establishes "water quality protection standards.")

2. Contain chemicals, heavy metals, or trace elements in concentrations that adversely affect beneficial uses or exceed maximum contaminant levels specified in 22 CCR, Division 4, Chapter 15.

3. Exceed a most probable number of total coliform organisms of 2.2/100 ml over any seven-day period.

4. Exceed concentrations of radionuclides specified in 22 CCR, Division 4, Chapter 15.

5. Contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

6. Contain concentrations of chemical constituents in amounts that adversely affect agricultural use.

E. Provisions:

1. The Discharger shall comply with the Monitoring and Reporting Program No. 93-237, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

2. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

3. In the event of any change in control or ownership of land or waste discharge facilities described herein, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

4. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or reclamation areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.

5. The Discharger shall use the best practicable cost-effective control technique currently available to limit mineralization to no more than a reasonable increment.

6. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

7. The City of Ceres as owner of the real property at which the discharge will occur, is ultimately responsible for ensuring compliance with these requirements.

8. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

9. If reclaimed water is used for construction purposes, it shall comply with the most current edition of "Guidelines for Use of Reclaimed Water for Construction Purposes". Other uses of reclaimed water not specifically authorized herein shall be subject to the approval of the Executive Officer and shall comply with 22 CCR, Division 4.

10. The Board will review this Order periodically and will revise requirements when necessary.

I, WILLIAM H. CROOKS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 3 December 1993.

William H. Crooks

WILLIAM H. CROOKS, Executive Officer

9/27/93:SPD:gs/ldj

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 93-237

FOR
CITY OF CERES
WASTEWATER TREATMENT PLANT
STANISLAUS COUNTY

Specific sample station locations shall be established under direction of the Board's staff and a description of the stations shall be attached to this Order.

EFFLUENT MONITORING

Effluent samples shall be collected at the discharge to ponds.

Constituents	Units	Type of Sample	Sampling Frequency
20°C BOD_5	mg/l	Grab	Monthly
Nitrates (as NO_3)	mg/l	Grab	Monthly
Specific Conductivity	μmhos/cm	Grab	Monthly
Chloride	mg/l	Grab	Monthly
Flow	mgd	Cumulative	Daily

WASTEWATER POND MONITORING

The freeboard on all percolation/evaporation ponds shall be observed and recorded twice monthly. The minimum freeboard observed during each month at each pond shall be reported together with the dates when the freeboard was observed.

WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Water supply monitoring shall include at least the following:

Constituents	Units	Sampling Frequency
Standard Minerals	mg/l	Yearly
Electrical Conductivity @ 25°C	μmhos/cm	Yearly
Total Dissolved Solids	mg/l	Yearly

GROUND WATER MONITORING

The ground water monitoring program shall consist of the three on-site monitoring wells. Ground water samples shall be collected from all wells and analyzed as follows:

Constituents	Units	Sampling Frequency
Specific Conductivity	μmhos/cm	Quarterly
pH	pH Units	Quarterly
Nitrate (as NO_3)	mg/l	Quarterly
Chloride	mg/l	Quarterly
Groundwater Elevation	Feet, MSL[(1)]	Quarterly

[1] Ground water elevations shall be reported to the nearest 0.01 foot above mean sea level.

REPORTING

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly the compliance with waste discharge requirements.

Monthly monitoring reports shall be submitted to the Regional Board by the **20th day** of the following month.

The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Board.

Upon written request of the Board, the Discharger shall submit a report to the Board by **30 January** of each year. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the Discharger shall discuss the compliance record and the corrective actions taken or planned which may be needed to bring the discharge into full compliance with the waste discharge requirements.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered By: William H. Crooks

WILLIAM H. CROOKS, Executive Officer

3 December 1993
(Date)

9/27/93:SPD:gs/ldj

INFORMATION SHEET

CITY OF CERES
WASTEWATER TREATMENT PLANT
STANISLAUS COUNTY

The City of Ceres operates a wastewater treatment plant in Section 22, T4S, R9E, MDB&M.

Influent passes through a "Muffin Monster" grinder, through aerated facultative ponds, followed by disposal to evaporation/percolation ponds.

Total average daily design flow for the plant is 2.5 million gallons per day (mgd). Turlock Irrigation District is proposing to have a 49.9 MW power plant built near the treatment plant. The power plant is designed to use 0.3 mgd treated effluent from the City.

Local soils are typical of valley fill areas (i.e., silty sand underlain by a thin hardpan layer, then more silts). Local ground waters are maintained 6 to 10 feet below ground surface by the irrigation district through pumps at each section corner. These pumped waters are discharged to irrigation water canals for further use as irrigation water. Residences are widely separated. The surrounding area is devoted to agriculture.

ATTACHMENT DR61-1

September 14, 1992 Water Services Agreement

Copy

Water Services Agreement

This Agreement, dated as of _______, 1992, between the CITY of CERES, a municipal corporation, and the TURLOCK IRRIGATION DISTRICT, a public entity.

RECITALS

A. The District proposes to construct the Power Generation Facility which requires a supply of usable Process Water and Domestic Water and disposal of Process Waste Water.

B. The City is willing to provide all such water services to the Power Generation Facility and the District desires to obtain all such water services from the City.

NOW, THEREFORE, the parties agree as follows:

1. Definitions.

    1.1. City: The City of Ceres

    1.2. District: The Turlock Irrigation District

    1.3. Domestic Water: Potable water supplied by City to its municipal and industrial customers.

    1.4. Power Generation Facility: The electric power generation facility near Crows Landing Road, Ceres, Stanislaus County, California, as described in Attachment 1.

    1.5. Process Waste Water: Process Water after it is used in the Power Generation Facility.

1.6. Process Water: Water used in the process of generating electric power in the Power Generation Facility.

1.7. Reclaimed Water: The treated effluent from the Treatment Plant.

1.8. Treatment Plant: The Ceres Waste Water Treatment Plant.

2. Reclaimed Water Supply.

2.1. The City agrees to provide Reclaimed Water to meet all of the Power Generation Facility's Process Water needs during the term of this Agreement as outlined in Section 2.2.

2.2. The Power Generation Facility will require up to a maximum of 800,000 gallons per day of Reclaimed Water to be supplied from the Treatment Plant.

2.3. The District desires to have water provided which will meet the quality parameters described in Attachment 2. With the exception of testing for Total Dissolved Solids (TDS), the City does not test its Reclaimed Water to assure the quality parameters described in Attachment 2, and therefore agrees to provide Reclaimed Water in the volumes required by the District which will meet only those standards required by State and Federal regulations which are applicable to the City's Waste Water Treatment Plant. The District shall be solely responsible for conducting such tests of the Reclaimed Water supplied by the City as it may deem necessary and appropriate. To the extent that the Reclaimed Water does not meet the requirements of the District, the District shall be solely responsible for treating the Reclaimed Water to meet District standards. To the extent such treatment processes may require the installation of special equipment or procedures, the District shall be solely responsible for providing such equipment, procedures, and personnel to treat the Reclaimed Water, and in this regard, the City agrees to cooperate with the District regarding the installation of additional equipment or the relocation of existing equipment at its Waste Water Treatment Plant, so long as it does not unreasonably interfere with normal operations of the Waste Water Treatment Plant.

2.4. Should the City for any reason be unable to provide Reclaimed Water which does not meet the State and Federal standards applicable to the Waste Water Treatment Plant, or should any hazardous, toxic, or other harmful materials be injected or introduced into the Waste Water Treatment Plant, for any reason, that would impair the operations of the Waste Water Treatment Plant or limit its ability to meet applicable State and Federal water quality standards, the City shall give emergency notice to the District in accordance with Section 5.2 and, to the extent possible, shall take immediate action to eliminate the problem.

2.5. The City represents that (1) the Treatment Plant's current waste water treatment capacity, and (2) the amount of Reclaimed Water currently available at all times during the year are all sufficient to meet the requirements of Sections 2.1 and 2.2.

2.6. The City and the District shall exchange test information from routinely performed tests of the Reclaimed Water.

2.7. The District shall own and be responsible for the design and construction of the Reclaimed Water supply line, including the Reclaimed Water pumping facilities.

2.8. The City will provide a location for the installation of the Reclaimed Water pumping facilities, including the Reclaimed Water pipeline, on its Treatment Plant property.

2.9. The City will allow connection to the Treatment Plant facilities prior to June 1, 1993. The District shall install and maintain meters sufficient to record the daily flows of Reclaimed Water provided and Process Water returned to the Treatment Plant.

2.10. The City agrees that the District shall have the priority of use of all of the City's Reclaimed Water from the Treatment Plant <u>and</u> shall be the last Reclaimed Water customer curtailed.

3. Return of Power Generation Facility Process Waste Water.

3.1. The City agrees to allow the Power Generation Facility's Process Waste Water to be disposed of in the City's evaporation ponds at a maximum rate of 450,000 gallons per day.

3.2. The District shall own and be responsible for the design and construction of the Process Waste Water return line to the Treatment Plant. The District shall provide copies of the Process Waste Water return line plans to the City for their review.

3.3. The City agrees to reserve capacity in the evaporation ponds for use by the Power Generation Facility for the disposal of Process Waste Water during the term of this Agreement.

4. Domestic Water Supply.

4.1. The City agrees to provide Domestic Water to the Power Generation Facility for site and fire control needs at a minimum rate of 1,000 gallons per minute during the term of this Agreement.

4.2. To the extent available, the City agrees to provide Domestic Water to the Power Generation Facility for standby Process Water at a maximum rate of 300,000 gallons per day during the term of this Agreement. Such use shall not detrimentally affect the City's ability to supply water to its domestic customers. In the event of a water shortage, the District agrees that Domestic

Water for Process Water purposes may be curtailed ahead of all other municipal and industrial customers of the City.

4.3. The District shall own and be responsible for the design, construction and right-of-way acquisition of the Domestic Water supply line. The City will allow the District to connect the Power Generation Facility to the City's Domestic Water facilities under City's regular connection practices. The nearest City domestic water connection point is near the intersection of the Service Road and the Union Pacific Railroad.

4.4 The City shall insure that future expansion of the City's water system will recognize the District's requirements under this Section 4.

5. <u>Emergency Suspension or Reduction; Emergency Notice Procedure</u>.

5.1. If an emergency exists and the suspension or reduction of Reclaimed Water or Domestic Water delivery or Process Waste Water receipt is required, such service may be suspended or reduced by the City with emergency notice given to the District.

5.2. Emergency notice shall be given to the District in the following manner:

a. The City shall immediately give notice by telephone to the District's Control Room at Broadway Yard, Turlock, California (telephone number 883-8480).

b. The City shall send written confirmation of the emergency to the Broadway Yard Control Room by telecopier or by personal delivery within forty-eight (48) hours of the emergency.

5.3. The burden of any emergency suspension or reduction shall be distributed as follows:

a. The District shall be the last Reclaimed Water customer curtailed.

b. To the extent Domestic Water is used for standby Process Water, the District may be the first Domestic Water municipal and industrial customer curtailed.

5.4. City shall immediately act to remove the cause of the emergency suspension or reduction.

6. <u>City's Review of District's Design and Construction</u>.

The City shall review the District's design and construction of the Reclaimed Water supply line, Process Waste Water return line, and Domestic Water supply line. City will provide its detailed requirements for the lines and connections and review the District's plans prior to construction. The City shall approve (1) the design and construction of the Domestic Water line and (2) the design and construction of the Reclaimed Water supply and Process Waste Water return lines where they are located on City property or where they are connected to City facilities.

7. Fees and Charges.

7.1. The District shall pay for the cost and expense of design and construction of the Reclaimed Water supply line, the Process Waste Water return line, Domestic Water supply line, and Reclaimed Water pumping facilities.

7.2. No connection fee will be charged by the City for the Reclaimed Water supply line and the Process Waste Water return line.

7.3. The District shall pay the Domestic Water connection fees and use fees in accordance with the City Municipal Code. The District shall own the Domestic Water Line. Should the City modify its current reimbursement policy to apply to this pipeline, the City agrees to reimburse the District in accordance with the revised Ceres Municipal Code. Only water supply and extension funds shall be used for reimbursements. Reimbursements shall only be made on those sections of the Domestic Water Line offered for dedication by the District and accepted by the City.

7.4. The City agrees not to charge the District for the District's use of the Reclaimed Water and for the City's disposal of Process Waste Water.

8. Easements and Permits.

8.1. The District will be responsible for obtaining all easements and permits necessary for the construction of the Power Generation Facility and the water supply and return lines required to be constructed under this Agreement.

8.2. The City agrees that it will act as the responsible agency for the purpose of securing a Regional Water Quality Control Board Reclamation Permit for use by the Power Generation Facility of the Reclaimed Water. The District shall provide all necessary information to the City for their use in obtaining the permit. The City's reasonable cost of obtaining the permit, including City staff time, shall be reimbursed by the District.

8.3. The City shall provide a site at the Treatment Plant, at no cost to the District, for the location of the Reclaimed Water Pumping Facility, Reclaimed Water supply line and the Process Waste Water return line.

9. Waste Water Treatment Plant Upgrades or Improvements.

9.1. Upon upgrading or improving the Treatment Plant, Reclaimed Water delivered to the Power Generation facility shall be of the highest quality normally available as effluent from the Treatment Plant.

9.2. The District shall have the first right of refusal to use any additional reclaimed Water developed as a result of any upgrades or improvements to the Treatment Plant.

10. Disputes.

10.1. The parties agree to use best efforts to settle all disputes between themselves arising under this Agreement. The parties further agree that all disputes arising under this Agreement shall be processed exclusively in accordance with the procedures set forth in this Section 10.

10.2. Any dispute arising under this Agreement shall be submitted to a disputes resolution committee composed of the City's Director of Public Works and the District's Electric Utility Administrator.

10.3. In the event the dispute is not resolved by the disputes resolution committee within thirty (30) calendar days of the first meeting of the committee to resolve the dispute ("first committee meeting"), then each party shall submit a written statement to the other party describing the specific basis for the dispute and a proposal for resolution of the dispute. The date to submit the written statement to the other party ("submittal date") shall be set by the disputes resolution committee and in the absence of agreement on the submittal date, the submittal date shall be sixty (60) days after the first committee meeting. In the event that a party fails to submit such notice to the other party by the submittal date, that party shall be deemed to have waived all present and future claims with respect to that dispute.

10.4. The City's City Manager and the District's General Manager shall attempt to resolve the dispute within fifteen (15) calendar days of the submittals provided pursuant to Section 10.3. The parties may mutually agree to extend the 15-calendar day period.

11. Term of the Agreement.

11.1. The term of this Agreement shall commence upon execution of the Agreement by both parties and shall terminate on July 31, 2022.

11.2. The District is given the option to extend the term of this Agreement for an additional twenty (20)-year period ("extended term") following expiration of the initial term by giving written notice of exercise of the option ("option notice") to the City by not later than January 31, 2022. The parties shall have six (6) months after the City receives the option notice in which to agree on the extension. The parties agree to negotiate in good faith for such extension upon such terms and conditions as may be reasonable, recognizing the then existing technology, the circumstances and conditions of the parties, and the demand for and marketability of the Reclaimed Water to users other than the District. If the parties are unable to agree on such terms and conditions, then this Agreement shall expire at the end of the initial term.

12. <u>General Provisions</u>.

12.1. In the event that any of the terms, covenants or conditions of this Agreement or the application of any such term, covenant or condition shall be held invalid as to either party, person or circumstance by any court of competent jurisdiction, all other terms, covenants or conditions of this Agreement and their application shall not be affected thereby, but shall remain in full force and effect unless any such court holds that those provisions are not separable from all other provisions of this Agreement.

12.2. This agreement is for the sole benefit of the parties and shall not be construed as granting rights to any person other than the parties or imposing obligations on a party to any person other than the other party.

12.3. Each party shall use its best efforts and work wholeheartedly and in good faith for the expeditious completion of its responsibilities under this Agreement.

12.4. Whenever any act is required to be performed under this Agreement, and the manner in which such act is to be performed is not otherwise specifically detailed, such act shall be performed in a diligent and timely manner.

12.5. "Time is of the essence" with reference to all provisions of this Agreement.

12.6. This Agreement may be amended only by a written instrument duly executed by all of the Parties.

12.7. Except as otherwise required by law, this Agreement is made under and shall be deemed to be governed by the laws of the State of California.

12.8. Each party agrees upon request by the other party, to make, execute and deliver any and all documents reasonably required to implement this Agreement.

13. Maintenance, Liability, Indemnity, and Insurance

13.1 District shall have sole responsibility during the term of this agreement to keep up, maintain, and repair, at its sole cost and expense, the Reclaimed Water pumping facility, the Reclaimed Water supply line, the Domestic Water supply line, and the Process Waste Water return line.

13.2 The District agrees that it will indemnify and hold harmless the City, its agents, officers, or employees from any and all claims, damages, or causes of action for property damage, personal injury, or death arising in any manner from its construction of, use of, or lack of maintenance of, the Reclaimed Water pumping facility, the Reclaimed Water supply line or the

Process Waste Water return line, constructed and maintained pursuant to the terms of this agreement. The agreement to indemnify and hold harmless shall include all reasonable attorney's fees and costs that may be incurred by the City, its officers, agents, or employees in the defense of any such actions that may be commended against the City, its agents, officers, or employees. The District shall at all times during the term of the agreement provide to the City proof of liability and property damage insurance to cover the liabilities identified herein, with minimum limits of $500,000 for property damage and $5,000,000 for personal injury or death.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed. Each signatory hereto represents that he/she has been appropriately authorized to enter into this agreement on behalf of the party for whom he/she signed.

CITY OF CERES	TURLOCK IRRIGATION DISTRICT
By____________________ Mayor	By____________________ President
By____________________ City Clerk	By____________________ Secretary
Approved as to Form:	
By____________________ City Attorney	By____________________ General Counsel

Attachment 2

Facility Water Quality Criteria

Analysis	Maximum Limit
Total Dissolved Solids	850 mg/L
Silica	60 mg/L
Total Organics	20 mg/L

ATTACHMENT DR61-2

First Amendment of Water Services Agreement

Copy

TURLOCK IRRIGATION DISTRICT
333 EAST CANAL DRIVE
POST OFFICE BOX 949
TURLOCK, CALIFORNIA 95381
(209) 883-8300

Don Pedro Dam and Powerhouse

October 30, 2000

Mr. Steve Wilson
City of Ceres
Public Works Dept.
P.O. Box 217 n
Ceres, CA 95307-0217

Subject: Amended Water Service Agreement

Mr. Wilson:

Please accept this signed original copy of the Amended Water Service Agreement and the accompanying TID Resolution. Thank you for your cooperation in this matter.

Sincerely,

TURLOCK IRRIGATION DISTRICT

George A. Davies

George A. Davies IV
Combustion Turbine Division Manager
phone #883-858 fax #656-2142

cc: M&O Dept. Mngr.
File

TID

GS0910-03

September 25, 2000

MEMORANDUM

TO : Tim Kerr, City Manager

FROM : John S. Wilson, Deputy Director of Public Works

SUBJECT : Amendment of Water Services Agreement with Turlock Irrigation District

STAFF RECOMMENDATION

Staff recommends that the City Council adopt a resolution amending the current Water Services agreement with the Turlock Irrigation District. There are no costs to the City for this Amendment.

BACKGROUND

The City entered into a Water Services agreement with the Turlock Irrigation District (T.I.D.) in 1992. The agreement allowed T.I.D. to pump treated wastewater from the City's plant to the T.I.D. Almond Power Plant where it would receive additional treatment. The reject water (and concentrated minerals) from the T.I.D. treatment process were then returned to the City's plant for disposal. The treated water was converted to steam and used to enhance the power generation process. During this process there was a net reduction of 50% to 60% in the amount of the water pumped from the City's plant that was returned as reject water. This was a clear benefit to the City as well as a free water source to T.I.D.

Much of the benefit to T.I.D. is based on the economical treatment of the water. T.I.D. staff have experienced a dramatic, increase in their cost to treat the water over the years. Much of the cost increase can be attributed to the biological (algae) content of the City's water. The algae is a normal consequence of the City's treatment process. This point was made clear before the Water Services agreement was signed. Removal of the biological portion of the water has become an economic burden to T.I.D.

T.I.D. staff have recently approached City staff with an alternate plan for supplying their source water. Rather than pumping water directly from the City's treatment process, the plan is to drill a well adjacent to the treatment plant percolation ponds, within the T.I.D. easement, and pump groundwater to the Almond Power Generation plant. The water would receive treatment at the Almond Power Generation plant and the reject water would be sent back to the City's plant for disposal.

This plan would eliminate the need to treat the water for biological content and there would also be a reduction in the amount of minerals that need to be removed. This would making the treatment process more economical for T.I.D. And, by displacing the groundwater adjacent to the treatment plant, there will be more room for water treated by the City to percolate into the ground, enhancing the City's disposal pond percolation rate.

By pumping the water out of the ground adjacent to the City's Wastewater Reclamation Facility both agencies will receive a benefit. T.I.D. will benefit by reducing their treatment costs and the City will benefit by enhancing the percolation rate of its disposal ponds. Therefore, staff is recommending that the amendment to the Water Services Agreement be approved.

JSW:TIDAMEND

EXHIBIT A

FIRST AMENDMENT TO THE WATER SERVICES AGREEMENT

This Amendment dated October 24, 2000, to the Water Services Agreement dated Sept. 14, 1992, between the CITY OF CERES, a municipal corporation, and the TURLOCK IRRIGATION DISTRICT, a public entity.

RECITALS

1. The District desires to develop and use a water supply separate from the Treatment Plant as a source of Process Water for the Power Generation Facility.

2. The City desires to maintain capacity at the Treatment Plant.

NOW, THEREFORE, the parties agree as follows:

1. The District shall locate and install an extraction well ("Extraction Well") to be located near the southwest corner of the Treatment Plant property and adjacent to the District's Lower Lateral No. 2 irrigation canal.

2. The District will provide a location for the Extraction Well in the canal right-of-way adjacent to the Treatment Plant property. The City agrees to provide the District with all reasonable access in order to install and maintain the Extraction Well and related facilities so long as it does not unreasonably interfere with normal operations of the Treatment Plant.

3. The District shall own and be responsible for the design and construction of the Extraction Well and the related facilities including the water line to the Power Generation Facility.

4. The District shall be solely responsible for treating the Extraction Well water to meet District standards and shall be solely responsible for providing the equipment, procedures, and personnel to treat the water.

5. The City makes no representations concerning the quantity or the quality of the Extraction Well water or the suitability for its intended purpose.

6. The District shall furnish the City with test information, upon request, from routinely performed water quality tests of the Extraction Well water.

7. All other terms and conditions of the Water Supply Agreement shall remain in full force and effect.

IN WITNESS WHEREOF, the parties have caused this Amendment to the Water Services Agreement to be executed. Each signatory hereto represents that he/she has been appropriately authorized to enter into this agreement on behalf of the party for whom he/she signed.

CITY OF CERES	TURLOCK IRRIGATION DISTRICT
By ______________ Mayor	By ______________ President
By Patsy Haley, Deputy City Clerk	By ______________ Secretary
Approved as to form:	
By ______________ City Attorney	By ______________ General Counsel

RESOLUTION NO. 00 -170

RESOLUTION AMENDING THE WATER SERVICES AGREEMENT BETWEEN THE CITY OF CERES AND THE TURLOCK IRRIGATION DISTRICT

THE CITY COUNCIL
City of Ceres, California

WHEREAS, the Turlock Irrigation District desires to develop and use a water supply separate from the City of Ceres Wastewater Reclamation Plant as a source of process water for the Almond Power Generation Facility; and,

WHEREAS, the City of Ceres desires to enhance the percolation capacity of its wastewater disposal ponds; and,

WHEREAS, the Turlock Irrigation District will install a groundwater extraction well on their easement adjacent to the Ceres Wastewater Reclamation Plant; and,

WHEREAS, the groundwater will be pumped to the Almond Power Generation Facility owned by the Turlock Irrigation District to be treated and used in the power generation process; and,

WHEREAS, the City of Ceres Wastewater Reclamation Plant will continue to receive and dispose of the reject water from the treatment of the groundwater prior to its use in the power generation process; and,

WHEREAS, the Turlock Irrigation District and the City of Ceres will both benefit from an amendment to the Water Services agreement to allow the aforementioned process to take place; and,

WHEREAS, the City Council of the City of Ceres has reviewed the terms and conditions of said amendment and finds the terms and conditions of said amendment to be reasonable and in the best interest of the citizens of the City of Ceres.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Ceres as follows:

(1) That the Water Services agreement between the City of Ceres and the Turlock Irrigation District is amended as reflected under Exhibit A.

PASSED AND ADOPTED by the Ceres City Council at a regular meeting thereof

held on the 9 day of October, 2000, by the following vote:

AYES: Constantinou, Ingwerson, Moore, Risen and Mayor Arrollo

NOES: None

ABSENT: None

LOUIE ARROLLO, Mayor

ATTEST:

Patsy Haley, Deputy

BRENDA SCUDDER-HERBERT, City Clerk

SEAL IMPRESSED

I, PATSY HALEY, DEPUTY CITY CLERK OF THE CITY OF CERES, DO HEREBY CERTIFY THE FOREGOING IS A TRUE AND CORRECT COPY OF RESOLUTION NO. 2000-170 PASSED AND ADOPTED AT A REGULAR MEETING OF THE CERES CITY COUNCIL HELD ON OCTOBER 9, 2000, AS THE SAME APPEARS OF RECORD IN THE OFFICE OF THE CITY CLERK.

DATE: OCTOBER 11, 2000

Patsy Haley

PATSY HALEY, DEPUTY CITY CLERK
CITY OF CERES, CA

RESOLUTION NO. 2000-110

RESOLUTION APPROVING FIRST AMENDMENT
TO THE WATER SERVICES AGREEMENT
WITH THE CITY OF CERES

WHEREAS, the Turlock Irrigation District desires to develop and use a water supply separate from the City of Ceres Waste Water Reclamation Plant as a source of process water for the Almond power generation facility; and

WHEREAS, the City of Ceres desires to enhance the percolation capacity of its waste water disposal ponds; and

WHEREAS, the Turlock Irrigation District will install a groundwater extraction well on its easement adjacent to the Ceres Waste Water Reclamation Plant; and

WHEREAS, the groundwater will be pumped to the Almond power generation facility owned by the Turlock Irrigation District to be treated and used in the power generation process; and

WHEREAS, the City of Ceres Waste Water Reclamation Plant will continue to receive and dispose of the reject water from the treatment of the groundwater prior to its use in the power generation process; and

WHEREAS, the Turlock Irrigation District and the City of Ceres will both benefit from an amendment to the Water Services Agreement to allow the aforementioned process to take place; and

WHEREAS, the City Council of the City of Ceres has reviewed the terms and condition of said agreement and finds the terms and conditions of said amendment to be reasonable and in the best interest of the citizens of the City of Ceres.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Turlock Irrigation District that the First Amendment to the Water Services Agreement between the City of Ceres and the Turlock Irrigation District is hereby approved as reflected in attached Exhibit A, and the President and Secretary are hereby authorized and directed to sign said amendment on behalf of the District.

Moved by Director Berryhill, seconded by Director Short, that the foregoing resolution be adopted.

Upon roll call the following vote was had:

Ayes:	Directors Short, Berryhill, Long, Fiorini, Crowell
Noes:	Directors None
Absent:	Directors None

The President declared the resolution adopted.

I, Barbara A. Hetrick, Secretary of the Board of Directors of the TURLOCK IRRIGATION DISTRICT do hereby CERTIFY that the foregoing is a full, true and correct copy of a resolution duly adopted at a regular meeting of said Board of Directors held the 24th day of October, 2000.

Barbara A. Hetrick

Secretary of the Board of Directors
of the Turlock Irrigation District

ATTACHMENT DR65-1

Preliminary Drainage Calculations

CH2MHILL	CALCULATION SUMMARY & CONTROL SHEET	CALCULATION SET NO. 383416-CE-01			
		PRELIM. X	FINAL	VOID	REVISION B
CLIENT: Turlock Irrigation District Water & Power		Sheet 1 Discipline Civil		of 27	
PROJECT TITLE: Almond Two Power Plant		Project No 383416			

SUBJECT: Drainage calculations for Peak Runoff and Retention Pond sizing.

COMPLETED BY:	*John Purdy, P.E.* JmP	DATE:	2/20/2009
CHECKED BY:	*Mario Scacco, P.E.* M. Scacco	DATE:	2/20/09
APPROVED BY:	Jeffrey D Holoba JEFFREY D. HOLOBA	DATE:	2/23/09

REVISION SUMMARY: *Initial submittal*

TOTAL NUMBER OF SHEETS IN THIS ISSUE: 27

SHEETS REVISED, ADDED, or DELETED: 6 pgs ADDED

PROBLEM STATEMENT: *Calculate subbasin peak runoff flows and confirm the size of the site stormwater retention pond.*

RESULTS & CONCLUSIONS: *The final pond size of 2.41 acre-feet will accommodate the calculated 100 -year storm runoff volume of 1.03 Ac-Ft with 2.65-feet of freeboard.*

DESIGN BASIS & ASSUMPTIONS: *See page 2*

UNVERIFIED ASSUMPTIONS/OPEN ITEMS: N/A

REFERENCES: NOAA Atlas 2, Volume XI

ATTACHMENTS (Including number of pages): *Drainage System Schematic (1p), Bentley CivilStorm Output Report (9p),* Bentley CivilStorm Output 100 YR Stage-Storage-Inflow Graph (1p), 100-Year Storm Stormdrain Profiles (8)
Retention Pond Stage-Storage for Rectangular Basin Calculation (1)
California Precipitation Frequency Data Output (1p), Hydrologic Soil Group (4p)

COMPUTER PROGRAM DISCLOSURE INFORMATION:

Program Used	Rev No./Issue Date	CH2M Verified
Bentley Civil Storm	*V8 XM /*	X Yes ___ No

Site hydrology will be based on the following criteria:

Method: SCS Unit Hydrograph Method
Rainfall Distribution: SCS Type I
Hydrologic Soil Group: Group B (See Attachment from NRCS)
Curve Number: 88 - Urban industrial, 72% imp (conservative), HSG B
Drainage Area: 8.75 Acres – Calculation takes into account the proposed project area of 3.75 Acres and the existing Almond Power Plant which is sited on 5 Acres.
Minimum Pipe Size for Storm Drain Main Line: 18-inches

Design Storms:

2-year 24 hour - 1.33 inches (Prec. Freq. Data Output, NOAA Atlas 2, See Attachment)
10-year 24 hour – 1.9 inches (NOAA Atlas 2, Volume XI, Figure 17, not Attached)
100-year 24 hour – 2.70 inches Prec. Freq. Data Output, NOAA Atlas 2, See Attachment)

Computed runoff volume tributary to the On-Site Retention Pond:

2-year 24 hour – 0.31 Acre-ft, peak elevation 75.81 ft
10-year 24 hour - 0.59 Acre-ft, peak elevation 76.50 ft
100-year 24 hour – 1.03 Acre-ft, peak elevation 77.50 ft with 2.65 ft of freeboard

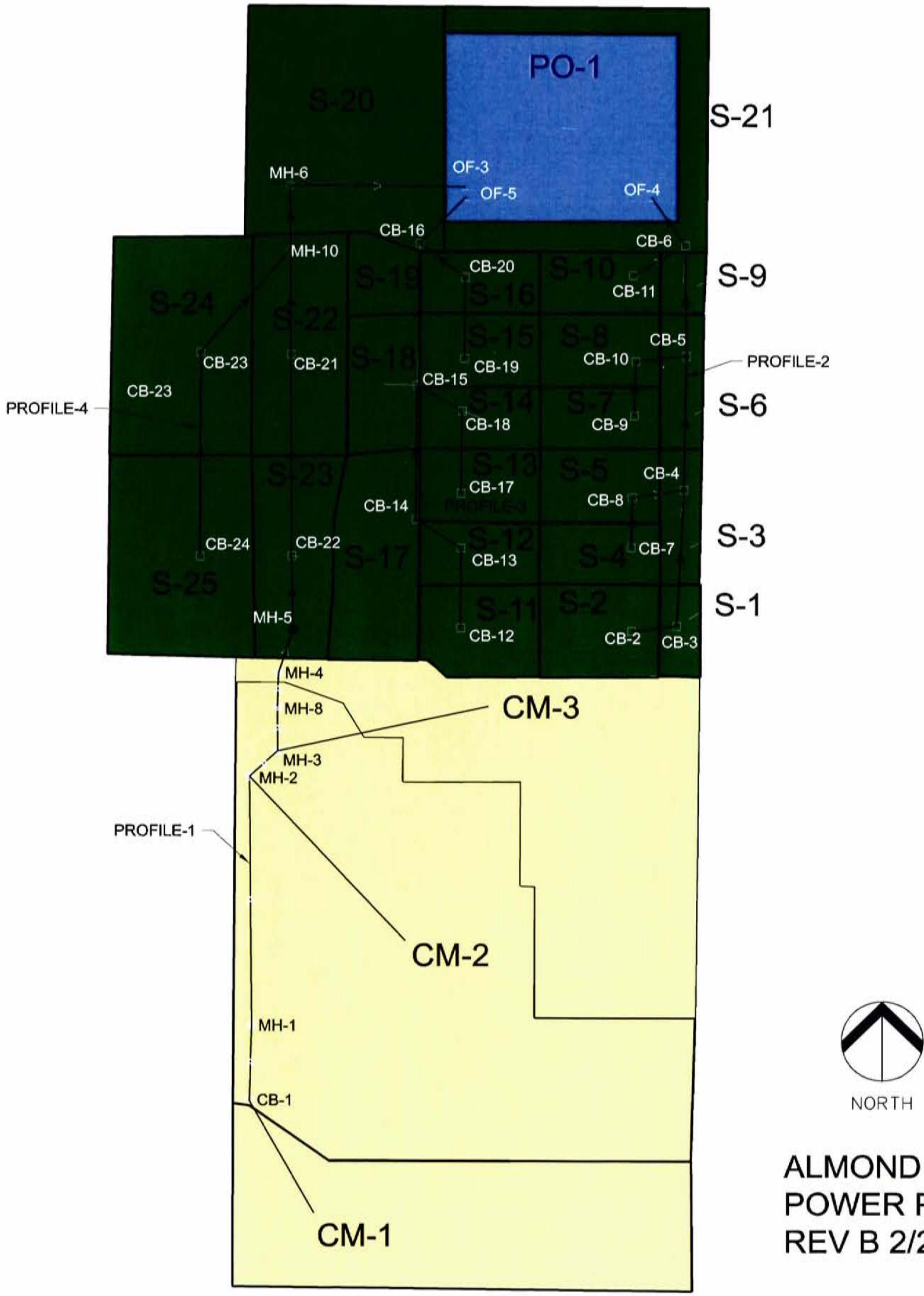
System Description:

The Almond Power Plant is an existing facility in Stanislaus County located near the Town of Ceres, California. The existing plant storm system incorporates a series of inlets and drainage pipes which convey runoff to a oil water separator, which is then discharged to an on-site retention pond.

The proposed project, Almond 2 Power Plant, involves expanding the facility to the north on an adjacent three acre parcel, which includes the existing on-site retention pond, bringing the total area of the facility to just over eight acres. The proposed facility will mitigate storm runoff with a series of inlets and storm drain pipes which will convey the runoff to a proposed on-site retention pond located on the north end of the site. Areas of potential oil contamination will be sited inside containments which will prevent potential contaminates from being conveyed to the storm system. Storm water that is contained will be treated and disposed of per the regulatory requirements. The implementation of these containments will enable for the balance of site runoff to be conveyed directly to the retention pond without prior treatment through an oil water separator.

The existing plant storm system will be tied into at the downstream end of the oil water separator and conveyed to the proposed retention pond by a separate storm drain pipe system. This system is over 550-feet long and therefore incorporates a 0.3 % slope to keep pond and trench depths reasonable. Referring to Profile-1 this system can convey the 100-year peak runoff without ponding at the existing facility even though the pipe invert at the oil water separator is about 2.5 feet above the oil water separator invert. A mechanical system will be implemented to drain the system up stream of the oil water separator when standing water is present.

DRAINAGE SYSTEM SCHEMATIC



ALMOND 2
POWER PLANT
REV B 2/20/09

4

ALMOND TWO POWER PLANT
100-YEAR
CATCHMENT SUMMARY

2/20/2009

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume Total Runoff (ac-ft)	Flow (Peak) (ft^3/s)	Time To Peak (min)
CM-1	Unit Hydrograph	SCS CN	2.70	0.84	0.11	1.03	595.00
CM-2	Unit Hydrograph	SCS CN	2.70	1.98	0.26	2.42	595.00
CM-3	Unit Hydrograph	SCS CN	2.70	1.06	0.14	1.30	595.00
S-1	Unit Hydrograph	SCS CN	2.70	0.05	0.01	0.06	595.00
S-2	Unit Hydrograph	SCS CN	2.70	0.11	0.01	0.14	595.00
S-3	Unit Hydrograph	SCS CN	2.70	0.09	0.01	0.11	595.00
S-4	Unit Hydrograph	SCS CN	2.70	0.10	0.01	0.12	595.00
S-5	Unit Hydrograph	SCS CN	2.70	0.11	0.01	0.14	595.00
S-6	Unit Hydrograph	SCS CN	2.70	0.09	0.01	0.11	595.00
S-7	Unit Hydrograph	SCS CN	2.70	0.10	0.01	0.12	595.00
S-8	Unit Hydrograph	SCS CN	2.70	0.11	0.01	0.14	595.00
S-9	Unit Hydrograph	SCS CN	2.70	0.04	0.01	0.05	595.00
S-10	Unit Hydrograph	SCS CN	2.70	0.10	0.01	0.12	595.00
S-11	Unit Hydrograph	SCS CN	2.70	0.14	0.02	0.17	595.00
S-12	Unit Hydrograph	SCS CN	2.70	0.10	0.01	0.12	595.00
S-13	Unit Hydrograph	SCS CN	2.70	0.12	0.02	0.15	595.00
S-14	Unit Hydrograph	SCS CN	2.70	0.10	0.01	0.12	595.00
S-15	Unit Hydrograph	SCS CN	2.70	0.12	0.02	0.15	595.00
S-16	Unit Hydrograph	SCS CN	2.70	0.10	0.01	0.12	595.00
S-17	Unit Hydrograph	SCS CN	2.70	0.24	0.03	0.29	595.00
S-18	Unit Hydrograph	SCS CN	2.70	0.13	0.02	0.16	595.00
S-19	Unit Hydrograph	SCS CN	2.70	0.07	0.01	0.09	595.00
S-20	Unit Hydrograph	SCS CN	2.70	0.62	0.08	0.76	595.00
S-21	Unit Hydrograph	SCS CN	2.70	0.27	0.04	0.34	595.00

ALMOND TWO POWER PLANT 2/20/2009
100-YEAR
GENERAL SUMMARY

Label	Element Type	Branch	Time to Max Flow (min)	Flow (Max) (ft^3/s)	Velocity (Max) (ft/s)	Hydraulic Grade (Max) (ft)
MH-1	Manhole	8	---	---	---	78.73
MH-2	Manhole	8	---	---	---	77.83
MH-3	Manhole	8	---	---	---	77.79
MH-4	Manhole	8	---	---	---	77.51
MH-5	Manhole	8	---	---	---	77.51
MH-6	Manhole	8	---	---	---	77.50
MH-8	Manhole	8	---	---	---	77.57
MH-10	Manhole	8	---	---	---	77.50
CB-1	Catch Basin	8	---	---	---	78.74
CB-2	Catch Basin	4	---	---	---	78.67
CB-3	Catch Basin	4	---	---	---	78.52
CB-4	Catch Basin	4	---	---	---	78.08
CB-5	Catch Basin	4	---	---	---	77.64
CB-6	Catch Basin	4	---	---	---	77.50
CB-7	Catch Basin	5	---	---	---	78.65
CB-8	Catch Basin	5	---	---	---	78.43
CB-9	Catch Basin	6	---	---	---	78.66
CB-10	Catch Basin	6	---	---	---	78.41
CB-11	Catch Basin	7	---	---	---	78.61
CB-12	Catch Basin	1	---	---	---	78.69
CB-13	Catch Basin	1	---	---	---	78.44
CB-14	Catch Basin	1	---	---	---	78.28
CB-15	Catch Basin	1	---	---	---	77.85
CB-16	Catch Basin	1	---	---	---	77.50
CB-17	Catch Basin	2	---	---	---	78.68
CB-18	Catch Basin	2	---	---	---	78.38
CB-19	Catch Basin	3	---	---	---	78.68
CB-20	Catch Basin	3	---	---	---	78.35
CB-21	Catch Basin	8	---	---	---	77.51
CB-22	Catch Basin	8	---	---	---	77.51
CB-23	Catch Basin	9	---	---	---	77.51
CB-24	Catch Basin	9	---	---	---	77.51
CO-1	Conduit	8	598	0.97	1.24	78.74
CO-2	Conduit	8	595	3.29	4.19	78.21
CO-3	Conduit	8	595	3.28	4.17	77.80
CO-6	Conduit	8	598	4.43	4.06	77.51
CO-10	Conduit	8	598	5.99	5.09	77.50
CO-11	Conduit	8	595	4.53	5.77	77.58
CO-12	Conduit	8	598	4.42	4.48	77.52
CO-13	Conduit	4	595	0.13	0.74	78.58
CO-14	Conduit	4	595	0.18	1.65	78.27
CO-15	Conduit	4	598	0.53	2.32	77.81
CO-16	Conduit	4	598	0.88	2.72	77.50
CO-17	Conduit	4	598	1.03	2.87	77.50
CO-18	Conduit	5	595	0.11	0.64	78.54
CO-19	Conduit	5	595	0.24	2.46	78.20
CO-20	Conduit	6	595	0.11	0.65	78.54
CO-21	Conduit	6	595	0.24	3.28	77.99
CO-22	Conduit	7	595	0.12	0.64	77.87
CO-23	Conduit	1	595	0.16	1.57	78.54
CO-24	Conduit	1	595	0.28	1.99	78.33
CO-25	Conduit	1	595	0.56	2.39	78.01
CO-26	Conduit	1	598	0.97	2.79	77.57
CO-27	Conduit	1	598	1.31	3.34	77.50
CO-28	Conduit	2	595	0.14	0.80	78.54
CO-29	Conduit	2	595	0.26	3.01	78.00
CO-30	Conduit	3	595	0.14	0.80	78.53
CO-31	Conduit	3	595	0.26	3.51	77.71
CO-34	Conduit	8	598	4.44	3.76	77.51
CO-35	Conduit	8	598	4.71	3.87	77.51
CO-36	Conduit	8	598	5.04	3.88	77.51
CO-37	Conduit	8	598	6.01	4.70	77.50
CO-38	Conduit	9	595	0.93	1.87	77.51
CO-39	Conduit	9	595	0.45	1.98	77.51
PO-1	Pond	1	---	---	---	77.50

ALMOND TWO POWER PLANT
100-YEAR
NODE SUMMARY

2/20/2009

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Max) (ft³/s)	Time To Max Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Max Captured Flow (min)	Flow (Captured Max) (ft³/s)
MH-1	Manhole	8	595	3.38	---	---	---	---
MH-2	Manhole	8	595	3.29	---	---	---	---
MH-3	Manhole	8	595	4.58	---	---	---	---
MH-4	Manhole	8	598	4.42	---	---	---	---
MH-5	Manhole	8	598	4.43	---	---	---	---
MH-6	Manhole	8	598	6.01	---	---	---	---
MH-8	Manhole	8	595	4.53	---	---	---	---
MH-10	Manhole	8	598	5.98	---	---	---	---
CB-1	Catch Basin	8	595	1.03	595	1.03	595	1.03
CB-2	Catch Basin	4	595	0.14	595	0.14	595	0.14
CB-3	Catch Basin	4	595	0.19	595	0.06	595	0.06
CB-4	Catch Basin	4	595	0.53	595	0.11	595	0.11
CB-5	Catch Basin	4	598	0.86	595	0.11	595	0.11
CB-6	Catch Basin	4	598	1.03	595	0.05	595	0.05
CB-7	Catch Basin	5	595	0.12	595	0.12	595	0.12
CB-8	Catch Basin	5	595	0.25	595	0.14	595	0.14
CB-9	Catch Basin	6	595	0.12	595	0.12	595	0.12
CB-10	Catch Basin	6	595	0.25	595	0.14	595	0.14
CB-11	Catch Basin	7	595	0.12	595	0.12	595	0.12
CB-12	Catch Basin	1	595	0.17	595	0.17	595	0.17
CB-13	Catch Basin	1	595	0.29	595	0.12	595	0.12
CB-14	Catch Basin	1	595	0.57	595	0.29	595	0.29
CB-15	Catch Basin	1	595	0.97	595	0.16	595	0.16
CB-16	Catch Basin	1	598	1.30	595	0.09	595	0.09
CB-17	Catch Basin	2	595	0.15	595	0.15	595	0.15
CB-18	Catch Basin	2	595	0.26	595	0.12	595	0.12
CB-19	Catch Basin	3	595	0.15	595	0.15	595	0.15
CB-20	Catch Basin	3	595	0.26	595	0.12	595	0.12
CB-21	Catch Basin	8	598	5.03	595	0.34	595	0.34
CB-22	Catch Basin	8	598	4.69	595	0.27	595	0.27
CB-23	Catch Basin	9	595	0.96	595	0.51	595	0.51
CB-24	Catch Basin	9	595	0.48	595	0.48	595	0.48
OF-3	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-4	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-5	Outfall	0	(N/A)	(N/A)	---	---	---	---
PO-1	Pond	1	598	9.30	---	---	---	---

Time to Max Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time to Max Hydraulic Grade & Storage (min)	Depth (Maximum) (ft)	Hydraulic Grade (Maximum) (ft)	Storage (Maximum) (ac-ft)
598	9.30	1437.98	2.50	77.50	1.03

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ALMOND TWO POWER PLANT
10-YEAR
CATCHMENT SUMMARY

2/20/2009

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume Total Runoff (ac-ft)	Flow (Peak) (ft^3/s)	Time To Peak (min)
CM-1	Unit Hydrograph	SCS CN	1.90	0.84	0.06	0.56	595.00
CM-2	Unit Hydrograph	SCS CN	1.90	1.98	0.15	1.32	595.00
CM-3	Unit Hydrograph	SCS CN	1.90	1.06	0.08	0.70	595.00
S-1	Unit Hydrograph	SCS CN	1.90	0.05	0.00	0.03	595.00
S-2	Unit Hydrograph	SCS CN	1.90	0.11	0.01	0.07	595.00
S-3	Unit Hydrograph	SCS CN	1.90	0.09	0.01	0.06	595.00
S-4	Unit Hydrograph	SCS CN	1.90	0.10	0.01	0.06	595.00
S-5	Unit Hydrograph	SCS CN	1.90	0.11	0.01	0.08	595.00
S-6	Unit Hydrograph	SCS CN	1.90	0.09	0.01	0.06	595.00
S-7	Unit Hydrograph	SCS CN	1.90	0.10	0.01	0.06	595.00
S-8	Unit Hydrograph	SCS CN	1.90	0.11	0.01	0.07	595.00
S-9	Unit Hydrograph	SCS CN	1.90	0.04	0.00	0.03	595.00
S-10	Unit Hydrograph	SCS CN	1.90	0.10	0.01	0.06	595.00
S-11	Unit Hydrograph	SCS CN	1.90	0.14	0.01	0.09	595.00
S-12	Unit Hydrograph	SCS CN	1.90	0.10	0.01	0.07	595.00
S-13	Unit Hydrograph	SCS CN	1.90	0.12	0.01	0.08	595.00
S-14	Unit Hydrograph	SCS CN	1.90	0.10	0.01	0.07	595.00
S-15	Unit Hydrograph	SCS CN	1.90	0.12	0.01	0.08	595.00
S-16	Unit Hydrograph	SCS CN	1.90	0.10	0.01	0.07	595.00
S-17	Unit Hydrograph	SCS CN	1.90	0.24	0.02	0.16	595.00
S-18	Unit Hydrograph	SCS CN	1.90	0.13	0.01	0.09	595.00
S-19	Unit Hydrograph	SCS CN	1.90	0.07	0.01	0.05	595.00
S-20	Unit Hydrograph	SCS CN	1.90	0.62	0.05	0.41	595.00
S-21	Unit Hydrograph	SCS CN	1.90	0.27	0.02	0.18	595.00
S-22	Unit Hydrograph	SCS CN	1.90	0.28	0.02	0.19	595.00
S-23	Unit Hydrograph	SCS CN	1.90	0.22	0.02	0.15	595.00
S-24	Unit Hydrograph	SCS CN	1.90	0.42	0.03	0.28	595.00
S-25	Unit Hydrograph	SCS CN	1.90	0.39	0.03	0.26	595.00

ALMOND TWO POWER PLANT 2/20/2009
10-YEAR
GENERAL SUMMARY

Label	Element Type	Branch	Time to Max Flow (min)	Flow (Max) (ft^3/s)	Velocity (Max) (ft/s)	Hydraulic Grade (Max) (ft)
MH-1	Manhole	8	---	---	---	77.43
MH-2	Manhole	8	---	---	---	77.36
MH-3	Manhole	8	---	---	---	77.35
MH-4	Manhole	8	---	---	---	77.24
MH-5	Manhole	8	---	---	---	77.19
MH-6	Manhole	8	---	---	---	76.50
MH-8	Manhole	8	---	---	---	77.34
MH-10	Manhole	8	---	---	---	76.50
CB-1	Catch Basin	8	---	---	---	77.43
CB-2	Catch Basin	4	---	---	---	78.64
CB-3	Catch Basin	4	---	---	---	78.48
CB-4	Catch Basin	4	---	---	---	78.01
CB-5	Catch Basin	4	---	---	---	77.55
CB-6	Catch Basin	4	---	---	---	77.15
CB-7	Catch Basin	5	---	---	---	78.62
CB-8	Catch Basin	5	---	---	---	78.38
CB-9	Catch Basin	6	---	---	---	78.63
CB-10	Catch Basin	6	---	---	---	78.38
CB-11	Catch Basin	7	---	---	---	78.58
CB-12	Catch Basin	1	---	---	---	78.65
CB-13	Catch Basin	1	---	---	---	78.38
CB-14	Catch Basin	1	---	---	---	78.21
CB-15	Catch Basin	1	---	---	---	77.75
CB-16	Catch Basin	1	---	---	---	77.24
CB-17	Catch Basin	2	---	---	---	78.65
CB-18	Catch Basin	2	---	---	---	78.34
CB-19	Catch Basin	3	---	---	---	78.65
CB-20	Catch Basin	3	---	---	---	78.32
CB-21	Catch Basin	8	---	---	---	76.61
CB-22	Catch Basin	8	---	---	---	77.06
CB-23	Catch Basin	9	---	---	---	76.78
CB-24	Catch Basin	9	---	---	---	77.25
CO-1	Conduit	8	598	0.54	0.68	77.43
CO-2	Conduit	8	595	1.76	2.25	77.39
CO-3	Conduit	8	598	1.76	2.24	77.36
CO-6	Conduit	8	598	2.42	3.65	77.20
CO-10	Conduit	8	598	3.23	4.30	76.50
CO-11	Conduit	8	595	2.44	3.10	77.34
CO-12	Conduit	8	598	2.42	3.69	77.29
CO-13	Conduit	4	595	0.07	0.42	78.55
CO-14	Conduit	4	598	0.10	0.58	78.22
CO-15	Conduit	4	598	0.29	1.88	77.74
CO-16	Conduit	4	598	0.48	2.23	77.34
CO-17	Conduit	4	598	0.56	2.36	77.04
CO-18	Conduit	5	595	0.06	0.36	78.51
CO-19	Conduit	5	595	0.13	0.73	78.16
CO-20	Conduit	6	595	0.06	0.37	78.51
CO-21	Conduit	6	595	0.13	0.72	77.95
CO-22	Conduit	7	595	0.06	0.36	77.85
CO-23	Conduit	1	595	0.09	0.52	78.50
CO-24	Conduit	1	595	0.15	1.56	78.28
CO-25	Conduit	1	598	0.30	1.92	77.94
CO-26	Conduit	1	598	0.53	2.29	77.48
CO-27	Conduit	1	598	0.72	2.79	77.07
CO-28	Conduit	2	595	0.08	0.45	78.50
CO-29	Conduit	2	595	0.14	0.76	77.96
CO-30	Conduit	3	595	0.08	0.45	78.49
CO-31	Conduit	3	595	0.14	0.75	77.68
CO-34	Conduit	8	598	2.42	3.39	77.09
CO-35	Conduit	8	598	2.56	3.26	76.82
CO-36	Conduit	8	598	2.73	3.41	76.50
CO-37	Conduit	8	598	3.25	3.80	76.50
CO-38	Conduit	9	598	0.51	2.13	76.50
CO-39	Conduit	9	598	0.24	1.57	77.01
PO-1	Pond	1	---	---	---	76.50

ALMOND TWO POWER PLANT
10-YEAR
NODE SUMMARY

2/20/2009

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Max) (ft³/s)	Time To Max Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Max Captured Flow (min)	Flow (Captured Max) (ft³/s)
MH-1	Manhole	8	595	1.81	---	---	---	---
MH-2	Manhole	8	595	1.76	---	---	---	---
MH-3	Manhole	8	595	2.46	---	---	---	---
MH-4	Manhole	8	598	2.42	---	---	---	---
MH-5	Manhole	8	598	2.42	---	---	---	---
MH-6	Manhole	8	598	3.24	---	---	---	---
MH-8	Manhole	8	595	2.44	---	---	---	---
MH-10	Manhole	8	598	3.24	---	---	---	---
CB-1	Catch Basin	8	595	0.56	595.00	0.56	595.00	0.56
CB-2	Catch Basin	4	595	0.07	595.00	0.07	595.00	0.07
CB-3	Catch Basin	4	595	0.10	595.00	0.03	595.00	0.03
CB-4	Catch Basin	4	595	0.28	595.00	0.06	595.00	0.06
CB-5	Catch Basin	4	598	0.47	595.00	0.06	595.00	0.06
CB-6	Catch Basin	4	598	0.56	595.00	0.03	595.00	0.03
CB-7	Catch Basin	5	595	0.06	595.00	0.06	595.00	0.06
CB-8	Catch Basin	5	595	0.14	595.00	0.08	595.00	0.08
CB-9	Catch Basin	6	595	0.06	595.00	0.06	595.00	0.06
CB-10	Catch Basin	6	595	0.13	595.00	0.07	595.00	0.07
CB-11	Catch Basin	7	595	0.06	595.00	0.06	595.00	0.06
CB-12	Catch Basin	1	595	0.09	595.00	0.09	595.00	0.09
CB-13	Catch Basin	1	595	0.16	595.00	0.07	595.00	0.07
CB-14	Catch Basin	1	595	0.31	595.00	0.16	595.00	0.16
CB-15	Catch Basin	1	598	0.52	595.00	0.09	595.00	0.09
CB-16	Catch Basin	1	598	0.71	595.00	0.05	595.00	0.05
CB-17	Catch Basin	2	595	0.08	595.00	0.08	595.00	0.08
CB-18	Catch Basin	2	595	0.14	595.00	0.07	595.00	0.07
CB-19	Catch Basin	3	595	0.08	595.00	0.08	595.00	0.08
CB-20	Catch Basin	3	595	0.14	595.00	0.07	595.00	0.07
CB-21	Catch Basin	8	598	2.73	595.00	0.19	595.00	0.19
CB-22	Catch Basin	8	598	2.55	595.00	0.15	595.00	0.15
CB-23	Catch Basin	9	595	0.51	595.00	0.28	595.00	0.28
CB-24	Catch Basin	9	595	0.26	595.00	0.26	595.00	0.26
OF-3	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-4	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-5	Outfall	0	(N/A)	(N/A)	---	---	---	---
PO-1	Pond	1	598	5.03	---	---	---	---

Time to Max Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time to Max Hydraulic Grade & Storage (min)	Depth (Maximum) (ft)	Hydraulic Grade (Maximum) (ft)	Storage (Maximum) (ac-ft)
598	5.03	1437.98	1.5	76.5	0.59

ALMOND TWO POWER PLANT
2-YEAR
CATCHMENT SUMMARY

2/20/2009

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume Total Runoff (ac-ft)	Flow (Peak) (ft^3/s)	Time To Peak (min)
CM-1	Unit Hydrograph	SCS CN	1.33	0.84	0.03	0.26	595.00
CM-2	Unit Hydrograph	SCS CN	1.33	1.98	0.08	0.62	595.00
CM-3	Unit Hydrograph	SCS CN	1.33	1.06	0.04	0.33	595.00
S-1	Unit Hydrograph	SCS CN	1.33	0.05	0.00	0.01	595.00
S-2	Unit Hydrograph	SCS CN	1.33	0.11	0.00	0.03	595.00
S-3	Unit Hydrograph	SCS CN	1.33	0.09	0.00	0.03	595.00
S-4	Unit Hydrograph	SCS CN	1.33	0.10	0.00	0.03	595.00
S-5	Unit Hydrograph	SCS CN	1.33	0.11	0.00	0.04	595.00
S-6	Unit Hydrograph	SCS CN	1.33	0.09	0.00	0.03	595.00
S-7	Unit Hydrograph	SCS CN	1.33	0.10	0.00	0.03	595.00
S-8	Unit Hydrograph	SCS CN	1.33	0.11	0.00	0.03	595.00
S-9	Unit Hydrograph	SCS CN	1.33	0.04	0.00	0.01	595.00
S-10	Unit Hydrograph	SCS CN	1.33	0.10	0.00	0.03	595.00
S-11	Unit Hydrograph	SCS CN	1.33	0.14	0.01	0.04	595.00
S-12	Unit Hydrograph	SCS CN	1.33	0.10	0.00	0.03	595.00
S-13	Unit Hydrograph	SCS CN	1.33	0.12	0.00	0.04	595.00
S-14	Unit Hydrograph	SCS CN	1.33	0.10	0.00	0.03	595.00
S-15	Unit Hydrograph	SCS CN	1.33	0.12	0.00	0.04	595.00
S-16	Unit Hydrograph	SCS CN	1.33	0.10	0.00	0.03	595.00
S-17	Unit Hydrograph	SCS CN	1.33	0.24	0.01	0.07	595.00
S-18	Unit Hydrograph	SCS CN	1.33	0.13	0.01	0.04	595.00
S-19	Unit Hydrograph	SCS CN	1.33	0.07	0.00	0.02	595.00
S-20	Unit Hydrograph	SCS CN	1.33	0.62	0.02	0.19	595.00
S-21	Unit Hydrograph	SCS CN	1.33	0.27	0.01	0.09	595.00
S-22	Unit Hydrograph	SCS CN	1.33	0.28	0.01	0.09	595.00
S-23	Unit Hydrograph	SCS CN	1.33	0.22	0.01	0.07	595.00
S-24	Unit Hydrograph	SCS CN	1.33	0.42	0.02	0.13	595.00
S-25	Unit Hydrograph	SCS CN	1.33	0.39	0.01	0.12	595.00

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ALMOND TWO POWER PLANT
2-YEAR
GENERAL SUMMARY

2/20/2009

Label	Element Type	Branch	Time to Max Flow (min)	Flow (Max) (ft^3/s)	Velocity (Max) (ft/s)	Hydraulic Grade (Max) (ft)
MH-1	Manhole	8	---	---	---	77.18
MH-2	Manhole	8	---	---	---	77.15
MH-3	Manhole	8	---	---	---	77.14
MH-4	Manhole	8	---	---	---	77.05
MH-5	Manhole	8	---	---	---	76.98
MH-6	Manhole	8	---	---	---	75.93
MH-8	Manhole	8	---	---	---	77.14
MH-10	Manhole	8	---	---	---	76.17
CB-1	Catch Basin	8	---	---	---	77.18
CB-2	Catch Basin	4	---	---	---	78.59
CB-3	Catch Basin	4	---	---	---	78.44
CB-4	Catch Basin	4	---	---	---	77.95
CB-5	Catch Basin	4	---	---	---	77.47
CB-6	Catch Basin	4	---	---	---	77.06
CB-7	Catch Basin	5	---	---	---	78.58
CB-8	Catch Basin	5	---	---	---	78.35
CB-9	Catch Basin	6	---	---	---	78.58
CB-10	Catch Basin	6	---	---	---	78.35
CB-11	Catch Basin	7	---	---	---	78.55
CB-12	Catch Basin	1	---	---	---	78.61
CB-13	Catch Basin	1	---	---	---	78.34
CB-14	Catch Basin	1	---	---	---	78.15
CB-15	Catch Basin	1	---	---	---	77.67
CB-16	Catch Basin	1	---	---	---	77.15
CB-17	Catch Basin	2	---	---	---	78.60
CB-18	Catch Basin	2	---	---	---	78.31
CB-19	Catch Basin	3	---	---	---	78.60
CB-20	Catch Basin	3	---	---	---	78.29
CB-21	Catch Basin	8	---	---	---	76.37
CB-22	Catch Basin	8	---	---	---	76.83
CB-23	Catch Basin	9	---	---	---	76.70
CB-24	Catch Basin	9	---	---	---	77.19
CO-1	Conduit	8	598	0.25	0.35	77.18
CO-2	Conduit	8	598	0.84	1.07	77.16
CO-3	Conduit	8	598	0.84	1.07	77.15
CO-6	Conduit	8	598	1.15	3.07	77.00
CO-10	Conduit	8	600	1.51	3.47	75.81
CO-11	Conduit	8	598	1.16	1.47	77.14
CO-12	Conduit	8	598	1.15	3.02	77.10
CO-13	Conduit	4	598	0.03	0.21	78.50
CO-14	Conduit	4	598	0.05	0.30	78.19
CO-15	Conduit	4	598	0.14	0.77	77.69
CO-16	Conduit	4	598	0.23	1.69	77.27
CO-17	Conduit	4	598	0.26	1.81	76.96
CO-18	Conduit	5	598	0.03	0.18	78.47
CO-19	Conduit	5	598	0.06	0.36	78.13
CO-20	Conduit	6	598	0.03	0.18	78.46
CO-21	Conduit	6	598	0.06	0.35	77.93
CO-22	Conduit	7	595	0.03	0.17	77.82
CO-23	Conduit	1	598	0.04	0.27	78.46
CO-24	Conduit	1	598	0.07	0.43	78.23
CO-25	Conduit	1	598	0.14	0.80	77.89
CO-26	Conduit	1	598	0.25	1.75	77.40
CO-27	Conduit	1	598	0.34	2.16	76.99
CO-28	Conduit	2	598	0.04	0.23	78.46
CO-29	Conduit	2	598	0.07	0.38	77.93
CO-30	Conduit	3	598	0.04	0.23	78.45
CO-31	Conduit	3	598	0.07	0.37	77.65
CO-34	Conduit	8	598	1.14	2.66	76.89
CO-35	Conduit	8	598	1.19	2.57	76.60
CO-36	Conduit	8	600	1.27	2.72	76.23
CO-37	Conduit	8	600	1.51	2.93	76.07
CO-38	Conduit	9	598	0.24	2.19	76.29
CO-39	Conduit	9	598	0.12	0.68	76.94
PO-1	Pond	1	---	---	---	75.81

ALMOND TWO POWER PLANT
2-YEAR
NODE SUMMARY

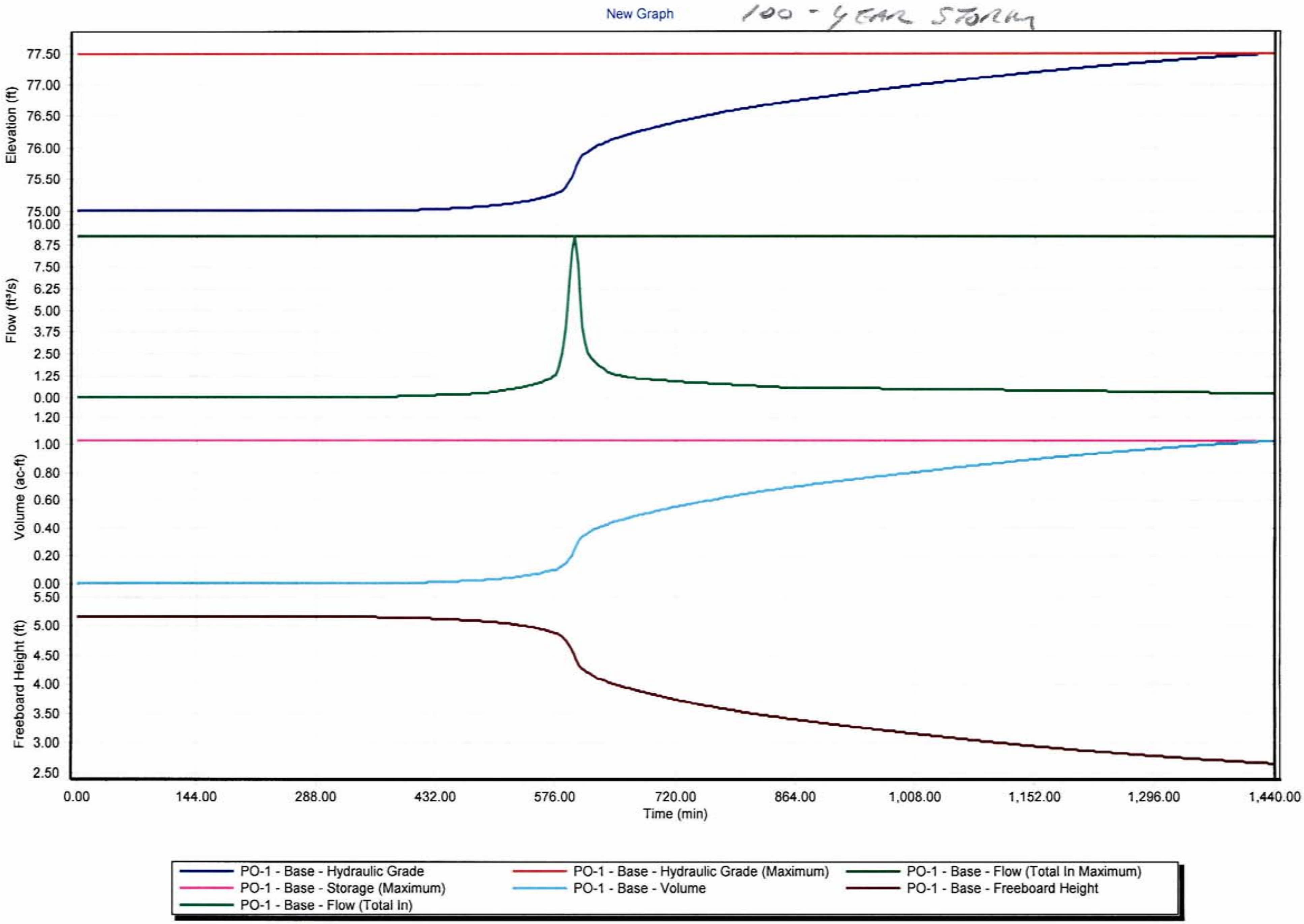
2/20/2009

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Max) (ft³/s)	Time To Max Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Max Captured Flow (min)	Flow (Captured Max) (ft³/s)
MH-1	Manhole	8	595	0.84	---	---	---	---
MH-2	Manhole	8	598	0.84	---	---	---	---
MH-3	Manhole	8	598	1.15	---	---	---	---
MH-4	Manhole	8	598	1.15	---	---	---	---
MH-5	Manhole	8	598	1.15	---	---	---	---
MH-6	Manhole	8	600	1.51	---	---	---	---
MH-8	Manhole	8	598	1.16	---	---	---	---
MH-10	Manhole	8	600	1.51	---	---	---	---
CB-1	Catch Basin	8	595	0.26	595	0.26	595	0.26
CB-2	Catch Basin	4	595	0.03	595	0.03	595	0.03
CB-3	Catch Basin	4	595	0.05	595	0.01	595	0.01
CB-4	Catch Basin	4	598	0.14	595	0.03	595	0.03
CB-5	Catch Basin	4	598	0.23	595	0.03	595	0.03
CB-6	Catch Basin	4	598	0.26	595	0.01	595	0.01
CB-7	Catch Basin	5	595	0.03	595	0.03	595	0.03
CB-8	Catch Basin	5	595	0.06	595	0.04	595	0.04
CB-9	Catch Basin	6	595	0.03	595	0.03	595	0.03
CB-10	Catch Basin	6	595	0.06	595	0.03	595	0.03
CB-11	Catch Basin	7	595	0.03	595	0.03	595	0.03
CB-12	Catch Basin	1	595	0.04	595	0.04	595	0.04
CB-13	Catch Basin	1	595	0.07	595	0.03	595	0.03
CB-14	Catch Basin	1	595	0.14	595	0.07	595	0.07
CB-15	Catch Basin	1	598	0.25	595	0.04	595	0.04
CB-16	Catch Basin	1	598	0.34	595	0.02	595	0.02
CB-17	Catch Basin	2	595	0.04	595	0.04	595	0.04
CB-18	Catch Basin	2	595	0.07	595	0.03	595	0.03
CB-19	Catch Basin	3	595	0.04	595	0.04	595	0.04
CB-20	Catch Basin	3	595	0.07	595	0.03	595	0.03
CB-21	Catch Basin	8	600	1.27	595	0.09	595	0.09
CB-22	Catch Basin	8	598	1.20	595	0.07	595	0.07
CB-23	Catch Basin	9	598	0.24	595	0.13	595	0.13
CB-24	Catch Basin	9	595	0.12	595	0.12	595	0.12
OF-3	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-4	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-5	Outfall	0	(N/A)	(N/A)	---	---	---	---
PO-1	Pond	1	600	2.34	---	---	---	---

Time to Max Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time to Max Hydraulic Grade & Storage (min)	Depth (Maximum) (ft)	Hydraulic Grade (Maximum) (ft)	Storage (Maximum) (ac-ft)
600	2.34	1437.98	0.81	75.81	0.31

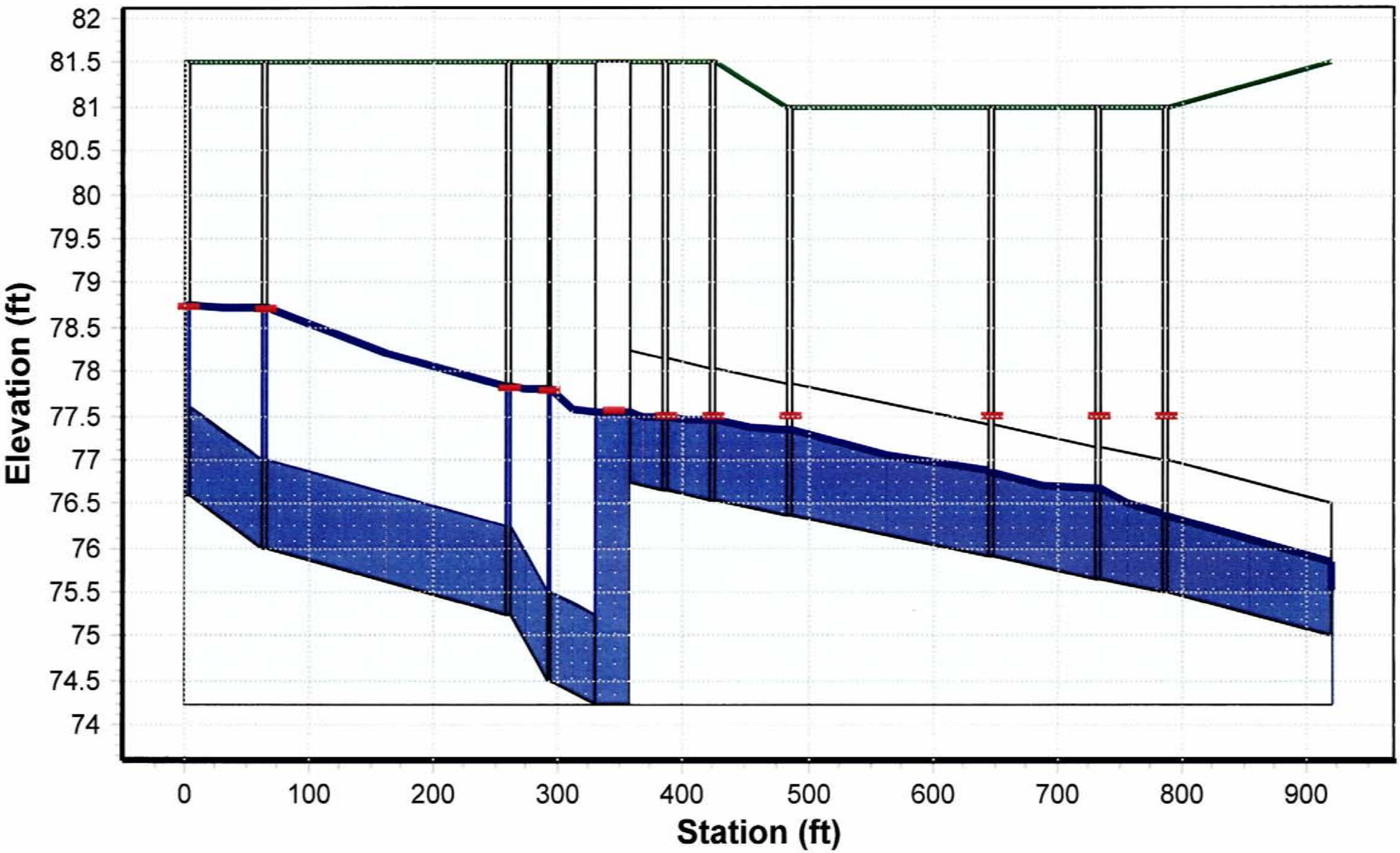
STAGE - STORAGE - FLOW GRAPH

100 - YEAR STORM



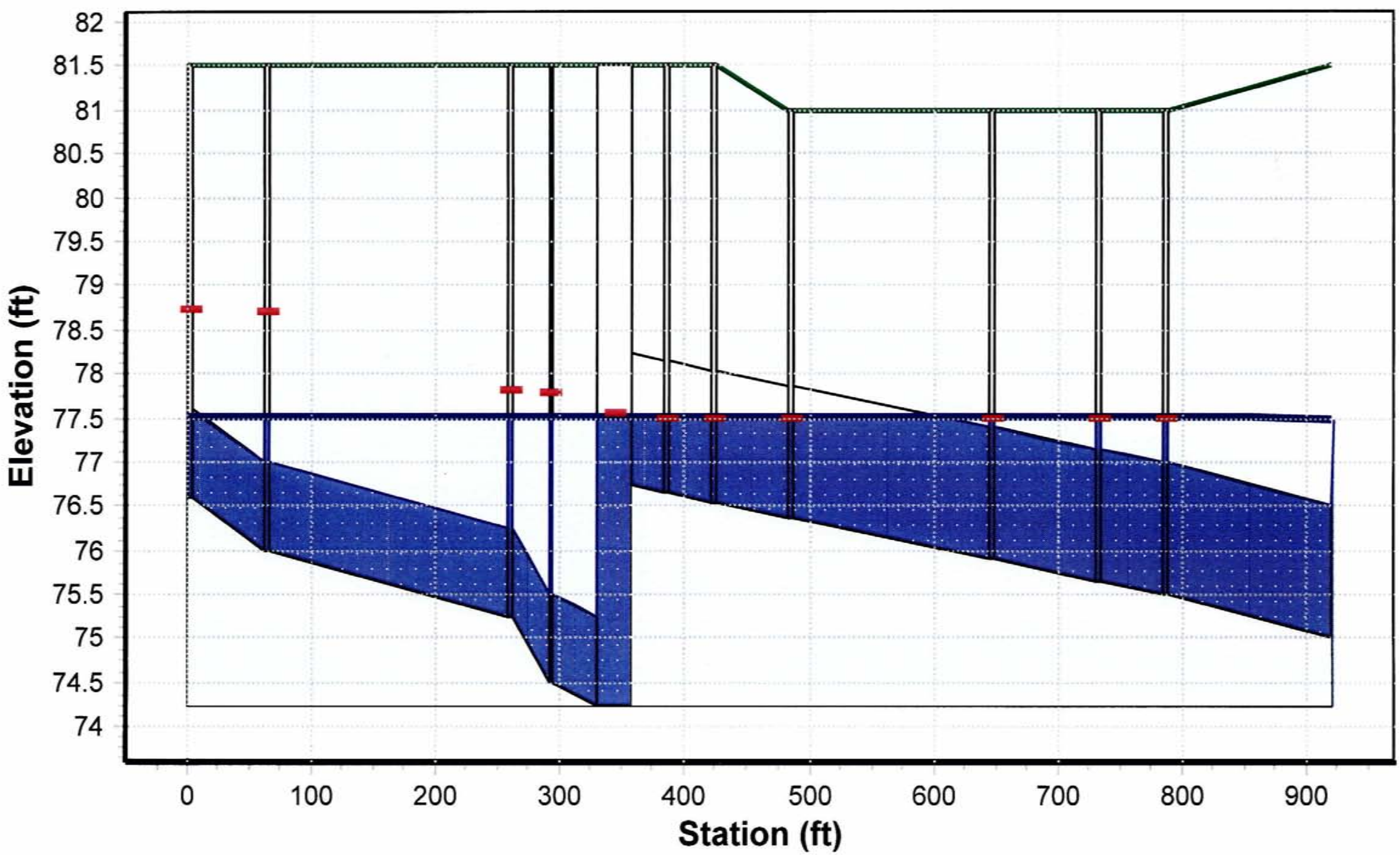
100-YEAR STORM

Profile - 1 - Base Time: 09:55:00



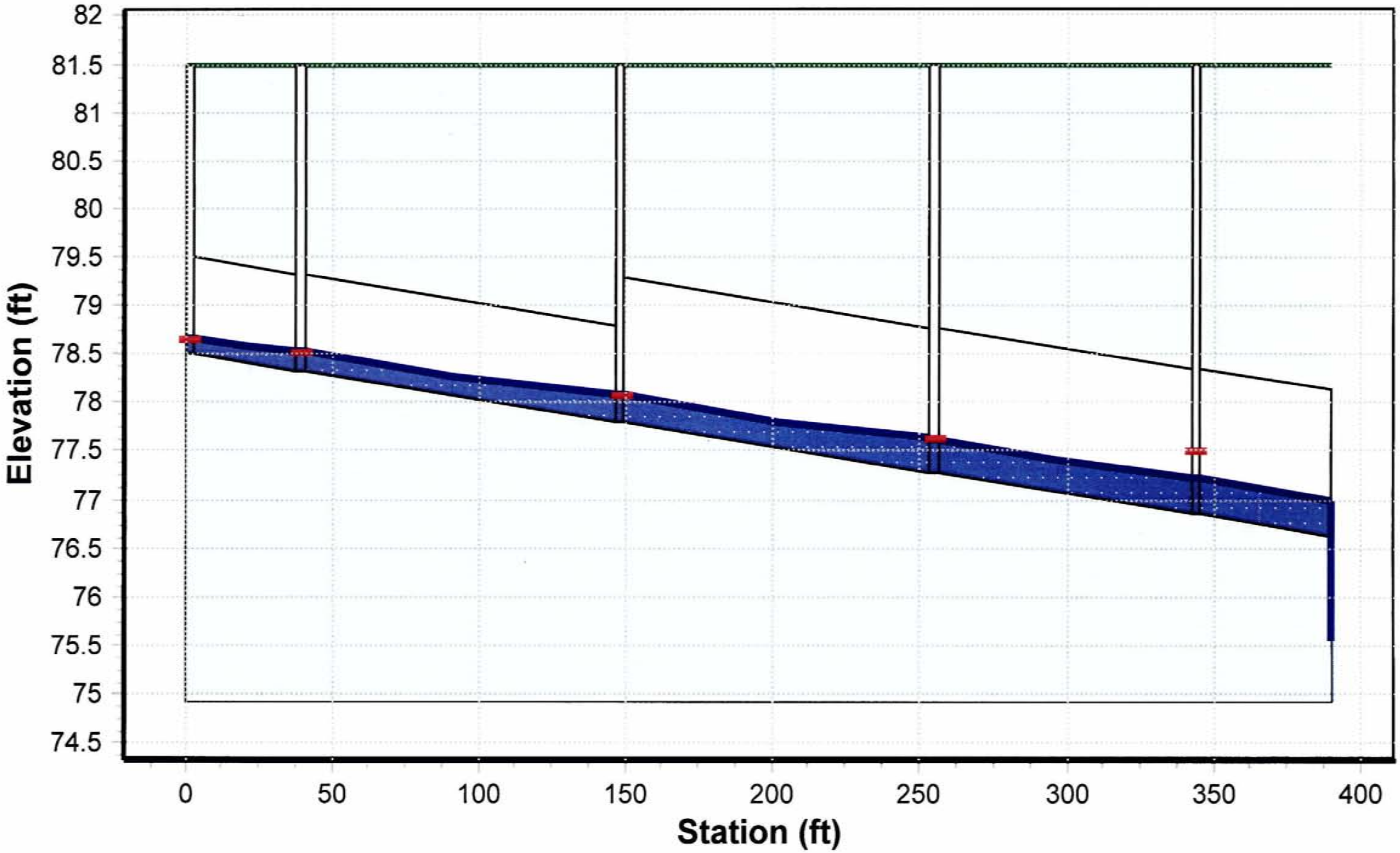
100-YEAR STORM

Profile - 1 - Base Time: 24:00:00



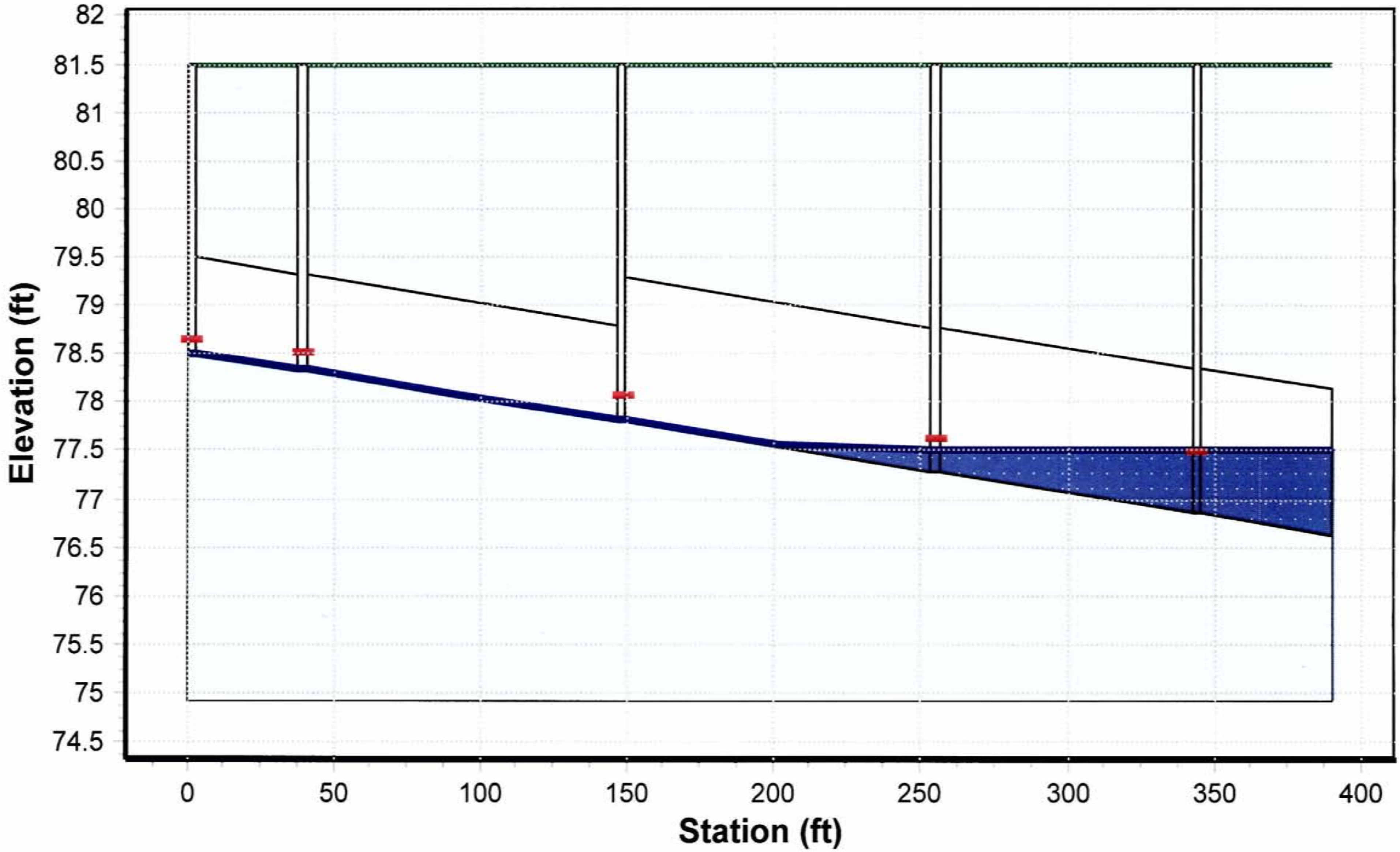
100-YEAR STORM

Profile - 2 - Base Time: 09:55:00



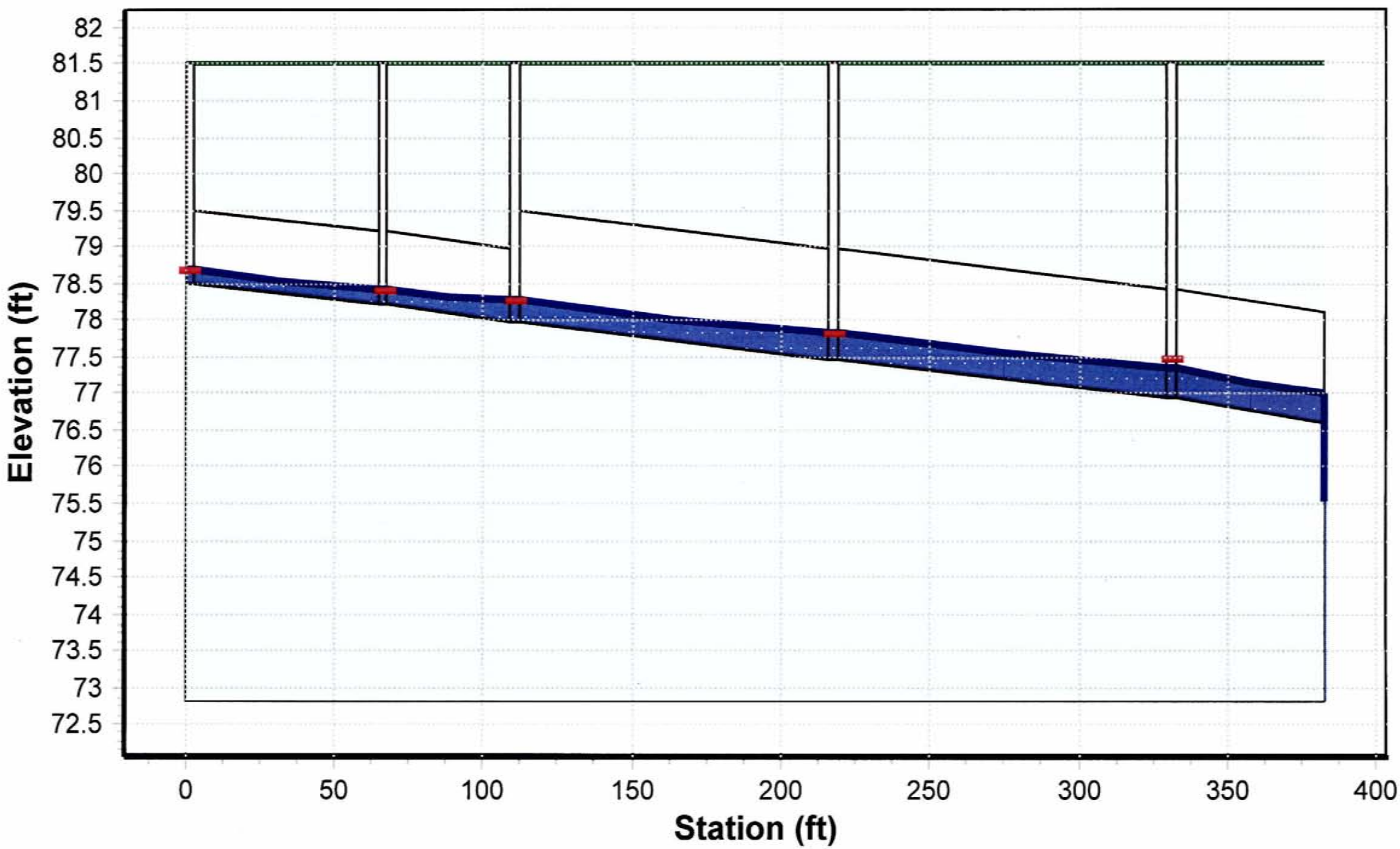
100 - YEAR STORM

Profile - 2 - Base Time: 24:00:00



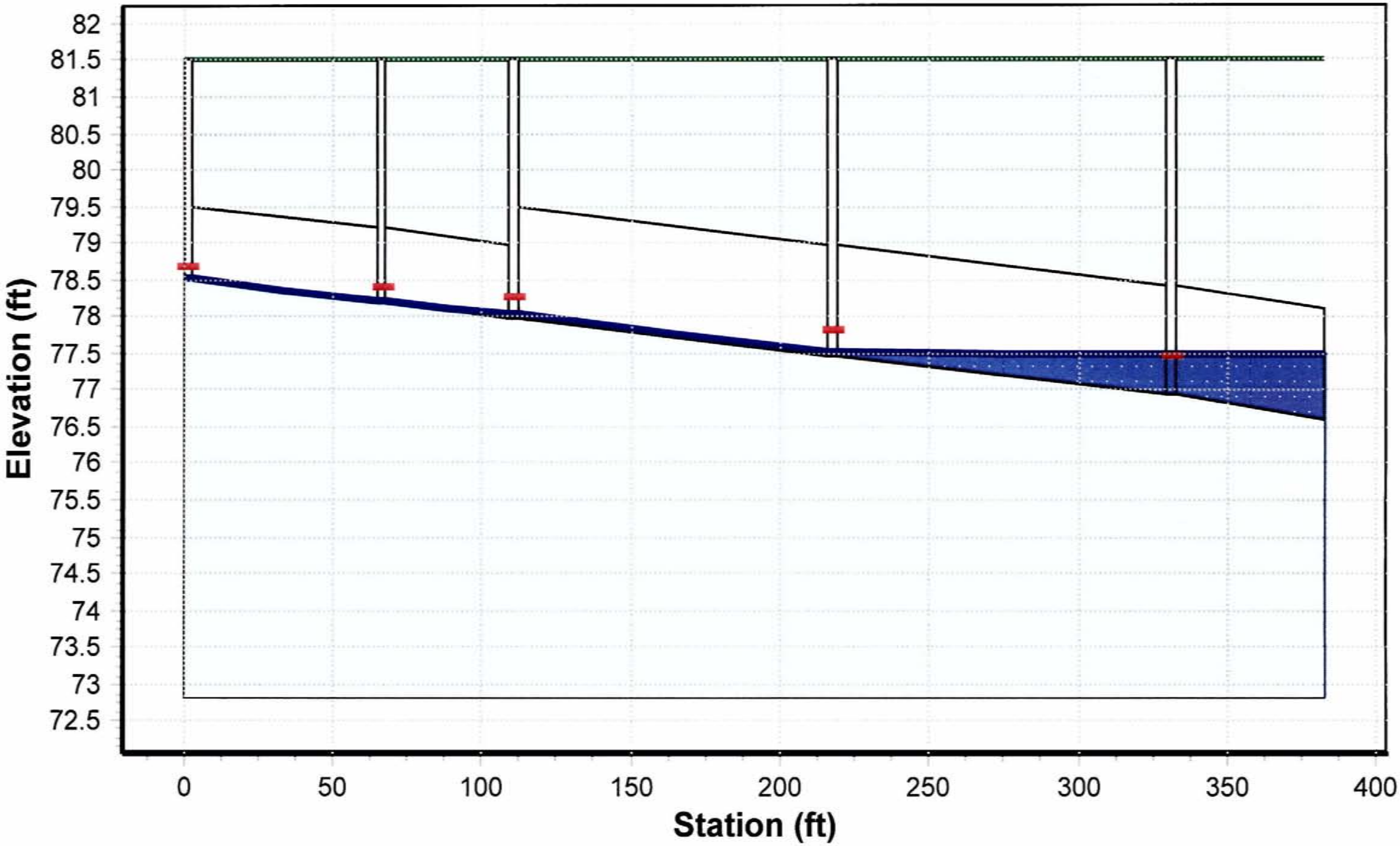
100-YEAR STORM

Profile - 3 - Base Time: 09:55:00



100- YEAR STORM

Profile - 3 - Base Time: 24:00:00



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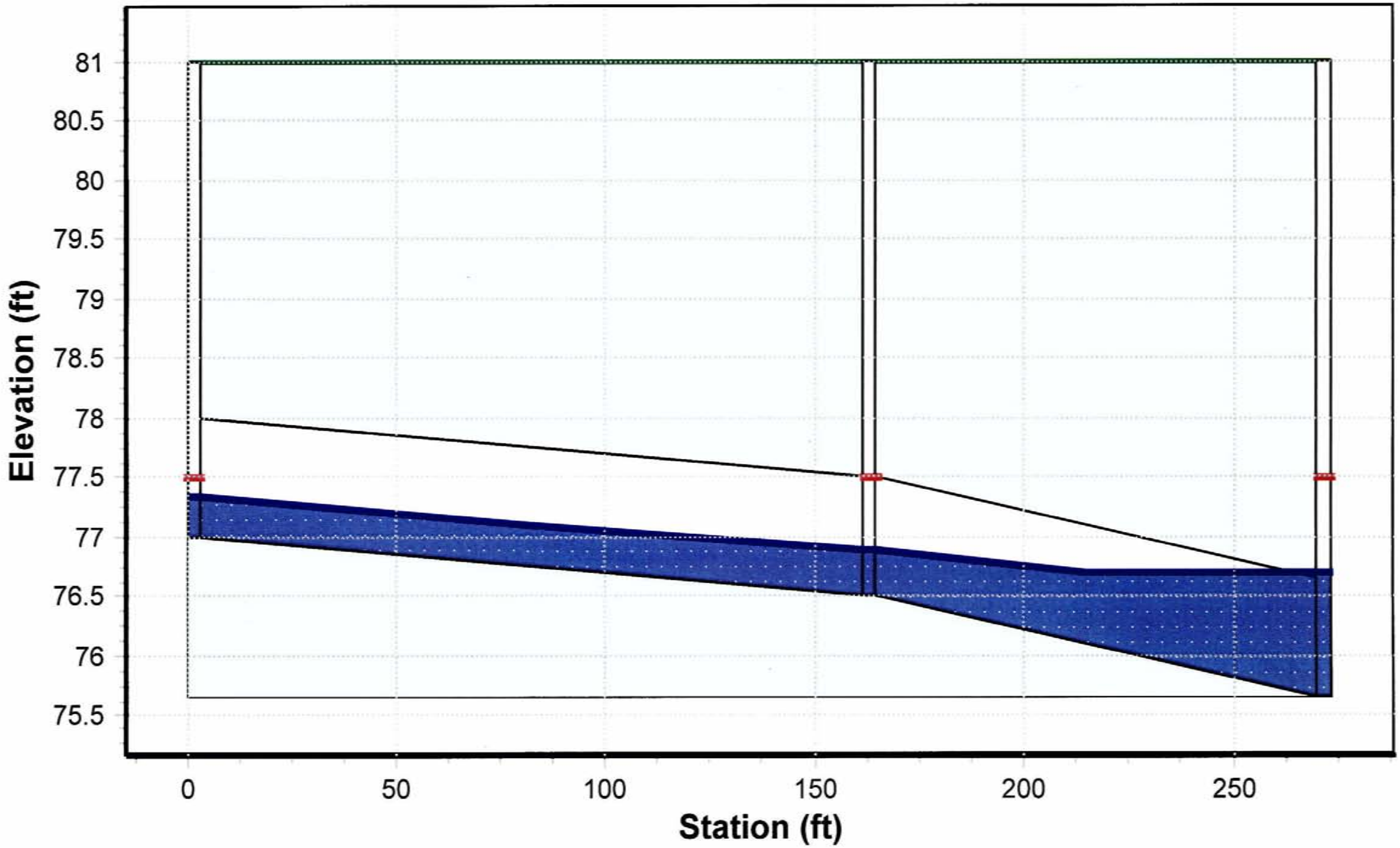
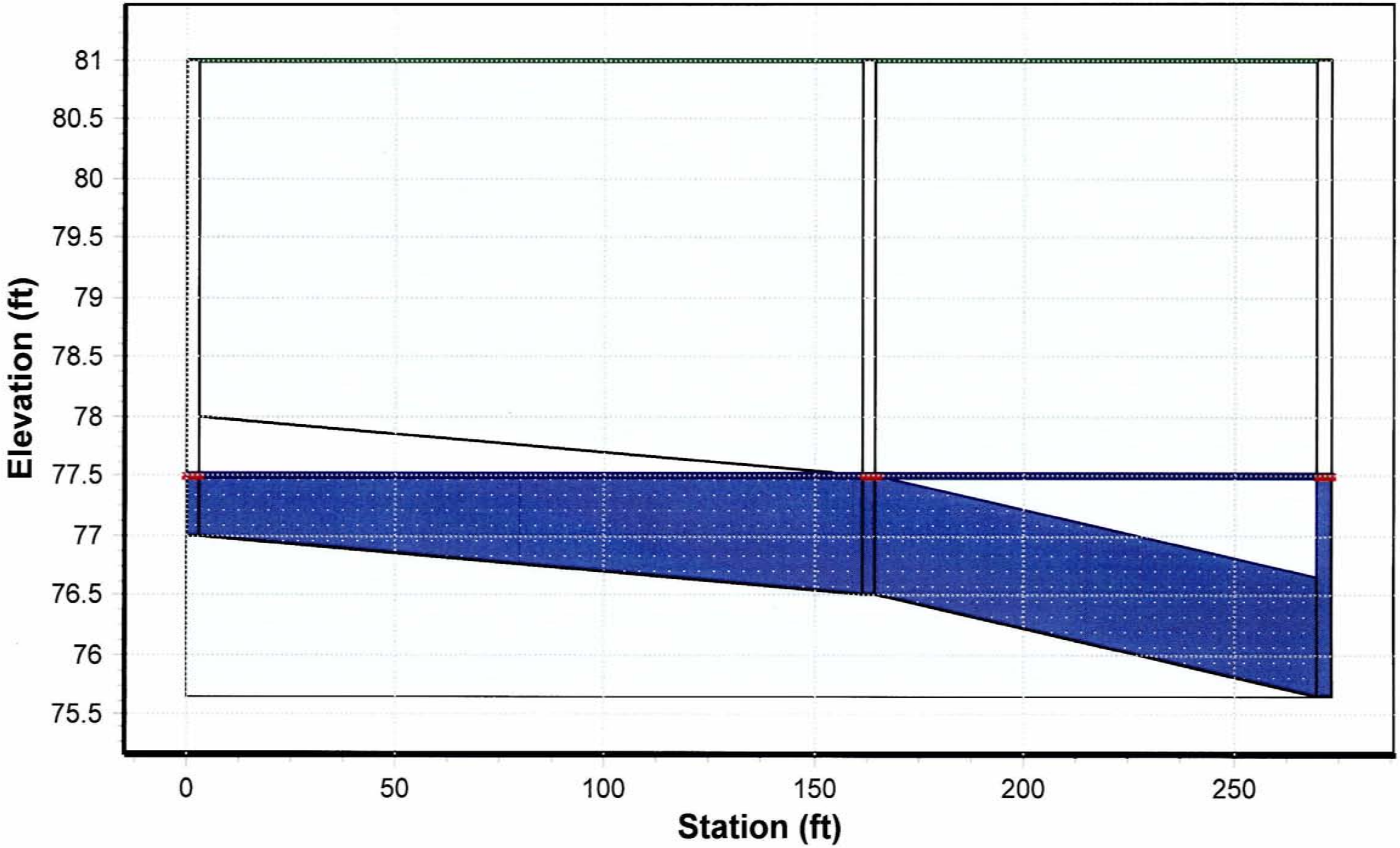
100-YEAR STORM

Profile - 4 - Base Time: 09:55:00



100-YEAR STORM

Profile - 4 - Base Time: 24:00:00



STAGE - STORAGE FOR RECTANGULAR BASIN WITH ACCESS RAMP 2/20/2009

ELEV FT	AREA SqFt	AREA Acres	Incremental Volume Ac-Ft	Cumulative Volume Ac-Ft	COMMENT
75.00	15922	0.37			
75.50	16742	0.38	0.19	0.19	
76.00	17574	0.40	0.20	0.38	
76.50	18420	0.42	0.21	0.59	
77.00	19279	0.44	0.22	0.81	
77.50	20150	0.46	0.23	1.03	100-yr Peak
78.00	21036	0.48	0.24	1.27	
78.50	21937	0.50	0.25	1.52	
78.56				1.55	1.5x100-yr Peak
79.00	22852	0.52	0.26	1.77	
79.15				1.85	179.36% Volume w/ 1-foot of FB
79.50	23782	0.55	0.27	2.04	
79.53				2.06	2x100-yr Peak 0.62 Ft of FB
80.00	24752	0.57	0.28	2.32	
80.15	25130	0.58	0.09	2.41	

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2

Precipitation Frequency Data Output

NOAA Atlas 2

California 37.5753?N 120.9853?W

Site-specific Estimates

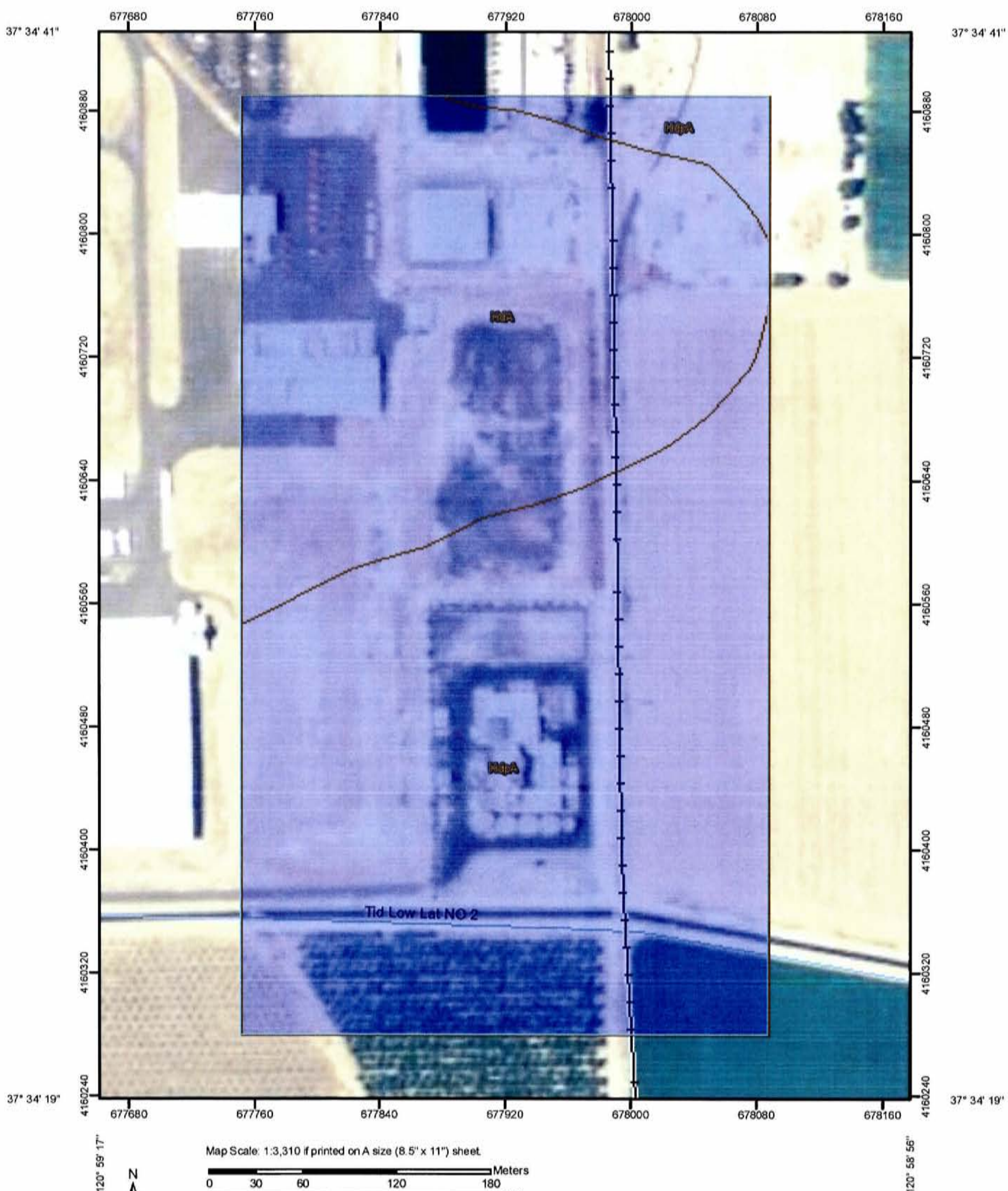
Map	Precipitation (inches)	Precipitation Intensity (in/hr)
2-year 6-hour	0.89	0.15
2-year 24-hour	1.33	0.06
100-year 6-hour	1.85	0.31
100-year 24-hour	2.70	0.11

Hydrometeorological Design Studies Center - NOAA/National Weather Service
1325 East-West Highway - Silver Spring, MD 20910 - (301) 713-1669

Thu Jan 8 16:09:54 2009

Hydrologic Soil Group—Eastern Stanislaus Area, California
(Almond 2 Power Plant)

2



Map Scale: 1:3,310 if printed on A size (8.5" x 11") sheet.

Meters: 0, 30, 60, 120, 180

Feet: 0, 100, 200, 400, 600

25

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Soil Ratings

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Political Features

- Cities

Water Features

- Oceans
- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:3,310 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eastern Stanislaus Area, California
Survey Area Data: Version 5, Dec 17, 2007

Date(s) aerial images were photographed: 6/12/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Eastern Stanislaus Area, California				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HdA	Hanford sandy loam, 0 to 3 percent slopes	B	20.6	40.7%
HdpA	Hanford sandy loam, moderately deep over silt, 0 to 1 percent slopes	B	30.0	59.3%
Totals for Area of Interest			**50.7**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

ATTACHMENT DR66-1

Draft Drainage Erosion and Sediment Control Plan

ATTACHMENT DR66-1

Draft Drainage Erosion and Sediment Control Plan

Due to the size of this document, five hard copies have been provided to the California Energy Commission. Additional electronic copies will be provided upon request.

Traffic and Transportation (70–71)

Background

The AFC does not include information about school bus routes and, if necessary, mitigation to ensure that construction worker traffic, or truck traffic would not interfere with school bus service or compromise the safety of the bus or school children.

Data Request

70. a. Please provide information about school bus service on roads also used by A2PP construction traffic, including bus routes, times of service, and stops.

    b. If school bus routes will coincide with construction travel routes, please discuss mitigation for potential traffic safety impacts.

Response:

a. According to Nancy Krigbaum (Ceres Unified School District), fixed-route bus service is offered to students, but can be modified to on-demand bus service when for individual students as needed.

   The address of the school serviced is 5218 Carpenter Road. The roads traveled are Crows Landing Road, Service Road, Grayson Road, Whitmore Road and Keyes Road. If there is construction on any of the roads, buses will try to avoid the areas affected. There are a few bus stops along Crows Landing Road, including across the street from the construction site.

   Times for morning student pick-up are 6:30-8:45. Midday times are 11:00-1:00. Afternoon times are 3:00-4:30. Evening times are 5:00-6:15.

b. Although construction would occur concurrently with school bus services, as identified in the AFC, all of the study intersections will operate at the same level of service during construction as they do currently. Therefore the slight increase in traffic in these intersections is anticipated to be similar to existing conditions, and will only occur for a 12 month window during construction. In addition, the Worker Environmental Training Program will include specific directions for all construction workers about the bus stop and student safety. The Applicant will also contact the school district prior to construction of the plant and linear facilities and provide them with information on the construction schedule.

Background

In the AFC (Section 5.12.2.7, Rail Traffic), the Union Pacific Rail Road tracks are identified as being located east of the project site and not providing passenger service. Staff needs this information for a complete analysis of potential impacts on the local/regional transportation network.

Data Request

71. Please provide the following information concerning the rail road tracks:

    a. The purpose of the tracks.

    b. The potential for the rail line to be used for delivery of heavy equipment to the site.

Response:

a. The railroad tracks that are adjacent to the project site are currently used for the transportation of, among other things, food items (cheese, herbs, frozen foods) to/from the industrial park located in the City of Turlock which is past the Foster Farms plant. Rail deliveries also include feedstock for the Foster Farms Plant. The Foster Farms plant is located southeast of the corner of S. Washington Road and W. Main Street in Turlock, CA, approximately 5 to 6 miles south of the A2PP.

b. The railroad tracks will not be used by the Project to deliver equipment to the construction site, as the Project has no need for heavy haul services. Further the tracks are not designed for heavy loads. All equipment will be delivered by truck.

Transmission System Engineering (72–74)

Background

The California Environmental Quality Act (CEQA) requires the identification and description of the "Direct and indirect significant effects of the project on the environment." Consideration of the AFC requires discussion of the energy resource impacts which may result from the construction or operation of the power plant. For the identification of impacts on the transmission system resources and the indirect or downstream transmission impacts, staff relies on the System Impact and Facilities Studies to insure the interconnecting grid meets reliability standards. The studies analyze the effect of the proposed project on the ability of the transmission network to meet reliability standards. When the studies determine the project will cause a violation of reliability standards, the potential mitigation or upgrades required to bring the system into compliance are identified. The mitigation measures often include the construction of downstream transmission facilities. CEQA requires the analysis of any downstream facilities for potential indirect impacts of the proposed project. Without a complete System Impact Study or Facility Study, staff is not able to fulfill the CEQA requirement to identify the indirect effects of the proposed project.

Data Request

72. Please provide the final System Impact Study. The Study should analyze the system impacts with and without the project during peak and off-peak system conditions, and demonstrate conformance or non-conformance with the utility reliability and planning criteria with the following provisions:

    a. Identify major assumptions in the base cases including imports to the system, major generation and load changes in the system and queue generation.

    b. Analyze the system for N-0, important N-1 and critical N-2 contingency conditions and provide a list of criteria violations in a table showing the loadings before and after adding the new generation.

    c. Analyze short circuit duties.

    d. Analyze system for Transient Stability and Post-transient voltage conditions under critical N-1 and N-2 contingencies, and provide related plots, switching data and a list for voltage violations in the studies.

    e. Provide a list of contingencies evaluated for each study.

    f. List mitigation measures considered and those selected for all criteria violations.

    g. Provide electronic copies of *.sav and *.drw PSLF files.

    h. Provide power flow diagrams (MW, percent loading & P. U. voltage) for base cases with and without the project. Power flow diagrams must also be provided for all N-0, N-1 and N-2 studies where overloads or voltage violations appear. Provide the pre and post project diagrams only for an elements largest overload.

Response: See Applicant's letter of September 2, 2009, requesting additional time for this request. The System Impact Study is currently being prepared and is anticipated to be submitted to Staff in October 2009.

73. Provide the existing TID internal generation capacity during peak and off-peak conditions without the proposed A2PP.

Response: Table DR73-1 provides the existing TID internal generation capacity during peak conditions (prior to the energization of the proposed Almond 2 Power Plant). During off-peak conditions, WEC may be dispatched around 190 MW and Don Pedro at 10 MW - all other generation may be off-line.

TABLE DR73-1
Existing TID Internal Generation Capacity

Plant	Unit	Max MW Generation
Don Pedro	1	55
Don Pedro	2	55
Don Pedro	4	38
Almond	1	48
Walnut CT	1	24 (peaking unit)
Walnut CT	2	24 (peaking unit)
WEC	1	82.3
WEC	2	82.3
WEC	3	93.6
LaGrange	1	5
Dawson	1	5

74. Provide the existing maximum TID loads during peak and off-peak conditions.

Response: The TID Balancing Authority includes both TID and the Merced Irrigation District (MeID). Table DR74-1 itemizes TID, MeID, and TID Balancing Authority loads and losses.

TABLE DR74-1
Local System Loads & Losses Summary

Area	Heavy Summer Peak (Historical)	Winter Minimum (Historical)
TID	490 MW	140 MW
MeID	90 MW	30 MW
TID + MeID (Total)	580 MW	170 MW

Waste Management (75–79)

Background

The Integrated Waste Management Act of 1989 (AB 939) established landfill waste diversion goals of 50 percent by the year 2000 for state and local jurisdictions. To meet the solid waste diversion goals, many local jurisdictions have implemented Construction and Demolition Waste Diversion Programs.

Data Requests

75. Please identify whether the City of Ceres or Stanislaus County operates a Construction and Demolition Waste Diversion Program, and cite the jurisdiction to which the A2PP Project would be accountable.

Response: Neither Stanislaus County nor the City of Ceres currently has an approved construction and demolition ordinance that would institute a Construction and Demolition Waste Diversion Program for the county or the city[22].

76. Please describe how project operations will meet each of the requirements of the program cited in the previous data request.

Response: Please see Data Response #75.

Background

The A2PP applicant is proposing a 9.1 or 11.1-mile natural gas pipeline that has not been evaluated in an ASTM Standard E1527-05 Standard Practice for Environmental Site Assessments (Phase I ESA) or equivalent.

Review of information in the AFC suggests the natural gas pipeline alignment transverses property where there may be current and past agricultural activity. Sites where there is or has been agricultural activity may have concentrations of pesticides in soil that can be harmful to construction personnel and the public when disturbed by project construction.

For any site in California proposed for the construction of a power plant including linear facilities, the applicant must provide documentation about the nature of any potential or existing releases of hazardous substances or contamination at the site. If potential or existing releases or contamination at the site are identified, the significance of the release or contamination would be determined by site-specific factors, including, but not limited to: the amount and concentration of contaminants or contamination; the proposed use of the area where the contaminants/contamination is found; and any potential pathways for workers, the public, or sensitive species or environmental areas to be exposed to the contaminants (Siting Regulations Appendix B (g)(12)(A)).

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[22] CIWMB, 2009. California Counties Disposal Destination Data – Stanislaus County. http://www.ciwmb.ca.gov/LGcentral/Summaries/CountyInfo.asp. August 2009.

The A2PP natural gas pipeline alignment has not been evaluated in accordance with the regulations cited above. In order to satisfy this requirement and exercise due diligence to ensure there are no contaminants that would pose a health and safety risk, the applicant should conduct a Phase I ESA for the natural gas pipeline.

Data Request

77. Please provide a Phase I ESA or equivalent for the proposed 9.1- or 11.1-mile natural gas pipeline.

Response: See Applicant's letter of September 2, 2009, requesting additional time for this request. PG&E and the Applicant are in the process of finalizing the gas line route and will be submitted to Staff in as soon as improvements to the PG&E system to serve the A2PP are finalized (expected in late September 2009/early October 2009). This response will include a database search of the natural gas pipeline as well as a brief discussion of the database results.

78. a Please identify the type of crops grown over as long a period as records indicate.

    b. Please list the historical use and identity of pesticides (including organic and inorganic pesticides, and herbicides), and a statement of the likelihood of finding levels of pesticides along the pipeline route that might present a risk to pipeline workers and/or the public.

Response: See Applicant's letter of September 2, 2009, requesting additional time for this request. Please see also Data Response #77. A list of historical use and identity of pesticides will be included. However, it is assumed, due to the agricultural nature along the gas pipeline route, pesticides may be present in the soils surrounding the pipeline. However, since the gas pipeline will be constructed, owned, and operated by PG&E and not TID, appropriate PG&E worker health and safety guidance will be followed.

79. Please provide results of screening and analysis for pesticides or any contaminants of concern that are identified in the Phase I ESA for the gas pipeline alignment.

Response: See Applicant's letter of September 2, 2009, requesting additional time for this request. Please see also Data Response #77. It is not anticipated at this time that additional sampling will be conducted along the gas pipeline route.

Worker Safety & Fire Protection (80–84)

Background

The AFC (Section 2.1.11) states that the A2PP will share the firewater storage tank, fire-loop system and fire pumps with the existing APP and that the system would be sized to provide two hours of fire protection according to National Fire Protection Agency guidelines. The AFC also states that the existing fire pump will maintain pressure in the fire loop system, but no details are provided that describe whether the existing water fire control system is adequate to provide water for both power plants at the same time. Also, information is needed about the safety showers and eye washes.

Section 2.1 of the AFC describes the primary access point to the project site would be from Crows Landing Road off Highway 99. A secondary access point for emergency response is not identified. All power plants certified by the Energy Commission are required to have two access points to the project site.

Staff needs to know this information in order to properly asses the on-site fire suppression systems and emergency response access and consider necessary and appropriate Conditions of Certification to protect workers, critical energy infrastructure, and the off-site public.

Data Requests

80. Please provide specific information on:

    a. The amount of stored water dedicated for fire protection and;

    b. The types of pumps (electric or diesel) that maintain pressure in the fire loop system.

Response:

a. The existing firewater storage tank is 250,000 gallons and dedicated solely for fire protection.

b. The types of pumps that maintain pressure in the fire loop system are: one electric 3 HP jockey pump, rated for 20 gpm @ 130 psi and one 240 HP diesel-driven pump, rated for 2000 gpm @ 125 psi, firewater pump.

81. Please provide the details and identity of the proposed fixed firefighting equipment that will be on-site during the construction phase.

Response: The existing fire protection equipment at the Almond Power Plant will be available during the construction period for fire protection via the existing hydrants. Additional hoses will be available from the existing hydrants to reach the far extremes of the construction site in case a fire breaks out in the construction area. The fire loop addition and hydrants will be installed early in the construction phase of the project to provide permanent protection.

82. Please provide a technical evaluation that ensures that the entire fire water storage system, water flows, and emergency pumps can provide the needed flow, pressure, and duration of flow (minimum of 2 hours) for both the APP and A2PP at the same time should a concurrent fire at both power plants require fire-fighting water.

Response: The current fire pump simultaneously produces 137 psig @ 500 gpm at the furthest hydrant and 138 psig @ 750 gpm at the largest fire protection user, the transformer deluge system. The hydrants are designed to meet spacing requirements (<300′), which coincides with the current plant hydrant spacing.

The fire protection pump is the only user of the 250,000-gallon fire water tank. The fire water tank will provide over 3 hours of fire protection water with one hydrant and one transformer deluge system (largest user) operating.

83. Please describe the gates and locations of the primary and secondary access points to the power plant and mechanism by which emergency responders will be able to enter at either location should power plant personnel not be available.

Response: Primary access is an industry standard, remote/card activated, motorized, roller based, sliding cantilever chain link gate located on the southwest corner of the property. Access is provided via the existing plant access from Crow's landing road via Black Eye Pea Way.

Secondary access will be an industry standard, swing type, manually operated, double-wide chain link gate. This secondary access gate will be located approximately 200 feet east of the existing primary access, within the existing Almond Power Plant southern fence line. Emergency vehicles have continuous direct access to the secondary gate as needed, however the road to the secondary access will not be paved. Figure DR83-1 identifies the location of the secondary gate.

84. Please provide additional information on whether the safety showers and eyewashes will be self-contained units or use potable water. In either case, please provide the flow rate and if self-contained, the available flow-time.

Response: Emergency Eye Washes and Safety Showers (SSEWs), whether portable/self contained or plumbed with potable water, will be specified to meet criteria set forth in the ANSI Z358.1-2004 standard, and compliant with cross referenced OSHA 29 CFR 1910.151.

Seven plumbed SSEWs are anticipated to be installed at:

- Two plumbed SSEWs installed on each of the three power islands at the following locations (for a total of six):
  - One plumbed SSEW at each Anhydrous Ammonia injection skid;
  - One plumbed SSEW at each GE Auxiliary Module; and
- One plumbed SSEW installed in the Fuel Gas Area.

Flow rate and duration for these seven plumbed installations will be:

- 3.0 gpm, for 15 minutes for eye/face washes
- 20 gpm for 15 minutes for showers

Four Self Contained Portable Eyewash Stations are anticipated to be placed at:

- 1 self-contained eyewash station in each of the three CTG Control Buildings
- 1 self-contained eyewash station in the Power Distribution Center.

Flow rate and duration for these four self-contained installations will be 0.4 gpm, for 15 minutes.

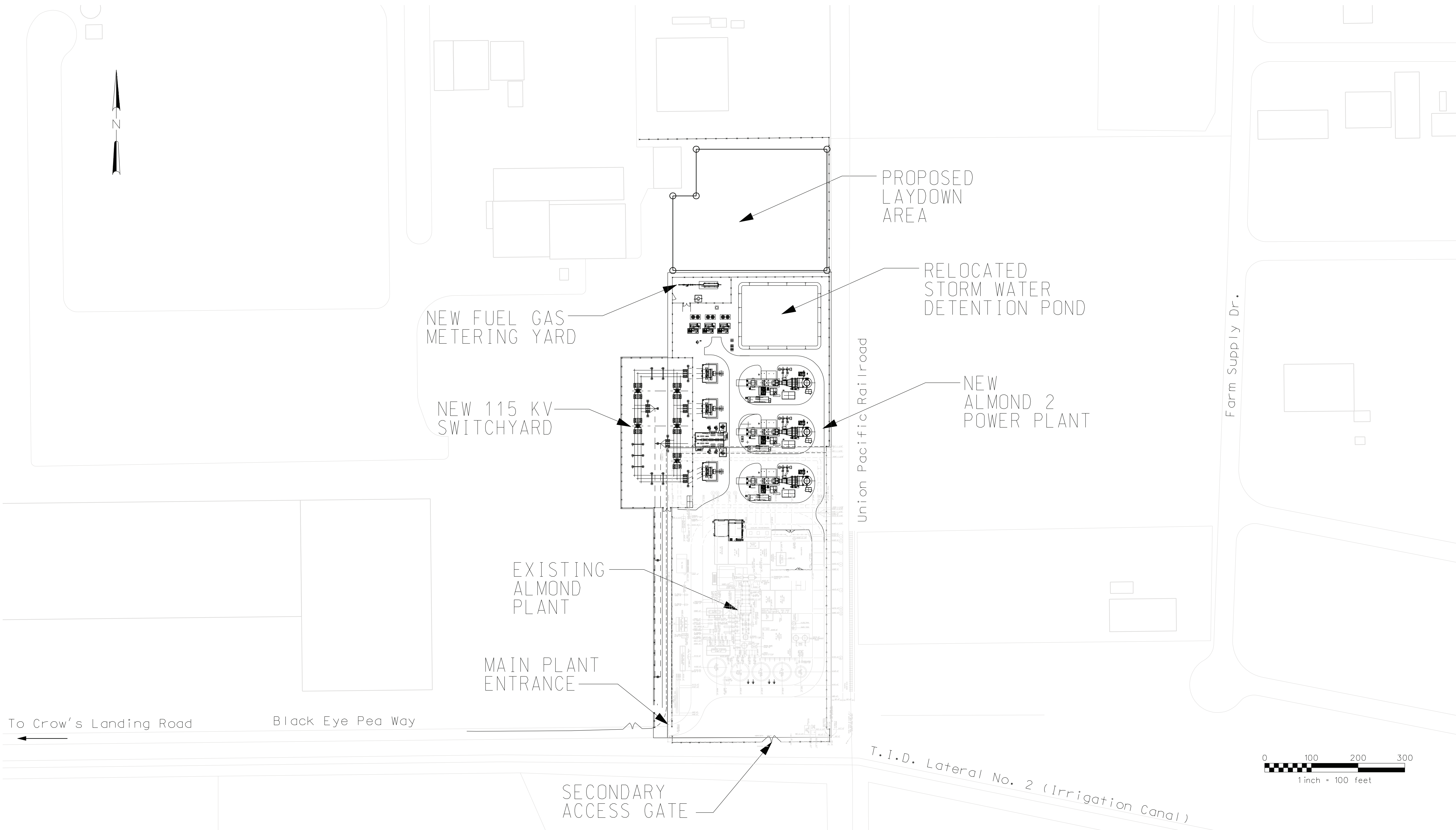

FIGURE DR83-1
LOCATION OF SECONDARY ACCESS TO A2PP
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

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EY012009003SAC Figure_DR_83-1.ai 09.10.09 tdaus

Visual Resources (Staff Query 1)

Background

On August 5th, Staff and TID representatives spoke via telephone regarding the Key Observation Point (KOPs) provided in the AFC. Staff requested a site visit with TID representatives to select new KOPs. On August 28th, Staff and TID representatives conducted a site visit to reevaluate the existing KOPs and to revise the KOPs if needed.

Data Requests

SQ-1. Please provide additional information regarding the selected KOPs and character photos discussed during the August 28, 2009 site visit.

Response: On August 5th, CEC Staffer Jim Adams, contacted TID representatives regarding the visual resource analysis (Section 5.13) of the TID Almond 2 Power Plant (A2PP) Application for Certification (AFC) submitted on May 11, 2009. Based on a site visit conducted between CEC Staff and TID representatives on August 28, 2009, the Applicant and the Staff have reduced the number of Key Observation Points (KOPs) submitted as part of the visual resources analysis from five to two, focusing on the effects on people in general, and not persons in particular.

The A2PP is set back from the street and is largely screened by other structures and trees. Views from the west are blocked by the WinCo Foods distribution warehouse, views from the south are blocked seasonally by an orchard and a corn field, views from the east are largely blocked by industrial facilities, and views from the north are blocked by industrial facilities, trees, and a retaining wall.

The two KOPs retained are more representative because they are visible by more viewers from vantage points where the project can be seen by the general public. The two retained KOPs represent the perspective of motorists (KOP-1) and the general public from a nearby golf course (KOP-2) as opposed to views from a single residence. The views retained represent only the frontal rather than oblique views since frontal views are considered to be more representative of what the public could see.

Former KOPs

KOP 1: eliminated from consideration because the project site would not be visible from the main access road to the neighborhood along Brown Avenue nor from a communal gathering place such as the park on Brown Avenue.

KOP 2: eliminated because it represents an oblique view of approximately 50 degrees if traveling south on Crows Landing Road and also represented the view from a minimal number for residences.

KOP 3: was retained and renumbered as KOP 2. See discussion of New KOP 2 below.

KOP 4: was eliminated because the project would not be visible from this vantage point.

KOP 5: was retained and renumbered as KOP 1. See discussion of New KOP 1 below.

New KOPs

KOP 1 (Formerly KOP 5)
Figure SQ-1A (Photo A) depicts the view from KOP 1, a viewpoint looking south along Crows Landing Road from a point directly west of the project site. This KOP was selected to represent views of the proposed transmission Corridor 2.

Existing view:
The character of the view is primarily industrial. The foreground on the right side of the image contains the plants and fence of a residential front yard. On the left side of the image, a grassy area enclosed by a chain link fence marks the edge of the WinCo warehouse distribution facility. A wood pole transmission line flanks the right side of Crows Landing Road, and a 230 kV transmission line supported by steel towers crosses Crows Landing Road. Buildings, trees, and transmission lines that are difficult to distinguish characterize the middle and background of the image.

Applying the scale presented in Table 5.13-1 of the AFC, this view is rated as having a low level of visual quality. There are no memorable elements in the landscape so the level of vividness is low. The foreground is dominated by transmission lines and the background contains a mix of land uses that is visually incoherent. As such, the image has a low level of visual intactness and unity.

The stretch of Crows Landing Road presented in the image is traveled by approximately 1,200 vehicles per rush hour period. The level of visual sensitivity of motorists is assumed to be moderate.

Simulated view:
Figure SQ-1A presents a photo of the existing view looking south down Crows Landing Road (Photo A) and a simulation of the view as it would appear during the project's operational period (Photo B). Comparison of the two images indicates that when the project is in place, the view will be dominated by transmission lines. The existing view already contains a transmission corridor along the front and another along the right side of the image. Transmission lines now line both sides of the street. Visual unity is increased because the new line parallels the existing wooden pole line bringing symmetry to the image. However, visual intactness decreases because of the increased number of visually disparate elements that compose the image. From this view, the project elements do not harmonize with elements of the view but dominate them. The visual quality of the existing view is already rated low and will continue to be rated low with project-related changes.

KOP 2 (Formerly KOP 3)
KOP 2 (Figure SQ-1B Photo A) is the view from the edge of the parking lot of the St. Stanislaus Golf Course, a public, nine-hole golf course located at the intersection of Crows Landing Road and Grayson Road, approximately 0.75 miles southeast of the project site. The view in KOP 2 was taken from the access point to the parking lot and represents the view of golf course users upon entering and exiting. Golf course usage is estimated to be 30-40 visitors per week day and 50-100 per weekend day (R. Ramont, personal communication, September 1, 2009).

The view in KOP 2 is representative of views from the golf course parking lot in fall and spring months when the agricultural field north of Grayson Road is fallow. During the corn growing season in summer and early fall, views of the project facility may be blocked (see Figure SQ-1C).

Existing view:

KOP 2 contains rural elements but is dominated by industrial elements. The foreground contains an agricultural field that is flanked by an orchard. Behind the orchard, the top half of the existing power plant is visible along with the 230 kV transmission line and the WinCo distribution warehouse. The visual quality of the view is moderately low. As in KOP 2, the landscape elements are not distinctive and thus have low level of vividness. The landscape contains no coherent pattern and contains visually discordant elements such as industrial facilities adjacent to agricultural fields and orchards. As such, there is a moderately low level of visual intactness and unity.

Simulated view:

Figure SQ-1B presents a photo of the existing view toward the project site from the golf course (Photo A) and a simulation of the view as it would appear during the project's operational period (Photo B). Comparison of the two images indicates that when the project is in place, the new transmission lines will cause more visual impact than the new power plant. Though the three new plant stacks are visible in the background, they are adjacent to an existing plant. Project plant facilities are the same height as the Almond Power Plant and appear to be part of the same complex. Due to its distance from the KOP, the new plant facilities do not dominate the view and cause relatively little visual impact.

However, the two new transmission line corridors (1 and 2) reduce the visual quality of the view. The new corridors extend from the background to the foreground of the view where they converge to connect to the proposed Grayson Substation. From this vantage point, the organization of the poles is not readily discernible. The poles visually encroach on the field and clutter the foreground. The intactness and unity of the view is decreased, changing the visual quality of the image from moderately low to low.

A. KOP-1. Existing view toward Corridor 2 from Crows Landing Road.

B. KOP-1. Simulated view toward Corridor 2 from Crows Landing Road.

FIGURE SQ-1A
KOP-1 VIEW OF CORRIDOR 2
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

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A. KOP-2. Existing view toward the project site from golf course exit during agricultural fallow season (late fall through early spring).

B. KOP-2. Simulated view toward the project site from golf course exist during agricultural fallow season (late fall through early spring).

FIGURE SQ-1B
KOP-2 VIEW FROM THE GOLF COURSE
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

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KOP-2. Existing view toward the project site from golf course exit during corn growing season (late spring through early fall).

FIGURE SQ-1C
KOP-2 VIEW FROM THE GOLF COURSE
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

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APPLICATION FOR CERTIFICATION

   

SUBMITTED TO

California Energy Commission

FOR

TID Almond 2 Power Plant

SUBMITTED BY

Turlock Irrigation District

TECHNICAL ASSISTANCE BY

CH2MHILL

September 2009

Attachment DR66-1
Draft Drainage Erosion and Sedimentation Control Plan

Drainage, Erosion, and Sedimentation Control Plan for the Almond 2 Power Plant Project

Prepared for

Turlock Irrigation District

September 2009

CH2MHILL
2485 Natomas Park Drive
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Drainage, Erosion, and Sedimentation Control Plan for the Almond 2 Power Plant Project

Submitted to

Turlock Irrigation District

September 2009

CH2MHILL

Contents

Appendices

Acronyms and Abbreviations

A2PP	Almond 2 Power Plant
bgs	below ground surface
BMPs	best management practices
CDFG	California Department of Fish and Game
cfs	cubic feet per second
DESCP	Drainage, Erosion and Sedimentation Control Plan
DTSC	Department of Toxic Substances Control
EPA	U.S. Environment Protection Agency
GE	General Electric
kV	kilovolt
MSDS	Material Safety Data Sheet
MW	megawatts
NPDES	National Pollutant Discharge Elimination System
OES	Office of Emergency Services
PG&E	Pacific Gas and Electric Company
RUSLE2	Revised Universal Soil Loss Equation
RWQCB	Regional Water Quality Control Board
SWPPP	Stormwater Pollution Prevention Plan
TBD	To be determined
TID	Turlock Irrigation District
TSP	Total suspended particulates
USFWS	U.S. Fish and Wildlife Service
WinCo Foods	WinCo
yd^3	cubic yards

Almond 2 Power Plant Project Drainage, Erosion, and Sedimentation Control Plan

Turlock Irrigation District (TID) proposes to construct, own, and operate an electrical generating plant in Ceres, Stanislaus County, California. The Almond 2 Power Plant (A2PP) would be a nominal 174-megawatt (MW) facility consisting of three General Electric (GE) Energy LM6000PG SPRINT natural gas-fired turbine generators and associated equipment. The A2PP is to be located on an approximately 4.6-acre parcel adjacent to and north of the existing 48-MW TID Almond Power Plant. The project address is 4500 Crows Landing Road, Modesto, California. Although the site address identifies the site in Modesto, the project site is located within the city limits of Ceres, and is approximately 2 miles from the Ceres city center. Modesto is approximately 5 miles to the north. The approximately 1.85-acre construction laydown and parking area will be adjacent to the northern border of the project site on property owned by WinCo Foods (WinCo). The project location is shown in Figure 1.

The A2PP project will include a new natural gas supply which is still in the process of being finalized between PG&E and TID. The final route will be selected in late September 2009/early October 2009. Additionally, the A2PP will be interconnected to the TID system via two 115-kV transmission lines (Corridor 1, approximately 0.9 mile long, and Corridor 2, approximately 1.2 miles long), which will extend south to the proposed Grayson Substation.[1] The project will also require that TID reconductor 2.9 miles of an existing 69-kilovolt (kV) sub-transmission line from the Almond Power Plant to the TID Crows Landing Substation that currently serves parts of the cities of Ceres and Modesto as well as surrounding rural areas.

Figure 2 is an artistic rendering of the project. The main project features include the following components:

- A nominal 174-MW, natural gas-fired, simple-cycle plant, which will consist of three 58-MW GE LM6000PG turbines with SPRINT (spray intercooling) natural gas-fired combustion turbine; and associated support equipment
- A new 115-kilovolt (kV) switchyard
- Two 115-kV transmission line corridors. Corridor 1 is approximately 0.9 mile long, and Corridor 2 is approximately 1.2 miles long

[1] The proposed Grayson Substation is a component of the TID Hughson-Grayson 115-kV Transmission Line and Substation Project. In addition to the substation, the Hughson-Grayson project consists of an approximately 10-mile-long, 115-kV transmission line; a 0.5-mile-long, 69-kV transmission line from the existing TID Almond Power Plant; and a second 69-kV transmission line that extends 0.8 mile east from the proposed substation. An environmental impact report for the Hughson-Grayson project (State Clearinghouse Number 2009012075) is currently being prepared. The Notice of Preparation was issued on January 26, 2009, and reissued February 10, 2009. The Draft Environmental Impact Report was issued in August 2009.

- The reconductoring of approximately 2.9 miles of an existing 69-kV sub-transmission line to enhance system reliability
- A new natural gas supply that will connect to PG&E gas line #215
- Onsite interconnection to the existing water treatment and discharge systems for the Almond Power Plant. Reclaimed water for these systems is provided by and discharged to the City of Ceres Wastewater Treatment Plant.

Because the existing Almond Power Plant and the A2PP will be adjacent to each other and both will be owned and operated by TID, some existing facilities will be shared between the two plants without modification, while the maintenance shop / warehouse building will require minor modification to allow for the A2PP (see Figure 3 for the general arrangement). Facilities of the existing Almond Power Plant that are not shared between the two sites are not part of the A2PP project, and, therefore, have not been considered further.

A new stormwater retention pond will be constructed to accommodate the stormwater runoff from both the A2PP and the existing Almond Power Plant.

TID has prepared this Drainage, Erosion and Sedimentation Control Plan (DESCP) for the A2PP project to demonstrate that construction activities associated with the project will not result in an increase in offsite flooding potential or sedimentation and that the project will meet all local, state, and federal regulatory requirements associated with the protection of water quality and soil resources. The DESCP includes the following elements:

- A vicinity map showing the location of all project elements with depictions of all significant geographic features including swales, storm drains, and sensitive areas
- A detailed site delineation that includes the boundary lines of all areas subject to disturbance and the location of existing and project structures, pipelines, roads, and drainage facilities will be provided in the final DESCP.
- Watercourses and critical areas including water courses, critical areas, and existing/project drainage systems
- Site maps showing existing site drainage; maps depicting interim and project drainage systems to protect the site and downstream facilities, and drainage area boundaries will be provided in the final DESCP.
- Narrative of the project site drainage including appropriate measures to be taken to protect the site and downstream facilities; preliminary hydrology calculations are provided in Appendix B.
- Preliminary Grading and Drainage Plan discharging to an onsite retention pond
- Clearing and grading plans including delineation of all areas to be cleared of vegetation and areas to be preserved will be provided in the final DESCP; the plans will provide contours and cross sections, elevations, slopes, locations, and the extent of all project grading.

- The location of Best Managements Practices (BMPs) to be implemented during construction will be indentified on a topographic site map and provided in the final DESCP.

A. Vicinity Map

The project address is 4500 Crows Landing Road, Modesto, California (Assessor's Parcel Number is 041-006-039) - a 4.6-acre parcel adjacent to and north of the existing 48-MW TID Almond Power Plant. Surrounding land uses include a WinCo distribution warehouse to the west, a farm supply facility to the north, and various industrial facilities (modular building distributor and drilling equipment storage laydown area) to the east. The project site was previously used by WinCo as a borrow pit during construction of the WinCo distribution warehouse before being filled and graded to the current site elevation. Construction access will be from Crows Landing Road.

Project vicinity maps are shown in Figures 4A through 4C with project features identified including the power plant site, electrical transmission lines, and the construction laydown and parking area[2].

B. Site Delineation

Figures 5A, 5B, and 5C show general grading and drainage plans. Figures 3 and 4A – 4C show the project features and associated areas subject to soil disturbance. Boundary lines of all construction areas, including the construction laydown and parking area and linear facilities, will be further defined in the final design phase of the project and the DESCP will be updated accordingly.

Construction impacts on soil resources can include increased soil erosion and soil compaction. Because conditions that could lead to excessive soil erosion are not present at the A2PP project site (e.g., no long, steep slopes or erodible soils), little soil erosion is expected during the construction period. In addition, erosion and sediment control BMPs will be implemented during construction, as will be discussed below. While the potential for soil erosion on the A2PP project site is expected to be nominal, quantitative estimates of erosion by water and wind are provided.

An estimate of soil loss during construction by water erosion was developed using the Revised Universal Soil Loss Equation (RUSLE2), and is summarized in Table 1[3]. Detailed calculations for the soil loss estimates, including assumptions and conditions, are found in Appendix A.

[2] Natural gas line details will be provided once the final route has been selected. A figure identifying the gas line route will be incorporated in the final DESCP.

[3] Natural gas line details will be provided once the final route has been selected. Table 1 will be updated in the final DESCP.

TABLE 1
Construction Soil Loss Estimates Using the Revised Universal Soil Loss Equation[a]

Feature (acreage)[b]	Activity	Duration (months)	Soil Loss (tons) without BMPs	Soil Loss (tons) with BMPs	Soil Loss (tons/yr) No Project
Project Site (4.60 acres)	Grading	2	0.84	0.0010	0.0078
	Construction	12	0.22	0.0061	—
Laydown and Parking Area (1.85 acres)	Grading	1	0.28	0.0017	0.0043
(0.925 acres exposed; 0.925 paved or graveled)	Construction	12	0.74	0.020	—
Transmission Lines					
Corridor 1 (1.56 acres for construction; 0.0066 acre for pole footprints)	Grading	2	0.0016	0.0045	0.0000
	Construction	4	0.33	0.0090	—
Corridor 2 (2.16 acres for construction; 0.0092 acre for pole footprints)	Grading	2	0.0023	0.0065	0.0000
	Construction	4	0.47	0.013	—
Reconductored 69-kV sub-transmission line (0.00 acre for construction; 0.00 acre for pole footprints – Reconductoring only)	Grading	0	0.0000	0.0000	0.0000
	Construction	0	0.0000	0.0000	—

[a]Soil losses (tons/acre/year) are estimated using RUSLE2 software available online at: http://fargo.nserl.purdue.edu/rusle2_dataweb/ (verified 23 Jan 2009).

[b]Acreages assume 30-foot corridors for the transmission lines and 100-foot corridors for the natural gas construction corridor. Trench for the natural gas pipeline is assumed to be 4 feet wide. Transmission line pole holes are assumed to have a 4-foot-by-4-foot excavation footprint.

With the implementation of appropriate BMPs, the total project soil loss is estimated to be 1.53 tons. This is considered to be a minimal amount.

The potential for wind erosion of surface soil was estimated by calculating the total suspended particulates (TSP) that could be emitted as a result of grading and the wind erosion of exposed soil; reference Appendix A for detailed calculations for the soil loss estimates, including assumptions and conditions.

Table 2[4] summarizes the mitigated TSP predicted to be emitted from the site from grading and the wind erosion of exposed soil.

4 Natural gas line details will be provided once the final route has been selected. Table 2 will be updated in the final DESCP.

TABLE 2
Soil Loss (TSP) from Grading and Wind Erosion

Emission Source	Acreage	Duration (months)	Unmitigated TSP (tons)	Mitigated TSP (tons)
Grading Dust				
Project Site	4.60	2	0.158	0.055
Laydown and Parking Area	1.85	1	0.032	0.011
Transmission Line Pole Holes				
Corridor 1	0.007	2	0.0002	0.0001
Corridor 2	0.009	2	0.0003	0.0001
Reconductored 69-kV sub-transmission line	0.000	2	0.0000	0.0000
Transmission Line Total	0.016		0.0005	0.0002
Wind Blown Dust				
Project Site	4.60	10	0.146	0.051
Laydown and Parking Area	0.00	11	0.000	0.000
Transmission Line Corridor				
Corridor 1	1.557	4	0.197	0.069
Corridor 2	2.164	4	0.274	0.096
Reconductored 69-kV sub-transmission line	0.000	4	0.000	0.000
Transmission Line Total	3.721	4	0.471	0.165
Estimated Total			**0.81**	**0.28**

With implementing basic BMPs, the maximum predicted erosion of material from the site is estimated at 3.36 tons over the course of the project construction cycle.

Activities such as grading can potentially increase rates of erosion during construction. In addition, construction materials could contaminate runoff or groundwater if not properly stored and used. The National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activity (General Permit; Water Quality Order 99-08-DWQ) requires construction projects 1 acre or greater to develop a Stormwater Pollution Prevention Plan (SWPPP) to identify potential pollutant sources that may affect the quality of discharges associated with construction activity, to identify non-stormwater discharges, and to design the use and placement of BMPs to effectively prohibit the entry of pollutants from the construction site into waterways during construction. A SWPPP will be prepared in accordance with NPDES requirements. Compliance with engineering and construction specifications, following approved grading and drainage plans, and adhering to the DESCP and SWPPP will prevent the offsite migration of sediment and other pollutants to the maximum extent practicable.

C. Watercourses and Critical Areas

Average annual rainfall is about 12 inches in the City of Modesto, just north of the project site. Most of the precipitation occurs between November and April, while the summer months are virtually rainless. Table 3 provides average historical rainfall from the meteorological station in Modesto. Additional preliminary hydrology calculations are located in Appendix B.

TABLE 3
Average Rainfall near the Project Site (Modesto, California) (1906-2007)

Precipitation	Annual	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Average	12.26	0.62	1.25	2.07	2.45	2.07	1.96	1.03	0.46	0.12	0.03	0.04	0.18

Source: WRCC, 2009.

The project site is approximately 3 miles south of the Tuolumne River and approximately 8 miles to the east of the San Joaquin River. Proximity of watercourses, swales, storm drains, and ditches is shown in Figure 6; pre-construction project site topography and drainage are shown in Figure 7. The nearby watercourses including swales, storm drains, and drainage ditches will be identified in greater detail in the project construction drawings.

The project site does not discharge directly to a water body listed as impaired for sedimentation/siltation or turbidity under the Clean Water Act Section 303(d).

In general, surface soils at the project site consist of loose silty to relatively clean sands that extend to depths of approximately 4 to 9 ½ feet below ground surface (bgs). At these depths, alternating layers and mixtures of very stiff to hard sandy silts and partially cemented medium dense to very dense silty and relatively clean sands are encountered to at least 51-1/2 feet bgs. Free groundwater is encountered at approximately 22 feet bgs. Soil map unit characteristics for the area potentially affected by project construction are summarized in Table 4[5].

[5] Natural gas line details will be provided once the final route has been selected. Table 4 will be updated in a future DESCP update.

TABLE 4
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description	
DrA	**Dinuba sandy loam, 0 to 1 percent slopes**	
	Portions of the project transmission lines cross this soil unit.	
	Parent material:	Developed from moderately coarse textured dominantly granitic alluvium
	Typical profile:	Sandy loam over stratified silts and very fine sands
	Shrink-swell capacity:	Low
	Depth and drainage:	Very deep; naturally moderately well drained but due to pumping may be better drained or, where over-irrigated, imperfectly drained.
	Permeability:	Moderate to moderately rapid in A horizon and less permeable below
	Runoff:	Medium
	Farmland class:	Prime farmland if irrigated
	Storie index:	82 (Grade 1), Excellent
	Capability class:	2w irrigated, 4s nonirrigated
	Taxonomic class:	Coarse-loamy, mixed, active, thermic Typic Haploxeralfs
HdA	**Hanford sandy loam, 0 to 3 percent slopes:**	
	A portion of the A2PP project site and portions of the transmission lines fall within this soil unit.	
	Parent material:	Formed in moderately coarse textured alluvium dominantly from granite
	Typical profile:	Fine sandy loam throughout
	Shrink-swell capacity:	Low
	Depth and drainage:	Very deep; well drained
	Permeability:	Moderately rapid
	Runoff:	Negligible to low
	Farmland class:	Prime farmland if irrigated
	Storie index:	92 (Grade 1), Excellent
	Capability class:	4c
	Taxonomic class:	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents
HdpA	**Hanford sandy loam, moderately deep over silt, 0 to 1 percent slopes:**	
	A portion of the A2PP project site and portions of the transmission lines fall within this soil unit.	
	Parent material:	Formed in alluvium derived from igneous rock
	Typical profile:	Sandy loam over silt loam
	Shrink-swell capacity:	Low
	Depth and drainage:	Very deep; well drained
	Permeability:	Moderately rapid
	Runoff:	Negligible to low
	Farmland class:	Prime farmland if irrigated
	Storie index:	93 (Grade 1), Excellent
	Capability class:	2s irrigated, 4s nonirrigated
	Taxonomic class:	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents
HdsA	**Hanford sandy loam, deep over silt, 0 to 1 percent slopes**	
	A portion of the project reconductored 69-kV sub-transmission route crosses this soil unit.	
	Parent material:	Formed in alluvium derived from igneous rock
	Typical profile:	Sandy loam over silt loam
	Shrink-swell capacity:	Low
	Depth and drainage:	Very deep; well drained
	Permeability:	Moderately rapid
	Runoff:	Negligible to low
	Farmland class:	Prime farmland if irrigated
	Storie index:	93 (Grade 1), Excellent
	Capability class:	1 irrigated, 4c nonirrigated
	Taxonomic class:	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents

TABLE 4
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description	
TuA	**Tujunga loamy sand, 0 to 3 percent slopes:**	
	A portion of the reconductored transmission line cross this soil unit.	
	Parent material:	Formed in alluvium weathered mostly from granitic sources
	Typical profile:	Loamy sand throughout
	Shrink-swell capacity:	Low
	Depth and drainage:	Very deep; somewhat excessively drained
	Permeability:	Rapid
	Runoff:	Negligible or very low runoff
	Farmland class:	Prime farmland if irrigated
	Storie index:	62 (Grade 2), Good
	Capability class:	3e irrigated, 6e nonirrigated
	Taxonomic class:	Mixed, thermic, Typic Xeropsamments

Soil characteristics are based on soil mapping descriptions provided in the online soil survey (USDA-NRCS, 2008); in the published soil survey (NRCS, 1964); and in the online Official Series Descriptions (http://www2.ftw.nrcs.usda.gov/osd/dat) (Soil Survey Staff, 2008).

Soil descriptions provided above are limited to those soil units that could be directly affected by the A2PP project. Other soil mapping units, which are well outside of the project area but are shown on Figures 5.11-1A, B, C, and D, are listed below:

Within the “Soil Survey of Eastern Stanislaus Area”: **CeA** - Columbia loam, 0 to 1 percent slopes, **CsB** - Columbia soils, channeled, 0 to 8 percent slopes, **DtA** - Dinuba sandy loam, deep, 0 to 1 percent slopes; **DuA** - Dinuba sandy loam, poorly drained variant, 0 to 1 percent slopes; **DzA** - Dinuba sandy loam, very poorly drained variant, slightly saline-alkali, 0 to 1 percent slopes; **FrA** - Fresno fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes; **HbA -** Hanford fine sandy loam, 0 to 3 percent slopes; **HdB** - Hanford sandy loam, 3 to 8 percent slopes; **HddA** - Hanford sandy loam, poorly drained variant, 0 to 1 percent slopes; and **WeA** - Waukena sandy loam, moderately saline-alkali, 0 to 1 percent slopes. Within the “Stanislaus County, Western Part” soil survey: **153** - Columbia fine sandy loam, channeled, partially drained, 0 to 2 percent slopes, frequently flooded; **159 -** Columbia complex, 0 to 2 percent slopes, frequently flooded; and **W** - Water.

As indicated in Table 4, the soil mapping units in the project area are generally sandy loams or loamy sands formed in alluvial deposits. These soils are very deep and well drained, with moderately rapid permeability. Due to the developed, industrial nature of the project area and vicinity, it is possible that soil conditions could vary significantly from those shown in the NRCS soil survey. Industrial development often entails significant mixing of local soils from grading and the import of construction fill soils beneath foundations and roadways. These imported soils would have to be suitable for engineered structures and roadways, and would be expected to consist of well-graded materials containing a mix of particle sizes (particle sizes ranging from silt to gravel).

The A2PP project site is within a developed area surrounded by highly managed lands (agricultural fields) and would have minimal impacts to natural habitats and communities. Given the existing development and ongoing construction in the area, the potential for special-status species to occur on site is considered relatively low; however, some species are more tolerant to human disturbance and others may incidentally occur in the area as a result of suitable habitat in adjacent areas. Special-status species that are considered to have some potential to occur in the A2PP project area include: big tarplant (*Blepharizonia plumosa*), conservancy fairy shrimp (*Branchinecta conservation*), longhorn fairy shrimp (*B. longiantenna*), vernal pool fairy shrimp (*B. lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), western pond turtle, giant garter snake, cackling Canada goose (*Branta hutchinsii leucopareia*), western burrowing owl *(Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), and San Joaquin kit fox (*Vulpes macrotis mutica*).

No threatened or endangered plants or wildlife were observed in the agricultural fields or developed and disturbed lands within or adjacent to the project area during the field surveys conducted on January 15 and March 10, 2009. Nevertheless, preconstruction field surveysto locate active nests or other signs for the presence of Swainson's hawks, burrowing owls, vernal pool crustaceans, San Joaquin kit fox, and migratory birds will be conducted. If active nest sites or other signs are found, protection measures will be implemented in cooperation with CDFG and US Fish and Wildlife Service (USFWS) to avoid impacts.

The area surrounding the project site is dominated by industrial development and, although the area most likely does not support habitat for any special-status plant species, additional botanical surveys will be conducted during fall 2009 to verify these results. No natural wetlands or other special aquatic sites were observed in the A2PP project site, laydown and parking area, or the linear corridors.

In addition to preconstruction surveys, qualified biologists will conduct employee awareness training, and avoidance, mitigation, and compensation measures for special-status species potentially in the area will be developed and summarized in a Biological Resources Implementation Monitoring Plan in cooperation with CDFG and USFWS.

D. Drainage Map

Figure 6 shows the location of nearby drainages and watercourses in relation to A2PP. A preliminary drainage plan is presented in Figure 8. Site drainage will be further defined in the final design phase of the project and its features incorporated into the DESCP.

E. Drainage Narrative

The A2PP project area is within the Middle San Joaquin-Lower Merced-Lower Stanislaus Hydrologic Unit (Hydrologic Unit Code 18040002), which encompasses approximately 433,300 acres. Major waterways include the Middle San Joaquin, Lower Tuolumne, Lower Merced, Mokelumne, Old, and Middle rivers, as well as Bear Creek. Drainage is generally to the west from the Sierra Nevada Foothills and then to the north into the Sacramento-San Joaquin Delta.

Currently there is no active stormwater management system on portions of the A2PP site; drainage is via percolation or sheetflow. Stormwater at the existing Almond Power Plant drains to an onsite retention pond. As the existing onsite retention pond will be filled to allow for construction of the A2PP, a new retention pond will be construction on the northern end of the property to be used by both the A2PP and the existing Almond Power Plant for stormwater. As stated earlier in the DESCP, a SWPPP will be prepared prior to construction of the A2PP project to prevent the offsite migration of sediment and other pollutants, and to reduce the effects of runoff from the construction site to offsite areas. In addition, the DESCP will be finalized during the final design phase of the project to identify the location of specific erosion and sediment BMPs to be implemented during construction.

The stormwater system for the A2PP will include a series of inlets and storm drain pipes that would convey the project area's runoff to an onsite stormwater retention pond located on the north end of the site (Figure 8). The retention pond will be sized at 2.41 acre-feet capacity to accommodate the 100-year peak runoff with 2.65 feet of freeboard (reference Appendix B). Areas of potential oil contamination will be sited inside containments which will prevent potential contaminates from being conveyed to the storm system. The implementation of these containments will enable for the balance of site runoff to be conveyed directly to the retention pond without prior treatment through an oil-water separator.

F. Clearing and Grading Plans

Rough grading plans are not available at this stage of the project. Prior to the start of construction, the final DESCP will include these plans and final design information.

Post-construction, stormwater runoff at the A2PP site will be conveyed to the onsite stormwater retention pond.

G. Clearing and Grading Narrative

The information provided in this section is preliminary and will be updated and expanded upon once the clearing and grading plans are completed and prior to the start of construction. Site grading design will comply with applicable land development regulations. Graded areas will be smooth, compacted, free from irregular surface changes, and sloped to drain to onsite drainage features and the stormwater retention pond when constructed.

Construction impacts on soil resources can include increased soil erosion. The magnitude, extent, and duration of construction-related impact depends on the erodibility of the soil; the proximity of the construction activity to the receiving water; and the construction methods, duration, and season. Because conditions that could lead to excessive soil erosion are not present at the A2PP project site (e.g., no long, steep slopes or erodible soils), little soil erosion is expected during the construction period.

The project site will require earthwork to construct the A2PP and associated facilities. Soil-disturbing activities will include clear and grub operations, grading operations, and excavation and fill operations. For all areas where earthwork will be executed, materials suitable for compaction will be stockpiled in designated onsite locations. Materials not suitable for compaction will be stored in separate stockpiles for reuse onsite or disposed of at a licensed facility. If needed, only licensed, commercial fill will be used onsite. Any contaminated materials encountered during excavation will be disposed of in accordance with applicable laws, ordinances, regulations, and standards.

Construction equipment anticipated to be used onsite include scrapers, graders, vibrating rollers, front loaders, dump trunks, trenching machines, concrete mixers, water trucks, and fuel trucks (list is not all inclusive).

Table 5 outlines the amount of cut and fill planned for specific components of the project (the DESCP will be updated once this information becomes available).

TABLE 5
Clearing and Grading

Description	Stockpile (yd^3)	Total Cut (yd^3)	Total Fill (yd^3)
To be determined.			
Total			

yd^3 = cubic yards

The following subsections provide a discussion of clearing and grading associated with each of the major construction elements of the project.

A2PP Project Site

Construction of the generating facility, from site preparation and grading to commercial operation, is expected to take place from the third quarter of 2010 to the third quarter of 2011, 12 months total. Major milestones are listed in Table 6.

TABLE 6
A2PP Project Schedule Major Milestones

Activity	Date
Begin Construction	Third Quarter 2010
Startup and Test	Third Quarter 2011
Commercial Operation	Fourth Quarter 2011

It is assumed that 100 percent of the A2PP project site will be exposed during grading, and approximately 10 percent of the site will be bare soil at any given time during construction. It is anticipated that grading the site will take 2 months and construction will take 12 months.

Construction Laydown and Parking Area

Grading for the laydown and parking area will take 1 month and the area will be covered (graveled or paved) immediately thereafter to allow for wet season use. Once construction is complete, the gravel will either be removed from the site or incorporated into site paving.

Linear Areas

The natural gas pipeline will be installed within a 4 ft wide trench and a 235 ft construction corridor along existing roadways over a period of 6 months.

The overhead transmission lines will have poles outside of the project footprint. Each pole will have a 4 ft by 4 ft footprint. Installation of the transmission line poles would be completed within 4 months.

H. Best Management Practices

A SWPPP will be developed prior to start of construction to:

- Identify all pollutant sources, including sources of sediment that may affect the quality of stormwater discharges associated with construction activity from the construction site, and
- Identify non-stormwater discharges, and
- Identify, construct, implement in accordance with a time schedule, and regularly inspect and maintain BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site during construction, and
- Develop a maintenance schedule for BMPs installed during construction designed to reduce or eliminate pollutants after construction is completed (post-construction BMPs).

The placement and details of the BMPs that will be utilized during project construction will be identified during project design and incorporated into the SWPPP and DESCP. Potential impacts from construction activities will be controlled through implementation of the BMPs (including erosion and sediment control measures) outlined in the Final SWPPP and Final DESCP. The SWPPP is a living document and will be amended during the life of the project, as needed. Site grading activities and drainage features will be designed to comply with all applicable LORS.

I. Best Management Practices Narrative

The project construction schedule is provided in Table 7, and will be updated after final project design. An implementation and maintenance schedule for the drainage, erosion, and sediment control methods and practices that may be implemented as appropriate at the A2PP project site are included in Table 8. The selection of BMPs can potentially change during project design and Table 8 will be amended accordingly in the Final DESCP.

TABLE 7
Key Construction Events

Event Description	Expected Dates
Date of Certification by CEC	To be determined (TBD)
Rainy Season	October 15 – April 15
Mobilization	TBD
Delineate and mark the boundaries of the construction zone	Prior to construction
Implement perimeter erosion and sediment controls; protect interior and downgradient inlets, waterways, and sensitive areas	Prior to construction
Stabilize construction entrance/exit and roadway	TBD
Establish laydown and parking area	TBD

TABLE 7
Key Construction Events

Event Description	Expected Dates
Clear and Grub	Third quarter 2010
Rough Grading	1 to 4 months
Install generators and associated equipment	TBD
Construct switchyard and transmission line corridors	TBD
Reconductoring of sub-transmission line	TBD
Install natural gas supply line	TBD
Construction of stormwater retention pond	TBD
Completion of Construction	Third Quarter 2011
Startup and Test	Third Quarter 2011
Commercial Operation	Fourth Quarter 2011

TABLE 8
BMP Implementation and Maintenance Schedule

Best Management Practices	Implementation	Inspection Frequency	Maintenance
Silt fence	Two weeks prior to construction & in sequence with construction activities	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during non-rainy season	Replace torn sections; repair up-rooted sections; clean out collected sediment when greater than 1/3 height of fence
Fiber rolls or Coir logs	Two weeks prior to construction & in sequence with construction activities	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during non-rainy season	Replace crushed sections; replace rotted sections; clean out collected sediment when greater than 1/3 height of roll
Sediment basin/Sediment trap	Two weeks prior to construction & in sequence with construction activities	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during non-rainy season	Repair damage and remove obstructions as needed; stabilize eroded areas; clean out collected sediment when ½ of designated storage volume of basin or 1/3 of trap capacity; dewater within 72 hours
Check dams	Two weeks prior to construction & in sequence with construction activities	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during non-rainy season	Replace degraded or missing rock, bags, etc.; clean out when collected soil greater than 1/3 of barrier height

TABLE 8
BMP Implementation and Maintenance Schedule

Best Management Practices	Implementation	Inspection Frequency	Maintenance
Erosion control blankets (geotextiles)	In sequence with construction activities; prior to forecasted rain event	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during non-rainy season	Repair eroded areas; replace and repair geotextiles and mats as needed
Sandbags	Two weeks prior to construction & in sequence with construction activities	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during non-rainy season	Repair, reshape, replace bags as necessary; replace bags exposed to sunlight every 2 to 3 months; clean out collected sediment when greater than 1/3 barrier height
Gravel bags	Two weeks prior to construction & in sequence with construction activities	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during non-rainy season	Repair, reshape, replace bags as necessary; replace bags exposed to sunlight every 2 to 3 months; clean out collected sediment when greater than 1/3 barrier height
Strom drain inlet protection	Two weeks prior to construction	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during non-rainy season	Clean and repair filters or fabric fence as needed; clean out collected sediment when greater than 1/3 barrier height
Hydraulic mulch	In sequence with construction activities; prior to forecasted rain event	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during non-rainy season	Repair eroded areas; re-apply on bare areas as needed
Mulch (straw, wood, organic)	In sequence with construction activities; prior to forecasted rain event	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during non-rainy season	Repair eroded areas; re-apply on bare areas as needed

TABLE 8
BMP Implementation and Maintenance Schedule

Best Management Practices	Implementation	Inspection Frequency	Maintenance
Hydroseeding/Seeding	As soon possible after disturbance has permanently or temporarily ceased, but in no case more than 14 days after the construction activity in an area has ceased (Except when construction activity will resume on that portion of the site within 21 days)	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during non-rainy season (Monitored every May for the first three years following project completion)	Reseed areas that do not meet revegetation criteria
Aggregate surfacing	Completion of grading activities	Once a week during rainy season, and bi-weekly during non-rainy season	Keep all temporary roadway ditches clear; periodically apply additional aggregate as needed
Stabilized construction entrance/exit	Prior to grading of the project site	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during non-rainy season	Remove aggregate, separate and dispose of sediment when construction entrance/exit is clogged with sediment; keep all temporary roadway ditches clear; check for damage and repair as needed; replace gravel material when surface voids are visible
Stockpile management	In sequence with construction activities	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during non-rainy season	Repair or replace perimeter controls and covers as needed
Street sweeping and vacuuming	Start of construction activities	Inspect before and after storm events (and once each 24-hour period during extended storm events); when actively in use, inspect points of ingress and egress daily, otherwise weekly	Remove tracked or spilled sediment outside the construction limits at a minimum daily

TABLE 8
BMP Implementation and Maintenance Schedule

Best Management Practices	Implementation	Inspection Frequency	Maintenance
Post-construction revegetation	As soon possible after disturbance has permanently or temporarily ceased, but in no case more than 14 days after the construction activity in an area has ceased (Except when construction activity will resume on that portion of the site within 21 days)	Inspect before and after storm events (and once each 24-hour period during extended storm events), once a week during rainy season, and bi-weekly during the non-rainy season (Monitored every May for the first three years following project completion or until the site has been successfully revegetated to 70 percent coverage)	Areas that do not meet revegetation criteria will be reseeded

The selection of BMPs can potentially change during project design and Table 8 will be amended accordingly in the Final DESCP. The following describes the BMPs that will be implemented at the A2PP project site and the construction laydown and parking area during the pre-construction, construction, and post-construction phases of the project.

Scheduling. Construction shall be scheduled to minimize construction activities impacts during the rainy season consistent with local and resource agency regulations.

Preservation of Natural Features. In general, site designs shall preserve existing vegetation to the maximum extent possible. Prior to the commencement of soil-disturbing activities, areas of existing vegetation that are to remain and environmentally sensitive areas shall be fenced for protection. During construction, existing vegetation shall be preserved as long as possible to minimize erosion.

Stormwater run-on and Concentrated Flows. Existing watercourses shall be protected. To the extent feasible, all concentrated water flows shall be channeled away from disturbed soil areas and stockpiles. Concentrated water flows shall be conveyed in a non-eroding fashion. Erosion in areas of concentrated flow paths shall be controlled by applying erosion control blankets, erosion control seeding, and lining of swales.

Stockpile Management. Stockpiles shall be managed according to the type of material being stockpiled and the season, as follows:

- Soil stockpiles shall be covered or protected with soil stabilization measures and perimeter sediment barriers during the rainy season and protected with perimeter sediment barriers during the non-rainy season.
- Concrete/asphalt rubble, rock, and aggregate base and sub-base stockpiles shall be covered or protected with perimeter sediment barriers year-round.
- Cold mix asphalt stockpiles shall be covered year-round.

Disturbed Soil Area Management. Disturbed soil areas shall be protected with an effective combination of erosion and sediment control measures.

- Erosion Control – Hydraulic mulch; hydroseeding; straw/wood/organic mulch; geotextiles; stabilized construction roadways.
- Sediment Controls – Silt fences; sand and gravel bag barriers; fiber rolls; check dams; sediment basin/traps; street sweeping and vacuuming; inlet protection.

Sufficient erosion and sediment control materials will be maintained onsite to allow implementation in conformance with the DESCP. This includes implementation requirements for active areas and non-active areas that require deployment before the onset of rain.

BMPs will be implemented to follow the progress of grading and construction. As the locations of soil disturbances change, erosion and sedimentation controls will be adjusted accordingly to control stormwater runoff at the downgrade perimeter. BMPs will be in place throughout the entire construction period.

Non-active areas will be stabilized as soon as feasible after construction is complete and no later than 14 days after construction in that portion of the site has temporarily or permanently ceased. Disturbed soil areas that have not been re-vegetated will be stabilized with plastic covers, erosion control blankets, or mulch before rain events. Disturbed areas that are substantially complete will be stabilized with permanent erosion control (soil stabilization) and vegetation. Re-vegetated areas will be monitored until a minimum of 70 percent ground coverage has been established.

During the rainy season, temporary sediment controls will be implemented at the draining perimeter of disturbed soil areas, at the toe of slopes, and at outfall areas at all times. During the non-rainy season, temporary sediment controls will be implemented at the draining perimeter of disturbed soil areas.

Offsite Sediment Tracking. The construction entrance and exit will be constructed and maintained to reduce tracking of sediments onto public streets. Excess material tracked onto public streets will be removed at a minimum daily using a street sweeper. All trucks hauling soil and other loose material will be covered or have at least 2 feet of freeboard.

Petroleum Products. Construction equipment will require use of fuel and oil on a regular basis. The staging, fueling, and maintenance of vehicles and equipment will only occur within the laydown and parking area. Vehicle cleaning will not be performed onsite. A dedicated temporary fueling area will be protected with berms or dikes to prevent runon, runoff, and to contain spills. Drip pans or absorbent pads will be used for all vehicle and equipment maintenance activities that involve grease, oil, solvents, or other vehicle fluids. Spills will be cleaned up immediately in accordance with applicable local, state, or federal regulations. A spill kit will be maintained onsite and readily accessible in the laydown and parking area. Vehicles and equipment will be regularly maintained and inspected daily for leaks.

Petroleum products will be stored in clearly labeled and tightly sealed containers or tanks. It will be the contractor's responsibility to ensure that secondary containment around fuel/oil tanks (stationary or mobile) will meet the minimum requirements of EPA 40 CFR Part 112, or more stringent state requirements, if applicable. Any soil impacted by fuel or oil spills will be removed and disposed of by a licensed hauler at an approved disposal site.

Sanitary Wastes. Maintenance will be provided weekly by a sanitation company and wastes will be disposed of at an appropriate facility. Portable toilets will be anchored during periods of heavy wind and all leaks or spills shall be reported immediately to the construction supervisor.

Hazardous Materials/Wastes. Hazardous materials will be stored in chemical storage facilities appropriately designed for their individual characteristics. Hazardous wastes potentially associated with construction of the project will be limited to small quantities of liquids and solids such as lubricating oils, acids for equipment cleanup, and concrete curing compounds. These wastes are typical of industrial construction activities and will be placed in segregated and clearly labeled containers onsite and recycled or disposed of in accordance with applicable LORS. A licensed hauler will remove hazardous waste as needed for appropriate disposal.

Cover and secondary containment will be provided for the storage of hazardous materials (i.e., oil drums, solvents, grease). Temporary containment facilities for hazardous materials should provide for a spill containment volume able to contain precipitation from a 25-year storm event, plus 10 percent of the aggregate volume of all containers or 100 percent of the capacity of the largest container within its boundary, whichever is greater. It should be impervious to the materials stored therein for a minimum contact time of 72 hours. All drains and vent piping for volatile chemicals will be trapped and isolated from other drains. Containment areas for bulk storage tanks will not be drained. Any chemical spills in these areas will be removed with portable equipment and reused or disposed of according to LORS.

Spill cleanup materials, material safety data sheets (MSDS), a material inventory, and emergency contact numbers will be maintained at the laydown and parking area. Site personnel will be instructed on spill cleanup procedures and the contractor's site manager will be responsible for implementing these practices.

Contaminated Soil. Contaminated soil is not anticipated to be encountered during the project; however, workers will be educated on identification and handling of contaminated soil. Contaminated soil will be excavated, transported, and disposed of in accordance with applicable regulations. If temporary stockpiling of contaminated soil is necessary, the soil will be stockpiled on a 10 mil visqueen liner and covered with a 10 mil visqueen liner. A berm will be placed around the stockpile to prevent runoff from leaving the area.

Concrete Trucks. Excess concrete and concrete washout slurries will be discharged to a temporary concrete washout facility. The washout facility will be maintained to provide adequate holding capacity with a minimum freeboard of 4 in. for above grade facilities and 12 in. for below grade facilities. The washout facility will be cleaned, or a new facility constructed once the washout is 75 percent full. Dried concrete shall then be removed and disposed of at an approved offsite location. No surplus concrete or drum wash water will be disposed of onto the ground surface.

Waste Materials. All construction waste material, trash, and construction debris will be collected and stored in a covered metal dumpster. The dumpster will meet all local and state solid waste management regulations. A licensed hauler will remove waste materials at least weekly for appropriate disposal. No construction waste will be buried on site. All site personnel will be instructed regarding the correct procedure for waste disposal.

Good Housekeeping. Good housekeeping practices are designed to maintain a clean and orderly work environment. The good housekeeping practices listed below will be followed to reduce the risk of pollutants entering stormwater discharges. All construction personnel will be responsible for monitoring and maintaining housekeeping tasks and reporting potential problems to the contractor's site manager:

- Store only enough products required for doing the job.
- Store all materials in a neat and orderly manner in the appropriate containers. Materials that may adversely impact stormwater, such as paint, oils, greases, sealers, etc., will be stored in covered areas such as temporary/permanent buildings or trailers. Provide secondary containment for the storage of hazardous materials.
- Keep products in the original container with the original manufacturer's label.
- Do not mix products unless recommended by the manufacturer.
- Use all of a product before disposing of the container.
- Use and dispose of products according to the manufacturer's recommendations.
- Perform regular inspections of the stormwater system and the material storage areas.
- When and where appropriate, use posters, bulletin boards, or meetings to remind and inform construction personnel of required good housekeeping, maintenance, and cleanup procedures.
- Preventive maintenance includes regular inspection and maintenance of structural stormwater controls (catch basins, oil-water separators, etc.) as well as other facility equipment and systems.

Spill prevention and cleanup practices will be as follows:

- A2PP's site manager or appointee is responsible for informing construction personnel of the manufacturer's recommended spill cleanup methods, and the location of that information and cleanup supplies.
- Materials and equipment for the cleanup of a relatively small spill will be kept in the laydown and parking area. These facilities may include brooms, rags, gloves, shovels, goggles, sand, sawdust, absorbent, plastic or metal trash containers, and protective clothing.
- All containers will be labeled, tightly sealed, and stacked or stored neatly and securely.

Spill response procedures will be as follows:

- Step 1: Upon discovery of a spill, stop the source of the spill.
- Step 2: Cease all spill material transfer until the release is stopped and waste removed from the spill site.

- Step 3: Initiate containment to prevent spill from reaching State waters.
- Step 4: Notify supervisor and A2PP's site manager of the spill.
- Step 5: A2PP's site manager will immediately notify the A2PP emergency coordinator, and coordinate further cleanup activities.
- Step 6: Any significant spill of hazardous material will be reported to the appropriate state and/or local agencies by A2PP personnel or qualified contractors. Table 9 lists the project's environmental emergency contacts.
- Step 7: Record a description of the spill, cause, and cleanup measures taken.
- Step 8: Review and amend the SWPPP to address the violation of the general objective of reducing or eliminating pollutants in stormwater discharges has not been achieved.

Inspection, Maintenance, and Recordkeeping Procedures. Site inspection and facility maintenance are important features of an effective stormwater management system. The Contractor's qualified personnel will inspect disturbed areas of the site that have not been stabilized, storage areas exposed to precipitation, all control measures, and site access areas to determine if the control measures and stormwater management system are effective in preventing significant impacts to receiving waters.

Inspections will be performed prior to a forecast storm, after a rain event that causes runoff from the construction site, at 24-hour intervals during extended rain events, weekly during the rainy season and bi-weekly during the non-rainy season. During inspections, BMPs shall be evaluated for adequacy, proper implementation, and whether additional BMPs are required. The inspector will complete an inspection checklist, which will include the following information:

- Inspection date
- Weather conditions
- A description of any inadequate BMPs
- List of observations of all BMPs
- Corrective actions required, including any changes to the DESCP
- Inspector name, title, and signature

TABLE 9
Environmental Emergency Telephone List

Company/Organization	Telephone Numbers
Primary Facility Emergency Coordinator:	TBD
24-Hour Telephone Number:	TBD
Alternate Facility Emergency Coordinator:	TBD
Other Resources	
3E Company (MSDS by FAX):	(800) 451-8346
Chemtrec (emergency chemical information):	(800) 424-9300
Poison Control Center:	(800) 662-9886
Federal Agency	
U.S. Coast Guard/National Response Center:	(800) 424-8802

TABLE 9
Environmental Emergency Telephone List

Company/Organization	Telephone Numbers
State Agencies	
California Office of Emergency Services (OES):	(800) 852-7550
California Department of Toxic Substances Control (DTSC)*:	(800) 852-7550
California Department of Fish and Game*:	(800) 852-7550
California State Lands Commission:	(562) 590-5201
Regional Water Quality Control Board (RWQCB)*:	(800) 852-7550
Local Contacts	
Stanislaus County Environmental Health Department:	
Fire –:	911
Police –:	
Hospital –:	
Ambulance/Paramedics:	

* DTSC, RWQCB and California Department of Fish and Game have requested that emergency notifications to these offices be made through the OES 800 number.

Maintenance of BMPs shall be performed as needed.

Erosion and Sediment Controls. The following procedures will be used to maintain erosion and sedimentation controls:

- All controls will be maintained in good working order; if a repair is necessary, that repair will be initiated within 24 hours of the report.
- Sediment will be removed from the silt barriers when it has reached one-third of the height of the barrier.
- Silt barriers will be inspected for depth of accumulated sediment, tears, attachment to posts, and stability on a weekly basis.
- Aggregate-covered areas will be inspected for bare spots and washouts.
- The A2PP site manager will select individuals to be responsible for inspections, maintenance, repairs, and reporting. The designated inspectors will receive the necessary training from A2PP's site manager to properly inspect and maintain the controls in good working order.
- An inspection form will be completed after each inspection.
- The completed inspection forms will be retained on site.

Non-stormwater Controls. The following procedures will be used to maintain the non-stormwater controls:

- All measures will be maintained in good working order; if a repair is necessary, that repair will be initiated within 24 hours of the report.
- The designated inspector will visually observe all drainage areas for the presence of unauthorized non-stormwater discharges and their sources.

- If a spill occurs that cannot be cleaned up before the next rain event, or under other circumstances warranting sample collection, the designated inspector will collect stormwater samples during the first two hours (including weekends or holidays) of discharge. The samples would be analyzed for compounds with the analytical testing suite determined from the specific materials spilled or not contained properly, and for any constituents in the spill that could occur in high enough concentrations to cause an impact to water quality.
- The A2PP site manager will select individuals to be responsible for inspections, maintenance, repairs, and reporting. The designated inspectors will receive the necessary training from A2PP's Site Manager to properly inspect and maintain the controls in good working order.
- An inspection form will be completed after each inspection.
- The completed inspection forms will be retained on site.

Recordkeeping. Records will be retained for a minimum of 3 years for the following items:

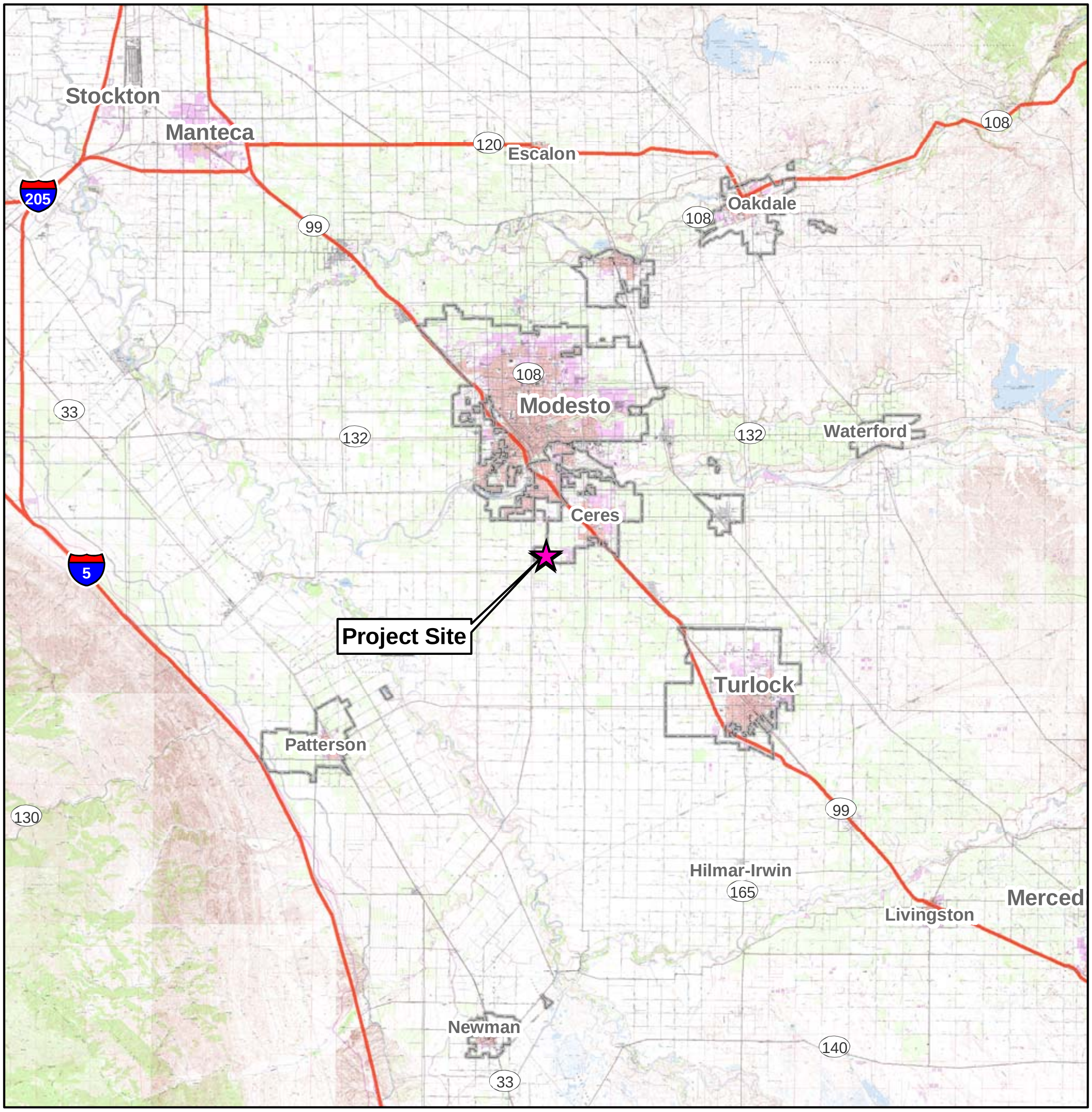
- Site inspections
- Compliance certifications
- Discharge reports
- Approved DESCP document and amendments

A copy of this DESCP and any supporting materials will be compiled in an orderly manner and maintained at the construction site from the date of CEC approval to the date of final stabilization.

The generation of reports, as part of the construction process and inspection or amendment procedures, provides accurate records, which can be used to evaluate the effectiveness of this DESCP and to document compliance. Amendments are included with the DESCP to facilitate review or evaluation.

Post-construction Stormwater Management. Disturbed areas that are substantially complete will be stabilized with permanent erosion control (soil stabilization) and aggregate or vegetation. Re-vegetated areas will be monitored until a minimum of 70 percent ground coverage has been established. Areas where no vegetation grew will be reseeded. Once vegetation has established onsite and a Notice of Termination can be submitted to the RWQCB, drain inlet protection and temporary sediment and erosion control measures will be removed.

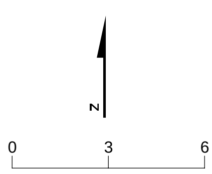
Figures



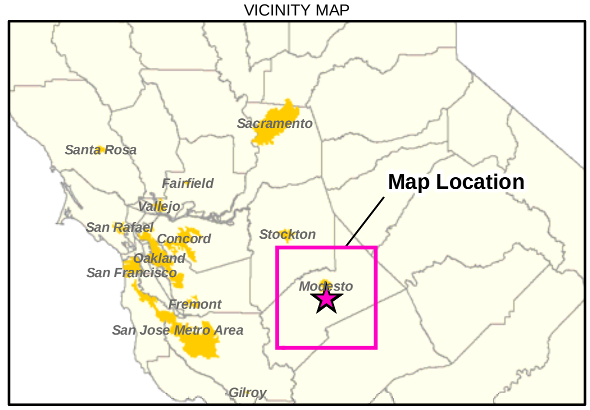
LEGEND

Project Site

City Boundaries



VICINITY MAP



This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

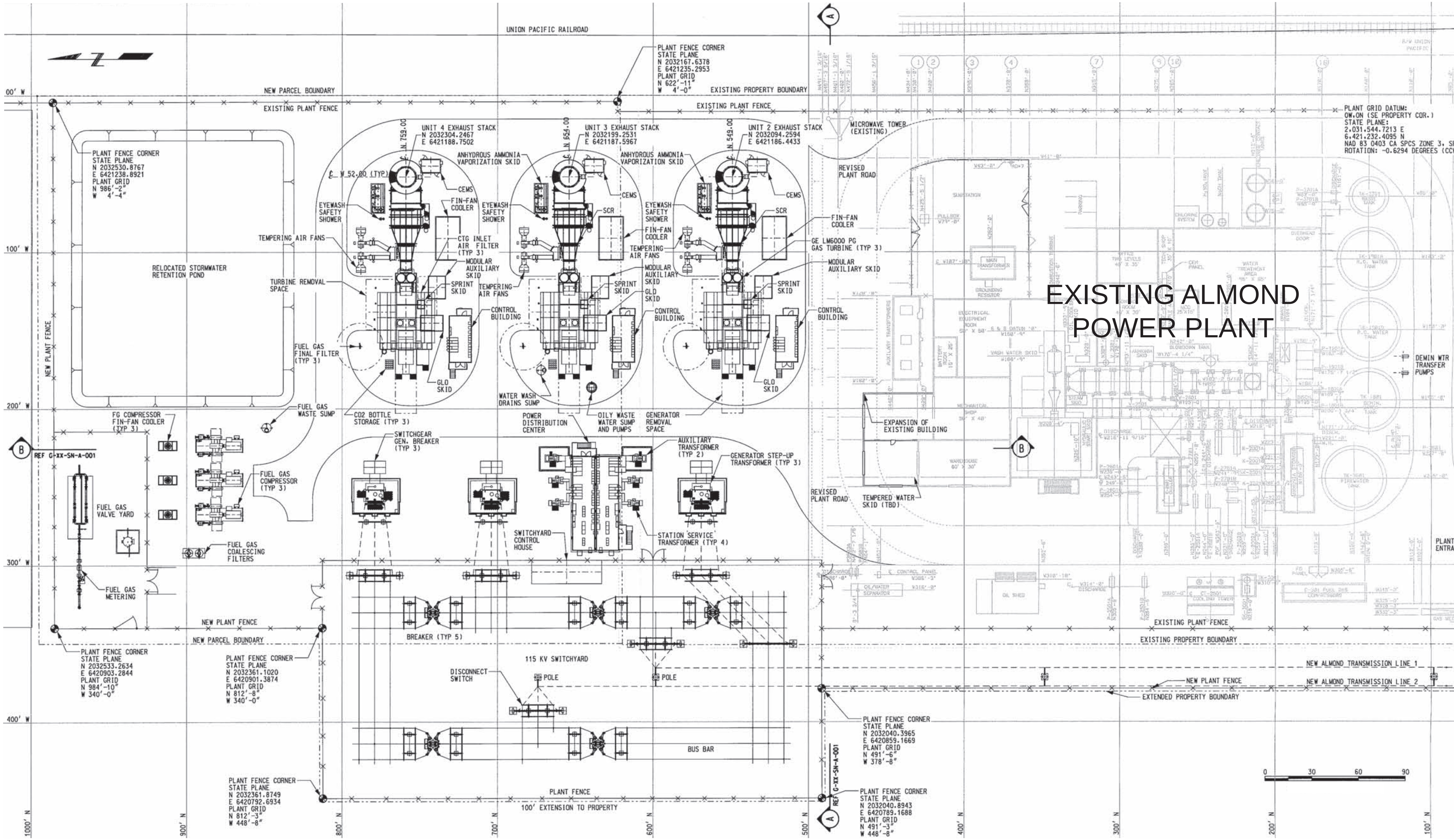
FIGURE 1
LOCATION MAP
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

CH2MHILL

SAC\\ZION\SACGIS\PROJ\TURLOCKIRRIGATIONDIS\383194\MAPFILES\VICINITYMAP.MXD MHASKELL 2/24/2009 14:54:42

FIGURE 2
ARCHITECTURAL RENDERING
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

CH2MHILL

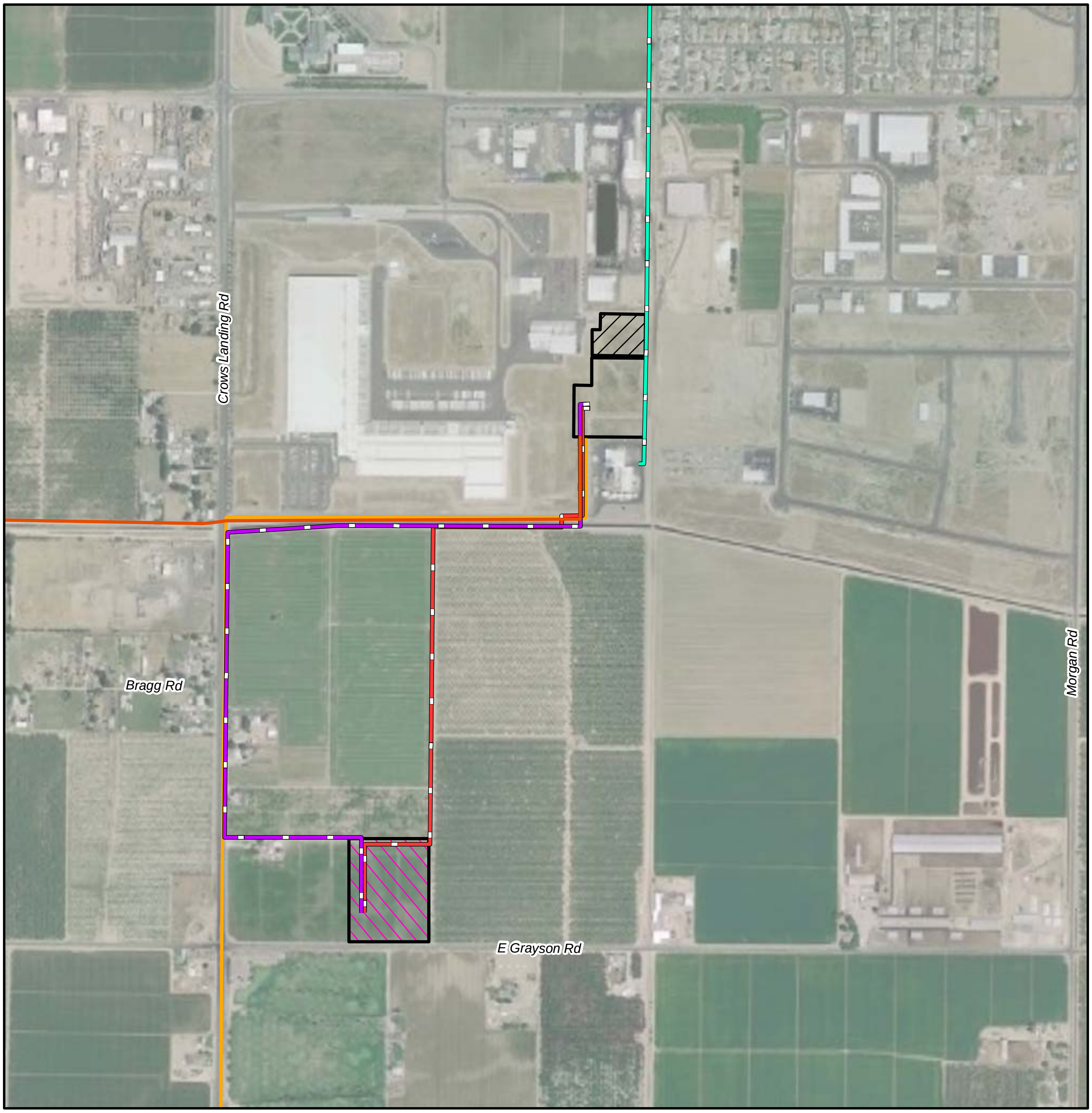


Notes:
"Shaded" facilities indicate the existing Almond Power Plant
Dark lines indicate the proposed A2PP

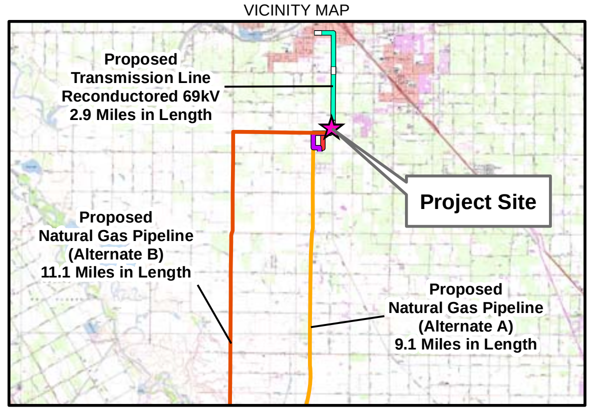
Source: CH2M HILL, Drawing G-XX-PL-1-A-003, Revision F

FIGURE 3
GENERAL ARRANGEMENT
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

CH2MHILL



VICINITY MAP



LEGEND

- Natural Gas Pipeline (Alternate A)
- Natural Gas Pipeline (Alternate B)
- 115-kV Circuit 1 Line (Corridor 1)
- 115-kV Circuit 2 Line (Corridor 2)
- Reconductored 69kV Sub-Transmission Line
- Proposed Grayson Substation
- Laydown Area
- Project Site

N

0 500 1,000
Feet

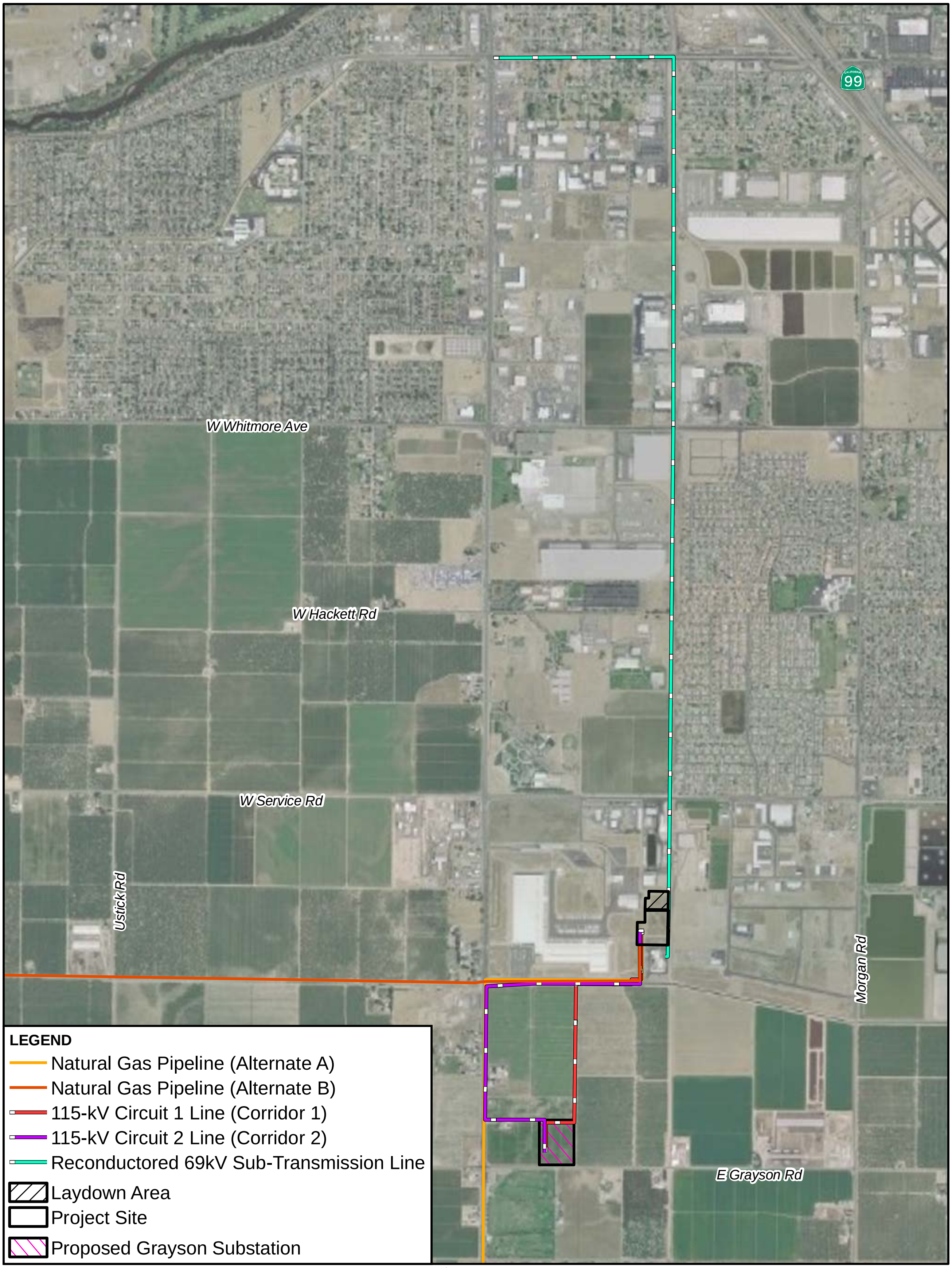
Note:
The Grayson Substation is being developed
as a separate Project

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

FIGURE 4A
SITE LOCATION
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

SAC\\ZION\SACGIS\PROJ\TURLOCKIRRIGATIONDIS\383194\MAPFILES\APP_SITELOCATION.MXD MHASKELL 4/17/2009 09:09:53

CH2MHILL



Note:
The Grayson Substation is being developed as a separate Project

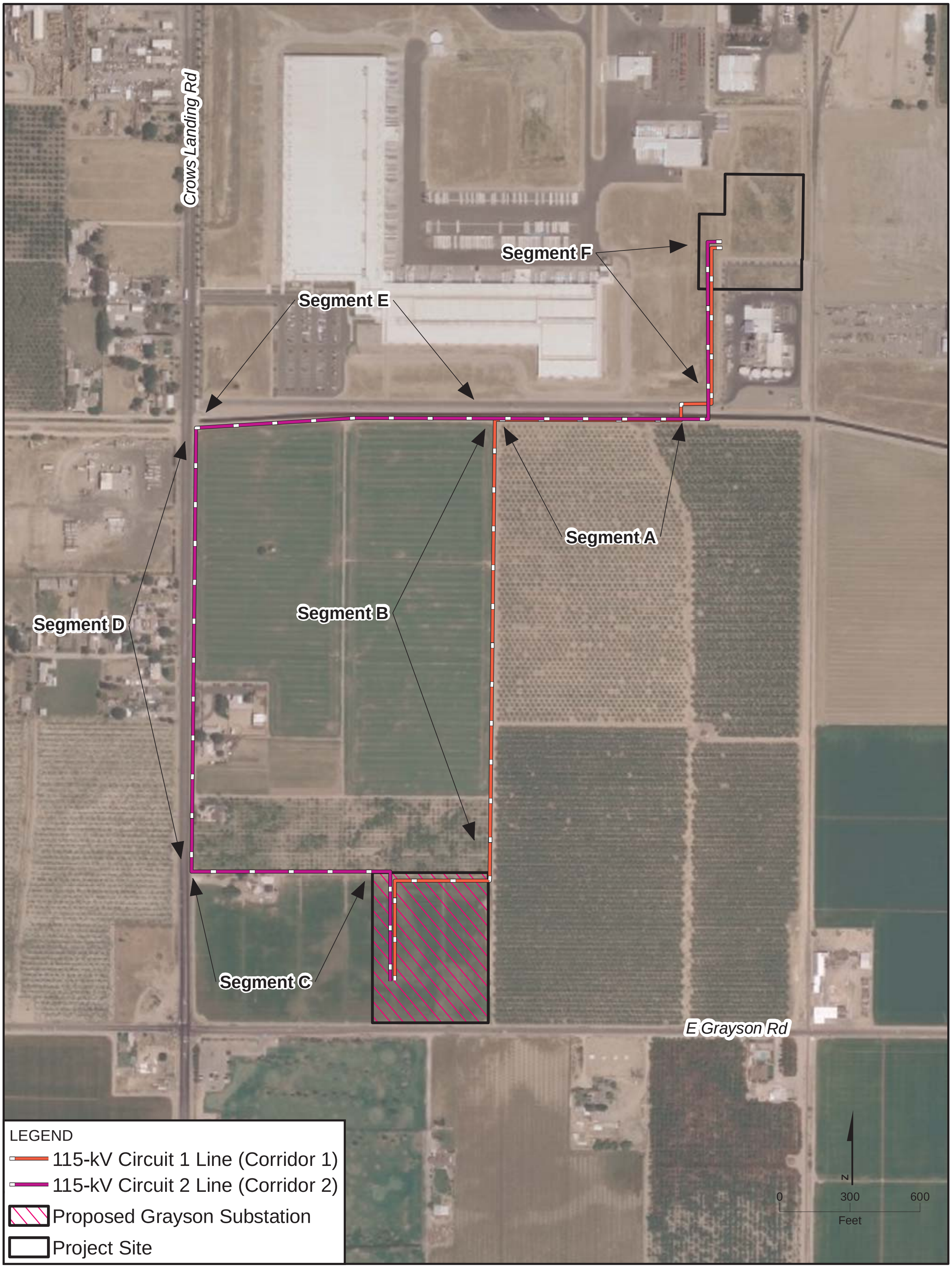
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 1,000 2,000
Feet

FIGURE 4B
PLANNED TRANMISSION FACILITIES
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

CH2MHILL



Note:
The Grayson Substation is being developed as a separate Project

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

FIGURE 4C
NEW A2PP 115kV
TRANSMISSION LINE SEGMENTS
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

CH2MHILL

SAC\\ZION\SACGIS\PROJ\TURLOCKIRRIGATIONDIS\383194\MAPFILES\APP_T-LINESEGMENTS.MXD MHASKELL 4/22/2009 13:45:17

Label	Peak Flow 100-year cfs	Peak Flow 10-year cfs	Peak Flow 2-year cfs
Ex-1	1.03	0.56	0.26
Ex-2	2.42	1.31	0.61
Ex-3	1.40	0.76	0.35
S-1	0.06	0.03	0.01
S-2	0.14	0.07	0.03
S-3	0.11	0.06	0.03
S-4	0.12	0.06	0.03
S-5	0.14	0.08	0.04
S-6	0.11	0.06	0.03
S-7	0.12	0.06	0.03
S-8	0.14	0.07	0.03
S-9	0.05	0.03	0.01
S-10	0.12	0.06	0.03
S-11	0.14	0.08	0.04
S-12	0.12	0.07	0.03
S-13	0.15	0.08	0.04
S-14	0.12	0.07	0.03
S-15	0.15	0.08	0.04
S-16	0.12	0.07	0.03
S-17	0.61	0.33	0.16
S-18	0.41	0.22	0.10
S-19	0.28	0.15	0.07
S-20	0.66	0.36	0.17
S-21	0.38	0.21	0.10
Totals	**9.10**	**4.93**	**2.30**

PROPOSED ALMOND 2 SITE WORK:
EARTHWORK VOLUMES:
CUT: 5,164 Cu Yds
FILL: 5,470 Cu Yds
Earthwork Quantities are Bank

NO.	DATE	REVISION	BY	CHK
A	1/23/09	ISSUED FOR REVIEW	TC	JP

REVISION APPROVAL — REV A — DATE 01/23/09

DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED
CIVIL		ELECTRICAL	
STRUCTURAL		INST & CONT.	
MECHANICAL		ARCH.	
PROCESS		GEN. ARRANG.	
PIPING			

STATUS

ISSUED	REV	DATE	DM	SDE	PEM
PRELIMINARY	P1				
FOR REVIEW AND APPROVAL	A	1-23-09			
APPROVED FOR CONSTRUCTION					
REVISED & APPROVED FOR CONSTRUCTION					

RESPONSIBLE ENGINEER
PE #

TURLOCK IRRIGATION DISTRICT
Almond 2 Power Plant
Ceres, CA
PROJECT NO. 383416

SCALE AS SHOWN

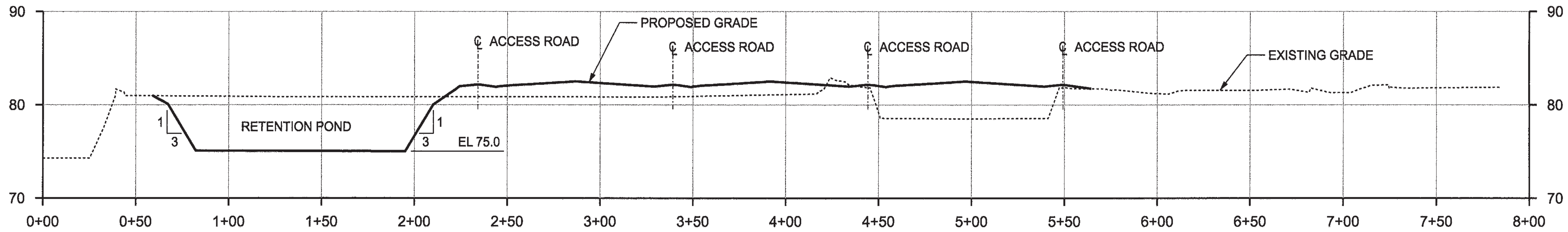
CH2MHILL

FIGURE 5A
GRADING AND DRAINAGE PLAN
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

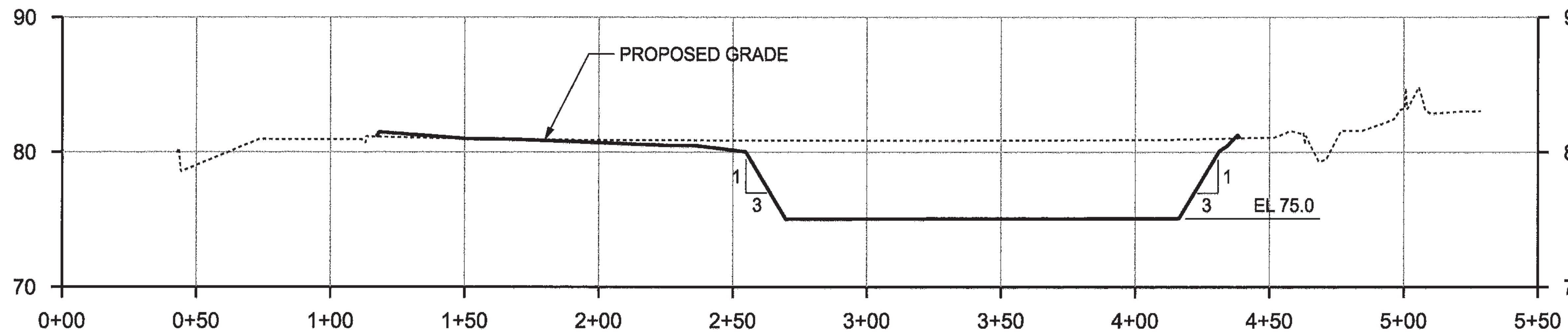
DWG. NO. C-000-W-0-002 REV. A

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

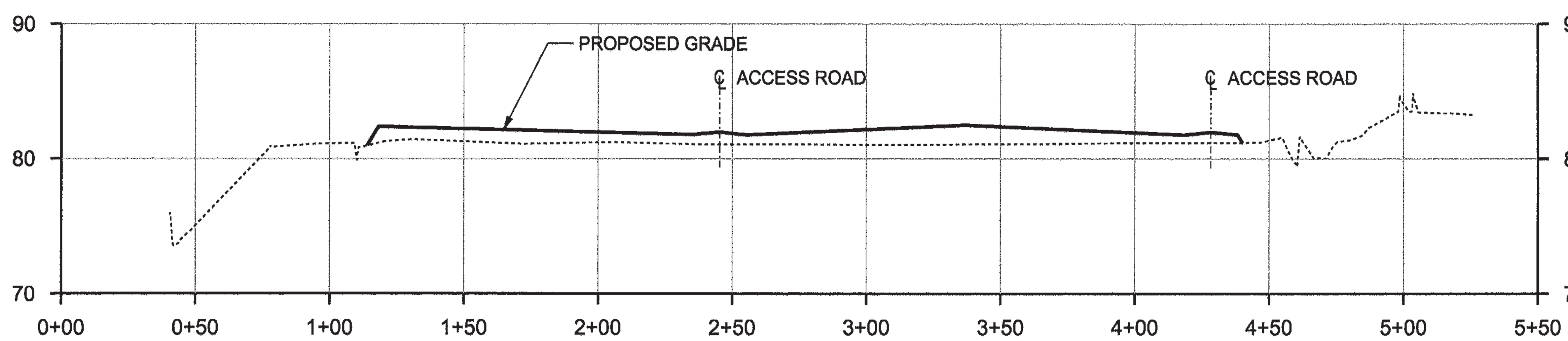
FILENAME: PLOT DATE: PLOT TIME:



SECTION (A / W-0-002)
SCALE: 1" = 40'



SECTION (B / W-0-002)
SCALE: 1" = 40'



SECTION (C / W-0-002)
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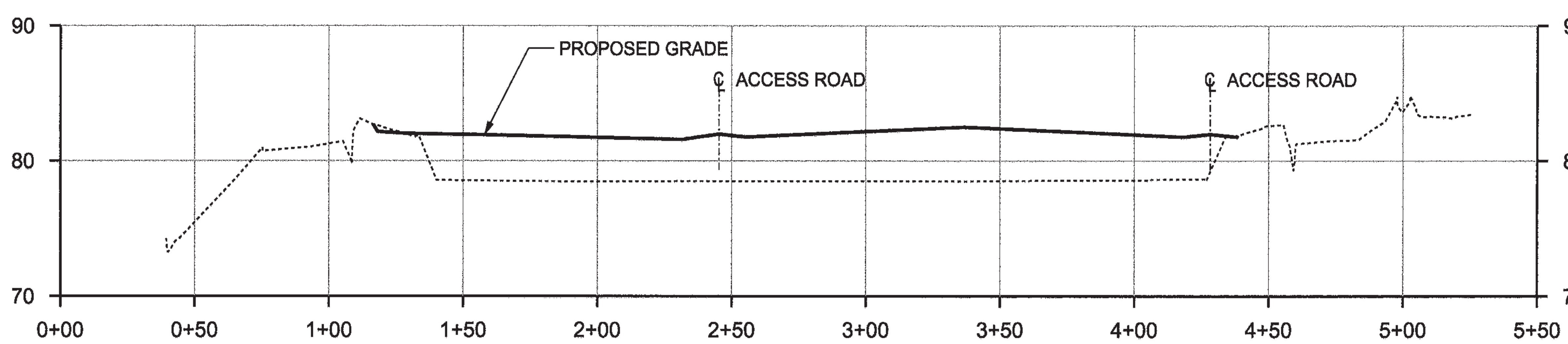


SECTION (D / W-0-002)
SCALE: 1" = 40'

RESPONSIBLE ENGINEER
PE #

NO.	DATE	REVISION	BY	CHK
A	01/23/09	ISSUED FOR REVIEW	TC	JP

REVISION APPROVAL — REV A — DATE 01/23/09

DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED
CIVIL	JMP	ELECTRICAL	
STRUCTURAL	mmo	INST & CONT.	
MECHANICAL		ARCH.	
PROCESS		GEN. ARRANG.	
PIPING			

STATUS

ISSUED	REV	DATE	DM	SDE	PEM
PRELIMINARY	P1				
FOR REVIEW AND APPROVAL	A	1-23-09	JmP	mmo	[illegible]
APPROVED FOR CONSTRUCTION					
REVISED & APPROVED FOR CONSTRUCTION					

SCALE AS SHOWN

TURLOCK IRRIGATION DISTRICT
Almond 2 Power Plant
Ceres, CA

PROJECT NO. 383416

CH2MHILL

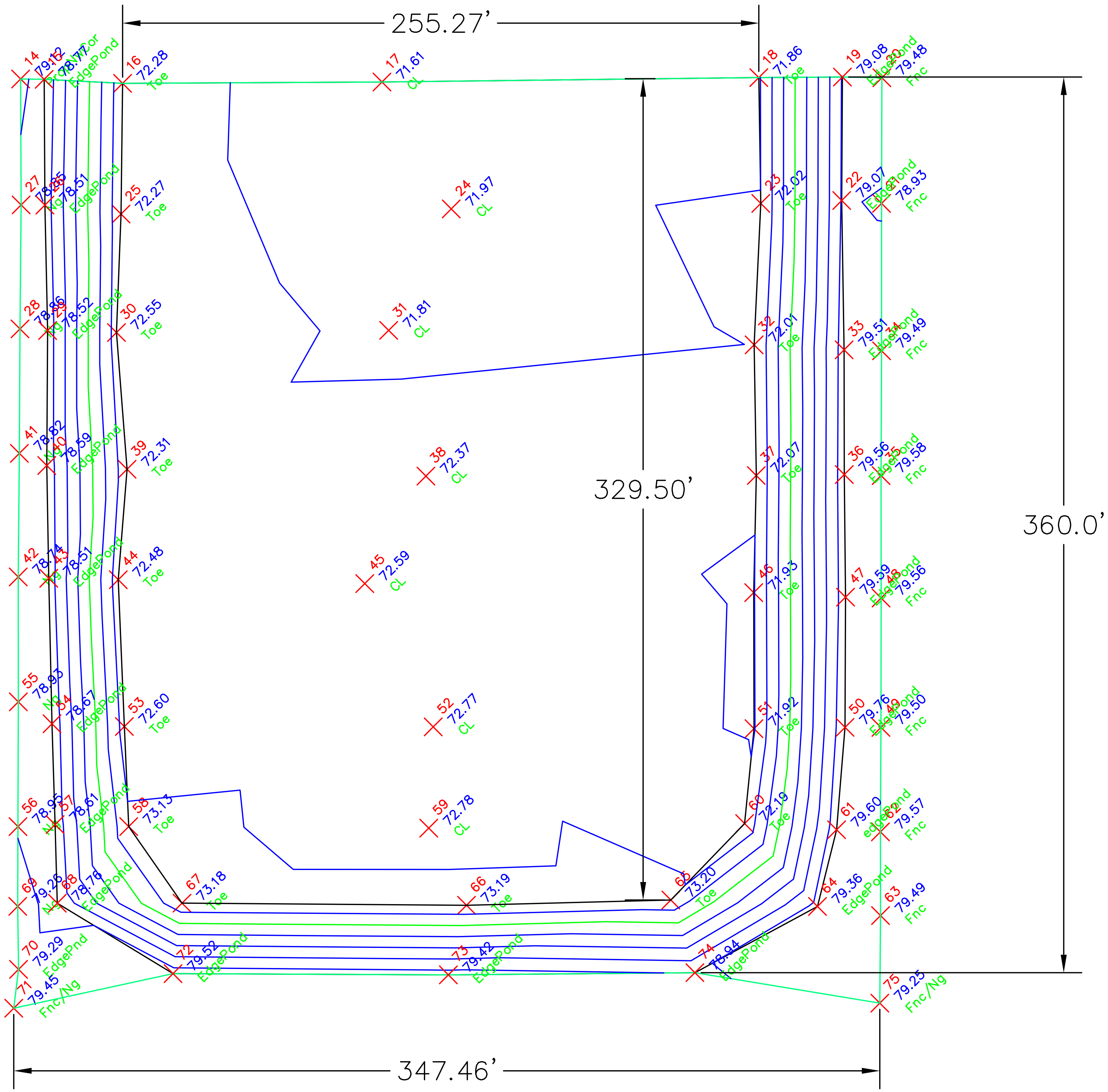
FIGURE 5B
CIVIL AND DRAINAGE SECTIONS
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

DWG. NO. C-000-R-0-001 REV. A

FILENAME: PLOT DATE: PLOT TIME:

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

WB082009009RDD_5B



SCALE 1"=50'

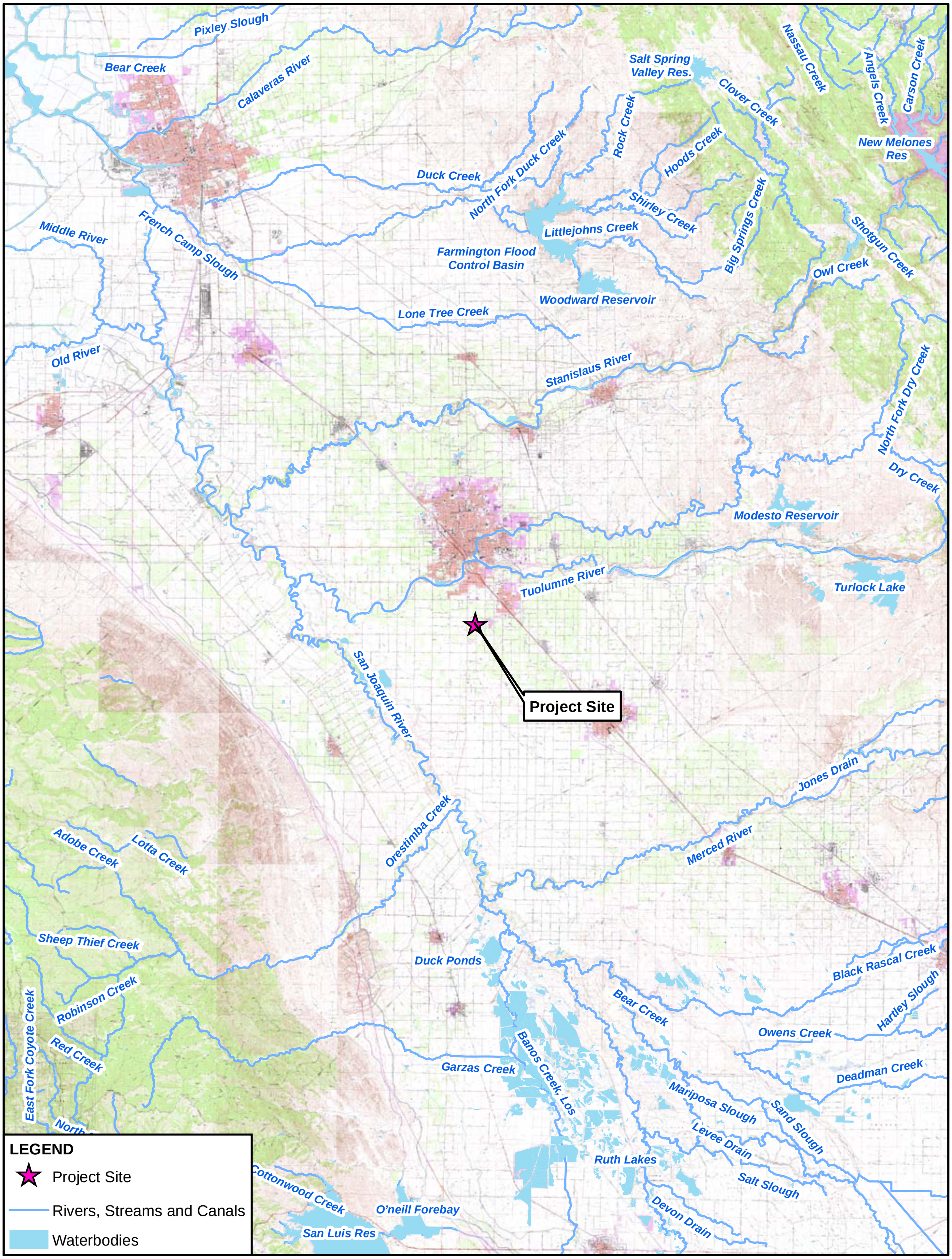
ALMOND POWER PLANT EXPANSION SITE NOTES:

1. TOTAL UNADJUSTED VOLUME 24,245 CU.YDS.
2. TOTAL ESTIMATED VOLUME W/ 23.73% ADJ. 30,000 CU.YDS.
3. CONTRACTOR TO BRING SITE TO MATCH EXISTING PERIMETER
4. TOTAL YARDS ARE YARD PLACED ON SITE
5. SITE SHALL BE FILLED IN 1FT LIFTS AND COMPACTED TO 90% RELATIVE COMPACTION
6. TID GEOTECH ENG. SHALL INSPECT COMPACTION

WB082009009RDD_5C

FIGURE 5C
GRADING PLAN
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

CH2MHILL



Notes:
1. The Department of Water Resources, Groundwater Basin Map, 2004

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 4 8
Miles

FIGURE 6
SURFACE WATER RESOURCES
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

CH2MHILL

NO.	DATE	REVISION	BY	CHK
A	01/23/09	ISSUED FOR REVIEW	TC	JP

RESPONSIBLE ENGINEER

PE #

REVISION APPROVAL — REV A — DATE 01/23/09

DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED
CIVIL	JMP	ELECTRICAL	
STRUCTURAL	[signature]	INST & CONT.	
MECHANICAL		ARCH.	
PROCESS		GEN. ARRANG.	
PIPING			

STATUS

ISSUED	REV	DATE	DM	SDE	PEM
PRELIMINARY	P1				
FOR REVIEW AND APPROVAL	A	1-23-09	JMP	[signature]	JOH
APPROVED FOR CONSTRUCTION					
REVISED & APPROVED FOR CONSTRUCTION					

SCALE AS SHOWN

TURLOCK IRRIGATION DISTRICT

Almond 2 Power Plant

Ceres, CA

PROJECT NO. 383416

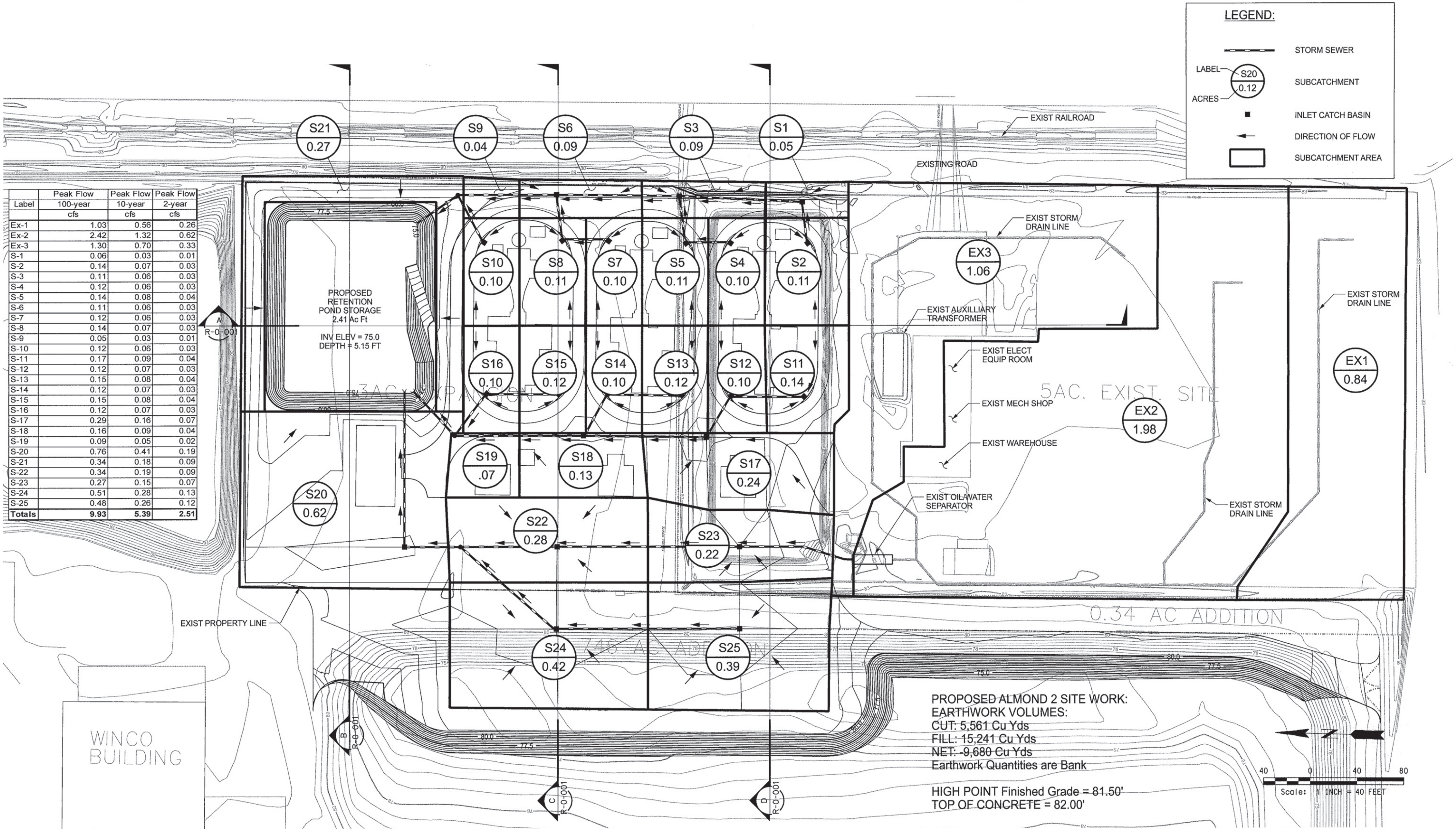
CH2MHILL

FIGURE 7
EXISTING SITE PRE-CONSTRUCTION TOPOGRAPHY AND DRAINAGE
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

DWG. NO. C-000-W-0-001 REV. A

FILENAME: PLOT DATE: PLOT TIME:

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"



Label	Peak Flow 100-year cfs	Peak Flow 10-year cfs	Peak Flow 2-year cfs
Ex-1	1.03	0.56	0.26
Ex-2	2.42	1.32	0.62
Ex-3	1.30	0.70	0.33
S-1	0.06	0.03	0.01
S-2	0.14	0.07	0.03
S-3	0.11	0.06	0.03
S-4	0.12	0.06	0.03
S-5	0.14	0.08	0.04
S-6	0.11	0.06	0.03
S-7	0.12	0.06	0.03
S-8	0.14	0.07	0.03
S-9	0.05	0.03	0.01
S-10	0.12	0.06	0.03
S-11	0.17	0.09	0.04
S-12	0.12	0.07	0.03
S-13	0.15	0.08	0.04
S-14	0.12	0.07	0.03
S-15	0.15	0.08	0.04
S-16	0.12	0.07	0.03
S-17	0.29	0.16	0.07
S-18	0.16	0.09	0.04
S-19	0.09	0.05	0.02
S-20	0.76	0.41	0.19
S-21	0.34	0.18	0.09
S-22	0.34	0.19	0.09
S-23	0.27	0.15	0.07
S-24	0.51	0.28	0.13
S-25	0.48	0.26	0.12
Totals	**9.93**	**5.39**	**2.51**

FIGURE 8
DRAINAGE PLAN
ALMOND 2 POWER PLANT
CERES, CALIFORNIA

Appendix A
Soil Loss Estimates Calculations

Table 5.11-3. Estimate of Soil Loss by Water Erosion Using Revised Universal Soil Loss Equation (RUSLE2)

Feature (acreage)[2]	Activity	Duration (months)	Estimates Using Revised Universal Soil Loss Equation[1]		
			Soil Loss (tons) without BMPs	Soil Loss (tons) with BMPs	Soil Loss (tons/yr) No Project
Project Site (4.60 acres)	Grading	2	0.84	0.0010	0.0078
	Construction	12	0.22	0.0061	-
Laydown Area (1.90 acres) (0.95 acres exposed; 0.95 paved or gravelled)	Grading	1	0.29	0.0017	0.0044
	Construction	12	0.76	0.021	-
Transmission Lines					
Corridor 1 (1.56 acres for construction; 0.0066 acre for pole footprints)	Grading	2	0.0016	0.0045	0.0000
	Construction	4	0.33	0.0090	-
Corridor 2 (2.16 acres for construction; 0.0092 acre for pole footprints)	Grading	2	0.0023	0.0065	0.0000
	Construction	4	0.47	0.013	-
Corridor 3 (0.00 acre for construction; 0.00 acre for pole footprints) - Reconductoring only	Grading	0	0.0000	0.0000	0.00000
	Construction	0	0.000	0.0000	-
Natural Gas Lines					
Alternative A (27.60 acres for construction; 4.22 acres for trench)	Grading	6	2.22	0.33	0.0075
	Construction	6	11.74	0.33	-
Alternative B (33.82 acres for construction; 5.41 acres for trench)	Grading	6	2.77	0.41	0.0092
	Construction	6	14.73	0.41	-
Project Soil Loss Estimates	All activities listed ab	12	**34.37**	**1.53**	**0.029**

Notes:

1. Soil losses (tons/acre/year) are estimated using RUSLE2 software available online [http://fargo.nserl.purdue.edu/rusle2_dataweb/].
   - -The soil characteristics were estimated using RUSLE2 soil profiles corresponding to the mapped NRCS soil unit.
   - -Soil loss (R-factors) were estimated using 2-year, 6-hour point precipitation frequency amount for the Almond Power Plant 2 project site found at [http://www.nws.noaa.gov/ohd/hdsc/noaaatlas2.htm].
   - -Estimates of actual soil losses use the RUSLE2 soil loss times the duration and the affected area. The No Project Alternative estimate does not have a specific duration so loss is given as tons/year.
2. Acreages assume 30 ft corridors for the transmission lines and 100 ft corridors for the natural gas pipeline construction. Trenches for the natural gas pipeline are assumed to be 4 ft wide. The transmission line pole holes will each have a 4 ft by 4 ft excavation footprint.

Other Project Assumptions as follows:

-It is assumed that 100% of the Almond Power Plant 2 project site **and laydown area** will be exposed during grading, and approximately 10% of the site will be bare soil during construction.
-It is assumed that grading the site will take 2 months and construction will take 12 months.
-It is assumed that grading for the laydown area will take 1 month and the area will be covered (gravelled or paved) immediately thereafter.
-It is assumed that soil loss will be negligible from the laydown area once it is covered.
-It is assumed that the natural gas pipeline will be installed within a 4 ft wide trench and a 100 ft construction corridor along existing roadways.
-It is assumed that the natural gas pipeline will take 6 months to construct and will take another 2 months before permanent cover is established.
-The overhead transmission lines will have poles outside of the project footprint. Each pole will have a 4 ft by 4 ft footprint.
-It is assumed that the grading/excavation for the transmission line poles will be completed within 2 months and the entire installation will be completed within 4 months.
-The water and sewer lines will be completed on-site, so no additional soil losses are estimated for them.

RUSLE2 Assumptions as follows:

100-ft slope length. Estimated soil unit slope is the midpoint of the minimum and maximum of the unit slope class.
Construction soil losses assume the following inputs: Management - Bare ground; Contouring - None, rows up and down hill; Diversion/terracing - None; Strips and Barriers - None.
Grading soil losses assume the following inputs: Management - Bare ground/rough surface; Contouring - None, rows up and down hill; Diversion/terracing - None; Strips and Barriers - None.
Construction with BMP soil losses assume the following inputs: Management - Silt fence; Contouring - Perfect, no row grade; Diversion/terracing - None; Strips and Barriers - 2 fences, 1 at end of RUSLE slope.
No Project soil losses assume the following inputs: Management - Dense grass, not harvested; Contouring - None, rows up and down hill; Diversion/terracing - None; Strips and Barriers - None.

Soil Type	Acreage		Soil Loss Estimates Using RUSLE2 software (tons/ac/year)			
Site		**Slope**	**Grading**	**Construction w/o BMPs**	**Construction with BMPs**	**No Project**
HdA	1.5	1.5	1.8	0.80	0.022	0.0023
HdpA	3.1	0.5	0.76	0.32	0.0091	0.0014
	4.6	**Subtotal**	**5.06**	**0.219**	**0.006**	**0.0078**
Laydown Area						
HdA	1.90	1.5	1.8	0.80	0.022	0.0023
	0.95	**Subtotal**	**3.42**	**0.76**	**0.021**	**0.0044**
Transmission Lines						
Corridor 1 (Circuit 1)						
HdA	0.0042	1.5	1.8	0.80	0.022	0.0023
HdpA	0.0024	0.5	0.76	0.32	0.0091	0.0014
	1.56	**Subtotal**	**0.009**	**0.975**	**0.027**	**0.0000**
Corridor 2 (Circuit 2)						
HdA	0.0064	1.5	1.8	0.80	0.022	0.0023
HdpA	0.0023	0.5	0.76	0.32	0.0091	0.0014
DrA	0.0006	0.5	0.88	0.37	0.010	0.0016
	2.16	**Subtotal**	**0.014**	**1.415**	**0.039**	**0.00002**
Corridor 3 (Reconductored Line)						
DrA	NA	0.5	0.88	0.37	0.010	0.0016
HdA	NA	1.5	1.8	0.80	0.022	0.0023
HdpA	NA	0.5	0.76	0.32	0.0091	0.0014
HdsA	NA	0.5	0.76	0.32	0.0091	0.0014
TuA	NA	1.5	1.2	0.50	0.014	0.0014
		Subtotal	**0.000**	**0.000**	**0.000**	**0.000**
Natural Gas Lines						
Alternative A						
DrA	0.81	0.5	0.88	0.37	0.01	0.0016
DwA	1.34	0.5	1.0	0.42	0.012	0.0018
FsA	0.09	0.5	1.0	0.42	0.012	0.0018
FtA	0.17	0.5	1.0	0.42	0.012	0.0019
FuA	0.17	0.5	1.0	0.42	0.012	0.0019
FwA	0.24	0.5	1.0	0.42	0.012	0.00185
HdA	0.45	1.5	1.8	0.80	0.022	0.0023
HdpA	0.12	0.5	0.76	0.32	0.0091	0.0014
HfA	0.50	0.5	0.59	0.24	0.0068	0.0010
HkbA	0.04	0.5	0.59	0.24	0.0068	0.0010
TrA	0.19	0.5	1.0	0.43	0.012	0.0018
TuA	0.14	1.5	1.2	0.50	0.014	0.0014
WaA	0.16	0.5	0.88	0.37	0.010	0.0016
	55.20	**Subtotal**	**4.43**	**23.48**	**0.66**	**0.0075**
Alternative B						
DeA	0.12	1.5	0.59	0.25	0.0072	0.001
DgA	0.12	1.5	0.59	0.25	0.0072	0.001
DrA	1.79	0.5	0.88	0.37	0.01	0.0016
DwA	0.59	0.5	1.0	0.42	0.012	0.0018
FtA	0.04	0.5	1.0	0.42	0.012	0.0019
FuA	0.39	0.5	1.0	0.42	0.012	0.0019
HdA	0.71	1.5	1.8	0.80	0.022	0.0023
HdpA	0.12	0.5	0.76	0.32	0.0091	0.0014
HfA	0.02	0.5	0.59	0.24	0.0068	0.0010
TuA	0.28	1.5	1.2	0.50	0.014	0.0014
WbA	1.13	0.5	0.88	0.37	0.01	0.0016
WdA	0.11	0.5	0.88	0.37	0.01	0.0016
	67.64	**Subtotal**	**5.54**	**29.47**	**0.81**	**0.0092**

Assumptions:
Assumes slope is the mid-point of the slope class
100% of project site would be bare soil during grading.
100% of transmission pole holes and trench areas will be bare soil during grading/excavation.
Assumes 50% of transmission line and natural gas pipeline corridors are currently unprotected.
It is assumed that transmission line poles will be placed every 250 ft along the transmission corridor.
Transmission pole impact area assumes a 4 ft by 4 ft footprint times the number of poles.
Transmission line construction impacts based on a 100 ft corridor along entire length.
The No Project soil loss assumes a 'dense grass, not harvested' management scenario.

Project: TID Almond Power Plant 2 - Jenny Krenz input for areas on 02/25/09 - subject to revision

OBJECTID	AREASYMBOL	Length (miles)	Length (feet)	Acres	Acreage_tot	
Almond Power Plant 2 Site	HdA			1.50	1.50	Acreage received from Mike Haskell (04/07/09).
	HdpA			3.10	3.10	Acreage received from Mike Haskell (04/07/09).
				Sum	4.60	
					0.15	Assumes only 10% of site is bare soil during construction
Laydown Area	HdA			1.90	1.90	Acreage received from Mike Haskell (04/07/09).
				Sum	**0.95**	Assumes 50% of site is bare soil during construction
Natural gas pipeline (Alternative A) - trench	DrA	1.67	8792	0.81	0.81	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	DwA	2.77	14614	1.34	1.34	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	FsA	0.18	937	0.09	0.09	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	FtA	0.36	1899	0.17	0.17	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	FuA	0.36	1885	0.17	0.17	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	FwA	0.49	2578	0.24	0.24	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	HdA	0.92	4855	0.45	0.45	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	HdpA	0.26	1356	0.12	0.12	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	HfA	1.03	5441	0.50	0.50	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	HkbA	0.09	472	0.04	0.04	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	TrA	0.39	2038	0.19	0.19	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	TuA	0.28	1504	0.14	0.14	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	WaA	0.33	1719	0.16	0.16	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
		9.11			**4.42**	Assumes 100% exposed during construction
Natural gas pipeline (Alternative A) - corridor	DrA	1.67	8792	20.18	20.18	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	DwA	2.77	14614	33.55	33.55	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	FsA	0.18	937	2.15	2.15	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	FtA	0.36	1899	4.36	4.36	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	FuA	0.36	1885	4.33	4.33	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	FwA	0.49	2578	5.92	5.92	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	HdA	0.92	4855	11.15	11.15	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	HdpA	0.26	1356	3.11	3.11	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	HfA	1.03	5441	12.49	12.49	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	HkbA	0.09	472	1.08	1.08	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	TrA	0.39	2038	4.68	4.68	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	TuA	0.28	1504	3.45	3.45	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	WaA	0.33	1719	3.95	3.95	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
		9.11		**Sum**	110.40	
					55.20	Assumes only 50% of the corridor is exposed during construction.
Natural gas pipeline (Alternative B) - trench	DeA	0.25	1330	0.12	0.12	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	DgA	0.24	1259	0.12	0.12	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	DrA	3.69	19508	1.79	1.79	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	DwA	1.22	6439	0.59	0.59	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	FtA	0.08	397	0.04	0.04	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	FuA	0.80	4232	0.39	0.39	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	HdA	1.47	7753	0.71	0.71	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	HdpA	0.25	1343	0.12	0.12	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	HfA	0.04	214	0.02	0.02	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	TuA	0.57	2998	0.28	0.28	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	WbA	2.33	12303	1.13	1.13	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
	WdA	0.22	1149	0.11	0.11	Assumes 4 foot wide trench; Miles received in e-mail from Mike Haskell (02/25/09).
		11.16			**5.41**	Assumes 100% exposed during construction
Natural gas pipeline (Alternative B) - corridor	DeA	0.25	1330	3.05	3.05	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	DgA	0.24	1259	2.89	2.89	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	DrA	3.69	19508	44.78	44.78	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	DwA	1.22	6439	14.78	14.78	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	FtA	0.08	397	0.91	0.91	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	FuA	0.80	4232	9.72	9.72	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	HdA	1.47	7753	17.80	17.80	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	HdpA	0.25	1343	3.08	3.08	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	HfA	0.04	214	0.49	0.49	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	TuA	0.57	2998	6.88	6.88	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	WbA	2.33	12303	28.24	28.24	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
	WdA	0.22	1149	2.64	2.64	Assumes 100 foot wide construction corridor (S. Madams, 03/02/09); Miles received in e-mail from Mike Haskell (02/25/09).
		11.16		**Sum**	135.28	
					67.64	Assumes only 50% of the corridor is exposed during construction.
				Pole Holes	**Construction Corridor**	
Tranmission Line - Circuit 1 115-kV Circuit 1 Line	HdA	0.55	2885	0.0042	1.9870	Assumes 4x4 ft hole for each pole spaced at 250 ft. Assumes 30 ft construction corridor. Spacing and corridor from "Transmission" memo 1/5/09; miles in e-mail from Mike H
	HdpA	0.31	1636	0.0024	1.1269	Assumes 4x4 ft hole for each pole spaced at 250 ft. Assumes 30 ft construction corridor. Spacing and corridor from "Transmission" memo 1/5/09; miles in e-mail from Mike H
		0.86	**Sum**	0.0066	3.1139	
		4521		**0.0066**	-	Assumes pole hole footprint will be unprotected until pole installed
	# T poles	18		-	**1.56**	Assumes 50% of the corridor is unprotected during construction
Tranmission Line - Circuit 2 115-kV Circuit 2 Line	HdA	0.82	4330	0.0064	2.9818	Assumes 4x4 ft hole for each pole spaced at 250 ft. Assumes 30 ft construction corridor. Spacing and corridor from "Transmission" memo 1/5/09; miles in e-mail from Mike H
	HdpA	0.30	1560	0.0023	1.0743	Assumes 4x4 ft hole for each pole spaced at 250 ft. Assumes 30 ft construction corridor. Spacing and corridor from "Transmission" memo 1/5/09; miles in e-mail from Mike H
	DrA	0.07	396	0.0006	0.2726	Assumes 4x4 ft hole for each pole spaced at 250 ft. Assumes 30 ft construction corridor. Spacing and corridor from "Transmission" memo 1/5/09; miles in e-mail from Mike H
		1.19	**Sum**	0.0092	4.3287	
		6285		**0.0092**	-	Assumes pole hole footprint will be unprotected until pole installed
	# T poles	25		-	**2.16**	Assumes 50% of the corridor is unprotected during construction
Transmission Line - Reconductored 69kV T-Line	DrA	0.37	1968	NA	0.9036	Assumes no construction on ground, only vehicle traffic & parking. Assumes area under transmission line is currently 100% vegetated. Area of disturbance = 20 ft (Greg Tu
	HdA	0.86	4528	NA	2.0789	Assumes no construction on ground, only vehicle traffic & parking. Assumes area under transmission line is currently 100% vegetated. Area of disturbance = 20 ft (Greg Tu
	HdpA	1.17	6154	NA	2.8254	Assumes no construction on ground, only vehicle traffic & parking. Assumes area under transmission line is currently 100% vegetated. Area of disturbance = 20 ft (Greg Tu
	HdsA	0.24	1288	NA	0.5915	Assumes no construction on ground, only vehicle traffic & parking. Assumes area under transmission line is currently 100% vegetated. Area of disturbance = 20 ft (Greg Tu
	TuA	0.29	1530	NA	0.7024	Assumes no construction on ground, only vehicle traffic & parking. Assumes area under transmission line is currently 100% vegetated. Area of disturbance = 20 ft (Greg Tu
		2.93	**Sum**	NA	7.1018	
					-	Assumes no work will be taking place on ground.
					0.00	Assumed 100% of construction corridor is vegetated or covered.
				Trench acres	**Construction Corridor acres**	
Service Water	-	0	0	**0**	**0**	On-site connection, according to fact sheet dated 12/30/08
Construction Water	-	0	0	**0**	**0**	On-site connection, according to fact sheet dated 12/30/08
Potable Water	-	0	0	**0**	**0**	Will be delivered, according to fact sheet dated 12/30/08
Process Water	-	0	0	**0**	**0**	On-site connection, according to fact sheet dated 12/30/08

Table 5.11-4. Estimate of Total Suspended Particulates (TSP) Emitted from Grading and Wind Erosion

Emission Source	Acreage	Duration (months)	Unmitigated TSP (tons)	Mitigated TSP (tons)
Grading Dust:				
Project Site	4.60	2	0.158	0.055
Laydown Area	1.90	1	0.033	0.011
Natural Gas Pipeline (4 ft trench)				
Alternative A	4.42	6	0.455	0.159
Alternative B	5.41	6	0.558	0.195
Transmission Line Pole Holes				
Corridor 1	0.007	2	0.0002	0.0001
Corridor 2	0.009	2	0.0003	0.0001
Corridor 3	0.000	2	0.0000	0.0000
Transmission Line Total	*0.016*		*0.0005*	*0.0002*
Wind Blown Dust:				
Project Site	4.60	10	0.146	0.051
Laydown Area	0.00	11	0.000	0.000
Natural Gas Pipeline Corridor				
Alternative A	55.20	2	3.496	1.224
Alternative B	67.64	2	4.284	1.499
Transmission Line Corridor				
Corridor 1	1.557	4	0.197	0.069
Corridor 2	2.164	4	0.274	0.096
Corridor 3	0.000	4	0.000	0.000
Transmission Line Total	*3.721*	*4*	*0.471*	*0.165*
Estimated Total			**9.60**	**3.36**

Notes:

All linear feature impacts noted above are for portions outside of the project areas footprint.

Project Assumptions:

Grading for the project site will be completed in a 2 month period and construction will extend an additional 10 months.

Grading for the laydown area will be completed in a 1 month period and the site will be covered (gravelled or paved) immediately.

Approximately 1/10th of the project site will have bare soil exposure during the length of the construction period.

Water and sewer line connections will be made on site.

One of the two natural gas line alternatives will be chosen for this project. Alternative A is 9.11 miles long, and Alternative B is 11.16 miles long.

The natural gas supply line will be installed along roadway rights-of-way in a 4-ft trench with 100-ft construction corridor.

Data Sources:

[a] PM10 Emission Factor Source: Midwest Research Institute, South Coast AQMD Project No. 95040, Level 2 Analysis Procedure, March 1996

[b] PM10 to TSP Conversion Factor Source: Bay Area Air Quality Management District CEQA Guidelines, Assessing the Air Quality Impacts of Projects, December 1999.

SCAQMD CEQA Handbook (1993) Table 11-4 for mitigation efficiency rates (as summarized in Table 8.9-4)

Project: TID Almond Power Plant 2 **Reverified 04/07/09 JLK**
Dust from Wind Erosion - With and Without Mitigation

Grading

PM10 Emission Factor (ton/acre/month)[a]	0.011	MRI factor of 0.011 tons/acre/month is based on 168 hours per month of construction activity. Fact Sheet, 4/26/2007.
Project Site		
Duration (months):	2	Assumes 2 months of active grading.
Site Acreage:	4.60	Assumes 100% of site is graded
PM10 Emitted (tons):	0.10	
TSP Emitted (tons)[b]:	**0.158**	assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	**0.055**	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Laydown Area		
Duration (months):	1	Assumes one month to grade
Site Acreage:	1.90	Assumes 100% of site is graded
PM10 Emitted (tons):	0.02	
TSP Emitted (tons)[b]:	**0.033**	Assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	**0.011**	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Natural Gas Pipeline Trenches		
Alternative A		
Duration (months):	6	Assumes 6 months to grade pipeline
Site Acreage:	4.416	Assumes a 4 ft wide trench
PM10 Emitted (tons):	0.2915	
TSP Emitted (tons)[b]:	**0.4554**	assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	**0.1594**	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Alternative B		
Duration (months):	6	Assumes 6 months to grade pipeline
Site Acreage:	5.411	Assumes a 4 ft wide trench
PM10 Emitted (tons):	0.3571	
TSP Emitted (tons)[b]:	**0.5580**	assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	**0.1953**	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Transmission Line Pole Holes		
Corridor 1		
Duration (months):	2	Assumes 2 months to grade transmission line
Site Acreage:	0.007	Assumes 18 4 ft by 4 ft pole holes
PM10 Emitted (tons):	0.0001	
TSP Emitted (tons)[b]:	**0.0002**	Assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	**0.0001**	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Corridor 2		
Duration (months):	2	Assumes 2 months to grade transmission line
Site Acreage:	0.009	Assumes 25 4 ft by 4 ft pole holes
PM10 Emitted (tons):	0.0002	
TSP Emitted (tons)[b]:	**0.0003**	Assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	**0.0001**	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Corridor 3		
Duration (months):	0	Assumes no grading is necessary to reconductor line
Site Acreage:	0.000	Assumes only reconductoring to take place (on existing poles)
PM10 Emitted (tons):	0.0000	
TSP Emitted (tons)[b]:	**0.0000**	Assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	**0.0000**	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Water Line Trench		
Duration (months):	0	Assumes on-site construction
Site Acreage:	0.000	
PM10 Emitted (tons):	0.000	
TSP Emitted (tons)[b]:	**0.000**	Assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	**0.000**	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Sewer Line Trench		
Duration (months):	0	Assumes on-site construction
Site Acreage:	0.000	
PM10 Emitted (tons):	0.000	
TSP Emitted (tons)[b]:	**0.000**	Assume TSP is 64% PM10
Mitigated TSP Emitted (tons):	**0.000**	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Total Unmitigated TSP Emitted (tons)	**1.205**	
Total Mitigated TSP Emitted (tons)	**0.422**	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4

[a]Emission Factor Source: Midwest Research Institute, South Coast AQMD Project No. 95040, March 1996, Level 2 Analysis Procedure
[b] Conversion Factor Source: Bay Area Air Quality Management District (BAAQMD) BAAQMD CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans. December 1999

Wind Blown Dust

TSP Emission Factor (ton/acre/year)	0.38	Emission Factor Source: AP-42, Section 11.9 Western Surface Coal Mining Table 11.9-4, January 1995.
Project Site		
Acres exposed	4.60	
Duration (months)	10	Assumes 10 months of construction (after 2 months of grading)
TSP Emitted for Site (tons):	**0.146**	Assumes 1/10th of the site is bare soil during 10 month construction period
Mitigated TSP Emitted (tons):	**0.051**	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Laydown Area		
Acres exposed	0.000	Assumes laydown area is completely covered following grading
Duration (months)	11	Assume 11 months for construction period (minus 1 month for grading)
TSP Emitted for Site (tons):	**0.000**	
Mitigated TSP Emitted (tons):	**0.000**	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Natural Gas Pipeline		
Alternative A		
Acres exposed	55.20	Assumes 9.11 mile pipeline with 100 ft construction corridor along side of road
Duration (months)	2	Assumes 2 months after excavating trench that permanent cover (revegetation, paving, etc) is established
TSP Emitted for Site (tons):	**3.496**	
Mitigated TSP Emitted (tons):	**1.224**	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Alternative B		
Acres exposed	67.638	Assumes 11.16 mile pipeline with 100 ft construction corridor along side of road
Duration (months)	2	Assumes 2 months after excavating trench that permanent cover (revegetation, paving, etc) is established
TSP Emitted for Site (tons):	**4.284**	
Mitigated TSP Emitted (tons):	**1.499**	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Transmission Line Corridor		
Corridor 1		
Acres exposed	1.557	Assumes only 50% of construction corridor is exposed soil
Duration (months)	4.0	
TSP Emitted for Site (tons):	**0.197**	
Mitigated TSP Emitted (tons):	**0.069**	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Corridor 2		
Acres exposed	2.164	Assumes only 50% of construction corridor is exposed soil
Duration (months)	4.0	
TSP Emitted for Site (tons):	**0.274**	
Mitigated TSP Emitted (tons):	**0.096**	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Corridor 3		
Acres exposed	0.000	Assumes only 50% of construction corridor is exposed soil
Duration (months)	4.0	
TSP Emitted for Site (tons):	**0.000**	
Mitigated TSP Emitted (tons):	**0.000**	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Water Line Corridor		
Acres exposed	0.000	Assumes on-site construction
Duration (months)	0	
TSP Emitted for Site (tons):	**0.000**	
Mitigated TSP Emitted (tons):	**0.000**	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Sewer Line Corridor		
Acres exposed	0.000	Assumes on-site construction
Duration (months)	0	
TSP Emitted for Site (tons):	**0.000**	
Mitigated TSP Emitted (tons):	**0.000**	Assume 65% reduction in TSP with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4
Total (tons) without mitigation	**8.397**	
Total (tons) with mitigation	**2.939**	Assume 65% reduction in PM10 with watering thrice daily per SCAQMD CEQA Handbook (1993) Table 11-4

MUSYM	MUKEY	muname	NAME	Acres	
HdA	462607	Hanford sanc	Laydown Area	1.90	updated 04/08/09
HdpA	462613	Hanford sanc	Project Site	3.10	updated 04/08/09
HdA	462607	Hanford sanc	Project Site	1.50	updated 04/08/09

NAME	LENGTH MILES		
Natural Gas Pipeline Alternate A	9.11	Entire line	ok 04/08/09
Natural Gas Pipeline Alternate B	11.16	Entire line	ok 04/08/09
115-kV Circuit 1	0.86	Entire line	ok 04/08/09
115-kV Circuit 2	1.19	Entire line	ok 04/08/09
Reconductored 69-kV line	2.93	Entire line	ok 04/08/09

NAME	LENGTH I	Soil Type	Length Miles
115-kV Circuit 1 Line	1636.28	HdpA	0.31
115-kV Circuit 1 Line	2885.12	HdA	0.55
	4521.40		0.86
115-kV Circuit 2 Line	1559.85	HdpA	0.30
115-kV Circuit 2 Line	395.85	DrA	0.07
115-kV Circuit 2 Line	4314.93	HdA	0.82
	6270.63		1.19
Natural Gas Pipeline (Alternate A)	1165.67	DrA	0.22
Natural Gas Pipeline (Alternate A)	151.71	DrA	0.03
Natural Gas Pipeline (Alternate A)	1181.29	DrA	0.22
Natural Gas Pipeline (Alternate A)	19.98	DrA	0.00
Natural Gas Pipeline (Alternate A)	3140.10	DrA	0.59
Natural Gas Pipeline (Alternate A)	941.09	DrA	0.18
Natural Gas Pipeline (Alternate A)	2191.86	DrA	0.42
Natural Gas Pipeline (Alternate A)	1700.38	DwA	0.32
Natural Gas Pipeline (Alternate A)	476.95	DwA	0.09
Natural Gas Pipeline (Alternate A)	21.69	DwA	0.00
Natural Gas Pipeline (Alternate A)	2565.03	DwA	0.49
Natural Gas Pipeline (Alternate A)	2130.91	DwA	0.40
Natural Gas Pipeline (Alternate A)	29.72	DwA	0.01
Natural Gas Pipeline (Alternate A)	866.15	DwA	0.16
Natural Gas Pipeline (Alternate A)	6381.71	DwA	1.21
Natural Gas Pipeline (Alternate A)	441.81	DwA	0.08
Natural Gas Pipeline (Alternate A)	936.88	FsA	0.18
Natural Gas Pipeline (Alternate A)	456.84	FtA	0.09
Natural Gas Pipeline (Alternate A)	760.42	FtA	0.14
Natural Gas Pipeline (Alternate A)	681.75	FtA	0.13
Natural Gas Pipeline (Alternate A)	223.83	FuA	0.04
Natural Gas Pipeline (Alternate A)	1491.22	FuA	0.28
Natural Gas Pipeline (Alternate A)	169.89	FuA	0.03
Natural Gas Pipeline (Alternate A)	1969.15	FwA	0.37
Natural Gas Pipeline (Alternate A)	608.92	FwA	0.12
Natural Gas Pipeline (Alternate A)	82.46	HdA	0.02
Natural Gas Pipeline (Alternate A)	3207.22	HdA	0.61
Natural Gas Pipeline (Alternate A)	1565.45	HdA	0.30
Natural Gas Pipeline (Alternate A)	1356.10	HdpA	0.26
Natural Gas Pipeline (Alternate A)	1009.13	HfA	0.19
Natural Gas Pipeline (Alternate A)	1578.75	HfA	0.30
Natural Gas Pipeline (Alternate A)	933.83	HfA	0.18
Natural Gas Pipeline (Alternate A)	1918.89	HfA	0.36
Natural Gas Pipeline (Alternate A)	471.79	HkbA	0.09
Natural Gas Pipeline (Alternate A)	1390.43	TrA	0.26
Natural Gas Pipeline (Alternate A)	647.75	TrA	0.12
Natural Gas Pipeline (Alternate A)	1504.35	TuA	0.28
Natural Gas Pipeline (Alternate A)	1718.86	WaA	0.33
	48089.96		9.11
Natural Gas Pipeline (Alternate B)	1330.05	DeA	0.25
Natural Gas Pipeline (Alternate B)	1259.23	DgA	0.24
Natural Gas Pipeline (Alternate B)	193.98	DrA	0.04
Natural Gas Pipeline (Alternate B)	2378.81	DrA	0.45
Natural Gas Pipeline (Alternate B)	1691.50	DrA	0.32
Natural Gas Pipeline (Alternate B)	5980.02	DrA	1.13
Natural Gas Pipeline (Alternate B)	1598.91	DrA	0.30
Natural Gas Pipeline (Alternate B)	6779.63	DrA	1.28
Natural Gas Pipeline (Alternate B)	885.20	DrA	0.17
Natural Gas Pipeline (Alternate B)	140.35	DwA	0.03
Natural Gas Pipeline (Alternate B)	1915.85	DwA	0.36
Natural Gas Pipeline (Alternate B)	2890.08	DwA	0.55
Natural Gas Pipeline (Alternate B)	1493.18	DwA	0.28
Natural Gas Pipeline (Alternate B)	397.00	FtA	0.08
Natural Gas Pipeline (Alternate B)	928.95	FuA	0.18
Natural Gas Pipeline (Alternate B)	2523.79	FuA	0.48
Natural Gas Pipeline (Alternate B)	779.53	FuA	0.15
Natural Gas Pipeline (Alternate B)	3461.62	HdA	0.66
Natural Gas Pipeline (Alternate B)	2017.89	HdA	0.38
Natural Gas Pipeline (Alternate B)	1453.19	HdA	0.28
Natural Gas Pipeline (Alternate B)	820.57	HdA	0.16
Natural Gas Pipeline (Alternate B)	1342.96	HdpA	0.25
Natural Gas Pipeline (Alternate B)	213.89	HfA	0.04
Natural Gas Pipeline (Alternate B)	2592.80	TuA	0.49
Natural Gas Pipeline (Alternate B)	404.86	TuA	0.08
Natural Gas Pipeline (Alternate B)	1231.01	WbA	0.23
Natural Gas Pipeline (Alternate B)	2638.88	WbA	0.50
Natural Gas Pipeline (Alternate B)	8432.74	WbA	1.60
Natural Gas Pipeline (Alternate B)	1149.35	WdA	0.22
	58925.85		11.16
Reconductored 69kV Transmission Line	56.64	DrA	0.01
Reconductored 69kV Transmission Line	587.22	DrA	0.11
Reconductored 69kV Transmission Line	1324.19	DrA	0.25
Reconductored 69kV Transmission Line	378.56	HdA	0.07
Reconductored 69kV Transmission Line	611.66	HdA	0.12
Reconductored 69kV Transmission Line	749.68	HdA	0.14
Reconductored 69kV Transmission Line	810.69	HdA	0.15
Reconductored 69kV Transmission Line	557.46	HdA	0.11
Reconductored 69kV Transmission Line	700.92	HdA	0.13
Reconductored 69kV Transmission Line	190.80	HdA	0.04
Reconductored 69kV Transmission Line	528.00	HdA	0.10
Reconductored 69kV Transmission Line	2362.75	HdpA	0.45
Reconductored 69kV Transmission Line	577.81	HdpA	0.11
Reconductored 69kV Transmission Line	1146.66	HdpA	0.22
Reconductored 69kV Transmission Line	797.77	HdpA	0.15
Reconductored 69kV Transmission Line	345.07	HdpA	0.07
Reconductored 69kV Transmission Line	923.61	HdpA	0.17
Reconductored 69kV Transmission Line	100.00	HdsA	0.02
Reconductored 69kV Transmission Line	474.30	HdsA	0.09
Reconductored 69kV Transmission Line	713.95	HdsA	0.14
Reconductored 69kV Transmission Line	300.03	TuA	0.06
Reconductored 69kV Transmission Line	509.33	TuA	0.10
Reconductored 69kV Transmission Line	296.30	TuA	0.06
Reconductored 69kV Transmission Line	424.25	TuA	0.08
	15467.65		2.93

	Miles
DrA	1.67
DwA	2.77
FsA	0.18
FtA	0.36
FuA	0.36
FwA	0.49
HdA	0.92
HdpA	0.26
HfA	1.03
HkbA	0.09
TrA	0.39
TuA	0.28
WaA	0.33
	9.11

	Miles
DeA	0.25
DgA	0.24
DrA	3.69
DwA	1.22
FtA	0.08
FuA	0.80
HdA	1.47
HdpA	0.25
HfA	0.04
TuA	0.57
WbA	2.33
WdA	0.22
	11.16

	Miles
DrA	0.37
HdA	0.86
HdpA	1.17
HdsA	0.24
TuA	0.29
	2.93

Add to text	Add to bottom of table
?	153
DeA	159
DgA	CeA
WbA	CsB
WdA	DtA
	DuA
	DzA
	FrA
	HbA
	HdB
	HddA
	W
	WeA

Project Site

MUSYM	Acres
HdA	1.47
HdpA	2.54
	4.01

Affected Soil Units	Soils w/in 1 mile
DrA	DtA
DwA	DuA
FsA	DzA
FtA	FrA
FuA	HbA
FwA	HdB
HdA	HddA
HdpA	WbA
HdsA	
HfA	
HkbA	
TrA	
TuA	
WaA	

Linear Features

NAME	Soil Type	LENGTH FEET	Length Miles
115-kV Circuit 1 (Corridor 1)	HdA	3223.20	0.61
115-kV Circuit 1 (Corridor 1)	HdA	1282.18	0.24
115-kV Circuit 1 (Corridor 1)	HdpA	1564.62	0.30
115-kV Circuit 1 (Corridor 1)	DrA	406.29	0.08
		6476.29	1.23
115-kV Circuit 2 Line (Corridor 2)	HdA	2730.07	0.52
115-kV Circuit 2 Line (Corridor 2)	HdpA	1636.11	0.31
		4366.17	0.83
Proposed 69-kV T-Line (Corridor 3)	HdA	2429.14	0.46
Proposed 69-kV T-Line (Corridor 3)	HdpA	1827.90	0.35
		4257.04	0.81
Reconductored 69kV T-Line (Corridor 4)	DrA	587.22	0.11
Reconductored 69kV T-Line (Corridor 4)	DrA	1324.19	0.25
Reconductored 69kV T-Line (Corridor 4)	HdA	378.56	0.07
Reconductored 69kV T-Line (Corridor 4)	HdA	611.66	0.12
Reconductored 69kV T-Line (Corridor 4)	HdA	620.06	0.12
Reconductored 69kV T-Line (Corridor 4)	HdA	810.69	0.15
Reconductored 69kV T-Line (Corridor 4)	HdA	557.46	0.11
Reconductored 69kV T-Line (Corridor 4)	HdA	700.92	0.13
Reconductored 69kV T-Line (Corridor 4)	HdA	190.80	0.04
Reconductored 69kV T-Line (Corridor 4)	HdA	584.64	0.11
Reconductored 69kV T-Line (Corridor 4)	HdpA	2362.75	0.45
Reconductored 69kV T-Line (Corridor 4)	HdpA	1146.66	0.22
Reconductored 69kV T-Line (Corridor 4)	HdpA	797.77	0.15
Reconductored 69kV T-Line (Corridor 4)	HdpA	345.07	0.07
Reconductored 69kV T-Line (Corridor 4)	HdpA	923.61	0.17
Reconductored 69kV T-Line (Corridor 4)	HdsA	713.95	0.14
Reconductored 69kV T-Line (Corridor 4)	HdsA	100.00	0.02
Reconductored 69kV T-Line (Corridor 4)	HdsA	474.30	0.09
Reconductored 69kV T-Line (Corridor 4)	TuA	300.03	0.06
Reconductored 69kV T-Line (Corridor 4)	TuA	509.33	0.10
Reconductored 69kV T-Line (Corridor 4)	TuA	296.30	0.06
Reconductored 69kV T-Line (Corridor 4)	TuA	424.25	0.08
		14760.21	2.80
Natural Gas Pipeline	DrA	1165.67	0.22
Natural Gas Pipeline	DrA	151.71	0.03
Natural Gas Pipeline	DrA	1181.29	0.22
Natural Gas Pipeline	DrA	19.98	0.00
Natural Gas Pipeline	DrA	3140.10	0.59
Natural Gas Pipeline	DrA	941.09	0.18
Natural Gas Pipeline	DrA	2191.86	0.42
Natural Gas Pipeline	DwA	1700.38	0.32
Natural Gas Pipeline	DwA	476.95	0.09
Natural Gas Pipeline	DwA	21.69	0.00
Natural Gas Pipeline	DwA	6381.71	1.21
Natural Gas Pipeline	DwA	441.81	0.08
Natural Gas Pipeline	DwA	2565.03	0.49
Natural Gas Pipeline	DwA	2130.91	0.40
Natural Gas Pipeline	DwA	29.72	0.01
Natural Gas Pipeline	DwA	866.15	0.16
Natural Gas Pipeline	FsA	936.88	0.18
Natural Gas Pipeline	FtA	456.84	0.09
Natural Gas Pipeline	FtA	760.42	0.14
Natural Gas Pipeline	FtA	681.75	0.13
Natural Gas Pipeline	FuA	223.83	0.04
Natural Gas Pipeline	FuA	1491.22	0.28
Natural Gas Pipeline	FuA	169.89	0.03
Natural Gas Pipeline	FwA	1969.15	0.37
Natural Gas Pipeline	FwA	608.92	0.12
Natural Gas Pipeline	HdA	3164.57	0.60
Natural Gas Pipeline	HdA	1565.45	0.30
Natural Gas Pipeline	HdA	82.46	0.02
Natural Gas Pipeline	HdpA	2002.81	0.38
Natural Gas Pipeline	HfA	1009.13	0.19
Natural Gas Pipeline	HfA	1578.75	0.30
Natural Gas Pipeline	HfA	933.83	0.18
Natural Gas Pipeline	HfA	1918.89	0.36
Natural Gas Pipeline	HkbA	471.79	0.09
Natural Gas Pipeline	TrA	1390.43	0.26
Natural Gas Pipeline	TrA	647.75	0.12
Natural Gas Pipeline	TuA	1504.35	0.28
Natural Gas Pipeline	WaA	1718.86	0.33
		48694.03	9.22

HdA	0.85
HdpA	0.30
DrA	0.08

DrA	0.36
HdA	0.84
HdpA	1.06
HdsA	0.24
TuA	0.29

DrA	1.67
DwA	2.77
FsA	0.18
FtA	0.36
FuA	0.36
FwA	0.49
HdA	0.91
HdpA	0.38
HfA	1.03
HkbA	0.09
TrA	0.39
TuA	0.28
WaA	0.33

Appendix B
Preliminary Drainage Study

CH2MHILL

CALCULATION SUMMARY & CONTROL SHEET

CALCULATION SET NO. 383416-CE-01

PRELIM.	FINAL	VOID	REVISION
X			A

CLIENT:	Turlock Irrigation District Water & Power	Sheet 1 of 21	Discipline Civil
PROJECT TITLE:	Almond Two Power Plant	Project No	383416
SUBJECT:	Drainage calculations for Peak Runoff and Retention Pond sizing.		

COMPLETED BY:	*John Purdy, P.E.* JMP	DATE:	1-23-09
CHECKED BY:	*Mario Scacco, P.E.* MMS	DATE:	1-23-09
APPROVED BY:	N/A	DATE:	

REVISION SUMMARY: *Initial submittal*

TOTAL NUMBER OF SHEETS IN THIS ISSUE:

SHEETS REVISED, ADDED, or DELETED: *None*

PROBLEM STATEMENT: *Calculate subbasin peak runoff flows and confirm the size of the site stormwater retention pond.*

RESULTS & CONCLUSIONS: *The final pond size of 2.83 acre-feet will accommodate the calculated 100 -year storm runoff volume of 0.95 Ac-Ft with 2.74-feet of freeboard.*

DESIGN BASIS & ASSUMPTIONS: *See page 2*

UNVERIFIED ASSUMPTIONS/OPEN ITEMS: N/A

REFERENCES: NOAA Atlas 2, Volume XI

ATTACHMENTS (Including number of pages): *Drainage System Schematic (1p), Bentley CivilStorm Output Report (9p), California Precipitation Frequency Data Output (1p), Hydrologic Soil Group (4p), Retention Pond Stage-Storage for Rectangular Basin Calculation (1), 100-Year Storm Stormdrain Profiles (3)*

COMPUTER PROGRAM DISCLOSURE INFORMATION:

Program Used	Rev No./Issue Date	CH2M Verified
Bentley Civil Storm	*V8 XM /*	X Yes ____ No

Site hydrology will be based on the following criteria:

Method: SCS Unit Hydrograph Method
Rainfall Distribution: SCS Type I
Hydrologic Soil Group: Group B (See Attachment from NRCS)
Curve Number: 88 - Urban industrial, 72% imp (conservative), HSG B
Drainage Area: 8.03 Acres – Calculation takes into account the proposed project area of 3.01 Acres and the existing Almond Power Plant which is sited on 5.02 Acres.
Minimum Pipe Size for Storm Drain Main Line: 18-inches

Design Storms:

2-year 24 hour - 1.33 inches (Prec. Freq. Data Output, NOAA Atlas 2, See Attachment)
10-year 24 hour – 1.9 inches (NOAA Atlas 2, Volume XI, Figure 17, not Attached)
100-year 24 hour – 2.70 inches Prec. Freq. Data Output, NOAA Atlas 2, See Attachment)

Computed runoff volume tributary to the On-Site Retention Pond:

2-year 24 hour – 0.29 Acre-ft, peak elevation 75.72 ft
10-year 24 hour - 0.54 Acre-ft, peak elevation 76.34 ft
100-year 24 hour – 0.95 Acre-ft, peak elevation 77.26 ft with 2.74 ft of freeboard

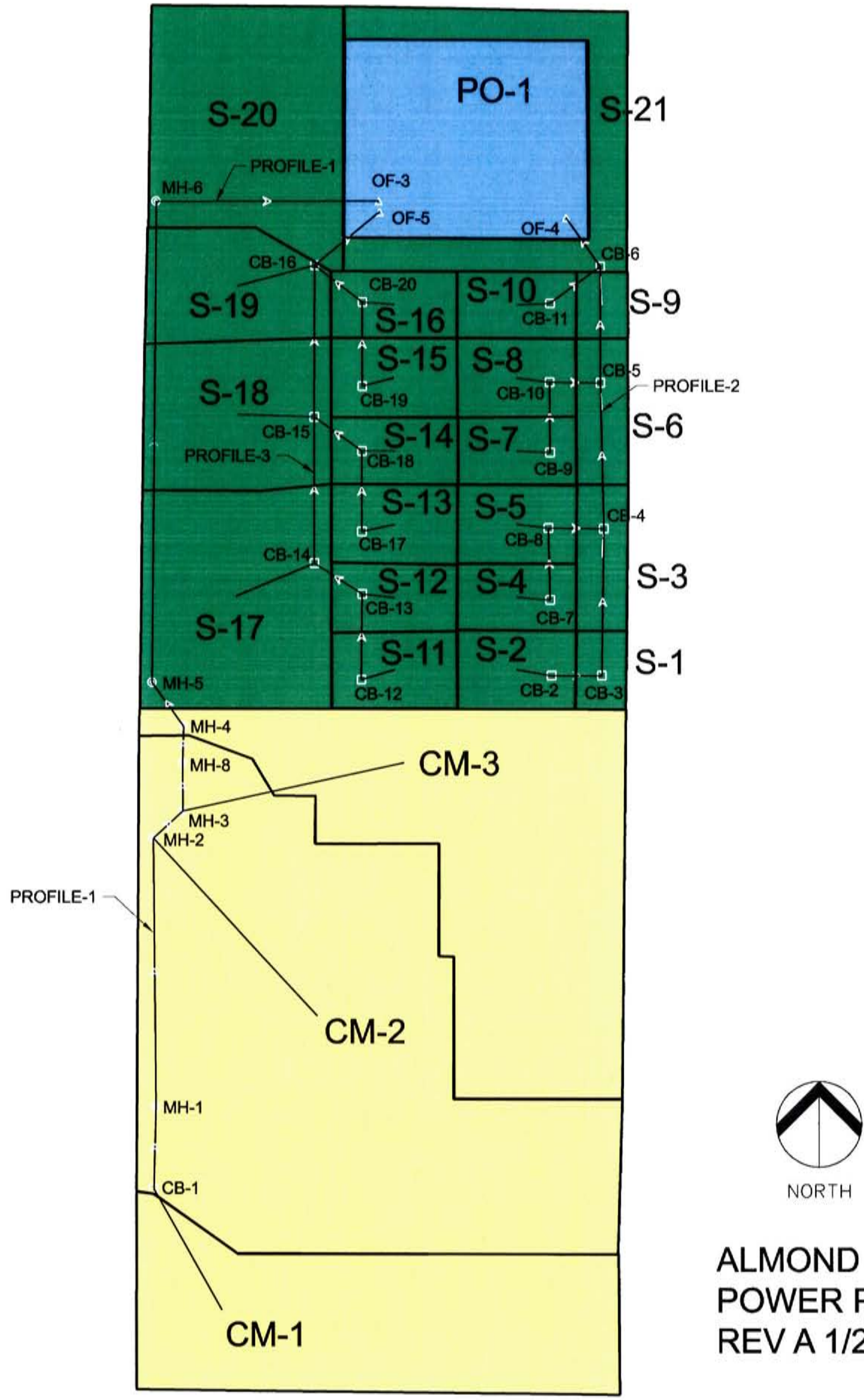
System Description:

The Almond Power Plant is an existing facility in Stanislaus County located near the Town of Ceres, California. The existing plant storm system incorporates a series of inlets and drainage pipes which convey runoff to a oil water separator, which is then discharged to an on-site retention pond.

The proposed project, Almond 2 Power Plant, involves expanding the facility to the north on an adjacent three acre parcel, which includes the existing on-site retention pond, bringing the total area of the facility to just over eight acres. The proposed facility will mitigate storm runoff with a series of inlets and storm drain pipes which will convey the runoff to a proposed on-site retention pond located on the north end of the site. Areas of potential oil contamination will be sited inside containments which will prevent potential contaminates from being conveyed to the storm system. Storm water that is contained will be treated and disposed of per the regulatory requirements. The implementation of these containments will enable for the balance of site runoff to be conveyed directly to the retention pond without prior treatment through an oil water separator.

The existing plant storm system will be tied into at the downstream end of the oil water separator and conveyed to the proposed retention pond by a separate storm drain pipe system. This system is over 550-feet long and therefore incorporates a 0.3 % slope to keep pond and trench depths reasonable. Referring to Profile-1 this system can convey the 100-year peak runoff without ponding at the existing facility even though the pipe invert at the oil water separator is about 2.5 feet above the oil water separator invert. A mechanical system will be implemented to drain the system up stream of the oil water separator when standing water is present.

DRAINAGE SYSTEM SCHEMATIC



ALMOND 2
POWER PLANT
REV A 1/23/09

ALMOND TWO POWER PLANT 1/23/2009
100-YEAR
CATCHMENT SUMMARY

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume Total Runoff (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
CM-1	Unit Hydrograph	SCS CN	2.70	0.84	0.11	1.03	595.00
CM-2	Unit Hydrograph	SCS CN	2.70	1.98	0.26	2.42	595.00
CM-3	Unit Hydrograph	SCS CN	2.70	1.14	0.15	1.40	595.00
S-1	Unit Hydrograph	SCS CN	2.70	0.05	0.01	0.06	595.00
S-2	Unit Hydrograph	SCS CN	2.70	0.11	0.01	0.14	595.00
S-3	Unit Hydrograph	SCS CN	2.70	0.09	0.01	0.11	595.00
S-4	Unit Hydrograph	SCS CN	2.70	0.10	0.01	0.12	595.00
S-5	Unit Hydrograph	SCS CN	2.70	0.11	0.01	0.14	595.00
S-6	Unit Hydrograph	SCS CN	2.70	0.09	0.01	0.11	595.00
S-7	Unit Hydrograph	SCS CN	2.70	0.10	0.01	0.12	595.00
S-8	Unit Hydrograph	SCS CN	2.70	0.11	0.01	0.14	595.00
S-9	Unit Hydrograph	SCS CN	2.70	0.04	0.01	0.05	595.00
S-10	Unit Hydrograph	SCS CN	2.70	0.10	0.01	0.12	595.00
S-11	Unit Hydrograph	SCS CN	2.70	0.11	0.01	0.14	595.00
S-12	Unit Hydrograph	SCS CN	2.70	0.10	0.01	0.12	595.00
S-13	Unit Hydrograph	SCS CN	2.70	0.12	0.02	0.15	595.00
S-14	Unit Hydrograph	SCS CN	2.70	0.10	0.01	0.12	595.00
S-15	Unit Hydrograph	SCS CN	2.70	0.12	0.02	0.15	595.00
S-16	Unit Hydrograph	SCS CN	2.70	0.10	0.01	0.12	595.00
S-17	Unit Hydrograph	SCS CN	2.70	0.50	0.06	0.61	595.00
S-18	Unit Hydrograph	SCS CN	2.70	0.33	0.04	0.41	595.00
S-19	Unit Hydrograph	SCS CN	2.70	0.23	0.03	0.28	595.00
S-20	Unit Hydrograph	SCS CN	2.70	1.43	0.07	0.66	595.00
S-21	Unit Hydrograph	SCS CN	2.70	0.31	0.04	0.38	595.00

ALMOND TWO POWER PLANT
100-YEAR
GENERAL SUMMARY

1/23/2009

Label	Element Type	Branch	Time to Max Flow (min)	Flow (Max) (ft^3/s)	Velocity (Max) (ft/s)	Hydraulic Grade (Max) (ft)
MH-1	Manhole	8	---	---	---	78.75
MH-2	Manhole	8	---	---	---	77.86
MH-3	Manhole	8	---	---	---	77.82
MH-4	Manhole	8	---	---	---	77.49
MH-5	Manhole	8	---	---	---	77.39
MH-6	Manhole	8	---	---	---	77.26
MH-8	Manhole	8	---	---	---	77.58
CB-1	Catch Basin	8	---	---	---	78.76
CB-2	Catch Basin	4	---	---	---	78.67
CB-3	Catch Basin	4	---	---	---	78.52
CB-4	Catch Basin	4	---	---	---	78.08
CB-5	Catch Basin	4	---	---	---	77.64
CB-6	Catch Basin	4	---	---	---	77.26
CB-7	Catch Basin	5	---	---	---	78.66
CB-8	Catch Basin	5	---	---	---	78.43
CB-9	Catch Basin	6	---	---	---	78.67
CB-10	Catch Basin	6	---	---	---	78.41
CB-11	Catch Basin	7	---	---	---	78.61
CB-12	Catch Basin	1	---	---	---	78.68
CB-13	Catch Basin	1	---	---	---	78.43
CB-14	Catch Basin	1	---	---	---	78.34
CB-15	Catch Basin	1	---	---	---	77.94
CB-16	Catch Basin	1	---	---	---	77.48
CB-17	Catch Basin	2	---	---	---	78.68
CB-18	Catch Basin	2	---	---	---	78.38
CB-19	Catch Basin	3	---	---	---	78.68
CB-20	Catch Basin	3	---	---	---	78.35
CO-1	Conduit	8	598	0.97	1.24	78.76
CO-2	Conduit	8	595	3.28	4.18	78.23
CO-3	Conduit	8	595	3.27	4.17	77.83
CO-6	Conduit	8	598	4.51	4.52	77.43
CO-7	Conduit	8	598	4.54	4.42	77.26
CO-10	Conduit	8	598	4.21	4.14	77.26
CO-11	Conduit	8	595	4.63	5.89	77.60
CO-12	Conduit	8	598	4.51	4.52	77.52
CO-13	Conduit	4	595	0.13	0.74	78.60
CO-14	Conduit	4	595	0.18	1.65	78.27
CO-15	Conduit	4	598	0.53	2.31	77.82
CO-16	Conduit	4	598	0.88	2.75	77.41
CO-17	Conduit	4	598	1.03	2.91	77.26
CO-18	Conduit	5	595	0.11	0.64	78.53
CO-19	Conduit	5	595	0.24	2.46	78.20
CO-20	Conduit	6	595	0.11	0.65	78.55
CO-21	Conduit	6	595	0.24	3.34	77.98
CO-22	Conduit	7	595	0.12	0.64	77.87
CO-23	Conduit	1	595	0.13	0.76	78.53
CO-24	Conduit	1	595	0.25	1.67	78.34
CO-25	Conduit	1	595	0.83	2.70	78.08
CO-26	Conduit	1	598	1.46	3.17	77.67
CO-27	Conduit	1	598	1.99	3.56	77.30
CO-28	Conduit	2	595	0.14	0.80	78.55
CO-29	Conduit	2	595	0.26	2.95	78.00
CO-30	Conduit	3	595	0.14	0.79	78.53
CO-31	Conduit	3	595	0.26	3.51	77.71
PO-1	Pond	1	---	---	---	77.26

ALMOND TWO POWER PLANT
100-YEAR
NODE SUMMARY

1/23/2009

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Max) (ft³/s)	Time To Max Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Max Captured Flow (min)	Flow (Captured Max) (ft³/s)
MH-1	Manhole	8	595	3.37	---	---	---	---
MH-2	Manhole	8	595	3.28	---	---	---	---
MH-3	Manhole	8	595	4.67	---	---	---	---
MH-4	Manhole	8	598	4.51	---	---	---	---
MH-5	Manhole	8	598	4.51	---	---	---	---
MH-6	Manhole	8	598	4.54	---	---	---	---
MH-8	Manhole	8	595	4.63	---	---	---	---
CB-1	Catch Basin	8	595	1.03	595	1.03	595	1.03
CB-2	Catch Basin	4	595	0.14	595	0.14	595	0.14
CB-3	Catch Basin	4	595	0.19	595	0.06	595	0.06
CB-4	Catch Basin	4	595	0.53	595	0.11	595	0.11
CB-5	Catch Basin	4	598	0.86	595	0.11	595	0.11
CB-6	Catch Basin	4	598	1.03	595	0.05	595	0.05
CB-7	Catch Basin	5	595	0.12	595	0.12	595	0.12
CB-8	Catch Basin	5	595	0.25	595	0.14	595	0.14
CB-9	Catch Basin	6	595	0.12	595	0.12	595	0.12
CB-10	Catch Basin	6	595	0.25	595	0.14	595	0.14
CB-11	Catch Basin	7	595	0.12	595	0.12	595	0.12
CB-12	Catch Basin	1	595	0.14	595	0.14	595	0.14
CB-13	Catch Basin	1	595	0.26	595	0.12	595	0.12
CB-14	Catch Basin	1	595	0.86	595	0.61	595	0.61
CB-15	Catch Basin	1	595	1.49	595	0.41	595	0.41
CB-16	Catch Basin	1	598	1.98	595	0.28	595	0.28
CB-17	Catch Basin	2	595	0.15	595	0.15	595	0.15
CB-18	Catch Basin	2	595	0.26	595	0.12	595	0.12
CB-19	Catch Basin	3	595	0.15	595	0.15	595	0.15
CB-20	Catch Basin	3	595	0.26	595	0.12	595	0.12
OF-3	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-4	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-5	Outfall	0	(N/A)	(N/A)	---	---	---	---
PO-1	Pond	1	598	8.37	---	---	---	---

RETENTION POND
SUMMARY

Time to Max Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time to Max Hydraulic Grade & Storage (min)	Depth (Maximum) (ft)	Hydraulic Grade (Maximum) (ft)	Storage (Maximum) (ac-ft)
598	8.37	1437.98	2.26	77.26	0.95

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ALMOND TWO POWER PLANT 1/23/2009
10-YEAR
CATCHMENT SUMMARY

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume Total Runoff (ac-ft)	Flow (Peak) (ft^3/s)	Time To Peak (min)
CM-1	Unit Hydrograph	SCS CN	1.90	0.84	0.06	0.56	595.00
CM-2	Unit Hydrograph	SCS CN	1.90	1.98	0.15	1.31	595.00
CM-3	Unit Hydrograph	SCS CN	1.90	1.14	0.08	0.76	595.00
S-1	Unit Hydrograph	SCS CN	1.90	0.05	0.00	0.03	595.00
S-2	Unit Hydrograph	SCS CN	1.90	0.11	0.01	0.07	595.00
S-3	Unit Hydrograph	SCS CN	1.90	0.09	0.01	0.06	595.00
S-4	Unit Hydrograph	SCS CN	1.90	0.10	0.01	0.06	595.00
S-5	Unit Hydrograph	SCS CN	1.90	0.11	0.01	0.08	595.00
S-6	Unit Hydrograph	SCS CN	1.90	0.09	0.01	0.06	595.00
S-7	Unit Hydrograph	SCS CN	1.90	0.10	0.01	0.06	595.00
S-8	Unit Hydrograph	SCS CN	1.90	0.11	0.01	0.07	595.00
S-9	Unit Hydrograph	SCS CN	1.90	0.04	0.00	0.03	595.00
S-10	Unit Hydrograph	SCS CN	1.90	0.10	0.01	0.06	595.00
S-11	Unit Hydrograph	SCS CN	1.90	0.11	0.01	0.08	595.00
S-12	Unit Hydrograph	SCS CN	1.90	0.10	0.01	0.07	595.00
S-13	Unit Hydrograph	SCS CN	1.90	0.12	0.01	0.08	595.00
S-14	Unit Hydrograph	SCS CN	1.90	0.10	0.01	0.07	595.00
S-15	Unit Hydrograph	SCS CN	1.90	0.12	0.01	0.08	595.00
S-16	Unit Hydrograph	SCS CN	1.90	0.10	0.01	0.07	595.00
S-17	Unit Hydrograph	SCS CN	1.90	0.50	0.04	0.33	595.00
S-18	Unit Hydrograph	SCS CN	1.90	0.33	0.02	0.22	595.00
S-19	Unit Hydrograph	SCS CN	1.90	0.23	0.02	0.15	595.00
S-20	Unit Hydrograph	SCS CN	1.90	1.43	0.04	0.36	595.00
S-21	Unit Hydrograph	SCS CN	1.90	0.31	0.02	0.21	595.00

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ALMOND TWO POWER PLANT
10-YEAR
GENERAL SUMMARY

1/23/2009

Label	Element Type	Branch	Time to Max Flow (min)	Flow (Max) (ft^3/s)	Velocity (Max) (ft/s)	Hydraulic Grade (Max) (ft)
MH-1	Manhole	8	---	---	---	77.44
MH-2	Manhole	8	---	---	---	77.37
MH-3	Manhole	8	---	---	---	77.36
MH-4	Manhole	8	---	---	---	77.26
MH-5	Manhole	8	---	---	---	77.13
MH-6	Manhole	8	---	---	---	76.34
MH-8	Manhole	8	---	---	---	77.34
CB-1	Catch Basin	8	---	---	---	77.44
CB-2	Catch Basin	4	---	---	---	78.64
CB-3	Catch Basin	4	---	---	---	78.48
CB-4	Catch Basin	4	---	---	---	78.01
CB-5	Catch Basin	4	---	---	---	77.54
CB-6	Catch Basin	4	---	---	---	77.14
CB-7	Catch Basin	5	---	---	---	78.63
CB-8	Catch Basin	5	---	---	---	78.38
CB-9	Catch Basin	6	---	---	---	78.64
CB-10	Catch Basin	6	---	---	---	78.38
CB-11	Catch Basin	7	---	---	---	78.58
CB-12	Catch Basin	1	---	---	---	78.64
CB-13	Catch Basin	1	---	---	---	78.38
CB-14	Catch Basin	1	---	---	---	78.25
CB-15	Catch Basin	1	---	---	---	77.81
CB-16	Catch Basin	1	---	---	---	77.33
CB-17	Catch Basin	2	---	---	---	78.64
CB-18	Catch Basin	2	---	---	---	78.34
CB-19	Catch Basin	3	---	---	---	78.64
CB-20	Catch Basin	3	---	---	---	78.32
CO-1	Conduit	8	598	0.53	0.68	77.44
CO-2	Conduit	8	595	1.76	2.24	77.40
CO-3	Conduit	8	598	1.76	2.24	77.36
CO-6	Conduit	8	598	2.46	3.72	77.20
CO-7	Conduit	8	598	2.48	3.77	76.62
CO-10	Conduit	8	598	2.45	3.79	76.34
CO-11	Conduit	8	595	2.49	3.17	77.35
CO-12	Conduit	8	598	2.46	3.72	77.30
CO-13	Conduit	4	595	0.07	0.42	78.56
CO-14	Conduit	4	598	0.10	0.58	78.22
CO-15	Conduit	4	598	0.29	1.87	77.76
CO-16	Conduit	4	598	0.48	2.25	77.33
CO-17	Conduit	4	598	0.56	2.40	77.03
CO-18	Conduit	5	595	0.06	0.37	78.50
CO-19	Conduit	5	595	0.13	0.73	78.16
CO-20	Conduit	6	595	0.06	0.37	78.51
CO-21	Conduit	6	595	0.13	0.71	77.95
CO-22	Conduit	7	595	0.06	0.36	77.85
CO-23	Conduit	1	595	0.07	0.43	78.49
CO-24	Conduit	1	598	0.13	0.76	78.27
CO-25	Conduit	1	595	0.45	2.21	78.00
CO-26	Conduit	1	598	0.80	2.64	77.55
CO-27	Conduit	1	598	1.09	2.98	77.16
CO-28	Conduit	2	595	0.08	0.45	78.51
CO-29	Conduit	2	595	0.14	0.76	77.97
CO-30	Conduit	3	595	0.08	0.45	78.49
CO-31	Conduit	3	595	0.14	0.75	77.68
PO-1	Pond	1	---	---	---	76.34

ALMOND TWO POWER PLANT 1/23/2009
10-YEAR
NODE SUMMARY

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Max) (ft³/s)	Time To Max Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Max Captured Flow (min)	Flow (Captured Max) (ft³/s)
MH-1	Manhole	8	595	1.81	---	---	---	---
MH-2	Manhole	8	595	1.76	---	---	---	---
MH-3	Manhole	8	595	2.51	---	---	---	---
MH-4	Manhole	8	598	2.46	---	---	---	---
MH-5	Manhole	8	598	2.46	---	---	---	---
MH-6	Manhole	8	598	2.46	---	---	---	---
MH-8	Manhole	8	595	2.49	---	---	---	---
CB-1	Catch Basin	8	595	0.56	595.00	0.56	595	0.56
CB-2	Catch Basin	4	595	0.07	595.00	0.07	595	0.07
CB-3	Catch Basin	4	595	0.10	595.00	0.03	595	0.03
CB-4	Catch Basin	4	595	0.28	595.00	0.06	595	0.06
CB-5	Catch Basin	4	598	0.47	595.00	0.06	595	0.06
CB-6	Catch Basin	4	598	0.56	595.00	0.03	595	0.03
CB-7	Catch Basin	5	595	0.06	595.00	0.06	595	0.06
CB-8	Catch Basin	5	595	0.13	595.00	0.08	595	0.08
CB-9	Catch Basin	6	595	0.06	595.00	0.06	595	0.06
CB-10	Catch Basin	6	595	0.13	595.00	0.07	595	0.07
CB-11	Catch Basin	7	595	0.06	595.00	0.06	595	0.06
CB-12	Catch Basin	1	595	0.08	595.00	0.08	595	0.08
CB-13	Catch Basin	1	595	0.14	595.00	0.07	595	0.07
CB-14	Catch Basin	1	595	0.47	595.00	0.33	595	0.33
CB-15	Catch Basin	1	595	0.80	595.00	0.22	595	0.22
CB-16	Catch Basin	1	598	1.08	595.00	0.15	595	0.15
CB-17	Catch Basin	2	595	0.08	595.00	0.08	595	0.08
CB-18	Catch Basin	2	595	0.14	595.00	0.07	595	0.07
CB-19	Catch Basin	3	595	0.08	595.00	0.08	595	0.08
CB-20	Catch Basin	3	595	0.14	595.00	0.07	595	0.07
OF-3	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-4	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-5	Outfall	0	(N/A)	(N/A)	---	---	---	---
PO-1	Pond	1	598	4.60	---	---	---	---

RETENTION POND
SUMMARY

Time to Max Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time to Max Hydraulic Grade & Storage (min)	Depth (Maximum) (ft)	Hydraulic Grade (Maximum) (ft)	Storage (Maximum) (ac-ft)
598	4.6	1437.98	1.34	76.34	0.54

ALMOND TWO POWER PLANT 1/23/2009
2-YEAR
CATCHMENT SUMMARY

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume Total Runoff (ac-ft)	Flow (Peak) (ft^3/s)	Time To Peak (min)
CM-1	Unit Hydrograph	SCS CN	1.33	0.84	0.03	0.26	595.00
CM-2	Unit Hydrograph	SCS CN	1.33	1.98	0.08	0.61	595.00
CM-3	Unit Hydrograph	SCS CN	1.33	1.14	0.04	0.35	595.00
S-1	Unit Hydrograph	SCS CN	1.33	0.05	0.00	0.01	595.00
S-2	Unit Hydrograph	SCS CN	1.33	0.11	0.00	0.03	595.00
S-3	Unit Hydrograph	SCS CN	1.33	0.09	0.00	0.03	595.00
S-4	Unit Hydrograph	SCS CN	1.33	0.10	0.00	0.03	595.00
S-5	Unit Hydrograph	SCS CN	1.33	0.11	0.00	0.04	595.00
S-6	Unit Hydrograph	SCS CN	1.33	0.09	0.00	0.03	595.00
S-7	Unit Hydrograph	SCS CN	1.33	0.10	0.00	0.03	595.00
S-8	Unit Hydrograph	SCS CN	1.33	0.11	0.00	0.03	595.00
S-9	Unit Hydrograph	SCS CN	1.33	0.04	0.00	0.01	595.00
S-10	Unit Hydrograph	SCS CN	1.33	0.10	0.00	0.03	595.00
S-11	Unit Hydrograph	SCS CN	1.33	0.11	0.00	0.04	595.00
S-12	Unit Hydrograph	SCS CN	1.33	0.10	0.00	0.03	595.00
S-13	Unit Hydrograph	SCS CN	1.33	0.12	0.00	0.04	595.00
S-14	Unit Hydrograph	SCS CN	1.33	0.10	0.00	0.03	595.00
S-15	Unit Hydrograph	SCS CN	1.33	0.12	0.00	0.04	595.00
S-16	Unit Hydrograph	SCS CN	1.33	0.10	0.00	0.03	595.00
S-17	Unit Hydrograph	SCS CN	1.33	0.50	0.02	0.16	595.00
S-18	Unit Hydrograph	SCS CN	1.33	0.33	0.01	0.10	595.00
S-19	Unit Hydrograph	SCS CN	1.33	0.23	0.01	0.07	595.00
S-20	Unit Hydrograph	SCS CN	1.33	1.43	0.02	0.17	595.00
S-21	Unit Hydrograph	SCS CN	1.33	0.31	0.01	0.10	595.00

ALMOND TWO POWER PLANT 1/23/2009
2-YEAR
GENERAL SUMMARY

Label	Element Type	Branch	Time to Max Flow (min)	Flow (Max) (ft^3/s)	Velocity (Max) (ft/s)	Hydraulic Grade (Max) (ft)
MH-1	Manhole	8	---	---	---	77.18
MH-2	Manhole	8	---	---	---	77.15
MH-3	Manhole	8	---	---	---	77.15
MH-4	Manhole	8	---	---	---	77.06
MH-5	Manhole	8	---	---	---	76.94
MH-6	Manhole	8	---	---	---	75.90
MH-8	Manhole	8	---	---	---	77.14
CB-1	Catch Basin	8	---	---	---	77.19
CB-2	Catch Basin	4	---	---	---	78.59
CB-3	Catch Basin	4	---	---	---	78.44
CB-4	Catch Basin	4	---	---	---	77.95
CB-5	Catch Basin	4	---	---	---	77.47
CB-6	Catch Basin	4	---	---	---	77.06
CB-7	Catch Basin	5	---	---	---	78.58
CB-8	Catch Basin	5	---	---	---	78.35
CB-9	Catch Basin	6	---	---	---	78.58
CB-10	Catch Basin	6	---	---	---	78.35
CB-11	Catch Basin	7	---	---	---	78.55
CB-12	Catch Basin	1	---	---	---	78.60
CB-13	Catch Basin	1	---	---	---	78.34
CB-14	Catch Basin	1	---	---	---	78.18
CB-15	Catch Basin	1	---	---	---	77.71
CB-16	Catch Basin	1	---	---	---	77.21
CB-17	Catch Basin	2	---	---	---	78.60
CB-18	Catch Basin	2	---	---	---	78.31
CB-19	Catch Basin	3	---	---	---	78.60
CB-20	Catch Basin	3	---	---	---	78.29
CO-1	Conduit	8	598	0.25	0.35	77.19
CO-2	Conduit	8	598	0.84	1.07	77.17
CO-3	Conduit	8	598	0.84	1.07	77.15
CO-6	Conduit	8	598	1.17	3.02	77.00
CO-7	Conduit	8	598	1.15	3.01	76.42
CO-10	Conduit	8	600	1.15	3.01	75.72
CO-11	Conduit	8	598	1.18	1.50	77.14
CO-12	Conduit	8	598	1.17	3.02	77.10
CO-13	Conduit	4	598	0.03	0.21	78.52
CO-14	Conduit	4	598	0.05	0.30	78.19
CO-15	Conduit	4	598	0.14	0.76	77.70
CO-16	Conduit	4	598	0.23	1.71	77.25
CO-17	Conduit	4	598	0.26	1.84	76.94
CO-18	Conduit	5	598	0.03	0.18	78.45
CO-19	Conduit	5	598	0.06	0.36	78.13
CO-20	Conduit	6	598	0.03	0.19	78.46
CO-21	Conduit	6	598	0.06	0.35	77.93
CO-22	Conduit	7	595	0.03	0.17	77.81
CO-23	Conduit	1	598	0.03	0.22	78.45
CO-24	Conduit	1	598	0.06	0.39	78.23
CO-25	Conduit	1	598	0.21	1.67	77.93
CO-26	Conduit	1	598	0.38	2.06	77.45
CO-27	Conduit	1	598	0.52	2.35	77.04
CO-28	Conduit	2	598	0.04	0.23	78.47
CO-29	Conduit	2	598	0.07	0.38	77.94
CO-30	Conduit	3	598	0.04	0.23	78.45
CO-31	Conduit	3	598	0.07	0.37	77.65
PO-1	Pond	1	---	---	---	75.72

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ALMOND TWO POWER PLANT 1/23/2009
2-YEAR
NODE SUMMARY

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Max) (ft³/s)	Time To Max Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Max Captured Flow (min)	Flow (Captured Max) (ft³/s)
MH-1	Manhole	8	595	0.84	---	---	---	---
MH-2	Manhole	8	598	0.84	---	---	---	---
MH-3	Manhole	8	598	1.17	---	---	---	---
MH-4	Manhole	8	598	1.17	---	---	---	---
MH-5	Manhole	8	598	1.16	---	---	---	---
MH-6	Manhole	8	600	1.15	---	---	---	---
MH-8	Manhole	8	598	1.18	---	---	---	---
CB-1	Catch Basin	8	595	0.26	595.00	0.26	595	0.26
CB-2	Catch Basin	4	595	0.03	595.00	0.03	595	0.03
CB-3	Catch Basin	4	595	0.05	595.00	0.01	595	0.01
CB-4	Catch Basin	4	598	0.14	595.00	0.03	595	0.03
CB-5	Catch Basin	4	598	0.22	595.00	0.03	595	0.03
CB-6	Catch Basin	4	598	0.26	595.00	0.01	595	0.01
CB-7	Catch Basin	5	595	0.03	595.00	0.03	595	0.03
CB-8	Catch Basin	5	595	0.06	595.00	0.04	595	0.04
CB-9	Catch Basin	6	595	0.03	595.00	0.03	595	0.03
CB-10	Catch Basin	6	595	0.06	595.00	0.03	595	0.03
CB-11	Catch Basin	7	595	0.03	595.00	0.03	595	0.03
CB-12	Catch Basin	1	595	0.04	595.00	0.04	595	0.04
CB-13	Catch Basin	1	595	0.06	595.00	0.03	595	0.03
CB-14	Catch Basin	1	595	0.22	595.00	0.16	595	0.16
CB-15	Catch Basin	1	598	0.38	595.00	0.10	595	0.1
CB-16	Catch Basin	1	598	0.52	595.00	0.07	595	0.07
CB-17	Catch Basin	2	595	0.04	595.00	0.04	595	0.04
CB-18	Catch Basin	2	595	0.07	595.00	0.03	595	0.03
CB-19	Catch Basin	3	595	0.04	595.00	0.04	595	0.04
CB-20	Catch Basin	3	595	0.07	595.00	0.03	595	0.03
OF-3	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-4	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-5	Outfall	0	(N/A)	(N/A)	---	---	---	---
PO-1	Pond	1	600	2.14	---	---	---	---

RETENTION POND
SUMMARY

Time to Max Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time to Max Hydraulic Grade & Storage (min)	Depth (Maximum) (ft)	Hydraulic Grade (Maximum) (ft)	Storage (Maximum) (ac-ft)
600	2.14	1437.98	0.72	75.72	0.29

13

Precipitation Frequency Data Output

NOAA Atlas 2

California 37.5753?N 120.9853?W

Site-specific Estimates

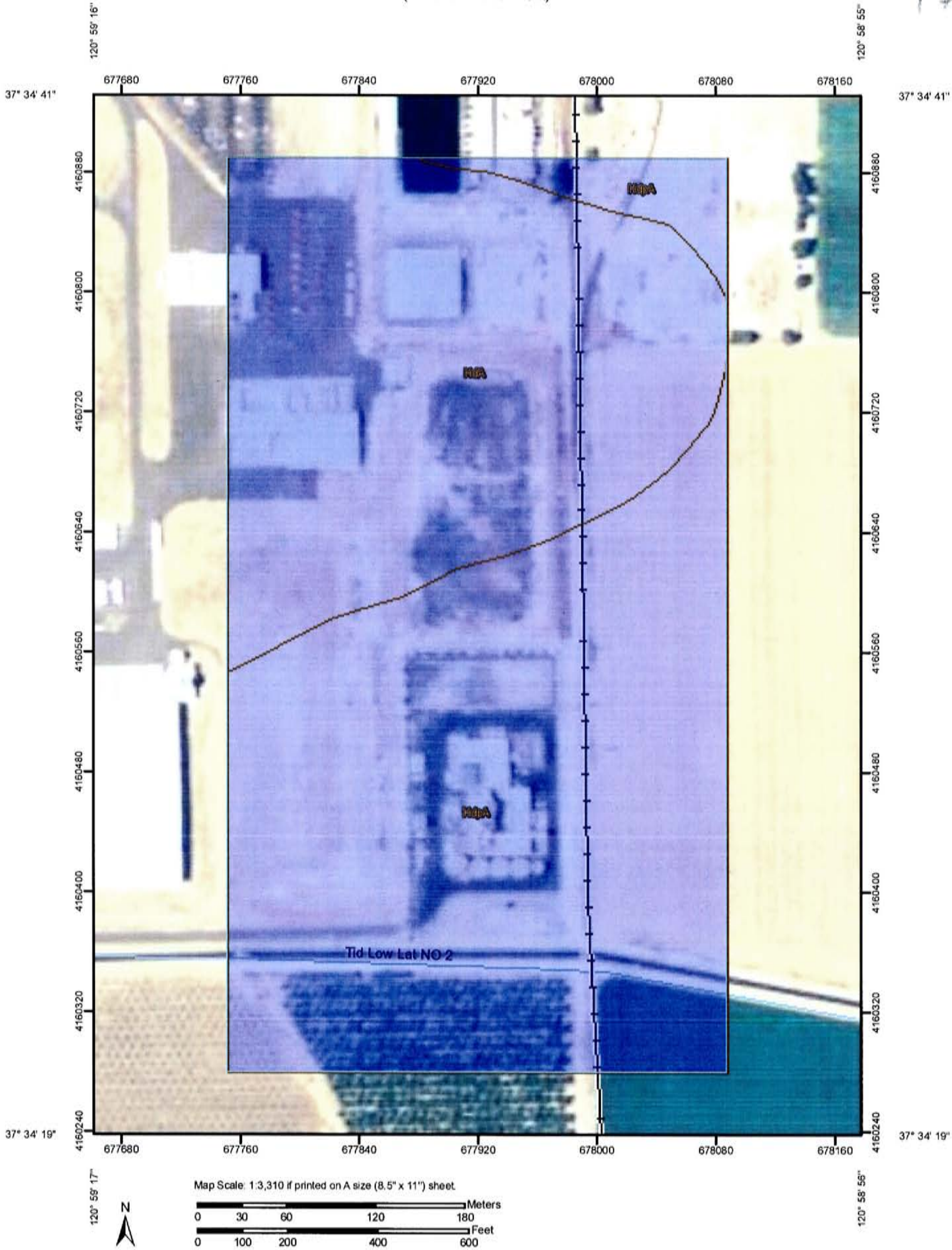
Map	Precipitation (inches)	Precipitation Intensity (in/hr)
2-year 6-hour	0.89	0.15
2-year 24-hour	1.33	0.06
100-year 6-hour	1.85	0.31
100-year 24-hour	2.70	0.11

Hydrometeorological Design Studies Center - NOAA/National Weather Service
1325 East-West Highway - Silver Spring, MD 20910 - (301) 713-1669

Thu Jan 8 16:09:54 2009

Hydrologic Soil Group—Eastern Stanislaus Area, California
(Almond 2 Power Plant)

14



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Units

Soil Ratings

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Political Features

Cities

Water Features

Oceans

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

MAP INFORMATION

Map Scale: 1:3,310 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 10N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eastern Stanislaus Area, California
Survey Area Data: Version 5, Dec 17, 2007

Date(s) aerial images were photographed: 6/12/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Eastern Stanislaus Area, California				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
HdA	Hanford sandy loam, 0 to 3 percent slopes	B	20.6	40.7%
HdpA	Hanford sandy loam, moderately deep over silt, 0 to 1 percent slopes	B	30.0	59.3%
Totals for Area of Interest			**50.7**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

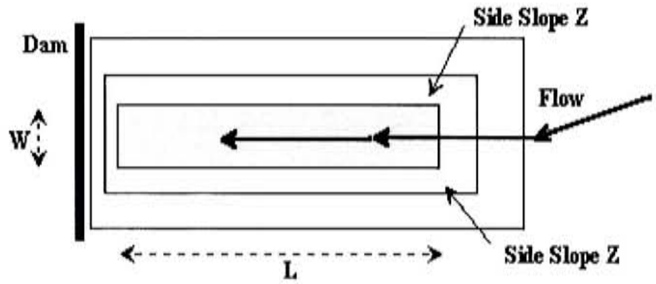
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

STAGE-STORAGE FOR RECTANGULAR BASIN



Design Information (Input):

Width of Basin Bottom	W =	112.80	ft
Length of Basin Bottom	L =	146.50	ft
Side-Slope of Dam (H:V)	Zd =	3.00	ft/ft

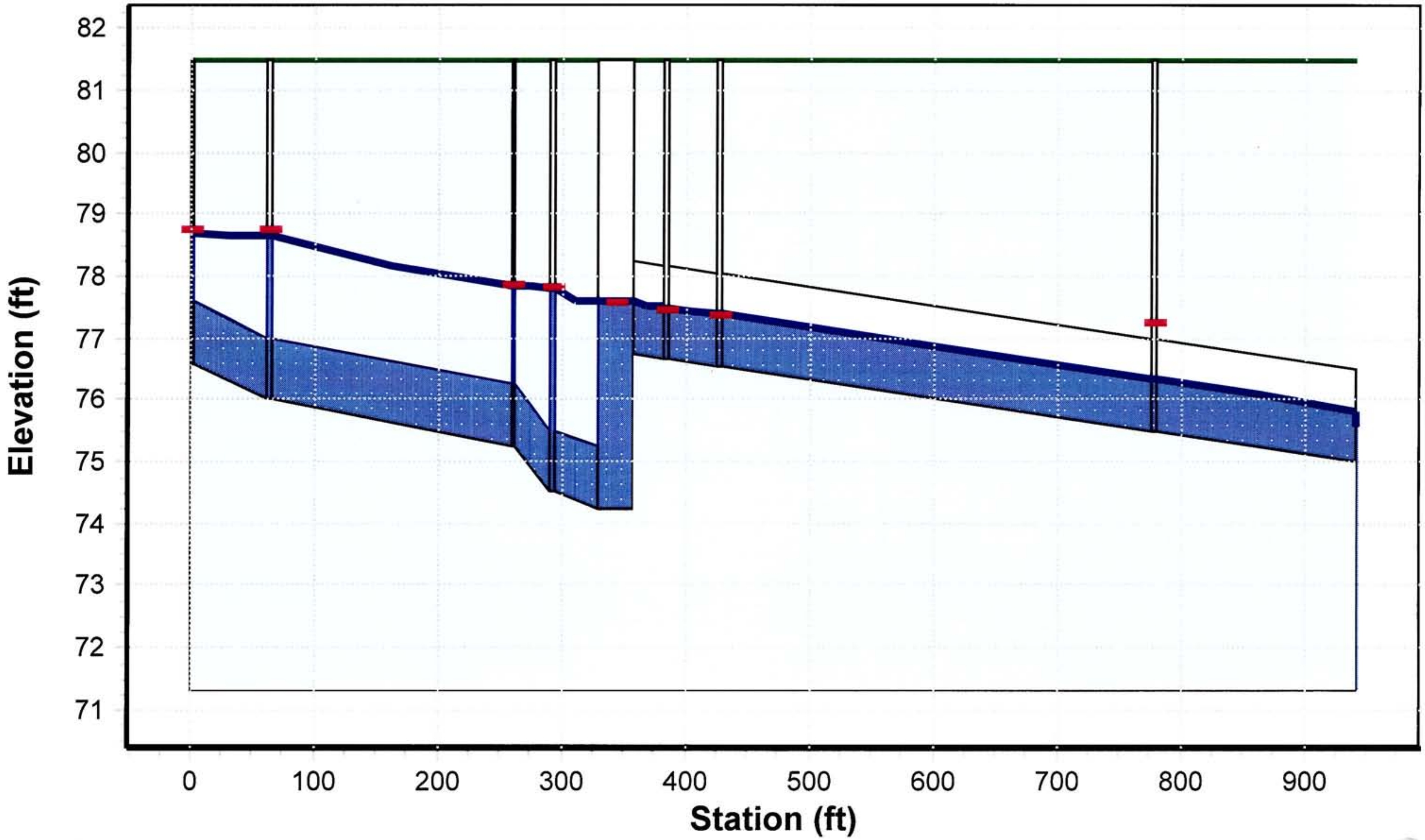
Stage-Storage Relationship:

Enter water surface elevations in ascending order.

Water Surface Elevation ft (input)	Side-slope for next depth stage ft/ft (H:V) (input)	Width of Cross Section ft (output)	Length of Cross Section ft (output)	Cross Section Area acres (output)	Volume above Datum acre-ft (output)
75.00	3.00	112.80	146.50	0.38	0.00
76.00	3.00	118.80	152.50	0.42	0.40
77.00	3.00	124.80	158.50	0.45	0.83
78.00	3.00	130.80	164.50	0.49	1.31
79.00	3.00	136.80	170.50	0.54	1.82
80.00	3.00	142.80	176.50	0.58	2.38
81.00	3.00	148.80	182.50	0.62	2.98

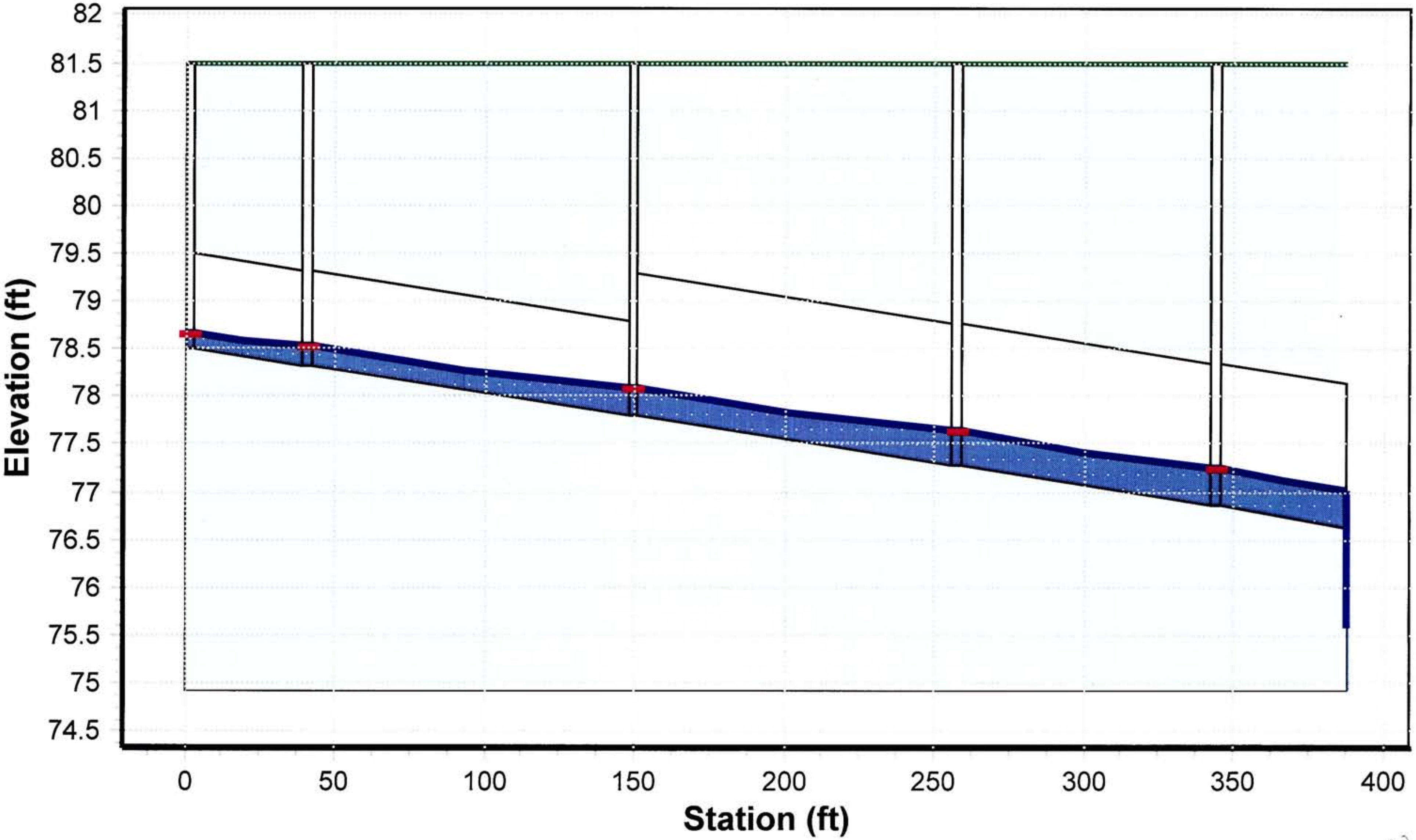
100 - YEAR STORM

Profile - 1 - Base Time: 09:58:00



100-YEAR STORM

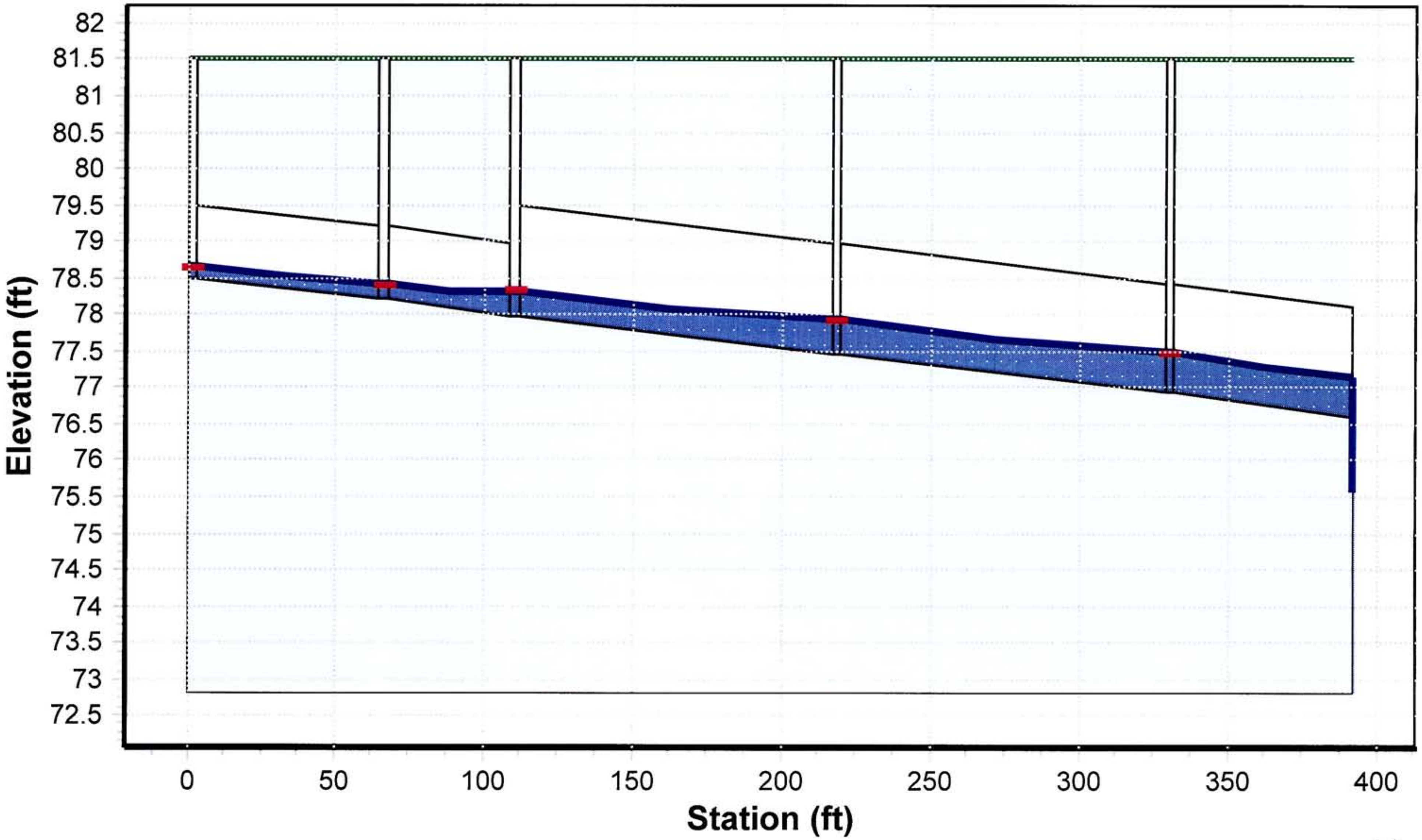
Profile - 2 - Base Time: 09:58:00



20

100-YEAR STORM

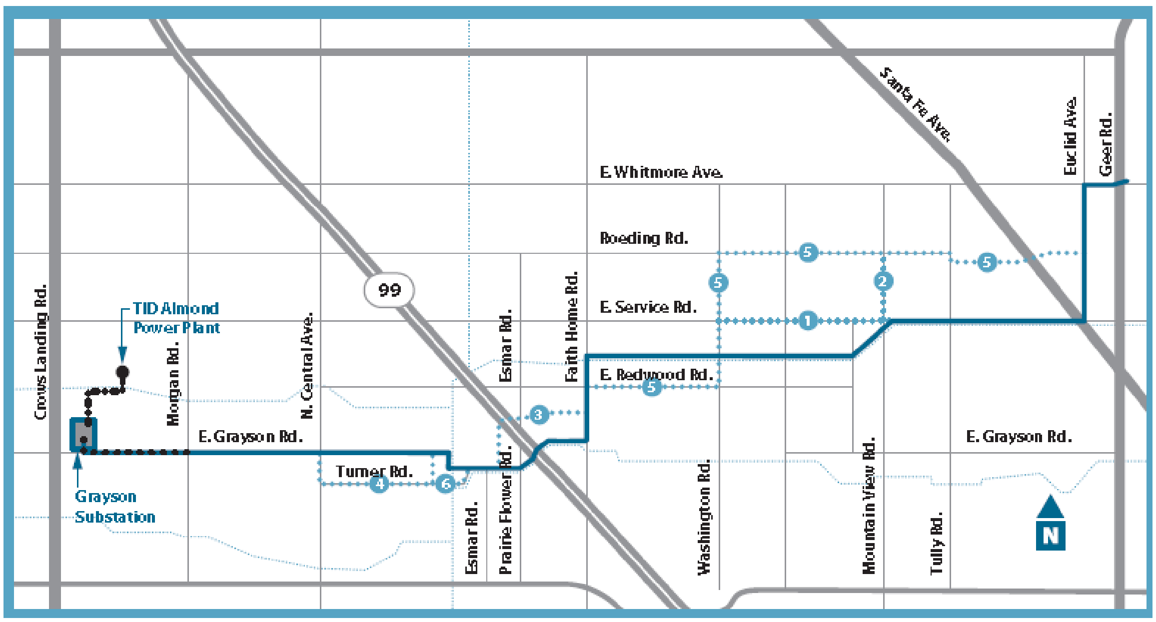
Profile - 3 - Base Time: 09:58:00



Hughson-Grayson 115-kV Transmission Line and Substation Project

Draft Environmental Impact Report

SCH #: 2009012075



Prepared for:

Turlock Irrigation District

TID WATER & POWER
Serving Central California since 1887

Prepared by:

STRACHAN CONSULTING

With assistance from:

PARUS CONSULTING, INC.

August 10, 2009

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TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

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LIST OF ACRONYMS

dBA	A-weighted decibel
ACHP	Advisory Council on Historic Preservation
AB	assembly bill
APN	assessor’s parcel number
Ldn	average day-night 24-hour average sound level
BMPs	best management practices
BNSF	Burlington Northern Santa Fe
CARB	California Air Resources Board
CAAQs	California Ambient Air Quality Standards
CBC	California Building Code
CCAA	California Clean Air Act
CCAT	California Climate Action Team Report
CADHS	California Department of Health Services
CHHSLs	California Human Health Screening Levels
CO	carbon monoxide
CCIC	Central California Information Center
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CNPS	California Native Plant Society
CNDDB	California Natural Diversity Database
CPUC	California Public Utilities Commission
CWA	Clean Water Act
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
CO_2	carbon dioxide
CO_2e	CO_2 equivalents
CRHR	California Register of Historical Resources
CWA	Clean Water Act
CCAP	Climate Change Action Plan
dB	decibel
DPM	diesel particulate matter
EDR	Environmental Data Resources, Inc.

EIR	Environmental Impact Report
EMF	electromagnetic field
F	Fahrenheit
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
FAA	Federal Aviation Administration
FCAA	Federal Clean Air Act
FCAAA	Federal Clean Air Act Amendments
FESA	Federal Endangered Species Act
GHG	greenhouse gas
HCP	Habitat Conservation Plan
Hz	hertz
hp	horsepower
IEEE	Institute of Electrical and Electronics Engineers
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
kV	kilovolt
LUST	leaking underground storage tank
MVA	megavolt amperes
MW	megawatt
m	meter
MTBA	Migratory Bird Treaty Act
mG	milligaus
MID	Modesto Irrigation District
MLD	most likely descendent
NAAQs	National Ambient Air Quality Standards
NESC	National Electric Safety Code
NIEHS	National Institute of Environmental Health Services
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
PM	particulate matter

PCB	polychlorinated biphenyls
PRC	Public Resources Code
PUC	Public Utilities Commission
ROG	reactive organic gasses
ROWD	Report of Waste Discharge
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
Leq	sound level over a given time period
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SIP	State Implementation Plan
StanCOG	Stanislaus Council of Governments
SCDER	Stanislaus County Department of Environmental Resources
SMARA	Surface Mining and Reclamation Act
SOI	Sphere of Influence
SPCC	Spill Prevention, Control, and Countermeasures Plan
SLIC	Spills, Leaks, Investigations, and Cleanups
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminates
TID	Turlock Irrigation District
v	volt
UBC	Uniform Building Code
UPRR	Union Pacific Railroad
URBEMIS	Urban Emissions Model
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
WDRs	Waste Discharge Requirements

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1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

This Draft Environmental Impact Report (EIR) evaluates the environmental impacts associated with implementation of the proposed Hughson-Grayson 115-kV Transmission Line and Substation Project (the Project). Turlock Irrigation District (TID) will serve as the lead agency for the Project, which includes construction of an approximately 10 mile 115 kilovolt (kV) transmission line, with a 12-kV underbuild in most locations, along a route that would begin near Hughson, California and terminate near Ceres, California at a new 7.35-acre substation, the Grayson Substation. The Project also includes construction of a double circuit 69-kV transmission line, which would follow the same route as the 115-kV transmission line for the first 0.8 miles from the Grayson Substation, extending east on East Grayson Road, and a second 69-kV transmission line that would extend approximately 0.5 miles north of the Grayson Substation to the existing TID Almond Power Plant. The proposed 115-kV and two 69-kV transmission line routes would run adjacent to numerous residences and through agricultural land.

This Draft EIR provides a description of the Project setting and characteristics. It also includes an environmental evaluation that identifies the potential environmental impacts associated with implementation of the Project. Mitigation measures are proposed to avoid or reduce the severity of any identified significant impacts.

A full Project Description is provided in Chapter 3 of this document. Alternatives to the Project are discussed inChapter 5.

1.2 PURPOSE AND INTENDED USES OF THIS DRAFT ENVIRONMENTAL IMPACT REPORT

This Draft EIR was prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.). An EIR is a full disclosure, public information document in which the significant environmental impacts of a project are evaluated, feasible measures to mitigate significant impacts are identified, and alternatives to the project that can reduce or avoid significant environmental effects are discussed.

The purpose of an EIR is not to recommend either approval or denial of a project. CEQA requires decision-makers to balance the benefits of a project against its unavoidable environmental effects in deciding whether to carry out a project. The lead agency will consider the Draft EIR, comments received on the Draft EIR, and responses to those comments before making a decision on the Project. If significant environmental effects are identified, the lead agency must adopt findings indicating whether feasible mitigation measures or alternatives exist that can avoid or reduce those effects. If the significant environmental impacts are identified as unavoidable, the lead agency may still approve the project if it determines that the social, economic, or other benefits of the Project outweigh its unavoidable impacts. The lead agency would then be required to prepare a Statement of Overriding Considerations that discusses the specific reasons for approving the project, based on information in the EIR and other information in the record.

1.2.1 TYPE OF ENVIRONMENTAL IMPACT REPORT

The Hughson-Grayson 115-kV Transmission Line and Substation Project EIR is a Project EIR, pursuant to State CEQA Guidelines Section 15161. A Project EIR is an informational document designed to provide a basis for the local planning and decision-making process. A Project EIR is the most common type of EIR, examining the environmental impacts of a specific development. This type of EIR focuses on changes in the environment that would result from the Project. In accordance with the State CEQA Guidelines, a Project EIR must examine all phases of the Project, including construction and operation.

1.3 DRAFT ENVIRONMENTAL IMPACT REPORT SCOPE AND METHODOLOGY

The issues evaluated in this Draft EIR are those anticipated to result from construction and operation of the Hughson-Grayson 115-kV Transmission Line and Substation Project, as determined from comments received on the Notice of Preparation (NOP), Initial Study (IS), Public Scoping Meeting, and an understanding of the Project characteristics. The resource areas for which issues are evaluated in this Draft EIR are as follows:

- Land Use
- Aesthetics
- Biological Resources
- Hydrology and Water Quality
- Air Quality
- Greenhouse Gas Emissions
- Geology and Soils
- Cultural Resources
- Hazards and Hazardous Materials
- Noise
- Transportation
- Public Services and Utilities
- Socioeconomics

1.3.1 EFFECTS FOUND NOT TO BE SIGNIFICANT

Under the CEQA statutes and the State CEQA Guidelines, a lead agency may limit an EIR's discussion of environmental effects when they are not considered potentially significant (Public Resources Code Section 21002.1(e); State CEQA Guidelines Sections 15128 and 15143). Information used to determine which impacts would be potentially significant was derived from a review of applicable planning and CEQA documentation, field work, a review of the Project, feedback from ongoing public and agency consultation, and comments received on the NOP and IS and at the public scoping meeting (Appendix A).

1.3.2 PUBLIC REVIEW PROCESS

INITIAL STUDY AND NOTICE OF PREPARATION

Consistent with the requirements of CEQA, a good faith effort has been made during the preparation of this Draft EIR to contact affected agencies, organizations, and individuals who may have an interest in the Project. This effort included Issuance of an NOP to the Governor's Office of Planning and Research on January 26, 2009, and subsequent reissuance on February 10, 2009. The NOP is a brief notice sent by the lead agency to notify responsible agencies, trustee agencies, and potentially affected federal, state, and local agencies that the lead agency plans to prepare a Draft EIR and solicits guidance regarding the scope and content of the Draft EIR.

An IS was circulated in conjunction with the NOP. An IS is a preliminary analysis, conducted by the lead agency and used to determine whether it is necessary to prepare an EIR or if a Negative Declaration would be sufficient (CEQA Guidelines Section 15065). In accordance with State CEQA Guidelines Section 15064(a), an EIR must be prepared if substantial evidence exists indicating that the Project may have a significant effect on the environment. The IS was utilized as a tool to communicate the Project concepts and likely key issues with interested members of the public, as well as trustee and responsible agencies, and to focus issue areas that could be potentially significant. The comments received on the NOP and IS are included in Appendix B.

PUBLIC SCOPING MEETING

The process of determining the scope, focus, and content of an EIR is known as "scoping." Scoping helps to identify the range of actions, alternatives, environmental effects, methods of assessment, and mitigation measures to be analyzed in depth, and eliminates from detailed study those issues that are not important to the current proposal.

Formal scoping meetings are not required by CEQA; however, TID held a public scoping meeting to provide an opportunity for agencies and the public to provide comments to aid in determining the scope and content of the Draft EIR. A public meeting was held at 6:30 p.m. on February 18, 2009, at the Hughson Community/Senior Center, 2307 4th Street, Hughson, California, to solicit comments on the Project.

A public notice was printed in the Modesto Bee on February 14 and 15, 2009. The public notice identified the Project; indicated the dates of the public scoping period; and advertised the date, time, and location of the public scoping meeting.

REVIEW OF THIS DRAFT ENVIRONMENTAL IMPACT REPORT

This Draft EIR is being circulated to federal, state, and local agencies, and to interested organizations and individuals who may wish to review and comment on the report. During the 45-day public review period, written comments may be directed to Mr. Greg Tucker, Electrical Engineering Department Manager, at the following address:

Turlock Irrigation District

P.O. Box 949
Turlock, CA 95381-0949
Business: (209) 883-8410
Facsimile: (209) 656-2148

FINAL ENVIRONMENTAL IMPACT REPORT AND CERTIFICATION

Written and oral comments received in response to the Draft EIR will be addressed in a Response to Comments document which, together with the revised Draft EIR text, will constitute the Final EIR. TID's Board of Directors will then review the Project, the EIR, and public testimony and decide whether to certify the EIR and whether to approve or deny the Project.

If the TID Board approves the Project when significant impacts identified by the EIR cannot be mitigated to a less than significant level, it must state in writing the reasons for its actions. A Statement of Overriding Considerations must be included in the record of the Project approval and mentioned in the Notice of Determination (CEQA *Guidelines*, §15093[c]).

MITIGATION MONITORING PLAN

Section 15097 of the CEQA Guidelines requires lead agencies to adopt a reporting and mitigation monitoring program for the changes to the Project that it has adopted or made a condition of Project approval in order to mitigate or avoid significant effects on the environment. Throughout the EIR, mitigation measures have been clearly identified to facilitate establishment of a monitoring and reporting program. Mitigation measures adopted by TID as conditions for approval of the Project have been included in the Project Mitigation Monitoring Plan to verify compliance. The Mitigation Monitoring Plan is included in Appendix C.

1.4 AGENCY ROLES AND RESPONSIBILITIES

1.4.1 LEAD AGENCY

An EIR is an informational document used in the planning and decision-making process by the lead agency and responsible and trustee agencies. The lead agency is the public agency with primary responsibility over the Project. In accordance with State CEQA Guidelines Section 15051(b)(1), "the lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." The lead agency for the Project is TID. As such, the TID Board of Directors has the principal responsibility for approving and carrying out the Project and for ensuring that the requirements of CEQA have been met.

1.5 TERMINOLOGY USED IN THIS ENVIRONMENTAL IMPACT REPORT

To assist in the understanding of this report, the following descriptions, as found in Article 20 of the State CEQA Guidelines, are provided:

- "Project" means the whole of an action, which has the potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment directly or ultimately.
- "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the Project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.
- "Environment" means the physical conditions that exist within the area which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved shall be the area in which significant effects would occur either directly or indirectly as a result of the Project. The "environment" includes both natural and man-made conditions.

- "Effects" and "impacts" as used in this document are synonymous. Effects analyzed under CEQA must be related to a physical change. Effects include:
    - direct or primary effects that are caused by the Project and occur at the same time and place; and
    - indirect or secondary effects that are caused by the Project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.
- "Mitigation" includes:
    - avoiding the impact altogether by not taking a certain action or parts of an action;
    - minimizing impacts by limiting the degree or magnitude of the action and its implementation;
    - rectifying the impact by repairing, rehabilitating, or restoring the impacted environment;
    - reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
    - compensating for the impact by replacing or providing substitute resources or environments.
- "Cumulative impacts" refers to two or more individual effects that, when considered together, are considerable or which compound or increase other environmental impacts:
    - The individual effects may be changes resulting from a single project or a number of separate projects.
    - The cumulative impact from several projects is the change in the environment that results from the incremental impact of the Project when added to other closely related past, present, and reasonably foreseeable probable future projects.

> Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

This Draft EIR uses a variety of terms to describe the level of significance of adverse impacts identified during the course of the environmental analysis. These terms are defined below.

- A "less-than-significant impact" is an impact that is adverse but that does not exceed the defined standards of significance. Less-than-significant impacts do not require mitigation.
- A "potentially significant impact" is an impact for which there is not enough information to make a finding of less-than-significant impact; however, for the purpose of this Draft EIR, the impact is considered significant. A potentially significant impact is equivalent to a significant impact and requires the identification of feasible mitigation measures or alternatives.
- A "significant impact" is an impact that exceeds the defined standards of significance and would or could cause a substantial adverse change in the environment. Mitigation measures are recommended to eliminate the impact or reduce it to a less-than-significant level.
- A "significant and unavoidable impact" is an impact that exceeds the defined standards of significance and that cannot be eliminated or reduced to a less-than-significant level through the implementation of mitigation measures.

1.6 ORGANIZATION OF THIS ENVIRONMENTAL IMPACT REPORT

This Draft EIR is organized into chapters, as identified and briefly described below. Chapters are further divided into sections (e.g., Section 4.1, Land Use).

CHAPTER 1, INTRODUCTION Chapter 1 describes the purpose and organization of the Draft EIR, context, and terminology used in the Draft EIR.

CHAPTER 2, EXECUTIVE SUMMARY This Chapter summarizes the Project Description, significant environmental impacts that would result from the Project, and mitigation measures proposed to reduce or eliminate those impacts.

CHAPTER 3, PROJECT DESCRIPTION Chapter 3 describes the Project location, Project characteristics, and Project objectives.

CHAPTER 4, ENVIRONMENTAL SETTING, ENVIRONMENTAL IMPACTS, AND MITIGATION MEASURES For each environmental issue area, this Chapter describes the existing environmental setting, discusses the environmental impacts associated with the Project, and identifies mitigation for the impacts.

CHAPTER 5, ALTERNATIVES ANALYSIS This Chapter describes the alternatives to the Project that are being considered to mitigate the Project's environmental impacts while meeting most of the Project's objectives.

CHAPTER 6, CUMULATIVE AND GROWTH-INDUCING IMPACTS This Chapter evaluates the extent to which the Project would contribute to cumulative impacts in the region or induce economic or population growth in Stanislaus County.

CHAPTER 7, REPORT PREPARATION This Chapter identifies the Draft EIR authors and consultants who provided analysis in support of the Draft EIR's conclusions.

CHAPTER 8, REFERENCES This Chapter sets forth a comprehensive listing of all sources of information used in the preparation of the Draft EIR.

APPENDICES Appendices contain various technical reports, letters, and official publications that have been summarized or otherwise used in preparation of the Draft EIR.

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2.0 EXECUTIVE SUMMARY

This Executive Summary is provided in accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15123. This Chapter summarizes the proposed actions and potential consequences. The summary includes a brief synopsis of the proposed the Hughson-Grayson 115-kV Transmission Line and Substation Project (the Project), environmental impacts and mitigation, areas of known controversy, and issues to be resolved during environmental review, in accordance with CEQA Guidelines Section 15132(b). Table 2–1 (at the end of this section) presents a summary of potential environmental impacts, their level of significance without mitigation measures, recommended mitigation measures, and the levels of significance following the implementation of mitigation measures.

2.1 PROJECT ELEMENTS

The Project would expand Turlock Irrigation District's (TID's) ability to serve the growing community of Ceres and improve system reliability. The Project would include approximately 10 miles of new 115-kV electrical transmission line from TID's existing Hughson Substation in Hughson, California to the new Grayson Substation, which would be located on 7.35 acres north of East Grayson Road, south of the City of Ceres, California. Two 69-kV transmission line sections would be installed to connect the Project to TID's existing infrastructure. A detailed description of Project components is presented in Chapter 3 of this document.

2.1.1 PROJECT OBJECTIVES

The Project has been designed to accommodate current and projected demand for power distribution in TID's service territory. TID meets this demand through 69 and 115-kV systems. Currently, the Ceres area is only served by the 69-kV system, which is near capacity due to increased electrical demand and lack of expansion.

Beyond increasing supply, the proposed improvements would promote the safety and reliability of the system. Sagging transmission lines often occur when a transmission system operates at or near capacity due to increased heat resulting from high amperage in the lines. The sagging impedes the ability to maintain electrical safety clearances (i.e. the required safe distance from the line to ground or other conductors). Furthermore, a transmission system operating at or near capacity is more likely to experience local outages.

The Project would eliminate these constraints in several ways. First, the new 115-kV transmission line extending from the Hughson Substation to the Grayson Substation would enable the Ceres area to be served by TID's 115-kV transmission system, increasing system reliability and reducing the strain on the existing 69-kV transmission system. Second, the Section One 69-kV transmission line from Morgan Road to the Grayson Substation would provide a means of interconnecting the Grayson Substation to TID's existing Gilstrap-Westport 69-kV line (which extends from TID's Gilstrap Substation to its Westport Substation). This would result in additional reliability by providing another means of bringing electricity in and out of the area and would also provide voltage support to the west Ceres area to serve forecasted load growth. Third, the Section Two 69-kV transmission line from the existing Almond Power Plant to the Grayson Substation would provide another way of transmitting electricity generated by the existing TID Almond Power Plant to the Ceres Area and the TID transmission system. Finally, the Project would provide additional reliability through a dedicated crossing over State Route (SR) 99, allowing the District to move electricity east-to-west and west-to-east as system conditions dictate.

2.2 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Pursuant to State CEQA Guidelines Section 15382, a significant effect on the environment is defined as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance." Table 2-1 presents a summary of expected environmental impacts and recommended mitigation measures that would avoid or minimize these potential impacts associated with the Project. In the table, the level of significance of each environmental impact is indicated both before and after the implementation of the recommended mitigation measures. For detailed discussions of all expected impacts and mitigation measures, the reader is referred to the environmental analysis presented in Chapter 4 of this document.

2.2.1 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL IMPACTS

Detailed mitigation measures have been identified throughout Chapter 4, and are summarized in Table 2-2. These measures are intended to mitigate Project effects to the extent feasible. After implementation of the proposed mitigation measures, all of the adverse effects associated with the Project would be reduced to a less-than-significant level.

2.2.2 PROJECT ALTERNATIVES

State CEQA Guidelines Section 15126.6, as amended, mandates that all Environmental Impact Reports (EIRs) include a comparative evaluation of the Project with alternatives to the Project that are capable of attaining most of the Project's basic objectives, but would avoid or substantially lessen any of the significant effects of the Project. CEQA requires an evaluation of a reasonable range of alternatives, including the "no project" alternative. Chapter 5 of this Draft EIR analyzes the comparative impacts anticipated from the six alternative route segments analyzed in the process of developing the Project.

2.3 CUMULATIVE AND GROWTH INDUCING EFFECTS

The majority of the potential impacts associated with the Hughson-Grayson 115-kV Transmission Line and Substation Project would occur during the construction period and would, therefore, be temporary impacts. As discussed in Chapter 6 of this EIR, there are several projects planned within one mile of the proposed transmission lines and substation. Impacts would, generally, occur only if construction of these projects is undertaken concurrent to one another. Assuming these conditions, all effects have been determined to not to result in cumulatively considerable impacts.

TID's purpose in implementing the Project is to provide increased reliability and capacity within its electrical network. While TID would provide service to new development approved by local agencies with jurisdiction over lands within TID's service area, TID does not designate the location or attributes of new developments. The Project would not induce population growth; it would accommodate growth planned in the service area. A complete discussion of this topic is provided in Chapter 6.

2.4 AREAS OF CONTROVERSY, ISSUES RAISED, AND AREAS RESOLVED

Section 15123(b) of the State CEQA Guidelines requires the summary section of a Draft EIR to identify areas of controversy known to the lead agency, including issues raised by agencies and the public. The following table provides a brief summary of the issues raised by agencies and the public in comment letters received on the Notice of Preparation (NOP)/Initial Study (IS) package and at the February 18, 2009 Scoping Meeting.

Table 2-2 Comments Received on the NOP/IS

Commenter/Agency	Date Sent
Steve Sperry	February 18, 2009
Robert Margarite	February 18, 2009
Patty Margarite	February 18, 2009
Davis Yonan	February 18, 2009
Paul Starn	February 18, 2009
David Ramsey	February 18, 2009
Michele Ottersbach	February 18, 2009
Gordon Braker	February 19, 2009
David Ramsey	February 19, 2009
Stanley Goblirsch	February 14, 2009
Charles Pringle	March 11, 2009
Chester Ramos	March 11, 2009
Cliff and John Starn	unknown
Mathew Pacher Damrell, Nelson, Schrimp, Pallios, Pacher, and Silva	February 27, 2009
Bella Badal, PhD, R.E.H.S. Senior Environmental Health Specialist Stanislaus County Department of Environmental Resources	March 3, 2009
Katy Sanchez Program Analyst Native American Heritage Commission	February 3, 2009
Charles Turner Associate Planner Stanislaus Council of Governments	February 12, 2009
Raul Mendez Senior Management Consultant Stanislaus County Environmental Review Committee	March 6, 2009
Kathleen Dadey, PhD Chief, California South Branch United States Army Corps of Engineers	February 2, 2009

Commenter/Agency	Date Sent
Tom Westbrook Senior Planner City of Ceres, Community Development Department	March 11, 2009
David Chase, P.E. Director of Public Works/Civil Engineering City of Hughson Public Works/Engineering Department	March 5, 2009

Issues of concern identified in these comment letters generally related to the following resource sections this document:

4.1 Land Use

4.2 Aesthetics

4.3 Biological Resources

4.4 Hydrology and Water Quality

4.8 Cultural Resources

4.9 Hazards and Hazardous Materials

4.11 Transportation

4.12 Public Services and Utilities

Specifically, the following questions and/or statements were received and considered in the preparation of this Draft EIR. For copies of the original comment letters, please refer to Appendix B.

- To ascertain the extent of jurisdictional wetlands or Waters of the United States, a Wetland Delineation should be prepared.
- Analysis should be provided regarding the placement of proposed lines, right-of-way, whether there would be an impact to future development, and if the right-of-way or easement would be available to develop as a trail system.
- Substation aesthetics should be discussed, including the distance the structure will be set back from the street.
- Any onsite wastewater disposal system should be operated by the conditions/guidelines in Stanislaus County's Measure X and designed for maximum building occupancy. A leach field should be designed using soil profile and percolation tests on the site.

- A cultural resources records search should be conducted, an inventory and report prepared, and the Native American Heritage Committee should be contacted.
- Mitigation measures should be included for accidentally discovered cultural resources.
- Justification should be provided for not undergrounding the entire project, especially the 69-kV line within the City of Ceres.
- Utility poles should be marked with reflector tape (i.e. visibility strips).
- A meeting should be conducted with affected fire agencies to notify of any route closures during construction and explain what hazardous substance would be used during construction.
- Impacts to Williamson Act lands should be analyzed.
- Routing lines adjacent to agricultural property would reduce the ability to farm through potential impacts to worker safety and by hindering the ability to aerial spray and use mechanical harvesters.
- Effects to viewsheds and perceived impacts to health would reduce home values.
- Preference was expressed for a route following East Service Road rather than Roeding Road and Washington Road, as it would impact fewer homes and require fewer turns. Additionally, much of Roeding Road is within Hughson's Sphere of Influence (SOI), whereas East Service Road is not.
- The City of Hughson suggested that the portion of the proposed 115-kV transmission line route that passes through the city's SOI be either routed underground or relocated to Geer Road to the west.
- Justification should be provided for not bringing power to the proposed Grayson Substation from the west.
- Implementation of Alternative 3 (alternative SR 99 crossing north of the mobile home park) could negatively affect future development and impact existing nearby homes.
- Opposition was expressed to routing along Geer Road (which is not proposed). Others questioned the justification for not routing down Geer Road.

- Preference was expressed to routing along TID canals.
- Preference was expressed to routing along Whitmore Road.
- Preference was expressed to crossing SR 99 at Service Road.
- Opposition was expressed to routing the 115-kV line down Turner Road, where the commenter estimated 24 families lived. If routing along Turner Road is proposed as the preferred route, justification should be provided for this decision. General preference was expressed to routing the line along the northern boundaries of these properties.
- The location for the Grayson Substation would divide the property and prevent aerial spraying. Grayson Road at the railroad tracks was presented as an alternate substation site.
- Concern was expressed that the Project removes too much land from agriculture.
- The EIR should address safe distances between transmission lines and homes, with regard to electric and magnetic fields.
- There is a private airstrip on Redwood Way.
- Concern was raised about the trimming of trees and a new federal standard which requires TID to trim almond trees under transmission lines.
- Concern was expressed regarding land use impacts resulting from spreading out the lines and other accommodations necessary to allow routing under the existing 230-kV lines along the Ceres Main Canal.
- Why doesn't TID acquire property rather than obtain an easement?
- What is the projected cost of the Project? Why not build another power plant in the area?
- What about going down Keyes Road?
- It appears that the route was done without regard to Hughson SOI.
- Will TID still need the Project if load requirements drop?

2.4.1 AREAS OF KNOWN CONTROVERSY

The primary areas of controversy center on the initially proposed 115-kV route. At the February 18, 2009 public Scoping Meeting, several residents expressed concern about the proximity of the initially proposed route to their homes or farming operations. Similar concerns were expressed in the comment letters received during scoping.

In response to the input received during the public scoping process, TID revised the Project to follow its existing irrigation canal routes along Lateral 2 and 2½, thereby avoiding many homes and consolidating the Project along existing infrastructure corridors.

2.5 APPROVAL PROCESS

In its review of the Project, TID will consider the entire environmental evaluation contained in this Draft EIR. Upon completion of the environmental review process, TID will consider certifying the Final EIR and finding that it: (1) has been completed in compliance with CEQA; (2) was presented to the decision-making body of the Lead Agency (i.e., the TID Board of Directors) and was reviewed and considered by the decision-making body prior to approving the Project; and (3) reflects the Lead Agency's independent judgment and analysis (State CEQA Guidelines §15090).

TID can approve or conditionally approve the Project, if it chooses, even if significant impacts are identified. When significant effects are identified and the Lead Agency wishes to approve or conditionally approve the Project, CEQA Section 21081(a) requires that one of three specific findings be made for each significant effect. TID, as the Lead Agency, must also adopt a "statement of overriding considerations," in accordance with CEQA Section 21081(b), if the Project is approved with unavoidable significant effects to the environment. The statement of overriding considerations is a statement by the decision-makers acknowledging that significant unavoidable environmental impacts are acceptable when balanced against certain economic, legal, social, technological, or other benefits of the Project.

2.5.1 OTHER REQUIRED APPROVALS

TID has the primary approval authority over the Project. However, a number of responsible agencies will also have discretionary authority. Approval of the Project would require, at a minimum, the following actions from responsible agencies:

- Issuance of a National Pollution Discharge Elimination System General Construction permit from the Central Valley Regional Water Quality Control Board;
- Verification of the Wetland Delineation and related permitting, if any is required, by the United States Army Corps of Engineers.
- Encroachment permits from the California Department of Transportation, and Burlington Northern Santa Fe and Union Pacific Railroads.

Table 2-1 Mitigation Summary Table

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
4.1 LAND USE			
Impact 4.1-1: Physically divide an established community.	Less than significant	**Mitigation 4.1-1**: No mitigation required	Less than significant
Impact 4.1-2: Conflict with any applicable land use plan, policy, or regulation.	Less than significant	**Mitigation 4.1-2**: As a duly formed irrigation district, TID has plenary authority over the siting, construction, and operation of its transmission facilities. Given this, local jurisdictions do not issue permits to TID for the construction of its electrical facilities, including transmission lines, poles, and substations. Therefore, no mitigation would be required.	Less than significant
Impact 4.1-3: Convert Farmland to non-agricultural use.	Significant	**Mitigation 4.1-3**: TID shall minimize the number of transmission poles and ground disturbance that would occur to land agricultural production. As necessary, TID shall coordinate with landowners to determine pole placement that would result in minimal disruption to agricultural operations. TID shall obtain easements for private agricultural land that may be used along the proposed route and compensate landowners for loss of crops, up to the provisions of law. Agricultural land used for laydown activities and pole placement shall be re-tilled to offset compaction caused by heavy material storage and construction activities, as requested by the landowner.	Less than significant

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
4.2 AESTHETICS			
Impact 4.2-1: Damage scenic resources within a State scenic highway.	No impact	**Mitigation 4.2-1**: No mitigation required	No impact
Impact 4.2-2: Substantially affect a scenic vista.	No impact	**Mitigation 4.2-2**: No mitigation required	No impact
Impact 4.2-3: Substantially degrade the existing visual character or quality along the Project route.	Less than significant	**Mitigation 4.2-3**: No mitigation required	Less than significant
Impact 4.2-4: Substantially degrade the existing visual character or quality of the Grayson Substation site, or along the 69-kV transmission lines.	Less than significant	**Mitigation 4.2-4**: No mitigation required	Less than significant
Impact 4.2-5: Create new sources of light and glare affecting views in the area.	Less than significant	**Mitigation 4.2-5**: No mitigation required	Less than significant

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
4.3 Biological Resources			
Impact 4.3-1: Have a substantial adverse effect on sensitive or special-status species.	Potentially significant	**Mitigation 4.3-1**: Either (1) vegetation removal associated with the proposed construction activities on the property shall be conducted outside of the nesting-bird season, which extends from February 15 to August 31; or (2) a qualified biologist shall conduct a nesting bird survey to identify any potential nesting activity within five days of proposed construction activities. Should construction activities occur during the nesting season for Swainson's hawk (March 1 through October 31), a survey should be conducted by a qualified biologist along the Project alignment, and within a 250-foot buffer. The surveys should follow the guidance of the Recommended Timing and Methodology For Swainson's Hawk Nesting Surveys in California's Central Valley (SWTAC 2000). If an active nest is identified, a 0.5-mile buffer shall be established around the nesting location. Construction activities may commence within the buffer area at the discretion of, and in the presence of, the biological monitor, along with consultation and coordination the CDFG. If passerine birds are found to be nesting, or there is evidence of nesting behavior within 250 feet of the impact area, a 250-foot buffer shall be required around the nests. For raptor species, this buffer should be 500	Less than significant

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
		feet. A qualified biologist should monitor the nests, and construction activities may commence within the buffer area at the discretion and presence of the biological monitor. Although not detected on along the transmission line routes or the Grayson Substation site, measures should be taken to avoid potential impacts to burrowing owl. Prior to ground disturbance activities, a qualified biologist shall conduct a pre-construction survey for burrowing owl. If burrowing owls or their sign are determined to be present on the on the transmission line routes or the Grayson Substation site, mitigation measures for potential impacts to owls should follow the guidelines outlined by the Burrowing Owl Consortium (1993), including passive relocation. Finally, a qualified biologist shall conduct preconstruction surveys for San Joaquin kit fox in all portions of the project located within the published species' range (USFWS 1997a). If occupied kit fox dens are found, DFG shall be consulted to develop and implement take avoidance measures before construction in the vicinity commences (USFWS 1997b).	
Impact 4.3-2: Impact riparian habitat or wetlands.	No impact	**Mitigation 4.3-2:** No mitigation required	No impact

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
Impact 4.3-3: Interfere with wildlife migration or impede the use of wildlife nursery sites.	No impact	**Mitigation 4.3-3**: No mitigation required	No impact
Impact 4.3-4: Conflict with an adopted habitat conservation plan.	No impact	**Mitigation 4.3-4**: No mitigation required	No impact
4.4 HYDROLOGY AND WATER QUALITY			
Impact 4.4-1: Violate water quality standards or waste discharge requirements.	Significant	**Mitigation 4.4-1**: TID shall prepare a Storm Water Pollution Prevention Plan and implement best management practices.	Less than significant
Impact 4.4-2: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge.	Less than significant	**Mitigation 4.4-2**: No mitigation required	Less than significant
Impact 4.4-3: Alter stormwater runoff patterns in a manner that contributes to erosion, siltation, or flooding.	Less than significant	**Mitigation 4.4-3**: TID shall implement stormwater runoff best management practices	Less than significant
Impact 4.4-4: Increased runoff leading to localized or downstream flooding.	Less than significant	**Mitigation 4.4-4**: No mitigation required	Less than significant

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
Impact 4.4-5: Otherwise degrade water quality.	No impact	**Mitigation 4.4-5**: No mitigation required	No impact
Impact 4.4-6: Place houses within a 100-year floodplain.	No impact	**Mitigation 4.4-6**: No mitigation required	No impact
Impact 4.4-7: Place structures within a 100-year floodplain.	No impact	**Mitigation 4.4-7**: No mitigation required	No impact
Impact 4.4-8: Expose people or structures to risk of flooding.	No impact	**Mitigation 4.4-8**: No mitigation required	No impact
Impact 4.4-9: Result in inundation by seiche, tsunami, or mudflow.	No impact	**Mitigation 4.4-9**: No mitigation required	No impact
4.5 AIR QUALITY			
Impact 4.5-1: Impact air quality in the area as a result of construction.	Significant	**Mitigation 4.5-1**: All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover. All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant. All land clearing, grubbing, scraping, excavation, land	Less than significant

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
		leveling, grading, and cut and fill, activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking. When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained. All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.) Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant. Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday. These enhanced and additional measures shall be instituted when Project conditions warrant: • Limit traffic speeds on unpaved roads to 15 mph.	

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
		• Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent. • Suspend excavation and grading activity when winds exceed 20 mph*. • Limit area subject to excavation, grading, and other construction activity at any one time. *Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation.	
Impact 4.5-2: Impact air quality in the area as a result of operation.	Less than significant	**Mitigation 4.5-2**: No mitigation required	Less than significant
Impact 4.5-3: Create objectionable odors that would affect a substantial number of people.	Less than significant	**Mitigation 4.5-3**: No mitigation required	Less than significant
4.6 GREENHOUSE GAS EMISSIONS			
Impact 4.6-1: Conflict with the goal of reducing greenhouse gas.	Potentially Significant	**Mitigation 4.6-1**: Circuit breakers shall be alarmed and continuously monitored to minimize release of sulfur hexafluoride, a greenhouse gas.	Less than significant
Impact 4.6-2: Impact global climate change.	Less than significant	**Mitigation 4.6-2**: No mitigation required	Less than significant

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
4.7 GEOLOGY AND SOILS			
Impact 4.7-1: Exposure to geologic hazard.	Less than significant	**Mitigation 4.7-1**: No mitigation required	Less than significant
Impact 4.7-2: Erosion resulting from grading.	Less than significant	**Mitigation 4.7-2**: TID shall develop a Storm Water Pollution Prevention Plan that shall identify Best Management Practices to be used to protect stormwater runoff and minimize erosion during construction.	Less than significant
Impact 4.7-3: Unstable geologic conditions.	Less than significant	**Mitigation 4.7-3**: No mitigation required	Less than significant
Impact 4.7-4: Expansive soil.	Less than significant	**Mitigation 4.7-4**: No mitigation required	Less than significant
Impact 4.7-5: Have soils incapable of adequately supporting the use of septic tanks.	No impact	**Mitigation 4.7-5**: No mitigation required	No impact
Impact 4.7-6: Mineral resources.	No impact	**Mitigation 4.7-6**: No mitigation required	No impact
4.8 CULTURAL RESOURCES			
Impact 4.8-1: Cause a substantial adverse change in the significance of a historical resource.	Less than significant	**Mitigation 4.8-1**: No mitigation required	Less than significant

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
Impact 4.8-2: Cause an adverse change in the significance of an archaeological resource.	Significant	**Mitigation 4.8-2**: Inadvertent discovery measures shall be implemented during all construction activities. Measures will include: (1) a worker education course for all construction personnel; and (2) procedures for discovery of cultural and paleontological resources, including human remains, during construction or ground-disturbing activities.	Less than significant
Impact 4.8-3: Directly or indirectly destroy a unique paleontological resource or site.	Significant	**Mitigation 4.8-3**: A worker education course for all construction personnel will be conducted immediately prior to initiation of ground-disturbing activities for each project phase.	Less than significant
Impact 4.8-4: Disturb human remains, including those interred outside of formal cemeteries.	Significant	**Mitigation 4.8-4**: Under Mitigation Measure 4.8-2, during the worker education course for all construction personnel each worker will learn the proper procedures to follow in the event cultural resources or human remains/burials are uncovered during construction activities, including work curtailment or redirection and to immediately contact their supervisor.	Less than significant
4.9 HAZARDS AND HAZARDOUS MATERIALS			
Impact 4.9-1: Result in a substantial temporary noise impact that could affect adjacent and project residences.	Significant	**Mitigation 4.9-1:** The following mitigation measures would ensure compliance with the Stanislaus County and the City of Ceres Noise Ordinances, as well as further reduce construction-related noise impacts.	Less than significant

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
		Construction shall be limited to the hours between 7 a.m. and 8 p.m. Monday through Friday, and 8 a.m. and 8 p.m. Saturday, Sunday, and legal holidays. Construction equipment shall be properly maintained and operated and equipped with mufflers. Haul trucks shall be operated in accordance with posted speed limits. Construction staging and parking areas shall be located away from existing residences. Maximizing the distance between construction related activities and residences would minimize construction related noise impacts on these sensitive receptors.	
Impact 4.9-2: Project operations could increase ambient noise levels in the project vicinity above levels existing without the project.	Less than significant	**Mitigation 4.9-2:** No mitigation required	Less than significant

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
4.10 NOISE			
Impact 4.10-1: Result in a substantial temporary noise impact that could affect adjacent and project residences.	Significant	**Mitigation 4.10-1**: Construction shall be limited to the hours between 7 a.m. and 8 p.m. Monday through Friday, and 8 a.m. and 8 p.m. Saturday, Sunday, and legal holidays. Construction equipment and haul trucks shall be properly maintained and operated (including adherence to speed limit requirements) and equipped with mufflers. Construction staging and parking areas shall be located away from existing residences.	Less than significant
Impact 4.10-2: Increase ambient noise levels in the project vicinity above levels existing without the Project.	Less than significant	**Mitigation 4.10-2**: No mitigation required	Less than significant
4.11 TRANSPORTATION			
Impact 4.11-1: Impair ability to adapt transit systems.	Potentially significant	**Mitigation 4.11-1**: The location of proposed utility infrastructure shall be made available to the Stanislaus County Department of Public Works for review and comment prior to construction, and Hughson's *Street Master Plan* shall be considered when designing pole placement.	Less than significant

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
Impact 4.11-2: Increase local traffic volumes.	Potentially significant	**Mitigation 4.11-2:** Implement temporary traffic controls to minimize the potential for construction activities to result in traffic disruptions. Traffic controls within Stanislaus County's right-of-way shall be submitted to Stanislaus County Public Works for approval.	Less than significant
Impact 4.11-3: Substantially increase hazards.	Less than significant	**Mitigation 4.11-3**: TID shall consult with county officials in the field regarding the proper placement of poles at intersections on a case-by-case basis. Visibility strips shall be placed on the poles to reduce potential hazards to motorists.	Less than significant
Impact 4.11-4: Result in inadequate emergency access.	Less than significant	**Mitigation 4.11-4**: No mitigation required	Less than significant
Impact 4.11-5: Result in inadequate parking.	Less than significant	**Mitigation 4.11-5**: No mitigation required	Less than significant
Impact 4.11-6: Conflict with the operation of local railways or State Route 99.	Potentially significant	**Mitigation 4.11-6**: Appropriate Burlington Northern Santa Fe, Union Pacific Railroad, and Caltrans procedures shall be followed, including work notification and permit acquisition.	Less than significant
Impact 4.11-7: Conflict with adopted programs supporting alternative transportation.	Potentially significant	**Mitigation 4.11-7**: TID shall disclose routing and right-of-way information to identify impacts to future roadway and bikeway path upgrades.	Less than significant

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
4.12 PUBLIC SERVICES AND UTILITIES			
Impact 4.12-1: Result in substantial adverse physical impacts associated with the provisions of new or physically altered government facilities.	No impact	**Mitigation 4.12-1**: No mitigation required	No impact
Impact 4.12-2: Impact existing schools.	No impact	**Mitigation 4.12-2**: No mitigation required	No impact
Impact 4.12-3: Adversely affect existing utilities.	Potentially significant	**Mitigation 4.12-3**: TID shall coordinate with applicable utility providers to ensure that no damage is implemented on existing facilities. Underground Service Alert shall be notified at least two working days prior to any digging. TID shall provide 48 hours advance notice to customers along the transmission line of any temporary disruptions in service that may result from project construction.	Less than significant
Impact 4.12-4: Conflict with utility construction policies.	Less than significant	**Mitigation 4.12-4**: No mitigation required	Less than significant
Impact 4.12-5: Be served by a landfill with sufficient capacity to accommodate the Project's solid waste needs.	Less than significant	**Mitigation 4.12-5**: No mitigation required	Less than significant

Impact	Level of Significance Without Mitigation	Mitigation Measure	Level of Significance With Mitigation
Impact 4.12-6: Exceed wastewater treatment requirements or require construction of new facilities.	Less than significant	**Mitigation 4.12-6**: No mitigation required	Less than significant
Impact 4.12-7: Have insufficient water supplies.	Less than significant	**Mitigation 4.12-7**: No mitigation required	Less than significant
4.13 SOCIOECONOMICS			
Impact 4.13-1: Induce population growth or concentration.	No impact	**Mitigation 4.13-1:** No mitigation required.	No impact
Impact 4.13-2: Displace substantial numbers of existing people or residences.	No impact	**Mitigation 4.13-2**: No mitigation required.	No impact
Impact 4.13-3: Impact property values.	Less than significant	**Mitigation 4.13-3**: No mitigation required.	No impact

3.0 PROJECT DESCRIPTION

3.1 INTRODUCTION

The proposed Hughson-Grayson 115-kV Transmission Line and Substation Project (the Project) would consist of a new 115 kilovolt (kV) transmission line, two 69-kV transmission line sections, a substation, the Grayson Substation, and related facilities. The 115-kV transmission line feature of the Project would be approximately 10 miles in length and span the distance between the cities of Hughson and Ceres in Stanislaus County, California (Figure 3.1). Along much of this distance, existing power lines would be consolidated onto the newly constructed poles.

The eastern endpoint of the 115-kV transmission line route would be located at the existing Hughson Substation near the corner of East Whitmore Avenue and Geer Road, east of the City of Hughson. The western terminus of the 115-kV line would be at the proposed Grayson Substation, which would be located on East Grayson Road, near the intersection with Crows Landing Road, south of the City of Ceres. Existing 12-kV distribution lines would be underbuilt on the 115-kV line in most locations, and would interconnect at the Grayson Substation. The Project also includes the construction of two 69-kV transmission lines sections that would both terminate at the Grayson Substation. Section One of the 69-kV transmission line would be located along the last mile of the 115-kV transmission line route on East Grayson Road, and the second 69-kV transmission line section (Section Two) would connect the Grayson Substation to Turlock Irrigation District's (TID's) existing Almond Power Plant (Figure 3.2). A new bus expansion and circuit breaker would be installed at the power plant to accommodate the transmission line.

3.2 BASIC PROJECT OBJECTIVES

The Project is necessary to accommodate current and future populations. TID utilizes its 69-kV and 115-kV transmission systems to distribute power to substations throughout its service territory. Currently, the Ceres area is only served by the 69-kV system, which is near capacity. However, the existing 69-kV system has not been expanded in over 20

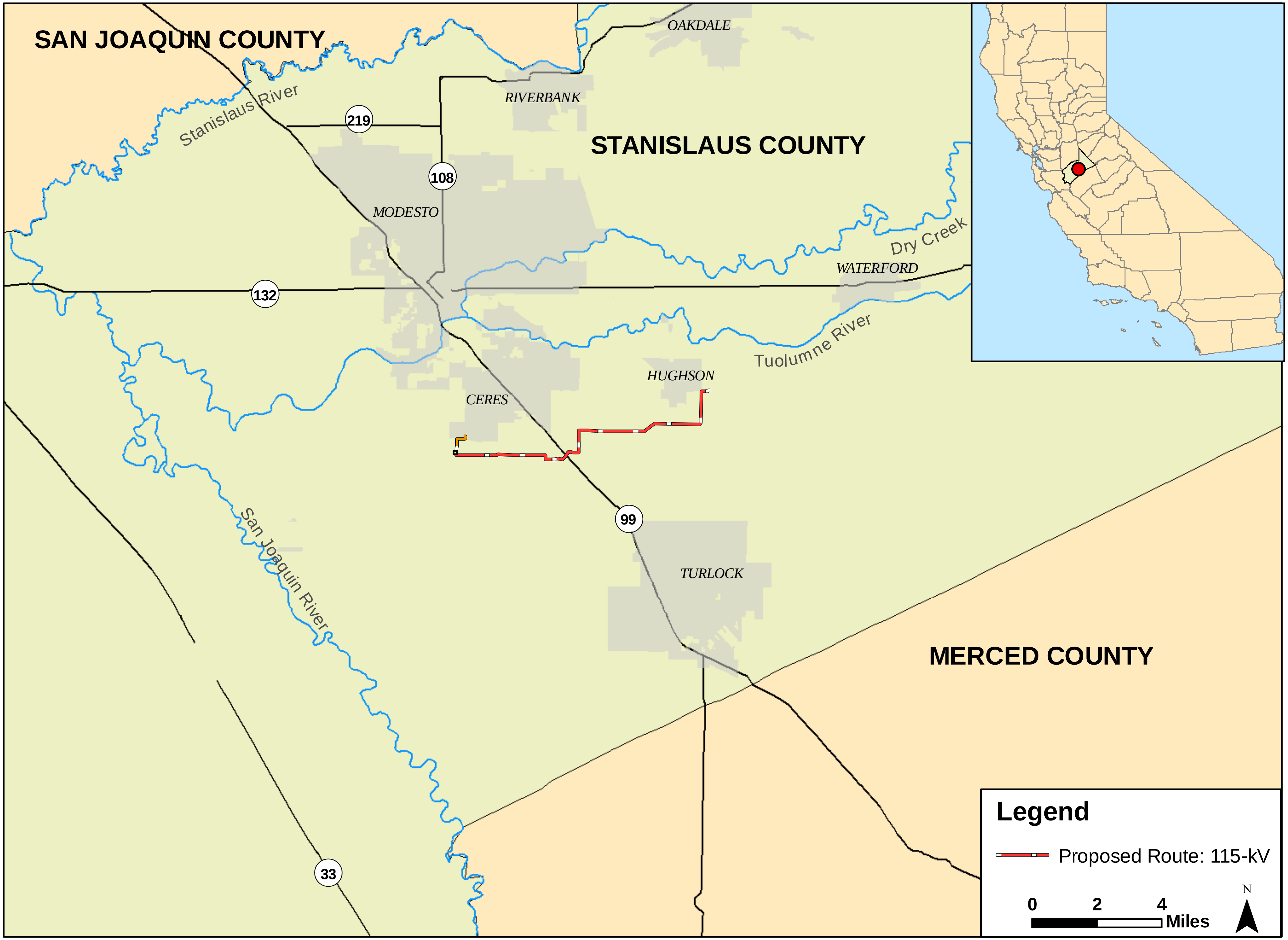
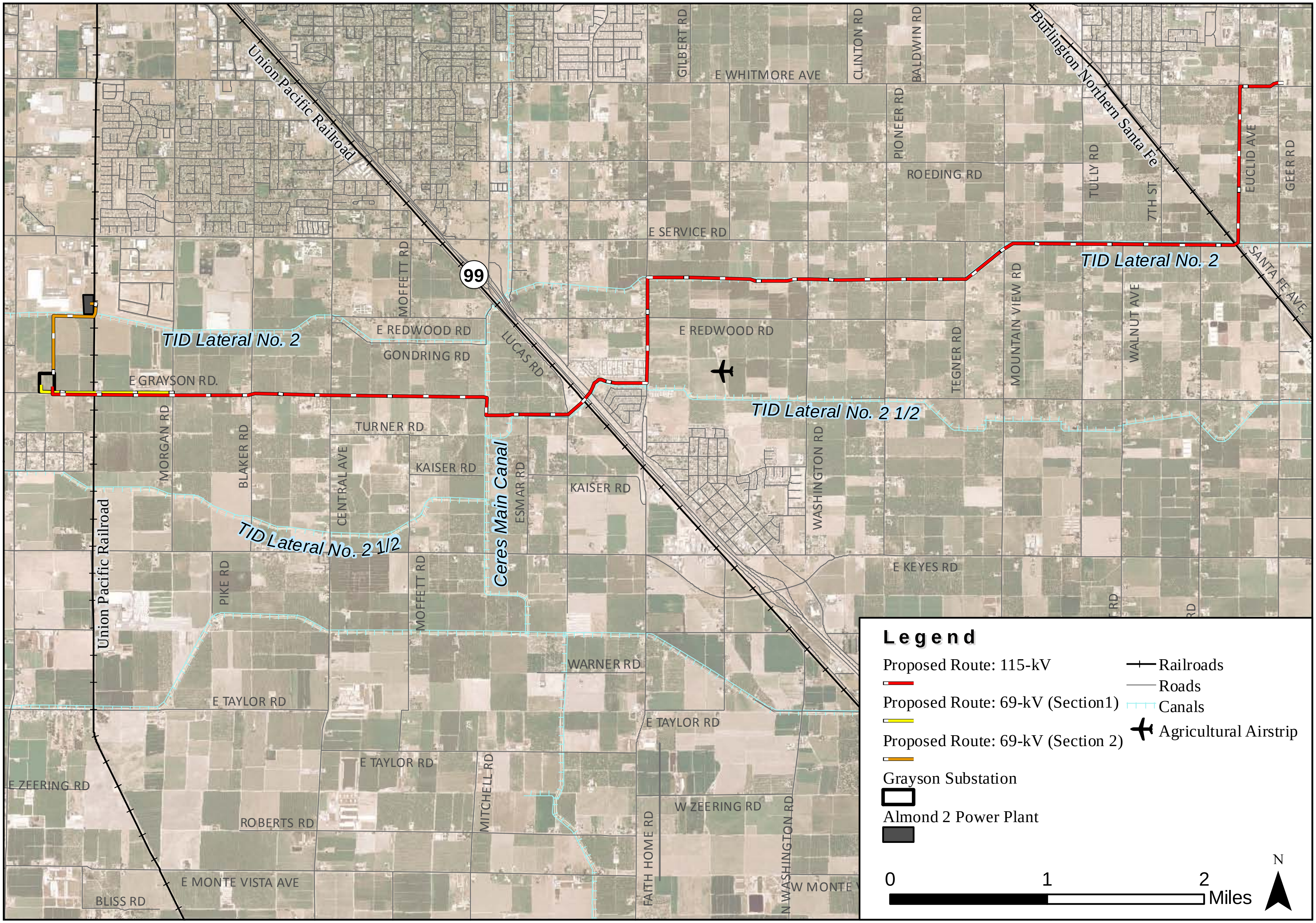


Figure 3.1

Regional Overview Map



Hughson-Grayson 115-kV Transmission Line and Substation Project

Figure 3.2

Location Map

years, and over that time the Ceres area has experienced increased electrical demand. There is a need to provide voltage support to the west Ceres area to serve forecasted load growth.

Beyond increasing supply, the proposed improvements would increase the safety and reliability of the existing system. When a transmission system operates at or near capacity, the conductors sag due to increased heat resulting from high amperage in the lines. The sagging impedes the ability to maintain electrical safety clearances (i.e. the required safe distance from the line to ground or other conductors), which can result in reliability and safety concerns. A transmission system operating at or near capacity is more likely to experience local outages. To remedy this issue, TID currently has to institute operating limitations to prevent overloading the 69-kV transmission system in Ceres. These operating limitations include, for example, operating the existing Almond Power Plant when it may be uneconomical to do so in order to reduce the amount of electricity traveling through the 69-kV transmission lines to the Ceres area.

The Project would eliminate these constraints in several ways. First, the new 115-kV transmission line extending from the Hughson Substation to the Grayson Substation would enable the Ceres area to be also served by TID's 115-kV transmission system, increasing system reliability. The 115-kV system and the 69-kV system would interconnect at the Grayson Substation, enabling electricity to flow through either transmission system. This would reduce strain on the existing 69-kV transmission system and increase reliability. Second, the Section One 69-kV transmission line from Morgan Road to the Grayson Substation provides a means of interconnecting the Grayson Substation to TID's existing Gilstrap-Westport 69-kV line (which extends from TID's Gilstrap Substation to its Westport Substation). This provides additional reliability to the TID system by providing another means of bringing electricity in and out of the area. It will also provide voltage support to the west Ceres area to serve forecasted load growth. Third, the Section Two 69-kV transmission line from the existing Almond Power Plant to the Grayson Substation would provide another way of transmitting electricity generated by the existing TID Almond Power Plant to the Ceres area and the overall TID transmission system. Furthermore, the Project would provide an additional reliability through a dedicated crossing over State Route (SR) 99, allowing the District to move electricity east-to-west and west-to-east as system conditions dictate.

In summary, TID has developed this Project to increase the reliability of the TID system and relieve congestion on TID's existing 69-kV transmission system. The specific objectives of the Project include:

- Capacity for future load growth;
- Increased reliability on TID's transmission system;
- Relieving load and congestions on the existing 69-kV transmission system;
- Providing voltage support to the west Ceres area by tying in the existing 69-kV transmission network to serve forecasted load growth in the Ceres area; and
- Providing an additional dedicated transmission crossing of SR 99.

TID has determined the need for the Project by conducting electrical system studies. These studies address electrical load flows, outage contingencies, load growth, and substation loads.

3.3 BACKGROUND

TID was organized under the Wright Act, and operates under the provisions of the California Water Code as a Special District. The Water Code authorizes TID to "provide for the acquisition, operation, leasing, and control of plans for the generation, transmission, distribution, sale, and lease of electric power." Section 22475 grants the districts "the right to construct and operate in a manner affording security for life and property electric light and power lines along, over, or under any road."

TID's generation resources include large and small hydroelectric plants, wind generating plants, and three natural gas-fired turbine generating plants. As an irrigation district, TID has access to low cost hydroelectric power and does not produce a profit or pay stockholders. Irrigation districts, such as TID, are managed locally and are unaffected by many federal and state policies.

3.3.1 TURLOCK IRRIGATION DISTRICT WATER AND POWER SERVICES

TID was the first irrigation district formed in the State of California. It was organized in 1887 and began delivering water from the Tuolumne River to farmers through a small irrigation system in 1900. Presently, TID has a 307-square-mile irrigation service area that lies east of the San Joaquin River, between the Tuolumne and Merced rivers, encompassing approximately 6,500 individual parcels. The TID irrigation system includes approximately 250 miles of canals and laterals owned by the district and more than 1,600 miles of ditches and pipelines owned by improvement districts and individual growers.

TID entered the retail electric industry with the construction of the original Don Pedro Dam and Powerhouse in 1923. Today, TID provides electricity to a 662 square mile service area that spans portions of Stanislaus and Merced counties. The 2007 Annual Report for the district indicates that TID served 98,423 accounts at year end.

3.3.2 TID Power Generation System

TID derives the bulk of the energy it generates from hydroelectric and natural gas resources. TID has a 139 megawatt (MW) entitlement to the Don Pedro powerhouse and a 250 MW natural gas fired power plant (The Walnut Energy Center). TID also owns smaller hydroelectric sources at La Grange and along its canal system, and additional natural gas-fired turbine generating plants. It also recently purchased a 137 MW wind project in Klickitat County, Washington. As a Balancing Authority, TID integrates resource plans ahead of time, maintains load-interchange-generation balance within it Balancing Authority Area, and supports interconnection frequency in real time.

3.3.3 Turlock Irrigation District's Transmission System

TID has a 230-kV transmission system that ties into the high voltage California grid, a 115-kV transmission system that runs through the district and connects to other utilities north and south, and a 69 and 115-kV transmission system that distributes power to substations within the district.

The 230-kV Intertie was built in 1974 as a joint project by TID and the Modesto Irrigation District (MID). The Intertie connects the districts to the 230-kV lines that run north-south through the State of California at the Westley Switchyard. Here, the TID-MID 230-kV system can obtain power through the Western Area Power Administration Tracy Substation and the Pacific Gas and Electric Company 230-kV substations at Tesla and Los Baños.

TID's existing 115-kV transmission system interconnects TID's Oakdale Switching Station with the City and County of San Francisco's Hetch-Hetchy System. The 115-kV system also serves MID's Pioneer Substation south of the Merced River, thereby delivering power to the Merced System. The 115-kV system ties into TID's Westley and Walnut 230-kV Intertie Switching Stations. In total, TID's internal 115-kV system supports seven 115-kV distribution stations, while its 69-kV transmission system distributes power to 16 local distribution substations within the District. The 69-kV stations were the original power delivery system within TID.

3.4 PROJECT LOCATION

The Project is located in Stanislaus County, within California's Central Valley (Figure 3.1). In general, the Project would be located south of the City of Modesto and north of the City of Turlock, between the cities of Hughson and Ceres (Figure 3.2). A small segment of the Section Two 69-kV transmission line would be located in the City of Ceres.

3.5 PROPOSED PROJECT ROUTE

3.5.1 115-KV TRANSMISSION LINE ROUTE

The route for the 115-kV transmission line would begin at the Hughson Substation, connecting to an existing triple-deadend structure. The transmission line would extend west on the north side of East Whitmore Avenue for approximately 200 feet, crossing over the existing 69-kV line located on the west side of Geer Road. A 90 degree deadend structure would be placed at the corner of this intersection. An angled structure would be placed at the corner of this intersection to accommodate crossing from the north to the south side of East Whitmore Avenue. From the south side of East Whitmore Avenue, the line would proceed west to the intersection with Euclid Avenue. From here, the line would proceed approximately one mile south along the east side of Euclid Avenue.

At the intersection of Santa Fe Avenue, Euclid Avenue, and East Service Road, the route would cross Santa Fe Railroad at a perpendicular angle and continue along the TID Lateral No. 2 right-of-way, which it would follow to the west for a total of approximately 3.8 miles. The Project would be placed in line with an existing 69-kV transmission line on the north side of the irrigation canal. At Tegner Road, the line would cross to the south side of Lateral No. 2 and continue to Faith Home Road for approximately two miles.

At Faith Home Road, the route would head south on the east side of the road. At TID Lateral No. 2½, just south of the Modesto Western Mobile Estates, the transmission line would follow the canal to the west, crossing SR 99. On the west side of SR 99, the transmission line route would continue to follow TID Lateral No. 2½ until it bends south, west of Esmar Road. At this point the line would continue west to the Ceres Main canal, crossing under TID's existing 230-kV transmission line. The route would parallel the west side of the canal for approximately 650 feet, and then turn west. The line would reach East Grayson Road by traveling along the northern boundaries of the parcels that front the north side of Turner Road. At East Grayson Road, the route would continue west, initially on the northern side of the roadway. Approximately 100 feet east of South Blaker Road, the line would traverse to the south side of East Grayson Road to avoid tree and residence conflicts and continue to the Grayson Substation site, located approximately ¼ mile east of Crows Landing Road on assessor's parcel number (APN) 041-007-004.

From the Hughson Substation to Euclid Avenue, the existing 12-kV line on the north side of East Whitmore Avenue would not be relocated and the Project would not include a 12-kV underbuild. An irrigation pipe was recently constructed adjacent to the existing 12-kV line which would preclude installing 115-kV poles in that area. For the remainder of the transmission line route, all existing 12-kV lines would be consolidated onto the Project's transmission poles, allowing for removal of those existing 12-kV poles. Similarly, where the 115-kV line would parallel TID Lateral No. 2, the existing 12 and 69-kV lines would both be co-located onto the new structures. Due to the added weight resulting from the consolidation of the 12-kV, 69-kV, and 115-kV lines onto a single pole, the Project's poles would be constructed of steel. A fiber optic communication cable would also be installed on the 115-kV poles for the entire route. The cable would be located below the conductors. The Project's 115-kV transmission line, the Grayson Substation, and other Project features are depicted in Figure 3.2.

3.5.2 69-kV Transmission Sections

In order to provide for enhanced reliability, a new 69-kV double circuit transmission line (Section One) would extend from the intersection of Morgan Road and East Grayson Road approximately one mile west on East Grayson Road to the Grayson Substation. The Section One 69-kV line would be located on the north side of East Grayson Road and would have accommodation for 12-kV underbuild. At the Morgan Road/East Grayson Road intersection, a tubular steel deadend structure would be installed to interconnect the new 69-kV transmission line to the existing 69-kV line that runs north-south on the east side of Morgan Road.

Similarly, to enhance reliability and to serve the Ceres load, a second 69-kV transmission line (Section Two) would extend north from the east side of the Grayson Substation and would serve to connect the Project to the existing Almond Power Plant. The single circuit 69-kV line would proceed north from the substation site approximately 0.4 miles before turning east, south of TID Lateral No. 2. The line would parallel the canal for 0.25 miles, crossing the railroad tracks, and would then turn north to the existing 69-kV switchyard at the Almond Power Plant, crossing the railroad tracks once more. A new bus expansion and circuit breaker would be added to the existing Almond Power Plant switchyard to accommodate the Project. The Section Two 69-kV transmission line would be co-located on poles with a 115-kV transmission line which would serve TID's proposed Almond 2 Power Plant.

3.6 PROPOSED TRANSMISSION POLES AND STRUCTURES

The Project would use wood or steel tangent poles, tubular steel angle structures, and tubular steel deadend structures. These transmission structures would generally be approximately 70 feet in height, increasing in height to approximately 100 feet at the SR 99 crossing. The 115-kV line would be designed for a 12-kV underbuild. Where the 115 kV line would parallel TID Lateral No. 2, steel poles would be used to allow for 69-kV underhanging as well as the 12-kV. The steel poles are required to accommodate the loadings of the transmission lines. In most cases along the route (except for from the Hughson Substation to Euclid Avenue) existing 12-kV distribution would be relocated onto the Project's transmission poles to reduce aesthetic impact. Under these circumstances, the existing poles, transformers, cutouts, and other apparatuses would be relocated. Telephone lines may be relocated onto the Project's infrastructure as well, at the discretion of the local provider. Figure 3.3 illustrates the Project's pole designs.

The 115-kV transmission line would require an estimated total of 45 tubular steel angle poles and 215 tangent poles, placed approximately every 250 feet. Of the 45 tubular steel angle poles, approximately 30 of them would be steel deadends. Deadend structures are used when 90 degree turns are required along the route or when structures are required that can support full line tension from either direction, such as length of conductor string. The steel angle structures would be bolted to concrete foundations typically 4.5 feet in diameter and 18 feet in depth. Tangent poles would typically be buried at 10 percent of their length plus two feet, and backfilled with three-quarter inch crushed rock. The tangent pole diameter would be roughly 26 inches. Therefore, a 30 inch hole would be augured to set the wooden poles. For 90 degree tubular steel deadend structures, the typical foundation would be six feet in diameter and 30 feet in depth. The 115-kV transmission circuit would consist of 954AA magnolia aluminum conductor, while the 69-kV transmission circuits would be 636AA orchid aluminum conductor. All pole design, conductor spacing, and ground clearances would conform to California Public Utilities Commission General Order 95 and National Electric Safety Council requirements.

The 115-kV transmission line would be constructed within existing or acquired electrical easements (not within the road rights-of-way). Along county road rights-of-way, a 10 foot wide easement adjacent to, and contiguous with, the existing road right-of-way would be established. In open fields, through orchards, or along property lines not near a county road, a 30 foot wide easement would be acquired. Along the canals, TID would use its existing easement (prescriptive or fee title) or obtain a 20 foot wide electrical easement in particular portions of the route.

Where private easements are obtained, TID would consult with applicable landowners concerning pole placement. In these circumstances, landowners would be compensated for the use of their property by TID. Compensation would be commensurate with the provisions of the law.

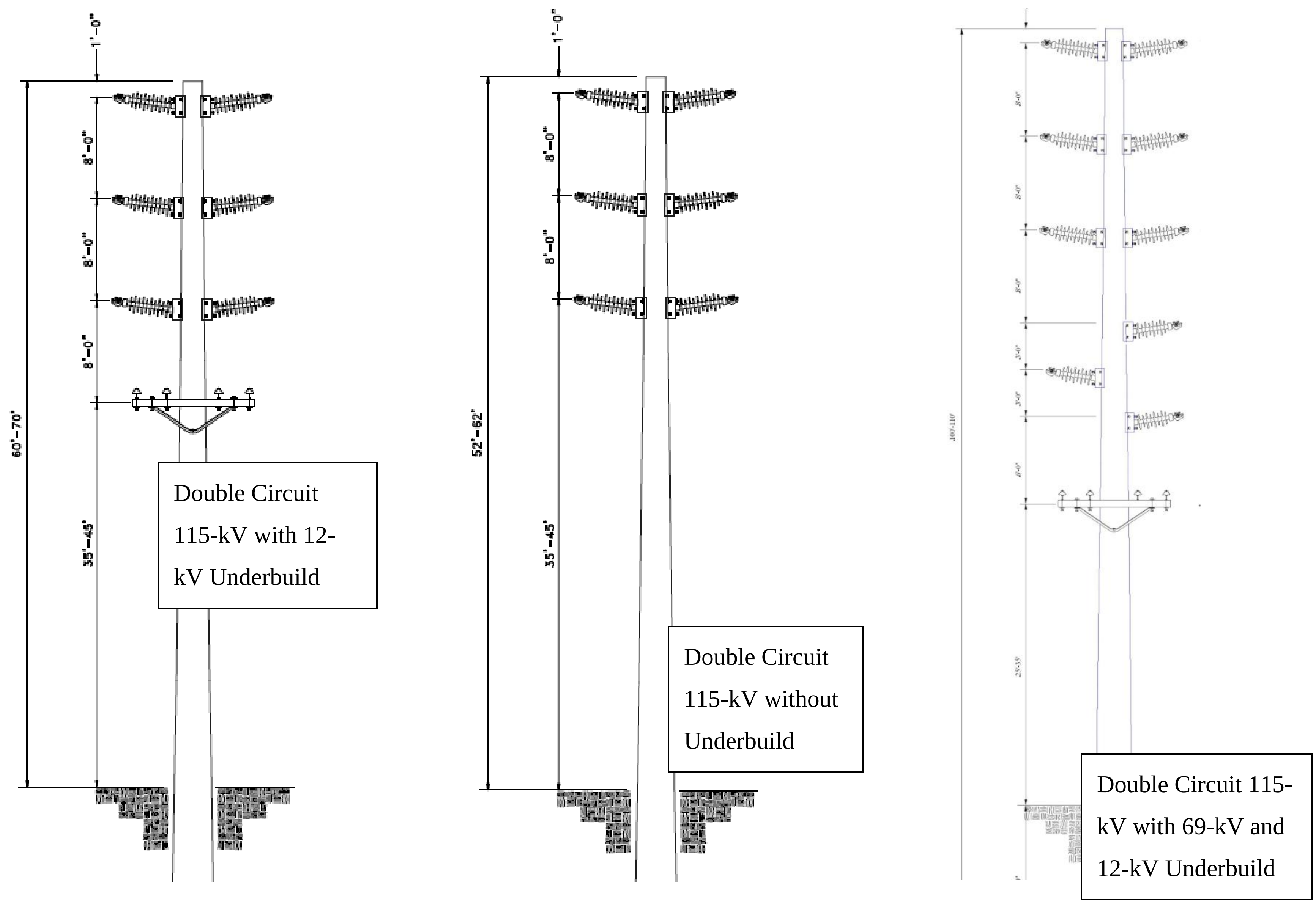


Figure 3.3
Preliminary Pole Designs

3.6.1 GRAYSON SUBSTATION

The Grayson Substation would be located on a 7.35 acre site in unincorporated Stanislaus County on APN 041-007-004. The substation dimensions would be approximately 564 feet by 436 feet. The Grayson Substation site is depicted in Figure 3.4.

The substation would be located on East Grayson Road approximately 835 feet east of the Crows Landing Road/East Grayson Road intersection. The facilities at the Grayson Substation would consist of two 25 megavolt amperes (MVA) 115/12-kV transformers. Each transformer would contain approximately 5,000 gallons of cooling oil. The substation would also have one 167 MVA 69/115-kV transformer, which would contain approximately 20,000 gallons of cooling oil. All transformer oil would be mineral oil that is free from polychlorinated biphenyl compounds. Secondary containment would be provided around the transformers. In addition to the power transformers, the Grayson Substation would have smaller station service transformers, containing approximately 15 gallons of cooling oil.

The Grayson Substation would also be equipped with eleven 115-kV circuit breakers, four 69-kV circuit breakers, and eleven 12-kV circuit breakers. The 115-kV and 69-kV circuit breakers would be insulated with approximately 60 pounds of sulfur hexafluoride (SF_6). Gas pressure would be continuously monitored (via alarms for pressure change) to minimize accidental release of SF_6. The 12-kV circuit breakers would be operated under vacuum and are SF_6 free. Figure 3.5 includes a site plan of the Grayson Substation.

The substation would also be equipped with two control buildings, one with a restroom for maintenance workers who would be on-site approximately once a month. A one-horsepower, single phase groundwater well would be constructed to provide water for domestic purposes. A small septic tank would also be installed. TID would have a geotechnical report prepared for the Grayson Substation site. All substation foundations and equipment supports would be designed to meet the seismic requirements of California Code of Regulations Title 24 and the 2007 California Building Code in accordance with the requirements of the Uniform Building Code.

The substation would have a seven foot high chain link fence around the perimeter. The fence would have vinyl slats to screen views of the equipment. Barbed wire or razor wire would be installed along the top of the fence to preclude unauthorized access to the substation. Security lighting would be installed at the substation. The lights would be shielded and directed downward to prevent offsite light scatter to the extent possible. The substation would be lined with gravel and either a French drain or stormwater detention pond would be installed to contain stormwater runoff within the substation boundaries.

3.6.2 ALMOND POWER PLANT

The Almond Power Plant began operation in 1995. The power plant is run on natural gas, and capable of generating approximately 48 MW. To accommodate the Section Two 69-kV transmission line, a new bus expansion and circuit breaker would be added to the existing Almond Power Plant switchyard. The Section Two 69-kV line would connect the Grayson Substation to the Almond Power Plant via the new circuit breaker in the switchyard.

3.7 PROPOSED CONSTRUCTION ACTIVITIES

3.7.1 TRANSMISSION LINES

Construction of the 115-kV and two 69-kV transmission line segments would likely include such activities as: drilling, concrete and crushed rock placement, framing structures, setting structures, stringing, and clipping. Transmission line structures, insulators, conductor, and other equipment would be placed along the transmission line right-of-way as it is needed. Construction crews would deliver the poles and other equipment from the staging area to individual pole locations when needed. In most locations, the poles could be placed on the side of the public road, canal, and agricultural roads. Where the poles would be placed within fields without existing roads (between Ceres Main Canal and North Central Avenue) temporary access would be needed for the Project’s pole locations. Construction vehicles would follow a route prearranged with the landowner, and construction crews would restore the field, as necessary, after construction is complete. At most, four to five vehicles would need to use this access

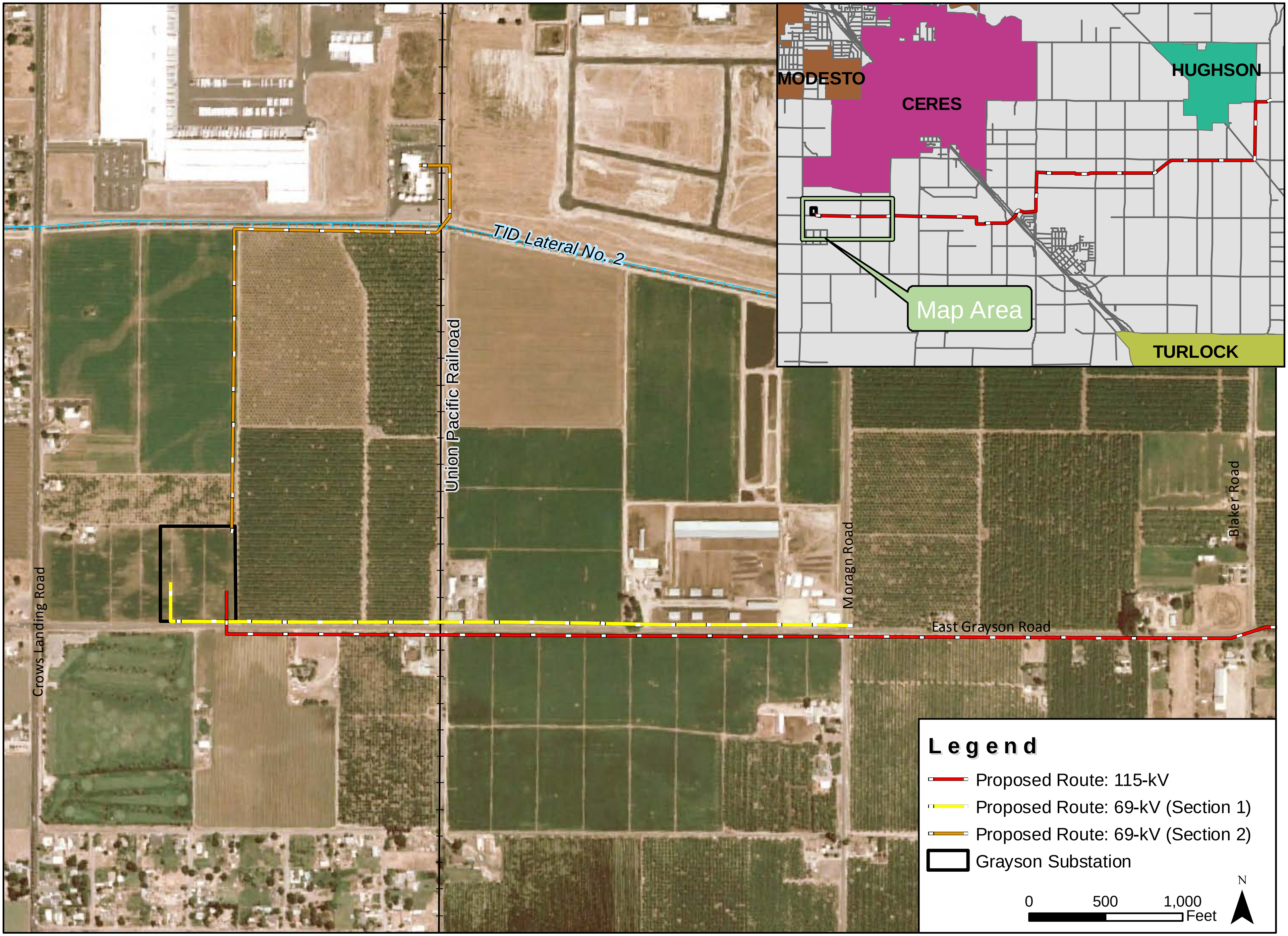


Figure 3.4
Grayson Substation Location Map

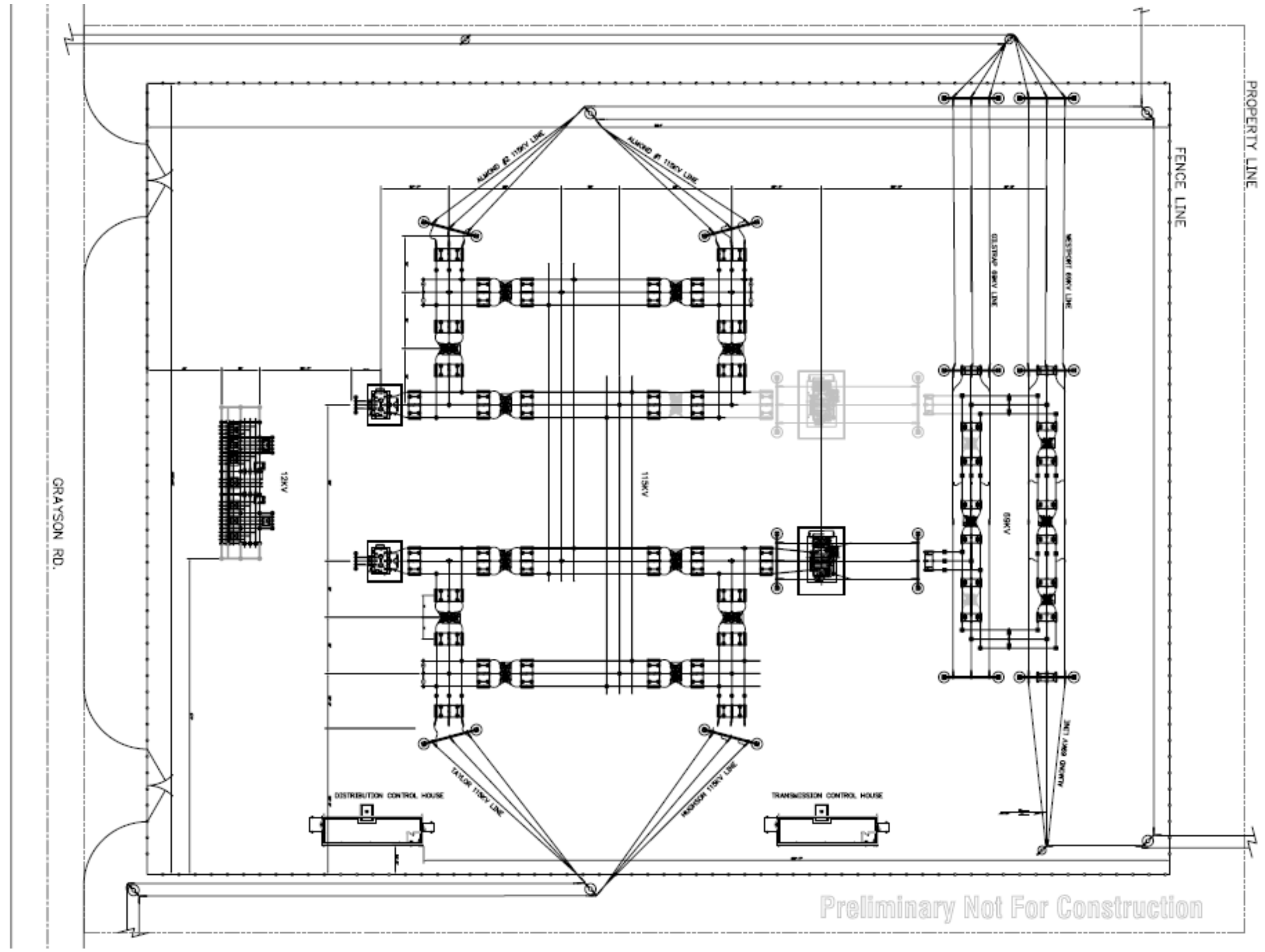


Figure 3.5

Substation Overview Map

Source: TID 2009

route to erect the poles.

Equipment utilized in the process of constructing the transmission lines would likely include the following: a 240 horsepower (hp) Sterling Boom Truck, a 240 hp Watson 3000 drill, a 240 hp auger truck, a 240 hp aerial line truck, a 79 hp tractor/loader/backhoe, a 250 hp reel truck, a 9.5 yard concrete truck, a one ton service truck, and a 65 ton crane. Pole construction typically requires a temporary closure of one lane of traffic where placement is adjacent to the right-of-way of public roads. An area of approximately 50 feet by 20 feet may be temporarily disturbed at each pole site adjacent to public right-of-way. Where poles would be located away from existing roadways and canals; the temporary disturbance area is estimated at 100 feet by 30 feet. During conductor stringing operations, a payout/pulling/tension station will require a temporary disturbance area of approximately 150 feet by 30 feet. There would be approximately 11 of these stringing stations necessary during construction, spaced approximately one mile apart along the line.

An approximately three acre staging area would be required during construction. The specific location has not yet been determined. However, it would be on a site which has been previously disturbed.

3.7.2 GRAYSON SUBSTATION

Construction of the Grayson Substation would consist of grading and site preparation, excavation and concrete pouring, equipment delivery and installation, and wiring and testing. The substation site is large enough to provide laydown area for substation construction materials and equipment. Stormwater control best management practices such as berms, silt fence, or fiber rolls would be installed around the perimeter of the substation site to control stormwater runoff. Construction of the Grayson Substation would require use of the following, or similar, equipment: a 174 hp grader, a 79 hp tractor/loader/backhoe, a 114 hp roller, a 9.5 yard concrete truck, a Condor manlift, a one tone service truck, a 190 hp 70 ton crane, and a Ditch Witch trencher. Equipment and materials for substation construction would be delivered and stored in a designated area. Hazardous materials such as paints, epoxies, grease, and compounds would be stored in lockers or covered containers within these areas. Transformer oil and caustic electrolyte (battery fluid) would be delivered after the electrical equipment is in place. A crew of approximately 16 workers would be required to construct the substation.

3.8 PROPOSED PROJECT SCHEDULE

3.8.1 CONSTRUCTION ACTIVITIES

Construction is estimated to last approximately one year and would consist of the activities described below. Construction of the transmission lines and substation would occur simultaneously.

Table 3-1 Assumed Construction Schedule

Activity	Duration (Total Number of days)
Construct New Transmission Line	
Pour Foundations for Angle	37
Spot Structures	35
Frame Structures	51
Set Structures	58
String Conductor	58
Clip Conductor	52
Energize	0
Total Duration	**214**
Construct New Grayson Substation	
Land Preparation	25
Site Fencing	23
Conduit Installation	28

Activity	Duration (Total Number of days)
Concrete Pour	26
Structure Erection	60
Equipment Erection	60
Electrical	60
Testing	27
Total Duration	**250**

3.9 PROPOSED OPERATION AND MAINTENANCE

Once energized, the Project's facilities would be in virtually continuous operation. Operation of electrical transmission systems is essentially inert and automatic, requiring only periodic inspection to maintain reliable operation. Annual or bi-annual inspections would be implemented for the Project's infrastructure.

Maintenance to the Project's infrastructure would be performed as deemed necessary through inspections or in response to acute events. Equipment damaged would be replaced. Trees and other vegetation would be trimmed to prevent interference with the conductors. Emergency maintenance, such as repairing downed wires during storms and correcting unexpected outages, would be also performed. The electrical equipment and poles are anticipated to have a lifetime of approximately 40 to 50 years.

Transmission lines often do not require maintenance for several years. Substations are also low maintenance facilities and require only routine inspection and occasional washing to prevent build-up of dust. After an extended period of operation, the transformer oil would be filtered. The impurities in the filtrate would be removed and either recycled or disposed in accordance with federal and state requirements.

4.0 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

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4.1 LAND USE AND AGRICULTURE

This Section addresses the land use and agricultural issues associated with the Hughson-Grayson 115-kV Transmission Line and Substation Project (the Project), analyzing the potential for impacts and describing, where necessary, mitigation measures. Existing conditions, applicable land use and zoning designations, and related policies and code requirements are discussed, as well as the Project's consistency with these regulations.

4.1.1 EXISTING CONDITIONS

REGIONAL

The dominant land use in the general region of the Project is agriculture. Agriculture in the greater San Joaquin Valley is overwhelmingly industrialized, with most crops grown as monocultures, a single crop grown over a large land area (e.g. 40+ acres). Tillage, planting, fertilizer application, pruning, and harvesting tend to utilize large machinery, such as tractors, trucks, and aircraft. Stanislaus County was ranked as the sixth most productive California county based on value of agricultural production in a statistical review conducted by the California Department of Food and Agriculture for the years 2006 and 2007 (California Department of Food and Agriculture 2009).

LOCAL

The majority of the Project is located unincorporated Stanislaus County, with one small section extending into the City of Ceres (see Figure 3.2).

115-KV TRANSMISSION LINE ROUTE

The 115-kV transmission line route would begin at the existing Hughson Substation in Stanislaus County, within the City of Hughson's Sphere of Influence (SOI). The route would remain in unincorporated areas as it travels west along East Whitmore Avenue to the east side of Euclid Avenue, and south on Euclid Avenue to Santa Fe Avenue. Along this stretch of land, there are orchard crops with patches of developed/disturbed areas on both sides of the roadways. The line would pass within 150 feet of approximately 14 residences in this area.

At the Santa Fe Avenue/East Service Road/Euclid Road intersection, the 115-kV route would travel west along Turlock Irrigation District's (TID's) Lateral No. 2. Lateral No. 2 traverses an area that is primarily developed in orchards, with some plots used for row crops. While paralleling the canal, the route would pass within 100 feet of approximately six homes.

At Faith Home Road, the route would turn to the south. This stretch is developed with roughly the same land uses as the previous stretch along the canal, with a higher density of homes; including a mobile home community (approximately 31 residences are located within 150 feet of the route). At TID Lateral No. 2 ½, the route would turn again to the west, passing directly south of a home along the canal right-of-way. Land on the north side of the canal is fallow. Land on the south side of the canal is developed with residential housing.

West of State Route (SR) 99, the route would pass industrial uses, two homes, orchards, and vineyards before crossing over the Ceres Main Canal. The route would travel north, parallel to this canal and adjacent to land developed in orchards, and would turn east in line with East Grayson Road. The transmission line would be located along property boundaries, passing between agricultural plots developed primarily in orchards. The line would pass north of a residence on Central Avenue before meeting East Grayson Road. The 115-kV line would be located on the north side of Grayson Road for approximately ½ mile before traversing to the south side near South Blaker Road. This segment would be located within 150 feet of an estimated 23 homes, including several located in a mobile home community. The land is in various types of agricultural production, including orchard, row crops, and cattle. The transmission line route would terminate at the proposed Grayson Substation.

69-kV Transmission Line Sections

There are two 69-kV lines associated with the Project. The first (Section One) travels along East Grayson Road in unincorporated Stanislaus County within the southern extent of the City of Ceres Planning Reserve and Reserve Area. Section One is approximately one mile long and would connect an existing 69-kV line at the intersection of Morgan Road and East Grayson Road to the Grayson Substation. This section would be located on the north side of the roadway. Land uses along this route include a dairy, orchards, row crops, and an agricultural-related business.

A second 69-kV transmission line section (Section Two) would connect the Grayson Substation to TID's existing Almond Power Plant. The line would proceed from the northeast corner of Grayson Substation and be located along the margins of agricultural plots until reaching TID Lateral No. 2, at which point it would turn east and continue approximately 1,300 feet. After crossing the railroad tracks, the line would proceed north and enter the power plant at the existing switchyard. The existing bus would be expanded and a circuit breaker would be installed in the switchyard to accommodate the line. The 69-kV transmission line would be collocated on poles with a proposed 115-kV transmission line for TID's Almond 2 Power Plant.

GRAYSON SUBSTATION

The Grayson Substation site is an open, level agricultural field in unincorporated Stanislaus County adjacent to an orchard on Grayson Road and approximately 1,000 feet east of the intersection of East Grayson Road and Crows Landing Road. The substation site is 7.35 acres.

4.1.2 REGULATORY SETTING

CALIFORNIA FARMLAND MAPPING AND MONITORING PROGRAM

The Farmland Mapping and Monitoring Program (FMMP) is administered by the California Department of Conservation, Division of Land Resource Protection. The FMMP monitors the conversion of the state's farmland to and from agricultural uses and compiles inventories of land resources. The program maintains an inventory of state agricultural land and updates its *Important Farmland Series Maps* every two years. The maps are not necessarily reflective of the general plan map or zoning designations, but are developed by combining current land use information with soil data from the Natural Resource Conservation Service to determine the area's potential to support agriculture (FMMP 2009).

The Rural Land Mapping Edition of the program identifies several land types, four of which are considered high-value agriculture. Termed "Farmland," these designations are as defined in Table 4.1-1. Table 4.1-1 also indicates the total acres of each of these Farmland types within the whole of Stanislaus County, including incorporated areas, as presented in the 2009 *Stanislaus County Important Farmland* map.

Table 4.1-1 Farmland Classifications and Acreage in Stanislaus County

Farmland Type	Definition	Acres in Stanislaus County
Prime Farmland	Physical and chemical features (soil quality, growing season, water availability) indicate that land is able to sustain long-term, high yield agricultural production	256,605
Farmland of Statewide Importance	Similar to Prime Farmland with minor shortcomings (greater slopes, less ability to store moisture)	29,926
Unique Farmland	Land has lesser quality soils and is used for the production of the state's leading agricultural crops.	75,443
Farmland of Local Importance	Farmlands growing dryland pasture, dryland small grains, and irrigated pasture.	33,704

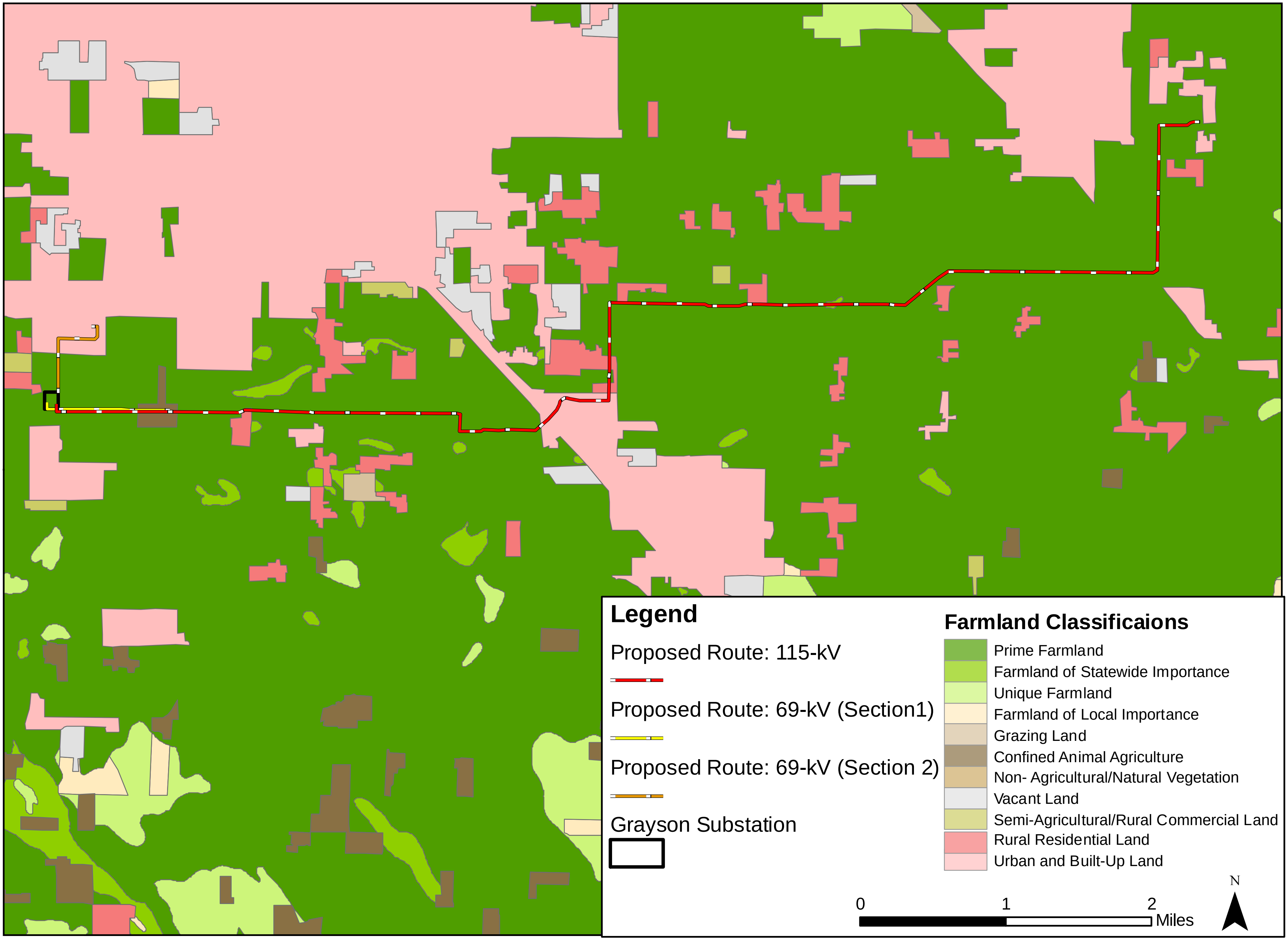
Source: FMMP 2009

Farmland maps produced by the Department of Conservation's FMMP for Stanislaus County indicate that a vast majority of the land base within the Project area is considered Prime Farmland, with pockets of other land designations scattered throughout the vicinity (Figure 4.1.1).

CALIFORNIA LAND CONSERVATION ACT

The California Land Conservation Act was authored by John Williamson in 1965. Dubbed the Williamson Act, this act strives to preserve agricultural and open space lands through arrangements between private land owners and cities and counties. Lands under voluntary Williamson Act contract are used for agriculture and agriculture-related uses for a minimum of 10 years; in return the local agencies assess property tax based on the agricultural value of the land rather than the market value. Generally, this results in a reduction in the farmer's taxes. Land owners may cancel the contract through a cancelation petition or through non-renewal after the initial 10 year period. Contracts can also be terminated through exercise of eminent domain and city annexation.

According to data produced by the California Department of Conservation's Division of Land Resource Protection, 691,048 acres in Stanislaus County were voluntarily participating in the Williamson Act in 2007 (California Department of Conservation 2007). This number reflects over 70 percent of the county's total acreage. Many of the parcels along the 115-kV



Sources: California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, 2006.

Figure 4.1.1

Farmland Designations

transmission line route and a portion of the Section One 69-kV transmission line route are currently under Williamson Act contracts. However, the Section Two 69-kV transmission line and the Grayson Substation site are not on lands under Williamson Act contracts. Figure 4.1.2 shows the parcels in the Project area that are under Williamson Act contracts.

STANISLAUS COUNTY GENERAL PLAN

The *Stanislaus County General Plan* outlines goals, policies, and programs representative of the direction of the growth desired by Stanislaus County. General Plan policies are implemented through actions taken by the Board of Supervisors. The following General Plan goals and policies are applicable to the Project (Stanislaus County 2007).

LAND USE ELEMENT

GOAL ONE: Provide for diverse land use needs by designating patterns which are responsive to the physical characteristics of the land as well as to environmental, economic, and social concerns of the residents of Stanislaus County.

- **Goal One, Policy Two:** Land designated Agriculture shall be restricted to uses that are compatible with agricultural practices, including natural resource management, open space, outdoor recreation, and enjoyment of scenic beauty.

GOAL TWO: Ensure compatibility between land uses.

- **Goal Two, Policy Fourteen**: Uses shall not be permitted to intrude into or be located adjacent to an agricultural area if they are detrimental to continued agricultural usage of the surrounding area.

GOAL THREE: Foster stable economic growth through appropriate land use policies.

- **Goal Three, Policy Sixteen**: Agriculture, as the primary industry of the County, shall be promoted and protected.

AGRICULTURAL ELEMENT

The Agricultural Element of the General Plan has been developed to promote and protect local agriculture. The focus of the Agricultural Element is the mitigation of negative economic and environmental impacts to agricultural land and the natural resources required to support agriculture. The following goals and policies of the Agricultural Element are applicable to the Project (Stanislaus County 2007).

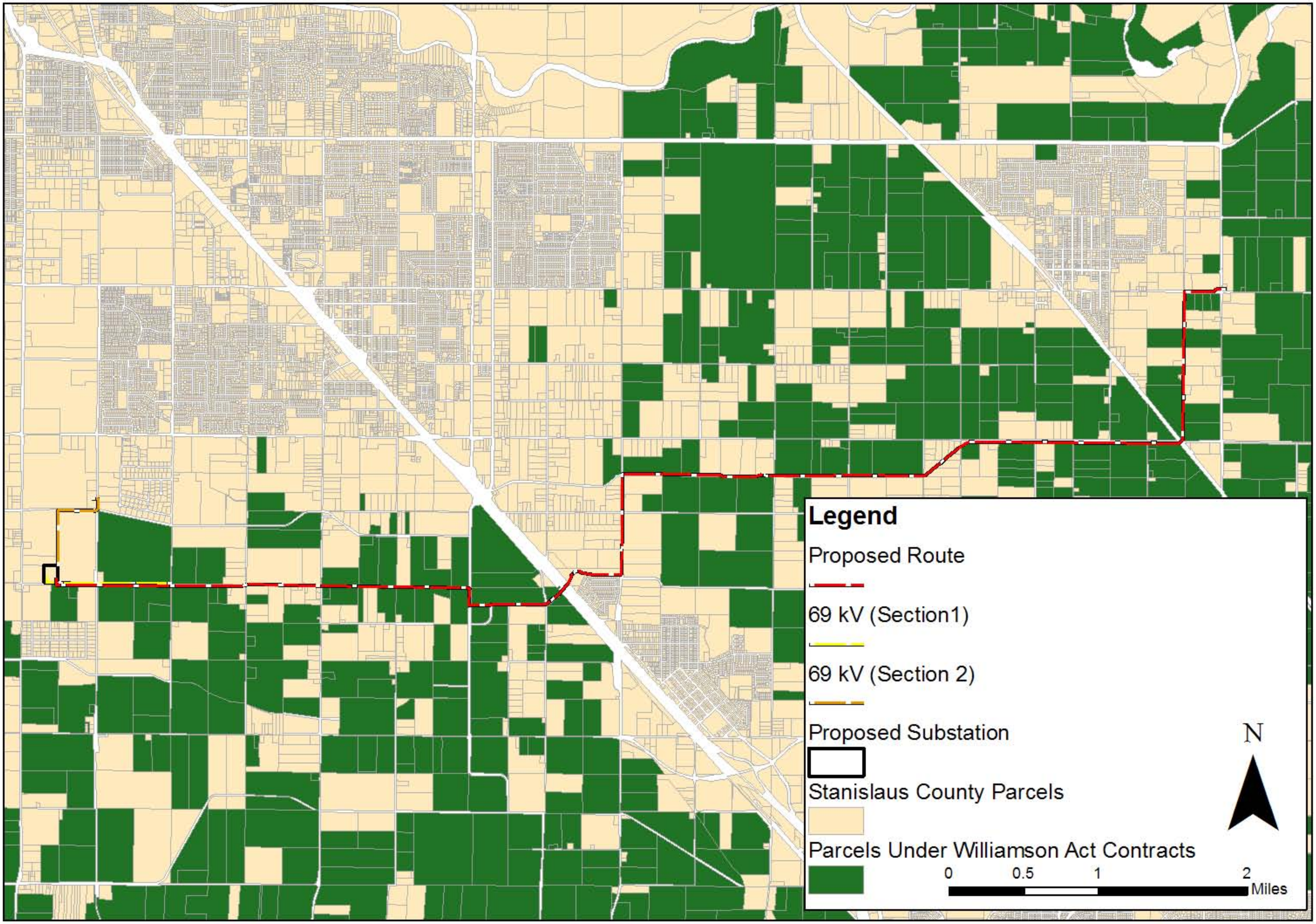


Figure 4.1.2

Williamson Act Lands

GOAL 2: Conserve our agricultural lands for agricultural uses.

- **Goal 2, Policy 2.5:** To the greatest extent possible, development shall be directed away from the County's most productive agricultural areas.
- **Goal 2, Policy 2.14:** When the County determines that the proposed conversion of agricultural land to non-agricultural uses could have a significant effect on the environment, the County shall fully evaluate on a project-specific basis the direct and indirect effects, as well as the cumulative effects of the conversion.

CONSERVATION/OPEN SPACE ELEMENT

The Conservation/Open Space Element emphasizes management and conservation of natural resources and the preservation of open space. Goals of the element state that open space and agriculture are of principle importance to Stanislaus County; therefore the division of land and land uses incompatible with agriculture are to be discouraged. The goals and policies of the Conservation/Open Space Element applicable to the Project are as follows:

GOAL ONE: Encourage the protection and preservation of natural and scenic areas throughout the County.

- **Goal One, Policy Two:** Assure compatibility between natural areas and development.

GOAL THREE: Provide for the long-term conservation and use of agricultural lands.

- **Goal Three, Policy Ten:** Discourage the division of land which forces the premature cessation of agricultural uses.
- **Goal Three, Policy Eleven:** In areas designated "Agriculture" on the Land Use Element, discourage land uses which are incompatible with agriculture (Stanislaus County 1994).

STANISLAUS COUNTY LAND USE DESIGNATIONS

The 115-kV and two 69-kV transmission line sections would be primarily located on land that is designated General Agriculture District (A-2) according to the Stanislaus County General Plan Land Use Map (Stanislaus County 2007). One exception includes an approximately 2,000 foot stretch near SR 99, along which the route would border the northern edge of an area zoned as single family residential (R-1). The A-2 designation is intended for lands that are presently or potentially desirable for agricultural usage based on characteristics such as location, topography, parcel size, soil classification, water availability, and adjacent land usage. This designation establishes agriculture as the primary use, but allows dwelling units, limited agricultural-related commercial services, and agricultural-related light industrial use.

STANISLAUS COUNTY CODE

Section 21.08.020C of the Stanislaus County Zoning Ordinance pertains to public utilities. Specifically, the zoning ordinance states the following:

> For purposes of this title, facilities for public utilities include, but are not limited to, electrical substations, communication equipment buildings and towers, service yards, gas regulator stations, meter lots, pumping stations which are accessory to existing gas or oil pipelines, and water wells; and such uses are permitted in A-2 and all R districts; provided, that such use is demonstrated in connection with the approval of a use permit, to be properly located without detriment to or in conflict with the agricultural or residential usage of property so zoned within the vicinity. Public utility transmission and distribution lines, both overhead and underground, are permitted in all districts without limitation as to height, but metal transmission towers are subject to all yard requirements as other structures. However, routes of proposed electrical transmission lines (including height, and placement of towers), shall be submitted to the planning commission for review and recommendations prior to the acquisition of rights-of-way therefore, when such lines are not within a public street or highway.

It is important to note that when referring to "public utilities," the Zoning Code regulates the activities of investor owned utilities, not publicly-owned utilities, such as TID. Moreover, the Zoning Ordinance does not in any way abridge the governmental authorities of TID set forth in California law.

Chapter 21.20 of the Zoning Ordinance indicates that the intent of the A-2 District is to support and enhance agriculture as the predominant land use in the unincorporated areas of the county. Permitted uses include residential (single-family or mobile home), farming accessory buildings, home occupations, racing homer pigeons, garage sales, temporary agricultural service airports, identified/informational sign, animal waste storage lagoon or ponds, Christmas tree sales lots and Halloween pumpkin sales lots, fireworks stands, produce stands, and day care uses. Facilities for public utilities are an allowable use with a use permit.

Zoning Ordinance Section 21.20.045 pertains to uses on lands under Williamson Act contracts. Specifically, this section states:

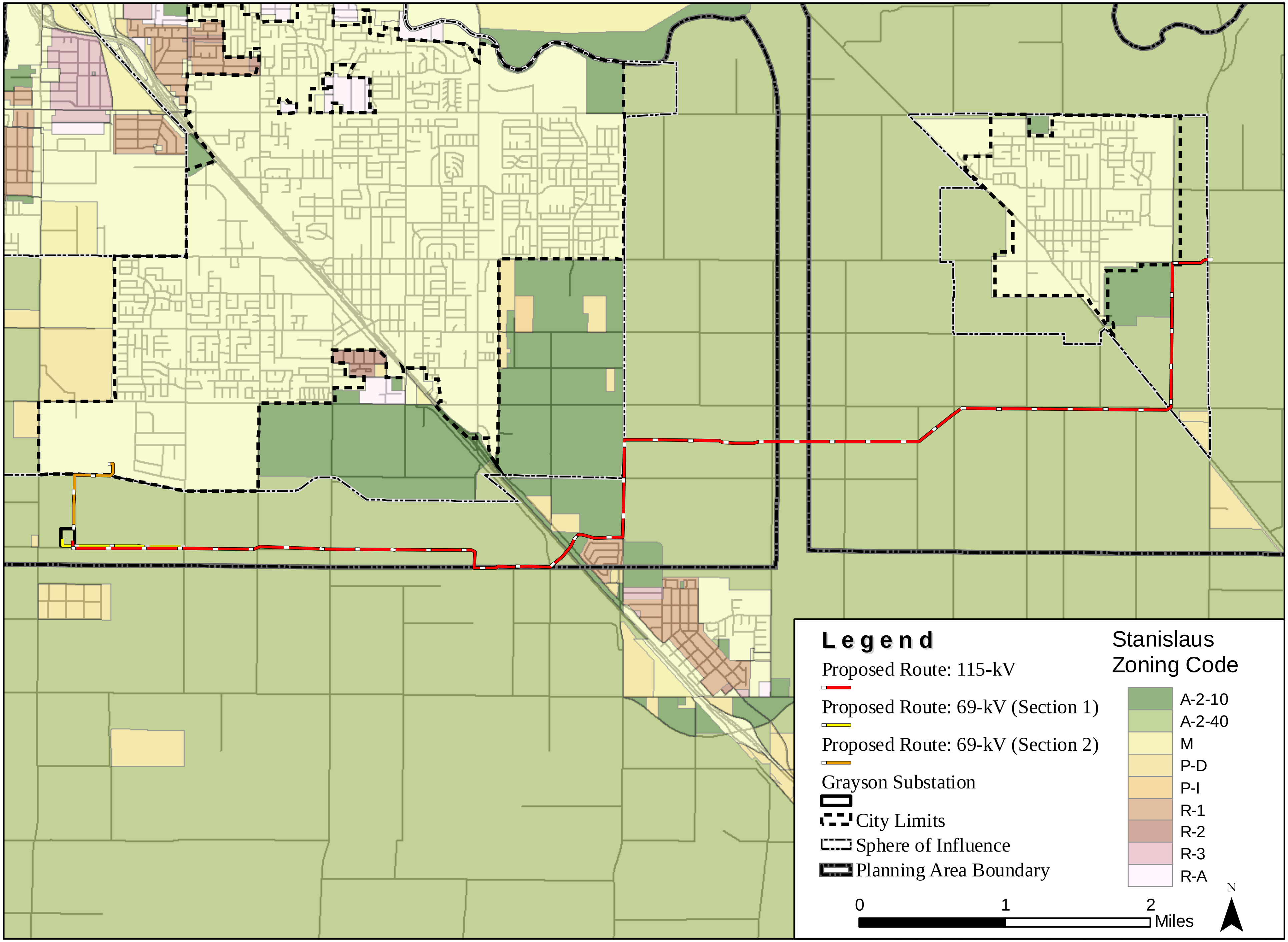
> As required by Government Code Section 51238.1, the planning commission and/or board of supervisors shall find that uses requiring use permits that are approved on lands under California Land Conservation Contracts (Williamson Act Contracts) shall be consistent with all of the following principles of compatibility:
>
> 1. The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district.
> 2. The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in the A-2 zoning district. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.
> 3. The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.
> 4. Unless the planning commission and/or the board of supervisors makes a finding to the contrary, the following uses are hereby determined to be consistent with the principles of compatibility and may be approved on contracted land:
>
>   The erection, construction, alteration, or maintenance of gas, *electric*, water, communication facilities (emphasis added).

The majority of the area in the region of the Project is zoned A-2-40, exclusive agriculture of a minimum of 40 acres. Some areas are designated A-2-10, exclusive agriculture of a minimum of 10 acres, also referenced as Urban Transition. The purpose of this designation is to ensure that areas stay in agricultural production until urban development is approved (Figure 4.1.3).

CITY OF CERES GENERAL PLAN

The *City of Ceres General Plan* outlines goals, policies, and programs to guide the city's growth, as desired by the residents, while preserving the small town qualities and agricultural setting that form the distinctive community identity. The city of Ceres' southern boundary is the TID Lower Lateral 2. Accordingly, the portion of the Section Two 69-kV line to the north of TID Lower Lateral 2, approximately 75 feet, would be located within the city. The bus expansion and circuit breaker that would be installed at the existing Almond Power Plant to accommodate the Section Two 69-kV transmission line would also be within the city. The Grayson Substation, the portion of the Section Two 69-kV line to the south of TID Lower Lateral No. 2, the 115-kV line, and the Section One 69-kV line are located in unincorporated Stanislaus County, within the City of Ceres' Planning Area and Reserve Area. The southern Planning Area boundary ends just south of East Grayson Road, while the southern boundary for the Reserve Area ends at East Grayson Road.

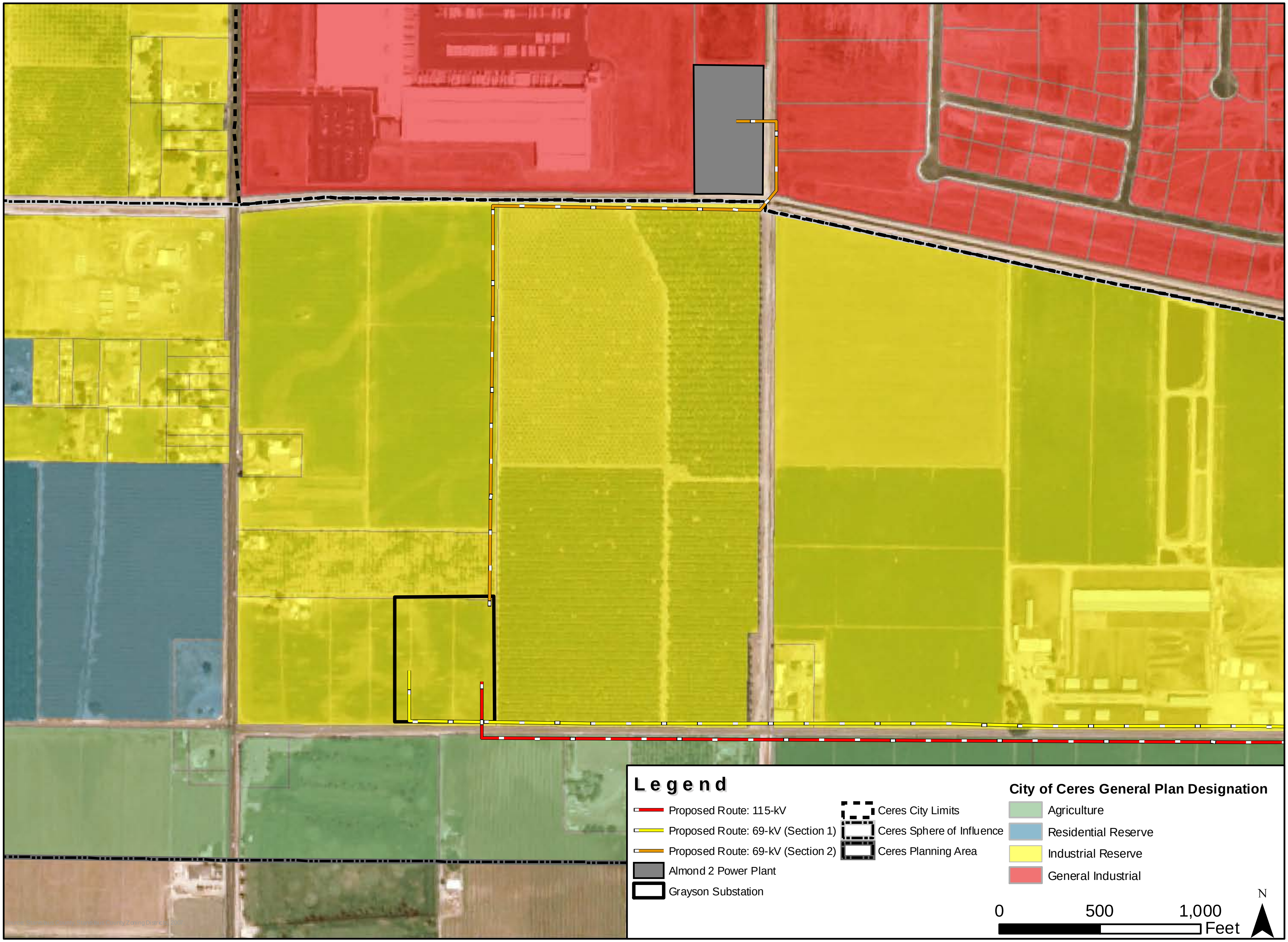
Within the jurisdictional boundaries of the City of Ceres, the Section Two 69-kV transmission line north of TID Lower Lateral No. 2 and the bus expansion and circuit breaker for the transmission line would be located on land designated as Community Facility (CF). This designation is applied to the city's existing major public and private facilities (Ceres 1997). The Land Use and Community Design chapter of the General Plan states that the city shall designate land suitable for industrial development and reserve such lands in a range of sizes to accommodate a variety of industrial uses. The city only approves new industrial developments on these lands when there is adequate infrastructure demonstrated. Ceres' General Plan Designations in the vicinity of the Grayson Substation are presented in Figure 4.1.4.



Source: Stanislaus County, Stanislaus County Zoning Districts, 2007.

Figure 4.1.3

Stanislaus County Zoning



Source: 2008 General Plan Land Use Diagram City of Ceres

Hughson-Grayson 115-kV Transmission Line and Substation Project

Figure 4.1.4

Ceres General Plan Designations in the Grayson Substation Vicinity

The following goals and policies of the *City of Ceres General Plan* (1997) are applicable to the Project:

GOAL 1.B: To grow in an orderly pattern consistent with economic, social, and environmental needs, maintaining Ceres' small town character and preserving surrounding agricultural lands.

- **Policy 1.B.2:** The city shall promote and support the development of a healthy balance of residential, commercial, and industrial businesses within the city.
- **Policy 1.B.3:** The city shall ensure that future development occurs in an orderly sequence based on the logical extension of public facilities and services.

GOAL 1.G: To designate adequate land for, and promote development of, industrial uses to meet the present and future needs of Ceres residents for jobs and to maintain economic vitality.

- **Policy 1.G.1:** The city shall designate specific area suitable for industrial development and reserve such lands in a range of parcel sizes to accommodate a variety of industrial uses.
- **Policy 1.G.2:** The city shall only approve new industrial development that has adequate infrastructure and services. Industrial development shall be required to provide sufficient buffering from residential area to avoid impacts associated with noise, odors, and the potential release of noxious and hazardous materials.

GOAL 1.N: To maintain land as Residential and Industrial Reserve within the Planning Area for consideration for accommodation of development projected to occur beyond 2015.

- **Policy 1.N.1:** Substantial development of reserve areas will not be permitted without a General Plan Amendment. Prior to any General Plan Amendment, the city will allow only uses consistent with the Agricultural designation and County zoning.
- **Policy 1.N.2:** The city will consider the appropriateness of annexation and development of Residential and Industrial Reserve lands based upon the following factors.
  - Demonstrated need for additional land;

- Availability of appropriately-designated land for development within the Urban Growth Area;
- Possible location and mix of land uses;
- Implications for overall community form;
- Ability to provide infrastructure and public facilities and services;
- Environmental impacts;
- Fiscal impacts on City; and
- Community benefits.

CITY OF CERES MUNICIPAL CODE

The portion of the Section Two 69-kV line north of TID Lower Lateral No. 2 to the existing Almond Power Plant, and the bus expansion and circuit breaker within the power plant switchyard, are within the jurisdictional boundaries of the City of Ceres and would be located on land that is zoned Planned Community (PC), according to the City of Ceres Zoning Map (Ceres 2008). This designation is intended to establish a level of preplanning for the development of land and to retain good land use relationships and compatibility between different land uses. Pursuant to Section 18.50.040 of the City of Ceres Municipal Code, public utility structures are permitted within any zone, provided that such activities are demonstrated in conjunction with an approved Conditional Use Permit.

4.1.3 LAND USE IMPACTS AND MITIGATION MEASURES

METHODS OF ANALYSIS

Land use impacts are evaluated in this Section by determining if the Project is in compliance with the goals, policies, and land use designations set forth by the State of California, Stanislaus County, and the City of Ceres. The agricultural impact analysis evaluates potential project-related impacts on agricultural lands and existing operations. The evaluation consults available data on land use, including the California Department of Conservation’s FMMP.

THRESHOLDS OF SIGNIFICANCE

The following thresholds have been developed as significance criteria for evaluation of the Project’s potential impacts. They are derived from Appendix G of the California

Environmental Quality Act (CEQA) Guidelines. Impacts could be considered significant if the Project would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to, a general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;
- Conflict with any applicable habitat conservation plan or natural community conservation plan;
- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use or involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural uses; or
- Conflict with existing zoning for agricultural use, or a Williamson Act contract.

IMPACT ANALYSIS

IMPACT 4.1-1

Physically divide an established community. *The Project would not divide any established community. Therefore, the impact associated with the implementation of this Project would be* ***less than significant.***

As proposed, the 115-kV transmission line route and two 69-kV transmission line sections would generally follow established roadways, canals, or field boundaries within Stanislaus County and would run between and within the City of Hughson SOI and the City of Ceres without adverse effect. The transmission lines would not hinder travel between established communities or otherwise provide a division.

MITIGATION MEASURE 4.1-1

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.1-2

> **Conflict with any applicable land use plan, policy, or regulation**. *The Project is consistent with Stanislaus County and the City of Ceres' major goals and objectives for development. The implementation of the Project would result in* ***a less than significant*** *impact.*

STANISLAUS COUNTY The Project is consistent with the goals, policies, and land use designation of the *Stanislaus County General Plan*. Although it would remove some land from agricultural production, agricultural uses could continue around the transmission poles and underneath the transmission lines. The Grayson Substation is located on a parcel which is currently in agricultural production. However, this land is not under a Williamson Act contract.

Pursuant to County Zoning Code Sections 21.080.020C overhead transmission lines and poles are an allowable use in agricultural districts. However, when the lines are not within a public street or highway, the routes must be submitted to the County Planning Commission for review and recommendation prior to acquisition of right-or-way. In addition, County Zoning Code Section 21.20 allows facilities for public utilities, such as substations, in agricultural districts with the issuance of a use permit.

CITY OF CERES The Project is consistent with the land use designation and goals and policies of the *City of Ceres General Plan*. The Project would not affect the city's ability to develop in the manner envisioned in the General Plan. In addition, the city Municipal Code allows utility structures within any zone, with an approved Conditional Use Permit.

Although the substation and portions of the transmission lines are within the city's Planning Area and Reserve Areas, the *Stanislaus County General Plan* goals, policies, and zoning designations apply in these areas. As stated above, the Project is consistent with the goals and policies of the County General Plan and the County's A-2 zoning designation.

MITIGATION MEASURE 4.1-2

The Project is consistent with the goals, policies, and land use designation of the *Stanislaus County General Plan* and those of the City of Ceres. Moreover, as a duly formed irrigation district, TID has plenary authority over the siting, construction, and operation of its transmission system and related facilities. While local jurisdictions do not issue permits to

TID for the construction of its electrical facilities, including transmission lines, poles, and substations, the Project is nevertheless consistent with local land use policies.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.1-3

Conflict with any applicable habitat conservation plan or natural community conservation plan. *The Project would not conflict with any habitat conservation plan or natural community conservation plan. Therefore,* ***no impact*** *would occur.*

There are no applicable habitat conservation plans or natural community conservation plans affected by the Project.

MITIGATION MEASURE 4.1-3

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.1-4

Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use or involve other changes in the existing environment that could result in conversion of Farmland to non-agricultural uses. *The Project would have a* ***less than significant*** *impact related to conversion of Farmland to non-agricultural uses and would not result in other changes to the existing environment which could result in conversion of Farmland to non-agricultural uses.*

Construction of the Project would result in potential short-term and permanent impacts to agricultural operations. These potential impacts are presented below.

TEMPORARY IMPACTS Within the easement area, there would be a temporary interruption of farming while the transmission poles and conductors are installed. Construction at each pole location would last approximately three to seven days. The temporary disturbance area for each pole adjacent to public right-of-way would be 20 feet by 50 feet in diameter. Away from public right-of-way, this disturbance area would increase to 30 feet by 100 feet, and at stringing locations this area would increase to 30 feet by 150 feet. This would result in an impact to an estimated 10.25 acres. The disturbance would be temporary and most of the area would be restored after construction.

In addition, a construction road would be required along the segment of the 115-kV transmission line route that follows the northern boundaries of the parcels fronting the north side of Turner Road. This construction access road would be within the 30 foot permanent easement required for the transmission line and would remain following construction. Row crops could be grown along the easement following construction, orchards could not. Construction of the construction access road would result in a temporary impact to 3.6 acres of agricultural land.

The total acres of agriculture that could be removed from production during Project construction associated with placement of the poles and construction of the access road would be approximately 13.85 acres. This amount is conservative (i.e., overstates potential impacts) since it assumes that every pole would be located on land in agricultural production, which is not the case in fact. In addition, it assumes that all of the land along the construction access road is in agricultural production.

The 115-kV transmission line would be placed along property boundaries of the parcels where, in many cases, there is an existing disturbed area. The acreage calculations do not take this into account that this land is not in current agricultural production. These construction-related impacts are temporary (three to seven days per pole) and less than significant.

PERMANENT IMPACTS Once the poles are constructed, crops such as oats, alfalfa, barley, etc. can grow up to the base of the poles. Trees underneath the transmission line would be maintained at a height of 15 feet above ground. Areas within the transmission line easement would remain in agricultural production. Only the footprint of the required poles would be permanently removed from agricultural uses. While the specific placement of the poles would be determined during detailed engineering (providing an opportunity to avoid farming operations where feasible) assuming a worst case scenario in which each pole would be placed in prime farmland, a maximum total of 1.7 acres of prime farmland could be permanently removed from agricultural production for placement of the transmission poles. The actual acreage would be less, however, since not all of the lands are categorized as Prime Farmlands, and the 3.8 miles of the Project alignment along TID Lateral No. 2 would be located on the existing roadway and not on land in agricultural production. Further, impacts to agricultural operations would be avoided, to the extent feasible, during the determinations of pole placement.

Along the 30 foot permanent easement for the 115-kV transmission line route and construction access road, which follows the northern boundaries of the parcels fronting the north side of Turner Road, orchard crops would not be permitted. However, row crops may be grown. The majority of the crops along this segment are currently orchard. In addition, there is an existing disturbed area not used for production farming acting as a buffer along most of the property boundaries. Conservatively assuming that the entire 30 foot area is in orchard and disregarding the existing disturbed areas along the route, the 30 foot easement would permanently impact 3.6 acres. The Project would minimize these potential impacts by avoiding production farmland wherever feasible.

Construction at the Grayson Substation site would convert 7.35 acres of prime farmland to non-agricultural use (see Figure 4.1.1). Therefore, the total acreage of land that could potentially be permanently removed from agricultural production would be approximately 12.65 acres. Again, using the conservative assumption that all of the lands impacted by the Project are Prime Farmland, the acreage affected by the Project is an insignificant fraction of the total Prime Farmlands in Stanislaus County. Moreover, not all of the 12.65 acres would be taken out of agricultural use. Row crop and monoculture cropping may be unaffected after the temporary construction impacts are completed. Some of this acreage is not designated as Prime Farmland and some is not even in agricultural production, serving as buffer lands between farming activities and other activities, such as roadways and canals. The total acreage of Prime Farmland that would be permanently removed from construction is less than significant.

Beyond lands physically removed from agricultural production, placement of utility structures has the potential to impact farming operations. Poles within orchards, fields, and livestock operations could affect the operation of mechanical equipment used for planting, harvesting, fertilization, pruning, and pesticide application. Transmission lines installed as part of the Project may interfere with the aerial application of pesticides and herbicides, requiring ground-level application techniques to be used. The applicators typically fly parallel to crop and orchard rows. Installing electrical lines along routes that are perpendicular to crop rows would require the pilots to alter their normal flight patterns and spray parallel to the lines for several passes, allowing crop dusting to occur. This change in flight patterns may decrease crop dusting efficiency and may affect the practicality of flying small fields adjacent to the lines.

MITIGATION MEASURE 4.1-4

TID shall minimize the number of transmission poles and ground disturbance that would occur to land agricultural production. The Project shall minimize these potential impacts by avoiding production farmland wherever feasible. As necessary, TID shall coordinate with landowners to determine pole placement that would result in minimal disruption to agricultural operations. TID shall obtain easements for private agricultural land that may be used along the route and compensate landowners for loss of crops, up to the provisions of law. Agricultural land used during construction shall be re-tilled to offset compaction caused by heavy material storage and construction activities, as requested by the landowner.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.1-5

Conflict with existing zoning for agricultural use, or a Williamson Act contract. *The Project would have a **less than significant** impact on existing agricultural operations on lands under Williamson Act Contract.*

The Project is consistent with existing zoning for agricultural uses, which allow for transmission lines and related facilities within agricultural zones. There are parcels along the 115-kV transmission line that are under Williamson Act contracts. In addition, many of the parcels along the 30 foot easement following the northern boundaries of the parcels fronting the north side of Turner Road are under Williamson Act contracts. However, Stanislaus County Zoning Ordinance Section 21.20.045 allows transmission lines to be constructed on Williamson Act land. The Project would not significantly compromise the long-term productive agricultural capability of the affected parcels.

The Project would not significantly displace or impair current or reasonably foreseeable agricultural operations. Moreover, the Project would not result in the significant removal of adjacent contracted land from agricultural or open-space use. Further, the Project is consistent with Williamson Act uses since it involves the erection, construction, and maintenance of electric facilities.

MITIGATION MEASURE 4.1-5

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

4.2 VISUAL RESOURCES

This Section discusses the visual setting and potential impacts upon existing visual resources resulting from the development of the Project. The baseline characterization of the site and environs and the ensuing analysis draw upon elements of broadly accepted visual assessment methods and the general body of visual resource evaluation that has been prepared in accordance with the requirements of the CEQA and its Guidelines.

Analysis of visual resources and aesthetics can never be entirely objective nor precisely quantified. Complex conditions affect the visual environment, including physical characteristics (e.g., topography, vegetation, natural and/or man-caused conditions, uniqueness and regional/local context), viewer attitude, and mode of travel (e.g., car, foot, etc.). Although assessment of visual impacts must be partially based on subjective criteria, visual impacts are among the most potentially significant to existing environmental quality.

4.2.1 EXISTING CONDITIONS

The visual character of the Project area is comprised of features that are typical of much of the Central Valley landscape. Here the topography is relatively flat and there is an absence of naturally elevated sites such as hills, slopes or outcroppings; except the distant hills of the Coastal Range and the mountains of the Sierra Nevada, which border the western and eastern extent of the valley.

Land uses within the Project area and proximity consist of agricultural, rural residential, limited commercial and industrial operations, and infrastructure (Figures 4.2.1 through 4.2.4). Agricultural features include extensive orchards, mixed with smaller acreage planted in row crops and vineyards. Residential use varies from isolated single-family dwellings to denser concentrations of small subdivisions and mobile home parks. Several commercial and industrial sites are present along with one recreational facility. Associated infrastructure includes roadways, power and communication lines, and irrigation canals.

VISUAL FEATURES OF THE PROJECT AREA

A brief description of the present visual characteristics and visual resources along sections of the Project route, starting from the existing Hughson Substation and proceeding west to the Grayson Substation, are presented below.

HUGHSON SUBSTATION TO EAST SERVICE ROAD/SANTA FE RAILROAD TRACKS

From the existing Hughson Substation, the 115-kV transmission line would include an approximately 0.25 mile portion of East Whitmore Avenue before turning south along the eastern side of Euclid Road for a distance of about one mile to the intersection of Euclid Road/East Service Avenue near the Santa Fe Railroad tracks. Relatively large and visually prominent existing transmission poles, with a height of approximately 65 feet, run along the west side of Geer Road across from the Hughson Substation.

Visual features along two-lane Euclid Avenue include several one-story residences, located on both sides of the roadway, along with extensive almond orchards. Several of the residences are screened by trees, other landscaping, and ancillary structures associated with agricultural operations. Power and communication lines on approximately 40-foot high poles parallel the eastern side of Euclid Road. An additional power line extends west from the roadway. Views to the west include views of the Coast Range (obscured by distance) and intervening orchards and taller trees (Figure 4.2.1).

EAST SERVICE ROAD/SANTA FE RAILROAD TRACKS TO EAST SERVICE ROAD/MOUNTAIN VIEW ROAD INTERSECTION

Visual features along the approximately 1.5 mile section from the southern terminus of Euclid Road at East Service Road to just east of the East Service Road/Mountain View Road, include rural residences and lands used for orchards and row crops (Figure 4.2.2). Most of the residences are situated on the north side of the two-lane roadway, and several are set back from the street. An existing 69-kV transmission line, with poles approximately 65 feet in height, runs between the road and TID Lateral No. 2, which parallels the south side of East Service Road.

EAST SERVICE ROAD/MOUNTAIN VIEW ROAD INTERSECTION TO TID LATERAL NO. 2/FAITH HOME ROAD

From immediately east of the East Service Road/Mountain View Road intersection, the 115-kV transmission line parallels the southern bank of TID Irrigation Canal No. 2 west to Faith Home Road, a distance of approximately two miles. Visual features adjacent to the route include extensive orchards and land used for row crops and pasture on both sides of the canal, and a 69-kV transmission line and communication lines on the south side of the canal.

Ten single-family residences are near the canal where it turns southeast of East Service Road and runs west. An additional three residences are located near the remainder of the alignment to the intersection of Faith Home Road (Figure 4.2.3).

TID LATERAL NO. 2/FAITH HOME ROAD TO STATE ROUTE 99

As the 115-kV transmission line runs south about one mile along two-lane Faith Home Road from the TID Lateral No. 2, traffic visibly increases along with the number of residences. Several single-family residences are visible along the west side of the road. Land used for orchards and row crops extend east from the road. Power/communications lines, approximately 40 feet in height, parallel the east side of the road.

The Project alignment turns westward along the south side of the TID Upper Lateral No. 2 1/2 canal between residences within the Modesto Western Mobile Estates and a residential subdivision immediately to the south. Visual features within the area include the fences and upper portions of the backs of residences in both the mobile home park and the subdivision, which are below the grade of the TID easement road along the canal. Power poles and existing lines crossing SR 99 and traffic along the highway are readily visible together with industrial structures on the western side of the freeway.

STATE ROUTE 99 TO EAST GRAYSON ROAD/NEW SUBSTATION SITE

On the west side of SR 99, the Project would be located along the northern side of the TID Lateral No. 2 ½ between two industrial land uses, which appear as prominent structures on the east side of the Prairie Flower Road/Esmar Road intersection. Two residences and orchards are immediately west of the intersections of the TID Lateral 2 ½, Prairie Flower Road, and Esmar Road. The alignment continues west along TID Lateral 2 ½ until it bends south, west of Esmar Road near another residence. The Project route then goes west along property boundaries between orchards/vineyards to the Ceres Main Canal. After crossing the Ceres Main Canal, the alignment turns north, paralleling the canal before turning west along the northerly boundaries of the parcels that front Turner Road, to Central Avenue.

The route continues west along two-lane East Grayson Road. Orchards are the prominent feature of the landscape along with 28 single-family residences located primarily on the south side of the roadway. One commercial site and one large feed lot operation at the intersection with Morgan Road are also visible. Existing 40-foot high power lines are located on the south side of the road. The nearly four mile segment of the Project from SR 99 to the site of the Grayson Substation ends across from a large residence, set back from the road, and the St. Stanislaus Golf Course.

GRAYSON SUBSTATION SITE

The site consists of 7.35 acres of land that is currently in cereal crops and is adjacent to orchards to the east and additional cereal crops to the west and north (Figure 4.2.8a).

69-KV TRANSMISSION LINE: SECTION 1

Section One of the 69-kV line would parallel the north side of East Grayson Road from Morgan Road to the Grayson Substation.

69-KV TRANSMISSION LINE: SECTION 2

Section Two of the 69-kV transmission line would traverse land in agricultural production. The line would continue north, cross TID Lateral No. 2, and continue to the existing Almond Power Plant. Several relatively large transmission line towers are visually prominent features along the Almond Power Plant access road which parallels the north side of TID Lateral No. 2 in this area.

4.2.2 REGULATORY SETTING

There are no known federal or state regulations pertaining to visual resources that may be affected by the Project. An analysis of local regulations follows.

STANISLAUS COUNTY GENERAL PLAN

There is one goal in the Stanislaus County General Plan pertaining to visual resources. This goal, which is located in the Land Use and Conservation/Open Space Element, is stated as follows:

- Encourage the protection and preservation of natural and scenic areas throughout the County.

CITY OF CERES GENERAL PLAN

There are no policies set forth in the *City of Ceres General Plan* that are applicable to visual resources or the aesthetics component of the Project.

Figure 4.2.1 Looking west from Euclid Avenue, showing expanse of orchards, the distant Coast Range, existing power lines, and flat topography.

Figure 4.2.2 East Service Road, where the alignment goes southwest, showing residence, canal, orchards, 69-kV transmission lines, two lane road, and distant Coastal Range.

Figure 4.2.3 Faith Home Road conditions, including residences and orchards.

Figure 4.2.4 East Grayson Road/Morgan Road intersection with two lane road, row crops, residences and commercial use at right.

4.2.3 IMPACTS AND MITIGATION MEASURES

This Section examines the visual setting and potential impacts upon existing visual resources resulting from the development of the Project. The characterization of the affected Project area and environs and the ensuing analysis draw upon factors that affect the value and importance of visual resources (e.g., uniqueness, prominence, scale, local significance). Such factors have been considered as part of this visual resources evaluation. Analysis of visual resources and aesthetics can never be entirely objective nor precisely quantified. Complex conditions affect the perception of the visual environment, including physical characteristics (e.g., topography, vegetation, natural and/or man-caused conditions, uniqueness and regional/local context), viewer attitude, and mode of travel (e.g., car, foot, etc.).

METHODS OF ANALYSIS

Evaluation of the landscape is characterized by two primary considerations: (1) visual resource characteristics and quality, and (2) viewer response (based upon exposure and attitude/sensitivity). Viewer response is a function of both objective factors (i.e., visibility, view duration, number of viewers) and more subjective elements (e.g., viewer expectations, view quality, and surrounding uses and setting). Analysis of potential visual impacts has emphasized visual change in terms of visual contrast (major factors that include color, form, line, and texture) and dominant elements that may be visible from major public viewpoints.

Other interrelated visual factors include: (1) motion that can be perceived even at great distances with effects ranging from dominant to inconsequential; (2) unity, which is relevant to scale, color, and the ability to integrate into the surrounding environment; and (3) distance and its association with relative size, in which foreground changes (i.e., generally within about a one-quarter mile) are considered more important than middle ground changes (i.e., over one-quarter to less than one mile) and distant views (i.e., greater than one mile). In addition, recognition of the importance or significance of a visual resource (e.g., scenic view, scenic highway, unique visual feature), through formal designation by public agencies (i.e., local, regional, state or federal), is also considered as part of the evaluative considerations.

Consistent with the evaluation methodology, three existing locations were selected as representative of the kinds of publicly accessible, important, and/or sensitive views or visual resources that may be affected by the Project. The viewpoint locations, or key observation points (KOP's), shown in Figure 4.2.5 were selected from an extensive reconnaissance of the viewshed in proximity to the Project.

They include the following locations:

(1) KOP 1. Euclid Road between East Whitmore Avenue and East Service Road

(2) KOP 2. TID Lateral No. 2 ½ east of SR 99

(3) KOP 3. East Grayson Road near St. Stanislaus Golf Course

To graphically represent and illustrate the level of potential impacts from the Project upon existing visual resources, computer simulations were prepared (Figures 4.2.6 through 4.2.8). The simulations incorporate proposed facilities consistent with the Project Description.

THRESHOLDS OF SIGNIFICANCE

Consistent with the significance criteria set forth in Appendix G of the CEQA Guidelines, impacts would be considered significant if the Project would:

- Damage scenic resources within a State scenic highway;
- Substantially affect a scenic vista;
- Substantially degrade existing visual character or quality; or
- Create new sources of light and glare that would affect views in the area.

IMPACT ANALYSIS

IMPACT 4.2-1

Damage scenic resources within a State scenic highway. *The Project would have **no impact** on scenic resources within a State scenic highway.*

SR 99, which intersects the transmission line route west of Faith Home Road and TID Lateral No. 2 ½ is the only State highway in proximity to the Project. SR 99 is not designated as a scenic highway. Therefore, the Project will not damage scenic resources within a scenic highway.

MITIGATION MEASURE 4.2-1

No mitigation required

Level of Significance After Mitigation

No impact

Impact 4.2-2

> **Substantially affect a scenic vista.** *The Project is not visible from any designated scenic vista. Therefore, the Project would have* ***no impact*** *on scenic vistas.*

Because the Project is not visible from a scenic vista, it would not impact any such resource.

Mitigation Measure 4.2-2

No mitigation required

Level of Significance After Mitigation

No impact

Impact 4.2-3

> **Substantially degrade the existing visual character or quality along the Project route.** *Residences in proximity to the transmission line facilities would not be substantially impacted by the proposed electrical facilities. Impact on the quality and character of visual features and views would be* ***less than significant.***

Overhead utility poles, carrying electricity in 12-kV lines and communications to rural residences, are common within the agricultural areas that comprise much of the landscape of the proposed 115-kV transmission alignment. Figure 4.2.6a shows part of Euclid Road looking north toward East Whitmore Avenue. Figure 4.2.7a provides a view of electrical lines crossing from the east side of SR 99 near TID Lateral No. 2 ½ to the west side of the freeway. These poles are about 40 feet high and typically consist of four wires that run from pole-to-pole, with distribution lines serving individual single-family residences located along public roadways.

Implementation of the Project would result in the placement of overhead utility poles that are approximately 70-feet high (100 feet for the crossing of SR 99), set at 250 foot intervals, that support several lines. In most cases, the existing 12-kV distribution lines would be relocated to the new poles to minimize visual effects. Given the temporary nature of the construction activities, placement and relocation would be a less than significant impact.

As representatively shown in Figures 4.2.6b and 4.2.7b, the new utility poles would be located approximately nine feet inside the same general alignments as current overhead utility poles, or within routes through agricultural areas in which there are the fewest number of residents living relatively near the facilities. For residents in proximity to the new poles and lines with foreground views (e.g., Euclid Road), the visual impact, though individually subjective, would be considered less than significant because of the presence of existing distribution facilities within the right-of way. While motorists along public roads would discern a change to the size and type of utility poles and lines, their views would be brief and generally consistent with the visual character of the area. With gaps between the poles and the lines, existing vistas, which are already frequently obscured or interrupted by other utility lines, structures, and vegetation, middle ground and distant views of existing visual features (e.g., orchards, other agricultural lands, distant Coastal Range, Sierra Nevada) would not substantially change.

MITIGATION MEASURE 4.2-3

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.2-4

Substantially degrade the existing visual character or quality of the Grayson Substation site, or along the 69-kV transmission lines. *Residences in proximity to the transmission line facilities would be especially impacted by the proposed electrical facilities. Impact on the quality and character of visual features and views would be* ***less than significant****.*

The quality and character of visual features and views from several nearby residences, part of the St. Stanislaus Golf Course, and from the segment of East Grayson Road west of the new substation site and two 69-kV line sections would not be significantly affected by the proposed facilities. As shown in Figure 4.2.8a, taken on the south side of East Grayson Road and west of the substation location, the site is characterized by agricultural fields adjacent to orchards with vegetation of a relatively low, even height. The sky is a dominant feature above the orchards.

Overhead power lines on the south side of the roadway are visible at the left of the photo and are prominent foreground features. To the north of the substation site, there is industrial development consisting of a food distribution warehouse facility and TID’s existing Almond Power Plant. Although the substation would add a new visual element to the area, it is consistent with the existing view of the industrial area to the north. The transmission line poles, additional horizontal wires, transformers, and other related substation equipment would be visible, along with the slat fence surrounding the substation. However, no existing important or scenic views or resources would be significantly affected.

The installation of Section One of the 69-kV transmission line to the East Grayson Road/Morgan Road intersection would be evident from a few residences and a commercial site along East Grayson Road. Development of the substation and Section Two of 69-kV transmission lines would not substantially change the view for the two-to-three residences (who would also see Section One of the 69-kV line) on the south side of East Grayson Road, the users nearest the roadway at the adjacent golf course, or eastbound motorists on East Grayson Road west of the 7.35-acre site. In addition, the proposed facilities would also be less prominently visible, and not significant, from the commercial area at the Crow Landing Road/East Grayson Road intersection and two residences on the west side of Crow Landing Road.

Construction-related impacts on the visual quality of the area are considered less than significant because impacts would be short term (less than one year) and should not exceed final Project impacts.

MITIGATION MEASURE 4.2-4

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.2-5

Create new sources of light and glare affecting views in the area. *Additional sources of light and glare would be minimal and would have a **less-than-significant impact** ton area views.*

Approximately eight lights would be installed at the substation site. These lights would be illuminated at night for security purposes. However, the light fixtures would be hooded and directed downward and onsite to minimize light and glare. Low-pressure sodium lamps and non-glare type fixtures would be specified. For areas where continual lighting is not required for security purposes, light switches would be provided. These areas would then only be illuminated when in use. The lights associated with the substation would result in a less than significant impact because of the measures taken to reduce offsite visibility. The substation structures and fencing surrounding the substation would have a glare-reducing finish. Therefore, there would be no glare associated with the substation.

Further, there would be no lights associated with the transmission line routes. In addition, the transmission poles would be COR-TEN® steel (i.e. weathering steel) with a rust-colored finish. As a result, there would be no glare associated with the transmission poles.

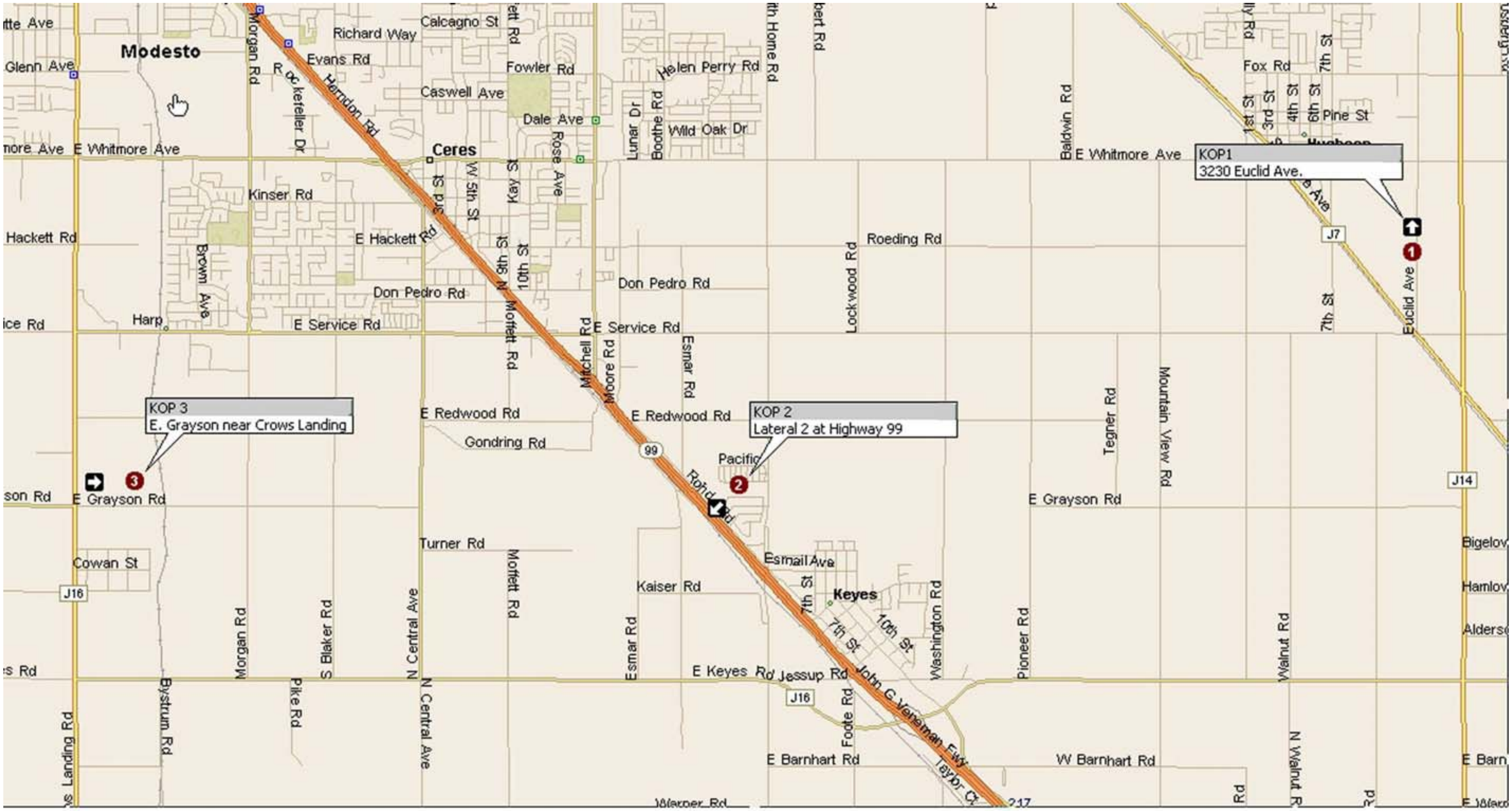
Construction would occur during daytime hours. No construction-related lighting would be required. There may be some glare associated with the sun reflecting off construction equipment. However, it would be short term in nature. There would be no impacts associated with light and glare associated with construction.

MITIGATION MEASURE 4.2-5

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant



Key Observation Point Key Map

0 mi 0.5 1 1.5 2

Scale

KOP 1 - 3230 Euclid Ave.
KOP 2 - Lateral 2 at Highway 99
KOP 3 - E. Grayson at Crows Landing

Figure 4.2.5

Source: Visual Impact Analysis LLC

Figure 4.2.6a: KOP 1 – Existing Condition at 3230 Euclid Avenue

Figure 4.2.6b: KOP 1 – With Project Condition at 3230 Euclid Avenue

Figure 4.2.7a KOP 2 – Existing Conditions at Lateral 2 1/2 and SR 99

Figure 4.2.7b: KOP 2 – With Project Conditions at Lateral 2 1/2 and SR 99

Figure 4.2.8a: KOP 3 –Existing Conditions at East Grayson Road near St. Stanislaus Golf Course

Figure 4.2.8b: KOP 3 – With Project Conditions at East Grayson Road near St. Stanislaus Golf Course

4.3 BIOLOGICAL RESOURCES

This Section describes the existing biological setting and potential effects of Project implementation. Descriptions and analysis in this Section are based on information contained in the *Biological Resources Identification Survey* prepared by Alphabiota Environmental Consulting (AEC) (Appendix D) and the *Wetland Delineation/Jurisdictional Waters Report* prepared by Natural Investigations Company (Appendix E).

4.3.1 EXISTING SITE CONDITIONS

The Project is located within the San Joaquin Valley geographic subregion, which is contained within the Great Central Valley geographic subdivision of the larger California Floristic Province. This region has a Mediterranean-type climate, characterized by distinct seasons of hot, dry summers and wet, moderately cold winters. The topography of the study area is generally flat, with a gentle slope to the west. The elevation ranges from approximately 76 feet to 130 feet above mean sea level. The Project is within the Tuolumne River watershed. The Tuolumne River runs east to west, and is located north of the Project.

The Project is located in an area under a nearly consistent disturbance regime. Agricultural lands are managed via tilling, pesticide application, and harvesting. TID's canals are concrete-lined trapezoidal ditches, which are regularly maintained and have controlled water levels. Home sites have been modified with the addition of non-native landscaping plants. All existing natural habitats are extremely modified or disturbed, with extensive evidence of grading, tilling, and/or paving.

COMMUNITIES

The communities present along the transmission alignments and the Grayson Substation property consist of agricultural (primarily cereal row crop and stone fruit orchards), ruderal vegetation (including annual grasslands), and developed areas. A description of each community is provided below.

AGRICULTURAL

The transmission line routes would be adjacent to, or traverse, orchards and some fallow fields. The Grayson Substation site is currently planted in cereal crop. The conversion of native habitats to agricultural fields greatly reduces wildlife biodiversity and habitat value.

However, common, disturbance-tolerant wildlife species can occur in these fields, and cultivated vegetation can provide benefits such as cover, shade, and food resources.

RUDERAL

Ruderal landscape consists of non-native grasses and weedy plant species that occur in areas where agricultural and/or development activities have previously occurred. Ruderal landscapes generally exhibit conditions that suggest a lack of maintenance or use of the existing land. Non-native grasses and weeds are generally low-growing but can include some tall species (up to about 6 feet). Dominant species found within this area include pigweed (*Amaranthus sp.*), Mediterranean barley (*Hordeum murinum*), pineapple weed (*Chamomilla suaveolens*), and filaree (*Erodium cicutarium*).

DEVELOPED

Developed areas are generally composed of ornamental vegetation and common weedy species of grasses and forbs, and rural residential housing. Common ornamental species include redwood trees (*Sequoia sempervirens*), oleander (*Nerium oleander*), sycamore trees (*Platanus occidentalis*), and lawns composed of such species as fescue (*Festuca sp.*) and Kentucky blue grass (*Poa pratensis*). Common weedy species of vegetation associated with such areas may also include species of dandelion (*Taraxacum officinale*), Bermuda grass (*Cynodon dactylon*), and perennial ryegrass (*Lolium perenne*).

WILDLIFE COMMUNITY

The Project area, including transmission alignments and the Grayson Substation property, provides habitat for common wildlife species that occur in ruderal and developed areas. Common wildlife species observed on, or in the vicinity of, the Project include raven (*Corvus corax*), crow (*C. brachyrhynchus*), Brewer's blackbird (*Euphagus cyanocephalus*), northern mockingbird (*Mimus polyglottos*), western meadowlark (*Sturnella neglecta*), mourning dove (*Zenaida macroura*), rock dove (*Columba livia*), common sparrow (*Spezella sp., Zonotrichia sp.*), kingbird (*Tyrannus verticalis*), European starling (*Sturnus vulgaris*), and yellow-billed magpie (*Pica nuttalli*). Raptors observed within the vicinity of the Project included red-tailed hawk (*Buteo jamaicensis*), sharp-shinned hawk (*Accipiter striatus*), and Swainson's hawk (*Buteo swainsoni*) (AEC 2009).

Other wildlife species that may occur in the Project area include insects, reptiles, and small mammals common in developed areas. The Project area does not provide large, undeveloped expanses of land. Avian species that have adapted to these environments, or whose food source thrives under these conditions, may be present. The continual disturbance regime associated with most agricultural operations and residential areas does not generally encourage establishment of many native species, such as the San Joaquin kit fox (*Vulpes macrotis mutica*).

SPECIAL-STATUS SPECIES

Special-status species are those animal and plant species that, in the judgment of the resource agencies[1], trustee agencies[2], and certain non-governmental organizations, warrant special consideration in the CEQA process. Special status species include the following:

- Officially designated threatened, endangered, or candidate species federally listed by the United States Fish and Wildlife Service (USFWS) and protected under the Federal Endangered Species Act (ESA).
- Officially designated rare, threatened, endangered, or candidate species state listed by the California Department of Fish and Game (CDFG) and protected under the California Endangered Species Act (CESA). The CDFG also maintains a list of "Fully Protected" species, as well as "California Species of Special Concern" that are also generally included as special-status species under CEQA.
- Species considered Rare, Threatened, or Endangered under the conditions of Section 15380 of the CEQA Guidelines, such as plant taxa identified on lists 1A, 1B, and 2 in the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California.
- Other species considered sensitive, such as nesting birds listed under the Migratory Bird Treaty Act (MBTA), and/or plant species included in Lists 3 and 4 in the CNPS Inventory. Species may also be designated as special concern at the local level, due to

[1] Public agencies that regulate public or private activities to avoid or minimize environmental damage.
[2] A "trustee agency" is a public agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California.

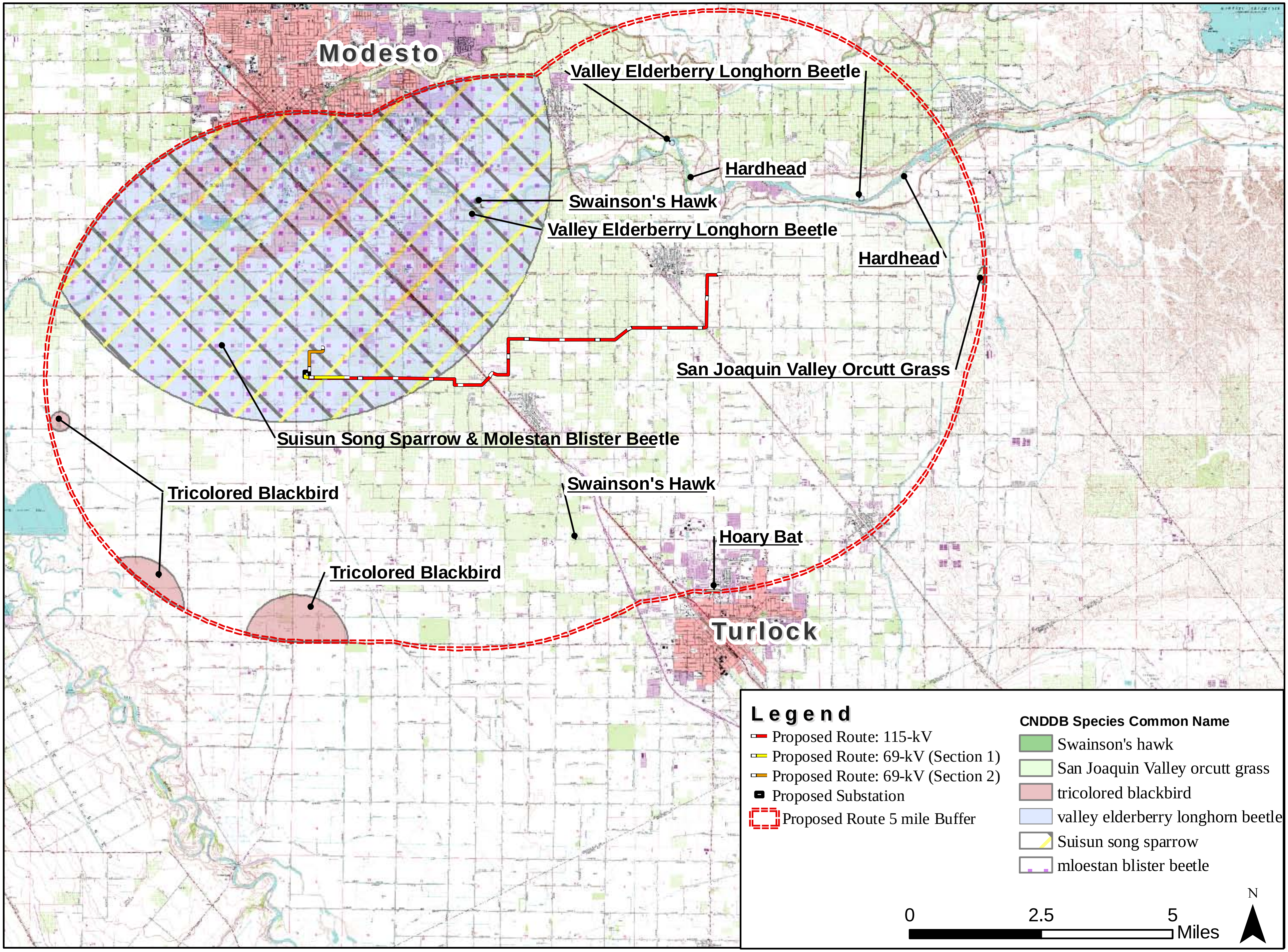
limited data regarding distribution, which precludes listing them as threatened or endangered at the state and federal level.

Special-status species known to occur within five miles of the Project area are presented in Figure 4.3.1.

SPECIAL-STATUS PLANT SPECIES

The *Biological Resources Identification Survey* identified one special status species occurrence within a five-mile radius of the Project, San Joaquin Valley orcutt grass *(Orcuttia inaequalis*). This species was identified through California Natural Diversity Data Base (CNDDB) search, as depicted in Figure 4.3-1. San Joaquin Valley orcutt grass was listed by CDFG as endangered in 1979, and federally listed as endangered in 1997. This grass is limited in distribution to the Southern Sierra Foothills Vernal Pool Region of the San Joaquin Valley. San Joaquin Valley orcutt grass is the only orcutt grass considered restricted to San Joaquin Valley. Historically, its range included the eastern margin of the valley, from Stanislaus County to Tulare County. Most of the populations have been extirpated, including all of those in Stanislaus County. Currently, this grass is limited in distribution to the Southern Sierra Foothills Vernal Pool Region of the San Joaquin Valley. San Joaquin Valley orcutt grass occurs on alluvial fans, high and low stream terraces, tabletop lava flows, and in Northern Claypan, Northern Hardpan and Northern Basalt vernal pools within rolling grassland and blooms May through August, depending on environmental conditions.

The suitability of the Project areas for supporting the identified special-status species was determined through the *Biological Resources Identification Survey* (AEC 2009); no protocol-level surveys were conducted during the assessment. Several regionally occurring species were determined not to have the potential to occur within the greater Project vicinity, either because the distribution of the species does not extend into the Project footprint, or because the habitat and/or micro-site conditions (e.g., vernal pools, wetlands) required by the species are not present. No special-status plant species, or conditions favoring these species, were observed along the 115-kV transmission line and two 69-kV transmission line sections, or at the Grayson Substation site.



Hughson-Grayson 115- kV Transmission Line and Substation Project

Figure 4.3.1

CNDDB Recorded Occurrences

SPECIAL-STATUS WILDLIFE SPECIES

Special-status wildlife species with a potential to occur in the Project vicinity were identified through database search of: the USFWS Sacramento office online listed species database, the CNDDB, and California Wildlife Habitat Relationships for Stanislaus County and the Ceres and Denair United Status Geological Survey 7.5 minute quadrangles, which the Project traverses.[3] Additional species were analyzed for potential presence based on knowledge of the local environment. Discussion of special-status species with the potential to occur in the Project vicinity is included in Table 4.3.-1.

Table 4.3-1 Special-Status Wildlife Species with Potential to Occur in the Project Vicinity

Species	General Habitat	Status	Potential for Presence	Period of Identification
Invertebrates				
Molestan blister beetle (*Lytta molesta*)	Associated with dry vernal pool habitats.	CSC	**No Potential to Occur** Although there is a documented occurrence within five miles of the Project (CNDDB 2009), this species is not expected to occur based on the absence of vernal pool habitat and associated vegetation.	June – Sept.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	Endemic to riparian habitat along the aquatic margins and grassy savannas of the Central Valley. Associated with the elderberry shrub (*Sambucus* spp.). Adult beetles eat the elderberry foliage until about June when they mate. Upon hatching the larvae then begin to tunnel into the tree where they will spend one to two years eating the interior wood.	FT	**No Potential to Occur** Although there is a documented occurrence within a 5-mile radius of the Project (CNDDB 2009), due to the absence of elderberry shrubs on the Project this species is not expected to occur.	Feb. - June

[3] CWHR is a predictive model that lists species likely to occur in a given location under certain habitat conditions. It also predicts the suitability of those conditions for reproduction, cover, and feeding for each modeled species. Information fed into the model for this project includes location (Stanislaus County) and habitat type (e.g., ruderal and developed). CWHR does not include any information on plants, fish, invertebrates, or rare natural communities.

Species	General Habitat	Status	Potential for Presence	Period of Identification
Fish				
Hardhead (*Mylopharodon conocephalus*)	Typically found in small to large steams in a low to mid-elevation environment. May also inhabit lakes or reservoirs.	CSC	**No Potential to Occur** Although there is a documented occurrence within a five mile radius of the Project (CNDDB 2009), there is no suitable aquatic habitat along the alignment or at the substation site.	Year-round
Avian				
Burrowing owl (*Athene cunicularia*)	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.	CSC	**Low Potential to Occur** Although there are no recorded occurrences of the species within the vicinity of the Project, marginally suitable habitat occurs near the site.	Year-round
Sharp-shinned hawk *(Accipiter striatus)*	Associated with open deciduous woodlands, mixed conifer or conifer forests, and edges of woodlands.	--	**High Potential to Occur** This raptor was detected foraging within the vicinity of the Project.	Nov – Feb. (wintering season)
Suisun song sparrow (*Melospiza melodia maxillaries*)	Associated with cattails, bulrush, sedges, and pickleweed; also known to frequent vegetation bordering sloughs.	CSC	**Low Potential to Occur** Marginally suitable habitat. Documented occurrence within a five mile radius of the Project (CNDDB 2009).	Year-round
Swainson's hawk (*Buteo swansoni*)	Grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	ST	**High Potential to Occur** This raptor was detected foraging within the vicinity of the Project. Based on the CNDDB (2009) there are two documented occurrences within 2.4 to 3.6 miles northwest and northeast of Project, respectively.	Year-round
Tri-colored blackbird (*Agelaius tricolor*)	Associated with open aquatic resources (riparian, wetland, vernal pool) for foraging area with insect prey base.	CSC	**No Potential to Occur** Although there is a documented occurrence within a five mile radius of the Project (CNDDB 2009), there is no riparian habitat associated within the Project to support the species.	Year-round

Species	General Habitat	Status	Potential for Presence	Period of Identification
Mammals				
Hoary bat (*Lasiurus cinereus*)	These tree bats have daytime roosts located in dense arboreal foliage, preferably with an open area underneath to allow the bats to drop into flight.	CSC	**No Potential to Occur** Although there is a documented occurrence within a five mile radius of the Project (CNDDB 2009), no adequately forested areas were observed.	
San Joaquin kit fox (*Vulpes macrotis mutica*)	Annual grasslands or grassy open stages with scattered shrubby vegetation; need s loose-textured sandy soils for burrowing, and suitable prey base.	FE, ST	**Low Potential to Occur** Agricultural lands, grasslands and canal embankments could provide denning habitat for this species.	Year-round

Status Codes: FT= Federally Threatened FE = Federally Endangered SE = State Endangered ST = State Threatened CSC = California Species of Concern

WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors link areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat, separating different populations of a single species. Corridors effectively act as links between these populations. The Project is located in a rural environment surrounded by canals, major roadways, and developments that impede wildlife movement. As such, the Project area does not function uniquely or effectively as a wildlife movement corridor.

4.3.2 REGULATORY SETTING

FEDERAL CLEAN WATER ACT

The Clean Water Act (CWA) applies to all projects that require work below the ordinary high water mark of jurisdictional Waters of the United States (US), or that may result in fill of jurisdictional wetlands or other Waters of the US (ponds and associated wetlands).

CLEAN WATER ACT - SECTION 404

The United States Army Corps of Engineers (USACE) administers Section 404 of the CWA, which regulates the discharge of dredge and fill material into Waters of the US[4]. The

[4] Per 40 CFR 230.3(s), the term Waters of the US means: 1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; 2) All interstate waters including interstate wetlands; 3) All other waters

USACE has established a series of nationwide permits that authorize certain activities in Waters of the US, if a proposed activity can demonstrate compliance with standard conditions. Generally, an individual permit is required for an activity that would affect an area equal to, or in excess of, 0.5 acres of Waters of the US. Projects that result in impacts to less than 0.5 acre can normally be conducted pursuant to one of the nationwide permits, if consistent with the standard permit conditions. The USACE also has discretionary authority to require an Environmental Impact Statement for projects that result in impacts to an area between 0.1 and 0.5 acre. Use of any nationwide permit is contingent on the activities having no impacts to endangered species.

CLEAN WATER ACT - SECTION 401

Section 401 of the CWA requires that an applicant for a federal license or permit provide a certification that any discharges from the facility to waters of the state will comply with the CWA, including water quality standard requirements. The applicant must "provide the Federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the Federal Clean Water Act." Therefore, before USACE will issue a Section 404 permit, applicants must apply for and receive a Section 401 water quality certification from the appropriate Regional Water Quality Control Board (RWQCB).

FEDERAL ENDANGERED SPECIES ACT

The ESA of 1973 establishes a framework for protecting and facilitating the recovery of threatened and endangered populations of animal and plant species. Under the ESA, the Secretary of the Interior is required to list species of animals and plants that are both threatened and endangered, a task that is delegated to the USFWS and the National Marine Fisheries Service. A species can become threatened or endangered as a result of the following factors:

- Present or threatened destruction;

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such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairiepotholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters; 4) All impoundments of waters otherwise defined as waters of the United States under this definition; 5) Tributaries of waters identified in paragraphs (s)(1) through (4) of this section; 6) The territorial sea; and 7) Wetlands adjacent to waters (other than waters that are themselves wetlands).

- Modification or curtailment of habitat range;
- Over-utilization for commercial recreation, scientific, or educational purposes;
- Disease or predation;
- Inadequacy of existing statutory mechanisms; or
- Other natural or man-made factors affecting continued existence.

Section 3 of the ESA defines an endangered species as any species or subspecies of fish, wildlife, or plants "in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as any species or subspecies "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Designated endangered and threatened species, as listed through publication of a final rule in the Federal Register, are fully protected from "take" without an incidental take permit administered by the USFWS under Section 10 of the ESA. "Take" includes such conduct as: harassing[5], harming[6], pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage these activities. Proposed endangered or threatened species are those for which a proposed regulation, but not a final rule, has been published in the Federal Register.

MIGRATORY BIRD TREATY ACT

The MBTA of 1918 makes it unlawful to take (kill, harm, harass, etc.) any migratory bird listed in 50 CFR 10, including its nests, eggs, or products. The MBTA protects over 800 species, including geese, ducks, shorebirds, raptors, songbirds, and many relatively common species. It was originally drafted to put an end to the commercial trade in birds and their feathers that, by the early years of the 20th century, had wreaked havoc on the populations of many native bird species. The MBTA implements US commitments to four international conventions (with Canada, Japan, Mexico, and Russia) for the protection of a shared migratory bird resource. Each of the conventions protects selected species of birds that are

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[5] Harassment is an intentional or negligent act or omission that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, which include, but are not limited to, breeding, feeding, or sheltering.

[6] Here, the term "harm" refers to an action that actually kills or injures wildlife. Such action may include significant habitat modification or degradation that may kill or injure wildlife by significantly impairing essential behavioral patterns; including breeding, feeding, or sheltering.

common to both countries (i.e., they occur in both countries at some point during their annual life cycle). The MBTA requires that the removal of any trees, shrubs, or any other potential nesting habitat be conducted outside the avian nesting season, which is generally between early February and late August, unless a qualified biologist performs a survey to determine the presence or absence of avian species nesting onsite. If such species are found onsite during the nesting season, the nests must be protected during construction until the young have fledged.

EAGLE PROTECTION ACT

The Eagle Protection Act of 1940, amended in 1962, protects bald eagles and golden eagles, and their nests and eggs, from take, possession, sale or purchase, transport, disturbance, etc.

CALIFORNIA ENDANGERED SPECIES ACT

Under this Act, the California Fish and Game Commission is responsible for maintaining a list of threatened and endangered species. Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present, and determine whether the proposed project would have a potentially significant impact on such species.

CESA generally prohibits the take of California listed species without an incidental take permit issued by CDFG. Where an applicant has received an incidental take statement under the ESA, Fish and Game Code Section 2080.1 provides an avenue for state adoption of the federal permit. Pursuant to this section, CDFG will review the federal permit to determine whether it is consistent with CESA. If CDFG finds that the federal authorization is consistent, no further authorization under CESA is required. If CDFG finds that the federal permit is not consistent, the applicant must obtain an incidental take permit under Section 2081(b) of the Fish and Game Code.

CALIFORNIA FISH AND GAME CODE

The California Fish and Game Code mandates that “it is unlawful for any person to substantially divert or obstruct the natural flow or substantially alter the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds, without first notifying the department of such activity.” CDFG jurisdiction includes ephemeral, intermittent, and perennial watercourses, including dry washes, characterized by the presence of hydrophytic vegetation, the location of definable bed and banks, and the presence of existing fish or wildlife resources.

Furthermore, CDFG jurisdiction is often extended to habitats adjacent to watercourses, such as oak woodlands in canyon bottoms or willow woodlands that function as part of the riparian system. Historic court cases have further extended CDFG jurisdiction to include watercourses that seemingly disappear, but re-emerge elsewhere. Under the CDFG definition, a watercourse need not exhibit evidence of a high water mark to be claimed as jurisdictional. However, CDFG does not regulate isolated wetlands, that is, those that are not associated with a river, stream, or lake. CDFG regulates not only the discharge of dredged or fill material, but all activities that alter streams and lakes and their associated habitat.

Under Sections 1600-1616 of the Fish and Game Code, CDFG regulates activities that would alter the flow, or change or remove any material from the bed, channel or bank of any stream or lake that may adversely affect fish and wildlife species. Notification is required prior to any such activities and CDFG may issue an agreement with the necessary avoidance and mitigation measures to ensure protection of the state's fish and wildlife resources.

Fish and Game Code Section 3503 provides that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by the code or any regulations made pursuant thereto. Fish and Game Code Section 350.3 protects all birds-of-prey (raptors) and their eggs and nests. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. These regulations generally limit activities that can be taken in the vicinity of potential nesting habitat during nesting season unless surveys by a qualified biologist demonstrate that nests, eggs or nest birds will not be disturbed, subject to approval by CDFG and/or USFWS.

Pursuant to Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians) and 5515 (fish) of the Fish and Game Code, certain species are designated as “fully protected.” Fully protected species may not be taken or possessed by an individual at any time. CDFG may authorize the taking of those species only for necessary scientific research.

NATIVE PLANT PROTECTION ACT

The California Native Plant Protection Act (Fish and Game Code Sections 1900-1913) prohibits the taking, possession, or sale within the state of any rare, threatened or endangered plant as defined by CDFG. Under this act, landowners with rare plants on their property must provide CDFG ten days notice to salvage (remove for transplant) the plants before destruction occurs.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Determinations of significance under provisions of CEQA Guidelines Section 15380(d) must treat non-listed plant and animal species as equivalent to listed species if such species satisfy the minimum biological criteria for listing. In general, the CDFG considers plant species on List 1A (Plants Presumed Extinct in California), List 1B (Plants Rare, Threatened, or Endangered in California and elsewhere), or List 2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere) of the CNPS Inventory of Rare and Endangered Vascular Plants of California as qualifying for legal protection under Section 15380(d). Species on CNPS List 3 or 4 may, but generally do not, qualify for protection under this provision.

Sensitive habitats protected under CEQA include riparian corridors, wetlands, habitats for legally protected species and CDFG Species of Special Concern, areas of high biological diversity, areas providing important wildlife habitat, and unusual or regionally restricted habitat types. Habitat types considered sensitive include those listed on the CNDDB's working list of "high priority" habitats (i.e., those habitats that are rare or endangered within the borders of California).

STANISLAUS COUNTY GENERAL PLAN

The *Stanislaus County General Plan* establishes the following Goals and supporting Policies related to biological resources, which are applicable to the Project:

GOAL 1: Encourage the protection and preservation of natural and scenic areas throughout the County.

> **Policy 2**: Assure compatibility between natural areas and development.

Policy 3: Areas of sensitive wildlife habitat and plant life (e.g., vernal pools, riparian habitat, rare plants, flyways, etc.) including those habitats and plant species listed in the General Plan Support Document by state or federal agencies shall be protected from development.

Policy 4: Protect and enhance oak woodlands and other native hardwood habitat.

GOAL 10: Protect fish and wildlife species of the County.

Policy 30: Habitats of rare and endangered fish and wildlife species shall be protected.

CITY OF CERES GENERAL PLAN

The *City of Ceres General Plan* presents several goals related to preservation of natural resources within the city. Goals 6.B thru 6.E are intended to protect, enhance, and restore the natural qualities of the Ceres' area rivers, creeks, and groundwater, habitats that support wildlife species, and open space lands. To achieve these goals, the General Plan implements specific policies.

Projects are required to adopt best management practices (BMPs) to protect receiving waters from adverse effects due to construction. Developments are, further, required to preserve significant stands of vegetation and areas of ecological significance as open space. The city has adopted a policy of preserving special-status species habitats and supporting and cooperating with the efforts of other local, state, and federal agencies. The city also supports maintenance of wildlife areas that protect biodiversity, accommodate wildlife movement, and sustain ecosystems.

4.3.3 IMPACTS AND MITIGATION MEASURES

METHODS OF ANALYSIS

The *Biological Resources Inventory Survey* consisted of a literature review and biological assessments for special-status plant and wildlife species. The literature review provided a baseline from which to evaluate the biological resources potentially occurring in the Project vicinity, as well as in the surrounding area. Federal register listings, protocols, and species data provided by the USFWS and CDFG were reviewed in conjunction with anticipated federal and state-listed species potentially occurring in the vicinity.

The special-status plant species considered for review in this document were compiled from the following resources: the CNDDB, the CNPS online inventory, an online list obtained from USFWS, and biological literature pertaining to the region (see Appendix D). The database search indentified a total of seven special-status plant species, one of which has been recorded within five miles of the Project. All special-status species were listed by CNPS as List 1B, which are plants that are rare, threatened, or endangered in California and elsewhere.

The special-status wildlife species considered for review in this document are also listed and discussed in the *Biological Resources Identification Survey* (Appendix D). This list was compiled from the query results of the USFWS Sacramento office online listed species database, the CNDDB, and California Wildlife Habitat Relationships for Stanislaus County and the Ceres and Denair United Status Geological Survey 7.5-minute quadrangles, which the Project traverses. Several regionally-occurring special-status species were determined not to have the potential to occur within the Project vicinity, either because the range of the species does not extend into the vicinity, or because the habitat or habitat elements (e.g., caves, rocky cliffs, mature tree stands, and riparian and aquatic habitat) required by the species were not present.

Field surveys were conducted in April and May of 2009. Special attention was focused on sensitive habitats or those areas potentially supporting special-status flora and fauna species. The biological survey focused on three primary objectives: general habitat assessment, vegetation mapping, and an assessment for special-status wildlife and plant species. Sensitive or unusual biological resources identified during the literature review were ground-truthed during the biological survey for mapping accuracy. Plant communities within the Project vicinity were classified at a general level of detail using the widely accepted descriptions provided in Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986 and 1996 update), with modification, as appropriate.

THRESHOLDS OF SIGNIFICANCE

Biological resource impacts resulting from the implementation of the Project would be considered significant if the Project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFG or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites; or
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, an adopted Habitat Conservation Plan, or Natural Community Conservation Plan.

IMPACT 4.3-1

> **Have a substantial adverse effect on sensitive or special-status species.** *There are special- status wildlife species with the potential to occur in the vicinity of the Project. The Project would have a **potentially significant** impact on these species.*

The TID laterals, which the Project would be located adjacent to, are concrete-lined trapezoid ditches, often having paved accessory roads. Sensitive wildlife species requiring an aquatic environment and/or riparian habitat are not expected to occur. In addition, no vernal pools were identified in the *Biological Resources Identification Survey* or *Jurisdictional Waters Report*. Therefore, associated species, such as fairy shrimp (*Branchinecta lynchi*), are not expected to occur.

SPECIAL-STATUS PLANT SPECIES The biological survey indicated that only one special status plant species has been recorded within five miles of the Project. This species, San Joaquin Valley orcutt grass, is limited in distribution to the Southern Sierra Foothills Region of the San Joaquin Valley and has been extirpated from Stanislaus County. Further, the site does not support the seasonal pool habitat required by this plant species. As such, the Project is not expected to adversely impact any special-status plant species.

SPECIAL-STATUS WILDLIFE SPECIES Sensitive wildlife species are generally more numerous in relatively undisturbed areas, such as the riparian wetland and woodland habitats within the San Joaquin River riparian corridor. Although there is a low likelihood of occurrence of sensitive wildlife species along roads, edges of fields, and the outside banks of canals where most of the 115 and 69-kV transmission line sections would be located, much of the weedy or ruderal grassland or open, cultivated fields may still provide foraging habitat for many raptors and migrating birds. Several special-status wildlife species have been recorded in the vicinity of the Project. A discussion of each of these species is included below. Mitigation measures have been proposed to avoid or reduce potential impacts to these species.

Burrowing owl The burrowing owl (*Athene cunicularia*) is a California Species of Special Concern that is found in a variety of open habitats, including shortgrass prairies, grasslands, lowland scrub, agricultural lands (particularly rangelands), coastal dunes, desert floors, and artificial areas throughout most of the state. The burrowing owl requires large, open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal (e.g., ground squirrels, rabbits, etc.) burrows. The Project may support of small mammal burrows or active ground squirrel colonies, however, significant quantities were not reported in the *Biological Resources Identification Survey* conducted for the Project. Occupancy of suitable burrowing owl habitat can be verified at a site by an observation of at least one burrowing owl, molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance. Burrowing owls exhibit high site fidelity, reusing the same burrows year after year.

Although not detected along the 115-kV transmission line, 69-kV transmission line sections, or at the Grayson Substation, nor recorded in the CNDDB (2009) five-mile radius map (see Figure 4.3.1), marginal habitat occurs across areas where low lying vegetative coverage and open agricultural fields exist. As such, mitigation should be implemented to avoid any potential impacts to this species.

Sharp-shinned hawk Sharp-shinned hawks generally forage from inconspicuous perches while scanning for small birds to ambush. They also actively hunt small birds by flying through woodland, forests, or orchards in an attempt to surprise their prey. The Project provides suitable foraging habitat. As such, mitigation has been provided to avoid potential impacts.

Suisun song sparrow The Suisun song sparrow (*Melospiza melodia maxillaris*) is a California Species of Special Concern. None of the irrigation canals adjacent to the Project alignment contain riparian vegetation. During AEC's biological survey, no standing water was present on the Project. Based on the high disturbance levels along the 115-kV transmission line and two 69-kV transmission line sections, the limited on-site habitat does not represent conditions to support viable populations of this species. In addition, Suisun song sparrow was not detected during Project surveys. As such, no significant impact to the species is likely to occur.

Swainson's hawk Swainson's hawk is a state-listed, threatened species that breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural and ranch lands. Swainson's hawks require adjacent suitable foraging areas such as grasslands, or alfalfa and/or grain fields supporting rodent populations. The majority of the Project area consists of an agricultural field that provides suitable foraging habitat for the species. According to the CNDDB, two nesting locations for this species have been recorded within a five-mile radius of the Project (see Figure 4.3.1). Mitigation measures provided below to reduce potential impacts to this species to a less-than-significant level.

Tricolored blackbird The tricolored blackbird (*Agelaius tricolor*) is a California Species of Special Concern. Although canals occur adjacent to portions of the Project alignment there is no associated vegetation to support riparian bird species. The limited habitat does not represent conditions to support viable populations of the species. Based on the lack of riparian habitat and suitable vegetation, this species is not expected to occur. As such, no impact to the species is likely to occur and no further action for these species is required.

San Joaquin kit fox The Project is located within the historic range of the San Joaquin kit fox. San Joaquin kit fox most commonly use old ground squirrel burrows for cover and denning, although this species is also known to use man-made structures such as culverts for cover. San Joaquin kit fox burrows usually have entrances five to eight inches wide and are usually at least three feet deep. San Joaquin kit fox are found primarily in the foothills west of the Project; however, the species' range extends out on to floor of the Central Valley around Patterson, California. While no San Joaquin kit fox were observed during the surveys, the species is secretive and is rarely observed during the day. No focused surveys were conducted for this species.

The Project area does not contain significant quantities of small mammal burrows or active ground squirrel colonies. Nevertheless, suitable kit fox denning habitat may exist along canal berms and fallow fields in the Project area. Agricultural fields including row crops, sod farms, and sometimes orchards provide potential dispersal areas for San Joaquin kit fox. Project development could result in significant impacts to San Joaquin kit fox. The primary mechanisms of impacts to San Joaquin kit fox are loss of potential or actual foraging habitat and temporary construction disturbance in the vicinity of any active dens. Mitigation is proposed to avoid Project impacts to San Joaquin kit fox.

NESTING BIRD SPECIES The Project is in an area that contains ornamental trees and utility poles that could provide suitable nesting habitat for avian species protected by federal and state laws during the nesting season. Mitigation is necessary to protect these species from potential impacts.

SUMMARY Based on literature research and site assessment, the Project has the potential to have an adverse effect on five special-status wildlife species, which include the aforementioned burrowing owl, sharp-shinned hawk, Suisun song sparrow, Swainson's hawk, and San Joaquin kit fox). In addition, the Project has the potential to impact nesting birds, protected by federal and state laws. As such, mitigation measures are provided below in order to avoid and/or reduce impacts to these species to a less-than-significant level.

MITIGATION MEASURE 4.3-1

TID shall ensure that either (1) pole removal and vegetation removal and/or trimming associated with the proposed construction activities be conducted outside of the nesting-bird season, which extends from February 15 to August 31; or (2) a qualified biologist conduct a nesting bird survey to identify any potential nesting activity within five days of proposed construction activities if activities are to occur in the nesting season. Should construction activities occur during the nesting season for Swainson's hawk (March 1 through October 31), a field survey shall be conducted by a qualified biologist along the transmission lines and at the Grayson Substation site, as well as within a 250-foot buffer. The survey shall follow the guidance of the *Recommended Timing and Methodology For Swainson's Hawk Nesting Surveys in California's Central Valley* (SWTAC 2000). If an active nest is identified, a 0.5-mile buffer shall be established around the nesting location. Construction activities may commence within the buffer area at the discretion of, and in the presence of, a qualified biological monitor, along with consultation and coordination the CDFG.

If passerine birds are found to be nesting, or there is evidence of nesting behavior within 250 feet of the impact area, a 250-foot buffer shall be required around the nests. For raptor species, this buffer should be 500 feet. A qualified biologist shall monitor the nests, and construction activities may commence within the buffer area at the discretion and presence of the biological monitor.

Prior to ground disturbance, TID shall obtain a qualified biologist to conduct a pre-construction survey for burrowing owl in accordance with the Borrowing Owl Consortium's 1993 *Burrowing Owl Survey Protocol and Mitigation Guidelines*. Impacts to burrowing owls generally include:

- Disturbance within 160 feet of active burrows (burrows are considered active during the breeding and nesting season [February 1 to August 31], unless CDFG verifies that the site is not in use;
- Destruction of burrow entrances; and
- Degradation of foraging habitat adjacent to occupied burrows.

If, upon completion of site surveys burrowing owls are determined to be present, the following mitigation measures shall be commenced prior to breeding season.

- If possible, a 160 foot no disturbance buffer shall be established around all identified burrows during the nesting season (February 1 to August 31), and 6.5 acre buffer of foraging habitat shall be maintained.
- If a burrow must be destroyed, it shall be replaced (i.e. created via artificial burrow) at a 1:1 ratio in adjacent, suitable habitat. This mitigation shall require the creation of a Mitigation Monitoring Plan and submission of an annual report to CDFG.

Finally, a qualified biologist shall conduct preconstruction surveys for San Joaquin kit fox in all portions of the Project located within the published species' range (USFWS 1997a). If occupied kit fox dens are found, CDFG shall be consulted to develop and implement take avoidance measures before construction in the vicinity commences (USFWS 1997b).

To ensure that these measures are undertaken, as appropriate, TID shall perform regular construction tail-gate meetings to educate workers about special-status species and the measures that must be undertaken to ensure their protection.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.3-2

> **Impact riparian habitat or wetlands.** *The Hughson-Grayson 115-kV Transmission Line and Substation Project would not involve construction activities within, or require the placement of fill in, any protected water feature. Therefore,* ***no impact*** *would occur.*

A formal delineation of Waters of the US of the Hughson-Grayson 115-kV Transmission Line and Substation Project area was conducted in the spring of 2009 (Appendix E). Delineation methods followed procedures developed by USACE. Based upon these analyses, four water features were identified: the Ceres Main Canal and three of its lateral canals. The delineation does not recommend that the canals are determined to be Waters of the US because they appear to lack the permanency and significant nexus requirements for a jurisdictional determination. No streams and no wetlands, vernal pools, or other isolated waterbodies were detected within the Project area.

Project construction would not occur within, nor impact, any water feature. Since the lines would span all TID canals crossed, there would be no cumulative or incremental impacts on the biology of these features. There would be no placement of fill in potential wetlands or other water features, and no in-channel construction. Consequently, the Project would likely result in no impact to potentially-jurisdictional wetlands or other water features.

MITIGATION MEASURE 4.3-2

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No impact

IMPACT 4.3-3

> **Interfere with wildlife migration or impede the use of wildlife nursery sites.** *The area does not facilitate aquatic and terrestrial wildlife movement or support a wildlife nursery.* ***No impact*** *would occur with Project implementation.*

The Project is located in an existing agricultural and rural setting; a fragmented natural landscape where human developments have created a mosaic of wildlife corridors and barriers. Transmission lines and substations do not represent physical barriers that would substantially impede migration of terrestrial or aquatic wildlife.

However, birds may perish from contact with transmission lines and other power equipment. Raptors and other large aerial-perching birds are most susceptible to electrocution because of their size and behavior. Because raptors and other large aerial-perching birds often perch on tall structures that offer optimal views of potential prey, the design characteristics of transmission poles appear to be a major factor in raptor electrocutions. Electrocution occurs when a bird simultaneously contacts two energized phase conductors or an energized conductor and grounded hardware. This happens most frequently when a bird attempts to perch on a transmission distribution pole with insufficient clearance between these elements. Bird mortality may also occur by collision with transmission lines. Thus, power equipment and facilities represent a potentially significant adverse impact upon birds, especially raptors.

MITIGATION MEASURE 4.3-3

TID's Engineering and Operations Administration is proactively working towards elimination of powerline risks to birds through implementation of its *Avian Protection Plan* (TID 2004). This plan involves mapping the TID service area in order to identify high bird use areas and identify focus areas for field surveys; performing field surveys to document high-risk structures, relative bird use, preferred perches, and historic bird mortality; habitat classification relative to bird use and movement; a relative risk ranking system of poles surveyed; and retrofitting measures prioritized by the risk ranking system to either discourage bird use or to mitigate electrocution hazards.

This *Avian Protection Plan* includes BMPs for new construction to discourage bird use and to minimize electrocution hazards, including the following: install covers for bushings and jumpers; retire the use of gap arresters; provide at least 60 inches of separation between phase-to-phase in eagle habitat; gap or eliminate pole-top grounds; crossarm braces made of non-conducting wood; deadends with insulating links at center phase; and insulation of primary jumpers with less than adequate separation. With implementation of this *Avian Protection Plan* and the use of BMPs for new construction, the risk of bird mortalities from collision and electrocution will be reduced to a less than significant level.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.3-4

Conflict with an adopted habitat conservation plan. *The Project would not result in conflicts with local ordinance, habitat, or natural community conservation plans.* ***No impact*** *is anticipated*.

Impacts from clearing of vegetation for Project build-out would occur to agricultural, ruderal, and developed land. No impacts will occur to native trees, valley oaks (*Quercus lobata*), or riparian habitats. Stanislaus County was recently awarded a grant to enable local officials to initiate development of the Western Stanislaus County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP). The regional plan will include 388,000 acres in western Stanislaus County. Stanislaus County will partner with other local agencies, as well as federal and state agencies, to develop this HCP/NCCP. Project implementation (construction or operation of the 115-kV transmission line, two 69-kV transmission line sections or the Grayson Substation) would not conflict with any of the identified policies of the Stanislaus County General Plan Conservation and Open Space Element. In addition, it would not conflict with the intent of the Western Stanislaus County HCP/NCCP that is currently being developed. Thus, no adverse impact to local ordinances or adopted natural community conservation plans is expected.

MITIGATION MEASURE 4.3-4

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No impact

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4.4 HYDROLOGY AND WATER QUALITY

This Section describes the natural and constructed surface waterbodies in the Project area, as well as local surface and groundwater hydrology. Surface and groundwater quality are also discussed. Additionally, this Section discusses regulatory requirements and potential effects to local hydrology and water quality. Potential impacts include sedimentation and accidental spills from construction activity in the vicinity of surface waters, as well as the effect of a new low-volume drinking water well on groundwater supplies. Mitigation measures are recommended for potentially significant effects.

4.4.1 EXISTING SITE CONDITIONS

The Project is located in the San Joaquin Valley, an alluvial basin that is about 250 miles long and averages 50 miles wide. It is defined by the Diablo Range to the west, the Sierra Nevada Mountains to the east, and the Tehachapi Mountains to the south.

REGIONAL HYDROLOGY

SURFACE WATER

The region is an alluvial plain that dips gently to the west from the Sierra Nevada mountains toward the San Joaquin River channel. Surface water flow is generally to the northwest (Stanislaus County 2008). The main sources of water are the Stanislaus, Tuolumne and San Joaquin River watersheds, all of which originate in the Sierra Nevada Mountains. The Tuolumne River, located approximately three miles north of the Project area, originates in Yosemite National Park and flows east to west; eventually draining into the San Joaquin River, which flows north to the San Francisco Bay and the Pacific Ocean.

TID provides irrigation water to the Project area. TID's canal system begins at La Grange Dam on the Tuolumne River, where water is diverted into TID's Upper Main Canal for conveyance to Turlock Lake. Turlock Lake acts as a canal-regulating reservoir. From Turlock Lake, water is released into the Main Canal for distribution to downstream growers. TID owns and operates approximately 230 miles of canals and laterals, most of which have been concrete-lined. Water that is not utilized for irrigation purposes flows to the river system (TGBA 2008). Groundwater is often used to supplement irrigation supplies, and is the major source of domestic and industrial water in the Project area (Stanislaus County 2007).

GROUNDWATER

The entire San Joaquin Valley is underlain by the San Joaquin aquifer, which is divided into several subbasins. The Turlock Subbasin lies on the eastern side of California's San Joaquin Valley, and encompasses portions of Stanislaus and Merced counties. This groundwater system is bounded by the Tuolumne River on the north, the Merced River on the south, and the San Joaquin River on the west. The eastern boundary of the system is the western extent of a crystalline basement rock outcrop in the foothills of the Sierra Nevada (TGBA 2008).

The Project is located in the 218-acre Turlock Groundwater Management Area. Depth to groundwater is roughly 60 feet[7]. The basin contains two water-bearing zones separated by a layer of Corcoran Clay. Groundwater recharge comes mostly from surface application of water from agricultural irrigation, since rainfall is less than evapotranspiration, but may also filter through the alluvial soils of the valley and the gravels associated with major streams and rivers. Additionally, percolation of treated wastewater effluent, which municipal water suppliers dispose of in ponds, contributes to overall recharge (TGBA 2008).

Groundwater fulfills municipal, industrial, and agricultural demands in the region (TGBA 2008). The quality of groundwater is determined by the geological formations through which it filters, and is judged mostly by salt concentrations and, to a lesser extent, by levels of pesticides, nutrients, and other contaminants. Past studies have reported elevated levels of nitrates, iron, uranium, and arsenic in the region's groundwater.

PROJECT SITE HYDROLOGY

The elevation of the Project area ranges from a high of 130 feet at the Hughson Substation to a low of 76 feet at the proposed Grayson Substation, indicating that drainage via gravity flow along the Project route is generally east to west. Beyond irrigation ditches located on agricultural properties, discontinuous roadside ditches are present. These ditches have no apparent nexus to surface waterbodies and do not support wetland species (Appendix E).

The Grayson Substation site and vicinity consist of an agricultural plain that is frequently flooded. The area has been graded flat and encircled by berms to facilitate basin flood irrigation of cereal crops and stonefruit orchards; there is a slight dip of approximately one foot to the south in this field. Several floodgates are situated at the north edge of this field to

[7] Based on contours completed in Spring 2004

release water from a buried pipeline fed from Lower Lateral No. 2. Runoff is minimal. Surface water leaves the site primarily through the processes of evaporation, evapotranspiration, and infiltration.

County stormwater sewer system improvements are absent except for occasional drop inlets along Crows Landing Road, west of the Grayson Substation site.

PRECIPITATION

The Project area is characterized by a Mediterranean-type climate with hot, dry summers and cool, wet winters. The majority of precipitation falls between November and March (TGBA 2008). Stanislaus County receives just over 12 inches of rain annually (Stanislaus County 2008).

EROSION POTENTIAL

The United States Department of Agriculture, through its National Cooperative Soil Survey, has identified three basic soil types in the Project area; Dinuba sandy loam, Hanford sandy loam, and Tujunga loamy sand. The terrain is level to moderately sloping. Soil and topographic attributes indicate that runoff is slow and water-related erosion potential is low to moderate (See Section 4.7, Geology and Soils).

FLOOD POTENTIAL

Flooding in Stanislaus County occurs along the San Joaquin River and isolated stretches of the Tuolumne River (Stanislaus County 2008). The Federal Emergency Management Agency has determined the Project area to have a 0.2 percent chance of flooding in any given year (Zone X).

4.4.2 REGULATORY SETTING

CODE OF FEDERAL REGULATIONS

The United States Environmental Protection Agency's (USEPA) water quality regulations are contained in Volume 40 of the Code of Federal Regulations. These regulations include the CWA and various other water quality standards.

CLEAN WATER ACT

The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." States are required under Section 303 of the CWA to adopt water quality standards for all surface waters of the US. Where multiple beneficial uses exist, water quality standards must protect the most restrictive beneficial use. The State Water Resources Control Board (SWRCB) and the RWQCB are responsible for ensuring implementation and compliance with the provisions of the federal CWA. The RWQCB regulates all waterbodies within its scope, but has special responsibility for riparian areas and wetlands, which have a high resource value, are vulnerable to filling, and are not systematically protected by other programs. The Project is within the jurisdiction of the Central Valley RWQCB.

SECTION 402 The CWA authorizes the USEPA to regulate issues related to soil erosion for the purpose of water quality protection resulting from construction activities. Section 402(p) establishes a framework for regulating stormwater discharges into surface waters by issuing National Pollutant Discharge Elimination System (NPDES) permits that establish pretreatment standards for discharged water.

The SWRCB adopted NPDES General Storm Water Construction Permit No. CAS000002, Order No.99-08-DWQ on August 19, 1999. The RWQCBs implement these permits at the state level, but USEPA may retain jurisdiction at its discretion. In accordance with NPDES regulations, the state requires that any construction activity affecting one acre or more attain coverage under a General Construction Activity Stormwater Permit to minimize the potential effects of construction runoff on receiving water quality.

Permit applicants are also required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that specifies erosion and sediment control BMPs to reduce or eliminate construction-related impacts on receiving water quality. The SWPPP must identify sources of sediments, describe and ensure implementation of BMP's, initiate a monitoring program to inspect the site before and after storm events, and ensure that equipment, materials, and workers are available for response to failures or emergencies. All dischargers must certify annually that construction activities are in compliance with the General Permit.

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act is the primary statute covering the quality of waters in California, and is enforced by the SWRCB and the RWQCBs. The Porter-Cologne Act defines "waters of the state" as water bodies with boundaries within the state, including any surface or groundwater, whether fresh or saline. The intent of the act is to provide a comprehensive program for the protection of water quality and beneficial uses of water through the regulation of waste discharges. Waste discharges may include such substances as wastewater effluent and discharges of fill and dredged material to "waters of the state."

Section 13260 of the California Water Code requires a Report of Waste Discharge (ROWD) in the event of discharge or potential discharge that could affect the quality of the waters of the State. Activities that involve discharges to land or groundwater from a diffused source are required to file a ROWD with the appropriate RWQCB to obtain Waste Discharge Requirements (WDRs). WDRs may include effluent limitations, as well as monitoring and reporting requirements.

CALIFORNIA FISH AND GAME CODE - SECTION 1602

Any activity within a stream zone (which includes the riparian vegetation associated with perennial, intermittent, and ephemeral streams) or lake that might substantially divert, obstruct, or change the natural flow, or alter the bed or bank requires a notification package and fee on file with the CDFG before Project activities begin. The use of material from streams and lakes, in addition to the deposition or disposal of debris in locations where it could eventually end up in a lake, are also regulated under Section 1602 (CDFG 2007). Lake and Streambed Alteration Agreements are required where CDFG determines that the activity may have a substantial adverse affect on fish and wildlife resources. The Agreement includes reasonable conditions necessary to protect those resources and must comply with the CEQA.

WETLAND DELINEATION

The *US Army Corps of Engineers Wetlands Delineation Manual* standardizes determination of the presence or absence of wetlands and waters of the United States. The USACE manual lists three parameters used to determine the presence of wetlands: hydrophytic vegetation, hydric soils, and wetland hydrology. A minimum of one positive indicator for each of the subcategories must be present to positively delineate a wetland area.

The first criterion is based on the USFWS list of plant species that occur in wetlands. If a minimum of half of the dominant vegetation onsite is classified by the USACE as within the hydrophytic categories, the area is considered to have met the vegetation criterion. Hydric soils, the second criterion, form under conditions of saturation, flooding, or ponding that are vast enough in extent to cause the development of anaerobic conditions in the upper layers of the substrata. Soils that are formed under these conditions are classified by their coloration, texture, and the presence of mottles.

The third criterion, wetland hydrology, is determined by an area's hydrologic characteristics. In California, recorded data indicating that the ground surface is inundated or saturated with water for a minimum of five percent of the growing season is evidence of wetland hydrology. Other indicators of wetland hydrology include surface sediment deposits, and drift lines. Secondary indicators such as oxidized root channels and algal mats can also be used to delineate wetlands if there are at least two such secondary indicators present.

Caltrans Construction Site Best Management Practices

Caltrans has identified BMPs required to be implemented in projects with the potential to adversely impact water quality. BMPs include construction scheduling that limits the size and exposure of unprotected areas to erosive agents such as precipitation and wind. Soil stabilization measures, including hydraulic mulching, hydroseeding, lining drainage swales and ditches, and outlet protection with velocity dissipation devices are recommended.

Stanislaus County General Plan

The Stanislaus County General Plan Safety and Conservation and Open Space Elements outline goals and policies related to water quality and flooding. Goals of the plan include conserving water resources and protecting water quality through protection of groundwater aquifers and recharge areas, preservation of vegetation along waterways, and discouraging development in areas subject to natural disaster, including flooding.

Stanislaus County Code

Chapter 16.50 of the Stanislaus County Code addresses prevention of flood damage. Projects within the unincorporated portion of the County that are within a special flood hazard area are required to obtain a development permit. The Chapter also outlines construction standards to be used in areas of special flood hazards, including anchoring, flood-proofing, and other construction materials and methods.

STANISLAUS COUNTY PRIMARY AND SECONDARY SEWAGE TREATMENT INITIATIVE

The Stanislaus County Primary and Secondary Sewage Treatment Initiative (Measure X) of 1988 states that "[n]o parcel map, subdivision, rezoning, building permit, or other development entitlement shall be authorized, approved, created, or issued by Stanislaus County for the purpose of urban development unless primary and secondary sewage treatment capacity exists and is available to serve said development and connection to said sewage treatment system will occur prior to occupancy; or a public emergency exists."

4.4.3 IMPACTS AND MITIGATION MEASURES

METHODS OF ANALYSIS

This analysis is based on available information regarding the existing hydrology and water quality in the Project area. Potential impacts to existing conditions are measured against applicable regulations, as defined in Section 4.4.2.

THRESHOLDS OF SIGNIFICANCE

In accordance with the CEQA Guidelines, impacts would be considered significant if the Project would:

- Violate any water quality standards or WDRs;
- Substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a substantial deficit in aquifer volume or a substantial lowering of the local groundwater level;
- Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation or flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;

- Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- Place within a 100-year flood area structures which would impede or redirect flows;
- Expose people or structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam; or
- Be subject to inundation by a seiche, tsunami, or mudflow.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

IMPACT 4.4-1

Violate water quality standards or WDRs. *The Project would increase soil erosion due to site grading and excavation activities. This would be considered a* ***significant*** *impact.*

The Project would run adjacent to, and also cross, local irrigation canals including the Ceres Main Canal and TID Lateral No. 2. The impacts to surface water quality outside of the canal levees are not expected to be substantial, as construction activity would be on level ground and stormwater would infiltrate into the ground.

Construction would, in total, disturb over an acre of land and would require the TID to obtain an NPDES General Permit for construction activities. As mandated by NPDES permit regulations, the development and implementation of a SWPPP describing construction activities and identifying construction BMPs to reduce erosion of disturbed soils, and prevent release of hazardous materials into water courses, would be required.

A septic tank and leach field would be installed at the Grayson Substation to accommodate restroom facilities for occasional workers. The tank and leach field would be self containing and would provide capacity to serve the proposed development. Therefore, the Project would be consistent with Measure X.

MITIGATION MEASURE 4.4-1

Mitigation consistent with NPDES program and the Porter-Cologne Water Quality Control Act shall include the preparation of a SWPPP and the implementation of BMPs.

As required under the NPDES stormwater permit for general construction activity, TID shall prepare and submit the appropriate Notice of Intent, SWPPP, and other necessary engineering plans and specifications for pollution prevention and control. The SWPPP and other plans shall identify and specify the use of erosion sediment control BMPs, means of waste disposal, implementation of approved local plans, nonstormwater management controls, permanent post-construction BMPs, and inspection and maintenance responsibilities. The SWPPP shall also specify the hazardous materials that are likely to be used during construction and that could be present in stormwater drainage and non-stormwater discharges.

Water quality BMPs shall be applied according to the California Stormwater Quality Association's *Stormwater Best Management Practices Handbooks*. BMPs shall be designed to mitigate stormwater runoff through minimization, infiltration, or treatment. Site construction will adhere to all appropriate BMPs. Sediment control measures, including silt fencing, fiber rolls, and street sweeping and vacuuming, shall be put in place to prevent off-site discharge of sediment generated by erosion of disturbed areas during construction.

The adequacy of BMP execution shall be evaluated by the contractor during site inspections, which shall be conducted prior to a forecasted storm, after a rain event that causes runoff from the construction site, at 24-hour periods during extended rain events, weekly during the rainy season, and every two weeks during the non-rainy season. These reports shall be documented on a standard inspection checklist developed by the contractor and TID, to be kept on file at the Project site.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.4-2

Substantially deplete groundwater supplies or interfere substantially with groundwater recharge*. A groundwater well would be installed at the control building for the proposed substation. This would be considered a* ***less-than-significant*** *impact.*

One of the control buildings at the Grayson Substation would have a restroom for maintenance workers who would be on-site approximately once a month. A one hp, single phase groundwater well would be constructed to provide water for domestic purposes. Stanislaus County Department of Environmental Resources permits wells in unincorporated areas of the County. The department's standards are consistent with the California Water Code and the well standards contained in the Department of Water Resources' Bulletins 74-

81 and 74-90. Reports required by these standards shall be produced prior to well drilling. The effect of the new well on groundwater supplies would be less than significant.

Short term effects on groundwater supplies as a result of construction would not be significant. Only a minimal amount of water would be used in the construction of the Project, primarily for dust control and concrete mixing. This water would be taken directly from local irrigation canals, fire hydrants, or other non-potable sources and would not impact subsurface water supplies.

Furthermore, recharge would not be significantly impeded because the Project would not substantially increase the amount of impermeable surfaces along the Project route. The concrete pole foundations along the route would not be of sufficient size or distribution to have an effect on recharge. At the Grayson Substation, the site would be covered in crushed aggregate, which would generally allow infiltration of rainwater.

Discontinuation of irrigation on the site would reduce the amount of water with the potential to infiltrate, to the estimated annual rainfall of 12 inches per year. However, the predominance of permeable surfaces, and the small size of the site relative to the Turlock Subasin, would result in a less-than-significant impact to groundwater supplies.

MITIGATION MEASURE 4.4-2

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.4-3

Alter stormwater runoff patterns in a manner that contributes to erosion, siltation, or flooding. *The Project would not alter any existing drainage patterns, nor have any impact on a stream or river course. This impact would be considered* ***less than significant****.*

Implementation of the Project would create additional impervious surfaces (e.g., transmission tower footings, substation structure footings, and substation buildings) along the transmission line route and at the substation. Increased runoff from impervious surfaces adds to the potential for erosion. Particles that result from erosion become suspended in waterways, potentially leading to a variety of impairments. Soils present along the proposed route are not easily erodible through hydraulic forces; and the relatively small footprint of the impervious areas, combined with their dispersal over the area of effect, indicate that the potential runoff that may result from Project implementation would not result in a significant influx of sediment. Mitigation should be implemented, however, to ensure the prevention of erosion during Project construction.

MITIGATION MEASURE 4.4-3

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.4-4

Increased runoff leading to localized or downstream flooding. *Addition of impervious surfaces, in the form of footings and related structures, is not expected to substantially increase the potential for site flooding. The impact associated with the implementation of this Project is considered **less-than-significant**.*

County stormwater sewer system improvements are absent in the general vicinity of the Project, except for occasional drop inlets along Crows Landing Road. Similar to the laterals of the Ceres Main Canal, stormwater in the area gravity flows westward to the San Joaquin River basin.

The Project would increase the impervious surfaces, leading to a slight, localized increase in the rate and volume of stormwater runoff. Much of the Project site, including the transmission line corridor and substation site, is currently undeveloped, with few unnatural impervious surfaces. Addition of the proposed impervious surfaces is not expected to alter existing drainage patterns, or otherwise increase the rate or amount of site runoff.

Overall acreage of impervious surfaces on the substation site and along the Project route would increase. The substation would be designed to contain all storm runoff either through a French drain or a stormwater basin. No surface water would leave the substation site. The Project is not expected to substantially alter site drainage patterns in a manner that would result in site flooding. Therefore, this impact would be considered less than significant.

MITIGATION MEASURE 4.4-4

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.4-5

> **Otherwise degrade water quality.** ***No impact*** *to water quality, beyond the construction-related effects previously discussed, would be anticipated with Project implementation.*

No impacts to water quality, beyond the construction-related impacts identified in Impact 4.4-1, are anticipated with Project implementation. Therefore, the BMPs and post-construction erosion and sediment control measures identified in Mitigation Measure 4.4-1, which would ultimately be included in the SWPPP for the Project, are determined to be sufficient to protect area water quality.

MITIGATION MEASURE 4.4-5

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No impact

IMPACT 4.4-6

> **Place houses within a 100-year floodplain.** *No buildings are planned within a 100-year floodplain. Therefore,* ***no impact*** *is anticipated.*

The Project does not include any housing and would, therefore, not place any housing within a 100-year flood hazard area.

MITIGATION MEASURE 4.4-6

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No impact

IMPACT 4.4-7

> **Place structures within a 100-year floodplain.** *No buildings are planned within a 100-year floodplain. Therefore,* ***no impact*** *is anticipated.*

No portion of the Project is located within a Federal Emergency Management Agency designated floodplain.

MITIGATION MEASURE 4.4-7

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No impact

IMPACT 4.4-8

Expose people or structures to risk of flooding. *The Project is not located in an area known to flood, or subject to flooding as a result of dam or levee failure. Therefore,* ***no impact*** *is anticipated.*

The Project site is not located in an area subject to dam or levee failure. Therefore, no impacts related to flooding or dam failure would be anticipated with Project implementation.

MITIGATION MEASURE 4.4-8

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No impact

IMPACT 4.4-9

Result in inundation by seiche, tsunami, or mudflow. *There are no waterbodies in the vicinity of the Project of sufficient size to result in a substantial seiche, tsunami, or mudflow.* ***No impact*** *is anticipated.*

The Project site is not located in an area subject to seiches, tsunamis, or mudflow. There are no large waterbodies in the area. Therefore, no impacts related to these events would be anticipated with Project implementation.

MITIGATION MEASURE 4.4-9

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No impact

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4.5 AIR QUALITY

This Section describes current air quality conditions in the Project vicinity and identifies sensitive land uses that could be affected by air pollution. The impact analysis discusses the expected emissions associated with the Project and evaluates potential effects on residents and sensitive receptors near the substation and along the transmission line route. Mitigation measures are identified for significant effects, followed by identification of the residual impact significance after mitigation measures are implemented. An analysis of the Project's contribution to global climate change is also included.

4.5.1 EXISTING CONDITIONS

The Project is located within Stanislaus County and the San Joaquin Valley Air Pollution Control District (SJVAPCD). The SJVAPCD is the regional government agency charged with improving the health and quality of life for all valley residents through efficient, effective and entrepreneurial air quality-management strategies.

TOPOGRAPHY, CLIMATE, AND METEOROLOGY

Air pollution is directly related to a region's topography, climate, and meteorology. These attributes for the Project area are described below.

The San Joaquin Valley Air Basin (SJVAB), which is about 35 miles wide and 250 miles long, is surrounded by the Sierra Nevada Mountains on the east, the Coast Ranges on the west, and the Tehachapi Mountains to the south, leaving an opening only to the north. Airflow in the SJVAB is primarily influenced by marine air that flows through the Carquinez Straits where the San Joaquin-Sacramento Delta empties into the San Francisco Bay.

Predominant winds are from the north during the summer and from the south during the winter with average wind speeds of seven miles per hour. The climate of the central San Joaquin Valley varies between wet, foggy conditions in winter and extreme heat in the summer. The average annual precipitation is approximately 13 inches. Summer temperatures can range from the high 50's to the low 90's, while winter temperatures can range from the high 30's to the low 60's (Weather Channel 2009). Due to the topography, air movement through and out of the basin is restricted, resulting in pollutant accumulation over time.

Frequent transport of pollutants into the SJVAB from upwind sources also contributes to poor air quality, primarily during the summer months.

LOCAL AIR QUALITY

The SJVAB includes all of Merced, San Joaquin, Stanislaus, Madera, Fresno, Kings and Tulare counties, and the Valley portion of Kern County. The current federal attainment status for the Project area is shown in Table 4.5-1. Currently, the SJVAB is designated as severe nonattainment for state ozone one-hour, serious nonattainment for federal and nonattainment for state ozone eight-hour, nonattainment for state particulate matter (PM_{10}), and nonattainment for federal and state fine particulate matter ($PM_{2.5}$) standards. Ozone, PM_{10}, and $PM_{2.5}$ violations within the SJVAB are primarily due to motor vehicles and agricultural activities, combined with the area's geography, weather, and temperatures. The surrounding mountains, stagnant weather patterns, hot summers, and foggy winters create optimal conditions for creating and trapping air pollution.

Table 4.5-1 Project Area Attainment Status

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone—One Hour	No Federal Standard*	Severe nonattainment
Ozone—Eight Hour	Nonattainment/Serious	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Unclassified/Attainment	Attainment
Nitrogen Dioxide (NO_2)	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified	Attainment
Lead (Particulate)	Attainment	Attainment
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility-Reducing Particles	No Federal Standard	Unclassified

* The Federal One Hour Ozone National Ambient Air Quality Standard was revoked on June 15, 2005.
Source: CARB, www.arb.ca.gov/desig/adm/adm.htm
A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

The nearest air monitoring stations, the Modesto-14th Street and Turlock-S Minaret Street stations, are located about seven miles northwest and eight miles southeast, respectively, of the Project. Table 4.5-2 summarizes the highest average one- and eight-hour ozone, PM_{10}, $PM_{2.5}$, CO, and NO_2 concentrations from 2006 through 2008 and compares them with the state and federal standards. Federal and state one- and eight-hour average ozone standards were exceeded up to 19 days out of each year for 2006 through 2008. State PM_{10} standards were exceeded at least six days out of each year from 2006 through 2008. Federal and state $PM_{2.5}$ standards were also exceeded at least six days out of each year from 2006 through 2008. CO and NO_2 federal and state standards for 2006 through 2008 were not exceeded. These data are consistent with the federal and state designation/classification shown in Table 4.5-1. Descriptions of the various pollutants and their effects on the environment are provided below.

Table 4.5-2 Summary of Air Quality Monitoring Data for the Project Area, 2006–2008

Pollutant	**State Standard**	**National Standard**	**Pollutant Concentration by Year**		
			2006	**2007**	**2008**
Ozone [a]					
Highest 1-hour average, ppm[c]	0.09	0.12[d]	**0.120**	**0.1**	**0.127**
Days over State Standard			14	1	10
Days over National Standard			0	0	1
Highest 8-hour average, ppm[c]	0.07	0.08	**0.097**	**0.081**	**0.106**
Days over National Standard			19	4	18
PM_{10} [a]					
Highest 24-hour average, µg/m^3 [c]	50	150	**102**	**87**	**110.6**
Days over State Standard			8	6	7
Days over National Standard			0	0	0
Annual average, µg/m^3 [b]	20	NA[e]	31.9	27.7	NA
$PM_{2.5}$ [a]					
Highest 24-hour average, µg/m^3 [c]	12	35	**71**	**64**	**88.3**
Days over National Standard			9	16	6

Pollutant	State Standard	National Standard	Pollutant Concentration by Year		
			2006	**2007**	**2008**
CO [a]					
Highest 8-hour average, ppm[c]	9	9	3.73	3.16	1.94
Days over State Standard			0	0	0
Days over National Standard			0	0	0
NO_2 [b]					
Highest 1-hour average ppm[c]	0.18	NA	0.058	0.053	0.063
Days over State Standard			0	0	0
Days over National Standard			NA	NA	NA
Annual average, ppm[b]	0.03	0.053	0.013	0.012	NA

NOTE: **Bold** values are in excess of applicable standard. NA = Not Applicable or Not Available.
[a] Data were collected at the Modesto-14th Street Station approximately seven miles northwest of the Project area.
[b] Data were collected at the Modesto-14th Street and Turlock-S Minaret Street Stations approximately seven miles northwest and eight miles southeast, respectively, of the Project area
[c] ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
[d] Federal One Hour Ozone National Ambient Air Quality Standard was revoked on June 15, 2005.
[e] Federal Annual PM10 National Ambient Air Quality Standard was revoked on December 17, 2006.
SOURCE: CARB, *Summary of Air Quality Data, Gaseous and Particulate Pollutants*, 2006, 2007, and 2008 data; www.arb.ca.gov/adam

AIR POLLUTANT EFFECTS

OZONE

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air, but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROGs) and nitrogen oxides (NO_x). The principal sources of ROGs and NO_x are the combustion of fuels and the evaporation of solvents, paints, and fuels.

Motor vehicles are often the major generator of ozone precursors. The time period required for ozone formation allows the reacting compounds to spread over a large area, producing a regional pollution problem. Ozone problems are the cumulative result of regional development patterns rather than the result of a few significant emission sources. Depending on meteorological conditions, ozone precursors can be transported well away from the source area before ozone concentrations peak.

Although ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. In addition to causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. Ozone also damages natural ecosystems such as forests and foothill communities, agricultural crops, and some man-made materials (such as rubber, paint, and plastics). The SJVAB is designated severe nonattainment with state one-hour ozone standards, serious nonattainment with federal eight-hour ozone standards, and nonattainment with state eight-hour ozone standards.

SUSPENDED PARTICULATE MATTER

PM_{10} and $PM_{2.5}$ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. (A micron is one-millionth of a meter.) One common source of $PM_{2.5}$ is diesel emissions. Traffic generates PM emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM_{10} is also emitted by burning wood in residential fireplaces and open agricultural burning. PM_{10} can remain in the atmosphere for up to seven days before gravitational settling, rainout, and washout remove it.

Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Mortality studies since the 1990s have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. Despite important gaps in scientific knowledge and continued reasons for some skepticism, a comprehensive evaluation of the research findings provides persuasive evidence that exposure to fine particulate air pollution has adverse effects on cardiopulmonary health (Pope and Dockery 2006).

Additional effects include reduced visibility and soiling of buildings. The SJVAB is considered in attainment with federal PM_{10} standards and nonattainment with state PM_{10} standards and federal and state $PM_{2.5}$ standards.

CARBON MONOXIDE

CO is an odorless, colorless gas that is formed by the incomplete combustion of fuels. Ambient CO concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic. Wind speed and atmospheric mixing also influence CO concentrations. Under inversion conditions, CO concentrations may be distributed more uniformly over an area, out some distance from vehicular sources.

CO binds strongly to hemoglobin, the oxygen-carrying protein in blood, and thus reduces the blood's capacity for carrying oxygen to the heart, brain, and other parts of the body. At high concentrations, CO can cause heart difficulties, impair mental abilities, and cause death.

CO concentrations have declined dramatically in California due to cleaner-burning motor vehicles and motor vehicle fuels. CO concentrations are expected to continue declining due to the continued retirement of older, more polluting vehicles from the mix of vehicles on the road network. The SJVAB is designated unclassified/attainment with federal and attainment with state CO standards.

NITROGEN DIOXIDE

The major sources of NO_2, essential to the formation of photochemical smog, are vehicular, residential, and industrial fuel combustion. NO_2 is the "whiskey brown"-colored gas evident during periods of heavy air pollution. NO_2 increases respiratory disease and irritation, and may reduce resistance to certain infections. The Air Basin is designated unclassified/attainment with federal and in attainment with state NO_2 standards.

TOXIC AIR CONTAMINANTS

Non-criteria air pollutants or toxic air contaminates (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources, including gasoline stations, automobiles, diesel engines, dry cleaners, industrial operations, and painting operations. TACs are regulated separately from the criteria air pollutants at both federal and state levels. Unlike criteria pollutants, TACs are regulated on the basis of risk rather than specification of safe levels of contamination.

CARB works in partnership with the local air districts to enforce regulations that reduce TACs in the state. CARB has authority for motor vehicles, fuels, and consumer products. CARB identifies the TACs, researches prevention or reduction methods, adopts standards for control, and enforces the standards.

CARB conducted a study to estimate cancer risks from exposure to diesel particulate matter (DPM) in the State and has developed a risk reduction plan (CARB 2000). The study reported that the statewide average ambient air concentration of DPM was determined by using measured ambient air concentrations of surrogates to DPM in a receptor model to estimate exposure levels. For the year 2000, the statewide average cancer risk from exposure to DPM was estimated to be 540 in one million. The study also states that cancer risks from DPM are about 70 percent of the total risk from exposure to toxic air contaminants in the ambient air, so the average total exposure to all air contaminants has a cancer risk estimated to be 770 in one million.

ODORS

Odors rarely cause any physical harm, but can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the SJVAPCD. The SJVAPCD defines significant odor problems as:

- more than one confirmed complaint per year averaged over a three year period, or
- three unconfirmed complaints per year averaged over a three-year period.

Facilities that often result in odor complaints include wastewater treatment plants, chemical manufacturing plants, painting and coating businesses, feed lots and dairies, composting facilities, solid waste landfills, and solid waste transfer stations.

SENSITIVE RECEPTORS

Some land uses are considered more sensitive to air pollution than others. Sensitive receptors are facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, schools, convalescent facilities, and residential areas. Residences are located approximately 500 to 1,200 feet west, northwest, and southeast of the Grayson substation. In addition, many residences are located along the Project route. Some residences along Faith Hill Road are as close as 40 feet to the proposed route.

4.5.2 REGULATORY SETTING

FEDERAL CLEAN AIR ACT

The Federal Clean Air Act (FCAA, 42 USC 7401 et seq.) requires the USEPA to set National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone, respirable particulate matter (PM_{10} and $PM_{2.5}$), CO, NO_2, sulfur dioxide, and lead. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect the public welfare from non-health-related adverse effects such as visibility reduction. These pollutants are called “criteria” air pollutants because standards have been established for each of them to meet specific public health and welfare criteria set forth in the FCAA. The primary NAAQS are intended to protect, with an adequate margin of safety, those persons most susceptible to respiratory distress, such as people suffering from asthma or other illness, the elderly, very young children, or others engaged in strenuous work or exercise.

Pursuant to the 1990 Federal Clean Air Act Amendments (FCAAA), the EPA classifies air basins (or portions thereof) as “attainment” or “non-attainment” for each criteria air pollutant, based on whether or not the NAAQS are achieved. The FCAA required each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The FCAAA added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the agencies with jurisdiction over them.

CALIFORNIA CLEAN AIR ACT

Under the California Clean Air Act (CCAA; Chapter 1568 of the Statutes of 1988), patterned after the FCAA, areas have been designated as attainment or non-attainment with respect to the California Ambient Air Quality Standards (CAAQS). The CAAQS are more stringent than the national standards and include air quality standards for some pollutants for which there is no corresponding national standard. The California Air Resources Board (CARB) manages air quality, regulates mobile emissions sources, and oversees the activities of county and regional Air Pollution Control Districts and Air Quality Management Districts. CARB regulates local air quality indirectly by establishing state ambient air quality standards and vehicle emissions and fuel standards, and by conducting research, planning, and coordinating activities.

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT

The SJVAPCD is the agency primarily responsible for regulating stationary source emissions within the SJVAB. Stationary sources within the jurisdiction are regulated by the SJVAPCD's permit authority over such sources and through its review and planning activities. The SJVAPCD is also responsible for preparing the air quality plans for the SJVAB. SJVAPCD's primary means of implementing the air quality plans is by adopting rules and regulations.

EXTREME OZONE ATTAINMENT DEMONSTRATION PLAN

This plan sets forth the regulatory framework needed to bring the SJVAB into compliance with the federal 1-hour ozone ambient air quality standards. On April 16, 2004, EPA issued a final rule classifying the SJVAB as extreme nonattainment, effective May 17, 2004 (69 FR 20550). Under this rulemaking, the SJVAB's attainment date is November 15, 2010. In addition, this plan fulfills requirements of the CCAA regarding the development of a triennial progress report and California Air Quality Attainment Plan revision that examines air pollutant exposure data, control measure implementation, and other air quality information with emphasis on meeting CAAQS (SJVAPCD 2004).

2007 OZONE PLAN To address the federal eight-hour ozone standard, the SJVAPCD adopted the 2007 Ozone Plan on April 30, 2007. The Ozone Plan identifies strategies for SJVAPCD to reach attainment for State and national ozone standards including:

- a comprehensive and exhaustive list of regulatory and incentive based measures to reduce emissions of ozone and particulate matter precursors throughout the valley;
- major advancements in pollution control technologies for mobile and stationary sources of air pollution;

- a significant increase in state and federal funding for incentive-based measures to create adequate reductions in emissions; and
- effective partnerships with the local, state, and federal agencies to address all sources of air pollution.

2007 PM_{10} MAINTENANCE PLAN AND REQUEST FOR REDESIGNATION In its 2003 PM_{10} Plan, the SJVAPC identified strategies for attaining NAAQS for PM_{10} in the SJVAB by December 31, 2010 and reexamined and adjusted its strategies in its 2006 PM_{10} Plan. The SJVAPCD developed the 2007 *PM_{10} Maintenance Plan and Request for Redesignation* so that EPA could proceed with completing the redesignation process for PM_{10} for the SJVAB (SJVAPCD 2007b). Attainment of federal PM_{10} standards in the SJVAB was granted on September 25, 2008.

2008 $PM_{2.5}$ PLAN On April 30, 2008, the SJVAPCD adopted the 2008 $PM_{2.5}$ Plan. This plan identifies strategies to meet the 1997 federal annual $PM_{2.5}$ standard as well as progress towards the more stringent 2006 $PM_{2.5}$ standards and the California standard for $PM_{2.5}$. The FCCA requires all states to attain the 1997 $PM_{2.5}$ standards as expeditiously as practicable beginning in 2010, but by no later than April 5, 2015. The 2008 $PM_{2.5}$ Plan builds upon the comprehensive strategy adopted in the 2007 Ozone Plan and identifies new controls for further reductions in $PM_{2.5}$ and its precursors (SJVAPCD 2008a).

As noted earlier, SJVAPCD's primary means of implementing the above air quality plans is by adopting rules and regulations. For example, to minimize PM_{10} and $PM_{2.5}$ emissions, the SJVAPCD requires the project proponent to implement Regulation VIII-Fugitive Dust Control, Rule 8010. The rule specifically addresses the following activities:

- construction, demolition, excavation, extraction;
- handling and storage of bulk materials;
- landfill disposal sites;
- paved and unpaved roads; and
- vehicle and/or equipment parking, shipping receiving, transfer, fueling, and service areas.

STANISLAUS COUNTY GENERAL PLAN

Consistent with the SJVAPCD Plans, the 1994 *Stanislaus County General Plan* addresses air quality problems in the area due to projected growth and includes policies to:

- promote effective communication, cooperation and coordination among agencies involved in developing and operating local and regional air quality programs;
- accurately determine and fairly mitigate the local and regional air quality impacts of proposed projects;
- reduce motor vehicle emissions by reducing vehicle trips and vehicle miles traveled and increasing average vehicle ridership; and
- support efforts to increase public awareness of air quality problems and solutions (Stanislaus County 1994).

CITY OF CERES GENERAL PLAN

The *City of Ceres General Plan* includes policies to address general and transportation related air quality issues to protect and improve air quality in the Ceres area. In general, the policies include cooperating with other agencies to develop a consistent and effective approach to regional air quality planning and management and supporting the SJVAPCD in its development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds, and rules to more adequately address the air quality impacts of new development (Ceres 1997).

4.5.3 IMPACTS AND MITIGATION MEASURES

METHODS OF ANALYSIS

The impact analysis for this Section was prepared using the SJVAPCD requirements and air quality issues identified in Appendix G of the CEQA Guidelines. The impact analysis involves qualitative and quantitative discussions of emissions likely to be generated during construction and a quantitative discussion of the types of emission sources associated with operation of the Project. Annual increases in emissions associated with the Project were estimated using the CARB-approved URBEMIS 2007 (version 9.2.4) computer program based on the Project description and default assumptions contained in the model (Appendix F).

THRESHOLDS OF SIGNIFICANCE

The SJVAPCD has established thresholds of significance for construction impacts, Project operations and cumulative impacts. For construction impacts, the pollutant of greatest concern is PM_{10}. The entire SJVAB is a nonattainment area for PM_{10} state standards and any addition to the current PM_{10} problem could be considered significant. However, rather than require quantification of construction-related emissions, the SJVAPCD has adopted a set of PM_{10} Fugitive Dust Rules collectively called Regulation VIII. The SJVAPCD determines compliance with Regulation VIII for all sites and implements other control measures as appropriate, depending on the size and location of the project site, that would reduce PM_{10} impacts to a level considered less-than-significant (SJVAPCD 2002). The SJVAPCD recognizes that construction equipment also emits carbon monoxide and ozone precursor emissions. However, the SJVAPCD has determined that these emissions may cause a significant air quality impact only in the cases of very large or very intense construction projects.

The SJVAPCD's *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI) also includes significance criteria for evaluating operational-phase emissions from direct and indirect sources associated with a project. Indirect sources include motor vehicle traffic associated with the Project and do not include stationary sources covered under permit with the SJVAPCD. Operation-related emissions from projects within the SJVAB that exceed 10 tons per year for ROG or NO_x will be considered to have significant air quality impacts.

According to the CEQA Guidelines, Appendix G, adverse impacts to air quality would be considered significant if the Project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or

- Create objectionable odors affecting a substantial number of people.

Air quality impacts were evaluated for construction and operation of the Project. Construction of the Project would produce dust and emissions from diesel and gasoline-powered equipment. Vehicle trips associated with the operation and maintenance of the substation and transmission line would also produce dust and emissions, but at a minimal level.

IMPACT ANALYSIS

IMPACT 4.2-1

Construction-related air quality impacts. *The construction of a new transmission line and substation has the potential to affect air quality in the area. The Project would result in short-term construction-related dust and vehicle emissions that could contribute to existing or projected air quality violations. Therefore the impact would be considered* ***significant****.*

For the purpose of this EIR analysis, construction of the Project was assumed to occur over a 12 month period. Short-term construction emissions are typically generated by clearing, grading, excavating, and using heavy equipment or trucks. Emissions are also generated from commute vehicles for construction workers, trucks hauling equipment and materials, and stationary construction equipment used on-site. Construction-related emissions consist primarily of ROGs, NO_x, and PM_{10}. Emissions of ROGs and NO_x are generated primarily by the operation of gasoline- and diesel-powered motor vehicles. Emissions of PM_{10} are generated primarily by wind erosion of exposed graded surfaces. Construction-generated emissions would vary from day to day, depending on the specific activities being conducted and meteorological conditions.

Per the SJVAPCD's GAMAQI, the SJVAPCD's approach to CEQA analyses of construction PM_{10} impacts is to require implementation of effective and comprehensive control measures rather than to require detailed quantification of emissions. From the perspective of the SJVAPCD, compliance with Regulation VIII for all sites and implementation of other control measures, depending on the size and location of the Project site, would constitute sufficient mitigation to reduce PM_{10} impacts to a level considered less than significant. Without proper mitigation of construction activities, the Project could generate a significant fugitive dust impact.

Construction equipment, on-road heavy-duty trucks, and construction-worker vehicles would generate criteria air pollutant emissions. Emissions from construction-worker commute trips would be minor compared to emissions from heavy-duty trucks. Criteria pollutant concentrations of ROG and NO_x from these emissions sources would incrementally add to regional atmospheric loading of ozone precursors during the construction period.

The URBEMIS 2007 computer model was run to calculate the site-grading emissions and exhaust emissions from construction for ROG, NO_x, and CO (Appendix F). Table 4.5-3 shows the number of crew and equipment usage assumed for the Project. The emissions presented in Table 4.3-4 are the highest annual emissions modeled by URBEMIS 2007 for the construction of the Project without mitigation. While PM_{10} quantities are not required by the SJVAPCD, PM_{10} results from URBEMIS 2007 are also included.

As shown in Table 4.5-5, the level of ROG and NO_x would not exceed the significance criteria of 10 tons per year. This would be a less-than-significant impact.

In recent years the standard for CO has not been exceeded in the SJVAB, however, background concentrations are still high enough for CO hot spots to be potential problems in urban areas with high levels of traffic congestion. The Project would be located in rural areas outside of city limits where traffic levels are expected to be low. Therefore, CO emissions from Project-related construction activities would result in a less-than-significant impact.

Table 4.5-3 Project Construction Equipment and Crew

Project Element	Quantity	Hours Per Day	Days of Work
Transmission Line			
240- horsepower (hp) Sterling Boom Truck	1	8	35
240-hp Watson 3000 drill	1	8	35
240-hp auger truck	2	8	90
240-hp aerial line truck	3	8	90
79-hp tractor/loader/backhoe	1	5	90
250-hp reel truck	1	8	45
9.5 yd Concrete truck	2	8	35
1-ton service truck	3	10	230
65 Ton crane	1	5.5	90
Crew	17	10	35-55
Substation			
174-hp grader	1	6	25
79-hp tractor/loader/backhoe	1	6	65
114-hp roller	1	6	25
9.5 yd Concrete Truck	1	4	13
Condor manlift	1	6	150
1-ton service truck	2	4	250
70 Ton Crane, 190-hp	1	6	12
Ditch Witch Trencher	1	6	13
Crew	7	8	60-250

Source: TID 2009

Table 4.5-4 Project Construction Emissions

Emissions	Pollutant (Tons Per Year)			
	ROG	CO	NO_x	PM_{10}
Substation Construction Emissions[a]	0.21	0.81	1.74	0.96
Transmission Line Construction Emissions[a]	0.75	2.42	7.62	0.29
Total Project Construction Emissions[a]	0.96	3.23	9.36	1.25
Significance Thresholds[b]	10	NA[c]	10	NA[d]
Are Thresholds Exceeded?	No	NA[c]	No	NA[d]

Source: Miller Environmental Consulting 2009

Note: Emissions were calculated using the URBEMIS 2007 emissions model. Input to the model included Project-specific data provided in the Project description and Appendix AIR.

[a] Calculations include emissions from numerous sources, including site grading, construction worker trips, stationary equipment, diesel and gas mobile equipment, off-site haul import for aggregate material, and off-site haul export for soil.

[b] Per the SJVAPC GAMAQI, 2002, page 45.

[c] The SJVAPC refers to the CAAQS for CO (9 ppm) for operations, and does not have a or tons per year limit. The SJVAPCD recognizes that construction equipment also emits carbon monoxide. However, the SJVAPC has determined that these emissions may cause a significant air quality impact only in the cases of very large or very intense construction projects. The SJVAPCD will advise Lead Agencies on quantification procedures and significance on a case by case basis.

[d] The SJVAPCD's approach to CEQA analyses of construction PM10 impacts is to require implementation of effective and comprehensive control measures rather than to require detailed quantification of emissions.

MITIGATION MEASURE 4.5-1

REGULATION VIII CONTROL MEASURES The following controls are required to be implemented at all construction sites (SJVAPCD 2002):

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.

- When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.

The SJVAPCD will recommend these enhanced and additional measures when project conditions warrant; e.g. potential for impacting sensitive receptors, construction sites of significant size, or any other conditions that may justify additional emission reductions.

- Limit traffic speeds on unpaved roads to 15 miles per hour (mph).
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Suspend excavation and grading activity when winds exceed 20 mph[8].
- Limit area subject to excavation, grading, and other construction activity at any one time.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

[8] Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation.

IMPACT 4.5-2

Operation-related air quality impacts. *The operation of a new transmission line and substation has the potential to affect air quality in the area. However, due to the small number of vehicle trips generated by the Project, Project operations would not result in significant vehicle emissions that would violate any air quality standard or contribute substantially to an existing air quality violation. Therefore the impact would be considered* ***less than significant****.*

Long-term emissions would be generated primarily from vehicle trips to and from the Project area. The Project would generate approximately 26 truck trips per year for substation and transmission line related maintenance needs. Project operational emissions have been estimated using the URBEMIS 2007 computer model (Appendix F). As shown in Table 4.5-5, daily operational emissions from the Project would not generate more than 10 tons per year of ROGs or NO_x, and would not result in a significant impact related to these pollutants. CO levels shown in Table 4.5-5 are also very low and traffic level of service (LOS) in the Project area is expected to remain at acceptable levels. The Project, therefore, would not be expected to violate any air quality standard or contribute to an existing or projected air quality violation in the Project vicinity. Impacts from operational emissions associated with the Project would be less than significant.

Table 4.5-5 Daily Operational Emissions–2010

	Criteria Air Pollutants (Tons Per Year)			
	ROG	**CO**	**NOx**	**PM10**
Substation Operational Emissions [a]	0.04	0.26	0.15	0
Transmission Line Operational Emissions [a]	0.02	0.26	0.15	0
Total Project Operational Emissions[a]	0.06	0.52	0.30	0
Significance Thresholds[b]	10	NA[c]	10	NA[d]
Are Thresholds Exceeded?	No	NA[c]	No	NA[d]

Source: Miller Environmental Consulting 2009

Note: Emissions were calculated using the URBEMIS 2007 emissions model. Input to the model included Project-specific data provided in the Project Description and Appendix AIR.

[a] Calculations include emissions primarily from vehicle trips related to substation and transmission line maintenance needs. Assumptions include two truck trips per month to Grayson substation, 10 miles one-way and two truck trips per year to each pole 10 miles one-way.

[b] Per the SJVAPC GAMAQI, 2002, page 26.

[c] The SJVAPC refers to the CAAQS for CO (9 ppm) for operations, and does not have a tons per year limit.

[d] The SJVAPCD does not have a tons per year limit for operational PM_{10} impacts.

NA = Not available

MITIGATION MEASURE 4.5-2

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.5-3

Create objectionable odors. *The Project would not create objectionable odors that would affect a substantial number of people. Therefore the impact would be considered* ***less than significant.***

In general, the types of land uses that pose potential odor problems include refineries, chemical plants, wastewater treatment plants, landfills, composting facilities, and transfer stations. No such uses are proposed.

Diesel engines would be used for some construction equipment. Odors generated by construction equipment would be variable, depending on the location and duration of use. Diesel odors may be noticeable to some individuals at certain times, but would not affect a substantial number of people. This is a less-than-significant impact.

MITIGATION MEASURE 4.5-3

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

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4.6 GREENHOUSE GAS EMISSIONS

This Section provides background information regarding greenhouse gasses (GHGs) and analysis of the Project's contribution to global climate change, as well as the impact of global climate change on the Project. The impact analysis discusses the consistency of the Project's expected emissions associated with State policy.

4.6.1 EXISTING CONDITIONS

The Project is located in unincorporated Stanislaus County, the City of Ceres, and within the SOIs for the cities of Ceres and Hughson. There are no GHG inventories that address the Project area.

BACKGROUND

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, similar to a greenhouse. The accumulation of GHGs has been implicated as a driving force for Global Climate Change. Definitions of climate change vary between and across regulatory authorities and the scientific community, but in general can be described as the changing of the earth's climate caused by natural fluctuations and the impact of human activities that alter the composition of the global atmosphere. Both natural processes and human activities emit GHGs.

The major concern is that increases in GHGs are causing Global Climate Change. Global Climate Change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation and temperature. Although there is disagreement as to the speed of global warming and the extent of the impacts attributable to human activities, the vast majority of the scientific community now agrees that there is a direct link between increased emission of GHGs and long term global temperature.

The accumulation of GHGs in the atmosphere regulates the earth's temperature; and emissions from human activities such as electricity production and motor vehicles have elevated the concentration of these GHGs. Accumulation of GHGs has contributed to an increase in the temperature of the earth's atmosphere and contributed to Global Climate Change. GHGs include, but are not limited to, carbon dioxide (CO_2), methane, nitrous oxide, sulfur hexafluoride (SF_6), perfluorocarbons, and hydrofluorocarbons (California Health and Safety Code § 38505(g)).

CO_2 is generally used as the reference gas for climate change, and is considered the most important GHG. To account for the warming potential of GHGs, GHG emissions are often quantified and reported as CO_2 equivalents (CO_2e). The effects of GHG emission sources (i.e., individual projects) are reported in metric tons/year of CO_2e.

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

The Third Intergovernmental Panel on Climate Change (IPCC) report indicates that the average global temperature is likely to increase between 3.6 and 8.1 degrees Fahrenheit (F) by the year 2100, with larger increases possible but not likely (IPCC 2001). Temperature increases are expected to vary widely in specific locations depending on a variety of factors. The increase in temperature is expected to lead to higher temperature extremes, precipitation extremes leading to increased flooding and droughts, ocean acidification from increase carbon content, and rising sea levels. Because the effects of warming are likely to include making dry areas drier, and rising sea levels may inundate coastal areas, subtropical and low-lying regions are expected to be the areas most affected by climate change.

CHANGES IN THE CLIMATES OF WESTERN UNITED STATES AND CALIFORNIA

Climate models indicate that if GHG emissions continue to proceed at a medium or high rate, temperatures in California are expected to increase by 4.7 to 10.5 degrees F by the end of the century. Lower emission rates would reduce the projected warming to 3 to 5.6 degrees F. Almost all climate scenarios include a continuing warming trend through the end of the century given the vast amounts of GHGs already released and the difficulties associated with reducing emissions to a level that would stabilize the climate. According to the 2006 California Climate Action Team Report (CCAT 2006), the following climate change effects are predicted in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, threatening the state’s water supply;

- Increasing temperatures from eight to 10.4 degrees F under higher emission scenarios, leading to a 25 to 35 percent increase in the number of days that ozone pollution levels are exceeded in most urban areas;
- Coastal erosion along the length of California and sea water intrusion. This would exacerbate flooding in already vulnerable regions;
- Increased vulnerability of forests due to pest infestation and increased temperatures;
- Increased challenges for the state's important agriculture industry from limited water supplies, increasing temperatures, and saltwater intrusion; and
- Increased electricity demand, particularly in the hot summer months.

Based on this information, temperature increases would lead to environmental impacts in a wide variety of areas, including: reduced snowpack resulting in changes to the existing water resources, increased risk of wildfires, changing weather expectations for farmers and ranchers, and public health hazards associated with higher peak temperatures, heat waves, and decreased air quality.

WATER RESOURCES

Depending on the climate model, precipitation is predicted to increase or decrease slightly. However, the form in which precipitation occurs could change substantially. Warmer winters would lead to less snow and more rain. As a result, the Sierra snowpack would be reduced and would melt earlier. This change could lead to increased flood risks as more water flows into reservoirs and rivers during the winter rainy period. Increased temperatures would also lead to a rise in the sea level, from both thermal expansion and the melting of land-based glaciers.

During the past century, sea levels along the California coast have risen by approximately seven inches. Climate forecasts indicate the sea level would rise by seven to 23 inches over the next 100 years, depending on the climate model. Substantial melting of either the Greenland or Antarctic ice sheets would lead to an even greater increase; however, IPCC models do not indicate that this would occur within the next 100 years, which is the boundary of most climate models. Longer forecast periods are inherently less reliable as they require more assumptions, and tend to compound the effects of assumptions that may be incorrect. Increases in sea level could lead to increased coastal flooding, salt water intrusion into aquifers, and disrupt wetlands and estuaries.

WILDFIRES

Increased temperatures would lead to increases in evapotranspiration. The summers would likely be drier, and vegetation would also be more likely to dry out, causing increasingly more flammable forests and wildlands. In addition, warmer temperatures could lead to the expansion of pests that kill and weaken trees, leading to increases in the amount of highly flammable dead trees, increasing the risk of large forest fires.

WEATHER EXTREMES

The temperature increases presented in climate change models are yearly averages. Within those averages is the potential for substantially hotter summers and/or colder winters. As a result of global climate change, the weather is expected to become more variable, with larger extremes. In California, the increase in temperatures is expected to lead to more days with temperatures in excess of 95 degrees F. More days of extreme heat have implications for public health as Californians would face greater risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat. In addition, increased temperatures have implications for agricultural crops, particularly long-term crops such as grapes and fruit trees that are planted in particular locations to take advantage of micro-climates.

UNCERTAINTY REGARDING GLOBAL CLIMATE CHANGE

The scientific community has largely agreed that the earth is warming, and that humans are contributing to that change. However, the earth's climate is composed of many complex mechanisms, including ocean currents, cloud cover, as well as the jet-stream and other pressure/temperature weather guiding systems. These systems are in turn influenced by changes in ocean salinity, changes in the evapotranspiration of vegetation, the reflectivity (albedo) of groundcover, and numerous other factors. Some changes have the potential to reduce climate change, while others could form a feedback mechanism that would speed the warming process beyond what is currently projected. While the climate system is inherently dynamic, the overall consensus appears to be towards a gradually warming planet.

4.6.2 REGULATORY SETTING

In 2005, in recognition of California's vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide emission of GHG would be progressively reduced, as follows:

- By 2010, reduce greenhouse gas emissions to 2000 levels;
- By 2020, reduce greenhouse gas emissions to 1990 levels; and
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

CALIFORNIA GLOBAL WARMING SOLUTIONS ACT

In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] No. 32; California Health and Safety Code Division 25.5, Sections 38500, et seq.), which requires the California Air Resources Board (CARB) to design and implement emission limits, regulations, and other measures, such that statewide GHG emissions will be reduced to 1990 levels by 2020.

In December 2007, CARB approved the 2020 emission limit of 427 million metric tons of CO_2e. The 2020 target of 427 million metric tons of CO_2e requires the reduction of 169 million metric tons of CO_2e, or approximately 30 percent, from the state's projected 2020 emissions of 596 million metric tons of CO_2e (business-as-usual).

Also in December 2007, CARB adopted mandatory reporting and verification regulations pursuant to AB 32 that became effective January 1, 2009. The mandatory reporting regulations require reporting for certain types of facilities that make up the bulk of the stationary source emissions in California. These include facilities such as; cement plants, oil refineries, electric-generating facilities/providers, cogeneration facilities, hydrogen plants and other stationary combustion sources that emit more than 25,000 metric tons/year CO_2e (CARB 2007).

In June of 2008, CARB published its *Climate Change Draft Scoping Plan* (CARB 2008a). The *Climate Change Draft Scoping Plan* reported that CARB met the first milestones set by AB 32 in 2007: developing a list of early actions to begin sharply reducing GHG emissions; assembling an inventory of historic emissions; and establishing the 2020 emissions limit.

After consideration of public comment and further analysis, CARB released the *Climate Change Proposed Scoping Plan* in October, 2008 (CARB 2008b). The Proposed Scoping Plan provides a comprehensive set of actions designed to reduce overall carbon emissions in California. Key elements of the Proposed Scoping Plan include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewable energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation. (CARB 2008b).

The *Climate Change Proposed Scoping Plan* notes that "[a]fter Board approval of this plan, the measures in it will be developed and adopted through the normal rulemaking process, with public input" (CARB 2008b).

The *Climate Change Proposed Scoping Plan* states that local governments are "essential partners" in the effort to reduce greenhouse gas emissions. The plan acknowledges that local governments have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. The plan encourages local governments to reduce GHG emissions by approximately 15 percent from current levels by 2020 (CARB 2008b).

The *Climate Change Proposed Scoping Plan* also includes recommended measures that were developed to reduce GHG emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving our natural resources, and ensuring that the impacts of the reductions are equitable and do not disproportionately impact low-income and minority communities. These measures, shown below in Table 4.6-1 by sector, also put the state on a path to meet the long-term 2050 goal of reducing California's GHG emissions to 80 percent below 1990 levels.

The total reduction for the recommended measures is 174 million metric tons/year of CO_2e, slightly exceeding the 169 million metric tons/year of CO_2e of reductions estimated to be needed in the *Draft Scoping Plan*. These measures were presented to and approved by the CARB on December 11, 2008. The measures in the *Scoping Plan* approved by the Board will be developed over the next two years and be in place by 2012.

Table 4.6-1 Greenhouse Gas Reduction Measures, by Sector

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO_2e)
Transportation		
T-1	Pavley I and II – Light Duty Vehicle Greenhouse Gas Standards	31.7
T-2	Low Carbon Fuel Standard (Discrete Early Action)	15
T-3[1]	Regional Transportation-Related Greenhouse Gas Targets	5
T-4	Vehicle Efficiency Measures	4.5
T-5	Ship Electrification at Ports (Discrete Early Action)	0.2
T-6	Goods Movement Efficiency Measures; Ship Electrification at Ports; System-Wide Efficiency Improvements	3.5
T-7	Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)	0.93
T-8	Medium- and Heavy-Duty Vehicle Hybridization	0.5
T-9	High Speed Rail	1
Electricity and Natural Gas		
E-1	Energy Efficiency (32,000 GWh of Reduced Demand); Increased Utility Energy Efficiency Programs; More Stringent Building & Appliance Standards; Additional Efficiency and Conservation	15.2

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO_2e)
	Programs	
E-2	Increase Combined Heat and Power Use by 30,000 GWh (Net reductions include avoided transmission line loss)	6.7
E-3	Renewables Portfolio Standard (33% by 2020)	21.3
E-4	Million Solar Roofs (including California Solar Initiative, New Solar Homes Partnership and solar programs of publicly owned utilities); Target of 3000 megawatt (MW) Total Installation by 2020	2.1
CR-1	Energy Efficiency (800 Million Therms Reduced Consumptions); Utility Energy Efficiency Programs; Building and Appliance Standards; Additional Efficiency and Conservation Programs	4.3
CR-2	Solar Water Heating (AB 1470 goal)	0.1
Green Buildings		
GB-1	Green Buildings	26
Water		
W-1	Water Use Efficiency	1.4†
W-2	Water Recycling	0.3†
W-3	Water System Energy Efficiency	2.0†
W-4	Reuse Urban Runoff	0.2†
W-5	Increase Renewable Energy Production	0.9†
W-6	Public Goods Charge (Water)	TBD†
Industry		
I-1	Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	TBD
I-2	Oil and Gas Extraction GHG Emission Reduction	0.2
I-3	GHG Leak Reduction from Oil and Gas Transmission	0.9
I-4	Refinery Flare Recovery Process Improvements	0.3
I-5	Removal of Methane Exemption from Existing Refinery Regulations	0.01
Recycling and Water Management		
RW-1	Landfill Methane Control (Discrete Early Action)	1

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO_2e)
RW-2	Additional Reductions in Landfill Methane; Increase the Efficiency of Landfill Methane Capture	TBD†
RW-3	High Recycling/Zero Water; Commercial Recycling; Increase Production and Markets for Compost; Anaerobic Digestion; Extended Producer Responsibility; Environmentally Preferable Purchasing	9†
Forests		
F-1	Sustainable Forest Target	5
High Global Warming Potential (GWP) Gases		
H-1	Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Services (Discrete Early Action)	0.26
H-2	SF_6 Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)	0.3
H-3	Reduction of Perfuorocarbons in Semiconductor Manufacturing (Discrete Early Action)	0.15
H-4	Limit High GWP Use in Consumer Products Discrete Early Action (Adopted June 2008)	0.25
H-5	High GWP Reductions from Mobile Sources; Low GWP Refrigerants for New Motor Vehicle Air Conditioning Systems; Air Conditioner Refrigerant Leak Test During Vehicle Smog Check; Refrigerant Recovery from Decommissioned Refrigerated Shipping Containers; Enforcement of Federal Ban on Refrigerant Release during Servicing or Dismantling of Motor Vehicle Air Conditioning Systems	3.3
H-6	High GWP Reductions from Stationary Sources; High GWP Stationary Equipment Refrigerant Management Program; Refrigerant Tracking/Reporting/Repair Deposit Program; Specifications for Commercial and Industrial Refrigeration Systems; Foam Recovery and Destruction Program; SF_6 Leak Reduction and Recycling in Electrical Applications; Alternative Suppressants in Fire Protection Systems; Residential Refrigeration Early Retirement Program	10.9
H-7	Mitigation Fee on High GWP Gases	5

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO_2e)
Agriculture		
A-1	Methane Capture at Large Dairies	1.0†

[1] This is not the SB 375 regional target. CARB will establish regional targets for each MPO region following the input of the regional targets advisory committee and a consultation process with MPO's and other stakeholders per SB 375. † GHG emission reduction estimates are not included in calculating the total reductions needed to meet the 2020 target

SENATE BILL 97

The provisions of Senate Bill (SB) 97, enacted in August 2007 as part of the state budget negotiations, direct the Office of Planning and Research (OPR) to propose CEQA Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions." SB 97 directs OPR to develop such guidelines by July 2009, and directs the State Resources Agency, the agency charged with adopting the CEQA Guidelines, to certify and adopt such guidelines by January 2010.

OPR TECHNICAL ADVISORY, CEQA AND CLIMATE CHANGE

On June 19, 2008, OPR published a technical advisory on CEQA and Climate Change. The advisory provides OPR's perspective on the emerging role of CEQA in addressing climate change and GHG emissions, while recognizing that approaches and methodologies for calculating GHG emissions and addressing environmental impacts through CEQA review are rapidly evolving. The advisory recognizes that OPR will develop, and the Resources Agency will adopt, amendments to the CEQA Guidelines pursuant to SB 97. In the interim, the technical advisory "offers informal guidance regarding the steps lead agencies should take to address climate change in their CEQA documents" (OPR 2008).

The technical advisory points out that neither CEQA nor the CEQA Guidelines prescribe thresholds of significance or particular methodologies for performing an impact analysis. "This is left to lead agency judgment and discretion, based upon factual data and guidance from regulatory agencies and other sources where available and applicable." OPR recommends that "the global nature of climate change warrants investigation of a statewide threshold of significance for GHG emissions." Until such a standard is established, OPR advises that each lead agency should develop its own approach to performing an analysis for projects that generate GHG emissions (OPR 2008).

Agencies should then assess whether the emissions are “cumulatively considerable” even though a project’s GHG emissions may be individually limited. OPR states: “Although climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment.” Individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice (OPR 2008).

Finally, if the lead agency determines emissions are a cumulatively considerable contribution to a significant cumulative impact, the lead agency must investigate and implement ways to mitigate the emissions. OPR states: “Mitigation measures will vary with the type of project being contemplated, but may include alternative project designs or locations that conserve energy and water, measures that reduce vehicle miles traveled by fossil-fueled vehicles, measures that contribute to established regional or programmatic mitigation strategies, and measures that sequester carbon to offset the emissions from the project.” OPR concludes that “A lead agency is not responsible for wholly eliminating all GHG emissions from a project; the CEQA standard is to mitigate to a level that is “less than significant” (OPR 2008). The technical advisory includes a list of mitigation measures that can be applied on a project-by-project basis.

OPR Proposed Amendments to the CEQA Guidelines

On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the state CEQA Guidelines for GHG emissions, as required by SB 97. These proposed CEQA Guideline amendments would provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The Natural Resources Agency will conduct formal rulemaking in 2009, prior to certifying and adopting the amendments by January 1, 2010, as required by SB 97.

The proposed amendments suggest relatively modest changes to various portions of the existing CEQA Guidelines. Modifications address those issues where analysis of greenhouse gas emissions may differ in some respects from more traditional CEQA analysis.

Proposed amendments include a new Section (15064.4) to assist lead agencies in determining the significance of the GHG impacts. This section urges lead agencies to quantify the GHG emissions of proposed projects where possible. In addition to quantification, this section recommends consideration of several other qualitative factors that may be used in determination of significance including: (1) the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the GHG emissions exceed a threshold of significance that the lead agency determines applies to the project; and (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 GHG emissions.

The proposed amendments include a new subdivision 15064.7(c) to clarify that in developing thresholds of significance, a lead agency may appropriately look to thresholds developed by other public agencies, including the CARB's recommended CEQA Thresholds, or suggested by other experts, such as the California Air Pollution Control Officers Association, so long as any threshold chosen is supported by substantial evidence.

The proposed amendments also include a new subdivision 15130(f) to emphasize that the effects of GHG emissions are cumulative, and should be analyzed when the incremental contribution of those emission may be cumulatively considerable.

In addition, the proposed amendments add a new set of environmental checklist questions (VII. *Greenhouse Gas Emissions*) to the CEQA Guidelines, Appendix G. The new set includes the following two questions. Would the project:

Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION

In January 2008, the California Air Pollution Control Officers Association issued a "white paper" on evaluating and addressing GHGs under CEQA (CAPCOA 2008). This resource guide was prepared to support local governments as they develop their programs and policies around climate change issues. The paper is not intended to dictate or direct how any agency chooses to address GHG emissions. Rather, it is intended to provide a common platform of information about key elements of CEQA as they pertain to GHG, including an analysis of different approaches to setting significance thresholds.

The paper notes that for a variety of reasons local agencies may decide not to have a CEQA threshold. Local agencies may also decide to assess projects on a case-by-case basis when the projects come forward. The paper also discusses a range of GHG emission thresholds that could be used. The range of thresholds includes a GHG threshold of zero and several non-zero thresholds. Non-zero thresholds include percentage reductions for new projects that would allow the state to meet its goals for GHG emissions reductions by 2020 and perhaps 2050. These would be determined by a comparison of new emissions versus business-as-usual emissions, and the reductions required would be approximately 30 percent to achieve 2020 goals and 90 percent (effectively immediately) to achieve the more aggressive 2050 goals. These goals could be varied to apply differently to new project, by economic sector, or by region in the state.

Other non-zero thresholds discussed in the paper include:

- 900 metric tons/year CO_2e (a market capture approach);
- 10,000 metric tons/year CO_2e (potential CARB mandatory reporting level with Cap and Trade);
- 25,000 metric tons/year CO_2e (the CARB mandatory reporting level for the statewide emissions inventory);
- 40,000 to 50,000 metric tons/year CO_2e (regulated emissions inventory capture – using percentages equivalent to those used in air districts for criteria air pollutants);
- Projects of statewide importance (9,000 metric tons/year CO_2e for residential, 13,000 metric tons/year CO_2e for office project, and 41,000 metric tons/year CO_2e for retail projects); and
- Unit-based thresholds and efficiency-based thresholds that were not quantified in the report.

CARB DRAFT GHG SIGNIFICANCE THRESHOLDS

On October 24, 2008, CARB released its *Preliminary Draft Staff Proposal on Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the CEQA* for review and public comment (CARB 2008c). The Proposal identifies benchmarks or standards that assist lead agencies in the significance determination for industrial, residential, and commercial projects. Staff intends to make its final recommendations on thresholds in early 2009, consistent with OPR's timeline for issuing draft CEQA guidelines addressing GHG emissions and to provide much needed guidance to lead agencies in the near term. The Proposal currently focuses on two sectors for which local agencies are typically the CEQA lead agency: industrial projects; and residential and commercial projects. Future proposals will focus on transportation projects, large dairies and power plant projects. In general, categorical exemptions will continue to apply.

- If GHGs are adequately addressed at the programmatic level (i.e., consistent with regional GHG budgets), the impact of certain individual projects can be found to be insignificant.
- Industrial projects below the operational emissions level (7,000 metric tons/year CO_2e) that also meet performance standards for construction can be found to be less than significant.
- Residential and commercial projects below the operational emissions level (unspecified as of December 2008) that also meet performance standards for construction, energy, water, waste and transportation can be found to be less than significant.
- If a project cannot meet the above requirements, it should be presumed to have significant impacts related to climate change and all feasible GHG mitigation measures (i.e., carbon offsets) should be implemented.

For residential and commercial projects, CARB staff's objective is to develop a threshold on performance standards that will substantially reduce the GHG emissions from new projects and streamline the permitting of carbon-efficient projects. Performance standards will address the five major emission sub-sources for the sector: energy use, transportation, water use, waste, and construction. Projects may alternatively incorporate mitigation equivalent to these performance standards, such as measures from green building rating systems.

SJVAPCD Climate Change Action Plan

The SJVAPCD's Governing Board adopted the Climate Change Action Plan (CCAP) in August 2008. The goals of the CCAP include:

1. Assist local land-use agencies with CEQA issues relative to projects with GHG emissions increases.
2. Assist Valley businesses in complying with the mandates of AB 32 (Global Warming Solutions Act of 2006)
3. Ensure that climate protection measures do not cause increases in toxic or criteria air pollutants that adversely impact public health or environmental justice communities (SJVAPCD 2008b).

TID RENEWABLE ENERGY POLICY

In June 2006, TID adopted a renewable energy policy to reduce GHG emissions. TID's policy establishes a renewable portfolio standard with a target of supplying 20% of annual retail electric sales in calendar year 2017 from Eligible Renewable Resources including:

- Biomass
- Wind
- Photovoltaic
- Small Hydro (less than 30 MW)
- Landfill Gas
- Ocean Thermal
- Ocean Wave
- Tidal Current
- Solar Thermal
- Geothermal
- Municipal Solid Waste

In addition to the target, above, each year TID will establish an annual goal to meet or exceed for acquiring Eligible Renewable Resources. The annual goal will be one percent of forecast retail electric sales for that year above the prior year's annual goal, beginning with a goal for 2005 of one percent of forecast 2005 retail sales. If, however, it is anticipated that there will be a substantial procurement of Renewable Resources or there is a substantial procurement that puts TID ahead of the "20% by 2017" schedule, the one percent increase per year can be relaxed (TID 2006).

4.6.3 IMPACTS AND MITIGATION MEASURES

METHODS OF ANALYSIS

The impact analysis for this Section was prepared using the guidelines described below. The impact analysis involves qualitative and quantitative discussions of emissions likely to be generated during construction and operation of the Project. Annual increases in CO_2 emissions associated with the Project were estimated using the CARB-approved URBEMIS 2007 (version 9.2.4) computer program based on the Project Description and default assumptions contained in the model (Appendix F). The significance criteria in the proposed amendments to the CEQA guidelines do not specifically address the potential impacts of climate change on the Project, as described in Section 4.6.1 Existing Conditions. However, one of the primary reasons for AB 32 is to protect the environment from sea level rise, changes in the snow pack, and increases in wildfires. Therefore, the impact section also includes an analysis to ensure the Project is not susceptible to these climate change effects.

THRESHOLDS OF SIGNIFICANCE

At this time, no statewide government has adopted anything beyond a case-by-case significance criterion for evaluating a Project's contribution to climate change. OPR has asked CARB to "recommend a method for setting thresholds of significance to encourage consistency and uniformity in the CEQA analysis of GHG emissions" throughout the state because OPR has recognized that "the global nature of climate change warrants investigation of a statewide threshold for GHG emissions."[9] CARB began the public process of addressing significance thresholds in October 2008, but many decisions need to be made before the criteria are final (CARB 2008c).

The informal guidelines in OPR's technical advisory and CARB's proposed thresholds provide a general basis for determining a proposed project's contribution of GHG emissions and the project's contribution to global climate change. In the absence of adopted statewide thresholds, OPR recommends the following approach for analyzing GHG emissions:

1. Identify and quantify the project's greenhouse gas emissions;

[9] Governor's Office of Planning and Research. *Technical Advisory- CEQA and Climate Change: Addressing Climate Change to the California Environmental Quality Act (CEQA) Review*. June 19, 2008. This document is available online at the Office of Planning and Research's website at: www.opr.gov. Accessed 07/24/2008.

2. Assess the significance of the impact on climate change; and
3. If the impact is found to be significant, identify alternatives and/ or mitigation measures that would reduce the impact to less than significant levels.

OPR's technical advisory states that "the most common GHG that results from human activity is CO_2, followed by methane and nitrous oxide." State law defines GHG to also include hydrofluorocarbons, perfluorocarbons and SF_6. Operation of the substations could result in accidental releases of SF_6. The calculation presented below includes construction emissions in terms of CO_2[10], and annual CO_2e GHG emissions from increased vehicular traffic and energy consumption.

As discussed above, at this time there are no adopted statewide guidelines for GHG emission impacts, but this is being addressed through the provisions of SB 97. Proposed amendments and additions to the CEQA Guidelines were forwarded by OPR in April 2009; and the State Resources Agency has until January 1, 2010 to certify and adopt the regulations. In the interim, local agencies must analyze the impact of GHGs. For this Project, the proposed action would be considered to have a significant impact if the Project would be in conflict with the AB 32 State goals for reducing GHG emissions. It is assumed that AB 32 will be successful in reducing GHG emissions and reducing the cumulative GHG emissions statewide by 2020. It is important that the state has taken these measures, because no project individually could have a major impact (either positively or negatively) on the global concentration of GHG. Given this, the Project was reviewed to make sure it does not conflict with the goals of AB 32.

[10] Construction emissions of CO_2 were calculated based on URBEMIS 2007 9.2.4 software. Attachment 2 of OPR's *Technical Advisory - CEQA and Climate Change: Addressing Climate Change to the California Environmental Quality Act (CEQA) Review*, (June 19, 2008) lists and describes modeling tools used to calculate GHG emissions. URBEMIS is currently the only tool identified that has the capacity to calculate a project's CO_2 emissions from construction activities. It does not, however, calculate emissions from N_2O or CH_4, nor does any other modeling tool currently available. Emissions of these compounds would be a fraction of the total GHG emissions. Therefore, CO_2 is used as an indicator to estimate the construction-related emissions of the Project.

IMPACT ANALYSIS

IMPACT 4.6-1

> **Conflict with the goal of reducing GHG.** *The Project could conflict with implementation of state goals for reducing GHG emissions and thereby could have a negative effect on Global Climate Change. Therefore the impact would be **potentially significant**.*

The site of the proposed Grayson Substation is vacant and would require grading and installation of substation equipment. As with other individual and relatively small projects (i.e., projects that are not cement plants, oil refineries, electric generating facilities, co-generation facilities, or hydrogen plants or other stationary combustion sources that emit more than 25,000 metric tons/year of CO_2e), the specific emissions from this Project would not be expected to individually have an impact on Global Climate Change (AEP 2007). Furthermore, GHG impacts are considered to be exclusively cumulative impacts; there are no non-cumulative greenhouse gas emission impacts from a climate change perspective (CAPCOA 2008).

Four types of analyses are used to determining whether the Project could conflict with the State goals for reducing GHG emissions. The analyses are as follows:

1. Any potential conflicts with the CARB's 39 recommended actions.
2. The relative size of the Project. The Project's GHG emissions will be compared to the size of major facilities that are required to report GHG emissions (25,000 metric tons/year of CO_2e)[11] to the state; and the Project size will be compared to the estimated GHG reduction state goal of 169 million metric tons per year of CO_2e emissions by 2020. As noted above, the 25,000 metric ton annual limit identifies the large stationary point sources in California that make up approximately 94 percent of the stationary emissions. If the Project's total emissions are below this limit, its total emissions are equivalent in size to the smaller projects in California that as a group only make up six percent of all stationary emissions. It is assumed that the activities of these smaller projects generally would not conflict with State's ability to reach AB

[11] The State of California has not provided guidance as to quantitative significance thresholds for assessing the impact of GHG emissions on climate change and global warming concerns. Nothing in the CEQA Guidelines directly addresses this issue.

32 overall goals. In reaching its goals the CARB will focus upon the largest emitters of GHG.

3. The basic energy efficiency parameters of a project to determine whether its design is inherently energy efficient.
4. Any potential conflicts with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHG.

With regard to Item 1, the project could pose an apparent conflict with the CARB recommended actions (see Table 4.6-1). Measure No. H-6 recommends SF_6 leak reduction and recycling in electrical applications. SF_6 is a gas used widely used as an insulator in electrical equipment in the utility industry. There are currently no substitutes for SF_6 for substation equipment. SF_6 is a GHG that contributes to climate change if accidentally released. SF_6 has a high global warming potential and an atmospheric lifetime of 3,200 years. The IPCC considers SF_6 to be the most potent GHG it has evaluated. Although SF_6 emissions accounted for only 0.5 percent of the worldwide GHG emissions in 1995, it has been included in the Kyoto Protocols on climate change.

Under normal substation operation, SF_6 would remain sealed inside the circuit breaker equipment. However, SF_6 has the potential to contribute to global climate change should it be released accidentally, as leaks, or during maintenance. Thus, this would be considered a potentially significant impact.

With regard to Item 2, Project construction GHG emissions would be approximately 929 metric tons/year of CO_2e and Project operations would be approximately 487 metric tons/year of CO_2e (including emissions from maintenance-related vehicle trips and indirect emissions from the use of electricity for lighting at the substation) (Appendix F). The Project would not be classified as a major source of GHG emissions (actually construction emissions would be about four percent of the lower reporting limit, which is 25,000 metric tons/year of CO_2e and operational emissions would be about two percent of the lower reporting limit).

When compared to the overall State reduction goal of approximately 169 million metric tons/year of CO_2e, the maximum GHG emissions for the Project (929 metric tons/year of CO_2e or 0.0005 percent of the State goal during construction and 487 metric tons/year of

CO_2e or 0.0003 percent of the State goal during operations) are quite small and should not conflict with the State's ability to meet the AB 32 goals.

With regard to Item 3, the nature of the Project does not lend itself to incorporating basic energy efficiency parameters. However, in 2006 TID adopted a renewable energy policy that is expected to reduce climate change.

With regard to Item 4, the Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHG.

The review of Items 1 through 4 indicates that the Project could potentially conflict with one of the State goals in AB 32 and therefore this impact would be potentially significant. Specifically, the Project would use SF_6, which has the highest known GHG warming potential.

MITIGATION MEASURE 4.6-1

Each circuit breaker shall be installed with approximately 60 pounds of SF_6. Each breaker shall be alarmed and monitored to prevent release of SF_6. TID shall keep current records on the use of SF_6 at the substations and shall inspect and maintain the substation facilities to prevent SF_6 leakage.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.6-2

Global climate change impacts. *Impacts from Global Climate Change, such as the potential for increased floods and wildfires, could affect the Project. However, the design of the Project would minimize this impact. Therefore, the impact would be* ***less than significant.***

As noted earlier, impacts from Global Climate Change may potentially increase flood and wildfire risks. The Central Valley is relatively flat and large, requiring a substantial amount of water to flood the substation and get the transmission lines wet. In addition, design of the transmission line towers are such that transmissions lines are high and the concrete foundations could handle being temporarily under water.

Wildfire risks are addressed in Section 4.9 Hazards and Hazardous Materials. The State of California has regulations concerning vegetation management that are intended to ensure public safety and maintain electrical service reliability. Additional mitigation measures require TID to conform to applicable regulations with respect to required safety features and setbacks between energized facilities and vegetation or other flammable materials and to institute a program of regular inspection along the transmission line route to assure that plant growth subsequent to installation does not prevent conformance with applicable regulations as they apply to required setbacks from vegetation or other flammable materials. Therefore, potential impacts associated with climate change would be less than significant.

MITIGATION MEASURE 4.6-2

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

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4.7 GEOLOGY, SOILS, AND MINERAL RESOURCES

This Section describes the geology, soils, seismic setting, and mineral resources along the proposed transmission line route and at the proposed Grayson Substation site. The Section emphasizes geotechnical hazards, seismic hazards, potential for subsidence, and erosion problems, as applicable.

4.7.1 EXISTING SITE CONDITIONS

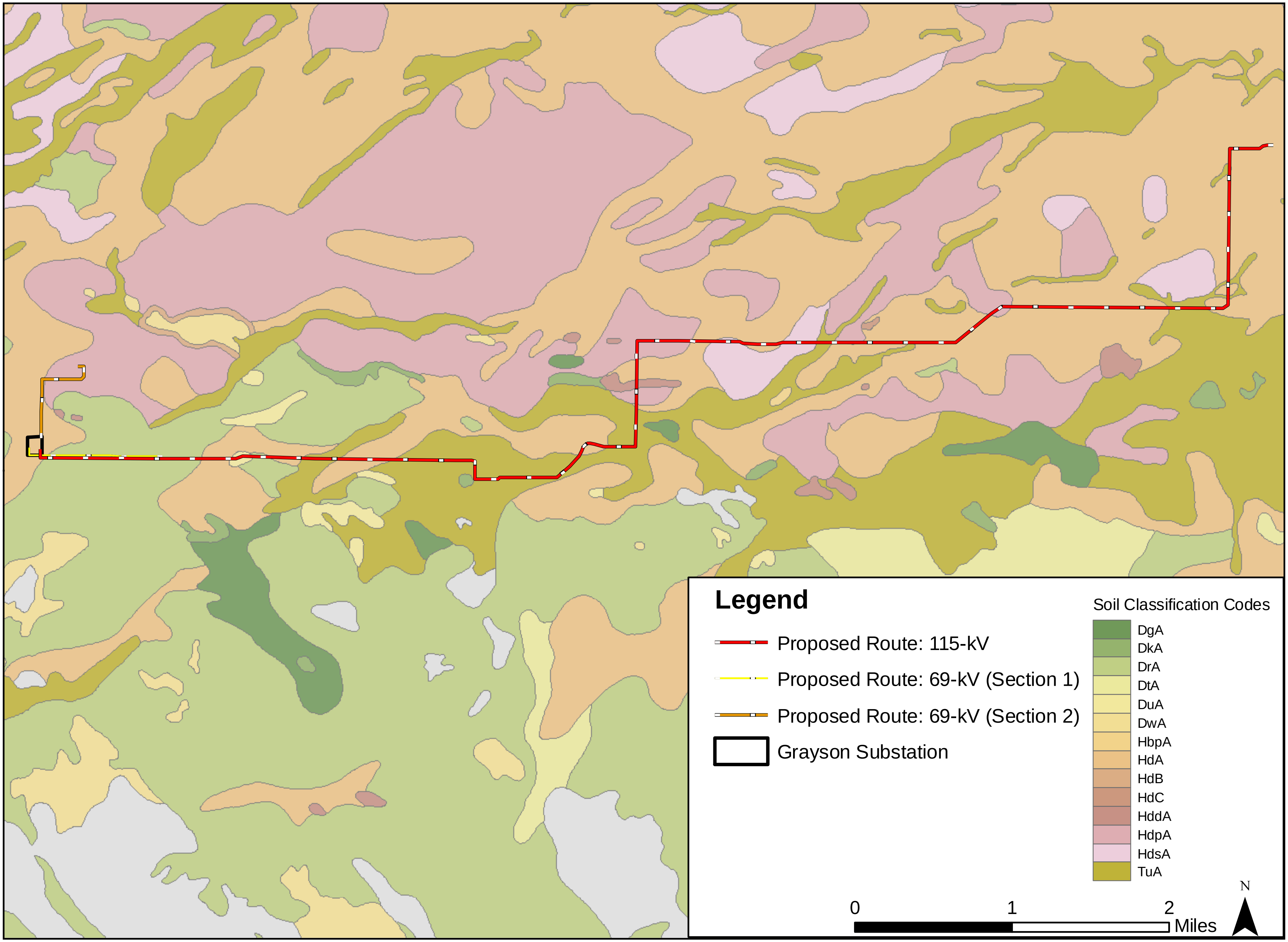
The Project would traverse relatively flat, alluvial deposits associated with the San Joaquin Valley. The valley is flanked on the east and west by the Sierra Nevada foothills and the Coastal Range, respectively. Alluvial deposits, consisting of unconsolidated and semi-consolidated lake, terrace, and playa deposits from the Pleistocene epoch, have eroded from the surrounding seismically active regions and form the central plain of the valley. Elevations within the Project area are about 100 feet above mean sea level.

TOPOGRAPHY

The San Joaquin Valley, overall, has a slight slope that causes drainage to the north, into the Sacramento-San Joaquin Delta. The topography of the Stanislaus County region is generally flat, with very little local relief in the area of the Project.

SOILS

Soils in the Project area are primarily Pliocene to Holocene alluvium terrace. The Project route would pass over seven different variations of sandy loam and loamy sand. These soils are described in **Table 4.7-1** and shown on Figure 4.7.1. Loamy sands are loose and single-grained, with silt and clay contents that are slightly cohesive when moist. Sandy loams are composed of less sand and a greater amount of silt and clay than loamy sands, and are more cohesive. In general, these soils possess only a slight erosion potential when exposed.



Source: U.S. Department of Agriculture, Natural Resource Conservation Service, Soil Survey Geographic Database for Eastern Stanislaus County, CA. 12/17/2007

Figure 4.7.1

Soil Classifications

Table 4.7-1 Soils Present in the Project Area

Map Unit Symbol	Map Unit Name	Description
DrA	Dinuba sandy loam, 0 to 1 percent slopes	Occur on nearly to gently sloping alluvial fans and valley plains under grass-herb vegetation.
DuA	Dinuba sandy loam, poorly drained variant, 0 to 1 percent slopes	
HdA	Hanford sandy loam, 0 to 3 percent slopes	Deep, well drained soils that formed in moderately coarse textured alluvium (usually from granite). Clay content averages 6 to 18 percent. Organic matter is less than 1 percent and decreases regularly with increasing depth.
HddA	Hanford sandy loam, poorly drained variant, 0 to 1 percent slopes	
HdpA	Hanford sandy loam, moderately deep over silt, 0 to 1 percent slopes	
HdsA	Hanford sandy loam, deep over silt, 0 to 1 percent slopes	
TuA	Tujunga loamy sand, 0 to 3 percent slopes	Consists of very deep, somewhat excessively drained soils formed in alluvium weathered mostly from granitic sources. Rock fragments make up 2 to 35 percent by volume. Clay content ranges from 0 to 5 percent.

SEISMIC CONDITIONS AND LIQUEFACTION POTENTIAL

The California Geological Society has mapped the potential relative intensity of ground shaking as a result of anticipated future earthquakes. The shaking potential is calculated as the level of ground motion that has a two percent chance of being exceeded in 50 years, and is largely determined by surface geology. According to this map, the region that encompasses the Project is “distant from known, active faults and will experience lower levels of shaking less frequently” (Parish 2008). Seismic ground shaking associated with major earthquakes can cause the collapse of, or structural damage to, man-made structures.

Strong earthquakes generated along a fault system generally create ground shaking, which attenuates (i.e., lessens) with distance from the epicenter. In general, the area affected by ground shaking will depend on the characteristics of the earthquake and location of the epicenter. Seismic conditions result in sheer, displacement, or fracture in the continuity of a rock formation as a result of shifting or dislodging along planes of weakness in the earth’s crust.

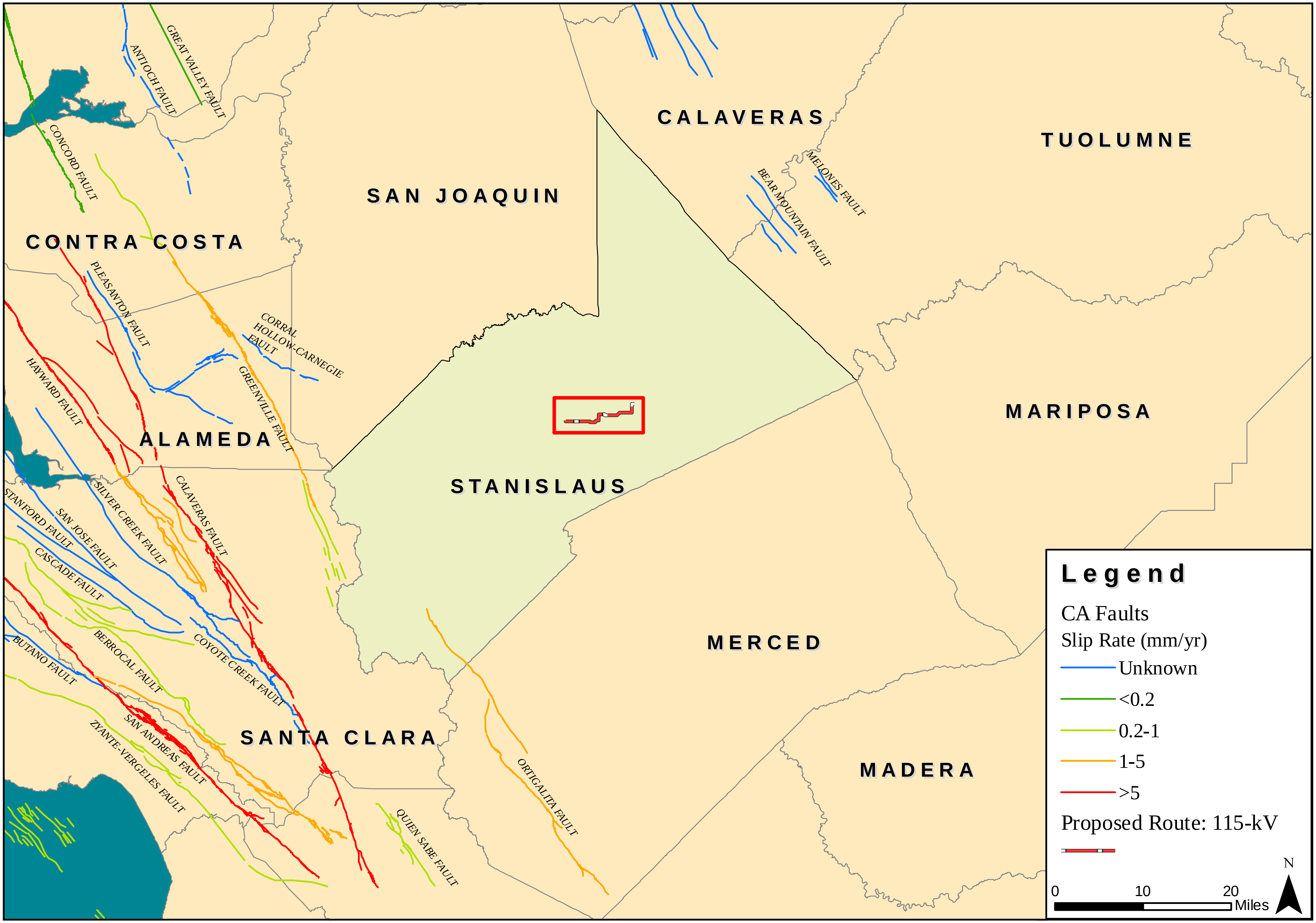
There are several faults within and near Stanislaus County. In the western portion of the county, in the Diablo Range, the most recent fault movements have been along the Tesla-Ortigalita Fault (now known as the Ortigalita Fault), which the State of California Division of Mines and Geology has designated as an Alquist-Priolo Special Studies Zone. The 1,000-foot wide zone along the Tesla-Ortigalita Fault extends into Stanislaus County approximately seven miles and is located approximately 30 miles southwest of the Project area. Approximately 25 miles northeast of the site, in the extreme eastern portion of the county, the Bear Mountain and Melones Faults are believed to have been inactive for the past 150 million years (Figure 4.7.2).

Soil liquefaction occurs either as a result of an increase in pore-water pressures due to an earthquake or a human induced event, or in low lying areas that are comprised of unconsolidated, saturated, clay-free sands and silts. The phenomenon of liquefaction causes granular materials to behave in a liquid state. The liquefaction potential of soil is dependent upon the level and duration of seismic ground motions, the type and consistency of the soils, and the depth of groundwater. Soil conditions conducive to liquefaction are those with loose-packed grain structures capable of progressive rearrangement during repeated cycles of seismic loading.

Extreme ground shaking can cause saturated sediments to liquefy and lose supporting capacity as water from voids within the sediment is forced towards the ground surface. Although no specific liquefaction hazards have been identified in Stanislaus County, the potential exists in areas where unconsolidated sediments are very wet and where a high water table underlies these sediments. Man-made levees along canals in Stanislaus County are susceptible to liquefaction due to the use of artificial fill and the presence of nearby water.

ASBESTOS-CONTAINING ROCKS

Ultramafic rocks are igneous and contain high concentrations of iron-magnesium-silicate minerals. Before becoming exposed at the surface, these rocks often undergo complete or partial metamorphosis into serpentine rock. In some cases, the conditions of this alteration process support the formation of asbestos crystals. Ultramafic rock occurs in the northeastern region of Stanislaus County, but is not known to occur near the Project (Davis 2000).



Source: U.S. Geological Survey, 2006.

Hughson-Grayson 115-kV Transmission Line and Substation Project

Figure 4.7.2

Geologic Faults In Project Vicinity

MINERAL RESOURCES

Sand and gravel mines are located less than two miles north of the Project route, along the south side of the Tuolumne River. These mines include Gravel Products Co., Schmidt Pit, and the Hughson Gravel Plant (Figure 4.7.3).

4.7.2 REGULATORY SETTING

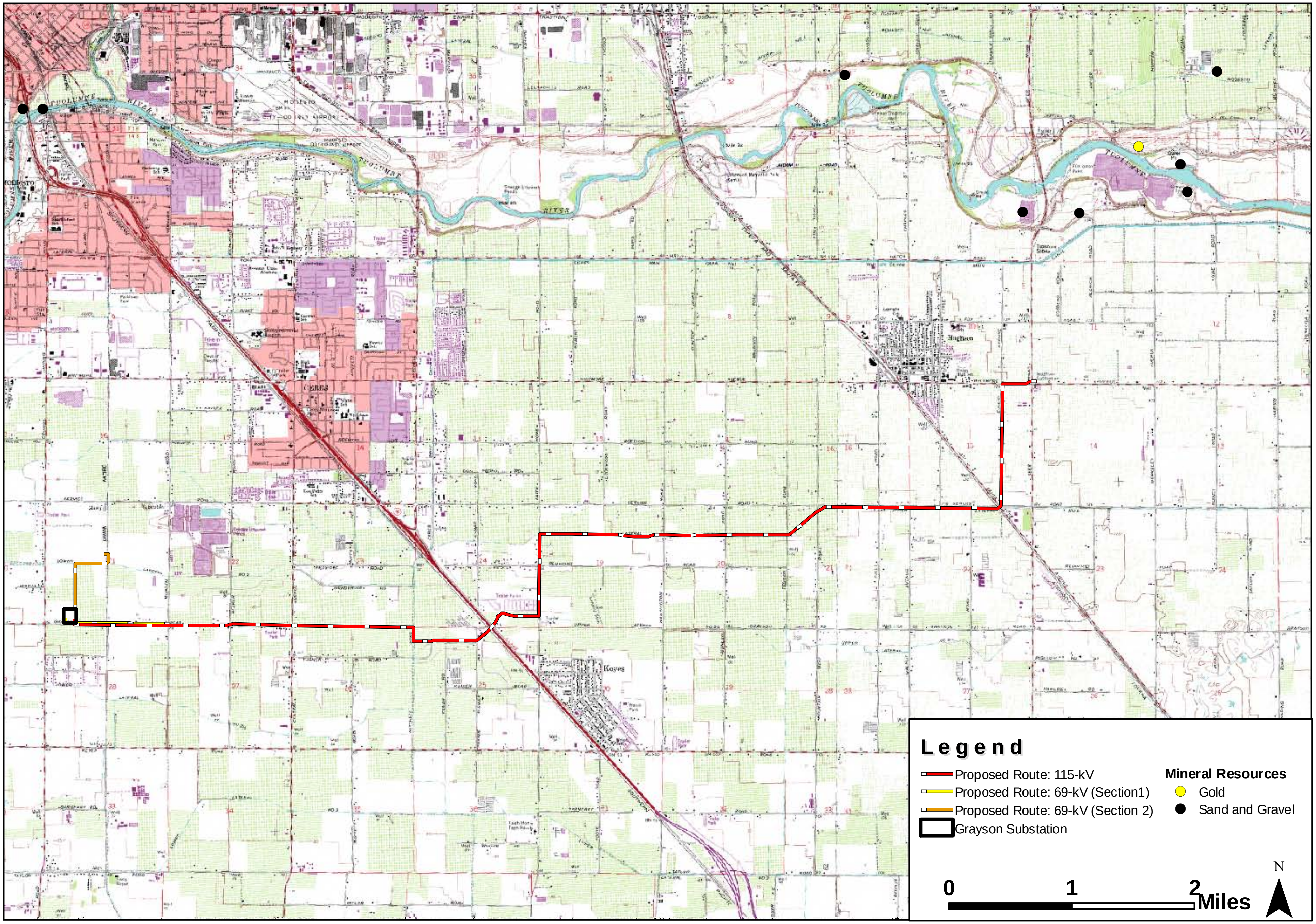
Regulations and standards related to geology, soils, and seismicity are adopted to protect public safety and to conserve open space. The following is a brief summary of the regulatory context under which soils and geologic hazards are managed at the Federal, State, and local level. Agencies with responsibility for protecting people and property from damage associated with soil conditions and geologic hazards in the Project area are described below.

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS "RECOMMENDED PRACTICES FOR SEISMIC DESIGN OF SUBSTATIONS"

The Institute of Electrical and Electronics Engineers' (IEEE) *Recommended Practices for Seismic Design of Substations* was developed by the Substations Committee of the IEEE Power Engineering Society, and approved by the American National Standards Institute. This document provides seismic design recommendations for substations and equipment consisting of: seismic criteria, qualification methods and levels, structural capacities, performance requirements for equipment operation, installation methods, and documentation. The document is intended to establish standard methods of providing and validating the seismic withstand capability of electrical substation equipment. It provides detailed test and analysis methods for each type of major equipment or component found in electrical substations, and is intended to result in facilities with high probabilities of withstanding seismic events.

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT

The Alquist-Priolo Earthquake Fault Zoning Act was signed into law in 1972 to mitigate the hazards of surface faulting to structures designed for human occupancy. The state geologist establishes regulatory zones around surface traces of active faults and issues maps of their location. Local agencies are required to regulate development within these zones. Under the Alquist-Priolo Act, a fault is considered active if displacement has occurred within the past



Sources: USGS, Mineral Resources Data System, 2005 and USDA, NRCS, 2009.

Hughson-Grayson 115-kV Transmission Line and Substation Project

Figure 4.7.3

Mineral Resources

11,000 years. The nearest Alquist-Priolo Special Studies Zone, the Tesla-Ortigalita Fault, is located approximately 30 miles southwest of the Project area.

SURFACE MINING AND RECLAMATION ACT

The Surface Mining and Reclamation Act (SMARA) of 1975 requires classification of California's non-fuel mineral resources based on geologic factors. The primary products of the SMARA are mineral land classification maps and reports that depict the location or likely location of significant mineral deposits. This information is used to assist in the protection and development of mineral resources through land use planning, and local agencies are required to consult this information when making land use decisions.

CALIFORNIA CODE OF REGULATIONS AND UNIFORM BUILDING CODE

The State of California provides minimum standards for structural design and site development through the California Building Standards Code (California Code of Regulations [CCR], Title 24). The California Building Code (CBC) is based on the Uniform Building Code (UBC), used widely throughout the United States[12], and has been modified for California's conditions with numerous more detailed and/or more stringent regulations.

Where no other building codes apply, Chapter 18 of the CBC regulates excavation, foundations, and retaining walls, and Appendix Chapter A33 regulates grading activities, including drainage and erosion control, and construction on expansive soils. The State earthquake protection law (California Health and Safety Code 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. Specific minimum seismic safety requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design.

EROSION AND SEDIMENTATION REGULATIONS

State regulations pertaining to the management of erosion and sedimentation as they relate to water quality are described in Section 4.4. Such regulations include, but are not limited to, the Porter-Cologne Water Quality Act and the NPDES program for management of construction and municipal stormwater runoff. The NPDES program is implemented at the State and local level through issuance of permits and preparation of site-specific plans, and

[12] Generally adopted on a state-by-state or district-by-district basis.

Sections 1600 to 1607 of the California Department of Fish and Game Code, which regulate activities that would alter stream characteristics, including erosion. While the primary purpose of these regulations is the protection of surface water resources from the effects of land development, measures included within such standards also help to minimize the potential for slope instability due to soil loss. The Porter-Cologne Act provides a comprehensive program for the protection of water quality and beneficial uses of water through the regulation of waste discharges. Waste discharges may include such substances as wastewater effluent and discharges of fill and dredged material.

STANISLAUS COUNTY GENERAL PLAN

The Stanislaus County General Plan (2008) encourages mining in areas designated by the State Division of Mines and Geology as having significant mineral deposits and does not permit uses that threaten the potential extraction of the resources (Chapter 3, Policy 26).

CITY OF CERES GENERAL PLAN

Goal 7.A of the *City of Ceres General Plan* is set forth to minimize the loss of life, injury, and property damage due to seismic and geologic hazards. The city requires that new structures, and alterations to existing structures, comply with the current edition of the *Uniform Building Code* (Policy 7.A.3). Further, the city avoids the siting of structures across soil materials of different expansive qualities (Policy 7.A.6).

4.7.3 4.5.3 IMPACTS AND MITIGATION MEASURES

METHODS OF ANALYSIS

Technical reports and information published by the United States Geological Survey, the United States Department of Agriculture, and other relevant environmental documents were used to describe existing conditions. A site reconnaissance of the Project area was conducted to visually confirm landforms, slopes, and general geologic conditions. No subsurface geotechnical investigations or detailed analysis have been performed in conjunction with the EIR process.

The analysis of geologic and soil impacts is qualitative and evaluates the extent to which development activities could affect or be affected by known geologic and soil conditions.

The significance of impacts is based on the Thresholds of Significance presented in the following section.

THRESHOLDS OF SIGNIFICANCE

Impacts would be considered significant if the Project would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of an earthquake fault, seismic ground shaking, seismic-related ground failure, landslide, expansive soils, or other geologic or soil-related hazard;
- Result in substantial soil erosion or the loss of substantial topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially results in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- Be located on an expansive soil, as defined in the UBC, creating substantial risk to property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater; or,
- Result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state.

IMPACT 4.7-1

Exposure to geologic hazard. *The Project is in an area of low hazard potential and would not greatly alter these existing site characteristics. Therefore, this impact would be considered **less than significant**.*

The Project would be located in a relatively flat area, with low potential for seismic ground shaking and little chance of liquefaction. This Project involves the construction and installation of utility lines, power poles, and a substation. Most structures, including electrical poles and substation structures, are potentially subject to damage from earthquakes. These hazards are unavoidable, but would be rendered less than significant, as all structures would be constructed in accordance with applicable CBC, General Order (GO 95) and IEEE standards and regulations.

MITIGATION MEASURE 4.7-1

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.7-2

Erosion resulting from grading. *Excavation and grading of soil could result in localized erosion during Project construction. This would be considered a **less-than-significant** impact.*

Placement of concrete pads and footings to structurally support the Project would require that a relatively small degree of excavation be conducted during construction. These activities could lead to soil erosion or the loss of topsoil. The potential for erosion is directly related to the amount of ground disturbance, soil type, vegetation removal, steepness of slope, and amount of surface water runoff.

The Project would require earthmoving at the substation site and each pole location. At each embedded pole location, a 30-inch diameter hole would be augured up to 10 feet deep. Where steel angle structures are planned, a hole of approximately 5 feet in diameter and 30 feet in depth would be excavated.

The entire substation area would be graded prior to construction. Excess soil that may result from this process would be distributed over the adjacent agricultural fields with land owner permission and in conjunction with the landowner’s preparation of the field for crops. At embedded pole locations, the soil removed (typically 3-4 yards) would be spread over the area adjacent to the pole.

Soil excavated for construction of steel pole foundations would be given to the landowner or other interested parties (such as TID for nearby canal repairs). Soil would be trucked to the nearest location, typically less than one mile away. Assuming 50 angle poles, each resulting in approximately 25 yards of surplus soil, roughly 1,250 cubic yards of surplus soil would be produced by excavation for the angle poles.

Erosion is most likely to occur via wind action, as the soil types present along the route generally do not have a high potential for water driven erosion. Construction would occur on relatively level ground, and impacts from erosion as a result of unstable soil conditions are not expected to be significant. The Project would not result in a substantial increase in impervious surfaces over the length of the transmission line and substation. Impervious surfaces would be limited to the footings associated with the steel angle poles (approximately 50, each at five feet in diameter) and some locations at the substation. The proposed substation would be covered in crushed rock to reduce impervious surface areas to the greatest degree possible. In addition, a French drain will also be installed at the site bounds. Therefore, there would not be any increase in surface water runoff, or subsequent erosion, as a result of the Project.

MITIGATION MEASURE 4.7-2

To ensure grading activities do not directly or indirectly discharge sediments into surface waters as a result of construction activities, TID shall develop a SWPPP. The SWPPP shall identify BMPs that would be used to protect stormwater runoff and minimize erosion during construction. TID shall prepare plans to control erosion and sediment, preliminary and final grading plans, and plans to control urban runoff from the Project site during construction. The SWPPP's BMPs shall include, but shall not be limited to, the following components:

- Sediment control measures, including silt fencing, fiber rolls, water dust suppression, and street sweeping and vacuuming, shall be put into place to prevent off-site discharge of sediment generated by erosion of disturbed areas during construction.
- Concrete waste management shall include designing a wash area for concrete mixers intended to eliminate the discharge of concrete or rinse slurries into stormwater or watercourses.
- The adequacy of BMP execution shall be evaluated by the contractor during site inspections, which shall be conducted prior to a forecasted storm, after a rain event that causes runoff from the construction site, at 24-hour periods during extended rain events, weekly during the rainy season, and every two weeks during the non-rainy season. These reports shall be documented on a standard inspection checklist developed by the contractor to be kept on file at the Project site.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.7-3

Unstable geologic conditions. *Based on the available geologic information, the Project would not result in impacts related to unstable geologic units or soils. Therefore this is considered a **less-than-significant** impact.*

Review of data available from the Natural Resource Conservation Service indicates that the soils present in the area potentially affected by the Project are characterized by very shallow slopes and generally high clay content. The area has a low potential of landslide, liquefaction, and lateral spreading. The Project would not alter the overall topography of the area, nor place a heavy load on unstable soils.

Mitigation Measure 4.7-3

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.7-4

Expansive soil. *Moderately expansive soils present in the Project area would not pose a significant risk to the proposed infrastructure. Therefore, potential impacts would be **less than significant**.*

Expansive soils in this area are found in the upper five feet of soil. Foundations, which are typically effected by expansive soils, would be necessary at steel angle pole locations. These concrete foundations are not likely to be impacted by the shallow expansive soils due to the depth of the footings (approximately 30 feet). Any potential expansion and contraction would not exert enough pressures on the structures to cause cracking. Additionally, the substation would be constructed on a crushed rock foundation that would not be adversely affected by moderately expansive soils.

MITIGATION MEASURE 4.7-4

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.7-5

> **Have soils incapable of adequately supporting the use of septic tanks.** *Implementation of the Project would require installation of a septic tank. Site soils are capable of supporting this proposed improvement. Therefore, a* ***no impact*** *would be anticipated.*

Improvements at the Grayson Substation would include the installation of a septic tank. The substation would be constructed on Hanford sandy loam with slopes of zero to three percent. This soil is well drained and has moderately rapid permeability (USDA 1999).

MITIGATION MEASURE 4.7-5

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No impact

IMPACT 4.7-6

> **Mineral resources.** *Implementation of the Project would not be expected to render important mineral resources inaccessible. Therefore,* ***no impact*** *to mineral resources would be anticipated with Project development.*

No known mineral resources are located on the Project site. Therefore, the Project would not be expected to render important mineral resources inaccessible. No impacts on mineral resources would be anticipated with Project implementation.

MITIGATION MEASURE 4.7-6

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No impact

4.8 CULTURAL RESOURCES

This Section describes known cultural resources located within the Project area, and identifies the potential for unknown cultural resources to occur. The impact analysis discusses the potential for the Project to affect cultural resources. Cultural resources include archaeological sites, features and isolated finds, built resources over 50 years of age, and paleontological resources.

The information is summarized from the Cultural Resources Inventory for the Project (Arrington and Harrington 2009, Appendix G), which includes a literature search by the Central California Information Center (CCIC) at California State University, Stanislaus; a Sacred Lands File search by the Native American Heritage Commission (NAHC) and related communication with local Native American groups and individuals; and pedestrian survey conducted in February and March 2009 of approximately 300 acres in the Project area; plus a search of the California Museum of Paleontology database.

4.8.1 EXISTING CONDITIONS

ENVIRONMENTAL SETTING

The Project area[13] is situated on nearly flat agricultural lands within an area of the central San Joaquin Valley that was occupied by various prehistoric cultures dating to at least 6,000 years ago. Due to episodes of alluvial deposition and the development of the Sacramento–San Joaquin Delta, cultural deposits from this early period are rare in the valley. The number of known sites increases within the past 2,000 years, particularly along the western and southern edges of the Delta in San Joaquin and Merced counties.

The Project is within the central territory historically occupied by the Northern Valley Yokuts, an indigenous Penutian-speaking central California group whose traditional lands extended north–south between the Mokelumne and upper San Joaquin Rivers (south of Madera) and east–west between the Diablo Range and the foothills of the Sierra Nevada. Ethnographic Northern Valley Yokuts established villages on low, natural rises along major watercourses. Like the majority of Native Californians, they relied on acorns as a staple food,

[13] The project area, or area of potential effect, is the area within which the direct and indirect impacts of project construction may have an effect on cultural resources. This includes the 10 mile, 100-foot wide corridor of the Project (including the two linear sections of 69 kV transmission line) and the 7.35-acre location for the proposed Grayson Substation.

collected in the fall and then stored before processing with bedrock or portable mortars and pestles. Northern Valley Yokuts also relied on fish, with salmon a dietary mainstay in the spring and fall. They employed a variety of tools, implements, and enclosures, including rafts made from a giant species of sedge known as tule, to fish, hunt land mammals, and capture waterfowl and other birds.

Early historic land use in the Project vicinity focused on agriculture and rail transport. Beginning in 1895, the San Francisco & San Joaquin Valley Railroad carried passengers and freight between Stockton and Bakersfield. Purchased by the Atchison Topeka & Santa Fe Railroad in 1898, which merged with the Burlington Northern Railroad in 1995, the Burlington Northern Santa Fe (BNSF) continues to carry freight over the original line. With the introduction of the Southern Pacific Railroad (now Union Pacific) into the region in 1871, a stopping point became the town of Turlock, and the town of Ceres was established about nine miles northwest. Wheat was the major crop transported, with hundreds of thousands of acres planted between Stockton and Merced.

The drought of 1871 prompted construction of irrigation systems in the area. Established in 1887, the TID is the oldest example of a publicly owned irrigation district in California. Providing irrigation water to approximately 150,000 acres of farmland, the system of canals and laterals was completed in 1900. Accompanying the economic growth of the area, the Tidewater Southern Railway, an electric interurban railway, extended its mainline between Stockton and Modesto to Turlock in 1916. To the north the railway connected to the Central California Traction Company Railroad, which served the Central Valley from Stockton to Sacramento. By the late 1940s conversion to diesel power was complete. Today, the original Tidewater Southern line between Stockton and Turlock is part of the Union Pacific Railroad (UPRR).

KNOWN CULTURAL RESOURCES WITHIN THE PROJECT AREA

Based on the cultural resources inventory (Arrington and Harrington 2009; Appendix G), four known cultural resources are located within the Project area. Table 4.8-1 lists these resources and their eligibility for the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR). None of the known cultural resources are located within the proposed substation.

Table 4.8-1 Known Cultural Resources within the Project Area

Resource Name	Other Identifier	Eligibility Recommendations for NRHP/CRHR	Proposed Route		
			115-kV	69-kV: Section 1	69-kV: Section 2
Atchison Topeka & Santa Fe Railroad	P-39-000112*	Not eligible	C		
Southern Pacific Railroad	P-50-000001	Not eligible	C		
Tidewater Southern Railway	P-50-000083	Not eligible	C	C	C
TID Water Conveyance System **					
TID Main Ceres Canal		Not eligible	C		
TID Lateral No. 2		Not eligible	C, P		C, P
TID Lateral No. 2 1/2	P-50-000071	Not eligible	C, P		

C=route crosses cultural resource; P=route parallels cultural resource.
* This resource has been recorded in San Joaquin County.
** Of this historic water conveyance system, only TID Lateral No. 2 ½ has been previously recorded.

The Atchison Topeka & Santa Fe Railroad (P-39-000112) intersects with the 115-kV portion of the Project in the eastern extent of the Project area. Constructed between 1895 and 1898, the former San Francisco & San Joaquin Valley Railroad was purchased by the Atchison Topeka & Santa Fe Railroad in 1898, which merged with the Burlington Northern Railroad in 1995. While the San Francisco & San Joaquin Railroad/Atchison Topeka & Santa Fe appears eligible for listing in the NRHP and CRHR under Criterion B/2 for its association with a leading California merchant, Claus Spreckels, and under Criterion A/1 for being a major railroad transportation line constructed by populist support in opposition to a rail monopoly held by the Southern Pacific Railroad, the 3.4-mile segment within the Project area has been continually upgraded with the replacement of rails, ties, ballast bed, crossing guards, and other related equipment and lacks historical integrity. Thus, the segment within the Project area does not qualify as a historic property or historical resource, and is recommended not eligible for inclusion on the NRHP or CRHR.

The Southern Pacific Railroad (P-50-000001) intersects with the Project in the central portion of the Project. Construction of this rail line through the Central Valley into southern California began in 1869 with the section of track from Lathrop to Bakersfield. Acquired by UPRR in 1996, the Southern Pacific Railroad is associated with the "Big Four" (Leland Stanford, Collis Huntington, Charles Crocker, and Mark Hopkins) who built the first transcontinental railroad, the Central Pacific Railroad in 1861. While the Southern Pacific/Union Pacific Railroad line appears eligible for listing in the NRHP and CRHR under Criterion A/1 for its significant role in the transportation history of the US, and under Criterion B/2 for being associated with the men who built the first transcontinental railroad, the 0.21-mile segment within the Project area has been continually upgraded with the replacement of rails, ties, ballast bed, crossing guards, and other related equipment and lacks historical integrity. Thus, the segment within the Project area does not qualify as a historic property or historical resource, and is recommended not eligible for inclusion on the NRHP or CRHR.

The Tidewater Southern Railway (P-50-000083) intersects once with the 115-kV portion of the Project and the Section One 69-kV line, and twice with the Section Two of the 69-kV line. Constructed between 1910 and 1918, this electric interurban railway was converted to diesel in the late 1940s. Majority ownership of the railway changed several times, and it was merged into the UPRR in 1987. While the Tidewater Southern Railway line appears eligible for listing in the NRHP and CRHR under Criterion A/1 for being an important interurban railroad transportation line, the 405-foot segment within the Project area has been continually upgraded with the replacement of rails, ties, ballast bed, crossing guards, and other related equipment and lacks historical integrity. Thus, the short segment within the Project area does not qualify as a historic property or historical resource, and is recommended not eligible for inclusion on the NRHP or CRHR.

The Project crosses a historic-era water conveyance system in multiple areas (Table 4.8-1). Construction of TID's original earthen canals and laterals was completed between 1898 and 1900. Between 1910 and 1917 the canals and laterals were lined with concrete or gunite; water diversion features (e.g., regulator gates, concrete culverts) and bridges were built between 1917 and 1920. The proposed 115-kV route and 69-kV lines cross the Ceres Main Canal, TID Lateral No. 2, and TID Lateral No. 2 ½. Although the TID water conveyance system appears eligible for listing on the NRHP and CRHR under Criterion A/1 for its association with the development of the first publicly owned irrigation district in California, the historic fabric of the individual canal segments crossed by the Project have been altered by continued upkeep and maintenance and lack integrity. Thus, the segments within the Project do not qualify as historic properties or historical resources, and are recommended not eligible for inclusion on the NRHP or CRHR.

No sites of traditional Native American religious or cultural significance, including sacred sites or contemporary use areas, have been identified in the Project area through formal processes, including a Sacred Lands File search by the NAHC and related communication with local Native American groups and individuals.

Based on the cultural resources inventory (Arrington and Harrington 2009) summarized above, no significant cultural resources, including historic properties or historical resources, are therefore known to be found within the Project area. Nevertheless, considering the results of the literature search, the pattern of land use during prehistoric and ethnographic periods, as well as local historic land use, the Project area is considered highly sensitive for the discovery of prehistoric, ethnohistoric, or historic cultural material or subsurface deposits.

One hundred seventy-five fossil localities occur within Stanislaus County, ranging in age from the Late Cretaceous (99–65 million years ago) to the Pleistocene (1.8–0.1 million years ago) (UCMP 2009). The localities, many of which are in the Sierra Nevada foothills, contain mostly invertebrate fossils. Per the University of California Museum of Paleontology (2009) database, no significant paleontological fossils have been produced in the Project area or vicinity, which is underlain by recent alluvial fan deposits, recent river – and major stream – channel deposits, and recent basin deposits.

4.8.2 REGULATORY SETTING

Cultural resources that may be present in the Project area could include some or all of the following types of resources, which would be subject to applicable regulations:

- Historic properties/historical resources;
- Native American cultural items;
- Native American sacred sites;
- Archaeological sites; or

- Other cultural resources.

National Historic Preservation Act

Archaeological and architectural resources (buildings and structures) are protected through the National Historic Preservation Act (NHPA) of 1966 (16 United States Code [USC] 470f) and its implementing regulation, Protection of Historic Properties (36 Code of Federal Regulations [CFR] Part 800), and the Archaeological and Historic Preservation Act of 1974 and of 1979. Section 106 of the NHPA requires federal agencies, prior to implementing an undertaking (e.g., issuing a federal permit), to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the NRHP. Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a Native American tribe to be determined eligible for inclusion in the NRHP. Under the NHPA, a finding is significant if it meets the NRHP criteria listed in Title 36 CFR 60.4.

The NHPA authorizes the maintenance of the NRHP, which facilitates the preservation of historic properties possessing integrity and meeting at least one of the following four criteria delineated at 36 CFR 60.4. The quality of *significance* in American history, architecture, archaeology, engineering and culture is present in districts, sites, buildings, structures, and objects that possess *integrity* of location, design, setting, materials, workmanship, feeling and association and:

a) That are associated with events that have made a significant contribution to the broad patterns of our history;

b) That are associated with the lives of persons significant in our past;

c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d) That have yielded, or may be likely to yield, information important in prehistory or history.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The CEQA Guidelines (14 CCR Section 15064.5) establish criteria for determining the significance of impacts to archeological and historical resources. A Project that may cause a "substantial adverse change in the significance of an historical resource" is considered to have a significant environmental effect. The term "historical resource" includes, but is not limited to:

- A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (CRHR; Public Resource Code [PRC] §5024.1, 14 CCR §4852)
- A resource included in a local register of historical resources (as defined by PRC §5020.1[k]), or identified in a historical resource survey meeting the requirements of PRC § 5024.1(g) (presumption of historical significance).

Generally, a CRHR listed resource meets at least one of the following criteria:

1) It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2) It is associated with the lives of persons important in our past;
3) It embodies the distinctive characteristics of a type, period, region or method of installation, or represents the work of an important creative individual, or possesses high artistic values; or
4) It has yielded, or may be likely to yield, information important in prehistory or history.

A "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 a historical resource would be materially impaired. A lead agency must identify potentially feasible, enforceable mitigation measures to mitigate these impacts. For archeological sites, preservation in place is the preferred mitigation approach (14 CCR 15126.4[b][3]).

STANISLAUS COUNTY GENERAL PLAN

Goal Eight of the *Stanislaus County General Plan* Conservation/Open Space Element addresses preservation of areas of national, state, regional, and local historical importance (Stanislaus County 1994). Policy 24 states that landmarks of historical consequence include not only old schoolhouses and covered bridges, but also Native American burial grounds, cemeteries, pottery, rock carvings, and rock paintings. Relevant policies 24 and 25 include working with the County Historical Society, other organizations, and interested individuals to study, identify, and inventory cultural resources; cooperating with the SHPO to identify and nominate historical resources for listing on national, state, or local registers; utilizing the CEQA process to protect cultural resources; and promoting historic preservation.

CITY OF CERES GENERAL PLAN

Chapter 5 of the *City of Ceres General Plan* contains goals, policies, and implementation programs that establish the framework for the protection and enhancement of cultural resources for Ceres residents and visitors (Ceres 1997). The policies under Goal 5.B have been designed to preserve and maintain sites, structures, and landscapes that serve as significant, visible reminders of the city's social, architectural, and agricultural history, and include encouraging preservation and maintenance of historic buildings and structures. To protect Ceres' Native American heritage , as set forth in Goal 5.C, the California Archaeological Inventory at California State University, Stanislaus, shall be consulted prior to approving public or private projects, conducting site evaluations as may be indicated, and mitigating any adverse impacts in accordance with recommendations of a qualified archaeologist.

4.8.3 IMPACTS AND MITIGATION MEASURES

METHODS OF ANALYSIS

The information presented in Section 4.8.1 of this document is based on the following: a literature search by the CCIC at California State University, Stanislaus; a Sacred Lands File search by the NAHC and related communication with local Native American groups and individuals; pedestrian survey conducted in February and March 2009 of approximately 300 acres in the Project area (see Appendix G); and a search of the UCMP database.

This impact analysis is based on the data provided on existing conditions and relevant regulations. The Project was analyzed in terms of its potential to affect known cultural resources (Atchison Topeka & Santa Fe Railroad [P-39-000112]; Southern Pacific Railroad [P-50-000001]; Tidewater Southern Railway [P-50-000083]; Turlock Irrigation District Water Conveyance System [including Lateral No. 2 1/2 P-50-000071]) and undocumented and potentially significant cultural resources, including buried human remains, within the Project area.

THRESHOLDS OF SIGNIFICANCE

For purposes of this analysis, the Project would have a significant adverse impact if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA, Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA, Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site; or
- Disturb any human remains, including those interred outside of formal cemeteries.

IMPACT ANALYSIS

IMPACT 4.8-1

Cause a substantial adverse change in the significance of a historical resource. *There are no documented historical resources within the Project area. Therefore this impact would be **less than significant.***

The segments of four cultural resources identified within the Project area — the Atchison Topeka & Santa Fe Railroad (P-39-000112), Southern Pacific Railroad (P-50-000001), Tidewater Southern Railway (P-50-000083), and Turlock Irrigation District Water Conveyance System (including P-50-000071) — have been recommended not eligible for listing on the NRHP and CRHR, and thus do not qualify as historic properties or historical resources. Further, the proposed transmission line alignment crossings would have no impact on the material integrity of the segments of these resources within the Project area.

During Project construction in the vicinity of the Atchison Topeka & Santa Fe Railroad, Southern Pacific Railroad, or Tidewater Southern Railway, a minimum 10-foot-wide buffer zone on all sides of the railroad grades shall be maintained. Construction activities in the vicinity of the TID Water Conveyance System shall include straw waddles, silt fences, and other measures (as identified in Section 4.4) to prevent debris from entering the canal system. Although construction would occur adjacent to the lining of the canal in some locations, these measures would ensure preservation of the integrity of the canal system consistent with the continuing maintenance and upgrades that currently occur. The crossing or construction of transmission lines parallel to the segments of these four resources within the Project area would have no effect on the integrity of, or the NRHP or CRHR eligibility status of, these resources which extend for miles outside the Project area. Any effect of the Project to these resources would therefore be less than significant.

MITIGATION MEASURE 4.8-1

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.8-2

Cause an adverse change in the significance of an archaeological resource. *Although no previously unrecorded, non-linear prehistoric or historic-era archaeological resources were identified during the survey, ground disturbance could affect undocumented cultural resources. Therefore, the impact would be* ***significant.***

Although the area has been disturbed by agricultural practices and construction of development infrastructure (e.g., roadways, waterways, railroads), cultural materials may exist beneath the dense crops or at greater depth in this area. The potential for the existence of buried archaeological materials within the disturbed Project area may be greater along the drainages and within the agricultural lands. Prehistoric materials might include flaked stone tools, tool-making debris, stone milling tools, fire-affected rock, or soil darkened by cultural activities (midden). Historic materials might include building remains, metal, glass, or ceramic artifacts or debris. Encountering these materials during Project construction would result in a potentially significant impact.

MITIGATION MEASURE 4.8-2

Inadvertent discovery measures for cultural resources shall be implemented during all construction activities within the Project area. Measures shall include: (1) a worker education course for all construction personnel; and (2) procedures for discovery of cultural and paleontological resources, including human remains, during construction or ground-disturbing activities.

A worker education course for all construction personnel shall be conducted immediately prior to initiation of ground-disturbing activities for each Project phase. The course would explain the importance of, and legal basis for, the protection of significant archaeological resources. Each worker would also learn the proper procedures to follow in the event cultural resources or human remains/burials are uncovered during construction activities, including work curtailment or redirection and to immediately contact their supervisor. The worker education session would include visuals of artifacts (prehistoric and historic) that might be found in the Project vicinity, and may include handouts.

If cultural resources, such as structure features, unusual amounts of bone or shell, artifacts, or architectural remains are encountered during construction grading, trenching, augering, and/or excavation for the transmission lines and proposed substation, work within 100 feet of the find shall be halted and a qualified archaeologist shall be notified immediately to evaluate the resource(s) encountered and recommend the development of mitigation measures for potentially significant resources consistent with PRC Section 21083.2(i).

When Native American archaeological, ethnographic, or spiritual resources are discovered, all identification and treatment shall be conducted by qualified archaeologists who meet the federal standards as stated in the CFR (36 CFR 61), and Native American representatives who are approved by the local Native American community as keepers of their cultural traditions. In the event that no such Native American is available, persons who represent tribal governments and/or organizations in the locale in which resources could be affected shall be consulted.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.8-3

Directly or indirectly destroy a unique paleontological resource or site. *Although no paleontological resources have been identified in the Project area, ground disturbance could affect undocumented paleontological resources. Therefore the impact would be **significant**.*

Although unlikely, considering the Project area is underlain by alluvial, riverine, and basin deposits, the discovery of paleontological resources or sites is a possibility. Paleontological resources might include the fossilized remains of extinct plants and animals, including bones, teeth, petrified wood, and plant casts. Encountering these materials during Project construction would result in a potentially significant impact.

MITIGATION MEASURE 4.8-3

A worker education course for all construction personnel would be conducted immediately prior to initiation of ground-disturbing activities for each Project phase, as detailed in Mitigation Measure 4.8-2. If paleontological resources are discovered during construction grading, trenching, augering, and/or excavation for the transmission lines and substation, TID would halt all activities within 100 feet of the find until a qualified professional paleontologist could perform an evaluation. The paleontologist will examine the findings, assess their significance, and recommend appropriate procedures to either further investigate or mitigate adverse impacts on the resources encountered.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.8-4

Disturb human remains, including those interred outside of formal cemeteries. *Although no previously unrecorded human remains were identified during the survey, ground disturbance could affect undocumented human remains, including those interred outside of formal cemeteries. Therefore the impact would be* ***significant.***

Although unlikely, the discovery of human remains is always a possibility. State of California Health and Safety Code Section 7050.5 covers these findings. This code section states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. Encountering remains during Project construction would result in a potentially significant impact.

MITIGATION MEASURE 4.8-4

Under Mitigation Measure 4.8-2, a worker education course would be instituted for all construction personnel, during which each worker would learn the proper procedures to follow in the event cultural resources or human remains/burials are uncovered during construction activities, including work curtailment or redirection and to immediately contact their supervisor. If human remains are encountered during Project construction grading, trenching, augering, and/or excavation for the transmission lines and proposed substation, the County Coroner shall be notified of the find immediately. If the human remains are determined to be Native American, the Coroner will notify the NAHC, which would determine and notify a Most Likely Descendent (MLD). The MLD would complete the inspection of the site within 24 hours of notification, and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

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4.9 HAZARDS AND HAZARDOUS MATERIALS

This Section describes existing contaminated sites within one mile of the Project area and the potential hazards associated with the construction and operation of the proposed substation and transmission lines. Potential hazards include the release of hazardous materials during construction and operation, interference with navigable airspace near airports, and the risk of wildfires. These hazards are regulated by federal, state, and local regulations. The potential for effects from exposure to electromagnetic fields (EMF) is also discussed.

4.9.1 EXISTING CONDITIONS

HAZARDOUS MATERIALS

A hazardous material is a substance with physical or chemical properties that could pose a current or future risk to human health or ecological receptors when improperly handled, disposed of, or otherwise released into the environment. Hazardous materials are grouped into the following four categories based on their properties: toxic (causes adverse effects to human or wildlife health); ignitable (has the ability to burn); corrosive (causes severe skin burns or material degradation); and reactive (causes explosions or can generate toxic gases). A hazardous waste is any hazardous material that is discarded, abandoned, or will be recycled or disposed in accordance with regulatory guidance. With improper handling or by unforeseen accidents, hazardous materials and wastes may be released into the environment, resulting in health hazards to workers, the public, or the environment. The releases may occur directly to soil (which may then percolate to groundwater) or into the air in the form of vapors, fumes or fugitive dust.

EXISTING CONTAMINATION SITES

The proposed substation and transmission line routes primarily cover land used for agricultural and rural and suburban residential housing (Refer to Section 4.1 Land Use and Agriculture). Existing and past land use activities are used as potential indicators of hazardous material storage and use. Hazardous materials sources include leaking underground storage tanks (LUSTs) and accidental releases and spills of hazardous materials. Contaminated surface runoff may occur from agricultural fields that have been treated with pesticides, herbicides, and fumigants.

A review of standard environmental databases maintained by federal, state, and tribal offices was completed through Environmental Data Resources, Inc. (EDR) of Milford, Connecticut on March 19, 2009. The databases were searched for properties with reported environmental conditions located within one mile of the Project. The database report is presented in Appendix H. Many of the sites reviewed in the EDR database search are not hazardous materials release sites (known contaminated sites), but rather facilities that use, store, or dispose of hazardous materials offsite. Sites listed in the environmental databases were reviewed based on distance from the alignments, type of site, and regulatory status of the site. A selected summary of all identified sites follows.

Database	**Total Plotted***
Federal CERCLIS No Further Remedial Action Planned Sites	2
Federal Emergency Response Notification System Sites	4
California Hazardous Waste and Substances Sites	9
RWQCB Leaking Underground Storage Tanks	8
California Facility Inventory Database for Underground Storage Tanks (USTs)	16
California Spills, Leaks, Investigations, and Cleanup (SLIC) Sites	12
California Hazardous Substance Storage Container Database	145
California Hazardous Waste Information System	43

* The same site may appear on more than one database

There are two main types of hazardous sites that are of concern: large releases, leaks, or spills that could migrate from up to one mile away, and smaller releases, leaks, or spills that are closer to the Project components, generally within 30 feet of the proposed transmission line alignments (i.e. the largest anticipated right-of-way). Smaller sources of contamination beyond one-eighth of a mile from the transmission line rights-of-way and the Grayson Substation site are unlikely to migrate to the Project area; however, there is the potential for contamination to occur at nearly any location along the route as a result of unknown or unreported spills or leaks, or from illegal dumping.

The search found no sites within one mile of the Project facilities on databases that document large sources of contamination, such as the National Priority List (NPL), or sites listed as corrective action sites by the USEPA. In addition, there were no sites within one mile of the Project facilities that were on the equivalent state lists (e.g., Calsites Database and Voluntary Cleanup Program Properties). The search found two smaller sources of potential contamination with potential recorded spills or LUST sites within 1/8 mile of the Project (Table 4.9-1).

Table 4.9-1 Summary of Environmentally Important Sites Within 1/8 Mile of the Project

Facility Name	Address	Site Type	Record Date	Status
Mid Valley Nut Company	2605 Geer Road	Cortese	7/1/1985	Unknown: One fuel UST located onsite
Cape Hart & Sons Trucking	719 Grayson Road	CA SLIC	5/20/1994	Open and Inactive Clean-up Program Site: Potential soil contamination with petroleum hydrocarbons

Source: EDR, 2009

Notes:

Cortese = SWRCB (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites)

CA SLIC = California Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

No potentially contaminated sites were identified through the database search on the Grayson Substation site. However, one hazardous site was identified immediately adjacent to the proposed location for the substation. This listed site, located at 348 East Grayson Road (approximately 75 feet south of the Project) is found on the California Facility Inventory Database UST, Historical UST, and SWEEPS UST databases. The site contains one UST for diesel fuel. No violations are indicated.

Facilities that store, use, or dispose of hazardous material and have no known spill history would have little to no potential for environmental contamination that could affect the Project. UST sites with no known leaks have low potential to have resulted in environmental contamination in the Project area. Thus, there is likely little threat of contamination from construction at the Grayson Substation site.

POTENTIAL CONTAMINANTS IN NON-LISTED PROPERTIES

Although no specific information is available to address the potential threat from undiscovered hazardous materials, it should be noted that the 115-kV transmission line, two

69-kV transmission line sections, and the Grayson Substation site are located within, or adjacent to, active irrigated or non-irrigated agricultural fields. As such, there is a potential for surface soils in these areas to contain residual contaminants associated with pesticides.

ELECTRIC AND MAGNETIC FIELDS

Electric fields are produced when an object is electrically energized with a voltage greater than ground potential. A magnetic field is produced when an electrical current is passed through the object. Operating transmission lines, like energized components of electrical motors, home wiring, lighting, and other electrical appliances, produce electric and magnetic fields, commonly referred to as EMF. The EMF produced by the alternating current electrical power system in the United States has a frequency of 60 Hertz (Hz), meaning that the intensity and orientation of the field changes 60 times per second.

ELECTRIC FIELDS OVERVIEW

An electric potential or voltage (electrical pressure) on an object produces an electric field. Any object with an electric charge on it has a voltage (potential) at its surface, caused by the accumulation of electrons. The charge on one object as compared with another object or surface is known as the potential difference between objects or between an object and a surface. The voltage effect is not limited to the surface of the object but is distributed through the space surrounding the object in diminishing intensity in accordance with the geometry of the objects and surfaces. Such geometric distributions are known as voltage gradients or change in voltage over distance. Electric fields described by these gradients exert a force on other electric charges at a distance. The change in voltage over distance at any point in the gradient is known as the electric field. The units describing an electric field are volts per meter (V/m) or kilovolts per meter (kV/m). This unit is a measure of the rate of change in electrical potential or voltage at a specific geometric location. The electric field becomes stronger near a charged object and decreases with distance away from the object.

Electric power transmission lines create 60 Hz electric fields. These fields are formed from the voltage of the transmission line phase conductors with respect to the ground. Electric field strengths from a transmission line decrease with distance away from the outermost conductor, typically at a rate of approximately one divided by the distance squared. As an example, in an unperturbed field, if the electric field strength is 10-kV/m at a distance of one meter away, it would be approximately 2.5-kV/m at two meters away and 0.625-kV/m at four meters away. In contrast, the electric field strength from a single conductor typically decreases at a rate of approximately one divided by the distance. For example, an electric field strength of 10-kV/m at one meter away would decrease to approximately 5-kV/m at two meters away, and 2.5-kV/m at four meters away. Electric field strengths for a transmission line remain nearly constant over time because the voltage of the line is kept within bounds of about ±5 percent of its rated voltage. Transmission line electric fields are affected by the presence of grounded and conductive objects. Trees and buildings, for example, can significantly reduce ground level electric fields by shielding the area nearby (Deno 1987).

Electric power substations also create electric fields due to voltage on substation equipment and components. The equipment, or components, of a substation act as point sources of an electric field, similar to appliances in a home. As the distance from these point sources becomes greater than the physical size of the equipment acting as a source, the field is greatly reduced; this is also true for substation components, such as buswork. The electric fields of station equipment (transformers, circuit breakers, etc.) decrease external to a substation at a rate of approximately one divided by the distance cubed, unless an overhead transmission line is nearby. For example, a field of 10-kV/m at one meter away would be approximately 1.25-kV/m at two meters away, and 0.156-kV/m at four meters away. This contrasts with the linear or line-source characteristics of transmission lines that decrease at approximately one divided by the distance squared. Substation electric fields outside the fenced equipment area are typically very low because of shielding by metallic substation components themselves, as well as by the metal fencing surrounding the substation (Deno 1987).

MAGNETIC FIELDS OVERVIEW

Electric current flowing in a conductor (electric equipment, household appliance, power circuits, etc.) creates a magnetic field. The unit of measure for reporting magnetic field magnitudes in the US is the milligauss (mG). Power frequency magnetic fields oscillate at a rate of 60 cycles per second, corresponding to the 60 Hz operating frequency of the power systems in the US.

In transmission lines, such as those existing in the Project area and the proposed 115-kV line, 60 Hz magnetic fields are generated by the current flowing on the phase conductors. Similar to an electric field, magnetic field strengths decrease with distance away from the line in accordance with the geometry of the line. Unlike electric fields that vary little over time, magnetic fields are not constant over time, and vary continuously as transmission line current changes in response to increasing and decreasing electrical load.

Electric power substations also create magnetic fields due to current flow on station components. Because a substation is a collection of components that can be a magnetic field source, a substation complex is often treated as a single point source for external field measurements taken at a distance. External magnetic fields associated with the substation (e.g., the collection of equipment or components) can be considered separately from the magnetic fields associated with the transmission lines that serve the substation. The manner in which substation component magnetic fields attenuate with distance is similar to that of appliances, where the field strengths diminish rapidly as the distance from the source grows larger than the dimensions of the source itself (for example, a transformer). Therefore, at distances on the order of 50 feet or more from the substation fence, the external magnetic field would have decreased to a much lower level than the level inside the substation. In contrast to electric fields, the substation magnetic fields are not affected significantly (shielded) by most common objects.

ELECTROMAGNETIC FIELD-RELATED HUMAN HEALTH CONCERNS

Over the past three decades, there has been concern over the potential for exposure to EMF to adversely affect human health. Concerns include a variety of diseases and other health effects. Studies regarding possible health effects of EMF on human health were originally focused on electric fields; however, much of the more recent research has focused on magnetic fields.

The vast majority of these studies have generally found no conclusive evidence of harmful effects from typical transmission line and substation electric and magnetic fields. However, some studies have reported a potential for harmful effects to humans. Complicating resolution of this issue is the lack of knowledge as to what characteristics of EMF exposure (if any) need to be considered to assess human exposure effects. The exposure most often considered is intensity or magnitude of the field.

There is a consensus among the medical and scientific communities that there is insufficient evidence to conclude that EMF causes adverse health effects. Neither the medical nor scientific communities have been able to provide any foundation upon which federal or state regulatory bodies can establish a standard or limit for exposure that is known to be either safe or harmful.

EXISTING ELECTROMAGNETIC FIELD LEVELS

Pre-construction EMF measurements were taken to document existing conditions and provide a bench measurement whereby comparisons can be made after the transmission line and substation are constructed and energized. Measurement locations and graphic representations of recorded and projected EMF levels are provided in Appendix I. The existing EMF levels were measured in the field on April 13, 2009. Eight representative locations were identified along the 115-kV transmission line route[14]:

1) East Grayson Road adjacent to the Grayson Substation site.
2) Faith Home Road south of TID Lateral No. 2.
3) Geer Road adjacent to the Hughson Substation.
4) Euclid Avenue south of East Whitmore Avenue.
5) Washington Road at TID Lateral No. 2.
6) Mountain View Road at TID Lateral No. 2.
7) East Grayson Road at Central Avenue.
8) Esmar Road at TID Lateral No. 2½.

The existing EMF measurements were recorded in a manner consistent with IEEE Standard 644-1994 ("Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines") and included the following components:

- Latitude and longitude (via Garmin hand held unit); and
- EMF readings (via ENDEX II Meter, using three field-detecting coils pointing in the X, Y, and Z directions. The meter has a sensitivity from 0.2 to 100 mG

[14] The Section One 69-kV transmission line route runs parallel to the 115-kV transmission line route; the Section One 69-kV line is on the north side of Grayson Road and the 115-kV is on the south side. The 115-kV EMF measurements represent a worse case for this segment of the Project because of the higher voltage of that transmission line. EMF measurements for the Section Two 69-kV transmission line route were not taken since there are no sensitive receptors along the route.

full scale at 60 Hz. Accuracy is +/-20 percent at mid-range). Measurements were taken at one meter above the ground, at a distance of 75 feet in each direction perpendicular to the Project route.

Measurement locations are shown on Figure 4.9.1. Graphic representations of recorded EMF levels are provided in Appendix I. The recorded background electric field measurements were negligible due to shielding effects of nearby fences, trees, and vegetation. The recorded background magnetic field levels were well within the anticipated range, at or below 0.2 mG in most cases, and are considered low.

AIRPORTS AND LANDING STRIPS

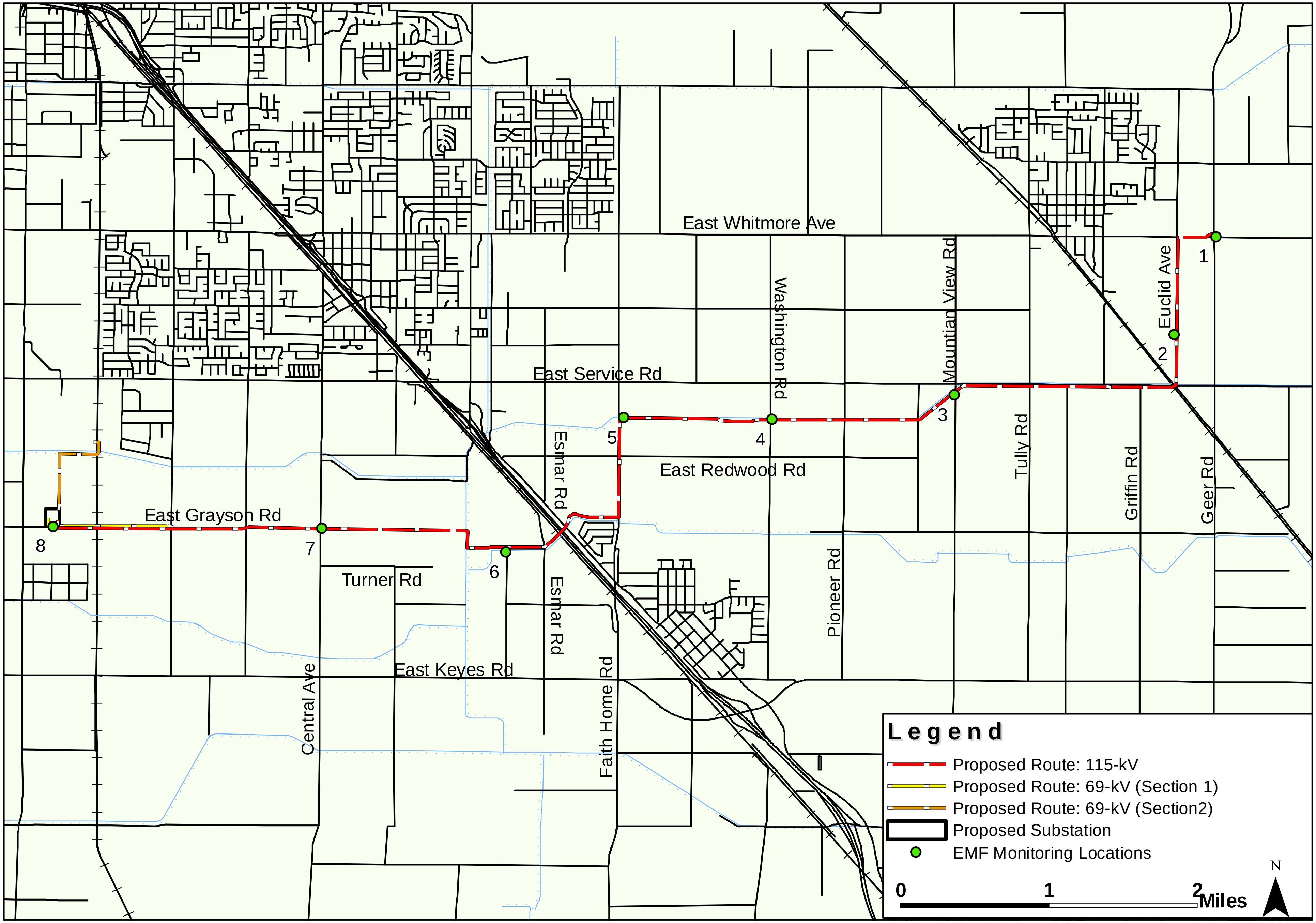
The Stanislaus County Airport Land Use Commission Plan establishes the airport land use planning boundary associated with the five airports located within Stanislaus County. All of the airports are at least four miles away from the Project. There is a small take-off and landing strip located approximately ½ mile west of the Project, as the route travels along Faith Home Road (See Figure 3.2). This strip is anticipated to support crop dusting aircraft. The Project is not located within any of the airport land use planning boundaries identified by the county (Stanislaus County 2004).

AREAS OF FLAMMABLE VEGETATION

Transmission lines have the potential to start fires if the lines come into contact with nearby tree branches or other dry vegetation. The majority of the transmission line corridors pass by irrigated land with little flammable materials. Most trees along the links are agricultural and generally pruned. However, natural (non-irrigated) grassland areas in the vicinity of the Project have the potential to catch fire where sparks from equipment use could inadvertently ignite dry vegetation.

4.9.2 REGULATORY SETTING

The following sections describe federal, state, and local regulations pertaining to hazards associated with hazardous materials, obstructions to air traffic, wildfires, and EMF.



Hughson-Grayson 115-kV Transmission Line and Substation Project

Figure 4.9.1

EMF Monitoring Locations

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

The USEPA is the federal agency that regulates the management of hazardous materials and wastes. This regulation is accomplished primarily through the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the Toxic Substances Control Act. These laws govern the use, generation, and handling of hazardous chemicals and the responses to known releases of these chemicals. In California, the USEPA has delegated most of its regulatory responsibilities to the state.

RESOURCE CONSERVATION AND RECOVERY ACT

RCRA gives the USEPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled the USEPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT

The National Priorities List database, also known as the Superfund List, is a subset of the Comprehensive Environmental Response, Compensation, and Liability Information System and identifies sites that are ranked as high priority for remedial action under the federal Superfund Act.

TOXIC SUBSTANCES CONTROL ACT

The Toxic Substances Control Act of 1976 provides the USEPA with the authority to require reporting, record-keeping and testing requirements, and to set restrictions relating to chemical substances and/or mixtures. The act also addresses the production, importation, use, and disposal of specific chemicals including polychlorinated biphenyls (PCBs), asbestos, radon and lead-based paint.

FEDERAL AVIATION REGULATION

The Federal Aviation Administration (FAA) is responsible for airport safety hazards. In support of this mission, the federal government grants authority to FAA to regulate flight obstructions pursuant to the Federal Aviation Regulation Part 77 criteria. These criteria limit the location and height of structures both on and off the airport property so that they do not pose a hazard for aircraft takeoff and departures.

California Environmental Protection Agency

In California, the state Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control has primary regulatory responsibility for management of hazardous materials, which it may, in certain cases, delegate to local agencies. Additional departments of the Cal-EPA with regulatory authority over hazards and hazardous materials include: the Office of Environmental Health Hazard Assessment, the Department of Pesticide Regulation, the SWRCB or the appropriate RWQCB, CARB or the appropriate regional air quality management district; and the California Integrated Waste Management Board.

The Cortese List is a planning document used by the State, local agencies, and developers to comply with CEQA requirements in providing information regarding the location of hazardous materials releases. Government Code Section 65962.5 requires the Cal EPA to develop, at least annually, an updated Cortese List. The sites on this list are the SWRCB (LUST sites), the Integrated Waste Management Board (Solid Waste Information System [SWF/LS] sites), and the Department of Toxic Substances Control (Cal-Sites).

California Public Resource Code

The State of California has regulations concerning vegetation management that are intended to ensure public safety and maintain electrical service reliability. These regulations include the California PRC Sections 4292 and 4293.

Section 4292 of the PRC dictates the minimum vegetation clearing requirements for any transmission or distribution power line located in mountainous, forested, brush-covered, or grass-covered lands within a 10-foot radius from the outside of the pole structure. PRC Section 4293 requires that any vegetation or tree branches located in mountainous, forested, brush-covered, or grass-covered lands be removed within the following distances to power lines:

- Four feet for lines operating between 2.4-kV and 72-kV;
- Six feet for lines operating between 72-kV and 110-kV; and
- 10 feet for lines operating above 110-kV.

PRC Section 4293 also requires felling of any tree that is dead, decayed, or weakened by decay or disease that could fall onto power lines. All clearing may be dictated by the respective fire agency: California Department of Forestry and Fire Prevention on state-owned lands or the local fire district on lands that are not state-owned.

California Code of Regulations

California also regulates the potential for electrical shock from power transmission facilities in CCR Title 8, Section 2700 et seq. "High Voltage Safety Orders" and the National Electrical Safety Code (NESC), Part 2 "Safety Rules for Overhead Lines." The intent of these regulations is to minimize the potential for direct or indirect contact with an energized power line or facility. The CCR Title 8, Section 2700 et seq. establishes essential requirements and minimum standards for safely installing, operating, and maintaining electrical installations and equipment. The NESC, Part 2 provision specifies the national safe operating clearances applicable in areas where the line might be accessible to the public.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates investor owned utilities such as PG&E, not publicly owned irrigation districts such as TID. Nevertheless, TID adheres to the regulations and General Orders issued by the CPUC relating to transmission line safety and design. The CPUC regulations and General Orders which will be implemented by the Project are listed below.

Vegetation Management

CPUC GO 95, Rule 35 Tree Trimming issued by the CPUC, uses the same distances to power lines as in PRC Section 4293 above, but also provides for an additional setback of 15 feet for conductors operating above 300-kV.

Electrical Shock Hazards and Electromagnetic Fields

The CPUC created the California Electric and Magnetic Fields Program in 1993 (Decision 93-11-103) to research and provide education and technical assistance regarding the possible health effects of exposure to electric and magnetic fields from powerlines and other uses of electricity. The EMF program is based in the California Department of Public Health Environmental Health Investigations Branch.[15]

The existing controversy about EMF health effects is derived from: (1) the fact that many scientists believe transmission line magnetic fields emit little energy and are therefore too weak to have any effect on cells; (2) the inconclusive nature of laboratory experiments; and (3) the fact that epidemiological studies of people exposed to high levels of EMF are inconclusive (CDHS 2000). The lack of understanding has kept scientists from recommending any health-based regulations for EMF. The California Department of Education requires minimum setback distances between new schools and the edge of transmission lines rights-of-way (100 feet for 50-to 133-kV lines). However, this is based on the rationale that the electric fields drop to background at the specified distance rather than on specific biological evidence. The CPUC has directed investor-owned utilities to carry out "no or low cost EMF avoidance measures" in construction of new and upgraded utility projects (CDHS 2000).

STANISLAUS COUNTY DEPARTMENT OF ENVIRONMENTAL RESOURCES

The Stanislaus County Department of Environmental Resources (SCDER) provides a hazardous materials program that performs the following functions:

- Implements risk management and prevention laws to minimize chemical releases in the community;
- Maintains a hazardous materials response team to assist police and fire agencies during transportation and industrial accidents involving chemical spills;
- Prepares and implements the County's Area Plan for emergency response to chemical spills in the community;
- Inspects facilities impacted by the State Aboveground Storage Tank Program;
- Oversees site investigation for soil and groundwater contamination and clean up;
- Inspects, permits, monitors, and implements the UST Program;
- Inspects hazardous waste generators;

[15] The California Department of Public Health was created in 2007 as part of a reorganization of the Department of Health Services, where the California Electric and Magnetic Fields Program was previously housed.

- Reviews procedures for storage, treatment and disposal of hazardous wastes;
- Oversees the investigation and remediation of properties contaminated by methamphetamine manufacture;
- Prepares and implements the County's Hazardous Waste Management Plan;
- Develops and implements the household hazardous waste collection program;
- Inspects medical facilities to ensure compliance with state medical waste management laws;
- Implements hazardous materials disclosure laws (i.e., business plan programs) to ensure access to information about chemicals handled by businesses;
- Promotes the recovery of obsolete electronic equipment (E-Waste) through a free electronics recycling program for consumers; and
- Administers the County's Hazardous Materials Fees.

STANISLAUS COUNTY HAZARDOUS MATERIAL AREA PLAN

Stanislaus County maintains a Hazardous Material Area Plan, in accordance with the California Health and Safety Code (Division 20, Chapter 6.95, §25500 et seq.) and CCR (Title 19, Article 3, §2270 et seq.), which is updated every five years. The Plan is designed to protect human health and the environment through hazardous materials emergency planning, response and agency coordination and community right-to-know programs. It outlines the roles and responsibilities of federal, State, and local agencies in responding to hazardous material releases and incidents.

Applicant and/or occupants handling hazardous materials or generating hazardous waste must notify the SCDER relative to the following:

- Permits for the underground storage of hazardous substances at new, or the modification of an existing, tank facilities;
- Requirements for registering as a handler of hazardous materials in the County;
- Submittal of hazardous materials Business Plans by handlers of materials in excess of 55 gallons or 500 pounds of a hazardous material of 200 cubic feet of compressed gas;

- Preparation of a Risk Management Prevention Program that must be implemented prior to operation of a facility handling acutely hazardous material. The list of acutely hazardous materials can be found at the Superfund Amendments and Reauthorization Act, Title III, Section 302.
- Quantities of hazardous waste generated, plans for reducing wastes generated, and proposed hazardous waste disposal practices; and
- Permits for the treatment of hazardous waste on-site are required from the hazardous materials division.

4.9.3 IMPACTS AND MITIGATION MEASURES

METHODS OF ANALYSIS

Potential hazards and hazardous materials impacts associated with the Project include potential spills of petroleum products during construction, exposure to existing contamination sites along the proposed routes, and risk of wildfires in areas with flammable vegetation.

The Project is not located within the Airport Land Use Planning Boundary for any of the five airports in Stanislaus County. Thus, this issue is not addressed further in the EIR.

THRESHOLDS OF SIGNIFICANCE

Impacts would be considered significant if the Project would:

- Result in the unsafe routine transport of hazardous materials or increase the foreseeable risk of a release of hazardous materials;
- Expose people to significant health hazards; or
- Substantially increase the risk of wildfires.

IMPACT ANALYSIS

IMPACT 4.12-1

Transport of Hazardous Materials and Releases of Hazardous Substances. *Construction and operation of the Project would have the potential to result in the routine transport of hazardous materials and increase the foreseeable risk of a release of hazardous substances. Therefore the impact would be* ***potentially significant****.*

Hazardous materials that could be potentially released during construction and operation of Project facilities include petroleum products (such as motor vehicle fuels, oil, grease, or other lubricants), solvents, soldering compounds, or adhesives. Construction along the transmission line route could also encounter and release previously existing contaminants on sites located within the construction corridor.

As previously mentioned, a number of chemical products are used for different purposes during construction. Refueling and maintenance of the construction equipment and vehicles would be performed at the TID maintenance yard, the Hughson Substation, or at commercial fueling facilities. These operations would not increase the risk of a release within the construction area.

As proposed, all new transformers would contain mineral oil that is free from PCBs. PCBs are a class of chemicals that are both toxic and carcinogenic and may cause human and ecological hazards when released into the environment. PCBs are regulated at the federal level under the Toxic Substances Control Act of 1977. The USEPA has banned the manufacture of PCBs for use in new electrical products (such as transformers) and prohibited the installation of any equipment containing PCBs after 1985. Prior to that time, most electrical transformers were filled with PCB-containing oil. Since that time, various utilities have instituted programs to renovate or replace equipment with a mineral oil that does not contain PCBs. The transformers associated with the existing 12-kV and 69-kV poles proposed for relocation may contain PCBs. Releases of hazardous materials associated with construction of the substation site and transmission line routes would result in a potentially significant impact**.**

MITIGATION MEASURE 4.12-1

Prior to initiating Project construction, the construction contractor shall be trained regarding the identification and handling of hazardous materials (including PCB-containing transformers) and spill containment and agency notification procedures. Should any known or suspected release of PCB-containing oil occur during Project construction or operation, the spills would be immediately addressed and the affected soils would be containerized and tested to determine the appropriate disposal options.

TID shall notify agencies and perform the required remediation if there is a release of reportable (or otherwise significant) quantities of hazardous materials. In the event of a fuel spill, SCDER would be notified and clean-up would be accomplished under the guidance of regulatory oversight, as required.

The construction contractor shall prepare a Spill Prevention, Control, and Countermeasures (SPCC) Plan that describes the methods for working with hazardous materials during construction. The SPCC Plan shall describe methods for avoiding spills as well as the required response if a spill occurs.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.12-2

Exposure to Health Hazards. *The Project has the potential to expose people to significant health hazards from encountering contaminated sites during Project construction. In addition, operation of the Grayson substation and/or transmission lines has the potential to expose people to electrical shock hazards and EMF. Therefore the impact would be* ***potentially significant****.*

CONTAMINATED SITES The existing hazardous material records reviews (see Appendix H) did not indicate the likelihood that known contaminated sites would have a direct impact on Project facilities. However, there is the potential for contamination to occur at any location along the route as a result of unknown or unreported spills or leaks, or from illegal dumping. Contamination from petroleum products (gasoline, oil, and diesel) is one of the most common types of unknown contamination encountered and is generally detectable by visual and olfactory observation. In addition, given the potential use of organochlorine, orthophosphorous, or arsenical pesticides within agricultural fields along the transmission line routes and the Grayson Substation site, it is possible that these chemicals could occur in surface soils at levels that could be hazardous to construction workers or nearby residents. This would be a potentially significant impact.

ELECTRICAL HAZARDS The proposed substation and transmission lines would involve some risk of electrocution and other hazards associated with high voltage electrical facilities. These risks of electrical hazards from transmission lines are well-known and are effectively reduced to insignificance by following the standard utility design and operational practices contained in GO 95. This construction order, which is periodically reviewed and updated, provides safety rules that have been followed by California utilities for more than 50 years. Despite design precautions, including fencing and locking the substation facilities, however, severe storms and accidents can result in downed power lines that are potentially hazardous. In nearly all cases, protective devices would de-energize any faulted lines. TID local maintenance crews are able to arrive to the Project area within minutes of notification. No significant electrical hazards would occur from the installation of the proposed lines.

EMF CONCERNS Electrical transmission and distribution lines, electrical wiring, appliances, and other electrical devices produce low frequency, low energy EMF. Carefully structured epidemiological and laboratory studies have been conducted worldwide to determine if the potential carcinogenic effects of EMF exposure. In general, the studies have shown that there is no overall increase in cancer rates for populations exposed to EMF (although a number of studies have found a weak statistical association with some rare forms of childhood leukemia and magnetic field strengths).

In June 1999, the National Institute of Environmental Health Sciences (NIEHS) issued, *Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Field*s. The study noted a fairly consistent pattern of a small increase in risk of chronic and childhood leukemia in human population studies, but no such pattern in the experimental data (animal and mechanistic). The NIEHS study found no evidence tying routine EMF exposure to adult cancer or other potential effects such as Alzheimer's disease, depression, or birth defects. While the NIEHS study concludes that EMF exposure cannot be recognized as entirely safe, it did not recommend aggressive regulatory concern such as setting standards and did not recommend that EMF be listed as an agent reasonably anticipated to be a human carcinogen.

In 2002, the California Department of Health Services (CADHS) reviewed several preceding studies. In general, the scientists at the CADHS had greater certainty in the overall risk posed by EMFs. CADHS determined that the epidemiological evidence for childhood leukemia warranted the classification of EMF as a "possible" carcinogen, and the CADHS was also willing to state a possible link between EMF and adult lymphoid leukemia, Lou Gehrig's Disease, adult brain cancer, and miscarriages. Despite the increased conviction of CADHS's team of reviewers, there is still considerable disagreement between experts, and inconsistency and contradictions among the studies. With the exception of miscarriages, all of these diseases have long latencies from the time of exposure. For this reason, it is difficult to establish statistical associations between cause and effect in a typical epidemiological study.

EMF level calculations were performed for the two line designs that are components of the Project (a double circuit 115-kV transmission line with 12-kV underbuild and a double circuit 115-kV transmission line with a 69-kV and a 12-kV underbuild) at the eight locations where the EMF measurements were taken. The estimated average and maximum line loading for each circuit was provided by TID as follows:[16]

Table 4.9-2 Average and Maximum Line Loading

Circuit	Amperes per Phase (Average Load)	Amperes per Phase (Maximum Load)
115-kV (Circuit 1)	120	734
115-kV (Circuit 2)	50	734
69-kV	150	572
12-kV	60	60

The EMF around transmission lines is produced by the level of current flow, measured in terms of amperes, through the conductors (transmission lines). The EMF strength is directly proportional to the current; that is, increased amperes produce stronger EMF. The EMF is inversely proportional to the distance from the conductors. Thus, the EMF strengths decline as the distance from the conductor increases. The electric field around a transmission line remains steady and is not affected by the common daily and seasonal fluctuations of electricity usage. The magnetic fields around a transmission line fluctuate daily and seasonally as the usage of electricity varies. Calculations were performed to determine the average and maximum EMF strengths at the eight locations. The results are included in Appendix I. The calculated EMF at each of the locations are summarized below.

The electric field strengths were basically consistent in each of the eight locations. In addition, since the electric field around a transmission line remains steady and is not affected by the common daily and seasonal fluctuations in usage of electricity, the electric field

[16] The average load is based on the average daily current that would be expected on the transmission lines on an average day. The maximum load is an extreme worst case based on a system outage condition where one or more circuits are out of service elsewhere on the TID system, resulting in the Project transmission lines operating at the maximum load that could be accommodated for a short period of time (30 minutes to one hour). The maximum load is greater than loads experienced on a peak summer day.

strength is the same for both the average and maximum loads. The electric field modeling results are summarized in Table 4.9-3 below.

Table 4.9-3 Measured Electric Fields

Location	Average and Maximum Loading (kV/M)
1,2,3,4,7,8	.34
5,6	.49

The estimated magnetic fields strengths are summarized in Table 4.9-4. The measurements included in the table are the estimated field strengths at ground level directly underneath the transmission lines. Given this, they represent the worst case magnetic field strength under both average and maximum conditions. The magnetic field strength diminishes with distance from the transmission lines. Background levels would be achieved at roughly 75 feet from the centerline of the transmission route.

Table 4.9-4 Measured Magnetic Fields

Location Number	Location Description	Average Modeled Magnetic Field Level (mG)	Maximum Modeled Magnetic Field Level (mG)
1	East Grayson Road adjacent to the Grayson Substation	9	32
2	Faith Home Road south of TID Lateral No. 2	8	32
3	Geer Road adjacent to the Hughson Substation	11	32
4	Euclid Avenue south of East Whitmore Avenue	9	32
5	Washington Road at TID Upper Lateral No. 2	9	33
6	Mountain View Road at TID Upper Lateral No. 2	9	34
7	East Grayson Road at Central Avenue	9	32

Location Number	Location Description	Average Modeled Magnetic Field Level (mG)	Maximum Modeled Magnetic Field Level (mG)
8	Esmar Road at TID Lateral No. 2½	9	32

Considerable research has been conducted over the last 30 years regarding the possible biological effects and human health effects from EMF. This research has produced many studies that offer no uniform conclusions about whether the long-term exposure to EMF is harmful or not. The modeling results are well within the anticipated range for transmission lines of this voltage. These magnetic fields would be at levels that are commonly found in homes near electrical appliances. At an approximate 10-inch distance, the magnetic fields around household appliances vary from 3 to 210 mG (NIEHS 1999).

Although TID is not regulated by the CPUC, the Project would employ "EMF reduction as a practicable design criterion" as mandated by the CPUC for new and upgraded electrical facilities. This includes:

- Increasing the distance between the conductors and the ground;
- Reducing the spacing between the conductors;
- Minimizing the current in the line; and
- Arranging current flow to maximize the cancellation effects from interacting of conductor fields.

With implementation of these design requirements, no further mitigation is required.

MITIGATION MEASURE 4.12-2

TID shall survey the selected substation site and transmission line route to ascertain if there is any observable evidence of a chemical release (such as staining of surface soils or areas of stressed or dead vegetation). Where Project facilities would traverse previously developed properties, the potential for chemical releases or other recognized environmental hazards shall be ascertained through Phase I or Phase II environmental assessment activities.

TID shall also conduct a limited soil sampling and analysis program in representative agricultural or grazing land areas (in close proximity to proposed construction areas) to determine if organochlorine, orthophosphorous, or arsenical pesticides or constituents are present at or above health-based risk criteria (such as the USEPA Preliminary Remediation Goals (PRGs) or California Human Health Screening Levels (CHHSLs). If PRGs or CHHSLs are exceeded, then TID shall develop a Construction Soil Management Plan to minimize worker exposure and determine appropriate soil handling procedures.

If evidence of potential hazardous materials or contamination of soils or groundwater is encountered during transmission line or substation construction, TID shall cease digging, notify the right-of-way owner, and follow applicable requirements of Comprehensive Environmental Response, Compensation, and Liability Act and the CCR Title 22 regarding the disposal of wastes. TID shall relocate transmission line poles, wherever feasible, to avoid digging in areas of known soil contamination.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.12-3

Increase the risk of wildfires. *There is a* ***potentially significant*** *risk that the transmission line would increase the likelihood of wildfires.*

Transmission lines have the potential to start fires if the lines come into contact with nearby tree branches or other dry vegetation. Sparks, or hot objects resulting from line faults, or other causes may also ignite dry vegetation during windy conditions. The majority of the transmission line corridors pass by irrigated land with little flammable materials. Most trees along the links are agricultural and generally pruned.

Fires caused by transmission lines can be largely avoided by ensuring sufficient separation between branches and the electrical lines, and by properly maintaining the protective devices in the system. PRC Section 4292 and 4293 allow fire officials to require a minimum 10 foot separation between 115-kV lines and flammable vegetation in forest covered, brush-covered, or grass-covered land. Most of the Project would be located in agricultural land not subject to these requirements, but some vegetation would be encountered along the proposed Project route.

TID only performs weed abatement in fire zones. The Project is not located in a fire zone. Therefore, there will be no herbicide or weed cutting. As part of the Project, TID would not own fee title of the property, only an easement. Frequently, the landowner grows crops under the transmission lines within the easement. Within the graveled substation area, TID will use spray (round-up or similar) to control weeds.

MITIGATION MEASURE 4.12-3

TID facility designs shall conform to applicable regulations with respect to required safety features and setbacks between energized facilities and vegetation or other flammable materials. TID shall institute a program of regular inspection along the transmission line route to assure that plant growth subsequent to installation does not prevent conformance with applicable regulations as they apply to required setbacks from vegetation or other flammable materials.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

4.10 NOISE

This Section describes the regulatory and environmental settings for noise in the Project area. The impact analysis evaluates the effects of construction noise, traffic, and substation operations on existing and proposed land uses, and the effects of the Project on ambient noise levels in the Project vicinity. Mitigation measures are identified to reduce significant impacts.

TERMINOLOGY

Terminology used throughout this Section includes the following noise measurement terms. A decibel (dB) is a unit of sound energy intensity. Sound waves, traveling outward from a source, exert a sound pressure level (commonly called “sound level”) measured in decibels (dB). An A-weighted decibel (dBA) is a decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels. The most commonly used noise descriptors are the equivalent sound level over a given time period (Leq), average day-night 24-hour average sound level (Ldn), and community noise equivalent level (CNEL). Leq is a single value of a constant sound level for the same measurement period duration, which has sound energy equal to the time-varying sound energy in the measurement period. Ldn is the day-night average sound level that is equal to the 24-hour A-weighted equivalent sound level with a 10-dB penalty applied to night between 10:00 p.m. and 7:00 a.m. Ldn is typically within ±2 dBA of the peak-hour Leq under normal traffic conditions (Caltrans 1998). CNEL is the day-night average sound level that is equal to the 24-hour A-weighted equivalent sound level with a 10-dB penalty applied to night between 10:00 p.m. and 7:00 a.m. and a 5-dB penalty applied in the evening between 7 p.m. and 10 p.m.

4.10.1 EXISTING CONDITIONS

The noise environment within the Project vicinity is that of a quiet rural or suburban area. At various locations within the Project area, and depending on atmospheric conditions, traffic noise is audible from local and major roadways, such as SR 99. Typical noise levels for indoor and outdoor activities in an urban setting are presented in

Table 4.10-1. Noise levels are typically lower in rural or suburban areas than noise levels in commercial or industrial zones.

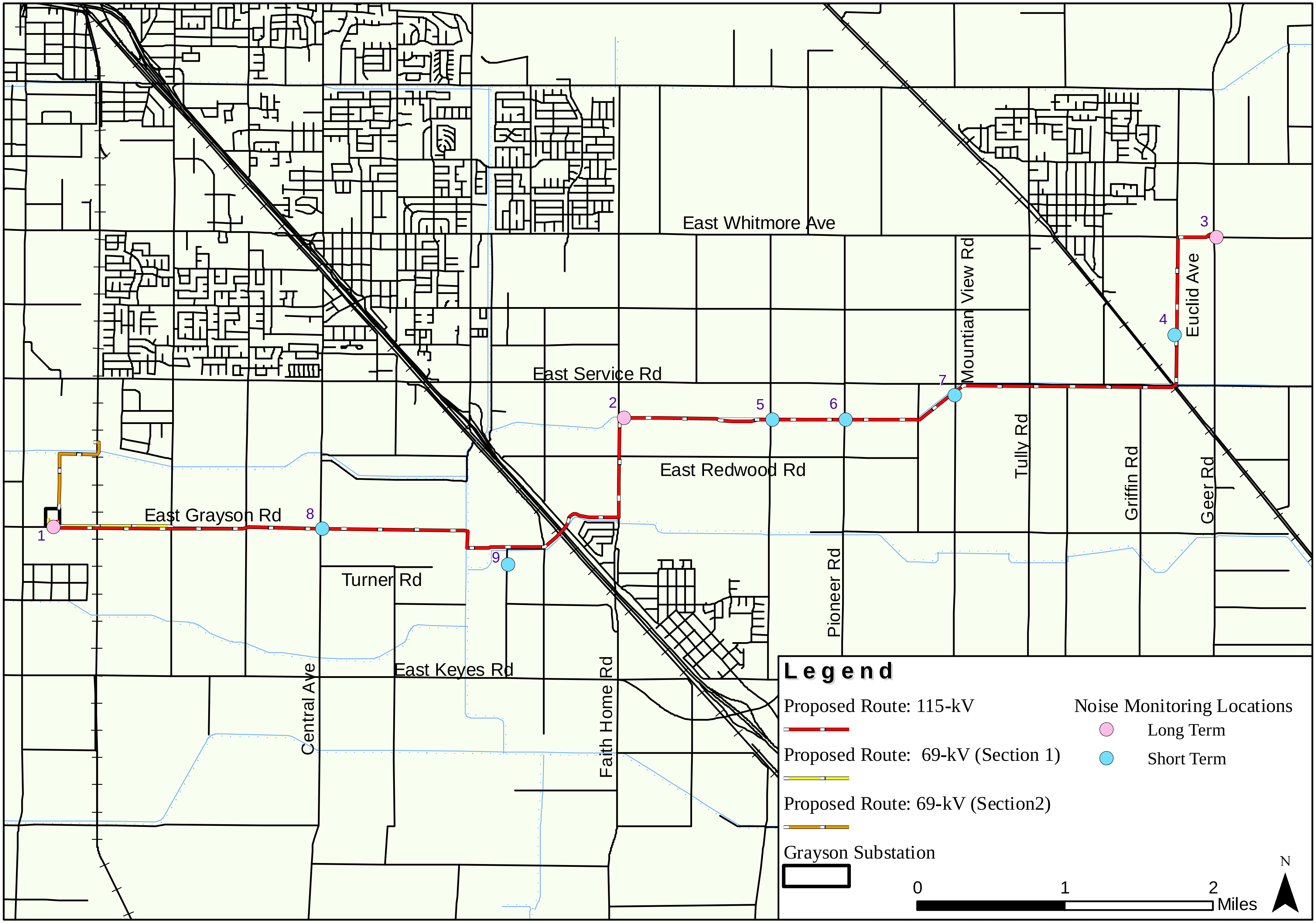
Table 4.10-1 Typical Noise Levels

Noise Level (dBA)	Outdoor Activity	Indoor Activity
90+	Gas lawn mower at 3 feet, jet flyover at 1,000 feet	Rock band
80–90	Diesel truck at 50 feet	Loud television at 3 feet
70–80	Gas lawn mower at 100 feet, noisy urban area	Garbage disposal at 3 feet, vacuum cleaner at 10 feet
60–70	Commercial area	Normal speech at 3 feet
40–60	Quiet urban daytime, traffic at 300 feet	Large business office, dishwasher in next room
20–40	Quiet rural, suburban nighttime	Concert hall (background), library, bedroom at night
10–20	—	Broadcast/recording studio
0	Lowest threshold of human hearing	Lowest threshold of human hearing

Source: Caltrans 1998

PROJECT AREA NOISE LEVELS

In order to characterize the noise conditions in the Project vicinity, 10 short-term measurements were made in the Project area with concurrent observations recorded. The noise monitoring locations are shown on Figure 4.10-1 and the noise measurements are summarized in Table 4.10-2. Typical background noise levels (L90) ranged from 44 to 59 dB during quiet times. Primary noise sources identified during the measurements included vehicle traffic and occasional birds, dogs, train horns, and aircraft-related noise. Three 24-hour noise measurements were also taken, with locations shown in Figure 4.9-1 and summarized in Table 4.10-2. Figures 4.9-2 through 4.9-4 include one-hour noise sampling for Leq, Lmax, L50, and L90, over a 24-hour period. The Ldn values for the 24-hour measurements were between 61- to 73-dBA. Noise levels throughout the Project area are estimated to be similar. It should be noted at Location 1, near the proposed Grayson Substation, the meter was located 15 feet from the center of Grayson Road. As a general rule of thumb, line source noise generally attenuates at a rate of 4.5 dBA per doubling of distance at a soft site (a soft site refers to a site covered with vegetation or soil versus a hard site that is covered by cement or asphalt). At a more typical reference distance of 50 feet from the



Source: Miller Environmental Consultants 2009.

Hughson-Grayson 115-kV Transmission Line and Substation Project

Figure 4.10.1

Noise Monitoring Locations

centerline of Grayson Road, noise levels would be reduced by eight dBA. Thus, the following noise levels would be expected to occur 50 feet from the centerline of Grayson Road based on the 1-hour samples: Leq's: 47-65 dBA; L90's: 32-46 dBA, and Ldn: 65dBA.

The noise measurements and observations indicate that most areas of the Project are expected to be in compliance with County General Plan noise standards (shown in Table 4.10-3) at most times, except during peak use periods in areas immediately adjacent to transportation sources such as roads.

Table 4.10-2 Existing Noise Levels in the Project Area

Monitoring Location *Duration*	**Location Description**	**Time Period**	**Noise Levels (dBA)**	**Noise Sources and Observations – Noise Levels (dBA)**
Location 1 *24 Hour*	Near proposed Grayson Substation, 15 feet north of the center of Grayson Rd	Tues. March 24, 2009	24-hour Ldn = 73 Hourly Average Leq's: 55–73 Hourly L90's: 40–54	Long-term measurements do not identify specific noise sources. L90 background levels are relatively quiet (40-54).
Location 1 *10 Minutes*		Wed., March 25, 2009: 7:06 p.m.–7:16 p.m.	<u>5- minute sampling</u> Leq's: 63–70 L90's: 49–56	Vehicle traffic along Grayson Rd (Lmax): 76, 80, 78, 74, 82, 77, 86. Birds.
Location 2 *24 Hour*	Along TID Canal No.2, 225 feet east of Faith Home Rd	Tues., March 24, 2009	24-hour Ldn = 61 Hourly Average Leq's: 49–60 Hourly L90's: 45–55	Long-term measurements do not identify specific noise sources. L90 background levels are relatively quiet (45-55).
Location 2 *10 Minutes*		Wed., March 25, 2009: 4:06 p.m.–4:16 p.m.	<u>5- minute sampling</u> Leq's: 55–60 L90's: 52–54	Vehicle traffic along Faith Home Rd (Lmax): 61, 58, 55, 57, 60, 65, 61, 60, 64, 66, 64, 63, 60, 56. Wind.

Monitoring Location *Duration*	**Location Description**	**Time Period**	**Noise Levels (dBA)**	**Noise Sources and Observations – Noise Levels (dBA)**
Location 3 *24 Hour*	Northwest corner of Hughson Substation, 55 feet east of the center of Geer Rd	Tues., March 24, 2009	24-hour Ldn = 71 Hourly Average Leq's: 58–71 Hourly L90's: 44-60	Long-term measurements do not identify specific noise sources. L90 background levels are relatively quiet (44-60).
Location 3 *10 Minutes*		Wed., March 25, 2009: 2:36 p.m.–2:46 p.m.	5-minute sampling Leq's: 60–72 L90's: 56–59	Vehicle traffic along Geer Rd (Lmax): 65-80, 88
Location 4 *10 Minutes*	Across from 3230 Euclid Ave, 25 feet west of centerline	Wed., March 25, 2009: 3:16 p.m.–3:26 p.m.	5- minute sampling Leq's: 56–64 L90's: 46–49	Vehicle traffic along Euclid Ave (Lmax): 74, 80. Wind and wind chimes (Leq): 46-48, 53
Location 5 *10 Minutes*	Along TID Lateral No. 2, 50 feet east of Washington Rd	Wed., March 25, 2009:4:26 p.m.–4:36 p.m.	5- minute sampling Leq's: 58–60 L90's: 48–51	Vehicle traffic along Washington Rd (Lmax): 72, 69, 74, 67, 69, 64
Location 6 *10 Minutes*	Along TID Lateral No. 2, 50 feet east of Pioneer Rd	Wed., March 25, 2009:4:51 p.m.–5:01 p.m.	5- minute sampling Leq's: 52–57 L90's: 44–48	Vehicle traffic along Washington Rd (Lmax): 72, 69, 64. Birds and airplane flyover.
Location 7 *10 Minutes*	South of TID Lateral No. 2, 50 feet west of Mountain View Rd	Wed., March 25, 2009: 5:16 p.m.–5:26 p.m.	5- minute sampling Leq's: 49–59 L90's: 46–47	Vehicle traffic along Mountain View Rd (Lmax): 65, 66, 75, 62. Birds, train horn, yard trimming, and traffic along E. Service Rd.
Location 8 *10 Minutes*	50 feet east of Central Ave, near Grayson Rd	Wed., March 25, 2009: 6:07 p.m.–6:17 p.m.	5- minute sampling Leq's: 61–63 L90's: 50–53	Vehicle traffic along Central Avenue (dB): 65, 68, 74, 72, 60, 67, 64, 76, 70. Dog barking, birds, and airplane flyover.

Monitoring Location *Duration*	Location Description	Time Period	Noise Levels (dBA)	Noise Sources and Observations – Noise Levels (dBA)
Location 9 *10 Minutes*	West of Prairie Flower Road at 90 degree angle of Esmar Rd, 660 feet south of Esmar Rd and 50 feet east of Esmar Rd	Wed., March 25, 2009: 6:35 p.m.–6:45 p.m.	<u>5- minute sampling</u> Leq's: 52–53 L90's: 50–51	Birds and traffic along SR99. No local traffic during sampling.

Source: Miller Environmental Consultants, 2009.

Figure 4.10.2

Noise Monitoring Results: Location 1

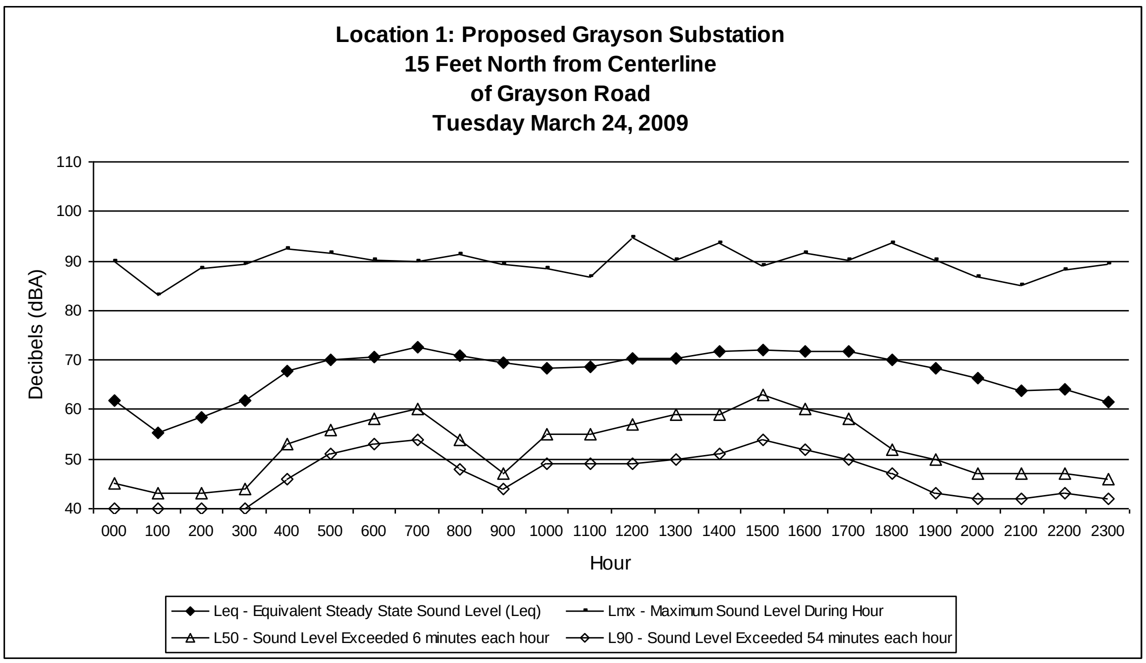


Figure 4.10.3
Noise Monitoring Results: Location 2

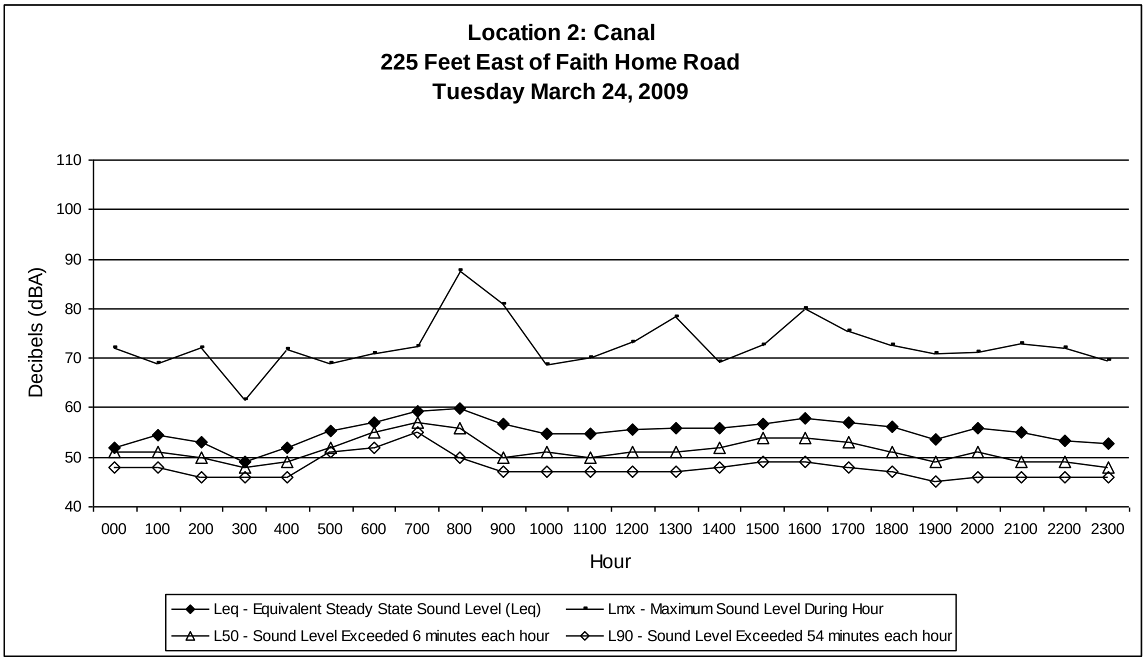
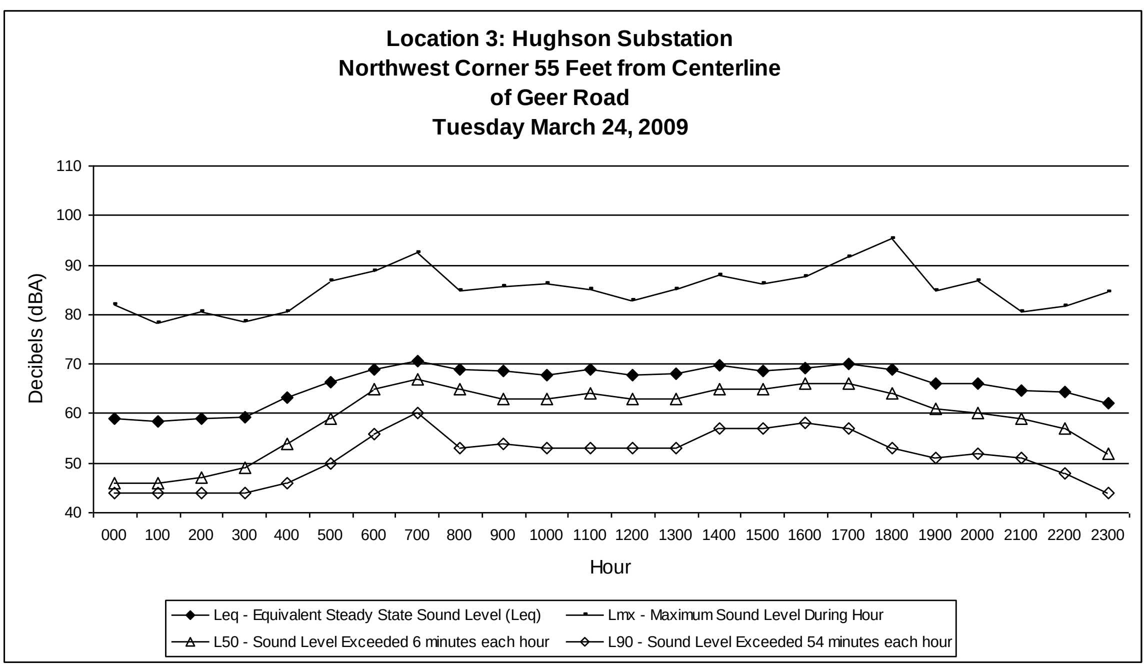


Figure 4.10-4
Noise Monitoring Results: Location 3



SENSITIVE RECEPTORS

Sensitive receptors in the Project vicinity include residences located along the transmission line route and near the substation. Residences are located approximately 500 to 1,200 feet west, northwest, and southeast of the proposed substation. Many residences are located along the proposed transmission line route, some (especially near Faith Hill Road) are as close as 10 feet. The nearest church is located on Central Avenue, south of Grayson Road, approximately 350 feet south of the transmission line route. The nearest school is located on East Redwood Road, east of Central Avenue, approximately 2,500 feet north of the transmission line route. As a general rule, noise levels inside a standard constructed building tend to be 20 dB less than the noise levels outside. It would be safe to assume that buildings in the Project area are built accordingly and that noise levels inside would be 20 dB less than the noise levels outside.

4.10.2 REGULATORY SETTING

The majority of the transmission line would be in unincorporated Stanislaus County. The eastern extent, however, would be within the City of Hughson's SOI. At the western terminus, the Project would be within the City of Ceres' SOI, and would connect to the Almond Power Plant, which is located in the City of Ceres (Refer to Section 4.1)

CODE OF FEDERAL REGULATION

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under Title 40 CFR Part 205, Subpart B. The federal truck pass-by noise standard is 80 dB at 15 meters from the centerline of the vehicle pathway. These standards are implemented through regulatory controls on truck manufacturers.

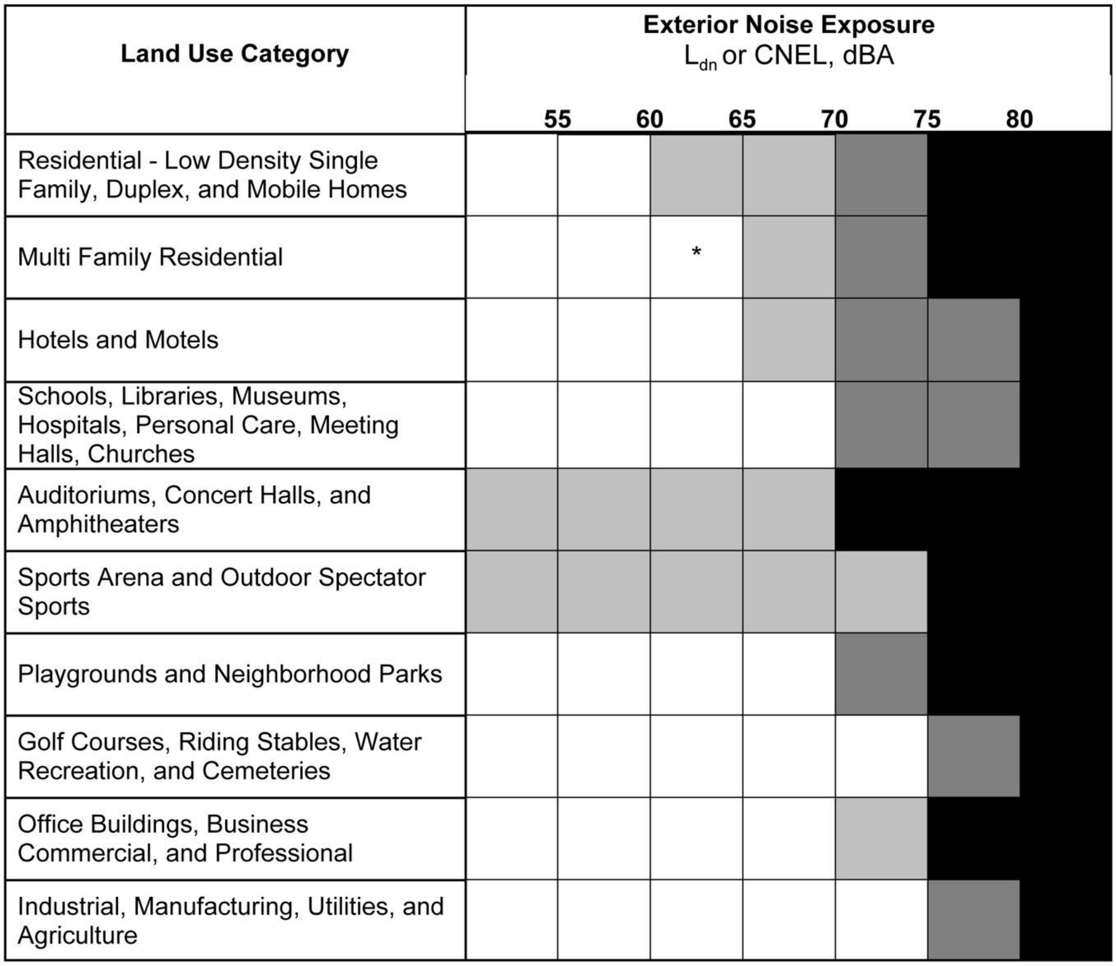
STATE OF CALIFORNIA

The State of California establishes noise limits for vehicles licensed to operate on public roads. The pass-by standard for heavy trucks is consistent with the federal limit of 80 dB. The pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dB at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanctions on vehicle operators by state and local law enforcement officials.

STANISLAUS COUNTY GENERAL PLAN AND ZONING ORDINANCES

The *Stanislaus County General Plan* Noise Element includes long- and short-term noise measurements throughout the County and notes the quietest areas of unincorporated Stanislaus County are those which are removed from major transportation-related noise sources and local industrial or other stationary noise sources. Typically, maximum noise levels observed during the survey were generated by local automobile traffic or heavy trucks. Other sources of maximum noise levels included occasional aircraft over flights and, in some areas, railroad operations (especially horns). Background noise levels in the absence of the above-described sources were caused by distant traffic, wind in the trees, running water, birds and distant industrial or other stationary noise sources (Stanislaus County 2006). The Noise Element also includes a Land Use Compatibility for Community Noise Environments chart, as shown in Table 4.10-3. This chart provides guidelines for typical community noise exposure for various land uses.

Table 4.10-3 Land Use Compatibility for Community Noise Environments



** Interior noise levels shall not exceed 45 Ldn in all new residential units (single and multi family). Development sites exposed to noise levels exceeding 60 Ldn shall be analyzed following protocols in Appendix Chapter 12, Section 1208, A, Sound Transmission Control, 1998 California Building Code.*

NORMAL ACCEPTABLE
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special insulation requirements.

CONDITIONALLY ACCEPTABLE
Specified land use may be permitted only after detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.

NORMALLY UNACCEPTABLE
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken because mitigation is usually not feasible to comply with noise element policies.

Goals, policies, and implementation measures in the Stanislaus County Noise Element focus on:

- Preventing the encroachment of incompatible land uses near known noise producing industries, railroads, airports and other sources to protect the economic base of the County; and
- Protecting the citizens of Stanislaus County from the harmful effects of exposure to excessive noise.

Specifically, new development of industrial, commercial or other noise generating land uses will not be permitted if resulting noise levels will exceed 60 Ldn (or CNEL) in noise-sensitive areas. Additionally, the development of new noise-generating land uses which are not preempted from local noise regulation will not be permitted if resulting noise levels will exceed the performance standards contained within Table 4.10-4 in areas containing residential or other noise sensitive land uses.

Table 4.10-4 Maximum Allowable Noise Exposure – Stationary Noise Sources[A]

	Daytime 7:00 a.m. to 10:00 p.m.	**Nighttime 10:00 p.m. to 7:00 a.m.**
Hourly Leq, dBA	55	45
Maximum level, dBA	75	65

Source: Stanislaus County, Stanislaus County General Plan, Noise Element 2006.
A: As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures.
Notes: Each of the noise level standards specified above shall be reduced by five dBA for pure tone noises, noise consisting primarily of speech or music, or for recurring impulsive noises. The standards in the table should be applied at a residential or other noise-sensitive land use and not on the property of a noise-generating land use. Where measured ambient noise levels exceed the standards, the standards shall be increased to the ambient levels.

The Stanislaus County Code, Chapter 10.46 Regulation of Nuisance Noise, was developed to protect citizens from loud and raucous noises from any and all sources in the unincorporated areas of the county. Exemptions are provided for activities on or in publicly owned property and facilities, or by public employees while in the authorized discharge of their responsibilities, provided that such activities have been authorized by the owner of such property or facilities or its agent or by the employing authority (Stanislaus County 2009).

However, the County does not specifically provide for an exemption for construction noise during the daytime.

CITY OF CERES GENERAL PLAN AND ZONING ORDINANCES

The noise related policies identified in the *City of Ceres General Plan* are designed to protect noise-sensitive uses from excessive noise and are consistent with the County's Land Use Compatibility for Community Noise Environment (Table 4.10-3) and Maximum Allowable Noise Exposure for stationary sources (Table 4.10-4) (Ceres 1997).

According to Chapter 9.36 Noise of the City of Ceres Municipal Code, the following acts, among others, are declared to be loud, disturbing and unnecessary noises in violation of the provisions of this Chapter, but the enumeration shall not be deemed to be exclusive, namely:

> Construction or Repairing of Buildings: The erection (including excavating), demolition, alteration or repair of any building other than between the hours of seven o'clock (7:00) A.M. and eight o'clock (8:00) P.M., except that, by special permit issued by the Building Inspector or City Engineer, as the case may be, upon a determination that the public health and safety will not be impaired thereby, the erection, demolition, alteration or repair of any building or the excavation of streets and highways may be permitted within the hours of eight o'clock (8:00) P.M. and seven o'clock (7:00) A.M (Ceres 2009).

4.10.3 IMPACTS AND MITIGATION MEASURES

METHODS OF ANALYSIS

Impacts were evaluated by measuring the existing noise levels in the area and determining the noise compatibility of the Project. The analysis considers the suitability of the Project area for the proposed transmission line and substation and the effect of Project noise upon other sensitive receptors in the area.

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 to 7.5 dBA per doubling of distance from the source, depending on the topography of the area and environmental conditions (i.e., atmospheric conditions, noise barriers, vegetative or manufactured, etc.). Widely distributed noise, such as a large industrial facility spread over many acres or a street with moving vehicles (known as a “line” source), would typically attenuate at a lower rate, approximately three to 4.5 dBA each time the distance doubles from the source, which also depends on environmental conditions (Caltrans 1998). Noise from large construction sites will exhibit characteristics of both “point” and “line” sources, and attenuation will therefore generally range between 4.5 and 7.5 dBA each time the distance doubles.

For transportation noise, an increase in noise levels of five dBA is considered significant where existing noise levels are less than 60 dBA Ldn (FICON 1992). In addition, an increase in noise of three dBA or more is considered significant for existing noise levels between 60 and 65 dBA Ldn, and an increase in noise by 1.5 dBA or more is considered significant for existing noise levels greater than 65 dBA Ldn. These criteria apply to existing noise-sensitive areas, such as residences (FICON 1992).

With temporary noise impacts (e.g., construction activities), identification of “substantial increases” depends upon the duration of the impact, the temporal daily nature of the impact, and the absolute change in decibel levels. For operational impacts, operational noise that would exceed the “normally acceptable” land use compatibility noise range of the Stanislaus County and City of Ceres General Plans would be considered a significant noise impact. Therefore, exposure of existing residents to noise levels exceeding 60 dBA Ldn would be considered a significant impact per the General Plans (Table 4.9-3).

The Project is not located within an airport land use plan area, within two miles of a public airport or within the vicinity of a private airstrip. As a result, this issue is not addressed further.

THRESHOLDS OF SIGNIFICANCE

Adverse impacts to noise would be considered significant if the Project would:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance;
- Expose persons to or generate excessive groundborne vibration or noise levels;
- Create a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project; or

- Create a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the Project.

IMPACT ANALYSIS

IMPACT 4.10-1

Result in a substantial temporary noise impact that could affect adjacent residences. *Noise levels generated during construction activities could exceed the standards established in the local general plans or noise ordinances. Therefore the impact would be potentially* ***significant****.*

Project construction of the substation and transmission line would occur concurrently and is estimated to last for approximately 12 months and 11 months, respectively. Noise generated by these activities could adversely affect nearby residents to the west, northwest, and southeast of the proposed substation, as well as the residences located along the proposed transmission line route.

Construction activity noise levels at and near the Project area would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. The Project would include off-site haul import for aggregate material and off-site haul export for soil using existing roads and highways. Table 4.10-5 shows typical noise levels during different construction stages and Table 4.10-6 shows typical noise levels produced by various types of construction equipment.

Table 4.10-5 Typical Construction Activity Noise Levels

Construction Phase	Noise Level (dBA Leq)
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Stringing/Clipping	78

Source: EPA 1971

Notes: Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

Table 4.10-6 Typical Noise Levels from Construction Equipment

Construction Equipment	Noise Level (dBA Leq at 50 feet)
Dump Truck	88
Portable Air Compressor	81
Concrete Mixer (Truck)	85
Scraper	88
Jack Hammer	88
Dozer	87
Paver	89
Generator	76
Pile Driver	101
Backhoe	85

Source: Cunniff 1977

Construction of the Project would generate a significant amount of noise corresponding to the appropriate phase of construction and the noise generating equipment used during the 12 months of construction. The closest sensitive receptors to the substation are located approximately 500 to 1,200 feet west, northwest, and southeast of the proposed substation. Construction activities for the transmission line would occur only where structures are required, not along the entire transmission route and would only occur for a few days at any one location. However, using a conservative approach, the closest sensitive receptor to the transmission line is approximately 10 feet north of the transmission line. Additional residential areas along the transmission line would be exposed to construction noise at incrementally lower levels.

Noise from construction activities generally attenuates at a rate of six to 7.5 dBA per doubling of distance. Several existing residences would be 10 to 20 feet from construction activities associated with the transmission line. Assuming an attenuation rate of six dBA per doubling of distance, the outside areas of the closest residences would temporarily experience maximum noise levels of up to 103 dB during the excavation stage. This estimated worst-case noise level is based upon the noise generated from excavation, the loudest transmission line construction activity in Table 4.10-5, and the distance to the closest residence. It conservatively assumes that the transmission structure would be located at the point along the route closest to the residence, which is not TID’s practice. It is also important to note that excavation typically lasts only a few hours. At a distance of 500 feet, maximum noise levels would be up to 70 dBA at all excavation areas and during the finishing stages at the substation. Construction noise at these levels would be substantially greater than current noise levels at existing residences. Residences located further from construction activities would be exposed to lower noise levels, but would still be subjected to noise levels considerably above the existing noise levels.

Construction activities would substantially increase ambient noise levels at noise-sensitive locations adjacent to the Project area, albeit temporarily. It takes approximately three days to install an angle transmission pole and approximately two days to install a tangent pole. Nevertheless, construction noise would be considered disruptive to nearby residences and would be a significant impact. Since transmission line structures are placed into the ground by first excavating the soil with diggers and drills, not by driving the poles directly into the ground, ground vibrations in the vicinity of the Project would be less than significant.

MITIGATION MEASURE 4.10-1

The following mitigation measures would ensure compliance with the Stanislaus County and the City of Ceres Noise Ordinances, as well as further reduce construction-related noise impacts.

- Construction shall be limited to the hours between 7 a.m. and 8 p.m. Monday through Friday, and 8 a.m. and 8 p.m. Saturday, Sunday, and legal holidays.
- Signs shall be posted at the construction site that include permitted construction days and hours, expected timeframe for construction, a day and evening contact number for the job site, and a TID contact number for complaints about construction noise. The signs will help to facilitate rapid communication of any problems related to noise. Posting of the hours and duration would allow the adjacent residences to understand the length of the proposed construction phase and also the limits on activity each day and week. If the telephone is not staffed 24 hours per day, Project applicant should include an automatic answering feature. This telephone number should be posted during construction in a manner visible to passersby. This telephone number should be maintained until the Project is operational.

- Construction equipment shall be properly maintained and operated and equipped with mufflers. Haul trucks shall be operated in accordance with posted speed limits.
- Construction staging and parking areas shall be located away from existing residences. Maximizing the distance between construction related activities and residences would minimize construction related noise impacts on these sensitive receptors.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.10-2

> **Increase ambient noise levels in the Project vicinity above levels existing without the Project.** *The Project would increase traffic noise levels, operation of the substation would generate humming sounds, and operation of the transmission lines would create sizzling, crackling, or hissing sounds associated with corona discharge. This would be a* ***less-than-significant*** *impact.*

The Project would generate approximately two truck trips per month for substation-related maintenance needs and two truck trips per year for transmission line-related maintenance. This could add up to four truck trips one day during the year. This is a relatively small increase in Project traffic and would not noticeably increase traffic noise levels in the Project area. A doubling of traffic volume (i.e., 100 percent increase) results in a just noticeable increase in noise level of approximately a three dBA. Noise-related impacts from Project traffic would be less than significant.

Transformers generally are the major sources of audible noise within a substation. Transformers are used to convert electricity at high voltage and low current to electricity at low voltage and high current or vice versa. Small transformers located in utility boxes along the distribution system are not a significant source of noise, but larger transformers, reactors, circuit breakers, and other equipment located at substations can produce audible humming sounds. Fans and ventilation equipment used to cool transformers produce broadband noise, and occasionally louder impulse noises occur during switching of a breaker. As noted earlier, long term noise measurements at the existing Hughson Substation showed one-hour Leq's ranging from 58-71 dB and an Ldn of 71 dB. Noise sources at the Hughson Substation include some noise from the substation, but primarily noise from vehicle traffic along Geer

Road and Whitmore Avenue. Based on the noise levels at the existing Hughson Substation, noise levels at the residence approximately 500 feet west of the proposed substation are estimated to range from 39-52 dB Leq and 52 dB Ldn. This is within the 50-60 dB Ldn range considered normal acceptable for residential areas according to the County standards shown in Table 4.10-3. Noise-related impacts from Project operations at the substation would be less than significant.

The electric field in high voltage transmission lines creates an electrical discharge in the air immediately surrounding the conductors. This phenomenon is called corona and is more pronounced in wet or foggy weather when the atmosphere is more conductive. Sounds described as sizzling, crackling, or hissing can be associated with corona discharge, and is typically associated with transmission line 220kV or higher. Utilities try to minimize corona because it represents lost energy. San Diego Gas & Electric estimates this noise to be about 50 dBA for a 500-kV line during wet weather near the right-of-way edge and under 40 dBA near the right-of-way edge for overhead 230-kV transmission lines (CPUC 2008). Noise levels from 115 kV lines are not readily available. These noise levels are well below the level considered normal and acceptable by the County for residential use, and noise from the proposed 115-kV transmission lines and lower voltage distribution lines would be substantially less. Project related noise impacts from operation of the transmission line would be less than significant.

MITIGATION MEASURE 4.9-2

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

4.11 TRANSPORTATION

This Section identifies impacts of the Project to transportation facilities and circulation, including potential increases in traffic and potential safety hazards. The analysis documents the physical condition and capacity of the area circulation system. This information is based on field surveys, as well as a review of published materials by such sources as the California Department of Transportation (Caltrans), Stanislaus County, the City of Ceres, and the City of Hughson.

4.11.1 EXISTING CONDITIONS

The area road system generally consists of rural two lane roadways, the capacity of which is governed by such varying factors as alignment, shoulder and travelway width, passing sight distance, and the percentage of trucks, agricultural equipment, and/or recreational vehicles using the routes. Because area roads carry a significant amount of agricultural traffic during summer months, traffic volumes and operating LOS vary throughout the year (Hughson 2005).

The Project route would parallel several roadways (Table 4.11-1), and would cross, or otherwise affect several other thoroughfares. Major transportation routes in the Project area, including roadways and rail lines, are depicted in Figure 3.2.

EXISTING STREET AND HIGHWAY SYSTEM

CLASSIFICATIONS

Roadways are typically classified according to function. There are two major functions of roadways: 1) serving through traffic and; 2) providing access to adjacent properties. General classifications have been devised based upon the prioritization of these two functions. A description of each roadway type that occurs along the Project route is provided below.

FREEWAY The function of a Freeway is to provide for the safe and efficient movement of large volumes of interregional, inter-city, and urban traffic at high-speeds. Freeways have no direct land service function. Access is restricted to roads via interchanges, typically to Expressways and Majors. Parking is not permitted.

Freeways in Stanislaus County are typically planned, constructed, and operated by Caltrans. The Project would cross SR 99, a designated freeway in this area. SR 99 runs generally north to south through the central valley and provides a hauling corridor for agriculture and industry.

EXPRESSWAY The function of an Expressway is to move high volumes of people and goods between urban areas at higher speeds, depending upon the level of access control. Direct access to abutting property is specified within the standard for each expressway class. Expressways serve a similar function to Freeways - the fast and safe movement of people and goods within the county - and provide access to the interregional freeway system. On-street parking is not permitted on Expressways except under very special and rare circumstances where the Stanislaus County Department of Public Works has determined that traffic flow and safety conditions allow on-street parking. The design features of Expressways are determined by the level of access control and the number of lanes designated for each expressway route segment.

There are several classes of expressways. A “Class C” Expressway is a limited access, controlled road with traffic-controlled intersections at Majors and other Expressways. Intersections at Collectors and Locals may or may not be controlled by a traffic signal. The typical right-of-way is 110 or 135 feet (four or six lanes, respectively). On limited rights-of-way, Class C Expressways may be 100 feet for four lanes and 124 for six lanes. Within the Project area, Santa Fe Avenue is planned to be a four-lane Class C Expressway within an 85-foot right-of- way, as measured from the railroad right-of-way.

MAJOR/ARTERIAL The function of these roadways is to serve major movements and long trips, carrying moderate- to high-volume traffic between different parts of the region and to Expressways and Freeways. Limited direct access is provided to abutting property. On-street parking is permitted only where the Stanislaus County Department of Public Works has determined that traffic flow and safety conditions allow on-street parking. The typical right-of-ways range between 60 feet for a two-lane arterial with no parking to 110 feet for a six lane Major.

COLLECTOR Collectors serve a dual function by providing both access to abutting property and movement of moderate volumes of people and goods for moderate length trips. Collectors serve as transition facilities, carrying traffic from lower to higher level roads.

Most Collectors are two-lane roads with a typical right-of-way of 60 feet. On-street parking is permitted where traffic flow and safety conditions allow.

LOCAL Local roads serve as land access facilities in the agricultural areas of the County by providing both direct access to abutting property and movement of small volumes of people and goods for medium length trips. Locals are two-lane roads with a typical right-of-way of 60 feet to safely accommodate drainage, utilities, and other physical improvements that may be located within the public right-of-way. In agricultural areas of the county, roads not shown on the General Plan Circulation Diagram or as an Official Plan Line are considered Locals. This classification also includes cul-de-sac and dead-end roads in agricultural areas of the county.

ADJACENT ROADWAYS

The Project would be constructed adjacent several roadways. These roadways, and their classifications, are presented in Table 4.11-1.

Table 4.11-1 Adjacent Roadway Classifications

Road Name	Classification
East Whitmore Avenue	Arterial
Euclid Avenue	Collector
Faith Home Road	Expressway (Class B; 4 lane)
East Grayson Road*	Arterial

*Maps produced by the City of Ceres (1997) and Stanislaus County (1997) both depict East Grayson Road extending as an arterial along the northern boundaries of the Turner Road properties to the Ceres Main Canal. The reach between Central Avenue and the Ceres Main canal, which the Project would follow, is not currently developed as a roadway.

LEVEL OF SERVICE

LOS is a quantitative measure of traffic operating conditions whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment, representing progressively worsening traffic conditions. LOS "A", "B" and "C" are considered satisfactory to most motorists, and allow for the relatively free movement of traffic. LOS "D" is marginally acceptable, with noticeable delays and unstable traffic speeds. LOS "E" and "F" are associated with increased congestion and delay.

Criteria for measuring LOS has been established in the *Highway Capacity Manual* (Transportation Research Board 2000). Degrading LOS designations are generally a consequence of traffic volumes reaching or exceeding a roadway's capacity. It is Stanislaus County's policy to maintain a LOS of "C" or better on all roadways (Stanislaus County 2008). Current LOS for roadways adjacent to the Project are present in Table 4.11-2 below, where available.

Table 4.11-2 Adjacent Roadway Levels of Service

Road Name	LOS
East Whitmore Avenue	C*
Euclid Avenue	C*
Faith Home Road	unknown
East Grayson Road	unknown

*Source: City of Hughson *Street Master Plan*, 2007. Based on 2004 conditions presented in the Hughson 2005 General Plan EIR.

RAILWAYS

The Project route would cross both the BNSF and UPRR tracks. These railways transport coal, agricultural products, consumer products, and industrial products. The BNSF line runs northwest to southeast near Hughson's western boundary. The Project route would cross this line once east of SR 99, and the UPRR tracks in several locations west of SR 99.

BIKEWAYS

Bikeways are divided into three classes, defined by Caltrans in the *Highway Design Manual* as follows:

- Class I: Path physically divided from, and independent of, a roadway with its own right-of-way (generally eight feet for two-way travel).
- Class II: Areas marked by a striped lane on a roadway designated primarily for bicycle use, although vehicle parking and vehicle and pedestrian cross flow are permitted.
- Class III: Bike routes marked only with signs, where bicycles share the road with pedestrians and vehicles.

There is currently one bikeway designated along the Project route. A Class II/Class III bikeway has been developed on East Grayson Road within the City of Ceres SOI.

REGULATORY SETTING

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

According to the American Association of State Highway and Transportation Officials (AASHTO), motor vehicle collisions with utility poles result in approximately 3% of all fatal crashes annually. Although the severity of the hazard from utility poles is thought to depend on the position of the pole in relation to the traveled surface and the speed and volume of the traffic on the adjacent roads, there is little available data that documents these correlations. AASHTO has adopted criteria for safety zones (known as clear zones[17]) that allow errant vehicles leaving the road to have more than sufficient space to recover and return without striking any stationary objects. The AASHTO criteria have not been adopted by the State of California.

GENERAL ORDER 95

GO 95 was prescribed by the CPUC of the State of California in July of 1942. The order establishes policies related to the construction, operation, and maintenance of overhead electric lines. The order includes provisions related to railway crossings. In particular, GO 95 requires minimum allowable vertical clearances of wires above railroads, throughfares, or ground.

CALIFORNIA DEPARTMENT OF TRANSPORTATION

Caltrans is responsible for protecting the public's investment in the State highway system. Caltrans is divided into 12 regional districts; the Project is located within Caltrans District 10.

Utility companies that desire to conduct various activities within Caltrans' right-of-way, including aerial lines that propose to span the right-of-way, are required to submit an

[17] Defined by the Federal Highway Administration (2007) as the total roadside border area, starting at the edge of the traveled way, available for safe use by errant vehicles. It is an unobstructed, relatively flat area (such as a shoulder or auxiliary lane) that allows a driver to stop safely or regain control of a vehicle. The desired minimum width is dependent upon traffic volumes and speeds and on the roadside geometry.

encroachment permit to Caltrans for review. Caltrans' *Encroachment Permits Manual* (2002) provides the following requirements for overhead line supports crossing freeways:

1. Line supports should be located with a minimum lateral clearance of 30 feet from the edge of a through lane and 30 feet from the edge of a ramp lane, when possible.
2. Line supports should be located outside the right-of-way or between the right-of-way line and access control line if different.
3. Line supports should not be permitted in medians or on cut or fill slopes.
4. Line supports should not impair sight distances.
5. Line supports should be located compatible with access requirements.

STANISLAUS COUNCIL OF GOVERNMENTS

Stanislaus Council of Governments (StanCOG) completed a *Regional Bicycle Action Plan* in 2001 that identifies potential bikeways. This plan proposed a Class II bikeway along East Whitmore Road.

STANISLAUS COUNTY

The County's *Standards and Specifications* manual (2007) establishes standards for all work performed within the public right-of-way. Section 3.32 sets design standards for utility installation. Above ground structures not within a Public Utilities Easement should be within two feet of the right-of-way line of the adjacent roadway and a minimum of 70 feet from the centerline of any intersection.

In general, the manual discourages the use of above ground utility poles. Use of existing poles, where possible, is favorable and projects should not result in two sets of utilities poles in the same location or along the same road. The location of new utilities is subject to approval from the Department of Public Works.

The Circulation element of Stanislaus County's *General Plan* outlines the existing and projected transportation-related challenges faced by the county. The element identifies goals and implementing policies to ensure that an adequate LOS is maintained. The document also encourages the addition of bike lanes as upgrades are performed to local roadways.

CITY OF CERES

The Transportation and Circulation element of the Ceres *General Plan Policy Document* establishes the goal of providing for the long-range planning and development of the city's roadway system. The plan contains no policies specific to utility infrastructure or planning in relation to transportation.

CITY OF HUGHSON

The City of Hughson *Street Master Plan* (Fehr and Peers 2007a) documents programmed and planned roadway improvements already identified by the city or county, provides conceptual cost estimates for roadway improvements, and identifies possible funding sources to pay for roadway improvements. The City of Hughson is currently producing a Non-Motorized Transportation Plan (Fehr and Peers 2007b). The Administrative Draft of this plan does not indicate any current or proposed bikeways within the 115-kV transmission line route, beyond the stretch of East Whitmore Road identified by StanCOG.

IMPACTS AND MITIGATION MEASURES

The potential transportation impacts of the Project include increased traffic volumes, disruption of traffic flow during construction, potential traffic hazards from placing poles along public roads, and possible interference with future plans to widen or otherwise alter public roads.

METHODS OF ANALYSIS

The Project has been analyzed for potential impacts to the existing roadways in the vicinity of the Project. This Section presents a description of the analysis of Project-related impacts, including an evaluation of the Project's consistency with Caltrans, CPUC, BNSF, UPRR, and applicable city and county standards.

THRESHOLDS OF SIGNIFICANCE

Impacts are considered significant if:

- Routing the lines adjacent to the existing roadway right-of-ways would significantly impair the ability to adapt transit systems to future growth in the region (including increased right-of-ways and intersection improvements);

- The Project would cause a substantial increase in traffic relative to the existing traffic load and capacity, or would cause the LOS to fall below the established standard;
- Proposed design features would substantially increase hazards (e.g., sharp curves or dangerous intersections) or incompatible uses;
- Implementation of the Project would result in inadequate emergency access;
- Implementation of the Project would result in inadequate parking capacity;
- The Project would conflict with the operation of transportation-related infrastructure including railways and major thoroughfares; or
- The Project would conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts or bicycle racks).

IMPACTS AND MITIGATION MEASURES

The following is a description of traffic impacts that would be anticipated with Project implementation and recommended mitigation measures, as applicable.

IMPACT 4.11-1

Impair ability to adapt transit systems. *Care has been taken to identify potentially necessary and planned infrastructure upgrades along the Project alignment. However, placement of transmission structures along roadways would result in some restriction to future roadway and intersection expansion. This impact is* ***potentially significant****.*

To the extent feasible, the new transmission line facilities would be placed on the side of the road where above-ground utilities currently exist to minimize potential impacts to future road expansion projects. In addition, the transmission line facilities would be located outside of the established public right-of-way to enable expansion of the roads. This would not eliminate the potential that proposed roadway widening projects would be inhibited by the Project. Future widening of roadways that parallel the transmission route alignment, especially those that require right-of-way expansion, may decrease the ultimate available clear zone[18] between roadways and the proposed transmission line poles. While the

[18] Defined by the Federal Highway Administration (2007) as the total roadside border area, starting at the edge of the traveled way, available for safe use by errant vehicles. It is an unobstructed, relatively flat area (such as a shoulder) that allows a driver to stop safely or regain control of a vehicle. The desired minimum width is dependent upon traffic volumes and speeds and on the roadside geometry.

AASHTO criteria for clear zones have not been adopted by the State of California and are not applicable to the Project, clear zones are generally considered to beneficial public safety.

Published planning documents indicate that future expansion projects are proposed along the 115-kV transmission line route on East Whitmore Avenue and Euclid Avenue. These intended upgrades and proposed future classifications are presented below in Table 4.11-3. Additionally, according to the City of Hughson *Street Master Plan* (2007), Stanislaus County has proposed to signalize and widen the intersection of East Whitmore Avenue and Euclid Avenue.

Table 4.11-3 Potential Expansion Projects

Road Name	Potential Expansion Projects	Future Classification Proposed
East Whitmore Avenue	The City of Hughson *Street Master Plan* has identified the stretch of East Whitmore Avenue that the Project would parallel as an area that should be widened to four lanes (Fehr & Peers 2007a).	Four-lane Arterial
Euclid Avenue	The City of Hughson has proposed re-routing of Euclid Avenue to intersect with Santa Fe Avenue north of the current location. This would permit reconfiguring of the five-arm intersection at East Service Road, Euclid Avenue, and Santa Fe Avenue to a standard four-arm, signaled intersection. The Project would be constructed along the current alignment of Euclid Avenue from East Whitmore Avenue to the Santa Fe Avenue/East Service Road intersection.	Major Collector

Within the City of Hughson, streets identified for upgrade to Major Collectors will require 80 feet of right-of-way. This requirement has been developed to accommodate projected traffic demand, to facilitate the movement of large trucks, and/or to improve safety due to limited visibility or other safety hazards. Four-lane arterials, the classification to which East Whitmore Avenue is proposed for upgrade, require 100 feet of right-of-way. The *Street Master Plan* (2007) indicates that the expansion of East Whitmore Avenue will require the acquisition of additional right-of-way.

Additionally, the Project would cross SR 99 between Mitchell Road and East Keyes Road. Caltrans has prepared the *Route 99 Corridor Master Plan*, which outlines a plan to bring SR 99 to Interstate Highway standards by 2030. This will require upgrade of several stretches of freeway and elimination of at-grade intersections. The point of the proposed overcrossing is within a reach of freeway that generally meets the 2030 Facility Concept, and no major upgrades are planned for this area.

MITIGATION MEASURE 4.11-1

The location of proposed utility infrastructure shall be made available to the Stanislaus County Department of Public Works for review and comment prior to construction. In addition, TID will review the City of Hughson's Street Master Plan prior to design and utility pole placement, in an effort to minimize impacts to the proposed upgrades identified in Table 4.11-3.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.11-2

> **Increase local traffic volumes.** *Project-related construction traffic would result in a moderate increase in usage of local roads and potential disruptions. This impact would be considered **potentially significant**.*

INCREASED TRAFFIC During construction of the proposed transmission line, approximately 25 workers would be present along the entire transmission line alignments, working in six-person crews at different locations. These workers would travel daily to the marshalling yard, where the crew members park their personal vehicles and proceed to jobsite with diggers, bucket trucks, pickups, etc. Poles and other construction equipment would also be delivered to the sites.

A 10- to 15-person crew would be used for substation construction. Access to the site would be via local and agricultural roads. Increased traffic volume would be noticeable on some little used roads; however, given the small size of the construction crews and the brevity of the construction activities at any one location, these temporary increases in traffic would not be significant. Impacts to traffic volumes would be comparatively much less than those that are typically associated with seasonal harvesting operations.

TRAFFIC DISRUPTIONS With the exception of public roadway crossings, the transmission lines would be sited within private easements or irrigation district rights-of-way. Consequently, potential impacts to traffic disruption would be largely avoided. However, during construction, where the temporary construction zone would cross public roadways, or locations where the temporary construction zone could potentially encroach along the length of a roadway right-of-way, there could be potential temporary impacts to traffic flow and local access. Any transmission line construction zone that would extend within or across the local public road rights-of-way may require temporary and localized lane closures while raising the poles and stringing the conductors. These temporary closures would be more significant on major and collector roads with higher traffic volumes. Lane closures could be anticipated to last several hours, closing one lane for approximately one mile at a time. Temporary traffic interruptions on local roads may result in short-term impacts to traffic conditions.

MITIGATION MEASURE 4.11-2

Temporary traffic controls shall be implemented to minimize the potential for construction activities to result in traffic disruptions. Signs and/or flagmen shall be in place to alert drivers of approaching lane closures and construction activities, and to safely maintain potential alternate one-way traffic flow, as needed. Controls would follow Caltrans' most recent *Manual of Traffic Controls for Construction and Maintenance in Work Zones*, and road closures would be coordinated with the Stanislaus County inspector. As required by the County's *Standards and Specifications* (2007), all traffic lanes would be opened during peak traffic hours: Monday thru Friday 7:30 to 8:30 a.m. and 4:30 to 5:30 p.m. Any traffic control plan to be implemented within Stanislaus County's right-of-way shall be submitted to Stanislaus County Public Works for approval.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.11-3

Substantially increase hazards. *Poles and other infrastructure associated with the Hughson-Grayson Transmission Line and Substation Project would be placed a safe distance from travelways and intersections. This impact would be considered **less than significant**.*

The Stanislaus County *Standards and Specifications* stipulate that all above-ground permitted utilities/facilities shall be placed in Public Utilities Easement. If no such easement exists, then the edge of utilities/facilities shall be located within two feet of the roadway right-of-way line. TID plans to locate the poles for the proposed transmission line in private easements outside the road right-of-ways. Thus, the Department of Public Works' *Standards and Specifications* do not apply to the Project.

INTERSECTIONS Site-specific factors can affect the visibility at the intersection. Stanislaus County requires that poles at intersections be placed to avoid interfering with the view of oncoming traffic, generally a minimum of 70 feet from the centerline of the intersection (Stanislaus County Department of Public Works 2007).

MITIGATION MEASURE 4.11-3

TID shall consult with county officials in the field regarding the proper placement of poles at intersections on a case-by-case basis. Visibility strips shall be placed on the poles to reduce potential hazards to motorists.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.11-4

> ***Result in inadequate emergency access.*** *The Project would not impair existing emergency access, and adequate access would be provided to proposed facilities, including transmission infrastructure and the Grayson Substation. The Project would have a* ***less-than-significant*** *impact on emergency access.*

The proposed transmission infrastructure would not inhibit emergency access to any established resources or improvements, including homes, businesses, canals, or agricultural land. Emergency access to the proposed transmission line would be via local roadways, TID canal access roads, and easement clearings where no roads exist. The Grayson Substation would be accessible from East Grayson Road, via a secured gate on the perimeter fencing.

MITIGATION MEASURE 4.11-4

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.11-5

Result in inadequate parking. *The Grayson Substation would provide adequate parking. Project implementation would result in a* ***less-than-significant*** *impact.*

The Project would not remove any parking currently available to the public. Therefore, there would be no long term loss in parking opportunities. During construction, roadway closures and the additional need to locate construction vehicles may reduce parking availability. This is not expected to impact parking in the Project area, as the need for parking in the rural residential area is low.

Following completion, the Project would require parking facilities at the Grayson Substation. The facility shall be designed to accommodate this requirement. Parking along the transmission line routes for inspection activities will occur within an established easement and will not impact parking conditions.

MITIGATION MEASURE 4.11-5

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.10-6

Conflict with the operation of local railways or SR 99. *The Project would cross SR 99 and established rail lines in several locations. Impacts would be considered* ***potentially significant****.*

The Project route would cross the BNSF line as it passes over TID Lateral No. 2. Further west, the 115-kV line would cross over the UPRR tracks that parallel SR 99 near TID Canal No. 2 ½. Along East Grayson Road, the UPRR tracks that run north to south between Morgan Road and Crows Landing Road would be crossed by the 115-kV line and Section Two 69kV line, on the south and north side of East Grayson Road, respectively. The Section Two 69-kV line connecting the proposed substation to the Almond Power Plant would cross these same tracks two more times (see Figure 3.2).

Railroad crossings would be designed at an angle approximatley 90 degrees to the centerline of the tracks. The transmission lines would completely span railroad property, with supportive structures located outside the property bounds. For each crossing, an overhead wireline crossing permit will be obtained from the appropriate railroad company.

The 115-kV transmission lines would cross roughly perpendicular to SR 99, south of Ceres and north of the Faith Home Road crossing. Transmission poles would be placed outside Caltrans' right-of-way; however, an overhead aerial encroachment permit would be required. This permit would include procedures for traffic control to minimize potential impacts.

MITIGATION MEASURE 4.10-6

Appropriate BNSF, UPRR, and Caltrans procedures shall be followed at all crossings. All work near the BNSF line shall be conducted in conformance with the procedures contained in the railway's *Utility Accommodation Policy* (2007). UPRR crossings shall follow the railway's *Procedures for Wireline Crossings*, and TID shall complete and submit to UPRR the required online application for work.

For construction of lines that would cross the SR 99, an encroachment permit (TR-0100) would be required from Caltrans. In conjunction with this permit, traffic control shall be implemented by the California Highway Patrol. These measures will include rolling breaks of durations sufficient for construction personnel to install pull rope and string conductors across the freeway

Temporary support poles may be placed at protected locations outside shoulders and in medians to prevent pull ropes or conductors from accidentally falling during installation.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.11-7

> **Conflict with adopted programs supporting alternative transportation.** *The Project would be constructed adjacent to the right-of-way of several roadways, potentially limiting opportunities to expand the existing right-of-ways to accommodate bike lanes or walking paths in the future. This impact would be considered* ***potentially significant****.*

The Project would be located in a rural, agriculturally based region of Stanislaus County, outside of major city centers. It is not anticipated that these areas will experience a change in current usage in the near future. Planning documents indicate that there is one bikeway along the Project route. *The City of Ceres' General Plan* identifies East Grayson Road as a Class II/III bikeway. Such bikeways are located in the roadway and would not be impacted by the placement of utility poles outside of East Grayson Road's right-of-way.

The *Regional Bicycle Action Plan* has proposed a Class II bikeway along East Whitmore Road (StanCOG 2001). According to the City of Hughson's General Plan (2005), East Whitmore Avenue is currently a two-lane arterial with 100 feet of right-of-way.

The Project would have no impact on current or future use or operations of public transportation means. Further, it would in no way impact the walk-ability of the route.

MITIGATION MEASURE 4.11-7

TID shall make construction plans and alignment details available to local agencies (including the City of Hughson and StanCOG) for identification of potential right-of-way issues related to future roadway and bikeway path upgrades.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

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4.12 PUBLIC SERVICES AND UTILITIES

This Section provides an overview of the existing public services and utilities in the Project area and an analysis of the Project's potential to impact these services. Mitigation measures are provided, as necessary, to reduce potential impacts.

4.12.1 EXISTING CONDITIONS

PUBLIC SERVICES

SCHOOLS

The Project would span an area served by the Hughson Unified School District, the Ceres Unified School District, and the Keyes Union School District. The three districts support 28 schools, and there are also two private schools located in the region. Class sizes and teacher to pupil ratios in Stanislaus County are roughly equivalent to the statewide average (Education Data Partnership 2009).

The nearest school to the Project is Hughson High School, located on 41 acres at 7419 East Whitmore Way, Hughson, California. This facility supports approximately 750 students. Hughson High School is located approximately 2,000 feet east of the Project (Hughson Unified School District). California Department of Education specifies minimum safety clearances between schools and transmission lines.

RECREATIONAL FACILITIES

Stanislaus County's Parks Master Plan identifies 25 existing county parks and several areas where new facilities are needed and proposed. The Project would not be located near any of these sites. *The City of Ceres General Plan*, however, indicates that a potential general community park location is west of the Ceres Main Canal, immediately north of where the Project would turn west off of the canal to reach East Grayson Road.

FIRE PROTECTION

The Project is located within the Keyes, Hughson, Westport, and Ceres Fire Protection Districts. These districts, which are primarily manned by volunteer staff, each have a station near the Project. The nearest Hughson and Ceres stations are less than one mile from the Project, while the Keyes Fire Protection District is located roughly 1.25 miles south of the Project. The proposed substation would be within the Westport Fire Protection District, which is located approximately 2.5 miles west of the station site. Stanislaus County response times are maintained between three and five minutes.

LAW ENFORCEMENT

The Project would be located in the Central Command Area of the Stanislaus County Sheriff's Office. The Central Command Area office is located at 250 East Hackett Road in Modesto, California. The Sheriff's Office provides law enforcement to a population of over 100,000, covering an area of approximately 1,521 square miles. The Sheriff also provides the full spectrum of law enforcement to four Contract Cities, including the City of Hughson (Stanislaus County Sheriff's Department 2009). Hughson Police Services' offices are located at 7018 Pine Street in Hughson, California.

PUBLIC UTILITIES

WATER SUPPLY

Domestic water in the region is supplied by groundwater wells. Irrigation water is delivered to the area by TID, which diverts water from the Tuolumne River. Water is distributed through laterals and canals, via gravity flow, to a 307 square mile service area (TID 2008).

SOLID WASTE

The Stanislaus County Fink Road Landfill is located approximately 13 miles south of the proposed substation and Project area. The landfill receives all of the non-recyclable garbage from Stanislaus County, approximately 95 percent of which is then sent to the Waste to Energy cogeneration facility where it is burned for electricity. The remaining non-recyclable, non-combustible garbage is buried in the landfill.

ELECTRICAL SERVICES

The Project is located within TID's 662 square mile electric service area, which encompasses the communities of Turlock, Ceres, South Modesto, La Grange, Patterson, Crows Landing, Hilmar, Keyes, Denair, Hughson, Delhi, Ballico, Hickman and Diablo Grande (TID 2008).

EXISTING UTILITY LOCATIONS

OVERHEAD UTILITIES TID has existing 69, 115, and 230-kV transmission lines running through the Project area, as well as a network of 12-kV distribution lines. In addition, various telecommunication companies have distribution systems throughout the area, primarily located on TID poles. There is an existing 69-kV line located along TID Lateral No. 2 east of SR 99, which the Project would also follow. In addition, the Project would cross under, and run parallel to, a 230-kV line that runs along the Ceres Main canal, and would cross a 69-kV line that runs north-south on Morgan Road on East Grayson Road.

UNDERGROUND UTILITIES Underground utility lines such as irrigation pipelines, gas lines, and communication lines are located within the Project area.

4.12.2 REGULATORY SETTING

UNIFORM FIRE CODE/UNIFORM BUILDING CODE AND CALIFORNIA CODE OF REGULATIONS

Federal regulations and standards relating to fire protection are contained in the Uniform Fire Code and the UBC. The UBC has been modified to reflect California's conditions and is implemented as the CBC in the CCR.

FEDERAL ENERGY REGULATORY COMMISSION

The Federal Energy Regulatory Commission is responsible for regulating the transmission and sale of electricity and gas in interstate commerce.

CALIFORNIA PUBLIC UTILITIES COMMISSION

The California PUC regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. The PUC promotes water quality, environmental protection, and safety through establishing service standards and the enforcement of CEQA regulations with regard to utility construction.

CALIFORNIA INTEGRATED WASTE MANAGEMENT ACT

The California Integrated Waste Management Act of 1989 mandates that all counties and cities must provide fully integrated systems to manage their solid waste. A county is required to produce a comprehensive planning and implementation document, a Countywide Integrated Waste Management Plan, to serve as a framework for solid waste management activities within each county.

REGIONAL WATER QUALITY CONTROL BOARD

The RWQCB implements the CWA, Section 303 of which requires states to adopt water quality standards for Waters of the US. In addition, the California Water Code, Section

13260, which requires a ROWD for persons or projects proposing to discharge wastes that could affect the quality of waters of the state, is overseen by the RWQCB. Furthermore, RWQCBs set numeric and narrative standards for water quality based upon federal regulations and the Porter-Cologne Water Quality Control Act.

CERES GENERAL PLAN

The Public Facilities and Services chapter of the General Plan includes several policies designed to meet the city's goal of ensuring that utility infrastructure provided by private companies is constructed to minimize negative effects on surrounding development. The city promotes technological improvements and upgrading of utility services, and requires undergrounding of utility lines in new development and redevelopment areas, as feasible given financial and operational considerations.

4.12.3 IMPACTS AND MITIGATION MEASURES

METHODS OF ANALYSIS

Impacts on Public Services and Utilities were identified by comparing existing services and facilities against future demand associated with Project implementation.

THRESHOLDS OF SIGNIFICANCE

Impacts would be considered significant if the Project would:

- Result in substantial adverse physical impacts associated with the provisions of new or physically altered governmental facilities, the construction of which would cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for public services including fire protection, police protection, schools, and other public facilities;
- Impact existing or proposed schools;
- Adversely effect existing utility infrastructure;
- Conflict with any applicable policies regarding the construction of public services;
- Be served by a landfill with insufficient permitted capacity to accommodate the Project's solid waste disposal needs or be unable to comply with federal, state, and local statutes and regulations related to solid waste;

- Exceed the wastewater treatment requirements of the Central Valley RWQCB or require, or result in, the construction of new facilities for wastewater treatment or stormwater drainage that could cause a significant effect on the environment; or
- Have insufficient water supplies available to serve the Project from existing entitlements.

IMPACT ANALYSIS

IMPACT 4.12-1

Result in substantial adverse physical impacts associated with the provisions of new or physically altered government facilities. *The Project does not require the construction of new facilities to achieve current performance objectives for the maintenance of public services. The Project would have **no impact.***

The Project would not overburden the existing public services, or necessitate new or altered government facilities. No change in the type or amount of community police protection is anticipated as a result of the Project. Under the Project, the Grayson Substation would be enclosed with chain link fencing, topped with barbed wire to discourage unauthorized access, and would also have perimeter motion sensors.

Transmission and distribution lines have the potential to start fires in rare situations when the lines come into contact with nearby tree branches or other dry vegetation during windy conditions. Fires caused by transmission lines can be largely avoided by ensuring sufficient separation between the branches and the electrical lines, and by properly maintaining the protective devices in the system. The lands that the Project would traverse are primarily cultivated agricultural lands and orchards. Within these areas, the risk of wildland fire is generally low because agricultural properties are typically well maintained, with little undergrowth and minimal deadwood.

All substation and transmission line facilities would be designed and constructed in compliance with applicable fire codes and standards. Following Project implementation, TID shall periodically inspect the substation and transmission line segments, and trim vegetation around the transmission line poles and conductors to maintain adequate distances between electrical hardware and vegetation to avoid fire hazards. Inspections shall be performed in accordance with GO 95 and Go 165.

During Project construction, it may be necessary to implement lane closures and detour traffic, which may result in short-term impacts to the response times of fire or police personnel responding to emergencies. Such impacts, however, would not require the addition of government facilities.

Further, there may be temporary and localized disruptions in electrical service as a result of Project construction. These interruptions (less than eight hours each and effecting only a few homes at a time) are needed to transfer the existing lines to new poles. Project implementation plans do not include provisions for temporary facilities, which could be installed to avoid interrupting electrical service, if necessary.

MITIGATION MEASURE 4.12-1

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No impact

IMPACT 4.12-2

Impact existing schools. *The Project would be in compliance with the safety distances of 100 feet from schools for 115-kV transmission lines specified in the California Department of Education regulations. Therefore, the Project is expected to have **no impact** on existing schools.*

The Project would be located outside of the 100 foot safety distance established by the Department of Education regulations for 115-kV transmission lines.

The Project itself would not contribute to a need for new schools, and there are no known plans for the construction of new schools along the Project route. In the future, however, if a need arises for new schools in the vicinity, the proposed TID transmission line would constitute a constraint on the siting of the new school. This impact is not expected to be significant because no new schools are currently planned. If new schools are required in the future, there are sufficient siting choices to ensure that the safety distances mandated by the Department of Education can be observed. The Project is not expected to result in a significant impact to existing or future schools.

MITIGATION MEASURE 4.12-2

No mitigation necessary

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No impact

IMPACT 4.12-3

Adversely effect existing utilities. *The Project would cross, and run parallel to, existing utility lines. Construction would result in a* ***potentially significant*** *impact.*

The Project would cross several existing utility lines. There may be temporary disruptions in service as a result of Project construction. These interruptions (less than eight hours each) are needed to transfer the existing lines to new poles.

MITIGATION MEASURE 4.12-3

During transmission line design, TID shall coordinate with other local utilities to avoid alignment conflicts. TID shall locate existing underground natural gas, petroleum, water, irrigation, and communication lines at, or adjacent to, the planned pole locations, and shall adjust proposed pole placement, if necessary, to avoid interference with these utilities. Underground Service Alert shall be notified at least two working days prior to any digging. TID shall provide 48 hours advance notice to customers along the transmission line of any temporary disruptions in service that may result from Project construction.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.12-4

Conflict with utility construction policies. *The proposed infrastructure would be constructed in compliance with applicable policies regarding the construction of public services. All infrastructure would be located above ground. Therefore, the impacts associated with the Project would be* ***less than significant****.*

The Project would be constructed in conformance with the CBC and industry guidance documents. Additionally, the Project is considered consistent with applicable local policies.

The Section Two 69-kV line that would extend from the Grayson Substation to the existing Almond Power Plant would be partially within the City of Ceres. The city's General Plan states that, in areas of new development or redevelopment, the city requires that utilities are undergrounded, if feasible. The Project would not be completed in conjunction with any new development or redevelopment and TID does not underground transmission lines of this voltage. Further, the proposed line would not be suitable for undergrounding due to engineering constraints. Several other lines connect to the Almond Power Plant. These existing utilities are also above ground.

MITIGATION MEASURE 4.12-4

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.12-5

Be served by a landfill with sufficient capacity to accommodate the Project's solid waste needs. *The disposal of used poles and other discarded Project materials would not significantly affect landfill operations or available capacity. Therefore, the impacts associated with the Project would be* ***less than significant****.*

Approximately 150 existing distribution and transmission poles would be replaced through implementation of the Project. Wooden poles may have been treated with, and could contain, quantities of pentachlorophenol, copper napthenath, or other materials on the State Toxic Characteristic List. Poles treated along their entire length with these chemicals cannot be disposed of in the county landfill. Poles that cannot be sent to the landfill would either be re-used or recycled to the public for construction and landscape-related uses.

Poles that have not been treated, or have been only partially treated along the length buried below ground would be sent to the Stanislaus County landfill on Fink Road. Disposal of the used poles would not significantly affect the capacity or operation of the Fink Road Landfill. No significant amount of electrical equipment, other than poles, would be disposed of as a result of this Project. TID plans to comply with all federal, state, and local statutes and regulations regarding solid waste.

MITIGATION MEASURE 4.12-5

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT 4.12-6

Exceed wastewater treatment requirements or require construction of new facilities. *The Project would not require the construction of new facilities for wastewater treatment or storm water drainage and would not exceed the wastewater treatment requirements of the Central Valley RWQCB. The impact to water treatment facilities would be* ***less than significant****.*

The Grayson Substation would require the installation of a septic tank for disposal of wastewater associated with lavatory facilities. No other wastewater would be generated through facility operations, and no further infrastructure would be required.

Potential impacts to stormwater quality as a result of Project construction are addressed in Impact 4.4-1 of this document.

MITIGATION MEASURE 4.12-6

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

IMPACT4.12-7

Have insufficient water supplies. *Existing groundwater supply would be sufficient to serve the operational requirements of the Project. Impact to water supply would be* ***less than significant****.*

One of the control buildings for the Grayson Substation would have a restroom for maintenance workers who would be on-site approximately once a month. A one hp, single phase groundwater well would be constructed to provide water for domestic purposes. Groundwater supply is sufficient to support this limited use.

MITIGATION MEASURE 4.12-7

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

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4.13 SOCIOECONOMICS

This Section describes the existing social and economic conditions in Stanislaus County and the cities of Ceres and Hughson[19]. Socioeconomic factors include population, housing, employment, income, and community infrastructure.

4.13.1 EXISTING CONDITIONS

POPULATION

The United States Census Bureau (2009) has estimated the 2008 population of Stanislaus County at 510, 694, representing a 14 percent increase since the year 2000. The Department of Finance population estimates for January 1, 2009 were 526,383. This population is projected to reach 699,144 in the year 2020, and climb to 1,191,344 by 2050. The current populations (as of January 1, 2009) of Hughson and Ceres are estimated to be 6,193 and 42,998, respectively (DOF 2009). Within the City of Ceres, population grew an estimated 22 percent between 2000 and 2006, with an estimated 2006 population of 42,245. The median age in Ceres is 31, and approximately 45 percent of the homes have children. Stanislaus County predicts that the growth will occur primarily within and adjacent to established urban areas and has promulgated policies to preserve agricultural land.

HOUSING

In 2007, there were an estimated 173,590 housing units in Stanislaus County. The homeownership rate in 2000 was 62 percent (Census 2009). The median home price in Stanislaus County in 2008 was $157, 250.00, a decrease in value of 44 percent from the previous year. The median home price in Ceres in 2008 was $174,000, a 41 percent decrease from the previous year (California Associate of Realtors, 2008)

EMPLOYMENT

The communities near the Project are primarily agricultural/residential. There are few employment centers (generally downtown and industrial areas). Many residents travel to larger city centers for work. For example, 85 percent of Hughson's population travels outside the city for work (DCE 2005). As of April 2009, there was a total available workforce in

[19] Although the Project would not be located within the City of Hughson's jurisdiction, socioeconomic information regarding the city is included in this Section due to the city's proximity to the Project.

Stanislaus County of 240,900, of which approximately 200,500 are employed. This represents a 16.7 percent unemployment rate (EDD 2009).

4.13.2 REGULATORY SETTING

STANISLAUS COUNTY GENERAL PLAN

The Stanislaus County General Plan does not have specific goals and policies pertaining to socioeconomics. The General Plan Housing Element however, identifies the housing needs in unincorporated area of Stanislaus County and establishes goals, policies and programs that address those needs. The Housing Element does not specifically address the siting of electrical transmission lines as they relate to housing and population dynamics within the County. However, Goal 3 of the Housing Element establishes a goal to: "Maintain the supply of sound, affordable housing in the County through conservation of the currently sound housing stock, newly constructed and rehabilitated units by taking every action possible."

CERES GENERAL PLAN

The Ceres General Plan does not have specific goals and policies that pertain to socioeconomics. However, it does identify two geographic growth phases within the Urban Growth area. The plan sets a policy of 4.2 percent average annual growth, which it implements through area-wide plans that strive to reach a balance between residential and employment issues. The plan also encourages the preservation and enhancement of the city's existing neighborhoods through maintenance and rehabilitation efforts, and promotes continued infill development that maintains the character of the existing neighborhoods. Goal 1.B of the General Plan pertains to the management of growth, which is to occur in an orderly pattern consistent with economic, social, and environmental needs while maintaining Ceres' small town character and preserving agricultural lands.

4.13.3 IMPACTS AND MITIGATION MEASURES

METHODS OF ANALYSIS

The anticipated effects of the Project have been analyzed for their potential to promote population growth or displace the existing population. Additional analysis is provided regarding the potential for the Project to impact the value of adjacent homes and associated improvements.

THRESHOLDS OF SIGNIFICANCE

The following thresholds have been developed as significance criteria for evaluation of the Project's potential impacts. Impacts would be considered significant if the Project would:

- Induce substantial growth or concentration of population;
- Displace substantial numbers of existing people or houses, necessitating construction of replacement housing elsewhere; or
- Cause a substantial permanent decrease in housing values.

IMPACT ANALYSIS

IMPACT 4.13-1

Induce population growth or concentration. *The proposed transmission and substation facilities are expected to have **no impact** to population and housing in the vicinity of the Project.*

CONSTRUCTION Construction of the Hughson-Grayson 115-kV Transmission Line and Substation Project would require a peak workforce of approximately 60 people. Project construction would be performed by local workers that are either TID employees, contractors to TID, or a combination of both. In 2008, the Natural Resources, Mining and Construction sector workforce was estimated to be 9,300 workers (EDD 2009). The 60 workers required for construction of the Hughson-Grayson 115-kV Transmission Line and Substation Project represents less than one percent of the estimated workforce in the Natural Resources, Mining, and Construction sector. Therefore, there is sufficient construction labor available in Stanislaus County for the Project.

In the event that the Project workers commute from outside the area, it is unlikely they would relocate given the duration of the construction activities, which is estimated to be approximately one year for the transmission lines and substation. However, adequate numbers of temporary residences are available in the communities neighboring the proposed line to accommodate these workers. For example, there are 47 hotels/motels in Stanislaus County with a total of 3,332 rooms. Hotel occupancy rates for the period November 2007 through October 2008 averaged approximately 42 percent (CH2MHill 2009). Potential workers from outside the general Project area are not expected to purchase homes during their brief employment in the area. If workers desire to purchase homes, however, a sufficient supply of vacant houses is available. As of July 2009, there were 1,965 single-family homes available for sale in Stanislaus County (Metro List Services Inc). Thus, their relocation would not induce pressure on the local housing supply.

Consequently, construction of the Project would not create a significant increased demand for housing or public services, nor would it cause a substantial increase in population. Therefore, the construction phase would have a less than significant impact and would not induce population growth or concentration.

OPERATION During operation of the proposed transmission line and substation, a peak workforce of two people would be required, and work would be intermittent. The operations workforce would consist of existing TID employees, and would therefore, not have any impact on growth or population. However, assuming two additional workers were hired to perform these maintenance responsibilities, the increase in population would not constitute a substantial growth in population. Therefore the Project would result in a less than significant impact and would not induce population or concentration once the Project is operating.

The proposed transmission line would provide power to areas currently receiving services, along with increased capacity for planned future development. Reduced and stable electricity prices are expected to result from the Project. However, these changes alone are not expected to induce population growth in the area. Chapter 6 of this document addresses the growth-related effects of the Project.

MITIGATION MEASURE 4.13-1

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No impact

IMPACT 4.13-2

> **Displace substantial numbers of existing people or houses**. *The Project is consistent with Stanislaus County and the City of Ceres' major goals and objectives for development. The implementation would have **no impact** on displacing populations. .*

Implementation of the Project is not anticipated to displace large numbers of people. The Project does not call for either the removal or relocation of any existing housing. No transmission lines would run directly over existing houses, nor would new lines impede residents' ability to access or maintain their buildings.

Residents along the Project route would not need to relocate during construction activities. No significant downsizing of either employment opportunities or public services is expected.

MITIGATION MEASURE 4.13-2

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No impact

IMPACT 4.13-3

Property values. *The Project would have a **less-than-significant** impact on property values.*

Although CEQA does not require a discussion of economic impacts, property owners along transmission line routes have expressed concern during public scoping of this EIR that the installation of overhead transmission lines and poles may decrease property values. Studies on the impact of transmission lines on property values have been reviewed to determine potential impacts. Although these studies were conducted in other areas of the country and evaluated transmission line facilities that were different from the Project, they provide some guidance for assessing impacts on real estate.

When buying a property, several factors are considered (such as school districts, community services, scenic beauty, recreational opportunities, and commute distances). The relative importance of each of these factors varies among individuals. Likewise, the importance of nearby power lines will vary among prospective buyers and is largely subjective.

In her 1992 synopsis of previously conducted summaries compiled for the Edison Electric Institute, Cynthia Kroll determined that overhead transmission lines have the potential to reduce the sales price of agricultural and residential properties. This reduction was generally observed on the magnitude of zero to 10 percent. The paper concluded that other factors (such as neighborhood, size of lot, and irrigation potential) are more likely to be major factors in determining the sales price of a property.

Additionally, a transmission line's negative effects are most likely to occur to properties crossed by, or immediately adjacent to, the line and may be greater for smaller properties. These impacts are greatest following construction and may diminish over time.

SINGLE FAMILY HOMES A recent study undertaken by Des Rosiers (2003; as cited in CH2M Hill 2006) in a suburb of Montréal found that, in general, homes adjacent to the transmission line right-of-way and facing a transmission tower experience a drop in property value of 10 percent. Conversely, a number of studies provide evidence that, in some cases, overhead transmission lines and their rights-of-way may have positive effects on the value of some properties. The degree to which this occurs depends very much on the circumstances of the line itself, the neighborhood, and the improvements made to the right-of-way. The Des Rosiers study found that, for properties located next to the transmission line right-of-way, but not right next to a transmission tower, there is a positive price impact that ranges from seven to 22 percent. Des Rosiers also found that for properties that were not immediately adjacent to the right-of-way, but for which the transmission corridor affords views of an open character, the presence of the corridor can be an asset. In fact, these properties with improved access views as a result of utility easements experienced value increases in the range of three to four percent.

AGRICULTURAL LAND Impacts ranging from no effect to up to a 20 percent decrease in value have been found in cases where there were disruptions to irrigation and farm operations resulting from transmission line location (Jensen Management Services 1983; as cited in CH2M Hill 2006). Often, negative effects are felt by those properties where there is potential for residential development.

DISTANCE EFFECTS As in most real estate transactions, the impact of the Project would depend on location; in this case, the location of the property and the location of the proposed facilities. Several studies that have found transmission lines to affect property values include findings that the effects are highest in the areas closest to the transmission line and taper off quickly with distance. A study conducted by Colwell and Foley (1979; as cited in CH2M Hill 2006), for example, found the effects to be highest within 50 feet of the right-of-way and then to drop off very quickly with increasing distance, disappearing almost entirely after 200 feet.

The aesthetic appearance of the poles can influence the impact on property values. Elements of the Project design, including pole color and pole heights, reduce the aesthetic impacts of the proposed transmission and distribution lines. Where views of lines and towers are unobstructed, negative impacts can extend up to ¼ mile. However, if at least partially screened by trees, landscaping, and topography, negative effects are reduced considerably (Pitts 2007).

Where the transmission facilities are located in rural areas, the impact on property values is expected to be less than significant. Utility poles are common in these areas, and property values are dominated by the value of the land rather than the aesthetic appearance. Nevertheless, there is the possibility that some less-than-significant reduction in property values may occur, particularly in relation to adjacent residential uses.

The proposed transmission line design has oriented the line so as to follow property boundaries (i.e., not to split parcels), reducing the potential impact to irrigation and farming operations. Locating transmission lines near residences has been avoided to the extent possible. Where not possible, priority will be given to placement of poles in locations other than directly across from residences.

MITIGATION MEASURE 4.13-3

No mitigation required

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Less than significant

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5.0 ALTERNATIVES ANALYSIS

5.1 INTRODUCTION

5.1.1 CEQA AUTHORITY FOR CONSIDERATION OF ALTERNATIVES

Section 15126.6(a) of the California Environmental Quality Act (CEQA) Guidelines requires Environmental Impact Reports (EIRs) to describe "...a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives."

5.1.2 BASIC PROJECT OBJECTIVES

The basic objectives of the Hughson-Grayson 115-kV Transmission Line and Substation Project (the Project) are to deliver additional energy supplies and improve system reliability. There are currently no east-west trending power lines connecting Turlock Irrigation District's (TID's) distribution system in the east to its transmission system in the west north of the City of Turlock. As such, bridging the towns of Hughson and Ceres was deemed essential to this Project. TID utilizes its 69 and 115 kilovolt (kV) transmission systems to distribute power to substations throughout its service territory. Currently, the Ceres area is only served by the 69-kV system, and that system is near capacity. There is a need to provide voltage support to the west Ceres area to serve forecasted load growth.

A transmission system operating at or near capacity is more likely to experience local outages. To remedy this issue, TID currently has to institute operating limitations to prevent overloading the 69-kV transmission system in Ceres. These operating limitations include, for example, operating the existing Almond Power Plant when it may be uneconomical to do so in order to reduce the amount of electricity traveling through the 69-kV transmission lines to the Ceres area. In addition, when a transmission system operates at or near capacity, the conductors sag due to increased heat resulting from high amperage in the lines. The sagging impedes the ability to maintain electrical safety clearances (i.e. the required safe distance from the line to ground or other conductors) which can result in reliability and safety concerns.

TID requires a project that eliminates these constraints. First, the project should enable the Ceres area to be served by TID's 115-kV transmission system, increasing system reliability and reducing strain on the existing 69-kV transmission system. Second, the project should provide additional reliability to the TID system by providing another means of bringing electricity in and out of the area. This would provide voltage support to the west Ceres area, accommodating forecasted load growth. Third, the project must provide another way of transmitting electricity generated by the existing TID Almond Power Plant to the Ceres Area and the TID transmission system. A final project objective is to provide an additional reliability through a dedicated crossing over State Route (SR) 99, allowing the District to move electricity east-to-west and west-to-east as system conditions dictate.

DISTRIBUTION SUBSTATION OBJECTIVES

TID has developed guidelines for distribution substation site selection. The guidelines serve as the foundation for the objectives of the substation, which are as follows:

- Locate the substation in proximity to load centers;
- Locate the substation in proximity to arterial streets;
- Parcels must be of sufficient size for the substation and potential future expansion;
- The substation should minimize impacts to onsite wetlands, special-status plant and animal species, and cultural and paleontological resources;
- Provide available (or developable) power line capacity;
- Preference for compatible adjacent land uses and zoning;
- Minimizing development on parcels of land that have a Williamson Act contract;
- Minimizing the land use impact by affecting the smallest percentage of a parcel of land;
- Minimizing the need to relocate existing facilities, infrastructure, or utilities;

- Siting in areas that are least susceptible to flooding, fire, and other natural or human-made disasters; and
- Community and agency input.

Distribution substations are sited as centrally as practicable to the loads they serve in an effort to maintain system performance standards of low electric losses and high reliability.

TID Objectives for Transmission Lines

TID has also developed guidelines, which are the basic objectivs for routing transmission lines. The guidelines for transmission line routing require the following:

- Use of existing overhead circuit routes and other utility corridors that could include canals, drainage corridors, parkways, open space, freeways, and railroad alignments;
- Following arterial streets;
- When the alignment is not along a street, following property lines to minimize bisecting parcels of land;
- Affecting the smallest percentage of a parcel of land;
- Preference for an alignment that is the shortest length with the fewest angles;
- Minimizing impacts to wetlands, special-status vegetation and wildlife species, and cultural and paleontological resources along the alignment;
- Preference for compatible adjacent land uses and zoning;
- Consideration of compatibility with potential future expansion;
- Avoidance of freeway access areas and airport approach/departure flight zones;
- Minimizing the land use impact by affecting the smallest percentage of a parcel of land;
- Minimizing the need to relocate existing facilities, infrastructure, or utilities;
- Minimizing residential communities' visual impacts and electrical and magnetic field (EMF) exposure;
- Siting in areas that are least susceptible to flooding, fire, and other natural or human-made disasters; and

- Community and agency input.

5.2 POTENTIAL ALTERNATIVES ELIMINATED FROM FURTHER DISCUSSION

5.2.1 ALTERNATIVE SEGMENT ALIGNMENTS

The potential to follow TID Lateral No. 2 from Faith Home Road west to State Route (SR) 99, and along Mitchell and Gondring Roads to the Almond Power Plant after crossing SR 99, was investigated. This alternative was dismissed from further analysis because, west of SR 99, existing high voltage power lines in the vicinity would preclude construction of the proposed 115-kV line.

The potential to follow Geer Road from Whitmore Road to East Service Road was also evaluated. The City of Hughson's *Street Master Plan* (2007) identifies Geer Road, including the section from Whitmore Road to East Service Road, as a road to be expanded from two to six lanes. Given the potential for expansion of the road in this area and the magnitude of the expansion, this alternative was dismissed.

5.2.2 ALTERNATIVE VOLTAGE LEVELS

ALTERNATIVE VOLTAGE LEVELS TO THE 115-KV TRANSMISSION LINE

The proposed 115-kV voltage level is able to transmit the required amount of power for the approximately 10 mile distance between the Hughson Substation to the Grayson Substation. Higher (230-kV) and lower (69-kV) voltage levels are potentially available for the Project, but were eliminated for the reason listed below.

A 230-kV line would be more costly and would entail additional unnecessary environmental impacts. Higher voltage lines, 230-kV and above, require greater ground clearances and wider rights-of-way than the proposed 115-kV line. Where open land is available, 230-kV lines are typically strung on lattice steel towers or tubular steel structures, both of which require large amounts of dedicated rights-of-way (at least 100 feet wide for 230-kV facilities). Consequently, the 230-kV line would have to traverse fields and would cause greater loss of agricultural land than the proposed 115-kV line. Lastly, lattice steel towers or tubular steel structures for 230-kV lines are typically 100 to 120 feet tall and would produce greater aesthetic effects than the proposed 70 foot tall poles associated with the project.

ALTERNATIVE VOLTAGE LEVELS TO THE 69-KV TRANSMISSION LINES

While the height of the poles required for 69-kV lines would be five to 10 feet lower than the proposed 115-kV transmission poles, lower voltage systems require more current to deliver the same amount of power. As the current increases, energy encounters greater resistance thereby producing more heat (line losses) than in higher voltage systems. A 69-kV system, delivering the same amount of power, would have more than 2.7 times the line losses of a 115-kV system. High line losses mean that more electricity would have to be generated (and more pollutants emitted) to deliver the same amount of power to TID customers. Additionally, 69-kV transmission lines require the same right-of-way width as 115-kV transmission lines.

The one-mile 69-kV transmission line from the intersection of Morgan Road and Grayson Road to the Grayson Substation is needed in order to increase the reliability of the 69-kV transmission system. Since the transmission line would be interconnecting into the existing 69-kV line, it would not be possible to use a voltage other than 69-kV.

The 69-kV line from the existing Almond Power Plant to the Grayson Substation is also needed for reliability purposes. The transmission line interconnects the existing power plant to the substation, transporting power generated from the plant to the TID electrical system. A lower voltage transmission line would not be able to supply the required power. A higher voltage transmission line would require a new transformer to be installed at the existing Almond Power Plant, at a cost of approximately $1,000,000.

5.2.3 LATTICE STEEL TOWERS

The Project proposes installation of tubular steel towers, as shown in Figure 3.3. Lattice steel towers for 115-kV transmission lines were reject because they would require an 80-foot right-of-way to accommodate the 100 to 120 foot tall four-legged structures. Existing houses and buildings within the proposed easement would have to be avoided or removed, and agricultural operations modified to accommodate the proposed lattice structures. In addition to disturbing existing residential and agricultural uses along the route, the dedicated 80-foot utility easement could constrain future development in these areas. The 115-kV lattice steel structures are typically taller and spaced farther apart than the proposed wood or steel poles, and do not usually support distribution lines. Therefore, it would be unlikely that existing lines could be consolidated with the 115-kV line on the lattice steel towers.

5.2.4 UNDERGROUND 115-KV TRANSMISSION LINES

Underground construction for 115-kV transmission lines was considered for this project, but was eliminated for economic and environmental reasons. Technologies for undergrounding high-voltage transmission circuits differ significantly from those used for lower-voltage distribution circuits. Undergrounding of high-voltage transmission circuits is complex and costly. Costs for the undergrounding of transmission circuits using available technology range from seven to ten times the cost of overhead construction, depending on the required circuit capacity, the type of cable used, the installation method, and the location of the circuit.

In addition, operation and maintenance of underground transmission circuits requires specialized equipment and training. Cable failures associated with underground transmission circuits are more difficult to diagnose and locate, and take much longer to repair than overhead transmission circuits. Underground cables are also limited by thermal constraints. Operating underground cables at excess temperatures shortens their service lives considerably due to damage to their insulation.

Underground construction avoids the aesthetic impacts of overhead lines, but increases ground disturbance and environmental impacts to resources (including biological, cultural, noise, and air quality) associated with construction because continuous trenching would be required along the route in lieu of excavations for structures at approximately 250-foot spacing. Underground lines need access roads along the length of their right-of-way for maintenance, while overhead lines only require access to pole sites. As a result, undergrounding would also increase the ground disturbance caused by line maintenance. Therefore, TID concluded that it was not feasible to underground the 115-kV lines. TID currently has no underground 115-kV or 69-kV lines in its system.

5.2.5 NEW POWER PLANT

Licensing and building a new power plant in lieu of the Hughson-Grayson 115-kV Transmission Line and Substation Project would not accomplish the objectives of the Project, as described above. Construction of a new power plant is not preferred for the following reasons:

- A new power plant would not achieve the project objective of relieving congestion to TID's 69-kV system in the Ceres area. This congestion is a transmission system constraint that cannot be resolved through additional power generation; and
- Construction and operation of a power plant would result in considerably more environmental impacts, both during construction and operation, compared to the Project.

It is important to note that TID owns and operates the existing Almond Power Plant in the City of Ceres, and is currently in the process of permitting a new plant (Almond 2) adjacent to it. The existing plant provides generation to the TID electrical system, when needed. The proposed Almond 2 Power Plant will enhance TID's internal generation capacity as well as strengthen its ability to provide safe, reliable electricity to its customers. Both the existing Almond Power Plant and the proposed Almond 2 Power Plant would tie into the Grayson Substation, which would provide electrical generation to the Ceres area.

5.3 ALTERNATIVES CONSIDERED FOR THE PROJECT

5.3.1 NO PROJECT ALTERNATIVE

DESCRIPTION OF THE NO PROJECT ALTERNATIVE

The No Project Alternative assumes that development of the transmission lines and substation site would not occur.

IMPACTS OF THE NO PROJECT ALTERNATIVE

With implementation of the No Project Alternative, the environmental impacts discussed in Chapter 4 of this document would not occur. However, if TID were to pursue the No Project Alternative, it would not achieve any of the objectives of this project. It would not be able to deliver additional energy supplies to the TID transmission system, nor would it improve system reliability. Instead, existing and future TID load requirements would not be met. This would result in energy shortages and impaired reliability throughout its system. This option could result in a higher cost of power for customers.

5.3.2 ALTERNATIVE SUBSTATION LOCATION

DESCRIPTION OF THE ALTERNATIVE SUBSTATION LOCATION

Alternative substation sites were evaluated based on their ability to meet the basic project objectives for a substation (see above). These objectives included sufficient parcel size, avoidance of ecologically significant habitat, and location in the general vicinity of the other project elements (to reduce the environmental impacts related to additional lengths of transmission line and associated utility poles). An alternative substation location was identified at the southwest corner of the East Grayson Road/Morgan Road intersection.

IMPACTS OF THE ALTERNATIVE SUBSTATION LOCATION

The alternative substation site is under Williamson Act Contract, is designated as Prime Farmland, and is currently in row crop production. The land is within the City of Ceres' Planning Area, but is not within the Sphere of Influence. The General Plan Land Use Diagram designates this as agricultural area. Due to the land use designation for this parcel and the restrictions placed upon it through Williamson Act agreement, this substation site was not selected in favor of the location analyzed in previous chapters of this document.

5.3.3 ALTERNATIVE SEGMENT ALIGNMENTS

DESCRIPTION OF THE ALTERNATIVE SEGMENT ALIGNMENTS

Six alternative route segments for the 115-kV transmission line have been identified. These tie into the Project route and offer alternative segments and alignment options. **Table 5-1** summarizes the attributes of each of these alternatives, which are also presented in Figure 5.1.

ALTERNATIVE SEGMENT 1 (EAST SERVICE ROAD ROUTE)

This alternative would parallel East Service Road between Euclid Avenue and Washington Road. Transmission structures would be located on the north side of East Service Road. At Washington Road, the line would travel south on the east side of the road to re-join the Project route. Alternative 1 would eliminate the portion of the Project that would parallel the Lateral No. 2 right-of-way.

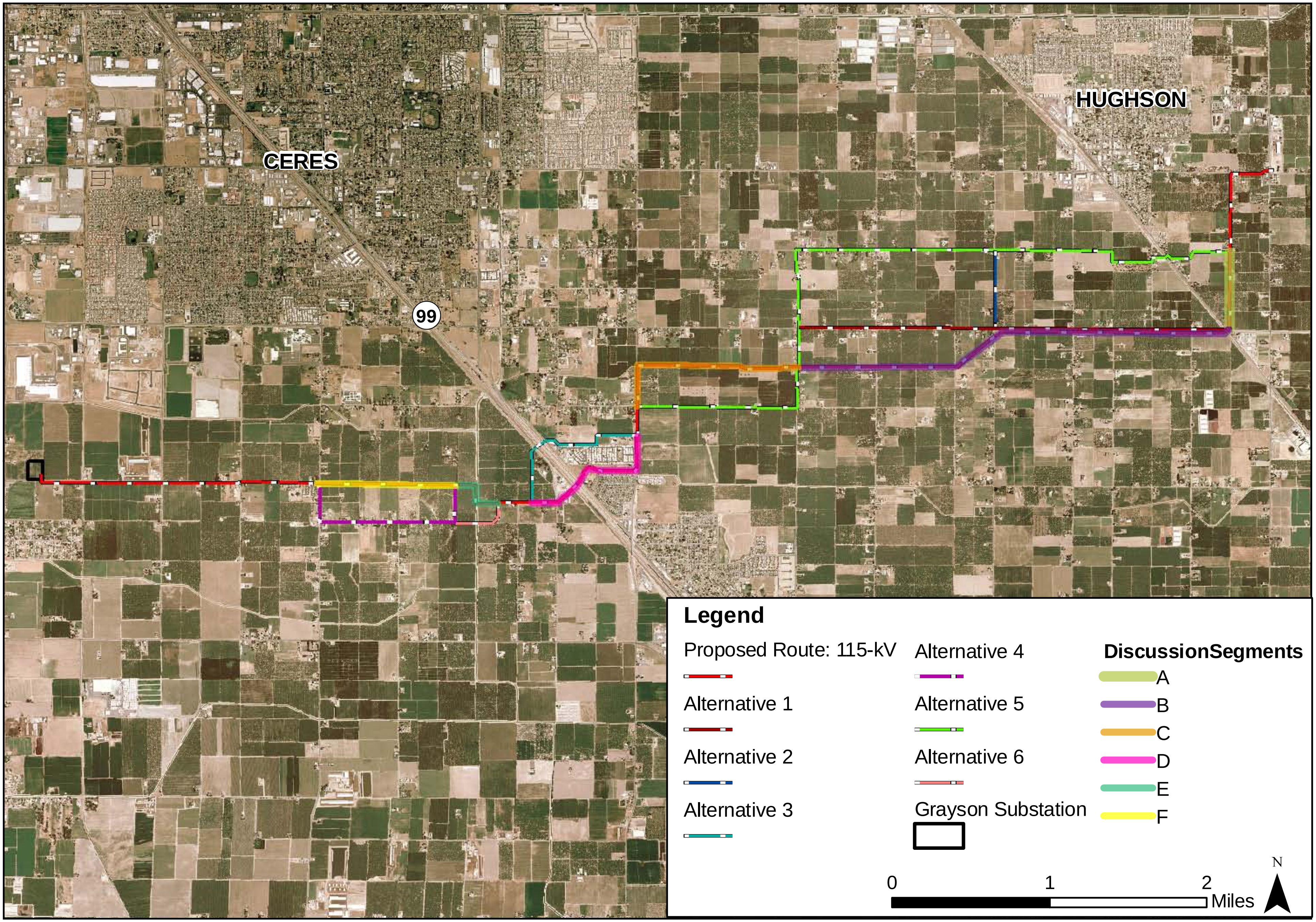


Figure 5.1

Alternatives and Discussion Segments

Alternative Segment 2 (Mountain View Road Route)

This route would follow the east side of Mountain View Road, and would connect an abbreviated Alternative 5 with the Project or Alternative 1.

Alternative Segment 3 (Alternative State Route 99 Crossing)

Alternative 3 turns off of the Project route on Faith Home Road. North of the Modesto Western Mobile Estates, the alternative turns west and runs along parcel boundaries, crossing perpendicular to SR 99. West of SR 99, the line would bisect parcels, heading south to re-join the Project route along TID Lateral No. 2. This alternative would replace the section of the Project that runs between a mobile home community and housing development in the community of Keyes.

Alternative Segment 4 (Turner Road Route)

This alternative would turn off the Project route approximately 650 feet west of the Ceres Main canal and head south to the eastern terminus of Turner Road. The line would follow the north side of Turner Road west to North Central Avenue, at which point it would head north to again join the Project route. Alternative 4 would place transmission infrastructure between residences and the most likely access to the properties.

Alternative Segment 5 (Euclid to Faith Home Alternative)

This alignment would provide a route between Euclid Avenue and Faith Home Road that avoids the TID canal by traveling both north and south of the Project alignment. The route would travel west on Roeding Road, connecting to East Redwood Road via Washington Road.

Alternative Segment 6 (Lateral No. 2 ½ Route)

This route is an option to stay along TID Lateral No. 2 1/2, cross the Ceres Main canal, and then head north at the eastern terminus of Turner Road. This alternative avoids routing along the Ceres Main Canal.

Table 5-1 Alternative Transmission Line Segment Characteristics

Alternative	Length (Feet)	Number of Poles	Residences within 150 feet	Bisect Parcels?	Direct Effects[A] (linear feet)			Indirect Effects (linear feet)		
					Ag[B]	Res[C]	Other[D]	Ag	Res	Other
1	16,997	70	30	No	7993	8347	218	8277	8760	99
2	2,610	10	6	No	1306	1308	0	1429	1473	88
3	5741	29	31	Yes	2938	0	4859	0	3036	22
4	7,145	34	31	Yes	1173	5780	0	1625	6276	43
5	25,998	119	55	Yes	13048	15847	614	4639	16761	0
6	3,290	14	1	Yes	3964	1327	0	165	1710	0

A: Effects were determined based on aerial photograph interpretation and field reconnaissance.

B: Ag = agricultural land uses.

C: Res = residential land uses. Determination derived if homestead was evident within 150 feet of the alternative route.

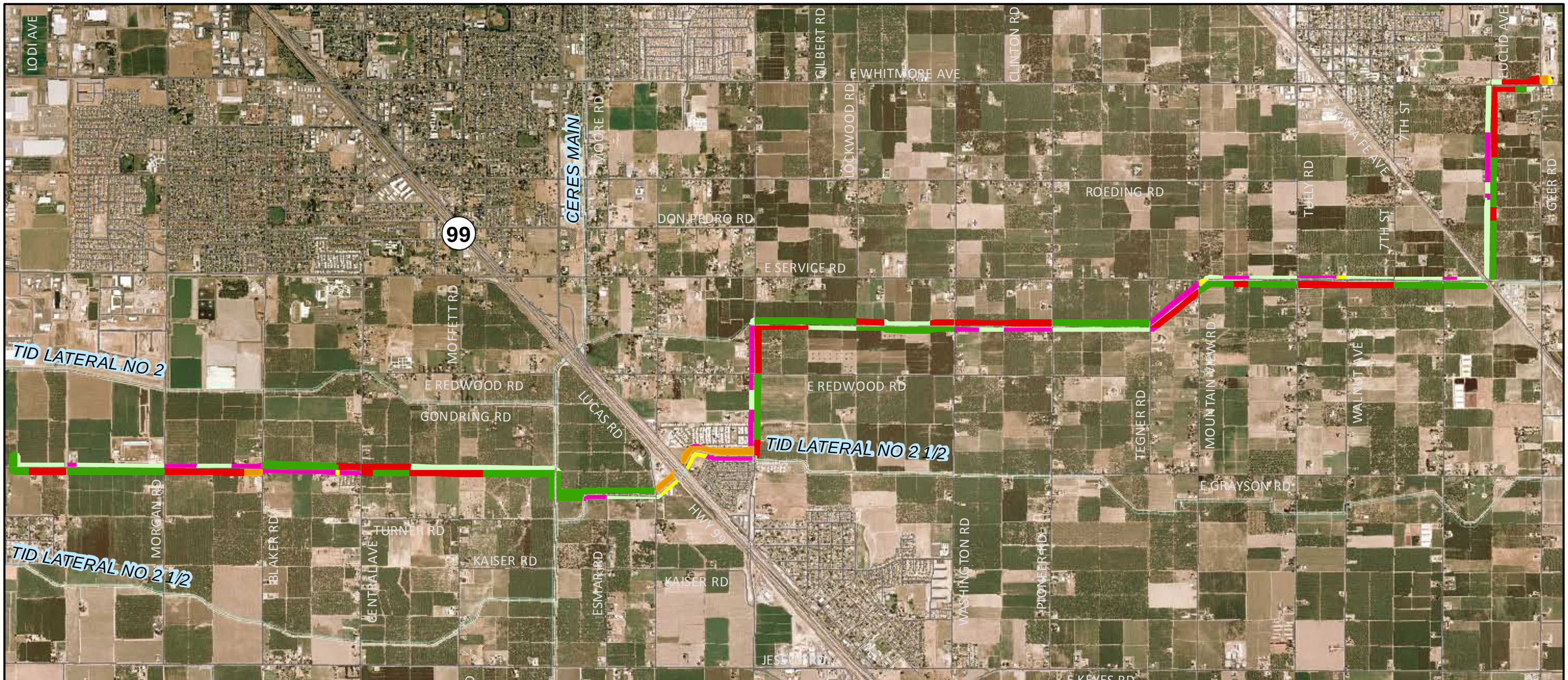
D: Other land uses are those uses that do not clearly conform with typical agricultural or residential uses.

ALTERNATIVES ANALYSIS

Five subsections of the proposed 115-kV transmission line route were designated based on readily identifiable features, such as roads. These Discussion Segments, lettered A thru F, correspond to the segments of the proposed 115-kV transmission line route that would differ if an alternative segment were selected. The Discussion Segments are described below and depicted in Figure 5.2. Table 5-2 identifies the applicable Discussion Segments for each Alternative.

Table 5-2 Corresponding Alternatives and Discussion Segments

Alternative	Discussion Segment(s)
1	A and B
2	A
3	D
4	F
5	A, B, and C
6	E



Effect Type	Zone Classification	Parcel Count	Total Estimated Acres Affected	Affected Length (Linear Feet)
Indirect	Agriculture	33	897	26261
	Other	7	29	1937
	Residential	62	234	16728
	Totals	69	1160	44926
Effect Type	Zone Classification	Parcel Count	Total Estimated Acres Affected	Affected Length (Linear Feet)
Direct	Agriculture	30	767	30684
	Other	4	25	2985
	Residential	37	431	22208
	Totals	71	1222	55877
	Grand Totals	140	2382	100803

Total Line Length (Feet) 52065

Legend

Direct Impact Buffer
- Agriculture
- Other
- Residential

Indirect Impact Buffer
- Agriculture
- Other
- Residential

0 1 2 Miles

N

Figure 5.2

Direct and Indirect Land Use Impacts Along Project Route

DISCUSSION SEGMENT A

The ½ mile of the Project route along Euclid Avenue, north of the East Service Road intersection.

DISCUSSION SEGMENT B

The east-west trending portion of the Project route from the Euclid Avenue, East Service Road, Santa Fe Avenue intersection to Washington Road.

DISCUSSION SEGMENT C

The Project route from Washington Road to Faith Home Road approximately ¼ mile south of TID Lateral No. 2.

DISCUSSION SEGMENT D

The southernmost ¼ mile of the Project route along Faith Home Road to approximately ¼ mile west of SR 99, along TID Lateral No. 2 1/2.

DISCUSSION SEGMENT E

The Project route from 700 feet east of the Ceres Main Canal to 700 feet west of the Ceres Main Canal.

DISCUSSION SEGMENT F

The Project route from 700 feet west of the Ceres Main Canal to North Central Avenue.

Table 5-3 Summary of Discussion Segment Characteristics

Segment	Length (Feet)	Number of Poles	Residences within 150 feet	Direct Effects (linear feet)			Indirect Effects (linear feet)		
				Ag	Res	Other	Ag	Res	Other
A	2,588	10	5	2,493	346	0	2,354	294	1
B	14,920	64	10	7,581	7,005	0	8,293	5,950	303
C	6,777	32	4	5,747	3,966	0	2,793	1,418	0
D	5,242	25	49	2,049	2,296	493	1,298	2,720	1,269
E	2,092	9	0	3,490	0	0	979	186	0
F	4,706	19	4	2,501	3,967	0	3,423	313	0

5.4 IMPACTS OF THE ALTERNATIVE SEGMENT ALIGNMENTS

5.4.1 LAND USE

DIRECTLY AND INDIRECTLY AFFECTED PARCELS

Direct and indirect effects were quantified using a 150 foot buffer (i.e., a 150 foot wide area added to each side of the route centerline, for a 300 foot wide corridor) of the Project and alternatives. Beyond this buffer, potential impacts to noise, hazards, visual resources, and land use compatibility are generally attenuated as discussed in Chapter 4.

For the purpose of this analysis, parcels are directly affected when the transmission line would touch or traverse the parcel. An indirect effect is calculated where a parcel is located within the 150 foot buffer of the power line, but the transmission line is not located on the parcel itself. The linear distance of direct and indirect effects on individual parcels was measured, and the results tabulated according to current use of the property.

Directly and indirectly affected parcels were classified individually into three land use categories: Agricultural, Residential, and Other. Since current zoning in the majority of the project area allows residential, agricultural, and other uses to occur under an agricultural-residential zoning designation (A-2-40), existing uses on individual parcels was considered, rather relying solely on their zoning designation.

This analysis was performed to give a more accurate representation of the types of actual land uses that would be affected. Parcels with active agriculture and no residential structures within 150 feet of the line were designated as agricultural. Residential use was determined by the presence of residential structures on the parcel within 150 feet of the line. Finally, the Other classification was applied to parcels that did not fit the agricultural and residential criteria (e.g., commercial and miscellaneous land uses). The results of this analysis are presented in Figure 5.2.

The linear feet of each land use type for Alternatives and corresponding Discussion Segments was tabulated. The number of parcels that would be crossed, and the total acreage of these potentially affected parcels was also calculated.

ALTERNATIVE 1

Alternative 1 would affect 795 acres across 33,694 linear feet within 58 parcels. Discussion Segments A and B correlate spatially with Alternative 1 (Table 5-2). The lengths of each land use type within the alternative are presented in Figure 5.3.

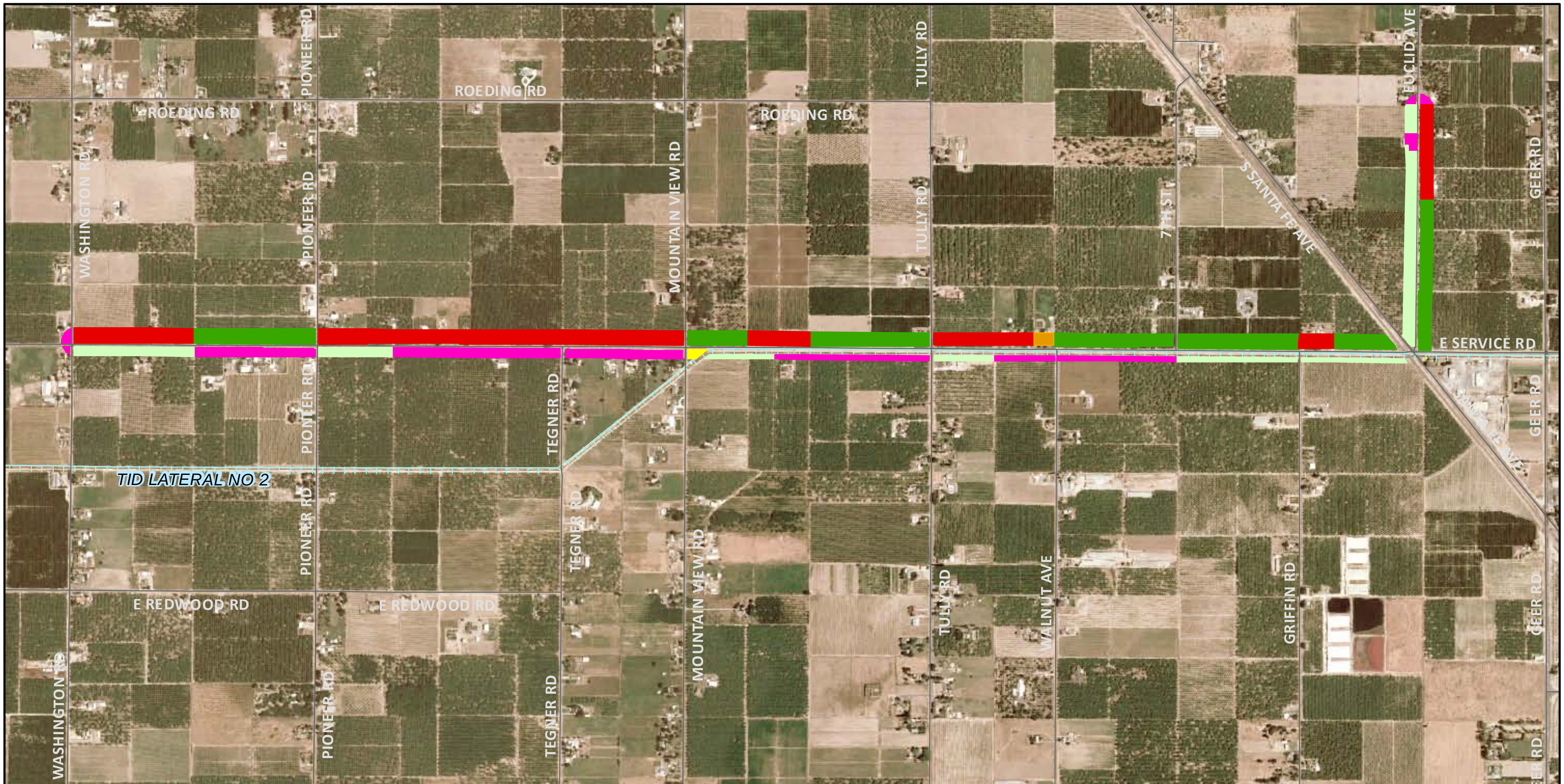
DIRECT IMPACT Direct effects would occur to 399 acres of land, with a length of 16,558 feet, spread over 26 parcels under this alternative. Alternative 1's direct impact to agricultural parcels would amount to 235 acres (7,993 linear feet of frontage), and would be spread across 10 parcels. Alternative 1 would affect five residential parcels for a total impacted area of 161 acres, with length of 8,347 feet. A single three-acre parcel of Other use would be affected (approximately 218 linear feet).

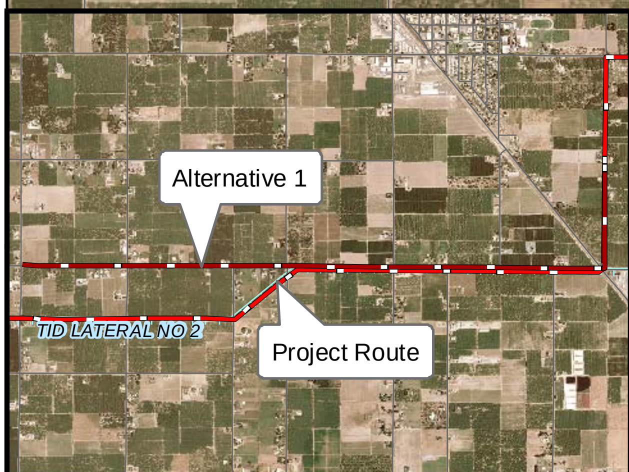
Segments A and B would directly affect 27 parcels, over a total of 464 acres and 17,426 linear feet of frontage. Discussion Segments A and B would directly affect 320 acres of agricultural use (10,074 linear feet) contained by 14 parcels. One hundred forty-four acres of residential parcels, with 7,351 linear feet of frontage, would be affected.

INDIRECT IMPACT Three hundred ninety-six acres, with 17,136 linear feet of frontage spread over 32 parcels, would be indirectly affected. Indirect effects to agriculture would occur on nine parcels (208 acres and 8,277 linear feet of frontage). One hundred eighty seven acres (8,760 linear feet of frontage) of Residential uses would be affected over 21 parcels. One acre of Other uses totaling 99 linear feet on two parcels would also be affected.

Indirectly, Segments A and B could affect 359 acres, over 17,195 linear feet, within 30 parcels. Segments A and B would indirectly impact 288 acres across 10,647 linear feet of 11 agricultural parcels. Fifteen residential parcels would be indirectly affected, consisting of 66 acres with 6,244 linear feet of frontage. Finally, four parcels in other uses, with five acres and 304 linear feet of frontage, would be impacted by Discussion Segments A and B.

CONCLUSIONS Alternative 1 has a projected line length of 16,997 feet. The majority of the parcels affected by Alternative 1 (36 in total) are considered residential (a sensitive land use). In comparison to Alternative 1, Segments A and B together would measure 17,508 linear feet and would affect a much larger number of residential parcels (57 parcels in all). Provided that the total lengths of potential impacts are relatively similar between Alternative 1 and





Effect Type	Zone Classification	Parcel Count	Total Estimated Acres Affected	Affected Length (Linear Feet)
Indirect	Agriculture	9	208	8277
	Other	2	1	99
	Residential	21	187	8760
	Total	32	396	17136
Effect Type	Zone Classification	Parcel Count	Total Estimated Acres Affected	Affected Length (Linear Feet)
Direct	Agriculture	10	235	7993
	Other	1	3	218
	Residential	15	161	8347
	Total	26	399	16558
	Grand Totals	58	795	33694

Total Line Length (Feet) 16,997

Legend

Direct Impact Buffer

- Agriculture
- Other
- Residential

Indirect Impact Buffer

- Agriculture
- Other
- Residential

0 0.25 0.5 Miles

N

Hughson-Grayson 115-kV Transmission Line and Substation Project

Figure 5.3

Direct and Indirect Land Use Impacts: Alternative Segment 1

corresponding Discussion Segments A and B. Alternative 1 would reduce potential impacts to residential land uses.

ALTERNATIVE 2

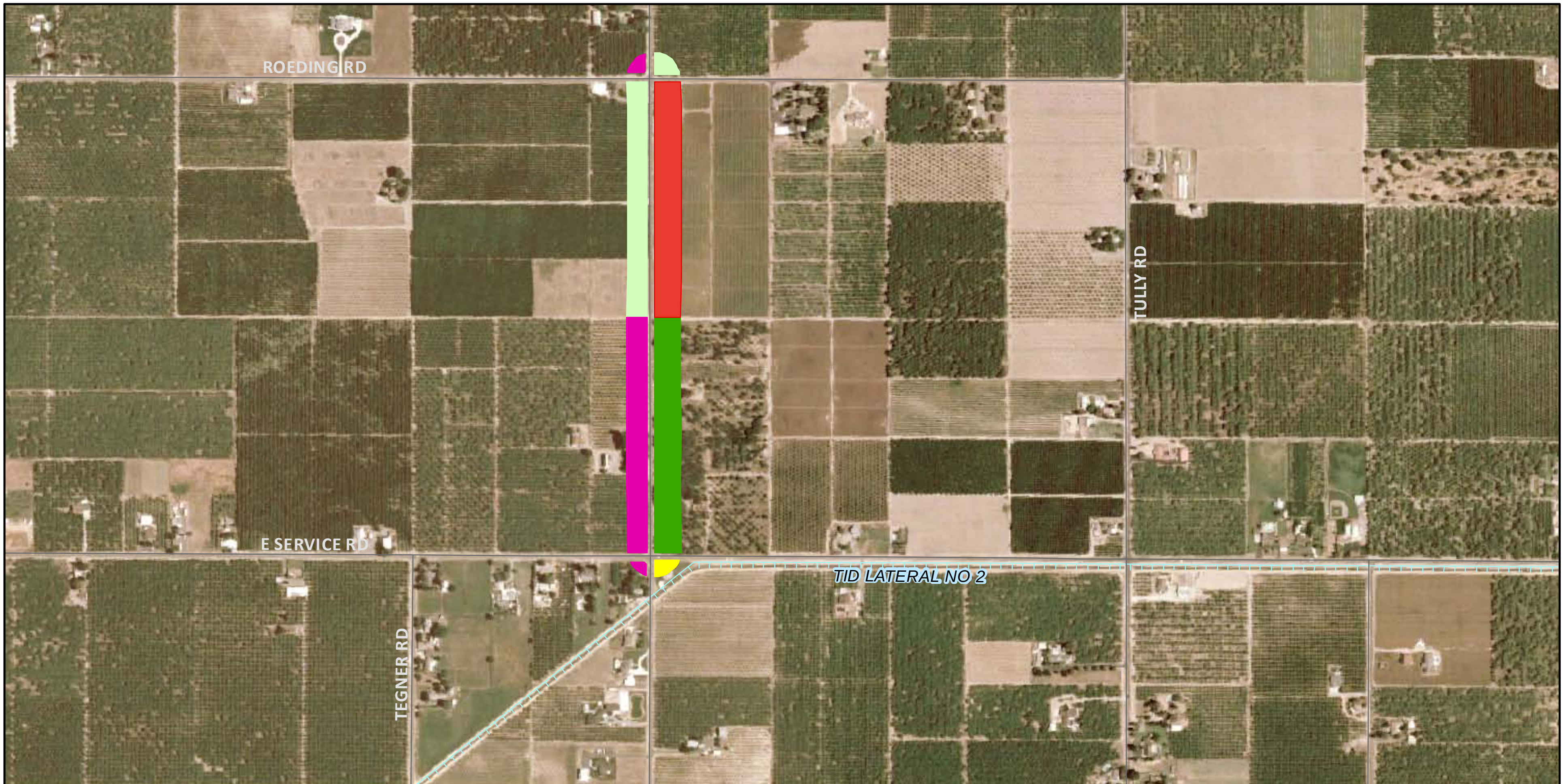
Alternative 2 would affect a total of 141 acres (5,604 linear feet) within eight parcels. Discussion Segment A corresponds to Alternative 2. Discussion Segment A would affect 11 parcels (144 acres with 5,489 linear feet of exposed frontage). Direct and indirect effects associated with Alternative 2 are presented in Figure 5.4.

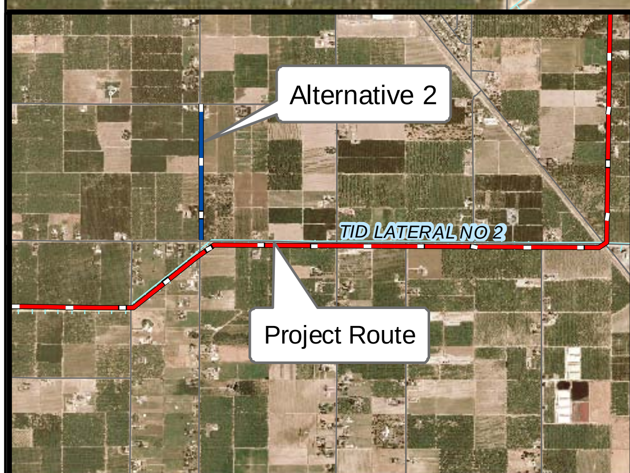
DIRECT IMPACT Alternative 2 would directly impact one agricultural and one residential parcel, both approximately 19 acres. Thirty-nine acres (2,614 linear feet) would be directly affected. Direct effects from Discussion Segment A would occur on six parcels comprising 87 acres, with 2,840 linear feet affected. Compared to Alternative 2, Discussion Segment A would directly affect five parcels of agriculture with a total of 85 acres and 2,493 linear feet of frontage. One residential parcel measuring two acres would be directly affected, exposing 346 linear feet of this land use to the Project.

INDIRECT IMPACT One hundred two acres, with a length of 2,990 feet over six parcels, would be indirectly affected by Alternative 2. Alternative 2 would have an indirect impact upon 58 acres on two agricultural parcels, with a length of 1,429 feet. Forty-three acres, 1473 linear feet, within three residential parcels could be indirectly affected. Less than a half acre, 88 linear feet, of one parcel in other uses would be indirectly impacted.

Discussion Segment A would affect 2,649 linear feet and 57 on five parcels, to indirect impacts. Discussion Segment A would indirectly affect 54 acres (2,354 linear feet) within two parcels of agriculture. Residential indirect effects would total two acres, 292 linear feet, on two parcels. Lastly, ½-acre on a single parcel classified as Other would be indirectly affected.

CONCLUSIONS Alternative 2 would affect four residential parcels, while Discussion Segment A would affect three residential parcels. In addition, Alternative 2 would directly affect roughly 8,300 linear feet of residential land use, while Discussion Segment A would directly affect approximately 7,300 linear feet of the same use type.





Effect Type	Zone Classification	Parcel Count	Total Estimated Acres Affected	Affected Length (Linear Feet)
Indirect	Agriculture	2	58	1429
	Other	1	0	88
	Residential	3	43	1473
	Total	6	102	2990
Effect Type	Zone Classification	Parcel Count	Total Estimated Acres Affected	Affected Length (Linear Feet)
Direct	Agriculture	1	19	1306
	Other	0	0	0
	Residential	1	19	1308
	Total	2	39	2614
	Grand Totals	8	140	5604

Total Line Length (Feet) 2,610

Legend

Direct Impact Buffer
- Agriculture
- Residential

Indirect Impact Buffer
- Agriculture
- Other
- Residential

0 500 1,000 Feet

N

Figure 5.4

Indirect and Direct Land Use Impacts: Alternative Segment 2

ALTERNATIVE 3

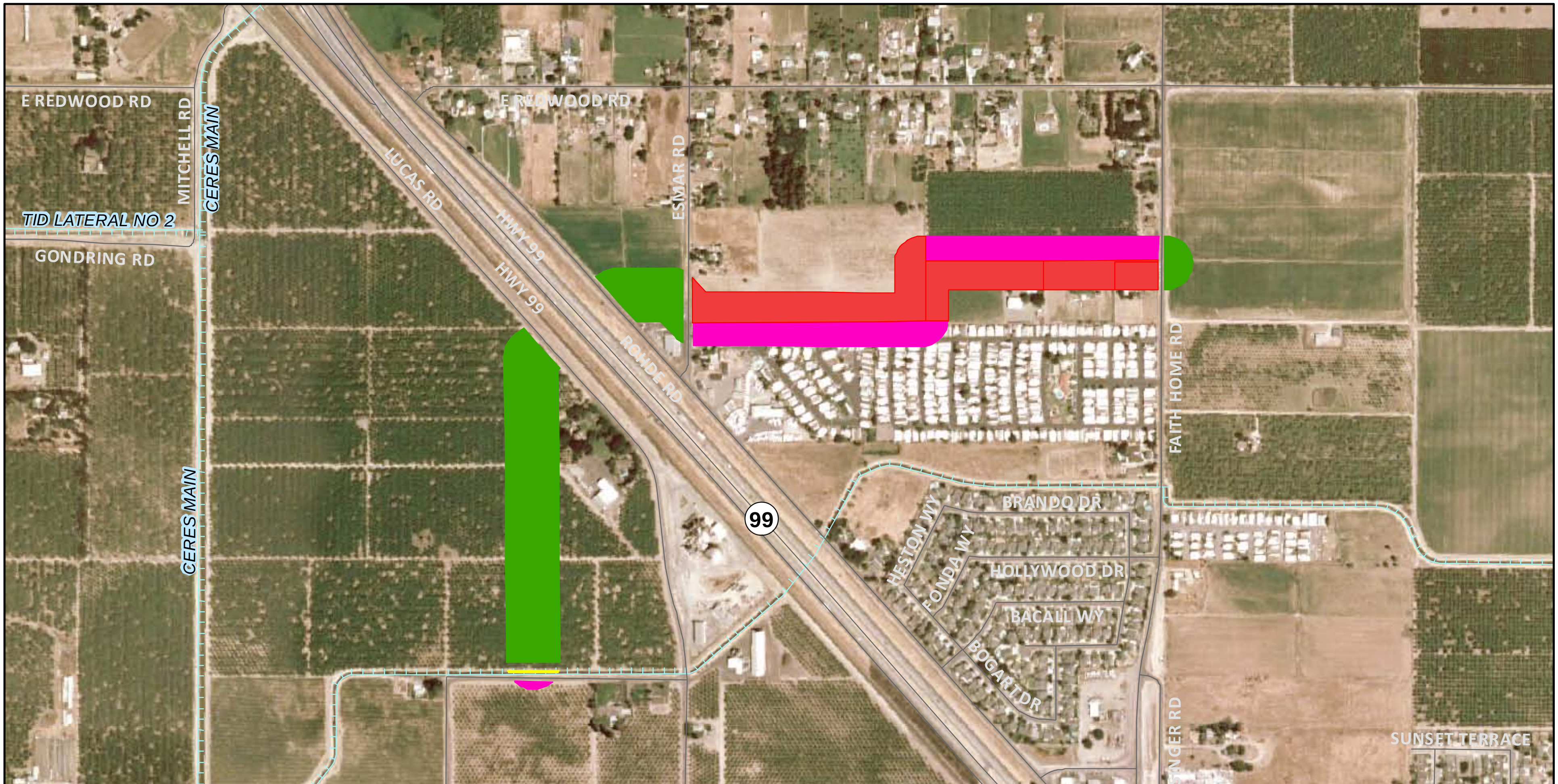
A total of 272 acres, with a length of 10,855 feet, divided over fifteen parcels, would be affected by Alternative 3 (Figure 5.5). Alternative 3's spatial counterpart is Segment D (Table 5-2). Discussion Segment D would impact 37 parcels, amounting to 219 acres with 10,126 linear feet of frontage to the Project.

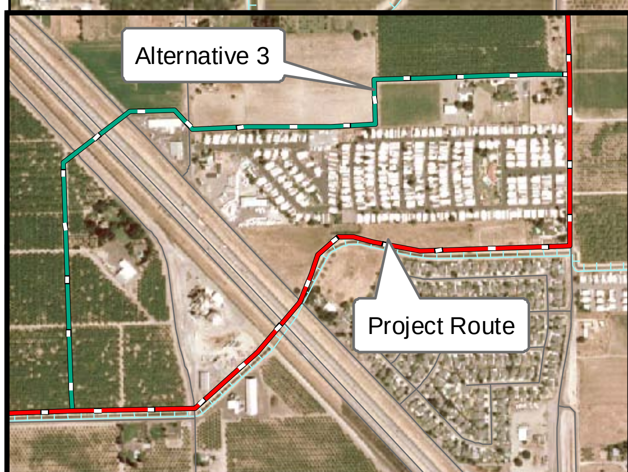
DIRECT IMPACT Alternate route 3 would directly impact 218 acres (7,797 linear feet) of nine parcels. Agricultural zones would consist of 188 acres and 4,859 linear feet of five parcels. Direct impacts would be incurred by four parcels classified as residential uses (a total of 30 acres). One hundred twenty-two acres, 4,838 linear feet of frontage, on six parcels are deemed as directly impacted by Discussion Segment D. Direct impacts on three agricultural parcels are predicted to affect 92 acres, and expose 2,094 linear feet to the project. One residential parcel would be impacted, with 15 acres and 493 linear feet of frontage. Two parcels in other uses (15 acres, with 2,296 linear feet of frontage) could potentially be impacted by Discussion Segment D as well.

INDIRECT IMPACT Indirectly, 55 acres with a total of 3,058 linear feet and six parcels would be affected by Alternative 3. Fifty-four acres, 3,036 linear feet, within five residential parcels would be indirectly impacted by Alternative 3. A less than ½-acre parcel in other uses would be impacted indirectly.

Indirect exposure to Discussion Segment D would impact a total of 97 acres on 31 parcels, and expose 5,288 linear feet to the project. Discussion Segment D would indirectly impact 46 acres of agriculture, with a total line length of 1,298 linear feet, among three parcels. Additionally, 42 acres on 26 residential parcels across, 2,720 linear feet would be indirectly affected by Segment D. It has also been estimated that eight acres, and 1,269 linear feet on two parcels would be indirectly impacted by construction of Discussion Segment D.

CONCLUSIONS Alternative 3 would affect nine residential parcels and would have a gross line length of 5,741 linear feet. Discussion Segment D, compared to Alternative 3, is slightly smaller both in total line length (5,242 linear feet), and in affected parcel lengths. However, while Discussion Segment D may be shorter in line length, it would impact considerably more residential parcels than Alternative 3 (27 directly and indirectly). These findings





Effect Type	Zone Classification	Parcel Count	Total Estimated Acres Affected	Affected Length (Linear Feet)
Indirect	Agriculture	0	0	0
	Other	1	0	22
	Residential	5	54	3036
	Total	6	54	3058
Effect Type	**Zone Classification**	**Parcel Count**	**Total Estimated Acres Affected**	**Affected Length (Linear Feet)**
Direct	Agriculture	1	188	4859
	Other	0	0	0
	Residential	4	30	2938
	Total	9	218	7797
	Grand Totals	15	272	10855

Total Line Length (Feet) 5,741

Legend

Direct Impact Buffer
- Agriculture
- Residential

Indirect Impact Buffer
- Other
- Residential

0 500 1,000 Feet

N

Hughson-Grayson 115-kV Transmission Line and Substation Project

Figure 5.5

Direct and Indirect Land Use Impacts: Alternative 3 suggest that implementing Alternative 3 rather than Segment D would reduce potential impacts to residential parcels.

ALTERNATIVE 4

Alternate 4 would affect 39 parcels (a total of 410 acres) over 14,897 linear feet (Figure 5.6). Alternative 4's spatial counterpart is Discussion Segment F (Table 5-2). Discussion Segment F is forecast to affect 245 acres within 16 parcels, with 10,203 linear feet exposed to the Project.

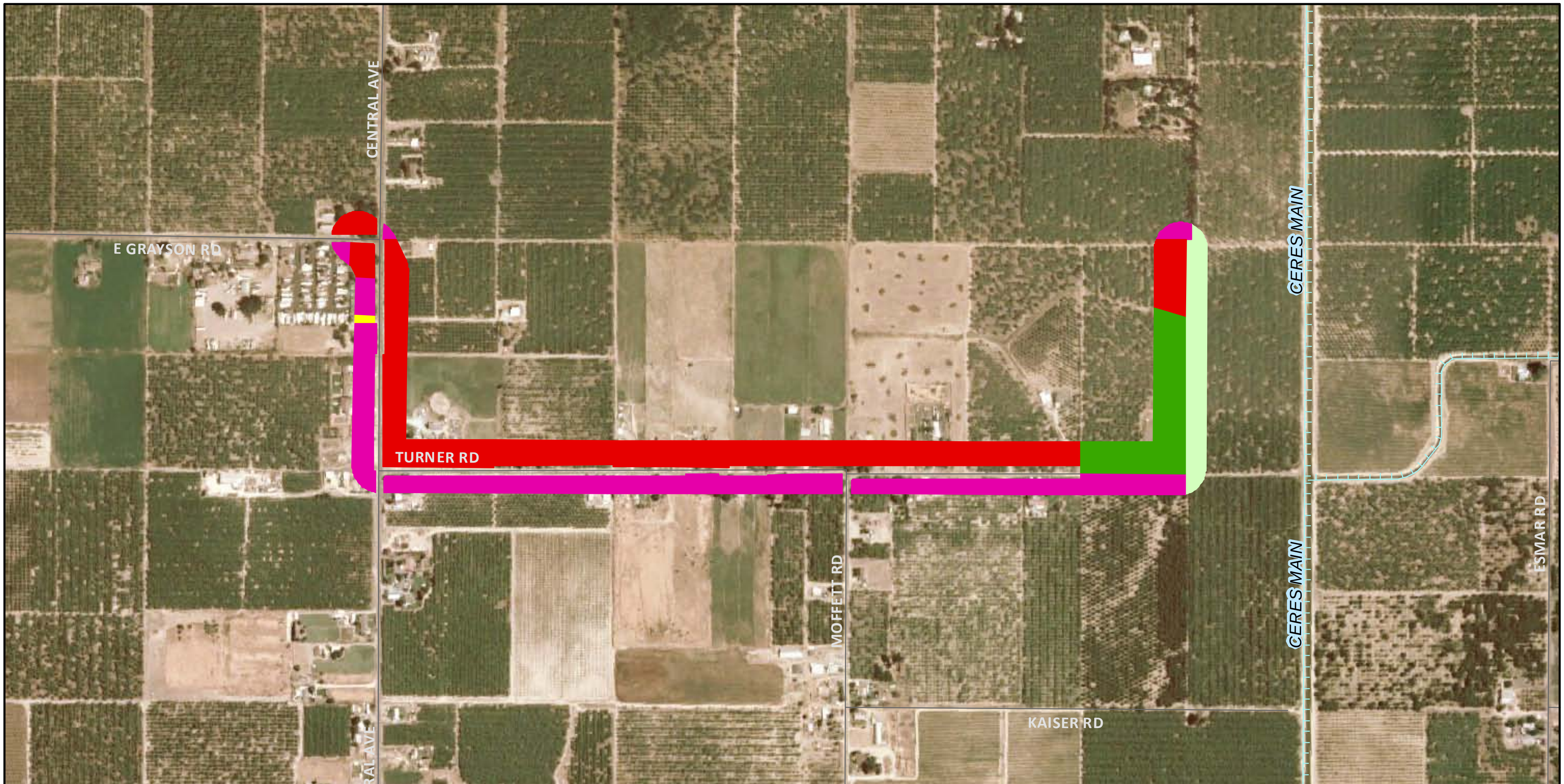
DIRECT IMPACT One hundred fifty-five acres, 6,953 linear feet and 16 parcels, would be directly impacted by Alternative 4. Alternative 4 would directly impact 13 acres, with a length of 1,173 linear feet on one parcel of agriculture. As for residential, 142 acres inside 15 parcels would be affected by Alternative 4, amounting to 5,780 feet of the alternative's total length.

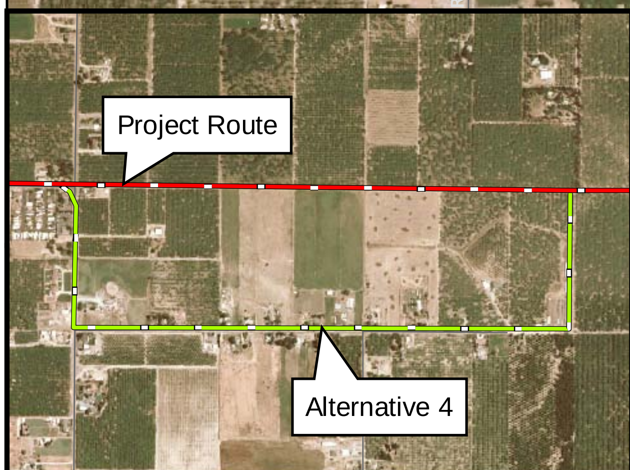
Discussion Segment F would directly impact 139 acres, with an impacted distance of 6,467 linear feet on 10 parcels. Compared to Alternative 4, Segment F has 41 acres, 2,501 linear feet, among two parcels in agricultural use that would be directly affected. Segment F would also directly affect eight parcels with a total of 98 acres and 3,961 linear feet of residential use.

INDIRECT IMPACT Two hundred fifty-five acres (7,944 linear feet) of 23 parcels could be affected indirectly by Alternative 4. Indirect agricultural use impacts from Alternative 4 would consist of 63 acres belonging to three parcels with 1,625 linear feet of frontage to the alternative alignment. Indirect impacts to residential land uses would occur along 6,276 of the Alternative 4 alignment, corresponding to 19 parcels and a total of 192 acres. One parcel of less than half an acre would be indirectly affected.

Segment F would indirectly impact four parcels of agriculture, with a combined acreage of 10 and 3,423 linear feet of frontage along the Project route.

CONCLUSIONS Alternative 4 would have an overall line length of 7,145 linear feet, and the number of residential parcels affected would total 34. Segment F, on the other hand, would have a much smaller in line length of about 4,706 linear feet, and the number of residential parcels affected would amount to 10 in all. Therefore, to reduce impacts to the environment





Effect Type	Zone Classification	Parcel Count	Total Estimated Acres Affected	Affected Length (Linear Feet)
Indirect	Agriculture	3	63	1625
	Other	1	0	43
	Residential	19	192	6276
	Total	23	255	7944
Effect Type	**Zone Classification**	**Parcel Count**	**Total Estimated Acres Affected**	**Affected Length (Linear Feet)**
Direct	Agriculture	1	13	1173
	Other	0	0	0
	Residential	15	142	5780
	Total	16	155	6953
	Grand Totals	39	410	14897

Total Line Length (Feet) 7,145

Legend

Direct Impact Buffer
- Agriculture
- Residential

Indirect Impact Buffer
- Agriculture
- Other
- Residential

0 550 1,100 Feet

N

Hughson-Grayson 115-kV Transmission Line and Substation Project

Figure 5.6

Direct and Indirect Land Use Impacts: Alternative Segment 4

and to sensitive land use parcels, this study would suggest using Segment F over Alternative 4.

ALTERNATIVE 5

Alternative 5 would affect 1,186 acres and 50,909 linear feet of 80 parcels (Figure 5.7). Alternative 5 is an alternate route for Discussion Segments A, B, and C (Table 5-2). Discussion Segments A, B, and C total 1,159 acres with a probable affected frontage of 48,545 linear feet, contained within 77 parcels.

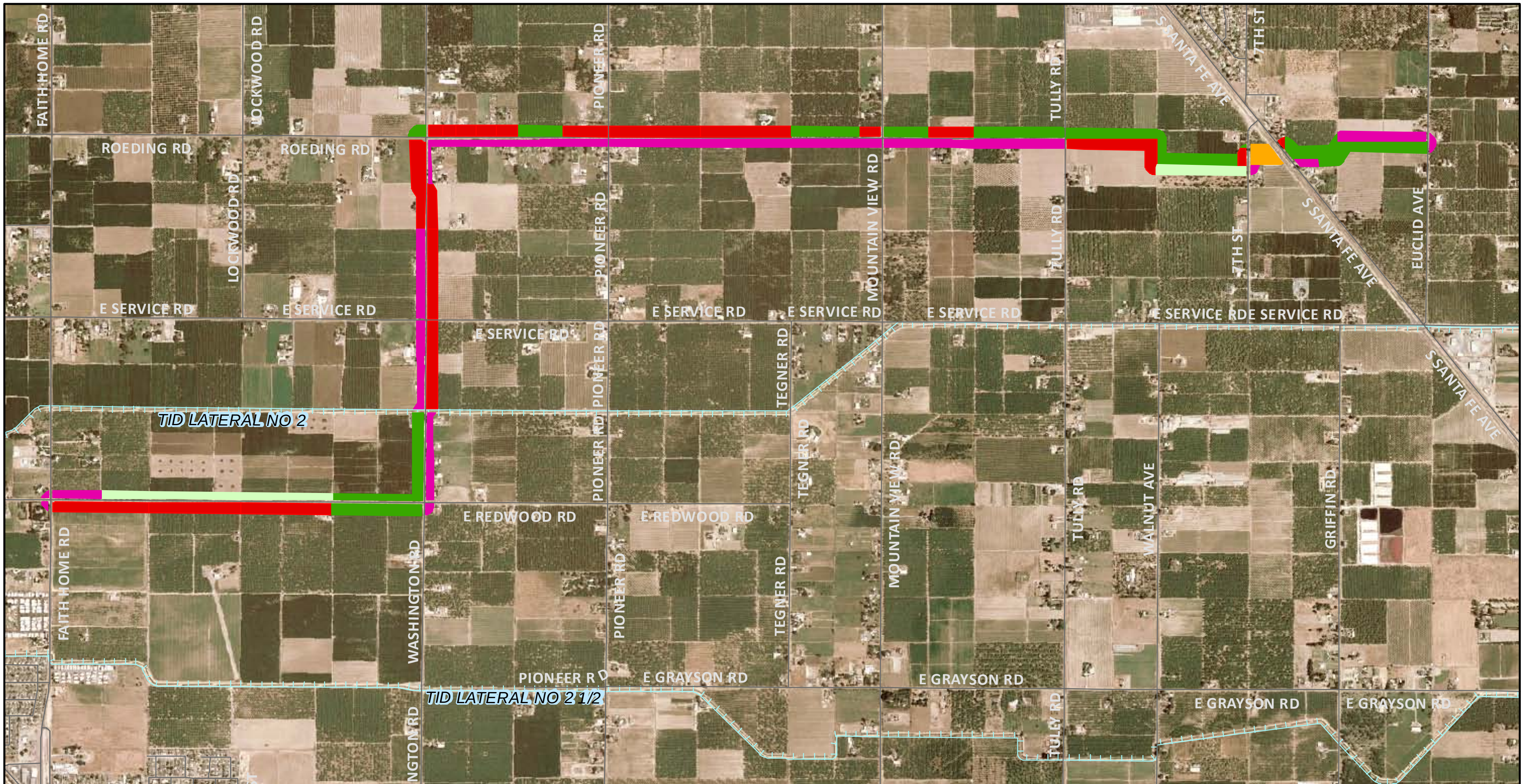
DIRECT IMPACT Alternative 5 directly impacts a total of 718 acres (29,509 linear feet) within 33 parcels. Direct impact from Alternative 5 would occur to 11 agricultural parcels. These parcels total 339 acres with 13,048 linear feet of frontage. Residential areas impacted directly would include 375 acres and 15,847 linear feet belonging to 21 parcels. Lastly, one three-acre parcel classified as other would be directly impacted.

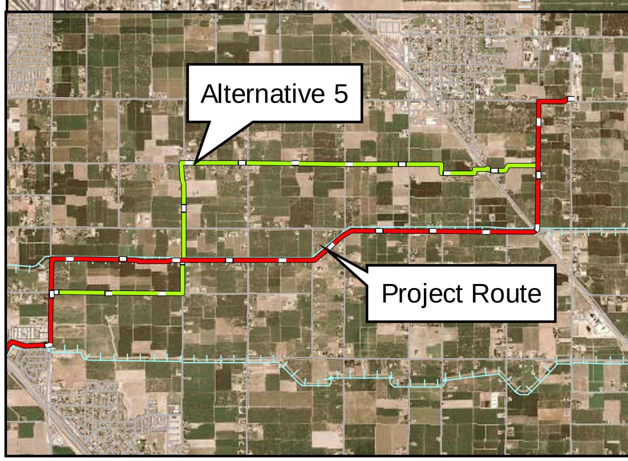
Directly impacted parcels for Discussion Segments A, B, and C number 37 in total, with a predicted combined acreage of 693 acres, and 27,139 linear feet exposed to the project. Discussion Segments A, B, and C, would directly affect 19 parcels of agriculture, which contain 491 acres and 15,821 linear feet of frontage. Residential direct impacts would cause 18 parcels with total of 202 acres and 11,317 linear feet of frontage to be affected.

INDIRECT IMPACT Alternative 5 indirectly impacts 468 acres and 21,400 linear feet corresponding to 47 parcels. Indirect impacts from Alternative 5 for parcels in agricultural use would be, 96 acres, with a length of 4,639 linear feet, corresponding to four parcels. Additionally, 372 acres and 16,761 linear feet within 43 parcels classified as residential zones would be indirectly affected.

Four hundred sixty-six acres, with 21,406 linear feet of exposure within 40 parcels would be considered the indirect impacts for Segments A, B, and C. Segments A, B, and C indirectly impact 15 parcels of agriculture, which have a total of 380 acres, and would affect 13,440 linear feet. Twenty-one residential parcels, with 81 acres and 7,661 linear feet of frontage, would be indirectly impacted. Four other parcels that would be indirectly impacted, which total five acres and have a potential affected length of 304 feet.

CONCLUSIONS Alternative 5 has a line length of 25,998 linear feet and would impact 64 residential parcels. Segments A, B, and C combined have nearly the same line length and





Effect Type	Zone Classification	Parcel Count	Total Estimated Acres Affected	Affected Length (Linear Feet)
Indirect	Agriculture	4	96	4639
	Other	0	0	0
	Residential	43	372	16761
	Total	47	468	21400
Effect Type	Zone Classification	Parcel Count	Total Estimated Acres Affected	Affected Length (Linear Feet)
Direct	Agriculture	11	339	13048
	Other	1	3	614
	Residential	21	375	15847
	Total	33	718	29509
	Grand Totals	80	1186	50909

Total Line Length (Feet) 25,998

Legend

Direct Impact Buffer
- Agriculture
- Other
- Residential

Indirect Impact Buffer
- Agriculture
- Residential

N

0 0.25 0.5 Miles

Figure 5.7
Direct and Indirect Land Use Impacts: Alternative Segment 5

affected parcel length as Alternative 5. The major difference in Segments A, B, and C from Alternative 5 is the number of affected residential parcels. Segments A, B, and C, only would affect 39 residential parcels instead of 64. The data gathered would therefore suggest that Segments A, B, and C would be the better route to take than Alternative 5, as it would reduce impacts to the environment and residential parcels.

ALTERNATIVE 6

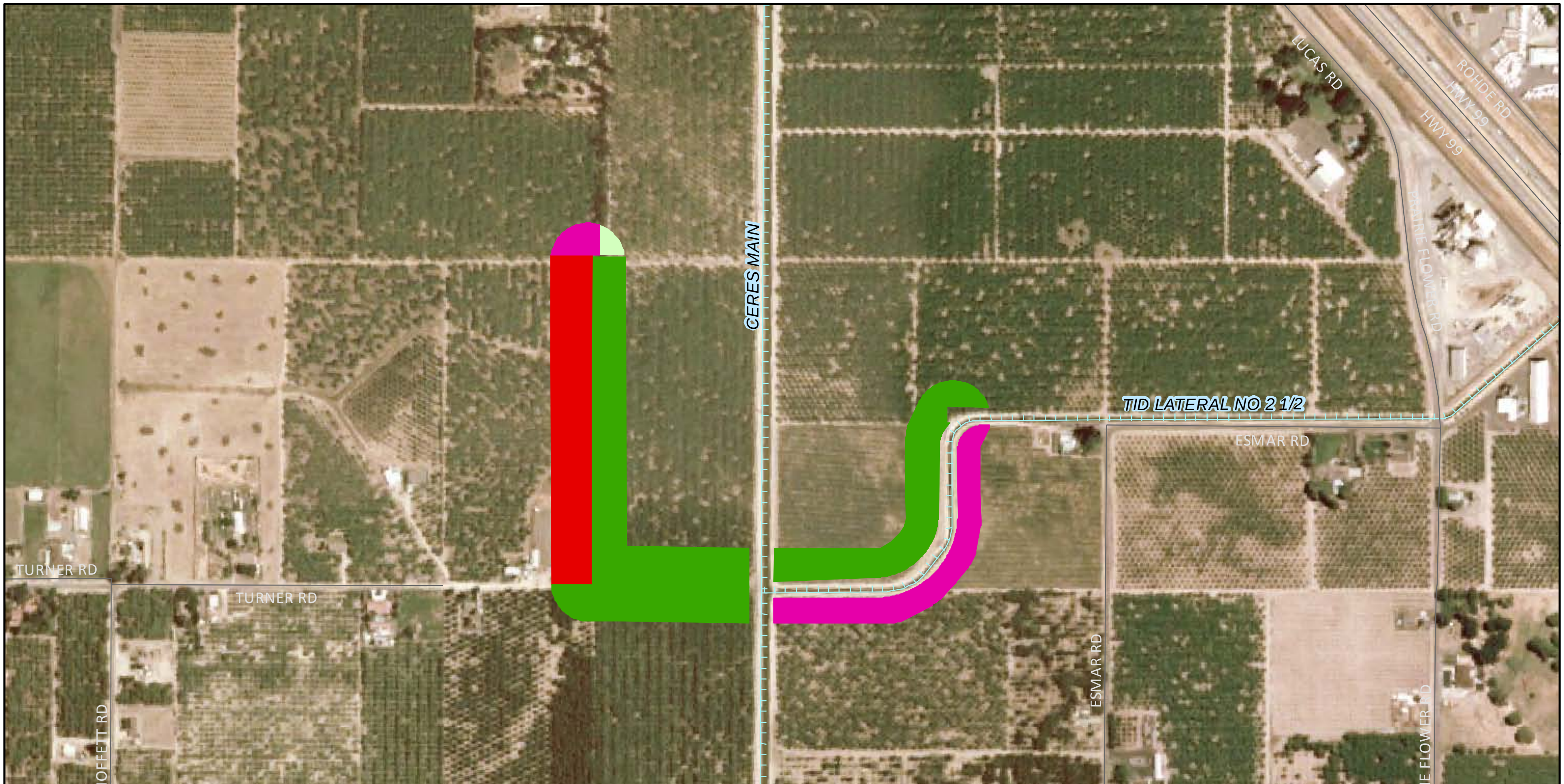
Alternative 6 is projected to affect 11 parcels, which have a total of 224 acres and 7,166 linear feet fronting the alternative route (Figure 5.8). Alternative 6 is the alternative for Discussion Segment E (Table 5-2). Segment E would impact 90 acres and a total of 4,654 linear feet within eight parcels.

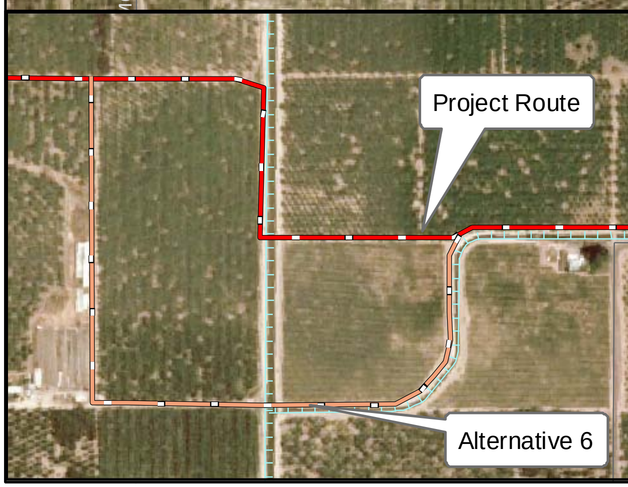
DIRECT IMPACT Directly impacted parcels would total 5,291 linear feet; 138 acres over seven parcels. One hundred one acres and 3,946 linear feet within five parcels of agricultural use wouldbe directly impacted. Direct impacts would occur to 38 acres in residential use; 1,327 linear feet along the bounds of two parcels. Segment E also directly impacts four agricultural parcels, with a total of 88 acres, and an affect length of 3,490 linear feet.

INDIRECT IMPACT Alternative 6 would indirectly impact 86 acres and 1,875 linear feet from four parcels. Alternative 6 is predicted to indirectly affect one 24 acre agricultural parcel with a total of 165 linear feet fronting the alternative alignment. Three residential parcels would comprise the remaining 62 acres and 1,710 linear feet of indirect impacts.

Indirect impacts associated with Discussion Segment E measure two acres, and 1,165 linear feet, within two parcels. Discussion Segment E would indirectly impact three agricultural parcels, with a total of two acres and an affected length of 979 linear feet. Discussion Segment E would, additionally, indirectly impact less than half an acre, with 186 linear feet of frontage, of residential use.

CONCLUSIONS Alternative 6 would impact five residential parcels and span 3,290 linear feet. Discussion Segment E impacts compared to Alternative 6 impacts are considerably smaller. Segment E would only impact one residential parcel at 4,654 linear feet. From this data, Segment E would be the suggested route to take in order to minimize potential environmental and sensitive land use impacts.





Effect Type	Zone Classification	Parcel Count	Total Estimated Acres Affected	Affected Length (Linear Feet)
Indirect	Agriculture	1	24	165
	Other	0	0	0
	Residential	3	62	1710
	Total	4	86	1875
Effect Type	Zone Classification	Parcel Count	Total Estimated Acres Affected	Affected Length (Linear Feet)
Direct	Agriculture	5	101	3964
	Other	0	0	0
	Residential	2	38	1327
	Total	7	138	5291
	Grand Totals	11	224	7166

Total Line Length (Feet) 3,290

Legend

Direct Impact Buffer
- Agriculture
- Residential

Indirect Impact Buffer
- Agriculure
- Residential

0 375 750 Feet

N

Figure 5.8
Direct and Indirect Land Use Impacts: Alternative Segment 6

RESIDENCES POTENTIALLY IMPACTED UNDER EACH ALTERNATIVE

Residences potentially impacted by alternative routes were calculated by adding up the residences falling within the 150 foot buffer of each alternative route. However, it is important to note that since each alternative route had a different length, distance becomes a confounding variable in determining the ideal route choice. Simply tallying the number of residences along a route would yield inaccurate results caused by the dissimilarity in route distances. In order to control for the variable of distance, residence density along each route was calculated by finding the square miles of effects area (multiplying the total buffer of 300 feet by the total route line length, and converting the product to square miles) and then dividing the number of residences by that area. Figure 5.9 depicts the routes that would impact the fewest residences.

ALTERNATIVE 1 VS. DISCUSSION SEGMENTS A AND B

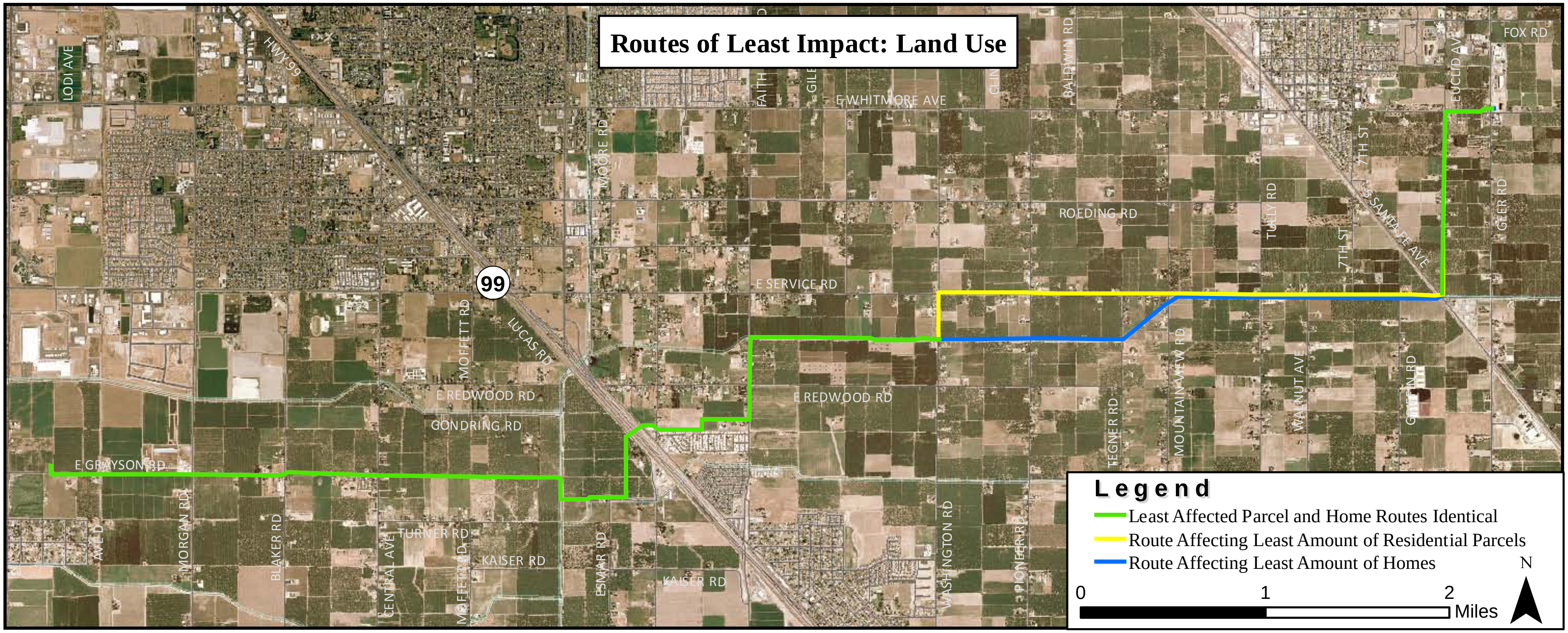
Alternative 1 would have a total line length of 16,997 linear feet, and would potentially impact 30 homes along its route, impacting an area with a home density of 16 houses per square mile. Segments A and B, would potentially impact at total of 14 homes over their length (17,508 linear feet), producing a housing density in the impacted area of seven houses per square mile. Discussion Segments A and B of the Project would impact fewer residences.

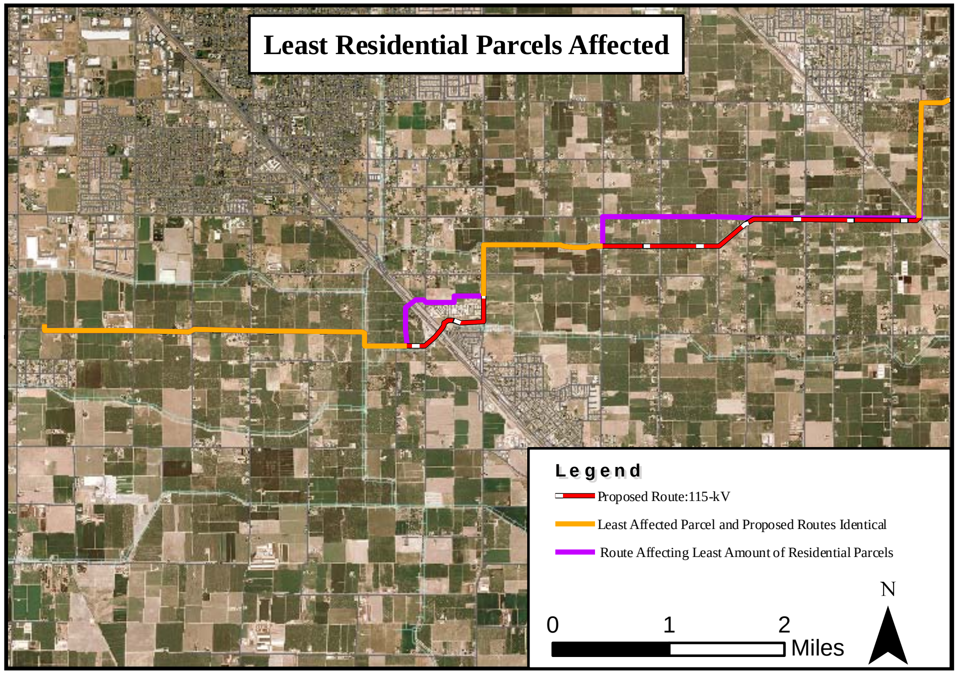
ALTERNATIVE 2 VS. DISCUSSION SEGMENT A

Alternative 2 would disturb an area with a density of 21 houses per square mile, or six houses over a distance of 2,610 linear feet within the total 300 foot buffer. Along Discussion Segment A, however, there are five houses over a distance of 2,588 linear feet, equaling an impact density of 18 houses per square mile. While the distances of each route are comparable, Segment A would be the best choice to minimize the impact on homes.

ALTERNATIVE 3 VS. DISCUSSION SEGMENT D

Alternative 3 would impact 31 homes along its route length of 5,741 feet, affecting an area with an estimated density of 50 houses per square mile. Comparatively, Segment D would impact 50 homes over its 5,242 linear feet, and thus has a higher density, with 89 homes per square mile. Alternative 3 would affect fewer residences than Discussion Segment D.





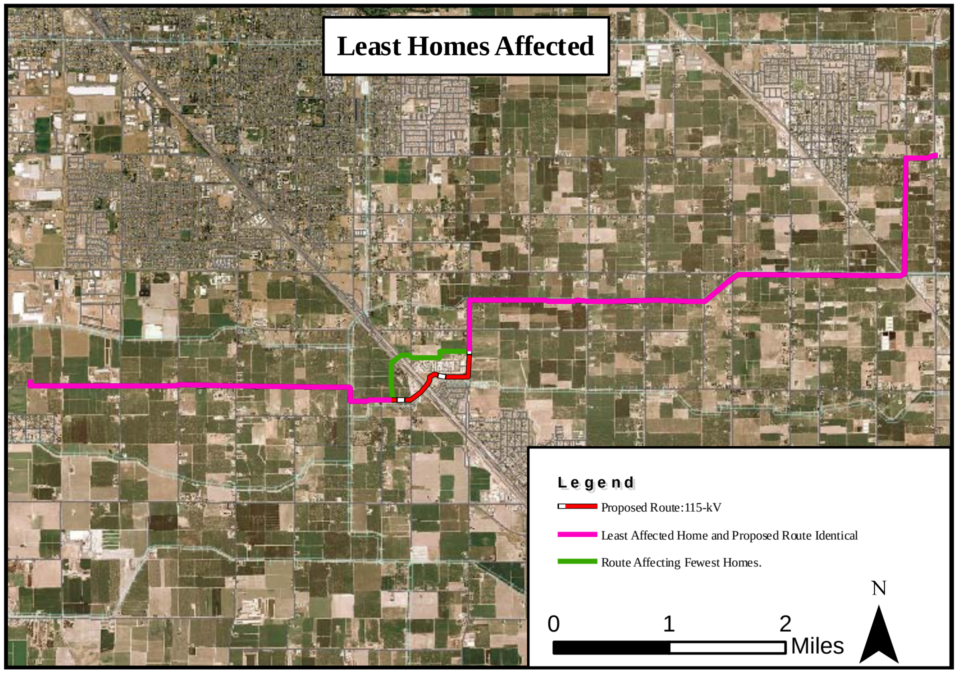


Figure 5.9

Best Routes Per Land Use Analysis

ALTERNATIVE 4 VS. DISCUSSION SEGMENT F

Alternative 4 runs 7,145 linear feet, and has 31 homes along its route, creating an impact density of 40 homes per square mile. Segment F has four homes along its length of 4,706 linear feet, and would affect a density of 8 houses per square mile. Discussion Segment F, therefore, would impact fewer residences than Alternative 4.

ALTERNATIVE 5 VS. DISCUSSION SEGMENTS A, B AND C

Alternative 5 has 55 homes along the 25,998 linear foot route, producing an estimated impact to 20 homes per square mile. Segments A, B, and C would have 24,285 linear feet of length with 20 houses along their path, and would affect a density of eight houses per square mile. A comparison between Alternative 5 and Discussion Segments A, B, and C suggests that Segments A, B, and C would impact fewer residences.

ALTERNATIVE 6 VS. DISCUSSION SEGMENT E

Alternative 6 has one home along its 3,290 linear foot route, presenting impact density of 3 residences per square mile. Segment E has no residences along its route of 2,092 linear feet, equaling an affected density of zero residences per square mile.

5.4.2 AESTHETICS

ALTERNATIVE 1

Alternative 1 would follow East Service Road, which is an often-used thoroughfare in the region. Implementing Alternative 1 would, therefore, expose drivers to the visual impact of utility poles and transmission lines. There are also several residence sites that are accessed along East Service Road. These impacts to travelers and residents are generally greater than those associated with Discussion Segments A and B of the Project, which would mainly travel along the canal right of way. Implementing Alternative 1 would result in a greater visual impact.

ALTERNATIVE 2

Mountain View Road is a rural agricultural road with a few residences and orchards on either side. Euclid Avenue, along which the corresponding segment (Discussion Segment A) of the Project is located, is generally similar in character. Therefore, impacts resulting from routing the transmission line down Mountain View Road would be essentially the same as implementing the Project.

ALTERNATIVE 3

Alternative 3 would travel north of the mobile residence park on Faith Home Road. Because it would not be located within the viewshed of the residences located in Keyes, implementing this alternative may reduce the visual impacts incurred under the Project.

ALTERNATIVE 4

Alternative 4 would be located along Turner Road. Impacts to residents include impacts to the viewshed from their residences and the change in character of Turner Road observed while traveling to and from their residences. These impacts are eliminated by implementing the Project.

ALTERNATIVE 5

Routing the transmission line along Roeding, Washington, and East Redwood Roads would have a greater visual impact than the Project, which would travel primarily along the canal right of way. This increase would occur because the infrastructure would be located along roads traveled by many people every day and adjacent to residences.

ALTERNATIVE 6

Alternative 6 and Discussion Segment E would pass through agricultural lands where utility infrastructure already exists. Therefore, as with Discussion Segment E, implementing Alternative 6 would have no impact on aesthetic resources.

5.4.3 BIOLOGICAL RESOURCES

No biological resources were preliminarily identified along the alternative routes studied. Habitat values are roughly equivalent to those provided along the Project route. Impacts associated with Alternatives 1 through 6 would be less than significant following implementation of the mitigation measures identified in Section 4.3.

5.4.4 HYDROLOGY AND WATER QUALITY

Impacts to hydrology and water quality under the proposed alternatives would be consistent with the impacts identified under the Project. The potential to violate water quality standards and alter runoff patterns would be mitigated for through the measures identified in Section 4.4.3. Flooding potential would remain low, as there would be no substantial increase in runoff, and no structures would be placed within a 100 year floodplain.

5.4.5 AIR QUALITY

Each of the proposed alternatives has the potential to shift the sensitive receptors associated with the Project (see Table 5-4). This change would not have any impact on the air quality related impacts of the Project. Under each alternative, construction-related impacts would be the same as with the project, potentially significant. Implementation of the required SJVAPCD Regulation VIII Control Measures would still be required to reduce this impact to less than significant.

Vehicle trips and associated air emissions generated by the operation of a new transmission line and substation would be very small under the alternatives analyzed; the same as with the Project. Operation-related impacts would remain less than significant. Also as with the Project, objectionable odors would not be created. Therefore, this impact would remain less than significant.

Table 5-4 Potential Sensitive Receptors Affected by Each Alternative Segment

Alternative	Additional Sensitive Receptors
Alternative 1	Residences along East Service Road between Mountain View Road and Washington Road and along Washington Road between East Service Road and the Project
Alternative 2	Residences along Mountain View Road between Roeding Road and East Service Road
Alternative 3	Residences along the northern boundary of the Modesto Western Mobile Estates
Alternative 4	Residences along Turner Road between 650 feet west of the Ceres Main canal and Central Avenue and along Central Avenue between Turner Road and the Project
Alternative 5	Residences along Roeding Road between Walnut Road and Washington Road, Washington Road between Roeding Road and East Redwood Road, and East Redwood Road between Washington Road and Faith Home Road
Alternative 6	No additional residences would be considered sensitive receptors

5.4.6 GREENHOUSE GAS EMISSIONS

The setting and analysis for potential GHG emissions and impact to Global Climate Change as a result of implementing any of the alternative segments is essentially the same as for the Project. GHG emission impacts and the use of SF_6 gases at the Grayson substation would be the same as with the project. Impacts from Global Climate Change, such as the potential for increased floods and wildfires, would remain the same as with the Project; less than significant.

5.4.7 GEOLOGY AND SOILS

The setting and analysis for potential impacts related to geology and soils would be the same as presented in Section 4.7 for the Project. There would be a low exposure to geologic hazards, and low probability of encountering expansive soils or unstable conditions. Erosion of soils exposed during construction would require implementation of the mitigation measures identified in Section 4.7.3. Impacts would remain less than significant.

5.4.8 CULTURAL RESOURCES

The setting and analysis for implementation of the alternatives segments is generally consistent with the analysis provided for the Project in Section 4.8. Table 5-5 provides a summary of known cultural resources associated with each of the alternatives. Alternatives 2 and 4 are not associated with any known resources. As under the Project, all known cultural resources have been deemed ineligible for listing under the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR).

Table 5-5 Known Cultural Resources Along Alternative Segments

Resource Name	Other Identifier	Recommendations for NRHP/CRHR Eligibility	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Atchison Topeka & Santa Fe Railroad	P-39-000112*	Not eligible	C				C	

Resource Name	Other Identifier	Recommendations for NRHP/CRHR Eligibility	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Southern Pacific Railroad	P-50-000001	Not eligible			C			
TID Water Conveyance System								
TID Main Ceres Canal		Not eligible						C
TID Lateral No. 2		Not eligible	P				C	
TID Lateral No. 2 1/2		Not eligible						C/P

C=route crosses cultural resource; P=route parallels cultural resource.

* This resource has been recorded in San Joaquin County.

The Atchison Topeka & Santa Fe Railroad (P-39-000112) intersects with Alternatives 1 and 5 in the eastern extent of the project area. Constructed between 1895 and 1898, the former San Francisco & San Joaquin Valley Railroad was purchased by the Atchison Topeka & Santa Fe Railroad in 1898, which merged with the Burlington Northern Railroad in 1995. While the San Francisco & San Joaquin Railroad/Atchison Topeka & Santa Fe appears eligible for listing in the NRHP and CRHR under Criterion B/2 for its association with a leading California merchant, Claus Spreckels, and under Criterion A/1 for being a major railroad transportation line constructed by populist support in opposition to a rail monopoly held by the Southern Pacific Railroad, the 3.4-mile segment within the project area has been continually upgraded with the replacement of rails, ties, ballast bed, crossing guards, and other related equipment and lacks historical integrity. Thus the segment within the project area does not qualify as a historic property or historical resource, and is recommended not eligible for inclusion on the NRHP or CRHR.

The Southern Pacific Railroad (P-50-000001) intersects with Alternative 3 in the central portion of the Project. Construction of this rail line through the Central Valley into southern California began in 1869 with the section of track from Lathrop to Bakersfield. Acquired by the Union Pacific Railroad in 1996, the Southern Pacific Railroad is associated with the "Big

Four" (Leland Stanford, Collis Huntington, Charles Crocker, and Mark Hopkins) who built the first transcontinental railroad, the Central Pacific Railroad in 1861. While the Southern Pacific/Union Pacific Railroad line appears eligible for listing in the NRHP and CRHR under Criterion A/1 for its significant role in the transportation history of the United States, and under Criterion B/2 for being associated with the men who built the first transcontinental railroad, the 0.21-mile segment within the project area has been continually upgraded with the replacement of rails, ties, ballast bed, crossing guards, and other related equipment and lacks historical integrity. Thus the segment within the Project area does not qualify as a historic property or historical resource, and is recommended not eligible for inclusion on the NRHP or CRHR.

Alternatives 1, 5, and 6 cross and/or parallel a historic-era water conveyance system in multiple areas (Table 5-5). Construction of TID's original earthen canals and laterals was completed between 1898 and 1900. Between 1910 and 1917 the canals and laterals were lined with concrete or gunite; water diversion features (e.g., regulator gates, concrete culverts) and bridges were built between 1917 and 1920. Alternative 5 crosses TID Lateral No. 2, while Alternative 6 crosses the Ceres Main Canal and TID Lateral No. 2 ½. Although the TID water conveyance system appears eligible for listing on the NRHP and CRHR under Criterion A/1 for its association with the development of the first publicly owned irrigation district in California, the historic fabric of the individual canal segments crossed by the project have been altered by continued upkeep and maintenance and lack integrity. Thus the segments within the project do not qualify as historic properties or historical resources, and are recommended not eligible for inclusion on the NRHP or CRHR.

Implementation of the alternative segments would not impact any known historical or cultural resources. As with the Project, however, the potential exists to impact undiscovered archeological and cultural resources. Implementation of the mitigation measures identified in Section 4.1.3 of this document would reduce these impacts to a less-than-significant level.

5.4.9 Hazards and Hazardous Materials

The setting and impact analysis methodology for potential hazards and hazardous materials impacts resulting from implementation of the alternative segments are the same as for the Project. Regarding potential sources of contamination, the database search did not find any additional sites with potential recorded spills or leaking underground storage tanks within one-eighth mile of all alternative routes, with the exception of Alternative 3. The database search found one additional site with potential recorded spills or leaking underground storage tanks within one-eighth mile of Alternative 3. Table 5-6 lists this potential source of existing contamination.

Table 5-6 Environmentally Important Sites Within 1/8 Mile of Alternative 3

Facility Name	Address (Map ID Site)	Site Type	Record Date	Approximate Distance to Project Area (Feet)
Foster Farms – Ceres Feedmill	5001 Prairie Flower Road	CA SLIC	3/6/2003	172

Source: EDR,2009
Notes:
CA SLIC = California Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

This site is reported as open and inactive site for investigation and clean-up related to potential soil contamination from diesel, and the case type is cleanup program site. This site is not within the proposed easement of 30 feet.

As with the Project, all alternatives would have the potential to expose people to significant health hazards from encountering contaminated sites during project construction, as with the Project. This could be a potentially significant impact, and implementation of Mitigation Measure 4.9-2 would still be required to reduce this to a less than significant impact.

As with the Project, construction and operation would have the potential to increase the foreseeable risk of a release of hazardous substances, resulting in a potentially significant impact. Implementation of Mitigation Measure 4.9-1 would still be required to reduce this impact to less than significant. The transmission line would maintain the same potential to increase the risk of wildfires. Mitigation Measure 4.9-3 would still be required to reduce this impact to less than significant.

5.4.10 NOISE

As with the Project, the alternatives under analysis would not noticeably increase traffic noise levels during operations and would slightly increase humming sounds at the substation and sizzling, crackling, or hissing sounds associated with corona discharge along the transmission lines. These operation-related noise levels at the nearest residences would remain well below the level considered normal acceptable by the County for residential use and thus would remain a less than significant impact. Construction-related noise would have slightly different impacts. These impacts are discussed for each alternative below.

ALTERNATIVE 1

The setting and analysis for potential noise impacts for Alternative 1 would generally be the same as for the Project. However, residences along East Service Road between Mountain View Road and Washington Road and along Washington Road between East Service Road and the Project would also be considered sensitive receptors.

Construction noise at the residences to the north of East Service Road would potentially be greater than for the Project. There are approximately 16 more residences located along Alternative 1 than the corresponding portion of the Project, Discussion Segment A and B. Alternative 1 would affect more sensitive receptors. This construction noise impact would remain potentially significant and still require implementation of Mitigation Measure 4.9-1 to reduce this impact to less-than-significant level.

ALTERNATIVE 2

The setting and analysis for potential noise impacts for Alternative 2 would generally be the same as for the Project. However, residences along Mountain View Road between Roeding Road and East Service Road would also be considered sensitive receptors.

Construction noise at the residences along Mountain View Road between Roeding Road and East Service Road would potentially be greater than for the Project. There is one additional residence located along Alternative 2 compared to the corresponding portion of the Project, Discussion Segment A. This construction noise impact would remain potentially significant. Mitigation Measure 4.10-1 would still be required to reduce this impact to less than significant.

ALTERNATIVE 3

The setting and analysis for potential noise impacts from Alternative 3 would generally be the same as for the Project. However, residences along East Service Road between Mountain View Road and Washington Road and along Washington Road between East Service Road and the Project would also be considered sensitive receptors.

Construction noise at the residences along the northern boundary of the Modesto Western Mobile Estates would potentially be greater than for the Project. There are approximately 19 fewer residences located along Alternative 3 than the portion of the Project that runs between the mobile home community and housing development in the community of Keyes, Discussion Segment D. Alternative 3 would affect fewer total sensitive receptors but more sensitive receptors would be closer to construction noise (within 50 feet of the proposed transmission line). Construction noise levels would potentially be louder these residences (approximately seven) located within 50 feet of along Alternative 3. This construction noise impact would remain potentially significant and still require implementation of Mitigation Measure 4.10-1 to reduce this impact to less than significant.

ALTERNATIVE 4

The setting and analysis for potential noise impacts for Alternative 4 would generally be the same as for the Project. However, residences along Turner Road between 650 feet west of the Ceres Main canal and Central Avenue and along Central Avenue between Turner Road and the Project route and the church on Central Avenue, south of Grayson Road would also be considered sensitive receptors.

Construction noise at the residences along Turner Road between 650 feet west of the Ceres Main canal and Central Avenue and along Central Avenue between Turner Road and the Project route would potentially be greater than for the project. There are approximately 27 more sensitive receptors located along Alternative 4 than along Discussion Segment F. This construction noise impact require implementation of Mitigation Measure 4.10-1 to reduce this impact to less than significant.

ALTERNATIVE 5

The setting and analysis for potential noise impacts from Alternative 5 would generally be the same as for the Project. However, residences along Roeding Road between Walnut Road and Washington Road, Washington Road between Roeding Road and East Redwood Road, and East Redwood Road between Washington Road and Faith Home Road would also be considered sensitive receptors.

Construction noise at the residences along Roeding Road between Walnut Road and Washington Road, Washington Road between Roeding Road and East Redwood Road, and

East Redwood Road between Washington Road and Faith Home Road would potentially be greater than for the project. There are approximately 35 more residences located along Alternative 5 than along the equivalent portion of the Project, Discussion Segments A, B, and C. This construction noise impact would remain potentially significant and still require implementation of Mitigation Measure 4.10-1 to reduce this impact to less than significant.

ALTERNATIVE 6

The setting and analysis for potential noise impacts for Alternative 6 would generally be the same as for the Project. There are no additional residences that would also be considered sensitive receptors. Construction noise would be the same as for the Project. This construction noise impact would remain potentially significant and still require implementation of Mitigation Measure 4.10-1 to reduce this impact to less than significant.

5.4.11 TRANSPORTATION

ALTERNATIVE 1

The *Stanislaus County General Plan* proposes to upgrade East Service Road to a four lane expressway. The road is currently two lanes and experiences relatively high traffic volumes. Routing the transmission line along East Service Road would have a greater impact on traffic than following the Project route, which would be located along TID Lateral No. 2. Construction-related impacts resulting from Alternative 1 would be potentially significant.

ALTERNATIVE 2

Mountain View Road is a local collector, whereas Euclid Avenue is a major road that the Stanislaus County General Plan proposes as a six lane expressway. Construction-related impacts along Mountain View Road (Alternative 2) would be less significant than along Euclid Avenue (Project route) because travelers could easily avoid Mountain View Road in favor of one of the other, parallel collectors in the area. Moreover, locating the route along Mountain View Road would avoid complications related to anticipated roadway upgrades. Impacts associated with the implementation of Alternative 2 would be less than significant.

ALTERNATIVE 3

Alternative 3 would not parallel any roadways, and would result only in a less-than-significant impact related to the transportation of the construction crew and materials.

ALTERNATIVE 4

Alternative 4 would travel along Turner Road and may result in temporary, construction-related impacts to transportation because there are several residences located along the roadway. All impacts would be mitigable to less than significant levels. These impacts would be avoided, however, by implementing the Project, which travels along the property boundaries north of Turner Road.

ALTERNATIVE 5

Alternative 5 would parallel Roeding Road, Washington Road, and East Redwood Road. These roadways are classified as locals and collectors by Stanislaus County. Impacts to transportation are not expected to be significant. Implementing the Project(which parallels the canal along most of this stretch) would avoid impacting these roadways.

ALTERNATIVE 6

Alternative 6 would not parallel any roadways, and would result only in a less-than-significant impact related to the transportation of the construction crew and materials.

5.4.12 PUBLIC SERVICES AND UTILITIES

Implementation of the identified alternatives would result in the same impacts to public services and utilities as those identified in Section 4.12. No new government facilities would be required and no existing schools would be impacted. All utility construction policies would be followed, and there would be sufficient water supplies, wastewater treatment capacity, and landfill capacity available to serve the project. As with the Project, implementation of Mitigation Measure 4.12-3 would be required to avoid impacts to existing utilities. This measure includes notifying Underground Service Alert two days prior to digging and notifying customers of potential loss of service.

5.4.13 SOCIOECONOMICS

The socioeconomic impacts of implementing the identified alternatives would be similar to implementing the Project. The alternatives would not induce growth or displace residents. Where the alternatives would pass more residences than the Project (refer to Section 5.4.1), the potential impacts to property values may become a more prominent issue. However, because there is no conclusive evidence linking power lines to declining values, this impact would remain less than significant.

5.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The CEQA Guidelines require the selection of an environmentally superior alternative. The environmentally superior alternative best meets the Project objectives, while minimizing or eliminating adverse environmental impacts. The CEQA Guidelines (§15126.6 (e)(2)) state, in part, that: "If the environmentally superior alternative is the 'No Project' alternative, the EIR would also identify an environmentally superior alternative among the other alternatives."

The CEQA Guidelines (§15126.6 (d)) require that an EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Project. A narrative summary of the impacts associated with the alternative alignment segments, as compared to the Project impacts, is provided above. None of the six alternative options that were analyzed would reduce the overall impacts associated with the Project.

Under the No Project Alternative, transmission lines and substation infrastructure would not be constructed. TID's studies indicate that the transmission and distribution system may not be able to reliably serve current customers and planned development in the service area. The No Project alternative would not result in any of the impacts associated with the Project. Therefore, the No Project alternative is considered the environmentally superior alternative, but would not meet the objectives of the Project.

Among the alternatives transmission line segments, the determination of an environmentally superior alternative requires the evaluation and balancing of many factors. Some of the impacts may be reduced in magnitude while, at the same time, others are increased in magnitude. In general, there would be minor differences in the magnitude of impacts between the Project and the alternatives, but all would result in the same impact significance levels within each environmental resource area. In all but one case, the Discussion Segments generally impact fewer residences than the considered Alternatives.

The discussion above indicates that Alternative 3 would impact the fewer residences, less land in sensitive uses, and have a lesser impact on aesthetics than the corresponding segment of the Project, Discussion Segment D. While this option would impact fewer sensitive receptors, those that would be impacted by Alternative 3 are generally located closer to the proposed infrastructure than the residences along Discussion Segment D. Alternative 3 was not selected because this segment (1) is located closer to residences than the proposed route, (2) would limit future development options in this area and bisect several agricultural parcels west of SR 99, and (3) is located in close proximity to a contamination site, as discussed above.

In light of the analysis presented above, the Project route, with no implementation of alternative segments, has been determined to be the environmentally superior alternative.

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6.0 CUMULATIVE AND GROWTH INDUCING IMPACTS

This Chapter presents a detailed analysis of the cumulative impacts that would be anticipated with implementation of the Project, and other identified projects that are proposed in the Project's vicinity. The Chapter also discusses the Project's growth-inducing impacts and the Project's significant and irreversible commitment of resources.

6.1 CUMULATIVE IMPACTS

The California Environmental Quality Act (CEQA) Guidelines, Section 15130, require that an EIR discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable." According to Section 15065(c), "'Cumulatively considerable' means that the incremental effects of an individual 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 as defined in Section 15130." Pursuant to Section 15130 of the CEQA Guidelines, "(t)he discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impacts to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact." The Project is considered to have a significant cumulative effect if:

- The cumulative effects of development without the project are not significant and the project's additional impact is substantial enough, when added to the cumulative effects, to result in a significant impact; or
- The cumulative effects of development without the project are already significant and the project contributes measurably to the effect. The term "measurably" is subject to interpretation. The standards used herein to determine measurability are that either the impact must be noticeable to a reasonable person, or must exceed an established threshold of significance.

Mitigation measures are to be developed that reduce the Project's contribution to cumulative effects to a less-than-significant level. The CEQA Guidelines acknowledge that sometimes the only feasible method for mitigating or avoiding significant cumulative effects is to adopt ordinances or regulations that apply to all projects that contribute to the cumulative effect.

6.1.1 SETTING

The setting for the analysis of cumulative Project impacts is based on development and infrastructure projects that are related geographically to the Project. There are currently eight projects within the vicinity of (i.e. less than one mile from) the Project that are undergoing review by Stanislaus County and the City of Ceres. The City of Hughson has no projects within one mile of the Project (personal communication: Thom Clark, City of Hughson, July 2009; unreferenced). Projects identified within the Project's vicinity are summarized below.

- Martella Farms submitted a Use Permit application on July 8, 2009 for the purpose of constructing four agricultural storage facilities and two canopy roof structures. The property is located at the northeast quadrant of the Geer Road/East Service Road intersection, less than one mile east of the proposed 115-kV transmission line route.
- Stanislaus County has prepared a Mitigated Negative Declaration to construct a new animal shelter on vacant land located at 3312 Crows Landing Road in Ceres. This project would be constructed less than a mile north of the Grayson Substation site and the western terminus of the proposed 115-kV and two 69-kV transmission line routes.
- There are two projects within the City of Ceres which include the addition of a ground water well at each location. At the Crows Landing Flea Market a 650-725 gallon per minute (gpm) well will be added. A 650 gpm well is currently being added at the Ceres Lion Park Wells.
- The City of Ceres' long-range planning efforts include: the West Ceres Specific Plan, the Copper Trails Master Plan and Annexation, and the Maple Glen Master Plan and Annexation. All of these projects are within one mile of the transmission lines and the Grayson Substation.
    - The Draft West Ceres Specific Plan encompasses approximately 960 acres of developed, undeveloped, and agricultural land to the west of the current city limits. Its study area is bounded by Whitmore Avenue to the north, Service Road to the south, Ustick Road to the west, and the Union Pacific Railroad

line to the east (Ceres 2008c). The Plan, which is currently undergoing CEQA environmental review, proposes a mix of residential, office, commercial, and industrial uses to be developed in the area (personal communication: Tom Westbrook, City of Ceres, July 2009; unreferenced). The interconnection of the Section Two 69-kV transmission line at the existing Almond Power Plant and part of its route is located approximately 0.25 mile to the south of the Plan's southeast study area corner.

- The Copper Trails Master Plan and Annexation study area encompasses 175 acres and is bounded by the TID Lower Lateral No. 2 to the south, Blaker Road to the west, East Service Road to the north, and Central Avenue to the east. The Master Plan will include low, medium, and high density residential uses with parks and open space, and the existing Central Valley High School. As part of the project, the wastewater treatment plant will be expanded. The Maple Glen Master Plan and Annexation is located directly east of the Copper Trails Master plan area, and consists of 188 acres and 910 homes in low, medium, and high density residential ranges. The Project's 115-kV transmission line is within one mile of these study areas (Ceres 2008c).

- In addition, the California Energy Commission (CEC) is currently reviewing the *Almond 2 Power Plant Application for Certification*, which was submitted May 11, 2009 (09-AFC-2). TID proposes to construct, own, and operate this electrical generating plant in Ceres, California. The Almond 2 Power Plant would be a natural gas-fired, simple-cycle peaking facility rated at a gross generating capacity of 174 megawatts (MW). The Almond 2 Power Plant is proposed to be located on an approximately 4.6-acre parcel adjacent to, and north of, the existing 48-MW TID Almond Power Plant and would be connected to the proposed Grayson Substation via dual 115-kV transmission lines (TID 2009). The Project's Section Two 69-kV transmission line would be co-located on poles with one of the Almond 2 Power Plant's 115-kV transmission lines.

  Assuming the project receives certification from the CEC by the second quarter of 2010, construction of the Almond 2 Power Plant would begin in the third quarter of

2010 and would last approximately 12 months. Pre-operational testing of the power plant would begin in the third quarter of 2011, and full-scale commercial operation would be expected to commence by the fourth quarter of 2011. With implementation of the proposed mitigation measures and the anticipated CEC Conditions of Certification, there will be no significant unmitigated environmental impacts associated with the construction and operation of the Almond 2 Power Plant (TID 2009).

6.1.2 POSSIBILITY OF CUMULATIVE IMPACTS WITH THE PROJECT

In light of the project setting described above, no significant cumulative impacts are anticipated. All of the proposed projects identified are consistent with surrounding land uses and would not introduce any sensitive receptors to the vicinity nor substantially alter the visual character along the proposed 115-kV and 69-kV transmission line routes. In addition, the projects would not eliminate any identified sensitive habitats or impact any protected species.

The Almond 2 Power Plant would have two 115-kV power lines that would connect to the Project, following all boundaries of the land north of the Grayson Substation to TID Lateral No. 2 and from Crows Landing Road to the existing orchards on the west. The Project's Section Two 69-kV transmission line would be co-located on the poles of one of the Almond 2 Power Plant's 115-kV transmission lines to reduce the visual effects of additional transmission poles. This area is currently in agricultural production, and is located within the City of Ceres' Planning Area and Reserve Area. The city has designated this area as Industrial Reserve (IR). This designation is given to lands that will eventually be developed with industrial uses as part of the City of Ceres. The substation and accompanying transmission lines would be consistent with the city's anticipated future use for this area (personal communication: Tom Westbrook, City of Ceres, July 2009; unreferenced).

The visual impact of the Grayson Substation and transmission lines would be increased when considered in conjunction with these planned utilities. The two projects would have the effect of further transforming the viewshed, which currently contains rural elements, but is dominated by industrial elements, into an industrial landscape. Because industrial uses are the planned land use in the area, this would not be considered an adverse impact.

Within this same area, north of the Grayson Substation, the Section Two 69-kV associated with the Hughson-Grayson 115-kV Transmission Line and Substation Project and the 115-kV lines from the Almond 2 Power Plant may limit agricultural equipment operation and crop dusting. Aerial application of pesticides and herbicides may still be possible. Assuming, however, that the Project would eliminate the ability for crop dusting on the parcels bordered by the transmission lines and the Grayson Substation, this would not result in a significant impact since there are other alternatives for pesticide and/or herbicide application and the size of the area affected and is relatively small. The cumulative impact of these two projects would not remove this area of Prime Farmland from agricultural production and would not impose a cumulatively considerable impact.

Furthermore, no cumulative impacts to hydrology and water quality are expected. Potential impacts to drainage would be localized and mitigated, and would therefore not contribute to any overall effects. An onsite well and addition of impervious surfaces are few and geographically dispersed so that no impacts to aquifer volume or groundwater quality are anticipated. In addition, because the Project would use limited amounts of groundwater, the Project and the Crows Landing (Flea Market) and Ceres Lions Park wells would not, in combination, result in any significant cumulative impacts.

The Hughson-Grayson 115-kV Transmission Line and Substation Project would be located in a non-attainment area for State and Federal air quality standards. No unmitigated construction-related impacts to air quality are anticipated on an individual project or cumulative level. The Project would not result in a significant impact to air quality during operation; however, there is potential that the Almond 2 Power Plant would contribute to air pollution. TID has sufficient emissions reductions credits to cover any potential increase and to mitigate for any impact associated with the Almond 2 Power Plant project.

There is potential for a cumulative impact to hazards related to electromagnetic fields in the area between the Grayson Substation and the Almond 2 Power Plant, where both projects have proposed transmission structures. There are no sensitive receptors in this area, and the potential for this impact to be significant is low.

If construction of the identified projects occurs concurrently, there is potential for amplified impacts to the auditory environment along the transmission line routes and at the Grayson

Substation site. Exact construction schedules are not known at this time. Therefore, analysis of potential noise-related impacts cannot be fully performed. However, given the short construction period required at each of the pole locations along the routes, cumulative impacts to noise are not anticipated.

Noise impacts as a result of construction of the Grayson Substation, which is located in close proximity to the Almond 2 Power Plant, may be slightly amplified if work on that project is occurring concurrently. However, both projects would be required to implement noise mitigation, including equipment noise controls and limits on hours of construction. Given that there are few sensitive receptors in this area, any impact is assumed less than significant.

Impacts to traffic and transportation, similarly, would only occur if several projects are constructed at the same time and 1) the same haul routes are used for several projects or 2) detours and road closures required for different projects overlap or conflict. Based on the locations and development schedules of the projects under discussion, these impacts are considered unlikely. Additionally, cumulative socioeconomic impacts could occur if the construction schedules for other large projects overlap with the schedule for the proposed project. This may create a demand for construction workers that exceeds the capacity of the local labor force; thus creating an influx of construction workers that would result in impacts to local housing, schools, and/or public services. Given the present economic setting, this is not considered a significant cumulative impact.

6.2 GROWTH-INDUCING IMPACTS

According to Section 15126.2(d) of the State CEQA Guidelines, an EIR must discuss the growth-inducing impacts of the proposed project. A growth-inducing impact is defined by the CEQA Guidelines as an impact that fosters economic or population growth, or the construction of additional housing, either directly or indirectly. Growth inducement can occur, for example, if a project would remove obstacles to population growth, such as an expansion of a wastewater treatment plant that could allow additional development in the service area.

A project can have direct and/or indirect growth inducement potential. Direct growth inducement would result if a project involved construction of new housing. Indirect growth inducement would result, for instance, if implementing a project resulted in substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises); or a construction effort with substantial short-term employment opportunities that indirectly stimulates the need for additional housing and services to support the new employment demand; and/or removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

Growth inducement itself is not an environmental effect but may lead to environmental effects. These environmental effects may include increased demand on other community and public services and infrastructure, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, or conversion of agricultural and open space land to urban uses.

Growth inducement may constitute an adverse impact if the growth is not consistent with, or accommodated, by the land use plans and growth management plans and policies for the area affected. A project that would induce disorderly growth (i.e., conflict with local land use plans) could directly or indirectly cause additional adverse environmental impacts and other public service impacts. An example of this would be the extension of urban services to a non-urban site, thus encouraging conversion of non-urban lands to urban uses.

6.2.1 POSSIBLE PROJECT-RELATED GROWTH INDUCEMENT

TID serves new development as approved by the local agencies that have jurisdiction over lands within TID's electrical service area. TID does not designate where and what new development may occur. The presence of the proposed substation and transmission line segments would not induce population growth or urban growth; it would accommodate growth and increased electrical demand that is planned to occur in the local area. As a result, the project is not considered to be growth-inducing, and no growth-inducing impacts are expected.

6.3 SIGNIFICANT AND IRREVERSIBLE COMMITMENT OF RESOURCES

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. The Project would use both renewable and nonrenewable natural resources for project construction and operation. The Project would use nonrenewable fossil fuels in the form of oil and gasoline during construction and operation. Other nonrenewable and slowly-renewable resources consumed as a result of Project development would include, but not necessarily be limited to, lumber and other forest products, sand and gravel, asphalt, petrochemical construction materials, steel, copper, aluminum, and water. The Project would require a commitment of materials, energy, and economic resources but this commitment would not seriously deplete existing sources, and many of the materials are salvageable.

Although it is physically possible to remove the proposed electrical facilities should they prove unnecessary, in practice the construction of an overhead electrical transmission line commits the corridor to the proposed use for the duration of the planning horizon. As individual poles and items of equipment weather, they would be replaced, but the entire project is not likely to become obsolete. Other linear features would be inclined to use all or a portion of this corridor for their needs, just as the Project has followed existing canal and public road rights-of-way to avoid impacting residential and agricultural uses. During the lifetime of the Project, the surrounding uses would adjust to the aesthetic and physical impacts that cannot be avoided by the project and would produce a corridor that is more compatible with these uses. This accommodation would strengthen the permanent nature of the Project, producing effects that are, in practice, irreversible.

6.4 SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

The CEQA Guidelines Section 15126.2(b) requires that any significant and unavoidable impact to the environment must be identified, including impacts that cannot be mitigated to less-than-significant levels. With application of mitigation measures in Chapter 4 (Environmental Setting, Impacts, and Mitigation Measures) of this EIR, all project impacts will be mitigated below a level of significance. Therefore, the Project would not result in any significant unavoidable adverse impacts.

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