ORANGE GROVE ENERGY, L.P.
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October 8, 2007

California Energy Commission
ATTN: Docket No. 07-SPPE-02
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

Ref: Response to California Energy Commission September 5, 2007
Data Requests for the Orange Grove Power Plant Project

Please find enclosed one electronic copy of the Orange Grove Energy L.P. responses to the California Energy Commission Staff's September 5, 2007 data requests related to the Orange Grove Project Small Power Plant Exemption Application. One original and one copy of this submittal have been sent to Ms. Felicia Miller. Electronic copies along with proof of service declaration have been sent to each of the individuals on the attached proof of service list.

If you have questions regarding the enclosed responses, please call Joe Stenger at (805) 528-6868, or me at the phone number in the letterhead.

Sincerely,

Stephen Thome
Vice President of Development
Orange Grove Energy, L.P.

cc. Felicia Miller

Enclosure:
Response to Data Requests 1 to 98 (Set 1) for the Orange Grove Project (07-SPPE-2)

Attachment:
Proof of Service

RESPONSE TO CALIFORNIA ENERGY COMMISSION SEPTEMBER 5, 2007 DATA REQUESTS

ORANGE GROVE PROJECT

Submitted by

ORANGE GROVE ENERGY, L.P.

1900 East Golf Road, Suite 1030
Schaumburg, IL 60173

October 2007

Technical Area: Air Quality
Author: William Walters

BACKGROUND

OPERATIONS MITIGATION – EMISSION REDUCTIONS

The application does not propose any mitigation measures for the project's potential significant impacts. Staff's position for California Environmental Quality Act (CEQA) impact determination or operating emissions is that all nonattainment pollutants and their precursors need to be mitigated through emission reductions at a minimum ratio of 1:1. The San Diego Air Basin in the area of the project site is classified as nonattainment for the state ozone, PM (particulate matter) 10 and PM2.5 standards and federal ozone standard. Without complete emission reduction mitigation, this project will contribute to existing violations of the state and federal ambient air quality standards, and staff cannot find that this project would have less than significant air quality impacts. A finding of a potentially significant impact would make the project ineligible for licensing in the Small Power Plant Exemption process. Staff needs additional information to determine if the applicant will be proposing any mitigation for the project's operating emissions.

DATA REQUEST

1. Please identify whether any emission mitigation will be proposed to offset this project's operating emissions of NOx (oxides of nitrogen), VOC (volatile organic compound), PM10 and PM2.5.

RESPONSE

The proposed emission increase for this project is mitigated by non-bankable emission reductions that occurred throughout San Diego County under the San Diego Air Pollution Control District (SDAPCD) New Source Review (NSR) program, its 2007 Ozone Attainment Plan (OAP) and its Regional Air Quality Control Strategy (RAQS) for ozone precursors and particulate matters. In the OAP, San Diego County is projected to have a net reduction of 3,905.5 TPY VOC and 1,423.5 TPY NOx[1] region-wide. This should adequately mitigate the maximum potential to emit for the project of 17.7 tons-per-year (TPY) NOx and 1.97 TPY VOC.

For PM10 and PM2.5, the San Diego Air Basin is in attainment with federal standards. To meet the more stringent California standards under SB-656, SDAPCD implements its Measures to Reduce Particulate Matter for San Diego County (December 2005). In this plan, various measures were proposed and

[1] SDAPCD 8-Hour Ozone Attainment Plan – Attachment E (Calculations of Cumulative Potential Emission Reductions for Possible Reasonably Available Control Measures).

implemented to achieve attainment in the region. In 2006, the highest ambient PM2.5 concentration in the project area as measured by a nearby monitoring station in the city of Escondido shows the area to meet the California standard for PM2.5. These measures are therefore expected to fully mitigate the proposed maximum PM10/PM2.5 emissions of 8.78 TPY.

Both the SDAPCD Ozone Attainment Plan and the RAQS have shown extreme effectiveness as San Diego County has earned the distinction of making the greatest improvement in emission reduction. For its NSR program, the SDAPCD has consistently shown that actual non-bankable emission reductions in the County far exceed minor source emission increases from projects similar to the Orange Grove Energy (OGE) Project. Additionally, SDAPCD has adopted and implemented regulations and best available control technology (BACT) requirements to further ensure the on-going air quality improvement in this region.

As a measure of good faith, OGE hereby provides the following mitigation measures to further augment the OAP and the RAQS. These measures are designed to reduce emission at levels that are equivalent to the projected annual average emission of the proposed peaker facility. As calculated and provided in Exhibit 28-1, these emission levels are projected to be 5.72 TPY NOx, 0.67 TPY VOC and 2.75 TPY PM2.5.

To further mitigate emissions of ozone precursors (NOx & VOC), OGE will set aside an air quality investment fund (AQIF) to add to the SDAPCD Carl Moyer Program that provides incentives on projects that will have actual emission reduction from various combustion emission sources. Since this program has an established maximum cost effectiveness threshold of $14,300 per ton of NOx and VOC for funding projects, OGE will therefore fund the maximum amount to the AQIF with $110,000 which includes a 20% administrating fee to the administering agency ((5.72 TPY + 0.67 TPY) x $14,300 x 1.2).

For particulate matters (PM10 & PM2.5) emission mitigation, OGE will sponsor a program to replace old wood burning stoves with those that are EPA-compliant. Referencing EPA's guidance on such a program, EPA has estimated that approximately one (1) ton of PM10/PM2.5 emission reduction for every twenty (20) replacements can be achieved; this program will therefore yield approximately 3 TPY of PM10/PM2.5 emission reduction. Program notification will be provided through local government and the SDAPCD will be requested to certify this program. With a 20% administration fee, OGE will allocate a budget of $72,000 to implement this program..

http://www.epa.gov/woodstoves/how-to-guide.html

These proposed measures will therefore provide additional assurances that this project will not have unmitigated air quality impacts to quality for the SPPE process.

BACKGROUND

CONSTRUCTION MITIGATION

The proposed construction mitigation is considerably less than recommended by Energy Commission staff in many previous staff assessments. We need to know if the applicant will be able to incorporate staff's recommended construction mitigation measures into the project description.

DATA REQUEST

2. Please review the enclosed mitigation measures AQ-SC 1 – 5 found in the Starwood Power Plant (06-AFC-10) Preliminary Staff Assessment (pgs 79-83) and identify any issues relative to the Orange Grove project. The document is located at: http://www.energy.ca.gov/ 2007publications/CEC-700-2007-012/CEC-700-2007-012-PSA.PDF.

RESPONSE

Orange Grove Energy will accept conditions as referenced in the Starwood Power Plant project and reproduced as Exhibit 2-1.

BACKGROUND

CONSTRUCTION EMISSION CALCULATIONS – COMPLETENESS

The construction emission calculations appear incomplete. The list of construction equipment appears insufficient to complete the required construction activities. For example, several items of construction equipment, such as dozers, graders, scrapers, and soil compactors would be needed to clear and grub the site, effectively grade it, and excavate the storm water detention basin. The geotechnical investigation provided in the application's Appendix 6.3-A indicates the site would require at least 12 inches of scarification and recompaction, which would likely underestimate the foundation needs for the gas turbine power blocks. A second example would be the requirement for asphalt paving without an asphalt paver being listed in the equipment list. Additionally, the construction emission calculations only include daily emissions and not project total construction emissions, and the emission estimate also does not include all fugitive dust causing activities including dozing, grading, and miscellaneous disturbance of unpaved road fugitive dust. Staff requires additional and corrected information to adequately assess the construction emissions and construction impacts.

DATA REQUEST

3. Please review the emission calculations, in terms of equipment (both type and size) and construction schedule and provide a revised off-road construction emission estimate to include all necessary onsite construction activities and construction equipment. Please reference the projection of construction equipment emissions contained in the air quality appendix within staff's Final Initial Study (06-AFC-1) for the Niland Gas Turbine Plant case (page 43 of 134) which is located at: http://www.energy.ca.gov/sitingcases/niland/documents/applicant_files/afc/vol-2/Appendix_B_Air%20Quality%20Data_FINAL.pdf

RESPONSE

Revised construction activities, schedules and associated emissions are provided in Exhibit 3-1.

4. Please provide total construction emission estimates along with the maximum daily emission estimates from all equipment and related activities.

RESPONSE

The total construction emission estimates were provided in Table 6.2-6 on page 6.2-15 of the SPPE. However, the updated calculations are provided in Exhibit 3-1.

5. Please provide particulate emissions information for all construction activities including truck and construction employee travel over unpaved roads/surfaces, dozer fugitive dust emissions, and motor grader fugitive dust emissions using appropriate AP-42 calculation procedures.

RESPONSE

Updated calculations are provided in Exhibit 3-1.

BACKGROUND

CONSTRUCTION EMISSION CALCULATIONS – EMISSION FACTORS

The staff finds the use of the South Coast Air Quality Management District's (SCAQMD) on-road or off-road construction emission factors acceptable. However, the construction emission calculations provided in Appendix 6.2-C Tables 6.2C-3A through 6.2C-5B (pages 6.2-C-12 to -18) use out-of-date on-road emission factors that were revised by SCAQMD in March 2007. Additionally, the off-road emission factors used do not appear

to match the year of construction (2007 versus 2008). Corrected emission factors should be used in the emission estimate.

DATA REQUEST

6. Please revise the on-road vehicle emission estimates using the latest SCAQMD on-road emission factors.

RESPONSE

Updated calculations are provided in Exhibit 3-1.

DATA REQUEST

7. Please revise the off-road vehicle emission estimates using the proper SCAQMD off-road emission factors for the year of construction (2008).

RESPONSE

Updated calculations are provided in Exhibit 3-1.

BACKGROUND

CONSTRUCTION EMISSIONS DISPERSION MODELING

Construction emissions dispersion modeling was not performed. Please provide dispersion modeling results in order to completely assess the construction impacts.

DATA REQUEST

8. Please provide a construction emission modeling analysis for all directly emitted pollutants with ambient air quality standards. This modeling analysis should include all on-site emission sources during the construction on the power plant site, but does not need to include off-site linear construction. Please contact William Walters at (818) 597-3407 or WWalters@aspeneg.com for the recommended modeling procedures.

RESPONSE

Details of the construction dispersion modeling are provided in Exhibit 8-1. The following is a summary of the modeling results.

Pollutant	Averaging Time	2002 µg/m3	2003 µg/m3	Background µg/m3	Total µg/m3	CAAQS	NAAQS
NO2	1 HR	273.6	326.9	150.5	477.4	338	-
NO2	Annual	17.8	17.1	33.9	51.7	56	100

Pollutant	Averaging Time	2002 µg/m3	2003 µg/m3	Background µg/m3	Total µg/m3	CAAQS	NAAQS
CO	1 HR	130.1	155.5	7,214	7,370	23,000	40,000
CO	8 HR	21.7	27.7	4,135	4,163	10,000	10,000
SO2	1 HR	0.43	0.51	110	110.5	655	-
SO2	3 HR	0.15	0.25	52.4	52.7	-	1,300
SO2	24 HR	0.007	0.007	23.6	23.6	105	365
SO2	Annual	0.016	0.016	10.5	10.5	-	80
PM10	24 HR	17.5	16.3	57.0	74.5	50	150
PM10	Annual	3.96	4.12	27.5	31.6	20	-
PM2.5	24 HR	2.3	2.5	67.3	69.8	-	35
PM2.5	Annual	1.59	1.49	14.1	15.7	12	15

Onsite construction emission modeling was conducted using emission estimates updated for Data Responses 3 – 7. The following maximum daily emissions were also calculated for this project. As shown below, these estimated maximum daily emission levels are below the significance levels specified in San Diego County CEQA guidelines.

Pollutant	CO	VOC	NOx	SOx	PM10	PM2.5
Max. Daily Emission (lb/day)	95	23	199	0.17	9.4	8.6
Significance threshold	550	75	250	250	100	55
Exceed Significance threshold	No	No	No	No	No	No

Maximum daily onsite off-road emissions were calculated and presented in Table 3-5A in Exhibit 3-1.

Construction related emissions are non-recurring and the highest level of estimated emissions would only last two to three weeks during the grading period. To ensure that potential construction impacts are fully mitigated and as required by the CEC, this project will implement all the prescribed construction mitigation measures as specified for Data Response 2.

BACKGROUND

GAS TURBINE SOX EMISSIONS

The applicant's calculations for sulfur content of natural gas fuel are unclear. Staff believes that the worst-case short-term fuel sulfur concentration should be based on the SoCalGas fuel sulfur limit of 0.75 grains per 100 standard cubic feet. Staff needs additional information to assess the basis for the gas turbine SOx emission estimate.

DATA REQUEST

9. Please provide calculations showing the basis and assumption for the derivation of the 0.83 lb/hour SOx emission value given for each gas turbine at full load.

RESPONSE

The SOx emission rate of 0.83 lb/hr was provided from prior performance data with no references. The following is an updated calculation of the SOx emission rate.

Based on a maximum sulfur content of 0.75 grains per 100 standard cubic feet (SCF) of natural gas, a higher heating value (HHV) of 1,015 BTU/SCF (as provided by SDG&E), and heat input of approximately 477.9 MMBTU/hr at full load, the estimated maximum SOx emission rate is as follows:

$$\frac{(0.75 \text{ gr } SO_2)(64 \text{ lb/lb-mole } SO_2)}{(100 \text{ SCF})(32 \text{ lb/lb-mole S})(7{,}000 \text{ gr /lb } SO_2)(1{,}015 \text{ BTU/SCF})} = 0.0021 \text{ lb } SO_2\text{/MMBTU}$$

(477.9 MMBTU/hr)(0.0021 lb SO_2/MMBTU) = 1.00 lb/hr at full load

The SOx emission estimates during operation were updated accordingly and provided in Exhibit 28-1.

BACKGROUND

GAS TURBINE BEST AVAILABLE CONTROL TECHNOLOGY (BACT) LEVELS FOR VOC AND AMMONIA

The application notes that the BACT emission level for VOC will be 2.0 parts per million (ppm) in Section 2 (p. 2-18) and Section 6.2 (p. 6.2-D-2) but also notes an emission level of 5.0 ppm on page 6.2-F-4. For ammonia, the BACT level is noted as 5 ppm in Section 6.2 (p. 6.2-F-4) and 10 ppm elsewhere (pp. 2-15, 6.2-D-2 and 6.16-12). While staff believes the correct values are 2.0 ppm for VOC and 10 ppm for ammonia, the applicant needs to clarify which emission levels are proposed for the project.

DATA REQUEST

10. Please confirm the gas turbine VOC BACT emission level is proposed to be 2.0 ppm at 15 percent oxygen.

RESPONSE

The turbines will meet the BACT level of 2.0 ppm VOC at 15 percent oxygen.

11. Please confirm the proposed gas turbine ammonia BACT emission level is 10 ppm at 15 percent oxygen.

RESPONSE

The turbines will meet the BACT level of 10 ppm ammonia at 15 percent oxygen.

BACKGROUND

GAS TURBINE INITIAL COMMISSIONING EMISSIONS

Additional information is required regarding the power plant's initial commissioning tests to evaluate potential impacts during this interval. Specifically, exhaust parameters and emissions for each type of initial commissioning test are needed to evaluate the initial commissioning impacts.

DATA REQUEST

12. Please describe the types of the initial commissioning tests required by General Electric (GE) for the project's LM6000 turbines.

RESPONSE

The commissioning of each turbine will take place under GE supervision. Commissioning will consist of the following test periods.

- First fire of the unit, where each unit is operated on fuel at speeds ranging from minimum idle to full speed at no load and not tied to the grid. Correct electrical phase rotation is established and systems are checked out and tuned (e.g. fuel gas compressors and the gas turbine fuel system). 1 x 12-hr day per unit.
- Synchronization, where the unit is tied to the grid and operated at low load (<15 MW with no water injection and SCR operation). Controls are tuned during this phase to establish reliable starting and stopping of the unit. 2 x 12-hr day per unit.
- Low-load to full-load operation (approximately 1.5 MW to full-load, no SCR operation). Water injection and watering schedule are established during this phase to establish the desired gas turbine emissions profile. The gas turbine and generator excitation system controls are tuned to provide desired response. 1 x 6-hrs day per unit.
- Low-load to full-load operation (> 15 MW to full-load), with water injection and SCR in operation. The SCR is commissioned and tuned. 1 x 6-hrs day per unit.

- Power augmentation equipment (SPRINT and inlet chilling systems) are commissioned and tuned. SCR is re-tuned if necessary to account for power augmentation equipment. 1 x 12-hr day per unit.

Only one unit will be commissioned at a time until both units can operate with functioning SCR systems. This will ensure methodical start-up and minimize instantaneous emissions.

13. Please provide the duration, expected exhaust parameters (temperature and velocity), and criteria pollutant emission rates for each of the initial commissioning tests identified in the response to Data Request 12.

RESPONSE

The test durations are provided in Data Response 12. These represent ideal conditions and the entire commissioning period is not expected to exceed 60 hours. However, certain tests may be repeated to resolve issues that may arise. The temperature and exhaust velocity will vary for each load and test parameters. GE has provided the performance data for the unit operating at 15 MW as showed in Exhibit 14-1. Conservative emission estimates are made for the commissioning period using this scenario (i.e. < 15MW) without add-on controls (i.e., SCR and oxidation catalyst systems). Revised emission estimates for the commissioning phase are provided in Exhibit 30-1.

BACKGROUND

GAS TURBINE EXHAUST CONDITIONS

Additional information supporting the gas turbine exhaust temperature and stack velocity assumed in the modeling files needs to be provided. Staff needs additional information from GE to support these values and confirmation from the applicant that the exhaust temperatures will not exceed the proposed selective catalytic reduction (SCR) and carbon monoxide (CO) oxidation catalyst control systems.

DATA REQUEST

14. Please provide gas turbine exhaust specifications for 100% operating load, 75% operating load and 50% operating load from GE.

RESPONSE

GE performance profiles for the turbines operating at the 100%, 75% and 50% operating loads are attached as Exhibit 14-1.

15. Please provide manufacturer information demonstrating the gas turbines exhaust temperatures would be within the proposed SCR and CO catalyst control systems designed specifications.

RESPONSE

OGE is working with a SCR system proposed by Turner Envirologic. The proposed system uses a Johnson Matthey Platinum/Palladium oxidation catalyst that has an operating temperature range of 600 °F – 1,200 °F, and a Haldor Topsoe ceramic-based Vanadium/Titania NOx catalyst with an operating temperature range of 600 °F – 850 °F.

The supplier will perform the necessary computer modeling to fine tune the design and placement of the catalyst modules. The system will have dilution air to cool the exhaust air to approximately 800 °F when necessary. The system will also be designed to use a slip exhaust stream to vaporize the ammonium hydroxide solution to reduce the parasitic load and start-up time. A proposal for the SCR system and data sheets on the catalysts are attached as Exhibit 15-1.

BACKGROUND

FIRE PUMP ENGINE DESIGN/EMISSIONS

Staff believes the fire pump engine should be a new model that meets the latest U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) non-road diesel engine emission standards. For the engine size proposed, this would be a Tier 3 engine. However, the emission factors provided for the proposed engine do not meet EPA and CARB Tier 3 NOx emission standards. Staff needs the applicant to supply appropriate emission factors and emission estimates for a Tier 3 engine. Additionally, staff needs to confirm the engine will use ultra low sulfur diesel fuel as the SOx emission factor given in Table 6.2D-6 of the application is based on 500 ppm sulfur rather than 15 ppm sulfur.

DATA REQUEST

16. Please revise the make/model of the proposed firewater pump engine to meet Tier 3 engine standards and provide revised emission factors and revised emission estimate for the engine.

RESPONSE

OGE has made additional inquiries into the availability of, as well as consulted CARB on, Tier 3-compliant engines for firewater pump application. From this process OGE confirmed that firewater pump diesel engine drives require approvals from the Underwriters Laboratories/fire marshal (UL/FM) and there are

no approved Tier 3 diesel drives that meet this requirement. OGE therefore requests that a Tier 2 engine be accepted for this application given this fact, as well as the minimum use of this equipment.

During this inquiry period, OGE has updated its selection of the firewater pump package with a Cummins Model CFP6E-F35 engine. Literature on this system is provided in Exhibit 16-1. This update has no impact on the original estimate of emissions for the firewater pumping requirement.

17. Please confirm the SPPE application statement regarding the firewater pump engine's use of ultra low sulfur (15 ppm sulfur) diesel fuel.

RESPONSE

Orange Grove Energy will use CARB specified ultra low sulfur (15 ppm sulfur) diesel fuel to operate its emergency firewater pump engine. A Material Safety Data Sheet (MSDS) for the fuel is provided in Exhibit 17-1.

BACKGROUND

COOLING TOWER EMISSIONS

Staff's review of the cooling tower emission estimate (see page 6.2-19 of the application) indicates apparent errors in the calculations. The recirculating water flow of 1.50 gallons per minute appears to be orders of magnitude too low and the drift loss fraction percentage of 2.67 percent is orders of magnitude too high, assuming any type of drift eliminator is used. The calculations for the cooling tower emissions need revision or they should be supported with specific, new information.

The cooling tower annual emission estimate is based on 6,400 hours of operation; however, the chiller would not need to be operating at full load if only one turbine were operating at a time. Additionally, it is unlikely that ambient conditions requiring the chillers use at full load would occur 6,400 hours per year.

DATA REQUEST

18. Please provide revised cooling tower emission calculations for the recirculating water flow and drift fraction of the cooling tower.

RESPONSE

The recirculation rate of the cooling tower was misstated in the SPPE. The design recirculation rate is 5,950 gpm. A drift fraction of 0.001% is recommended by the equipment supplier; therefore, a drift loss of approximately 0.06 gpm is used for approximating emissions below.

19. Please identify the ambient meteorological conditions under which the chiller will operate and revise the annual PM10 emissions basis accordingly for maximum annual cooling tower water recirculation.

RESPONSE

The chiller package may be activated whenever the ambient condition exceeds 86 ºF; however, it may also be utilized to maximize output at conditions as low as 70 ºF. The PM10 emission is estimated using the worst case of running the chiller and cooling tower whenever the turbines are on.

20. Please provide cooling tower vendor data that substantiates the recirculating water flow and drift fraction used in the revised cooling tower emission calculations.

RESPONSE

The updated chiller package specifications are provided in Exhibit 18-1.

21. Please provide water quality data and the cycles of concentration assumption that validates the total dissolved solids value used in the cooling tower emission calculation.

RESPONSE

The water quality profile is provided in Exhibit 21-1. Upon further discussion with the chiller package supplier, the system will operate with five water cycles which will result in a maximum Total Dissolved Solids (TDS) concentration of 2,590 ppm. Based on this new information, the PM10 emission estimate is updated below.

PM10 Emission = (TDS/1e6) (drift loss)(density)(operating hours)
PM10 Emission = (2,590/1e6)(0.06 gpm)(60)(8.34)(1) = 0.148 lb/hr
PM10 Emission = (2,590/1e6)(0.06 gpm)(60)(8.34)(3,200) = 247 lb/yr

BACKGROUND

GREENHOUSE GAS EMISSIONS

The application does not provide a greenhouse gas (GHG) emissions estimate. Presently, staff quantifies GHG emissions included in the staff assessments/initial studies. Carbon dioxide (CO2) is the major GHG associated with fossil fuel combustion. Therefore, staff converts the most easily measurable, various GHG emissions into CO2 equivalent units.

DATA REQUEST

22. Please provide an emission estimate (lbs/MW and tons/year) for GHG emissions in equivalent CO2 emissions for the project.

RESPONSE

GHG emissions from the turbines include CO_2, N_2O and methane. Emission factors can be derived from estimated fuel heating value and percent combustion. EPA-AP-42 provides these emission factors for natural gas fired gas turbines. The published CO_2 emission factor of 110 lb/MMBTU is based on 99.5% conversion of carbon to CO_2, a fuel HHV of 1,020 BTU/SCF for natural gas at 60 °F, and with the unit operating at greater than 80% load.

The listed emission factors for N_2O and methane are 0.002 and 0.0086 lb/MMBTU, respectively. Since N_2O has the same molecular weight as CO_2, they would have equivalent mass values. Converting methane to CO_2 equivalent mass unit is done as follows:

(0.0086)(16)/(44) = 0.003 lb/MMBTU CO_2e

In comparison with the 110 lb/MMBTU CO_2 emission factor, the N_2O and methane contributions are negligible and will therefore not impact the GHG emission estimate.

Since the HHV for this project is 1,015 MMBTU/SCF, the CO_2/GHG emission factor is adjusted as follows.

(110 lb/MMBTU)(1,020 MMBTU/1,015 MMBTU) = 106.86 lb/MMBTU

The fuel consumption rate for both turbines is 953.8 (477.9 each) BTU/kW-hr, the CO_2/GHG emission rate is therefore:

(953.8 BTU/kW)(1,000 kW/MW)(106.86 lb/MMBTU)/(1E06) = <u>101.92 lb/MW GHG</u>

At a gross power output of 100.757 MW/hr and a maximum operation of 3,200 hours per year for both turbines, the annual CO_2/GHG emissions are as follows.

(100.757 MW/hr)(101.92 lb/MW)(3,200 hr/yr)/(2000 lb/ton) = 16,430 TPY GHG

Please note this is an extremely conservative estimate since start-up and shutdown events included in the 3,200 hours will produce less GHG emissions.

BACKGROUND

OPERATING EMISSIONS DISPERSION MODELING – PM 10/COOLING TOWER MODELING
The applicant did not include the cooling tower in the PM10 modeling runs. The PM10 dispersion modeling needs to be corrected to include the cooling tower PM10 impacts.

DATA REQUEST

23. Please provide corrected PM10 modeling files that include the cooling tower and assume the corrected PM10 emission rates requested in Data Requests 18 through 21.

RESPONSE

PM10 emissions associated with the cooling tower were not included in the original emission modeling because the estimated emissions were negligible. It was 102 lb/year which is about 0.5% of the total estimated PM emissions for the facility.

A reassessment of this emission source for Data Requests 18 – 21 shows the estimated emissions remained at about the same level even at the maximum operating condition of 3,200 hours per year. However, this emission source is now included in the updated emission modeling presented in Exhibit 27-1.

BACKGROUND

OPERATING EMISSIONS ASSUMPTIONS
For each gas turbine, the applicant has requested 20 operating hours per year operation without SCR control, but the applicant did not provide sufficient rationale for the request. Additional information is needed in order to understand the basis for the request to operate without SCR control.

DATA REQUEST

24. Please identify the rationale for 20 hours per year per gas turbine operation without SCR controls for maintenance and testing.

RESPONSE

Maintenance and troubleshooting of the turbines and/or the SCR system may be necessary due to unforeseen situations, as well as during the recommissioning of the systems after an extended period of non-operation. The maintenance interval would be similar to the initial commissioning of the system where the SCR system may be isolated entirely, non-operational or partially operational.

25. Please identify if this request would include both gas turbines operating simultaneously without SCR controls.

RESPONSE

Maintenance on the SCR system will NOT be conducted on more than one unit at a time. Only one unit will likely be operating without a functioning SCR system at any one time.

26. Please identify the longest proposed duration each gas turbine would be operating continuously without SCR controls (i.e. the full 20 hours, or some fraction of 20 hours).

RESPONSE

The maintenance event is not expected to last more than four hours continuously at any one time.

BACKGROUND

OPERATING EMISSIONS DISPERSION MODELING – EMISSION INPUTS

The emission inputs in the dispersion modeling files are not consistent and in some cases, there appear to be errors. For example, the modeled three-hour and 24-hour SOx emission rates for 75% and 50% load are higher than the modeled 1-hour emission rate; for 100% load the 1-hour NOx worst case startup emissions are used but this is not the case for CO emission modeling; for 75% and 50% load the NOx and CO emission rates are different for each turbine and for one turbine are higher than modeled for the 100% load case; and for the black start and firepump engines the modeled emission rates do not always match the emission rates provided in Tables 6.2D-5 and 6.2D-6. Additionally, the rationale for all of the modeled emission inputs values for 75% and 50% turbine load cannot be determined, as no emission estimate for these load conditions was provided. Staff needs additional information to understand why the emission modeling was approached inconsistently.

DATA REQUEST

27. Please explain why the gas turbine operating emission modeling file inputs were based on normal operating emissions in some instances and in other modeling files, were based on worst-case startup emission. Please revise the modeling analysis as necessary to provide a consistent basis.

RESPONSE

Revised emission estimates for the operation of the facility are provided in Exhibit 28-1. Detailed air modeling results and basis are provided in Exhibit 27-1. Input/output files are provided on a CD along with other air modeling files completed for this set of data requests. The following is a summary of the modeling results.

Pollutant	Averaging Time	50% Load		75% Load		100% Load		Back-ground µg/m^3	Max Total µg/m^3	Most Stringent of AAQS µg/m^3
		2002 µg/m^3	2003 µg/m^3	2002 µg/m^3	2003 µg/m^3	2002 µg/m^3	2003 µg/m^3			
NO_2	1 HR	92.97	**114.26**	91.08	111.90	88.05	111.78	150.5	264.8	338
NO_2	Annual	0.55	0.63	0.61	0.69	0.68	**0.77**	33.9	34.7	56
CO	1 HR	132.46	172.12	132.37	172.10	132.34	**172.15**	7,214	7,386	23,000
CO	8 HR	**88.11**	86.49	78.92	78.81	73.17	72.03	4,135	4,223	10,000
SO_2	1 HR	7.21	8.87	7.88	9.87	8.42	**10.75**	110	120.8	655
SO_2	3 HR	**5.51**	4.62	5.51	4.76	5.41	5.02	52.4	57.9	1.300
SO_2	24 HR	**2.68**	2.28	2.40	2.13	2.24	2.01	23.6	26.3	105
SO_2	Annual	0.09	0.10	0.10	0.12	0.12	**0.14**	10.5	10.6	80
PM_{10}(1)	24 HR	2.41	2.23	2.52	2.32	**2.63**	2.39	57.0	59.6(3)	50
PM_{10}	Annual	0.29	0.33	0.32	0.36	0.34	**0.38**	27.5	27.9(4)	20
$PM_{2.5}$(2)	24 HR	2.29	2.23	2.52	2.32	**2.63**	2.39	67.3	69.7(5)	35
$PM_{2.5}$	Annual	0.29	0.33	0.32	0.36	0.34	**0.38**	14.1	14.5(6)	12

(1) 3rd highest value

(2) Over 99% of PM_{10} emissions are $PM_{2.5}$ for natural gas combustion source (CARB)

(3) Highest measured ambient concentration in the last three years is above the CAAQS; however, the highest measured ambient concentration in 2006 of 42 µg/m^3 with the predicted increment would meet the AAQS.

(4) Background concentration is above the CAAQS.

(5) Highest measured ambient concentration in the last three years is above the CAAQS; however, the highest measured ambient concentration in 2006 of 31.8 µg/m^3 with the predicted increment would meet the AAQS.

(6) Highest measured ambient concentration in the last three years is above the CAAQS; however, the highest measured ambient concentration in 2006 of 11.5 µg/m^3 with the predicted increment would meet the CAAQS.

28. Please provide gas turbine emission estimates for 100% load, 75% load, and 50% load for the 1-hour, 3-hour, 8-hour, 24-hour and annual pollutant and correlate those emission estimates to the modeling file emission rate inputs.

RESPONSE

Revised emission estimates for the operation of the facility at various loads and averaging times are provided in Exhibit 28-1 (emission rates for modeling input

are presented in Tables 28-4, 28-5 and 28-6). The following is an updated annual emission estimate for the proposed project.

Pollutant	NOx (TPY)	CO (TPY)	VOC (TPY)	$PM_{10/2.5}$ (TPY)	SOx (TPY)
Maximum Annual Permit Emissions	17.7	22.8	1.97	8.78	3.17
Estimated Annual Average Emissions	5.7	7.36	0.67	2.75	0.99

29. Please provide an emission estimate and rationale for 3-hour, 8-hour, and 24-hour black start and firepump engine modeled emissions rates when those rates are not 1/3rd, 1/8th and 1/24th of the maximum 1-hour emissions for these engines that will operate only 30 minutes per day.

RESPONSE

Revised air modeling results and basis are provided in Exhibits 27-1 and 28-1.

BACKGROUND

INITIAL COMMISSIONING MODELING

The applicant's initial commissioning modeling input/output files do not match the emission values provided in Table 6.2-8 on page 6.2-17 of the application. Additionally, the turbine operation description in the application during commissioning needs more detail. Staff requires additional information to evaluate the initial commissioning impacts.

DATA REQUEST

30. Please confirm whether the modeling files or Table 6.2-8 present the correct maximum commissioning emission rates, and correct the modeling, if necessary.

RESPONSE

Detailed air modeling results and basis for emission estimates are provided in Exhibit 30-1. The emission estimates were based on each turbine being commissioned separately and operating at less than 30% load (< 15 MW) without add-on control of the oxidation catalyst and SCR system. The following is a summary of the modeling results.

Pollutant	Averaging Time	2002 µg/m^3	2003 µg/m^3	Background µg/m^3	Max Total µg/m^3	Most Stringent of AAQS	Meets AAQS
NO_2	1 HR	110.61	138.44	150.5	289	338	Yes
CO	1 HR	24.04	30.09	7,214	7,244	23,000	Yes

CO	8 HR	9.51	8.94	4,135	4,145	10,000	Yes
SO_2	1 HR	2.62	3.28	110	113	655	Yes
SO_2	3 HR	1.66	1.73	52.4	54.1	1,300	Yes
SO_2	24 HR	0.25	0.20	23.6	24	105	Yes
PM_{10}	24 HR	0.70(1)	0.68	57.0	57.7	50	(2)
$PM_{2.5}$	24 HR	0.70(3)	0.68	67.3	68.0	35	(2)

(1) 3rd highest value

(2) Highest measured ambient concentration in the last three years is above the CAAQS; however, the highest measured ambient concentration in 2006 of 42 µg/m^3 with the predicted increment would meet the CAAQS.

(3) Over 99% of PM_{10} emissions are $PM_{2.5}$ for natural gas combustion source (CARB)

(4) Highest measured ambient concentration in the last three years is above the CAAQS; however, the highest measured ambient concentration in 2006 of 31.8 µg/m^3 with the predicted increment would meet the CAAQS.

31. Please discuss the gas turbine's expected operation and the use of SCR during commissioning, including any plans for operating one of the turbines without SCR during this period. If the initial commissioning operation of the two gas turbines will not be concurrent until after both turbines have a functioning SCR system, please explain the rationale. Please note that the modeling only assumes one turbine operating.

RESPONSE

Please refer to the detailed response in Data Request 12.

BACKGROUND

CUMULATIVE IMPACTS

Staff needs to review the cumulative project information cited by the applicant in the air quality section of the application to complete its analysis for cumulative air quality impacts.

DATA REQUEST

32. Please provide a copy of the permit applicant project list that was provided by SDAPCD as noted on Page 6.2-21 of the SPPE application.

RESPONSE

The information was provided by email by the SDAPCD permit processing administrator and the data and correspondences are attached as Exhibit 32-1.

Technical Area: Biological Resources
Author: John Mathias

BACKGROUND

Habitat for several federally and/or state listed species, including the arroyo toad, least Bell's vireo, and southwestern willow flycatcher, is located in the vicinity of the project site and/or linear facilities. Due to the proximity of the project and linear facilities to listed species habitat, staff believes the project may affect listed species and that consultation with U.S. Fish and Wildlife Service (USFWS) and/or California Department of Fish and Game (CDFG) personnel may be necessary.

DATA REQUEST

33. Please provide names and contact information for USFWS and CDFG personnel who have been consulted and a summary of any communications with the USFWS and CDFG regarding potential impacts to federally and state listed species due to the Orange Grove project.

RESPONSE

Chris Otahal, Biologist at the U.S. Fish and Wildlife Service, was contacted by TRC. The project proposal and location were described and Mr. Otahal indicated that he is the appropriate USFWS contact for the project, and that he had not yet had an opportunity to review the project. He was invited to contact TRC once he had a chance to review the project. Mr. Otahal can be reached at (760) 431-9440, ext. 203 at the U.S. Fish and Wildlife Service office located at 6010 Hidden Valley Road, Carlsbad, California 92011.

Leslee Newton-Reed, Environmental Scientist at the California Department of Fish and Game, was contacted by TRC. Ms. Newton-Reed indicated that she had reviewed information on the project from the State Clearinghouse. Ms. Newton-Reed said that from what she had read it appeared that the Orange Grove project had "mitigated or covered all of her potential concerns" and that she had "no comment" on the Orange Grove project. Ms. Newton-Reed can be reached at (858) 467-4281 at the California Department of Fish and Game office located at 4949 Viewridge Avenue, San Diego, California 92123.

Tamara Spear from DFG was contacted by TRC regarding the need for a streambed alteration agreement for the project. She indicated that her office did not want to consult on the project until an application has been filed. Ms. Spear's contact information is provided in Table 6.6-7 of the SPPE Application.

BACKGROUND

The SPPE application mentions the construction laydown area will be located south of the project site; however, staff has been unable to determine the exact boundaries of the laydown area.

DATA REQUEST

34. Please provide a detailed map, similar in scale to the map in figure 6.6-4 of the SPPE application, showing the location of the laydown area in relation to the project site.

RESPONSE

Please see Exhibit 34-1 for a map of the laydown area in relation to the project site.

Technical Area: Cultural Resources
Author: Dorothy Torres

Please provide any documents under confidential cover that may reveal the location of an archaeological site.

BACKGROUND

The cultural resources confidential filing includes a map that identifies the location of archaeological sites in the vicinity of the project. To determine whether there is an impact to any of these sites, it is necessary for staff to be able to see the location of the sites in relation to the project site and project linear facilities.

DATA REQUESTS

35. Please provide a color map (or several maps) at a scale of 1 inch = 12,000 feet that identifies the project site location and linear facilities in relation to the identified archaeological sites.

RESPONSE

Color maps at a scale of 1" = 12,000 feet that identify the project site location and linear facilities in relation to the identified archaeological sites are provided under confidential cover as part of the *Confidential Report: Supplemental Archaeological Survey Report and Assessment of Potential Impacts to Archaeological Resources, Orange Grove Project (07-SPPE-2), San Diego County, California* provided under confidential cover. [Exhibit 37-1].

36. Please provide four copies of all the information obtained from the California Historical Records Information System (CHRIS). Maps provided by the CHRIS in color need to be reproduced in color.

RESPONSE

Four copies of all the information obtained from the California Historical Records Information System (CHRIS) are provided under confidential cover as Exhibit 36-1. Maps provided by the CHRIS in color are reproduced in color.

37. Please provide copies of all DPR 523 forms prepared for this project.

RESPONSE

All DPR 523 forms prepared for this project are provided as part of the supplemental archaeological survey report under confidential cover as part of Exhibit 37-1.

BACKGROUND

Confidential Cultural Resources Report Figure 1 identifies a survey location where a windshield survey was conducted, however, a pedestrian survey was not completed. Staff needs the results of a pedestrian survey to complete the analysis.

DATA REQUEST

38. Please conduct a pedestrian survey of the area where a windshield survey was previously conducted and identify the survey personnel, and methodology, and provide the results to staff. Alternatively, please provide a justification of why a pedestrian survey was not needed.

RESPONSE

A pedestrian survey was completed of the area where a windshield survey was previously conducted. Survey was conducted by Dionisios Glentis, TRC Staff Archaeologist, Michael Davis, TRC Staff Archaeologist and Brady Long, TRC Archaeological Technician under the direction of Shelby Manney, M.A., TRC Senior Project Archaeologist and Chris Drover, PhD, TRC Lead Archaeologist.

The effort consisted of a complete intensive pedestrian survey in 5 meter transects. The linear alignment was covered by survey on both the north and south side of Pala Road (SR76) to approximately 50 feet from the center of the road, whenever possible. No cultural resources were visually noted within 50 feet of SR76. The conduct and results of the survey are detailed in the supplemental archaeological survey report submitted under confidential cover as part of Exhibit 37-1.

BACKGROUND

Apart from the CHRIS and Native American Heritage Commission, it does not appear that other sources of information were contacted to identify cultural resources for the project region. According to CEQA Guidelines Section 15064.5 (a) (2), cultural resources included in a local register of historical resources must be treated as significant by public agencies unless a preponderance of evidence demonstrates that it

is not significant. In addition, local archaeological and historical societies may be aware of cultural resources that have not been formally recognized by public entities.

DATA REQUESTS

39. a. Please review San Diego County's list of historic resources and identify historic resources within ½-mile of the project site and within ¼-mile of the proposed linear facilities. The list is available on the County of San Diego's website at http://www.sdcounty.ca.gov/dplu/Resource/docs/4˜pdf/Historic Property Listing.pdf.

RESPONSE

The list of recognized historic resources that have been locally designated by the County of San Diego Historic Site Board (HSB) was reviewed via the HSB website (http://www.sdcounty.ca.gov/dplu/Resource/docs/4~pdf/Historic_Property_Listing.pdf) to determine whether any historic resources are present within a ½-mile radius of the proposed project boundaries and within a ¼-mile radius of the related proposed linear facilities.

A copy of the County of San Diego HSB historic resources list has been attached to this Data Request Response as Exhibit 39-1.

No locally designated County of San Diego historic resources are located within either a ½-mile radius of the proposed project boundaries or within a ¼-mile radius of the related proposed linear facilities. The only locally designated County of San Diego historic resource within five miles is located approximately five miles easterly of the project site at 14209 Highway 76. This site is identified as the 'Sickler Brothers Pala Mill' (HSB# 2005-006) within the Wilderness Gardens Open Space Preserve. Also of note within an approximate five-mile radius, but not included on the County of San Diego HSB historic resources is Asistencia de San Antonio de Pala (Mission San Antonio de Paula), identified as State Historic Landmark #243 is located on Pala Mission Road, approximately 2.9 miles easterly in Pala, California. This historic chapel is located on the Pala Indian Reservation. A website dedicated to disseminating information about Mission San Antonio de Pala is under construction at http://www.sanantoniodepala.com/.

A review of the National Park Service *National Register Information System* did not identify any historic properties / historical resources included on the National Register of Historic Places within a five-mile radius of the proposed project area or related proposed linear facilities.

Sources Reviewed for Data Request Response #39.a.

County of San Diego Department of Planning & Land Use - Historic Site Board, *Historic Resources List*, http://www.sdcounty.ca.gov/dplu/Resource/docs/4~pdf/Historic_Property_Listing.pdf.

California State Office of Historic Preservation, *California Historical Landmarks Program – San Diego County Listed Landmarks*, http://ohp.parks.ca.gov/?page_id=21478.

Mission San Antonio De Pala, http://www.sanantoniodepala.com/.

National Park Service, *National Register Information System*, http://www.nr.nps.gov/.

b. Please provide copies of local listings of properties that have been designated as cultural or historic resources according to local ordinance. Please also include a copy of the requirements used by the local jurisdictions to qualify buildings or structures for the listing.

RESPONSE

A copy of the County of the San Diego HSB historic resources list (referenced in Data Request Response 39.a.) has been attached as Exhibit 39-1. The properties included within the HSB historic resources list have been locally designated by the County of San Diego Historic Site Board pursuant to San Diego County Administrative Code §396.7. The requirements used by the County of San Diego to qualify buildings or structures for local designation and subsequent inclusion on the County of San Diego HSB historic resources list are available online at http://www.sdcounty.ca.gov/dplu/Resource/docs/4~pdf/LandmarkingRequirements070507.pdf and have also been attached to this Data Response as Exhibit 39-2.

No locally designated properties or historic resources have been identified within a ½-mile radius of the proposed project area or within a ¼-mile radius of the proposed linear facilities, thus no specific information on local listed properties has been included as an exhibit to this data response.

Sources Reviewed for Data Request Response #39.b.

County of San Diego Department of Planning & Land Use - Historic Site Board, *Historic Resources List*, http://www.sdcounty.ca.gov/dplu/Resource/docs/4~pdf/Historic_Property_Listing.pdf.

County of San Diego Department of Planning & Land Use - Historic Site Board, *Information Required for Landmarking Applications*,

http://www.sdcounty.ca.gov/dplu/Resource/docs/4~pdf/LandmarkingRequirements070507.pdf.

40. Please contact local historical and archaeological societies that might have knowledge of historical or archaeological resources in the area of the project and provide copies of the inquiry letters and any responses.

RESPONSE

Urbana Preservation & Planning contacted, via electronic mail (E-Mail) or U.S. mail, the following individuals, government agencies, and/or organizations to inquire about local historical knowledge or other pertinent information regarding the land that comprises the proposed project area and related linear facilities or any buildings, structures, objects, etc. located within the area.

Lynne Newell Christenson, Ph.D., County Historian
San Diego County Department of Parks & Recreation
9150 Chesapeake Dr., Suite 200, San Diego CA 92123
(619) 472-2743/Telephone · Lynne.Christenson@sdcounty.ca.gov
(Inquiry letter submitted via E-MAIL in PDF format)

Donna Beddow / Gail Wright, Historic Site Board Staff Members
San Diego County Department of Planning & Land Use
5201 Ruffin Road, Suite B, San Diego, CA 92123
(858) 694-3656/Telephone · Donna.Beddow@sdcounty.ca.gov · Gail.Wright@sdcounty.ca.gov
(Inquiry letter submitted via E-MAIL in PDF format)

Jim Royle, Chair
San Diego County Historic Site Board
San Diego County Department of Planning & Land Use
5201 Ruffin Road, Suite B, San Diego, CA 92123
(858) 694-3656/Telephone · jwroyle@cts.com
(Inquiry letter submitted via E-MAIL in PDF format)

Jim Royle, Chair
San Diego Archaeological Center Advisory Council
16666 San Pasqual Valley Road, Escondido, CA 92027
(760) 291-0370/Telephone · jwroyle@cts.com
(Inquiry letter submitted via E-MAIL in PDF format)

Fallbrook Historical Society
P.O. Box 1375, Fallbrook, CA 92088-1702, Fallbrook, CA 92028 (Mail)

260 Rocky Crest Road, Fallbrook, CA 92028 (Physical)
(760) 723-4125/Telephone
(Inquiry letter submitted via U.S. mail)

Shasta C. Gaughen, Assistant Director
Cupa Cultural Center
35008 Pala Temecula Road, PMB 445, Pala, CA 92059
(760) 742-1590/Telephone · sgaughen@palatribe.com
(Inquiry letter submitted via via E-MAIL in PDF format)

Jane Kenealy, Archivist
San Diego Historical Society
1649 El Prado, Suite 3, San Diego, CA 92101
(619) 232-6203/Telephone · jane.kenealy@sandiegohistory.org
(Inquiry letter submitted via E-MAIL in PDF format)

Copies of the above-referenced inquiry letters and email transmittals have been attached to this Data Request Response as Exhibit 40-1.

BACKGROUND

The application discusses on page 2-34 that an underground transmission line would connect to the Pala Substation. The California Public Utilities Commission web site provided information on the San Diego Gas & Electric Company's Pala Substation Project, for which environmental documents were completed in 2001. The substation project was intended to expand and replace the then 43-year-old substation. The environmental documents did not detail what portions of the old substation would remain after completion of the upgrade. Since it is possible that some elements of the now 49-year-old substation may have remained intact, and because those elements, if they are individually distinguishable, would be of sufficient age to be potential cultural resources, staff needs to know what elements, if any, of the old substation still exist, and the project's potential impacts to those surviving elements.

DATA REQUESTS

41. Please discuss the Pala Substation upgrade, focusing on the equipment, facilities, or buildings that were not modified or replaced.

RESPONSE

There are no equipment, facilities or buildings remaining from the previous Pala substation. The original substation was completely replaced by the new, existing substation. The new substation was built adjacent to the old substation prior to any part of the old substation being removed, to assure that the new substation

was brought on-line without any loss of service. The old substation was then removed as it was no longer needed to serve any functional purpose. The area where the old substation was located is currently open space covered with loose gravel. (References: Jeffery Sykes, SDG&E Land Management Supervisor, September 14, 2007; California Public Utilities Commission, *Initial Study and Mitigated Negative Declaration for the Pala Substation Project*, May, 2001).

42. Please explain which, if any, surviving old substation elements would be impacted by the proposed Orange Grove project's underground transmission line connection.

RESPONSE

As described in the response to data request No. 41, there are no equipment, facilities or buildings remaining from the previous Pala substation. Therefore, there are no old substation elements that would be impacted by the proposed transmission line connection.

BACKGROUND

Appendix 6.7A included responses from Native Americans who may have heritage concerns in the project area. To complete the analysis, staff needs to identify all cultural resources that could be impacted by the project, and information provided by Native Americans is an essential part of that identification process.

If the location of archaeological sites may be revealed in the information, please provide the responses under confidential cover.

DATA REQUEST

43. a. Please provide copies of any additional written responses received from Native Americans since the application was compiled.

RESPONSE

One additional response was received. This response was from the Cupa Cultural Center. A copy of their response letter is provided in Exhibit 40-1.

b. If information has been received by telephone or in person, please provide a summary of each conversation.

RESPONSE

Telephone communications have been attempted or made with San Luis Rey Band of Mission Indians and Rincon Band of Mission Indians. Copies of Telephone Conversation Logs are provided as Exhibit 43b-1. No new information regarding cultural resources that could be associated with the Orange Grove Project has been provided by persons with whom conversations were held.

BACKGROUND

Subsection 6.7.1.3, of the Cultural Resources section 6.7, is titled "Ethnography, Prehistory and History." This appears to be primarily a discussion of the prehistoric archaeology of the area. Staff needs to assess the potential for encountering historic archaeological resources as well as prehistoric archaeological resources.

DATA REQUEST

44. Please discuss the history of the vicinity of the Orange Grove Project with emphasis on the area within a five-mile radius of the project site.

RESPONSE

Urbana Preservation & Planning has prepared a report discussing the history of the vicinity of the Orange Grove Project with emphasis on the area within a five-mile radius of the project site. The report follows.

Historical Overview of the Pala Community

The history of the Pala community is entrenched in the dual traditions of the Luiseño and Cupeño tribes and later, the Spanish and Mexican colonial system of governance represented by Mission San Luis Rey de Francia and Mission San Antonio de Pala. After desecularization of the California Mission system, the former mission lands that comprise Pala and the surrounding areas came under private ownership primarily by Mexican or American citizens with no land ownership considerations provided to the native groups who occupied and worked the lands prior to and during the Mission period. Rancho Monserrate, a 13,322-acre Mexican-period land holding located approximately two miles west of the proposed project area, was deeded into private ownership in 1846.[i] In 1877 American William Veale purchased Mission San Antonio de Pala and its lands from the U.S. Government. In 1902, the United States Government appropriated funds to purchase land in the Pala Valley as a permanent reservation for tribal groups displaced by the Mission system and its subsequent

dissolution which established the Pala Band of Mission Indians Tribal Reservation.[ii]

With no options or effective advocates in government positions, displaced native peoples primarily from the Cupeño tribe were viewed as trespassers without legal land titles or rights, and were removed from their homes and lands their ancestors occupied for centuries to be relocated to the reservation at Pala Valley. The U.S. Government's Indian Bureau, using armed teamsters, evicted the Cupeños from their homes at present-day Warner Springs and ushered them on their forty-mile journey west to the Pala Valley, ancestral home of the Luiseño tribe, and location of the newly established 10,000 acre Indian Reservation. Although the proposed project site is located immediately west of the Pala Indian Reservation, the land and its vicinity in all of the Pala Valley is considered to maintain ancestral importance to the tribe.

Today the Pala Community, home to the Pala Band of Mission Indians, as well as non-tribal and non-Native American property owners, retains its primarily bucolic setting which has historically characterized the land. Few major development projects have occurred to alter the natural setting of the area. From Highway 76, an old transportation route which was developed by the California Department of Transportation (Caltrans) between ca.1955 and 1963, one observes agricultural land uses including nurseries and farms wherein produce and other resources are produced for sale and distribution. Typical fruit products attributed to the Pala Valley and the San Diego (and Southern California) region are citrus, especially oranges, and avocados, touted as the premier salad fruit in the 1920s thru 1940s.

Spanish & Mexican Period

Founded in 1798 under the supervision of Padre Presidente Fermin Francisco de Lasuen, Mission San Luis Rey de Francia was the eighteenth of twenty-one missions established along the California coastline. The Mission was built approximately four miles east of the intersection of present-day Interstate 5 and Highway 76, which is known as Mission Road. In 1810 a granary was built for Mission purposes in the valley at present-day Pala (the word for water in the Shoshone language) and in 1816 a *Ramada* was erected there to hold morning mass for the neophyte Indians in the area. Soon thereafter a chapel and bell tower were erected as an Asistencia (annex) and dedicated as Mission San Antonio de Pala.[iii] According to G.W. James in his 1916 publication *Picturesque Pala*

> Under Peyri's administration, despite its disadvantages of soil, San Luis Rey grew steadily in population and material prosperity. In 1800, cattle and horses were six hundred and sheep sixteen

> hundred. The wheat harvest gave two thousand bushels, but corn and beans were failures and barely gave a hundred and twenty fanigas. Ten years later 11,000 fanigas of all kinds of grain were gathered as a crop. Cattle had grown to ten thousand five hundred and sheep and hogs nearly ten thousand. Fourteen hundred and fifty had been baptized while there had been only four hundred deaths recorded. By 1826 the parent mission counted nearly three thousand Christian Indians and nearly a thousand gathered at Pala, six leagues from the central establishment. A church was built there and a priest usually resided at it. At its best time San Luis Rey counted nearly thirty thousand cattle, as many sheep and over two thousand horses as the property of its three thousand Indians. Its average grain crop was about thirteen thousand bushels. San Gabriel surpassed it in farming prosperity with a crop which reached thirty thousand bushels in a year, but in populations, in livestock, in the low death rate among its Indians and in the character of its church and buildings, San Luis Rey continued to the end first among the Franciscan Missions.[iv]

In addition to the prosperity of Mission San Luis Rey being highlighted in California history publications at the time, Pala Valley itself was also highly regarded as "one of the most beautiful appanages of the San Luis Rey Mission."[v]

At the time of dissolution, the Mission territories of the Pala Valley were divided into private land holdings including Rancho Monserrate, which was granted to Ysidro Alvarado in 1846 by his brother-in-law Mexican Governor Pio Pico shortly before he fled to Baja California to escape American occupation forces. Alvarado lived at Rancho Monserrate with his wife Micaela until 1863 when they both died from a smallpox epidemic. Eleven years later, after the U.S. Land Commission officially confirmed ownership of the rancho by the three children of Ysidro and Micaela Alvarado, who in turn were able to rightfully inherit the property. According to Don Rivers, President of the Fallbrook Historical Society:

> Lugarda Alvarado Palomares was living in Los Angeles with her husband and two daughters when she received ownership of her approximately 4,500 acres of the western portion. Dolores Alvarado de Serrano and her husband inherited the middle portion of 4,500 acres and built their home in the lower portion of what today is known as Live Oak Canyon. William Gird purchased the Serrano Rancho in the early 1880s and lived in the Serrano house until they could build their own frame house on higher ground. Tomas Alvarado, the son, received approximately 4,500 acres of the eastern portion and built an adobe hacienda on the south side of

San Luis Rey River just west of Interstate 15. Today the Rancho Monserate Country Club is located there.[vi]

In 1877 American William Veale and his wife purchased from the U.S. Government the Asistencia and its lands, although his wife, reportedly a devout Roman Catholic, persuaded Veale to return the chapel and related cemetery to the Catholic Church in 1893. At the turn-of-the-century the Pala Asistencia had fallen into disrepair. In 1902, as part of a growing Mission Revival movement in California the Landmarks Club of Southern California, led by Charles F. Lummis, acquired the church ruins and commenced a restoration campaign. Regular church services resumed when the project was completed. 1902 also corresponds to the year the Units States Congress passed an appropriation bill that authorized the 10,000 acre land purchase in the Pala Valley to establish the present-day Pala Indian Reservation. Coordination between Lummis and Indian advocates likely occurred. In 1916 the Pala Campanile fell from storm damage and was rebuilt. Today the Pala Mission is still actively used with a restored quadrangle, classrooms and library, and a new Parish Hall. The Pala Casino Spa and Resort are located nearby.

Subject Property

Plat books and Property Deed Books for San Diego County disclose early land owners associated with Sections 29 and 32 (in which the power plant is proposed for installation) include:

- 1886: Maurelita Cota, Madison Smith, D.A. Higgins, W.A. Stephens, Henry G. Stephens, and Maggie Lovell,[vii]
- 1892: Maurelita Cota, Madison Smith, and D.A. Higgins,[viii]
- 1910: W.W. Culver (411.6 acres), Charles Foreman (138.75 acres), M.J. Gordon (40 acres), Y. Yalenguel (30 acres), F.A. Salmon (21.75 acres), and M. Frujito (10-18 acres),[ix] and
- 1930s: Griffith & Irene Henshaw, John & Catherine E. Turner, and Frank M. & Mary Moreno.[x]

A review of *San Diego City & County Directories* reveals property owners Frank A. Salmons and his wife Hazel were proprietors of the Pala Store, near the Pala Mission, in 1930 and 1935. Frank Moreno, with his wife Mary, was a local rancher who was listed as a Pala resident in 1930 and 1935. Moreno's full given name of 'Francisco' was utilized for the purposes of the directory listing.[xi] Of Spanish lineage from Sonora, Mexico, Francisco (Frank) M. Moreno arrived in the Pala Valley in 1875 to attend school there and reside with his childless uncle (also Francisco Moreno – no middle name identified) and aunt. After completing his studies Frank M. Moreno assisted his uncle in the operations of the approximate 320 acre family ranch and winery which he took over in 1902 after

his uncle died.[xii] Records of the Old Luiseno Cemetery at Mission San Antonio de Pala include a listing for a Francisco Moreno, born on February 13, 1853, died in 1928, and buried at the Pala cemetery.[xiii] Although not substantiated, it is likely the Francisco Moreno buried at the Old Luiseno Cemetery is related to landowner and rancher Frank M. Moreno.

A tree grove was planted at the proposed project site as early as ca. 1949 when the tree grouping was first demarcated on a Pala Quadrangle map by the U.S. Interior Department Geological Survey. The trees did not appear to constitute a major agricultural operation, and the land use is typical to historic land use patterns of the Pala area which are classified as agricultural and miscellaneous and include land preserves, nurseries and other agricultural uses.

In 1964 an electrical substation was constructed by SDG& E, presumably on land leased from property owners Robert and Gale Driscoll.[xiv] In 1970 SDG&E acquired the subject parcel adjacent to the substation from the Driscolls, who utilized the property for agricultural purposes wherein approximately 20 acres were planted with citrus trees, some of which are extant today, although all appear to be dead or severely damaged.

Between 1978 and 1982 the California Institute of Technology (Caltech) conducted passive solar technology tests at the subject property, likely for SDG&E. Construction of the extant buildings and related storage sheds in ca.1978-1979 is attributed to Caltech. All or some of the buildings sited within the fenced-in storage yard were converted to residential use in the mid-1990s when a caretaker began to reside at the property.[xv] No additional information was identified regarding Caltech's passive solar technology testing activities that occurred at the subject property. The property has since been primarily vacant with no real agricultural uses occurring there. Today the remaining citrus trees are not maintained, and do not appear to be significant examples of the citrus industry in Pala or the greater San Diego region.

Sources Reviewed for Data Request Response #44.

San Diego County Assessors Recorders Office, Assessors Parcel Maps: Book 110 – Index and Pages 07, 09, 15 and 36.

San Diego County Assessors Recorders Office, Assessors Parcel Maps: Book 128 – Pages 42 and 47.

San Diego County 1929 Air Photos, Volume 8, Sheet/Photo #3A (Township 9S, Range 2W). On file at the San Diego Historical Society Research Archives.

San Diego County 1929 Air Photos, Volume 8, Sheet/Photo #3B (Township 9S, Range 2W). On file at the San Diego Historical Society Research Archives.

Real Estate Atlas of San Diego, County, CA (8th Edition) Aerial / Map Volume 1, 1972. On file at the San Diego Historical Society Research Archives.

United States Interior Department – U.S. Geological Survey, Pala, CA (Pala Quadrangle, 1:24,000) 1949. On file at the San Diego Historical Society Research Archives.

United States Interior Department – U.S. Geological Survey, Pala, CA (Pala Quadrangle, 1:24,000) 1968. On file at the San Diego Historical Society Research Archives.

United States Interior Department – U.S. Geological Survey, Pala, CA (Pala Quadrangle, 1:24,000) 1988. On file at the San Diego Historical Society Research Archives.

United States Interior Department – U. S. Geological Survey, Pala, CA (Pala Quadrangle, 1:24,000) 1997. On file at the San Diego Historical Society Research Archives.

Plat Book for San Diego County, Township 9S, Range 2W – Sections 29 & 32, 1892. On file at the San Diego Historical Society Research Archives.

Plat Book for San Diego County, Township 9S, Range 2W – Sections 29 & 32, 1896. On file at the San Diego Historical Society Research Archives.

Plat Book for San Diego County, Township 9S, Range 2W – Sections 29 & 32, 1910. On file at the San Diego Historical Society Research Archives.

San Diego Historical Society, Vertical File: Rancho Monserrate, no date.

San Diego Historical Society, Historic Photograph Books: Community – Pala, Erickson Aerials – Pala.

Works Cited

[i] Rush, Philip S., "Historic Ranchos: Monserate" *The Southern California Rancher*, September-October 1962. Article included in "Rancho Monserate" Vertical File available for review at the San Diego Historical Society Research Archives.

[ii] Leffingwell, Randy & Alastair Worden, *California Missions & Presidios: The History & Beauty of the Spanish Missions*.

[iii] James, G.W., *Picturesque Pala*, 16.

[iv] Ibid, 32.

[v] Jackson, Helen Hunt, *Ramona* (1884) within G.W. James *Picturesque Pala*, 34.

[vi] Rivers, Don "Rancho Monserate" *The Village News*, October 29, 1998.

[vii] *Townships 8-19 South Range West: 1892*. Plat Book on file at the San Diego County Historical Society Research Archives.

[viii] *Townships 3-19 South Range West: 1886*. Plat Book on file at the San Diego County Historical Society Research Archives.

[ix] Plat Book of San Diego County, 1910. Plat Book on file at the San Diego County Historical Society Research Archives.

[x] Chicago Title Company, "Preliminary Title Report" within TRC, *Phase 1 Environmental Site Assessment Orange Grove Project Site San Diego County, California*, Appendix D, April 2007.

[xi] *San Diego City & County Directories, 1930* and *1935*. Directories available at the San Diego Public Library California History Room.

[xii] Gunn, Guard D., *History of California*. Article included in "Francisco Moreno" Vertical File available for review at the San Diego Historical Society Research Archives.

[xiii] Johnson, Steve Paul, "Mission San Antonio de Pala, Pala, San Diego County, California" *Interment.net Cemetery Transcription Library* http://www.interment.net/data/us/ca/sandiego/mission_pala/san_antonio.htm.

[xiv] Dudek & Associates, *Final Mitigation Negative Declaration San Diego Gas & Electric Company Pala Substation Project*, Section 1.1 (page 6 of 36), August 2001.

[xv] TRC, *Phase 1 Environmental Site Assessment Orange Grove Project Site San Diego County, California*, page 6-1, April 2007.

[xvi] Ibid.

BACKGROUND

Section 6.14, Subsection 6.14.1.2, discusses a Phase I Environmental Site Assessment (ESA) that was conducted at the site. The discussion of the ESA states that aerial photographs were reviewed that indicate the proposed project site has been an orchard since 1946. Staff needs to review the aerial photographs and maps that were mentioned in the ESA to assess the potential to encounter historic-era archaeological resources.

DATA REQUEST

45. Please provide copies of any aerial photographs and maps that were consulted for the Phase I Environmental Site Assessment. The map copies may be reduced in size, but must be in color, and the printing must be legible. The copies of photographs must have the same detail as the originals.

RESPONSE

Requested photographs and maps are provided in Exhibit 45-1.

BACKGROUND

Figure 6.9-3 identifies existing manmade features near the project. Buildings or structures more than 45 years old may be considered historic resources. Potential historic resources may include, but not be limited to transmission lines, roads,

aqueducts, canals, or substations, as well as commercial buildings and private residences.

DATA REQUEST

46. a. Please have a qualified architectural historian who meets the Secretary of Interior Standards in Architectural History conduct a reconnaissance-level (windshield) survey of the project site and linear locations and provide a brief report characterizing the built environment as industrial, commercial, rural, or residential zones including general descriptions of each zone.

RESPONSE

Urbana Preservation & Planning has conducted a reconnaissance-level (windshield) survey of the project site and linear locations and characterized the built environment as industrial, commercial, rural, or residential zones including general descriptions of each zone. Results are reported below. The study was completed by Wendy Tinsley of Urbana. Ms. Tinsley is a qualified architectural historian who meets the Secretary of Interior Standards in Architectural History.

Report on the Built Environment

Today the Pala Community, home to the Pala Band of Mission Indians, as well as non-tribal and non-Native American property owners, retains its primarily bucolic setting which has historically characterized the land. Few major development projects have occurred to alter the natural setting of the area. From Highway 76, an old transportation route which was developed by the California Department of Transportation (Caltrans) between ca.1955 and 1963, one observes agricultural land uses including nurseries and farms wherein produce and other resources are produced for sale and distribution. Typical fruit products attributed to the Pala Valley and the San Diego (and Southern California) region are citrus, especially oranges, and avocados, touted as the premier salad fruit in the 1920s thru 1940s.

Proposed Project Site

The proposed project area includes a remnant orange orchard dating to the late 1940s, within which many of the trees are dead and not maintained. A turbine/windmill is sited near the southeast corner of the proposed project area, with an additional turbine/windmill sited further east beyond the proposed project boundaries and related 50-foot radius. Also sited on the subject property is an enclosed storage yard which contains five buildings utilized for residential and miscellaneous storage purposes. These buildings were erected or moved onto the site in approximately 1978-1979 when Caltech conducted passive solar energy tests there. A property caretaker has resided at one of the buildings for the last decade. Two ancillary storage sheds are sited immediately south of the

enclosed storage yard; one of wood construction and the second of metal construction. The small sheds appear to date to the late 1970s or early 1980s. A non-historic substation owned by SDG&E is sited within view of the proposed project area. The substation was installed in approximately 2003 to replace an older substation at the site. A road entry sign demarcating the location of Pala Del Norte Road is immediately north of Highway 76 between the subject parcel and the adjacent parcel containing the SDG&E substation. The sign is non-historic and appears to also have been installed in the 1970s or 1980s. None of the buildings or structures observed appear to be at least 45 years of age.

Proposed Gas Pipeline Lateral & 50-Foot Radius

The gas pipeline lateral is proposed for installation in the center of the proposed project site's southern boundary and is planned to span westerly along Highway 76 approximately 2.0 miles. Twelve buildings or structures were observed within the prescribed 50-foot radius of the proposed gas pipeline lateral. These properties include:

- Eight vacant single-story single-family dwellings – all with boarded over windows and doors, and exhibiting poor exterior condition;
- Two buildings constructed for dairy farming purposes, also vacant, in poor condition and having been subjected to vandalism – these buildings are identified with painted signage as having formerly been utilized as 'Pete Verboom Dairy No. 1" and "Pete Verboom Dairy No. 2" buildings; and
- Two miscellaneous structures – one three-sided concrete wall structure that likely once served an agricultural use, and a temporary produce stand utilized by the Pala Rey Ranch to sell produce there on the south side of Highway 76 immediately east of the intersection of Rice Canyon Road.

San Diego County Assessors Records disclose the eight dwellings sited along the south side of Highway 76 were constructed between 1965 and 1974 making the abandoned dwellings observed between 42 and 33 years of age. Six of the eight dwellings observed are sited on parcels formerly owned by Pete Verboom's Dairy Farm, which opened in Pala in 1966 and moved from that location in 2000. The six dwellings and non-residential buildings sited on former Verboom Dairy Farm parcels would be, at the oldest, 41 years of age based on the 1966 start date for dairy operations. The remnant concrete walls appear to date to the 1970s, and the produce stand appears to be recent construction, likely erected in that last decade.

None of the properties observed within a 50-foot radius of the proposed gas pipeline lateral appear to be at least 45 years of age.

Proposed Water Pipeline Lateral
No buildings, structures or objects were observed within the boundaries or related 50-foot radius of the proposed water pipeline lateral planned for installation from the northwest corner of the proposed project site and spanning northerly for approximately 1.5 miles.

b. Please have the architectural historian identify and record on the appropriate DPR 523 forms any buildings or structures that appear to be over 45 years of age located within 50 feet of the project site or linear routes. Please provide copies of the completed DPR forms.

RESPONSE

The architectural historian conducted the requested survey. There are no buildings or structures that appear to be over 45 years of age located within 50 feet of the project site or linear routes. Therefore, no DPR 523 forms were completed. Further discussion of the survey results are provided below.

Proposed Project Site
The proposed project area includes a remnant orange orchard dating to the late 1940s, within which many of the trees are dead and not maintained. A turbine/windmill is sited near the southeast corner of the proposed project area, with an additional turbine/windmill sited further east beyond the proposed project boundaries and related 50-foot radius. Also sited on the subject property is an enclosed storage yard which contains five buildings utilized for residential and miscellaneous storage purposes. These buildings were erected or moved onto the site in approximately 1978-1979 when Caltech conducted passive solar energy tests there. A property caretaker has resided at one of the buildings for the last decade. Two ancillary storage sheds are sited immediately south of the enclosed storage yard; one of wood construction and the second of metal construction. The small sheds appear to date to the late 1970s or early 1980s. A non-historic substation owned by SDG&E is sited within view of the proposed project area. The substation was installed in approximately 2003 to replace an older substation at the site. A road entry sign demarcating the location of Pala Del Norte Road is immediately north of Highway 76 between the subject parcel and the adjacent parcel containing the SDG&E substation. The sign is non-historic and appears to also have been installed in the 1970s or 1980s. None of the buildings or structures observed appear to be at least 45 years of age.

No buildings or structures were observed within the proposed project area which appear to be over 45 years of age, therefore no DPR 523 Forms have been completed for the buildings and structures observed in the proposed power plant survey area.

Proposed Water Pipeline Lateral
No buildings or structures were observed within the boundaries or related 50-foot radius of the proposed water pipeline lateral planned for installation at the northwest corner of the proposed project site and spanning northerly for approximately 1.5 miles. Consequently, no DPR 523 Forms were completed as part of the proposed water pipeline lateral historical resource survey area.

Proposed Gas Pipeline Lateral
The gas pipeline lateral is proposed for installation in the center of the proposed project site's southern boundary and is planned to span approximately 2.0 miles westerly along Highway 76 terminating near Rice Canyon Road. Twelve buildings or structures were observed within the prescribed 50-foot radius of the proposed gas pipeline lateral. These properties include:

- Eight vacant single-story single-family dwellings – all with boarded over windows and doors, and exhibiting poor exterior condition;
- Two buildings constructed for dairy farming purposes, also vacant, in poor condition and having been subjected to vandalism – these buildings are identified with painted signage as having formerly been utilized as 'Pete Verboom Dairy No. 1" and "Pete Verboom Dairy No. 2" buildings; and
- Two miscellaneous structures – one three-sided concrete wall structure that likely once served an agricultural use, and a temporary produce stand utilized by the Pala Rey Ranch to sell produce there on the south side of Highway 76 immediately east of the intersection of Rice Canyon Road.

San Diego County Assessors Records disclose the eight dwellings sited along the south side of Highway 76 were constructed between 1965 and 1974 making the abandoned dwellings observed between 42 and 33 years of age. Six of the eight dwellings observed are sited on parcels formerly owned by Pete Verboom's Dairy Farm, which opened in Pala in 1966 and moved from that location in 2000. The six dwellings and non-residential buildings sited on former Verboom Dairy Farm parcels would be, at the oldest, 41 years of age based on the 1966 start date for dairy operations. The remnant concrete walls appear to date to the 1970s, and the produce stand appears to be recent construction, likely erected in that last decade.

No buildings or structures observed within the proposed gas pipeline lateral area appear to be over 45 years of age; therefore no DPR 523 Forms were completed as part of the proposed gas pipeline lateral historical resource survey area.

Properties List
Following is a table of properties observed as part of field survey activities for the proposed project area and related linear locations.

Address	APN	Identifier	Year Built	Survey Area	Status Code
Pala Del Norte Rd.	110-370-01-00	5 Buildings	1978	Power Plant	7R/6Z (ineligible – age)
Pala Del Norte Rd.	110-370-01-00	2 Storage Sheds	ca.1978	Power Plant	7R/6Z (ineligible – age)
Pala Del Norte Rd.	110-072-26-00	Windmill/Turbine	ca. 1970s	Power Plant	7R/6Z (ineligible – age)
0 Pala Road	110-150-46-00	House #1	1972	Gas Pipeline	7R/6Z (ineligible – age)
9708 Pala Road	110-150-25-00	Concrete Walls	ca.1970s	Gas Pipeline	7R/6Z (ineligible – age)
0 Pala Road	110-150-24-00	House #2	1965	Gas Pipeline	7R/6Z (ineligible – age)
0 Pala Road	128-470-xx-00	House #3	ca.1966-1974	Gas Pipeline	7R/6Z (ineligible – age)
0 Pala Road	128-470-xx-00	Dairy Bldg. No. 1	ca. 1966-1974	Gas Pipeline	7R/6Z (ineligible – age)
0 Pala Road	128-470-xx-00	House #4	ca.1966-1974	Gas Pipeline	7R/6Z (ineligible – age)
9587 Pala Road	128-47-xx-00	House #5	ca. 1966-1974	Gas Pipeline	7R/6Z (ineligible – age)
9587 Pala Road	128-47-xx-00	House #6	ca. 1966-1974	Gas Pipeline	7R/6Z (ineligible – age)
0 Pala Road	128-470-xx-00	House #7	ca.1966-1974	Gas Pipeline	7R/6Z (ineligible – age)
0 Pala Road	128-470-xx-00	Dairy Bldg. No.2	ca. 1966-1974	Gas Pipeline	7R/6Z (ineligible – age)
0 Pala Road	128-470-xx-00	House #8	ca.1966-1974	Gas Pipeline	7R/6Z (ineligible – age)
Hwy 76/Rice Cnyn.	128-420-01-00	Produce Stand	ca. 1990	Gas Pipeline	7R/6Z (ineligible – age)

BACKGROUND

The application specifies on page 6.7-14 that testing of archaeological sites would be conducted prior to construction to complete identification and evaluation and to determine the horizontal and vertical extent of the sites. The applicant identified no known archaeological deposits on the proposed project site, but the literature search revealed that there are quite a number of known archaeological sites near the proposed project site. It is not clear which archaeological sites the applicant wants to test, but any archaeological sites located close to the proposed project site's boundaries or close to the routes of the proposed linear facilities could extend below the ground surface into these impact areas.

If there is any possibility that unrecognized parts of known archaeological sites may extend into project impact areas and could thus be impacted during project construction, those sites should be tested. It is imperative that such testing occur as part of the Commission's SPPE application review process to ensure that impacts to significant cultural resources can be identified prior to the project being granted exemption from the process. Any testing should be extensive enough to allow the applicant to make recommendations on the potential eligibility of the tested sites for listing on the California Register of Historical Resources, so staff can make determinations regarding appropriate mitigation for impacts to any significant archaeological resources.

DATA REQUESTS

47. Under confidential cover, please identify which known archaeological sites are within 200' of the proposed project site's boundaries or within 50' of the centerline of the proposed linear facility routes and could contain subsurface deposits extending into these impact areas.

RESPONSE

There are no known archaeological sites within 200' of the proposed project site's boundaries or within 50' of the centerline of the proposed linear facility routes that the applicant believes could contain subsurface deposits extending into these impact areas. Discussion of the characteristics of identified archaeological sites within 200' of the proposed project site's boundaries or within 50' of the centerline of the proposed linear facility routes and proposed management of such resources are discussed in the supplemental archaeological survey report submitted under confidential cover as part of Exhibit 37-1.

48. Please provide a testing plan for the identified archaeological sites that could be impacted by the proposed plant or linear facilities. Please submit the testing plan for staff review and approval prior to undertaking the testing.

RESPONSE

In response to CEC staff data requests, an additional field survey of cultural resources has been conducted and archeological testing is no longer proposed. Proposed management of archaeological resources associated with the Project are discussed in the supplemental archaeological survey report submitted under confidential cover as part of Exhibit 37-1.

BACKGROUND

On Page 6.7-15 of the SPPE document, the applicant proposes to consult with the State Historic Preservation Office (SHPO) if there is an unforeseen impact to a significant resource that cannot be avoided. Since the project does not appear to have any federal involvement, it is not likely that consultation with the SHPO would be necessary. However, staff needs information on how the local government with jurisdiction over the site but for the Commission's lead agency status, would address a potential impact to a significant historic resource.

DATA REQUEST

49. Please contact the County of San Diego and request information regarding the type of mitigation the county (lead agency) would require for an impact to a significant historic resource and provide that information to staff.

RESPONSE

The September 26, 2006 *County of San Diego Guidelines for Determining Significance: Cultural Resources: Archaeology and Historic Resources* are

currently available at www.sdcdplu.org/dplu/resource/docs/3~pdf/Cultural_Guidelines.pdf and there is no indication they have been superseded. "Standard Mitigation and Design Considerations" are provided on pages 23 through 25 and reference CEQA §21083.2 and CEQA Guidelines §15064.5 as acceptable mitigation measures.

However, archaeological and historical studies for the Orange Grove Project have identified no historically significant buildings or structures associated with the proposed plant site or along the gas line or water line laterals (see responses to Data Requests #39a, 39b, 40, 44, 46a and 46b). There are no anticipated impacts to extant buildings or structures of any age. Absent any project impacts to any resource of the built environment, no mitigation of impacts to buildings or structures would be necessary.

Archaeological studies have determined that all archaeological resources associated with the project can either be avoided or are evaluated as not eligible for listing in the California Register of Historical Resources (CRHR; see Exhibit 37-1). Archaeological resources that can be avoided will not sustain project related impacts and no mitigation would be necessary at such sites. This includes archaeological sites CA-SDI-623 (along the proposed gas line route) and CA-SDI-13766. Archaeological site CA-SDI-13007 is assessed as not meeting any of the eligibility criteria for listing on the CRHR. If the lead agency concurs in the evaluation the site would not be considered a significant historical resource and mitigation project impacts would not be required per CEQA.

The Applicant has proposed archaeological monitoring at locations near archaeological sites associated with the project. In the event buried or unanticipated archaeological resources are encountered, they would be evaluated for listing in the CRHR. If determined significant historical resource(s) and if project related impacts are determined to be unavoidable, impacts would be resolved per CEQA §21083.2 and CEQA Guidelines §15064.5.

BACKGROUND

Page 6.6-3 of the application states that the water pipeline route was not surveyed beyond the project site because the pipeline route would be constructed in an existing roadway located on private property. There are numerous archaeological sites located in the vicinity of the project, so it is essential to staff's analysis to have survey information regarding the potential for impacts to archaeological sites along the water pipeline route.

DATA REQUESTS

50. a. Please survey the water pipeline route and provide the results.

RESPONSE

Archaeological survey of the water pipeline route was completed on September 26, 2007. No cultural resources were found. The survey and results are detailed in the supplemental archaeological survey report submitted under confidential cover as part of Exhibit 37-1.

b. Please provide information regarding cultural resources personnel involved in the above water pipeline survey and the methodology used.

RESPONSE

A pedestrian survey of the water pipeline was conducted by Dionisios Glentis, TRC Staff Archaeologist, Michael Davis, TRC Staff Archaeologist and Daniel Grijalva, TRC Staff Archaeologist. TRC staff were under the direction of Shelby Manney, M.A., TRC Senior Project Archaeologist and Chris Drover, PhD RPA, TRC Lead Archaeologist.

The survey methods and results are detailed in the supplemental archaeological survey report submitted under confidential cover as part of Exhibit 37-1.

51. If it is not possible to obtain access to the water pipeline route to conduct a survey, please provide an explanation of the steps taken to obtain access and the reason the property owner is refusing to allow a survey.

RESPONSE

Archaeological survey was completed along the entire length of the water pipeline route. The survey is reported in Exhibit 37-1. While the entire length of the pipeline route was surveyed, there were portions of the route where a full 50-foot corridor on both sides of the road could not be surveyed due either to steep topography, or absence of permission for access to private property. Where access to private property was not obtained, the survey was limited to the road and road shoulders and adjacent areas. TRC performed a pedestrian-level survey along the road shoulders in these areas and looked to either side for evidence of cultural resources. In these areas where the full 50-foot corridor could not be accessed on both sides of the road, there was no evidence observed of any cultural resources that could potentially be impacted by the pipeline, which will be installed in the road or shoulders.

Permission to access private property could not be obtained from three parties, two of which appear to be related, as described further below. Land owners

along the pipeline route are identified by tax assessor records provided in Appendix 1A of the SPPE Application.

Tax assessor records show that Tesla Gray and Prominence Partners share a P.O. Box, and based on information we have gathered during our efforts to contact these owners, we believe that both of these parties may be collectively represented by the Gray Investment Group. TRC was temporarily denied access to these properties. After extensive efforts to contact the owner's representatives and several correspondences, TRC was informed that access may be allowed after the land owners have a better understanding of the proposed

Tax assessor records show one parcel along the water pipeline route to be owned by the Cook Family Trust. TRC obtained a listed private party phone number for the address identified on the tax assessor's records and attempted contact through this number 17 times between 9/13/07 and 10/5/07 and received no answer each time.

As stated above, based on pedestrian survey from the road shoulders along all portions of the pipeline route where the full 50-foot corridor could not be surveyed on both sides of the road, no evidence of cultural resources was observed. There is no indication that the pipeline construction along Pala Del Norte Road may impact cultural resources.

Technical Area: Hazardous Materials Management
Author: Alvin Greenberg

BACKGROUND

Table 2.8-1 of the application lists the hazardous materials that will be stored and used on the project site during operations, and section 6.15 discusses the use and storage of these hazardous materials. Pages 2-17 and 2-22 contain descriptions of the chiller systems that use a non-toxic CFC-free refrigerant, but the refrigerant is not identified. These pages also notes the chillers "are water cooled using a circulated water system and two package cooling towers" that will require make-up water. The use of a cooling tower suggests the need for biocides and other chemicals to maintain water quality, but these types of chemicals are not included in Table 2.8-1. Staff needs information about any water treatment chemicals and the refrigerant in order to assess proper management of hazardous materials and potential risks to workers and the off-site public.

DATA REQUEST

52. Please provide the identity and Chemical Abstract Service (CAS) number of any water treatment chemicals and the refrigerant that will be used at the power plant project, the concentration, the maximum amount to be stored on-site, the location, and method of storage, a summary of the hazardous characteristics, and the Comprehensive Environmental Response, Compensation and Liability Act/Superfund Amendments and Reauthorization Act (CERCLA/SARA) Reportable Quantity.

RESPONSE

The requested information is provided in Exhibit 52-1.

BACKGROUND

The applicant states that 19% aqueous ammonia will be used for Selective Catalytic Reduction (SCR) and provides a description and diagram of the storage and handling facilities which includes a secondary containment system on page 6.15-1 and in Figure 6.15-1. The application further states on page 6.15-3 and in Figure 6.15-1 that "alternative design features" may be used in the final design and construction of the aqueous ammonia storage and handling facilities. Staff needs to be able to evaluate the final design features in order to properly assess the potential for impacts.

DATA REQUEST

53. Please provide a narrative description and schematic drawing of the expected, complete final design for the aqueous ammonia storage and handling facilities.

RESPONSE

No alternative design is contemplated at this time. The design for containment at the aqueous ammonia storage and offloading area is anticipated to utilize HDPE balls within secondary containment to minimize the exposed surface area of aqueous ammonia in the event of a spill, as presented in the SPPE Application Section 6.15 and as used for the offsite consequence modeling in Appendices 6.15-A and 6.15-B. Neither the footnote 3 conceptual design in Figure 6.15-1 of the SPPE Application, nor any other conceptual design change from the secondary containment with HDPE balls, is anticipated at this time. If an alternative design is used, the design criteria will be that it shall limit the area of aqueous ammonia exposed to the atmosphere in the event of a spill to an amount that is equal to or less than used for offsite consequence modeling in the SPPE Application.

As an additional clarification, as a result of review performed for this data request, it has been noticed that the source identified in Figure 6.15-1 in the SPPE Application is erroneous. The source for this figure is TRC, not Sega.

Aqueous ammonia will be trucked onsite and pumped from the transport tanker into the onsite storage tank. The transport tanker will be parked on the ammonia unloading spill containment area to the side of the ammonia storage tank, as shown in the SPPE Application Figure 6.15-1. The ammonia unloading pad area will be sloped to a center drain that flows to the secondary containment, and the exposed surface of the spilled aqueous ammonia in the secondary containment will be controlled by two layers of HDPE balls and netting. Piping is shown schematically on Exhibit 53-1 from the truck connection to the tank, from the tank to the pump skid, and from the pump skid the piping leaves the area to run to the ammonia vaporizer skid located near the SCR injection points. All piping for the ammonia supply will be steel and have welded joints.

BACKGROUND

Section 6.15.1 states that no schools or sensitive receptors are located near the project site. To properly assess the risk of transporting hazardous materials for use at the power plant, staff needs additional information on the location of sensitive receptors along the hazardous materials transportation route.

DATA REQUEST

54. Please provide the location of sensitive receptors, including schools, hospitals, day-care facilities, long-term health care facilities, parks, or playgrounds along the hazardous materials transportation route.

RESPONSE

Hazardous materials will be transported to the site from Interstate 15 via SR 76. There are no sensitive receptors along SR 76 between the site and interstate 15.

BACKGROUND

The aqueous ammonia storage system is described in many places in the application but does not include any information regarding the placement and specifications of ammonia sensors at the power plant. Staff needs this information in order to assess potential leak and spill response and impacts to workers and the off-site public.

DATA REQUEST

55. Please describe the placement of ammonia detectors, their specifications, and what warning or controls would be activated by these sensors.

RESPONSE

The ammonia detectors will be located just above grade at two longer sides of the spill containment vault, which is below the ammonia tank and ammonia pump skid, as shown in the typical sketch (Exhibit 53-1). The ammonia detectors (see Exhibit 55-1 for specifications) will be provided as noted on Exhibit 53-1. The ammonia detectors will be equipped with an alarm system that provides local visual and audible annunciation, and sends a remote trouble alarm back to the power plant's main control system to alert the plant operators in the Service Building Control Room.

BACKGROUND

The application does not identify or provide any description of security measures for this project. Staff needs to be informed about the security to be assured the power plant will comply with security regulations and guidelines.

DATA REQUEST

56. Please indicate when Orange Grove Energy LP personnel can provide staff with a confidential briefing on security measures planned for the power plant project, or provide corresponding written information under confidential cover.

RESPONSE

Orange Grove Energy is available to brief energy commission staff regarding planned security measures for the project. Please contact Joe Stenger at TRC [(805) 528-6868] to arrange a mutually convenient time for a conference call to discuss this topic.

Technical Area: Soil and Water Resources
Author: Cheryl Closson

BACKGROUND

EROSION AND FLOOD CONTROL

To determine the potential impacts to soil and water resources from the construction and operation of the Orange Grove Project, the Energy Commission staff requires a draft and final Drainage, Erosion and Sediment Control Plan (DESCP). The DESCP must also be updated and revised as necessary as the project moves from the preliminary to final design phases, on through to construction and operation of the facility. The DESCP would be a separate document from any Construction and/or Industrial Storm Water Pollution Prevention Plans (SWPPP), unless the applicant intends to combine the DESCP and SWPPP into one document.

While a draft erosion control plan for construction was included as part of the project application, the plan appears to only address construction and presents information in a map format that is hard to read because it is reduced to fit into the application binder. The application also states that a detailed Storm Water Pollution Prevention Plan and a Spill Prevention, Control and Countermeasures (SPPC) Plan will be prepared for the site and facility. The application also states that the project will submit to the County of San Diego a detailed design-level plan and report addressing storm water (including information on source control and Best Management Practices (BMP)). However, drafts of these plans were not provided as part of the application. Staff needs additional information addressing site drainage and erosion control in order to fully evaluate project impacts and proposed BMPs.

DATA REQUEST

57. Please clarify the relationships between the various storm water plans cited in the application that are to be prepared for the project, and identify whether or not the project will prepare a combined Construction SWPPP, Industrial SWPPP and DESCP document, or if the plans will be prepared and maintained separately.

RESPONSE

A consolidated Storm Water Management Plan (SWMP) was produced for submittal to the County of San Diego in accordance with their storm water ordinance. The SWMP identifies the design and best management practices (BMPs) measures for construction and post construction. This document provides a roadmap for the storm water management activities that will take place during the development of the site. A copy of the SWMP is provided as Exhibit 57-1. The SWMP is provided as submitted to the County. The design

drawings included as Exhibit 58-1 through 58-9 update the design drawings in the SWMP.

A construction SWPPP will be prepared prior to construction start-up. The SWPPP will incorporate the storm water pollution measures identified in the SWMP and will comply with the State storm water general permit for construction. The County will assure that the project is designed in an acceptable manner for storm water management through their processes for approval for the Major Use and Grading Permits.

An industrial SWPPP will not be prepared for this site, but equivalent storm water quality protection measures will be implemented. A SWPPP is not required for operations because simple cycle gas turbine power plants are not within the range of project types covered under the State General Permit for industrial activities. Instead, the storm water management of the operating facility will be regulated under the County of San Diego, Municipal Separate Storm Water System (MS4) permit. The County will assure that the project is designed to comply with their storm water ordinance and MS4 permit through review of project grading and drainage plans, and through permit conditions if needed.

Drainage, erosion, and sediment control elements for construction that are necessary for storm water quality protection are identified in the SWMP and will be included in the construction SWPPP. Drainage, erosion and sediment control elements for operations that are necessary for storm water quality protection are identified in the SWMP and the County will assure that the project is designed to comply with their storm water ordinance and MS4 permit through review of project grading and drainage plans, and through permit conditions if needed.

58. Please provide a draft DESCP (or combined DESCP/SWPPP) that responds to elements “A through I” below outlining the site management activities and erosion/sediment control Best Management Practices (BMPs) to be implemented during site mobilization, grading, construction, and operation of the proposed project. The level of detail in the draft DESCP should be commensurate with the current level of planning for site grading and drainage. Please provide all conceptual erosion control information for those phases of construction and operation that have been developed or provide a statement identifying when such information will be available.

    A. Vicinity Map – Provide a map(s) at a minimum scale 1”=100’ indicating the location of all project elements, including depictions of all significant geographic features including swales, storm drains, and sensitive areas.

B. Site Delineation – Identify all areas subject to soil disturbance (i.e., project site, lay down areas, all linear facilities, landscaping areas, and any other project elements) and 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 – Show the location of all nearby watercourses including swales, storm drains, and drainage ditches. Indicate the proximity of those features to the project construction, lay down, and landscape areas, and all transmission and pipeline construction corridors.

D. Drainage Map – Provide a topographic site map(s) at a minimum scale 1”=100’ showing all existing, interim and proposed drainage systems and drainage area boundaries. On the map, spot elevations are required where relatively flat conditions exist. The spot elevations and contours should be extended off-site for a minimum distance of 100 feet in flat terrain.

E. Narrative Discussion of Project Site Drainage – Include a narrative discussion of the drainage management measures to be taken to protect the site and downstream facilities. The narrative should include the summary pages from the hydraulic analysis prepared by a professional engineer/erosion control specialist. The narrative should state the watershed size(s) in acres used in the calculation of drainage measures. The hydraulic analysis should be used to support the selection of BMPs and structural controls to divert off-site and on-site drainage around or through the project construction and laydown area, as well as post-construction and operation areas.

F. Clearing and Grading Plans – Identify all areas to be cleared of vegetation and areas to be preserved. Provide elevations, slopes, locations, and extent of all proposed grading using contours, cross sections or other means and include locations of any disposal areas, fills, or other special features. Illustrate existing and proposed topography tying in proposed contours with existing topography.

G. Clearing and Grading Narrative – Include a table that identifies all of the following: all project elements where material will be excavated or fill added; the type and quantities of material to be excavated or filled for each element; whether the excavation or fill is temporary or permanent; and the amount of material to be imported or exported.

H. Construction Best Management Practices Plan – Identify on the topographic site map(s) the location of the site-specific BMPs to be employed during each phase of construction (initial grading, project element excavation and construction, and final grading/stabilization). The BMPs identified should include measures designed to prevent wind and water erosion in areas with existing soil contamination. Any treatment BMPs used during construction should also allow for testing of stormwater runoff prior to discharge to a receiving water.

I. Best Management Practices Narrative – Provide a narrative discussion of the location, timing, and maintenance schedule for all erosion and sediment control BMPs (as identified in H above) to be used prior to initial grading, during project element excavation and construction, at final grading/stabilization, and for post-construction. Separate BMP implementation schedules should be provided for each project element for each phase of construction. The maintenance schedule should include post-construction maintenance of structural control BMPs, or a statement when such information will be available.

RESPONSE

The following responses and exhibits have been provided to address Response to Data Request No. 58 (A through I). Current design information has been provided for the existing stage of development of project engineering. The responses and exhibits address each element of drainage, erosion, and sediment control as identified in items A through I. Referenced Drawings are included as Exhibits 58-1 through 58-9.

A. Please reference Drawing Y100 (Exhibit 58-1) for a Vicinity Map and a 1”=100’ scale depiction of major project elements and significant geographic features. Please reference Drawing C100 (Exhibit 58-2) for a 1:60 scale depiction of more detailed proposed project elements.

B. Please reference Drawing C100 (Exhibit 58-2) for all proposed project elements, Drawing C150 (Exhibit 58-3) for a proposed construction layout, Drawing C300 (Exhibit 58-4) for proposed grading and drainage. A Summary of Disturbed Areas may be found on Drawing C500 (Exhibit 58-6) as well as proposed erosion control. Drawings C501 and C502 (Exhibits 58-7 and 58-8) delineate proposed erosion control details. Drawing L100 (Exhibit 58-9) shows proposed Landscaping.

C. Please reference Drawing Y100 (Exhibit 58-1) for locations of existing watercourse features and proposed utility corridors. Existing features are

drawn with a faded line weight and proposed features have a heavier line weight. The existing USGS blueline watercourse is over 200' from the east boundary of the project. Please reference other design drawings (Exhibits 58-2 through 58-4, and 58-6 and 58-9) for more detailed depictions of proposed construction, lay down, and landscape areas.

D. Please reference C400 (Exhibit 58-5) for a 1:100 Drainage Map with the requested information.

E. Please reference Drawing C300 (Exhibit 58-4) for locations of proposed drainage structures and Drawing C400 (Exhibit 58-5) for drainage areas and runoff coefficients. Drainage from the north will be routed to the west with an open channel. Drainage on site will be routed to a retention/detention basin through area inlets and pipes. A preliminary analysis of hydrology is provided on Drawing C400 (Exhibit 58-5). A detailed analysis of hydrology and storm water calculations will provided after completion of an updated boundary and topographic survey and as part of the grading permit application to the County. As a result, conceptual erosion control measures based on the standards of San Diego County are depicted on Drawing C500 (Exhibit 58-6) and the details may be found on C501 and C502 (Exhibits 58-7 and 58-8). Alternately, please reference the text in Section 2.2.2 of the SPPE application for a more detailed summary of storm water management.

F. Please reference Drawing C300 (Exhibit 58-4) for existing and proposed contours and Drawing C500 (Exhibit 58-6) for a Summary of Disturbed Areas.

G. Please reference Drawing C300 (Exhibit 58-4) which depicts permanent grading. Onsite soils will be excavated and used for fill. Final grade will be selected to balance the earthwork so that there isn't a need to import foreign soil. Drawing C300 also shows a cut/fill line. For the most part, areas north of the line are in cut areas and areas to the south are in fill areas. The requested table identifying excavations and fills is provided in Exhibit 58-10.

H. Please reference Drawing C500 (Exhibit 58-6) for erosion control measures to be used during initial grading, project element excavation and construction, and final grading/stabilization. Details of final stabilization may also be found on Drawing L100 (Exhibit 58-9).

I. Please reference the SWMP in Exhibit 57-1 for details. The design drawings included as Exhibits 58-1 through 58-9 update the design drawings in the SWMP.

BACKGROUND

Pages 2-14 and 6.5-13 indicate a free-span bridge will be constructed across a small drainage to avoid disturbance to the drainage. Page 6.6-47 lists contact information for the California Department of Fish and Game (CDFG) and indicates a potential need for a Streambed Alteration Agreement, per CDFG Code section 1603. However, no additional information or design plan for the proposed bridge is included in the application, nor is any information provided regarding consultation with the San Diego Regional Water Quality Control Board (SDRWQCB), or the United States Army Corp of Engineers (USCOE) about the potential need for water quality certification or dredge/fill permits for construction in or near the drainage. In order to complete its analysis, staff needs more clear and complete information on the proposed bridge and how the project will comply with all applicable water-related laws, ordinances, regulations and standards (LORS) governing the construction of the proposed bridge.

DATA REQUEST

59. Please provide a description of the current design and construction methods to be used for the proposed bridge.

RESPONSE

The bridge will be designed to meet County specifications for bridges on private property. It will be sized wide enough to accommodate all anticipated vehicle traffic with a minimum 16-foot travel width, and will be designed for the maximum loads during project operations and emergency vehicle access. It will be designed in accordance with applicable Caltrans bridge design specifications and will satisfy requirements of the current American Association of State Highway and Transportation Officials load and resistance factor design specifications for bridges. Additional County Guidance for bridges on private property is provided in DPLU Policy No. MP-21, provided as Exhibit 59-1.

The bridge will be a free-span bridge that will be constructed using conventional equipment and construction methods. Piles or footings will be used to support the bridge deck and will be located outside the ordinary high water mark and outside the top of the channel banks. The design and construction specifications for the bridge will include the requirement that the bridge structure and all mechanized construction work occur outside the limits of state and federal jurisdictional waters (i.e., outside the limits of the top of banks). Bridge approaches will be constructed with poured-in-place reinforced concrete and will be entirely outside the top-of-bank limits. The bridge deck will be placed with a crane from outside the top-of-bank limits. The underground water pipeline in Pala Del Norte Road will daylight adjacent to the bridge and will be attached to the bridge deck or guard rail where it crosses the drainage. Within the top-of-

bank limits there will be no grading or surface disturbance. The bridge design and construction will be completed following these performance parameters.

60. Please provide summaries of contact information and consultation for the agencies responsible for issuing erosion control and water quality-related permits or authorization for the bridge construction, including the CDFG Streambed Alteration Permit, the SDRWQCB Clean Water Act (CWA), Section 401 Water Quality Certification, and the USCOE CWA Section 404 permits. In addition, please identify any requirements of certification or authorization that may be imposed on the bridge construction activity.

RESPONSE

The bridge will be designed to avoid disturbance to state or federal jurisdictional waters and, therefore, will not require a Streambed Alteration Agreement, CWA Section 401 Water Quality Certification, or CWA Section 404 permit. Therefore, no related certification or authorization requirements are anticipated.

61. If applicable, please provide a schedule for application and issuance of the Streambed Alteration Permit, the CWA Section 401 certification, and the CWA Section 404 permit. Please clearly identify any impediments to, or constraints on, issuance of any of the permits, and how the project will address any constraints (such as wet season construction restrictions or other requirements).

RESPONSE

Not applicable. See response to Data Request No. 60.

62. Please clearly identify any County of San Diego requirements that may apply to construction of the proposed bridge and any special erosion or water quality-related conditions that may be imposed on the activity, including any wet season construction restrictions, additional erosion control best management practices, water-quality testing, and/or monitoring that may be required.

RESPONSE

San Diego County will require construction work to occur in accordance with the Storm Water Management Plan described in the Response to Data Responses 57 and 58. Construction will also occur in accordance with the construction SWPPP. The bridge design will be subject to approval by the County prior to construction and specific locations of silt fencing and other erosion control measures will be developed in conjunction with the bridge design. Since work

will occur outside of the top-of-bank limits, wet season restrictions are not anticipated.

BACKGROUND

WATER SUPPLY

Page 2-22 of the application notes water for the project will be provided by the Rainbow Municipal Water District (RMWD) and that the applicant will obtain a signed form from RMWD documenting the availability of the water supply. Staff needs a "will serve" letter or other form documenting the availability and reliability of the water supply for the proposed project.

DATA REQUEST

63. Please provide a letter of intent, will-serve letter, or other documentation indicating that the water supplier (RMWD) is willing to serve the project, has adequate supplies available for the life of the project, and any conditions or restrictions under which the water would be provided.

RESPONSE

A copy of the Project Facility Availability Form for water supply signed by the RMWD on July 11, 2007 is provided as Exhibit 63-1. The Project Facility Availability Form references conditions to follow, which were subsequently provided letter from the RMWD dated September 17, 2007 and included as Exhibit 63-2.

Also please see response to Data Request No. 65.

BACKGROUND

Page 2-22 of the project application states that if the water supply is interrupted, the onsite 375,000 gallon water storage tank will provide water for two days of operation. However, no additional information is provided to address water supply interruption in excess of two days. Staff needs additional information on water supply contingency plans to order to fully assess potential project impacts.

64. Please provide additional information identifying back-up water supply(ies) and water supply contingency plans for water service interruptions lasting beyond the two days operational supply provided by the onsite water tank.

RESPONSE

In addition to the raw water tank, which is sized to provide two days run-time (at 12 hours per day without chiller in operation), the demineralized water tank is

sized to hold approximately 14 hours of water suitable for use in the gas turbines (at full load without chiller and without SPRINT in operation). This tank ordinarily will be kept full or nearly so, yielding roughly one additional operating day at full-load operation.

The RMWD infrastructure is reliable, and additional contingency is not reasonably expected to be necessary.

Also please see response to Data Request No. 65.

BACKGROUND

WATER USE AND DISPOSAL

Page 2-22 of the application states the project proposes to use water-cooling technology for the air inlet chiller system, instead of air-cooling technology, in order to preserve power efficiency on hot days, as well as to reduce noise output form the facility. The project proposes to use fresh (potable) water supplied by RMWD for this purpose.

The alternatives to the proposed use of water cooling and RMWD water are identified in Section 5.3 of the project application (pgs. 5-2 through 5-5). While the water supply alternatives section does address the lack of availability of reclaimed water or water from groundwater remediation sites, it is not clear whether or not use of the mine pond water across from the project site was considered for use by the project. In addition, the alternative cooling technologies section states that while dry cooling is an option for cooling the air inlet chiller system, it would adversely affect other areas of the project. Staff needs additional information on water supply alternatives and cooling technologies in order to fully assess potential project impacts.

DATA REQUEST

65. Please provide a detailed economic and environmental assessment of alternative water supplies and cooling technology options for the project's combustion inlet air chiller condensers. Please be sure to provide factual support for all conclusions and assertions made as part of the assessments.

RESPONSE

Alternative water supplies evaluated for the project are described in Section 5.3.1 of the SPPE Application. Ground water was also considered as an alternative water supply source but this alternative was not pursued because it was deemed not likely to be permittable or acceptable, since ground water in the area is heavily used and in short supply. The water in the former mine pits south of SR 76 is, in general, a physical extension of ground water across the mine pits and,

therefore, would be similar to use of groundwater, so this option was eliminated when potential water sources were being screened. As of the date of submission of the SPPE Application, no feasible alternative water supply had been identified. Orange Grove Energy, L.P. has continued to diligently pursue potential feasible alternative water sources for the project and requests the opportunity to brief CEC staff at their earliest opportunity on the results of this effort.

In addition to ongoing efforts to solve water supply concerns, Orange Grove Energy, L.P. has refined the project design to route blowdown from the chiller cooling tower through a reverse-osmosis (RO) system, with the resultant clean water being fed into the demineralized water treatment system (for use in the gas turbine NOx emissions reduction and power augmentation systems) and the resultant concentrated water being fed back into the cooling tower basin. Oil-free wash-down water will likewise be fed into the RO. (Oily water such as from gas turbine package cleaning will continue to be trucked to an approved recycler.) In this manner, the Orange Grove Project will be Zero Liquid Discharge. As well, project water consumption can be expected to decrease by up to 20 gallons per minute when the chiller is operating.

Air-cooling technology was considered for the Orange Grove Project's gas turbine inlet chiller system but rejected for the following reasons:

- Project power output at design conditions using air-cooling for the chiller condenser would be reduced by approximately 3.2 net megawatts (MW) as compared to water-cooling, including a parasitic load increase of 1.2 MW and a reduction in gross gas turbine output of approximately 2.0 net MW. As well, a water-cooled chiller system retains more of its design level of performance as ambient temperatures increase as compared to an air-cooled solution. To illustrate, power output can be expected to decrease by approximately 5.0 net MW at 102°F as compared to a water-cooled chiller. Naturally there is a desire to preserve power output under ambient conditions where the Orange Grove Project can reasonably be expected to be needed most. (These values have been refined from our initial analysis provided in the SPPE Application as additional information has become known.)
- Primarily as a result of the increase in parasitic load, but also as a result of reduced gas turbine efficiency from higher air inlet temperatures, with an air-cooled chiller, project net efficiency (heat rate) would be adversely affected by approximately 2.3 percent at design conditions. Assuming a capacity factor of 20% and all else being equal, an additional 37,176 MMBtu of fuel could be consumed if an air-cooled chiller were employed. The following table illustrates:

Comparison, Water-Cooled vs. Air-Cooled Chiller		
	Water-cooled	Air-cooled
Expected Output at Design Conditions (kW)	96,020	92,800
Power Change (kW) (1)		-3,220
Heat Rate Btu/kWh (HHV)	9,938	10,166
Fuel Use Increase (MMBtu HHV) (2)		+37,176

1. Based on design condition.
2. Based on 20% capacity factor and 100% chiller use, holding output to 92,800 kW for consistency.

Further, while difficult to quantify, part-load efficiency of an air-cooled chiller is generally accepted as being lower than part-load performance of a water-cooled chiller. This means that near full-load heat rate with an air-cooled chiller can be expected to be lower than with a water-cooled chiller (for example, in a load-following regimen where a gas turbine is operating at loads varying from near full-load to full-load).

An air-cooled chiller condenser for the Orange Grove Project would require nine cells (fans) as opposed to two for the water-cooled design. All else being equal, far-field (400 ft) noise can be expected to increase by approximately 3 dB(A) or more as compared to a water-cooled solution. A three dB(A) increase in sound pressure level is generally considered a perceptible change.

BACKGROUND

Page 2-23 states that process wastewaters will be collected onsite in a wastewater storage tank and then trucked offsite for treatment/disposal as appropriate. While page 6.5-14 states that the project is designed with no process water discharge, it appears the project is not using zero-liquid discharge technology, but instead is trucking process wastewaters offsite for treatment and disposal.

The Energy Commission's 2003 IEPR Policy states that "as a way to reduce the use of fresh water and to avoid discharges in keeping with the Board's policy, the Energy Commission will require zero-liquid discharge technologies unless such technologies are shown to be 'environmentally undesirable' or 'economically unsound'."

DATA REQUEST

66. Please provide a detailed economic and environmental assessment of zero-liquid discharge technology options for management of project wastewaters, in accordance with the Energy Commission 2003 IEPR Policy. Please be sure to

provide factual support for all conclusions and assertions made as part of the assessments.

RESPONSE

As noted in response to Data Request No.65, the design has been refined to include RO technology to recycle water in the plant. The RO will take in cooling tower blowdown and other miscellaneous non-oily water sources. Permeate (clean water) from the RO will be fed to the demineralizer system (which produces pure water for gas turbine emissions reduction and power augmentation). The concentrate (also known as 'reject') from the RO process will recycled into the chiller cooling tower. Oil-free wash-down water will likewise be recycled into the RO. (Oily water such as from gas turbine package cleaning will continue to be trucked to a licensed recycler.) In this manner, the Orange Grove Project will be Zero Liquid Discharge.

BACKGROUND

The application states that cooling tower blow-down, water treatment wastewater, turbine wash down and other process wastewater will be trucked offsite to a licensed wastewater treatment facility. However, no information is provided on the size, number, and frequency of truck trips will be necessary to transport the wastewater offsite. In addition, the application did not identify the wastewater treatment facility to be used. Staff needs additional information regarding the onsite management and offsite transport, treatment and disposal of project wastewaters in order to properly evaluate project impacts.

67. Please provide additional information on the management and offsite transport of project wastewaters, including size of trucks and number of trucks to be used, as well as the number and frequency of trips necessary to transport wastewaters offsite.

RESPONSE

An RO system is now incorporated into the Orange Grove design. Only small quantities of wastewater are expected, for example, from off-line gas turbine water washes. This is expected to total only a few hundred gallons per month. Approximately four 10-wheel water truck trips per year are expected to be sufficient to handle the expected volume of wastewater.

68. Please provide information on the wastewater treatment/disposal facility to be used for disposal of project wastewaters, including location, distance from the facility (in miles), contact information, and any disposal restrictions or limitations that may apply.

RESPONSE

The facility to be used for disposal of wastewater has not been definitively selected, and may be subject to change over time. The following facilities have been identified for potential use.

FACILITY	ADDRESS	CONTACT INFORMATION	DISTANCE	RESTRICTIONS
Remedy Environmental	3200 East Frontera Street Anaheim, CA 92806	Customer Service (714) 630-3958	72 miles	Non-Hazardous Waste
Demenno/ Kerdoon	2000 N. Alameda Street Compton, CA 90222	Customer Service (310) 537-7100	90 miles	Non-RCRA Hazardous Waste and Non-Hazardous Waste
Crosby & Overton	1610 West 17th Street Long Beach, CA 90813	Customer Service (800) 827-6729	92 miles	Non-RCRA Hazardous Waste and Non-Hazardous Waste

BACKGROUND

CUMULATIVE IMPACTS

Section 6.1 of the project application identifies ten projects in the local area with potential to create cumulative impacts. Nine of these projects are identified in Table 6.1-1 as having no potential for water resources cumulative impacts when considered with the project, and one project is noted as having no impact because the project is considered not reasonably foreseeable. Most of these projects will require water supplies or water services. However, the individual project discussions do not contain information on projected water use or potential water supply source(s). Staff needs more information on the potential water demand and water source(s) for these proposed projects in order to fully evaluate cumulative impacts.

DATA REQUEST

69. Please provide additional information on the projected water needs and water suppliers/sources for each of the projects evaluated for potential cumulative impacts.

RESPONSE

In response to Data Request No. 69, the projects identified in the SPPE Application as having the potential for cumulative impacts were reconsidered for potential water supply cumulative impacts. San Diego County DPLU files were revisited and DPLU staff was interviewed to obtain an updated status of the projects. The reconsideration of these projects affirmed the conclusion in the SPPE Application, that is, there is no evidence that the Orange Grove Project will have water supply cumulative impacts, as described further in following

paragraphs. Several projects do not have the potential for cumulative impacts because they will be obtaining their water supply from separate sources. The Orange Grove Project water supply that will be obtained from the RMWD does not affect, nor is it affected by, water management in other districts. Therefore, the Orange Grove Project does not have the potential for water supply impacts with other projects that propose to use water supplied from other districts. Furthermore, since the RMWD does not use ground water, the Orange Grove Project does not have the potential for cumulative impacts with projects that use ground water.

Some of the projects evaluated for potential cumulative impacts are too early in the water supply planning stages to determine reasonably foreseeable cumulative impacts. CEQA guidelines require that a lead agency not assess impacts based on speculation (14 CCR 15145). Anticipated water supply descriptions for each of the projects are provided in the following paragraphs.

The Pala Band of Mission Indians currently obtains their water supply from ground water (Volturno, Lenore, Director of Environmental Services, Pala Band of Mission Indians, personal communication with TRC, October 2, 2007). Pursuant to the San Luis Rey Indian Water Settlement Act, future water supply for the Reservation will also be obtained from an allocation of water saved from lining portions of canals in the Imperial Valley in southeastern California. Because the Orange Grove Project will not use water from either of these sources, there is no potential for the Orange Grove Project to have cumulative water supply impacts with the Pala casino expansion project.

The Gregory Canyon Landfill estimated water demand is approximately 38 AFY. The proposed water supply is reclaimed water obtained from the Olivenhain Municipal Water District, and ground water obtained from the landfill site (GeoLogic Associates, Water Supply Report, Gregory Canyon Landfill, San Diego, California, revised March 2007). The reclaimed water will be trucked approximately 28 miles from the source to the landfill site. The Orange Grove Project does not have the potential for cumulative water supply impacts with either of these water sources.

The Rosemary's Mountain Quarry estimated water demand is 64,288 gallons per day. The Quarry will obtain its water supply from ground water (Brian F Mooney Associates, 1997, Palomar Aggregates Quarry Environmental Impact Report). Because the Orange Grove Project will not use ground water, there is no potential for the Orange Grove Project to have cumulative water supply impacts with the quarry.

The Warner Ranch Development Draft Environmental Impact Report (DEIR) is in progress and is not expected to be available until March 2008. The project proposes to obtain its water supply from the San Luis Rey Municipal Water District (SLRMWD). The DEIR for the SLRMWD Master Plan identifies SLRMWD's intent to provide water to this project. Because the Warner Ranch Development is proposing to obtain its water supply from another district, the Orange Grove Project does not have a foreseeable potential for cumulative water supply impacts with the Warner Ranch Development.

The Verizon Cell Tower project is not a water consuming project and, therefore, does not have the potential for cumulative water supply impacts.

The Meadowood development DEIR is in progress and is not expected to be available until February 2008. The water supply for this project is undetermined (Christine Stevenson, San Diego County Department of Planning and Land Use, personal communication, September 2007). The DEIR for the SLRMWD Master Plan identifies SLRMWD's intent to provide water to this project. The Meadowood development had previously planned to obtain water from the RMWD, but provision of water from the RMWD has been blocked by a tolling agreement and the outcome is uncertain. Any assessment of potential cumulative water supply impacts of the Orange Grove Project with the Meadowood development would be speculative, since the water source for the Meadowood development is undetermined.

Based on further evaluations conducted in response to this data request, it has been determined that there are two separate proposals that occur as part of the Campus Park Development: Campus Park West; and Campus Park Passerelle. The Campus Park West project is dormant. No water supply has been identified (Christine Stevenson, San Diego County Department of Planning and Land Use, personal communication, September 2007) and the Environmental Impact Report Notice of Preparation has not been issued. Therefore, this project is too early in planning stages to assess water supply impacts. The DEIR for the Campus Park Passerelle development is not expected to be available until summer 2008. Documents currently on file at San Diego County DPLU do not identify the estimated water demand for this project. San Diego County DPLU's Notice of Preparation Documentation (January 20, 2005) indicates that subject discretionary actions for this project include a General Plan Amendment, Specific Plan Amendment, Rezone and Tentative Map for a 504 acre parcel. The residential component of the project will comprise approximately 187 acres with no more than 1,500 dwelling units. Only a portion of the project is within the RMWD, so annexation into the RMWD would be required (CEQA Initial Study, ER #03-02-059, San Diego County DPLU, January 20, 2005). The Initial Study indicates that water would be provided by the RMWD, subject to a Water

Assessment and Availability Study. The Initial Study indicates that it is uncertain whether the RMWD will be able to serve the project. The DEIR for the SLRMWD Master Plan identifies SLRMWD's intent to provide water to this project.
The Lake Rancho Viejo project is an existing development that is mostly built and building has stopped due to economic conditions. This project already has its water allotment committed from RMWD and, therefore, is part of the existing environment.

The Fallbrook Renewable Energy Facility, if constructed as proposed, would fall within the jurisdiction of the CEC and no application has been filed. This project is considered too early in its planning stage to meaningfully assess the Orange Grove Project's potential cumulative water supply impacts.

Technical Area: Traffic and Transportation
Author: James Adams

BACKGROUND

Table 6.11-6 on pg. 6.11-10 shows projected levels of service (LOS) for existing conditions, for 2008 without project construction workers, and for 2008 with project construction workers. Staff needs clarification regarding the LOS for State Route (SR)-76 at Interstate (I)-15 southbound and northbound ramps.

DATA REQUEST

70. Please provide the reason for the significant difference between the existing morning LOS B and the existing LOS E at the SR-76/I-15 northbound ramp.

RESPONSE

The difference in LOS from B to E at the southbound (SB) ramps shown in Table 6.11-3 of the SPPE Application is due to approximately twice as many vehicles in the PM compared to the AM. The increase in vehicles with conflicting movements means higher delay for the intersection overall, generating the lower LOS results. In general, traffic volumes usually are higher in the PM peak hour than in the AM peak hour. TPG consulting, Inc. reviewed the peak hour intersection volumes for quality assurance as part of the work reported in the SPPE Application, and confirmed that the substantial difference in number of PM and AM vehicles is real. TPG compared the peak hour intersection volumes for both sets of ramps to the 24-hour hose counts taken on the on- and off-ramps. In all four cases the intersection counts for the northbound (NB) and SB movements “matched” the hose counts during the appropriate peak hours. Likewise the eastbound (EB) and westbound (WB) peak hour volumes on SR 76 at the ramps were compared to the 24-hour hose counts taken on SR 76 east and west of the interchange. Again the intersection counts for the EB and WB movements “matched” the hose counts during the appropriate peak hours.

71. Please provide the reason why the LOS C for the morning existing conditions, and for 2008 without project construction workers, would improve to LOS B for morning for 2008 with project construction workers at the SR-76/I-15 northbound ramp.

RESPONSE

The referenced LOS C in the SPPE Application for existing morning conditions is an error. The intersection operates at a LOS “B” in the AM peak hour. Revised

Tables 6.11-3, 6.11-6, and 6.11-8 showing the correction are provided as Exhibits 71-1, 71-2 and 71-3.

The intersections of SR 76 at the I-15 NB and SB ramps are coordinated. This means that the intersections operate together to provide the most efficient movement of vehicles between the coordinated intersections. The shift in traffic due to the addition of construction traffic causes the signal phasing to shift which increases the delay at the intersection of SR 76 with the I-15 SB ramps but decreases the delay at the intersection of the SR 76 with the I-15 NB ramps.

It should also be noted that the threshold for LOS "C" is 20.0 seconds of delay per vehicle. The intersection of the SR 76 at the I-15 NB ramps operates at LOS "C" in the 2008 Without Project Construction Trips scenario and operates at 19.6 seconds of delay per vehicle (LOS "B") in the With Project Construction Trips scenario. This is only a difference of 0.4 seconds per vehicle and is attributed to the shift in phasing at the two intersections between the two scenarios.

BACKGROUND

There is some discussion on pg. 6.11-16 about bus service provided by the Bonsall Union School District on SR-76 to and from the community of Pala, which is located about two miles east of the project site. It is assumed that project construction workers would not have a significant impact on the bus service because they would arrive at the site early in the morning (before 7 a.m.), and late in the afternoon (after 4:30 p.m.), and would not interfere with the school bus service. However, it is unclear when the school bus uses this section of SR-76.

DATA REQUEST

72. Please provide the morning and afternoon times when the bus travels on SR-76 between the intersection with I-15 and the project site. Also provide the number and location of bus stops along this section of the highway.

RESPONSE

Bus stop locations are shown in Exhibit 72-1. There are two bus stops on SR 76 between I-15 and the project site. Exhibit 72-2 and 72-3 provide schedules for these bus routes. Construction workers typically arrive onsite early and it is expected that the majority of construction worker traffic arriving in the morning will be onsite before 6:45 am. Two EB buses and one WB bus will pass through the area before 6:45 am (Exhibit 72-2). Construction traffic is not expected to substantially interfere with this small number of buses. The bus stops are located off of the roadway, and no traffic conflict is expected.

The construction work shift is planned to end between 4:30 and 5:30. There are no buses during or after this time frame.

BACKGROUND

The discussion of construction hazardous materials on pp. 6.11-14 & 15 does not identify how many truck trips would be needed to transport the materials to and from the site. Similarly, the discussion of operations hazardous materials transportation on pg. 6.11-17 notes that aqueous ammonia, petroleum products, and flammable/compressed gases would be routinely delivered to the site, but the number and frequency of the deliveries is not addressed.

DATA REQUEST

73. Please provide an estimate of the number and frequency of hazardous materials delivery and removal during construction.

RESPONSE

Aqueous Ammonia
A one time fill of the 10,000 gallon aqueous ammonia tank will occur for start-up and commissioning, transported by two tank trucks.

HFC 134a Refrigerant
The 5,600 lbs of HFC- 134a refrigerant will shipped sealed inside of the chiller refrigerant circuit and is ready for unit operation when it arrives at the job site. The unit will ship as a part of the CPCM3000 packaged chilling module (one-time delivery).

Diesel Fuel
There will be three portable 500-gallon diesel tanks on site located inside of secondary containment, one for each sub-contractor. Approximately once a week during the construction period, a tanker truck will travel to the site to refill these diesel tanks.

Oxygen & Acetylene
There will be 12 cylinders each of oxygen and acetylene. A delivery truck will exchange full cylinders for empty cylinders approximately once per week (i.e., one truck per week).

Miscellaneous Materials
Equipment will arrive at the site with surface coatings applied by the manufacturer. Small quantities of non-bulk packages of paints, coatings, solvents, adhesives and lubricants will be delivered to the site periodically during

construction. The quantities involved in these shipments will be small enough so as not to require hazardous material placarding under U. S. Department of Transportation regulations.

Each of the above are accounted for in the construction traffic trip generation estimates addressed in the SPPE Application Section 6.11.2.2.2.

74. Please provide the number and frequency of aqueous ammonia, petroleum products, and flammable/compressed gases deliveries during operation of the project.

RESPONSE

Aqueous ammonia will be delivered via one semi-truck approximately once every other month.

Petroleum products deliveries will be consolidated to the extent practical and will be delivered approximately every 3rd month, generally by single medium-duty flat-bed truck.

Flammable gasses (such as are used in an oxy-acetylene cutting rig) will be delivered approximately once per year. This will not be a separate delivery but will be consolidated with compressed gasses deliveries (below).

Compressed gasses used in CEMS calibration will be delivered approximately every other month via single medium-duty flatbed truck.

Water treatment chemicals will be delivered twice per year, via an enclosed short-bodied semi-trailer.

BACKGROUND

The cumulative impacts discussion on pg. 6.11-19 notes that the proposed Rosemary's Mountain Quarry project would need a traffic management plan pursuant to Caltrans requirements. The status of the plan is not mentioned nor is there any discussion about the size of the project, when it might start and/or be completed, or what traffic related mitigation measures (other than road widening or straightening) would be required. There could be an overlap with the Orange Grove project since workers for both projects would use SR-76 from the I-15 interchange to Rice Canyon Road (two miles west of the Orange Grove site).

DATA REQUEST

75. Please provide a discussion about the status of the Rosemary Quarry traffic management plan and information about projected start and duration of construction, number of workers and vehicles/trucks involved, and any traffic related mitigation measures for SR-76 from the I-15 interchange to Rice Canyon Road.

RESPONSE

The anticipated construction schedule for Rosemary's Mountain Quarry1 is as follows:

- Approval of Traffic Management Plan (TMP) and permits: November 2007
- Start of Development (Quarry): October 2007
- Start of Construction (Road Improvements): December 2007
- End of Road Improvements: December 2008
- End of Development (Quarry): April 2011

The SR 76 road improvement will be the initial construction activity for the project and the construction will use material generated from quarry development. For the initial approximately six months of road improvement construction, material trucked offsite from the quarry will be exclusively used for the road construction project and may include up to 150 truckloads per day[2.] During the second half of the road improvement construction period, on days when material is not needed for the road improvement project, up to 180 trucks per day (360 trips) may occur on SR 76 between the quarry entrance and I-15 as material is removed from the site as part of site development. Truck traffic during the construction period will occur under the TMP. During the road construction, there will be periodic road closures of approximately 10 minutes between the hours of 9:00 AM and 3:00 PM. In addition to truck traffic, construction will utilize 25 to 30 total construction workers. Using a carpooling rate of 20 percent, employee trips would be approximately 22 round-trips per day (44 one-way trips).

The mitigations recommended in the Traffic Analysis[3] and the subsequent EIR[4] for construction traffic and road improvements are as follows:

- "During the initial stage of the project and prior to export of material from the site, SR 76 shall be widened from two lanes to four lanes between I-15 and the western boundary of the project. The highway would transition to three lanes at

[1] This project is also known as Pankey Ranch Mine, Palomar Aggregates Quarry and Rosemary Quarry.
[2] Johnson, Gary. Granite Construction. Personal communication, September 19, 2007, updated October 3, 2007.
[3] *Traffic Analysis for Pankey Ranch Mine*, Willdan Associates, December 1991, revised January 1996, page 20.
[4] *Palomar Aggregates Quarry Environmental Impact Report*, Brian F. Mooney Associates, 1997, Chapter III, Section A, pages 63-64.

the western boundary of the project and then back to two lanes just east of the project.

- "Prior to operation, five-hundred and fifty (550) feet of intersectional sight distance shall be provided along SR 76 from the proposed driveway entrance to the satisfaction of Caltrans."
- "During the initial stage of the project and prior to export of material from the site, [SR] 76 will be improved from I-15 to the project entrance to a four-lane road with bike lanes, asphaltic concrete pavement over approved base, asphaltic concrete dikes, asphaltic concrete acceleration/deceleration lanes, asphaltic concrete widening to accommodate a left turn lane at the project entrance, and asphaltic concrete taper to existing pavement at the eastern boundary of the project, to the satisfaction of the Director of Public Works and Caltrans."
- "Prior to commencement of work in the State right-of-way, an encroachment permit shall be obtained from Caltrans."
- "Prior to realignment of SR 76, the right-of-way for the existing on-site alignment of SR 76 shall be vacated to the satisfaction of the Director of Public Works and Caltrans."
- "Prior to construction, all proposed improvements shall be coordinated with both Caltrans and the County Traffic Engineer and all necessary permits shall be secured."
- "Prior to commencement of construction, in accordance with County policy, the project shall contribute its fair share towards future improvements to the I-15 northbound and southbound SR 76 on and off-ramps (including signalization of the ramps), widening of SR 76, and for maintenance and repair of SR 76 due to damage from the project-related heavy truck traffic. Caltrans shall determine, during its feasibility analysis for the road widening, the appropriate amount of money or other assurance to be provided for maintenance of SR 76 and other Caltrans requirements."
- "As a condition of the Major Use Permit and prior to construction, the applicant shall enter into a Secured Agreement with the County of San Diego for funding a Project Study Report (PSR) with Caltrans for the construction of SR 76 relocation environmental approval and the design of the relocated segment."
- "Prior to quarry operations, all parking areas and driveways shown on the plot plan shall be improved with a minimum of one and one-half inches of road oil mix, asphaltic concrete or PCC concrete, and parking spaces shall be delineated."

As previously noted, export is expected to potentially occur during the second half of the road improvement construction period as the quarry is developed for construction of the permanent plants.

Technical Area: Transmission System Engineering
Author: Ajoy Guha and Mark Hesters

BACKGROUND

The descriptions of the project switchyard and interconnection facilities between generators and the SDG&E 69 kV Pala substation via the project switchyard including major equipment and their ratings are incomplete as provided in the application (section 3.1, Page 3-1, Figures 3.1-1 & 3.1-2).

DATA REQUEST

76. Provide a complete electrical one-line diagram (or resubmit Figure 3.1-2) of the project switchyard showing all equipment for generators' interconnection with the switchyard including any bus duct connectors or cables, 13.8 kV switch gear and breakers on the low side, generator step-up transformers, short overhead line or conductors with its configuration between the generator step-up transformers and the switchyard, buses, breakers, disconnect switches on the 69 kV side and their respective ratings.

RESPONSE

Please see the revised electrical one-line diagram E100, Revision C, provided as Exhibit 76-1. Additional equipment ratings have been added per CEC request.

77. Provide a physical layout drawing of the switchyard showing all major equipment and transmission line outlet(s).

RESPONSE

The physical layout of the switchyard and transmission line is provided in Figure 2.2-4 Site Layout Plan (C100), in the SPPE Application. An updated and full-size version of this drawing is provided in Exhibit 58-2, referenced in the response to Data Request No. 58, but the switchyard and transmission line layout are unchanged.

78. Provide the type and size of the proposed 69 kV underground (UG) transmission line (cable) (or resubmit Figure 3.1-1) between the switchyard and the 69 kV Pala substation.

RESPONSE

The underground transmission has not yet been sized. Final design will require analysis of generator and turbine capability, heating effects, soil conditions, and

other design factors not yet available. An estimated cable rating for the underground transmission line is a single circuit, 1/c – 1250 kcmil per phase.

79. Provide pre and post-project electrical one-line diagrams of the SDG&E 69 kV Pala substation for interconnection of the proposed new UG 69 kV line showing all transmission outlets, breakers, buses, disconnect switches and their respective ratings.

RESPONSE

The System Impact Study (SIS) is in process and expected to be available from CAISO on October 20, 2007. When available, the SIS will be provided.

80. Provide physical layout drawings for the pre and post-project SDG&E 69 kV Pala substation.

RESPONSE

The SIS is in process and expected to be available from CAISO on October 20, 2007. When available, the SIS will be provided.

BACKGROUND

The application did not include a complete System Impact study (SIS) report and final interconnection approval information (section 3.1).

81. Submit a complete SIS report prepared by SDG&E and/or California ISO for interconnection of the 96 MW OGP based on 2008 summer peak and off-peak system conditions (scheduled on-line date of the project). The study should include a power flow, short circuit and transient stability analyses with a mitigation plan for any identified reliability criteria violations. In the report list all major assumptions in the base cases including major path flows, major generations including queue generation and loads in the area systems. Also identify the reliability and planning criteria utilized to determine the reliability criteria violations.

RESPONSE

The SIS is in process and expected to be available from CAISO on October 20, 2007. When available, the SIS will be provided.

82. Provide power flow diagrams with and without the project for base cases. Power flow diagrams should also be provided for all overloads or voltage criteria violations under normal system (N-0) or contingency (N-1 & N-2) conditions.

RESPONSE

The SIS is in process and expected to be available from CAISO on October 20, 2007. When available, the SIS will be provided.

83. Provide electronic copies of *.sav,*.drw. *.dyd and *.swt GE PSLF files and EPCL contingency files in a CD (if available).

RESPONSE

The SIS is in process and expected to be available from CAISO on October 20, 2007. When available, the SIS will be provided.

84. Inform the expected date, after contacting the California ISO, when the final interconnection approval letter from the California ISO would be issued.

RESPONSE

The SIS is in process and expected to be available from CAISO on October 20, 2007. When available, the SIS will be provided.

Technical Area: Visual Resources
Author: David Flores

BACKGROUND

The application discusses the need for operational night lighting and the controls used to minimize the visibility of the lighting (pg. 6.13-A-15). However, the discussion of lighting does not describe the need for lighting during the construction period and its visibility from nearby viewing locations.

DATA REQUEST

85. Please provide a discussion of night lighting to be used during project construction. The discussion shall include the following:
    a. the location of construction areas to be lit at night;
    b. description of the type of lighting to be used and methods to limit offsite visibility; and
    c. the intensity of project night lighting to the surrounding area.

RESPONSE

There are no plans for construction activities at night. Thus, no construction areas will be lit at night until major equipment is installed starting about three months after mobilization. As major equipment is installed, the fixtures with illumination levels of 2 foot-candles and less will be lit for security and safety reasons. Fixtures with illumination levels of 5 foot-candles and higher will only be lit in case of unscheduled repair work during the last six weeks of the project while commissioning and startup activities are under way.

The plant lighting system will consist of 277-volt, high-pressure sodium outdoor fixtures. Outdoor lighting fixtures will not be aimed directly at neighboring areas adjacent to the plant. Down-shields will be installed to limit the escape of light from the site. Control of lighting for exterior areas shall be by automatic cycling by photocells.

The following criteria will be utilized in the selection of illumination sources:

- For areas where there are no specific tasks to be performed, the lighting level will be 2 foot-candles.
- For areas where specific tasks will be performed, the lighting levels will be maintained at 5 foot-candles.

- For outdoor platforms and stairs, illumination levels of 10 foot-candles will be used.
- For roadway lighting with illumination levels of 0.5 foot-candles will be used.
- For parking lot lighting, illumination levels of 1 foot-candles will be used.
- Explosion proof fixtures will be used in any area classified as hazardous in compliance with Articles 500, 501 and 502 of the National Electrical Code.

Outdoor lighting will consist of the following:

- One fixture (2 foot-candles) located one foot above each of six exterior doors on the Service Building.
- Two fixtures (5 foot-candles) at each of ten equipment skids with minimum headroom of 7.5 feet.
- Twelve fixtures (2 foot-candles) on each of two gas turbine housings.
- One fixture (0.5 foot-candle) at each roadway entrance on 20 foot high poles.
- One fixture (1.0 foot-candle) on the Service Building by the parking area.
- Three fixtures (10 foot-candles) on each of the above ground storage tank platforms and stairs.

BACKGROUND

The application (pg. 6.13-A-3) describes the photographs and simulations for each of the Key Observation Points (KOPs). However, the description does not explain whether the color photocopies in the application of the photographs and simulations are at life-size scale. In general, the presentation of images at less than life-size scale does not accurately represent the views that would be experienced at the KOPs and may substantially understate the prominence of visible landscape features as well as potential visual impacts.

DATA REQUEST

86. Please explain whether the photocopies in the application of the photographs and simulations of the proposed project from each of the KOPs are at a life-size scale, when viewed from a normal reading distance of approximately 18 inches. If the photocopies are not at a life-size scale, please provide revised photocopies at a life-size scale.

RESPONSE

Exhibits 86-1 through 86-12 provide re-scaled existing environment photos and photo-simulations for the three KOPs depicted in the SPPE Application.

Technical Area: Waste Management
Author: Cheryl Closson

BACKGROUND

PHASE I ENVIRONMENTAL SITE ASSESSEMENT

Page 6.14-2 of the application states a Phase I Environmental Site Assessment (Phase I) was conducted for the project site and the document is available for review upon request. Review of the Phase I would assist the Energy Ccommission staff to more fully understand and evaluate conditions at the project site.

DATA REQUEST

87. Please provide a copy of the Phase I Environmental Site Assessment of the project site that was conducted by TRC in April 2007.

RESPONSE

A copy of the Phase I report was previously provided under separate cover and is available on the CEC website. We can provide additional copies, if needed.

BACKGROUND

CONSTRUCTION WASTE

Table 6.14-2 of the application provides information on the construction wastes expected to be generated by the project and briefly describes onsite and offsite management methods for the wastes. "Containerize/Housekeeping" is listed as an onsite management method, however, no additional information explaining this management method is provided.

DATA REQUEST

88. For the waste stream (Table 6.14-2), the onsite management method is identified as "containerize/housekeeping". Please explain "containerize/housekeeping" as a management method and provide more information on how the wastes will be managed onsite (i.e., how will the waste will be segregated, stored or accumulated, and for what length of time).

RESPONSE

Wastes identified in Table 6.14-2 with a management method of "containerize/housekeeping" are non-hazardous solids such as scrap wood, steel, plastic, paper, and household-type waste. These wastes will be collected in dumpsters designed for this purpose provided by a licensed waste management contractor. Dumpsters will be transported from the site by the

waste management contractor when they are full, typically once per week. Onsite contractors will be responsible for good housekeeping to prevent accumulation of waste or debris that could otherwise be a work hazard, attract wildlife, lead to windblown litter, or cause other safety hazard or nuisance issues. The requirement for good housekeeping will be implemented through contract provisions.

BACKGROUND

Page 6.14-6 of the application states pickup and disposal of non-hazardous construction waste "will occur frequently enough to prevent unnecessary accumulation of waste onsite." In addition, page 6.14-7 states proper offsite treatment and disposal of construction hazardous waste will be the responsibility of the individual contractors. Staff needs more specific information on how both non-hazardous and hazardous construction wastes will be managed and accumulated in order to assess impacts of the proposed activity.

DATA REQUEST

89. Please provide more information specifying how construction wastes will be segregated, accumulated and managed on site prior to offsite transport and disposal, including information on what constitutes "unnecessary accumulation of waste onsite" and the process to be used for determining the frequency of, and arranging for, offsite transport and disposal of wastes.

RESPONSE

Waste segregation will occur to store and manage wastes separately according to the waste types and phases identified in Table 6.14-2 of the SPPE Application and as identified below.

Non-hazardous or hazardous solids

Non-hazardous and hazardous wastes will be stored separately, in separate locations designated for these purposes. Non-hazardous waste solids will be collected in dumpsters as described in the response to Data Request No. 88. Recyclable scrap wood, scrap steel, and paper and plastic will be accumulated in separate dumpsters for recycling.

Hazardous wastes will be stored in DOT-approved containers that will be kept closed except when adding or removing waste. All hazardous waste containers will be clearly marked with the words "Hazardous Waste" and the date that hazardous waste first is introduced to the container. Containers will be labeled and stored in full compliance with California Code of Regulations (CCR) Title 22 Division 4.5. Hazardous wastes will be segregated from non-hazardous waste

and will be stored in an area designated for this purpose. Contracts for each construction contractor will require compliance with CCR Title 22 Division 4.5 regulations. Only minimal amounts of hazardous waste will be generated.

Non-hazardous liquids
Non hazardous liquids expected to be generated include hydrotest water and sanitary wastewater. These waste streams will be collected separately. Hydrotest water will generated as a one-time generation and will be stored in a tank and a sample will be analyzed to determine appropriate disposal procedures. This water is expected to have chemical characteristics similar to the Rainbow Municipal Water District potable water supply.

Unnecessary Accumulation of Waste Onsite
Waste generated by construction will be removed from the site as soon as possible within the limits of efficient operations. Most waste routinely generated will be nonhazardous solid waste that will be removed when dumpsters are full, normally on a weekly basis. Hazardous wastes will be removed prior to time limits dictated by CCR Title 22 Division 4.5 regulations. All waste management for contractors will be limited by contract provisions that will require good housekeeping and will prohibit accumulation of waste that could result in a hazard to worker safety, attract wildlife, lead to windblown litter, or cause other safety hazard or nuisance issues. Final payments to construction contractors will not be made until work scopes are complete, including removal of construction wastes from the site.

90. For those activities where contractors will be responsible for management of the wastes they generate, please describe how the applicant will oversee contractor activities to ensure proper onsite management, as well as offsite treatment and/or disposal of wastes.

RESPONSE

Contractors will be provided with detailed scope of work (SOW) instructions in the bid package for their task. The SOW will provide specific information on what waste materials the contractors are responsible for disposing of as part of their task. If the waste products are suitable for recycling, detailed instructions will be provided to the contractor on the requirement to recycle the waste material and not dispose of the material in a landfill.

When the contract is issued to the contractor, the SOW will be included as a part of the contract. The construction superintendent will be responsible for supervising the contractors and ensuring that they comply with the SOW for their task. The superintendent will review the waste management requirements with

the contractor and inspect their waste management operations. In addition, the contractor will be required to sign and agree to implement the best management practices for waste handling specified in the site specific construction stormwater pollution prevention program and stormwater management plan.

All waste shipments offsite will be approved and authorized by the site superintendent. Hazardous waste manifests will be reviewed and approved by an authorized company representative prior to allowing the shipment of hazardous waste offsite.

BACKGROUND

OPERATION WASTE

Table 6.14-3 provides information on the generation and management of several hazardous and non-hazardous operation waste streams. The table identifies the onsite management method for two waste streams as “containerize/housekeeping”, and also identifies the onsite management method for four other waste streams as “none”. However, no additional explanation is provided for what “containerize/housekeeping” means as a management method, nor is a reason given for why onsite management is not necessary for several waste streams. More information regarding the onsite management of project operation wastes is needed for staff to fully assess the impact of the proposed activity.

DATA REQUEST

91. For each waste stream (Table 6.14-3) the onsite management method is identified as “containerize/housekeeping”, please explain what is meant by “containerize/housekeeping” as a management method and provide more information on how the wastes will be managed onsite (i.e., how will the waste will be segregated, stored or accumulated, and for how long, etc.).

RESPONSE

Wastes identified in Table 6.14-3 with a management method of “containerize/housekeeping” are non-hazardous solids such as paper products, trash, packaging materials and household-type waste. These wastes will be collected in bins provided by the local waste management contractor, with recyclables collected in a separate bin from mixed (non-recyclable) trash. Trash and recyclables will be removed from the site on a weekly basis by the local waste management contractor. Good housekeeping for these wastes consists of accumulating these wastes in closed containers designed for this purpose, in a designated area. Waste will be managed to prevent accumulation of waste or debris that could otherwise be a work hazard, attract wildlife, lead to windblown litter, or cause other safety hazard or nuisance issues.

92. For each waste stream (Table 6.14-3) the onsite management method is identified as "none", please provide more information regarding the onsite management of the wastes or state why no onsite management is required.

RESPONSE

Items which are identified for onsite management method as "none" include lead-acid batteries, depleted CO oxidation and SCR catalyst, and transformer oil. These items would be generated infrequently, as indicated in Table 6.14-3 of the SPPE Application. When these items are generated, they are anticipated to be removed directly from the in-service location and transported off-site for recycling. Items are not expected to be stored onsite. Short-term storage onsite would be an exception and, if it occurs, all applicable LORS for waste management would be followed.

93. Please provide an estimate of the proposed project's generated waste volumes as a percentage of the treatment/disposal facility's remaining capacity for each treatment/disposal facility identified in the application. Estimates should be provided for both hazardous and non-hazardous wastes in annual volumes and for a combined life-of-the-facility estimate.

RESPONSE

Exhibit 93-1 provides a revised version of Table 6.14-3 from the SPPE Application with the estimated generation rate and estimated total amount generated shown for each waste stream for 25 years of operation. As shown in the table and described in the accompanying footnotes, the amount of waste generated will be minor in terms of available treatment and disposal capacity. Within the next 25 years, it is expected that waste management technology and recyclables market conditions will develop and change. Therefore, while Exhibit 93-1 provides the requested information, it is expected that new landfills will be constructed, new recycling facilities will be opened, and existing facilities may modify or extend their operations, all independent of the Orange Grove Project.

BACKGROUND

CUMULATIVE IMPACTS

While the application includes general information on the estimated quantities of waste to be generated by individual waste streams, an estimate of the total volume of waste to be generated by each phase of the project is not provided, nor is information provided on the size and number of daily, monthly or annual trips necessary for vehicles to transport wastes offsite. Staff needs this information in order to evaluate cumulative impacts of the project on treatment/disposal facility capacity and possible impacts to traffic and transportation (or other environmental criteria).

DATA REQUEST

94. Please provide an estimate of the total volume of non-hazardous waste and the total volume of hazardous waste to be generated by the project according to project phase (i.e., construction or operation).

RESPONSE

The requested information for project operations is provided in Exhibit 93-1. The requested information for construction is provided in Exhibits 94-1 and 94-2. Exhibit 94-1 provides a revised version of Table 6.14-2 from the SPPE Application with the requested information added. Exhibit 94-2 provides a new table to accompany Table 6.14-2 to account for the construction waste estimated for the gas pipeline to be constructed by SDG&E. These exhibits show that the amount of waste generated will be small in terms of available treatment and disposal capacity. In addition, for wastes that will be disposed of, the percentage represented in terms of available capacity for offsite management facilities is identified. Percentage of offsite capacity is not applicable for wood, scrap metal and plastic and other non-hazardous materials that will be recycled because these are marketable materials.

95. For each waste stream, please provide estimates of the number, size, and volume capacity of trucks necessary to haul waste offsite, along with the estimated number of truck trips needed on a daily, weekly, monthly, or yearly basis. (For commingled wastes, please identify which waste streams are included in the estimates provided.)

RESPONSE

Exhibits 93-1, 94-1 and 94-2 provide the requested information.

96. Please provide an estimate of the total number of truck trips necessary to transport project wastes offsite on a daily, weekly, monthly, or annual basis, according to project phase (i.e., construction or operation).

RESPONSE

The estimated number of truck trips hauling recyclable materials and waste from the site during the 6-month construction period is shown in Exhibits 94-1 and 94-2. For Orange Grove Energy L.P. construction activities (i.e., plant, water line, and electrical interconnection), there will be approximately five truck trips hauling recyclable materials and waste per week (see Exhibit 94-1) on a routine basis, for a total of 130 trucks (5 trucks per week x 26 weeks). In addition there will be an additional estimated 12 trucks hauling recyclable materials and waste during

the construction period, so the total recyclable material and waste hauling trips during construction is estimated to be 142.

For SDG&E construction activities (i.e., gas pipeline), there will be approximately one truck hauling waste on a weekly basis over the approximately one-month construction period. Each of the wastes shown to be hauled once per month may be hauled once or twice over the construction period, resulting in an estimated four to eight additional trips, plus 16 additional one-time trips (see Exhibit 94-2). This results in an estimated total of 24 to 28 trucks hauling waste and recyclable materials for gas pipeline construction.

The estimated number of truck trips hauling recyclable materials and waste from the site during operations is shown in Exhibit 93-1. During operations, there will be an average of 2.5 truck trips per week hauling recyclable materials and waste on a weekly or bi-weekly basis. Over 25 years of operations, this will total an estimated 3,250 truck trips (2.5 trucks x 52 weeks per year x 25 years). For 25 years of operations, an estimated additional 448 truck trips will occur, hauling recyclable materials and waste on a non-routine basis, for a total of 3,698 truck trips.

BACKGROUND

Section 6.1 of the project application identifies ten projects in the local area with potential to create cumulative impacts. Of the ten projects, six are identified as having potential for waste management cumulative impacts. Staff needs more information on the waste generation and disposal estimates for these proposed projects in order to evaluate cumulative impacts.

DATA REQUEST

97. Please provide additional information on the waste generation and disposal elements associated with the six projects identified as having potential for waste management cumulative impacts. For each project, please include information on the types of wastes likely to be generated, estimated volumes of wastes, proposed disposal sites, and percentage of each treatment and/or disposal facility's remaining capacity represented by project wastes.

RESPONSE

Available planning and permitting documentation for the projects identified as having the potential for waste generation cumulative impacts have been reviewed and the detailed information requested is not reasonably ascertainable. For most of these projects this is, in part, because they are in early planning stages and their final configurations, schedules, waste-related impacts, and

potential waste-related mitigation measures are not reasonably foreseeable. The few projects that are better defined also do not have waste generation or management information available. The following paragraphs provide further explanation.

The Pala Casino Expansion is described in Section 6.1.2.3 of the SPPE Application. This project, as currently planned, will add 181,000 square feet to the main casino floor area and spa facility, and will restructure hotel rooms, restaurants and gaming rooms. The number of hotel rooms will not be increased. This project is on Tribal lands and does not require any permit applications or discretionary action from the County. No estimate of waste to be generated is available. (Volturno, Lenore. Director of Environmental Services, Pala Band of Mission Indians.) This project does not have a defined start-date for construction. Information is not available on the amounts of waste to be generated, or plans for waste management and recycling.

Rosemary's Mountain Quarry - The estimated quantity of waste to be generated by this project is not available in the EIR or information on file with County DPLU, because the CEQA review for this project did not identify waste generation as a potentially significant impact (Ramaiya, Jarrett, County Department of Planning and Land Use, personal communication with TRC, October 2, 2007). By its nature, a quarry project typically does not generate large quantities of waste that is hauled offsite during either quarry development or operations. TRC also contacted the project proponent to determine whether an estimate of non-mining waste to be generated by this project is available, but no estimate was obtained (Johnson, Gary, Granite Construction Company, personal communication with TRC, October 3, 2007).

The Warner Ranch development and Meadowood development Draft Environmental Impact Reports (DEIRs) are in progress and are not expected to be available until February and March 2008, respectively. Existing applications on file at the County DPLU do not include the requested information. It is likely that the DEIRs, when available, also will not include the level of detailed information requested for waste management. EIRs that we have reviewed for other housing tract projects in San Diego County do not provide this level of detail. Furthermore, due to the current stage of planning and permitting for these projects, the final project configuration, construction schedule waste generation rates, and potential waste-related mitigation measures are uncertain and cannot be reasonably foreseen at least until final EIRs are certified. Therefore, development of waste generation information for these projects based on available statistical data on waste generation would be speculative.

Based on further evaluations conducted in response to this data request, it has been determined that there are two separate proposals that occur as part of the Campus Park Development: Campus Park West; and Campus Park Passerelle. The Campus Park West project is dormant (Stevenson, 2007), and the Environmental Impact Report Notice of Preparation has not been issued. The DEIR for the Campus Park Passerelle development is not expected to be available until summer 2008. Documents currently on file at San Diego County DPLU do not identify the estimated waste generation rates or management measures for these projects. Due to the current stage of planning and permitting for these projects, the final project configurations, construction schedules, waste generation rates, and potential waste-related mitigation measures are uncertain and cannot be reasonably foreseen at least until final EIRs are certified. Therefore, development of waste generation information for these projects based on available statistical data on waste generation would be speculative.

The Lake Rancho Viejo project is an existing development that is mostly built and building has stopped due to economic conditions. This project already has required permits and, therefore, is part of the existing environment. Therefore, this project should be dropped from consideration of cumulative impacts.

One of the potential cumulative projects identified in Section 6.1.2 of the SPPE Application is the Gregory Canyon Landfill, a new landfill that, if constructed, will provide 30 million tons of waste disposal capacity. The California Integrated Waste Management Board (CIWMB) estimates that approximately 0.35 ton of waste is landfilled per person per year (Nancy Carr, Senior Integrated Waste Management Specialist, Analytical Services Branch, CIWMB, personal communication.) Based on this estimate, the Gregory Canyon Landfill, if constructed, could accommodate the waste of approximately 3.4 million people for 25 years.

An additional landfill that is not identified in the SPPE Application is the Mesquite Regional Landfill. This landfill is located in eastern Imperial County, California, approximately 120 miles east of the Orange Grove Project. The Mesquite Regional Landfill is fully permitted and expected to begin accepting waste in early 2009 and will provide a disposal capacity of 600 million tons for a 100-year life. This landfill will receive waste via rail-haul from San Diego County and other southern California Counties (Sanitation District of Los Angeles County, site visited October 2, 2004 www.lacsd.org/info/waste_by_rail/fact_sheets.asp). A 25-year portion of the Mesquite Regional Landfill's life will provide 150 million tons of landfill capacity. Based on the 0.35 ton per person per year of landfilled material estimated by CIWMB, this landfill could accommodate the waste of approximately 17 million people for 25 years.

Within the next 25 years, it is expected that waste management and recycling technology and practices will be dynamic in response to potential future legislation, social pressures, market conditions and other factors. It is expected that new landfills will be constructed, new recycling facilities will be opened, and existing facilities may modify or extend their operations, all independent of the Orange Grove Project.

Quantitative assessment of waste generation and management from these projects would require multiple layers of speculation. CEQA guidelines require that a lead agency not assess impacts based on speculation (14 CCR 15145).

BACKGROUND

LORS

Table 6.14-4 provides information on the waste management laws, ordinances, regulations, and standards (LORS) that apply to the project. The table includes reference to San Diego County Environmental Health Department as an implementing agency for federal and State laws. However, the table identifies local jurisdiction LORS as “none applicable”. Staff needs clarification about the applicability of any county ordinances, or other local waste management requirements, that may be imposed by the San Diego County Environmental Health Department (or another local jurisdiction) on project activities, over and above existing federal or State requirements.

DATA REQUEST

98. Please clarify what, if any, local waste management ordinances, or other requirements, may apply to project activities (in addition to federal and State requirements).

RESPONSE

San Diego County LORS relevant to waste management at the Orange Grove Project are identified in Exhibit 98-1. The Orange Grove Project will include all measures necessary to comply with waste management LORS during both construction and operations.

EXHIBIT 2-1

CONSTRUCTION EMISSION MITIGATION MEASURES

Orange Grove Project – Proposed Construction Mitigation Measures

AQ-SC1 Air Quality Construction Mitigation Manager (**AQCMM**): The project owner shall designate and retain an on-site AQCMM who shall be responsible for directing and documenting compliance with conditions AQ-SC3, AQ-SC4 and AQ-SC5 for the entire project site and linear facility construction. The on-site AQCMM may delegate responsibilities to one or more AQCMM Delegates. The AQCMM and AQCMM Delegates shall have full access to all areas of construction on the project site and linear facilities, and shall have the authority to stop any or all construction activities as warranted by applicable construction mitigation conditions. The AQCMM and AQCMM Delegates may have other responsibilities in addition to those described in this condition. The AQCMM shall not be terminated without written consent of the Commission Project Manager (CPM).

Verification: At least 60 days prior to the start of ground disturbance, the project owner shall submit to the CPM for approval, the name, resume, qualifications, and contact information for the on-site AQCMM and all AQCMM Delegates. The AQCMM and all Delegates must be approved by the CPM before the start of ground disturbance.

AQ-SC2 Air Quality Construction Mitigation Plan (**AQCMP**): The project owner shall provide an AQCMP, for approval, which details the steps that will be taken and the reporting requirements necessary to ensure compliance with conditions AQ-SC3, AQ-SC4 and AQ-SC5.

Verification: At least 60 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the CPM for approval. The CPM will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt. The AQCMP must be approved by the CPM before the start of ground disturbance.

AQ-SC3 Construction Fugitive Dust Control: The AQCMM shall submit documentation to the CPM in each Monthly Compliance Report (**MCR**) that demonstrates compliance with the following mitigation measures for the purposes of preventing all fugitive dust plumes from leaving the project site and linear facility routes. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

a) All unpaved roads and disturbed areas in the project and linear construction sites shall be watered as frequently as necessary to comply with the dust mitigation objectives of AQ-SC4. The frequency of watering may be reduced or eliminated during periods of precipitation.

b) No vehicle shall exceed 10 miles per hour within the construction site.

c) The construction site entrances shall be posted with visible speed limit signs.

d) All construction equipment vehicle tires shall be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways.

e) Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station.

f) All unpaved exits from the construction site shall be graveled or treated to prevent track-out to public roadways.

g) All construction vehicles shall enter the construction site through the treated entrance roadways, unless an alternative route has been submitted to and approved by the CPM.

h) Construction areas adjacent to any paved roadway shall be provided with sandbags or other measures as specified in the Storm Water Pollution Prevention Plan (SWPPP) to prevent run-off to roadways.

i) All paved roads within the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris.

j) At least the first 500 feet of any public roadway exiting from the construction site shall be swept at least twice daily (or less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff from the construction site is visible on the public roadways.

k) All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered, or shall be treated with appropriate dust suppressant compounds.

l) All vehicles that are used to transport solid bulk material on public roadways and that have the potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least two feet of freeboard.

m) Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

Verification: The project owner shall include in the MCR (1) a summary of all actions taken to maintain compliance with this condition, (2) copies of any complaints filed with the air district in relation to project construction, and (3) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

AQ-SC4 Dust Plume Response Requirement: The AQCMM or an AQCMM Delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported (1) off the project site or (2) 200 feet beyond the centerline of the construction of linear facilities or (3) within 100 feet upwind of any regularly occupied structures not owned by the project owner indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed:

Step 1: The AQCMM or Delegate shall direct more intensive application of the existing mitigation methods within 15 minutes of making such a determination.

Step 2: The AQCMM or Delegate shall direct implementation of additional methods of dust suppression if Step 1 specified above fails to result in adequate mitigation within 30 minutes of the original determination.

Step 3: The AQCMM or Delegate shall direct a temporary shutdown of the activity causing the emissions if Step 2 specified above fails to result in effective mitigation within one hour of the original determination. The activity shall not restart until the AQCMM or Delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes will not result upon restarting the shutdown source. The owner/operator may appeal to the CPM any directive from the AQCMM or Delegate to shut down an

activity, provided that the shutdown shall go into effect within one hour of the original determination, unless overruled by the CPM before that time.

Verification: The AQCMP shall include a section detailing how the additional mitigation measures will be accomplished within the time limits specified.

AQ-SC5 Diesel-Fueled Engines Control: The AQCMM shall submit to the CPM, in the MCR, a construction mitigation report that demonstrates compliance with the following mitigation measures for the purposes of controlling diesel construction-related emissions. Any deviation from the following mitigation measures shall require prior CPM notification and approval.

a) All diesel-fueled engines used in the construction of the facility shall be fueled only with ultra-low sulfur diesel, which contains no more than 15 ppm sulfur.

b) All diesel-fueled engines used in the construction of the facility shall have clearly visible tags issued by the on-site AQCMM showing that the engine meets the conditions set forth herein.

c) All construction diesel engines, which have a rating of 100 hp or more, shall meet, at a minimum, the Tier 2 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 a Tier 2 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a Tier 1 engine. In the event a Tier 1 engine is not available for any off-road engine larger than 100 hp, that engine shall be equipped with a catalyzed diesel particulate filter (soot filter), unless certified by engine manufacturers or the on-site AQCMM that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is “not practical” if, among other reasons:

   (1) There is no available soot filter that has been certified 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 on-site for ten (10) days or less.

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

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

   (1) The use of the soot filter is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or reduced power output due to an excessive increase in backpressure.

   (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 the termination being implemented.

e) All heavy earthmoving equipment and heavy duty construction related trucks with engines meeting the requirements of (c) above shall be properly maintained and the engines tuned to the engine manufacturer’s specifications.

f) All diesel heavy construction equipment shall not remain running at idle for more than five minutes, to the extent practical.

Verification: The project owner shall include in the MCR (1) a summary of all actions taken to maintain compliance with this condition, (2) copies of all diesel fuel purchase records, (3) a list of all heavy equipment used on site during that month, including the owner of that equipment and a letter from each owner indicating that equipment has been properly maintained, and (4) any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

EXHIBIT 3-1

REVISED EMISSION ESTIMATES FOR THE CONSTRUCTION PHASE

Exhibit 3-1 Revised Emission Estimates for Project Construction

Emissions associated with project construction were revised using mobile source emission factors for year 2008. The methodologies described in Appendix 6.2-C of the SPPE were followed. Updated emission factors for off-road and on-road mobile sources were obtained from the South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Analysis Guidance Handbook. Detailed construction activities, schedules and emission calculations are presented in attached tables to this exhibit. The following are summary results of construction related emissions.

Table 3-1 – Summary of Onsite Off-Road Construction Emissions

Pollutant	VOC	CO	NOx	SOx	PM10
Maximum Hourly Emissions (lb/hr)	2.93	12.09	25.41	0.02	1.22
Maximum 8-Hour Emissions (lb/8-hr)	22.79	94.51	199.4	0.17	9.42
Maximum Project Emissions (lb)	1,107	3,426	6,318	6	410
Maximum Project Emissions (Tons)	0.55	1.71	3.16	0	0.21

(1) Reference Table 3-5A for detailed calculations

Table 3-2 – Summary of Off-Site Construction Emissions

Pollutant	VOC	CO	NOx	SOx	PM10
Water Line Construction Emissions (lb)	413	1,275	2,158	2.11	162
Gas Line Construction Emissions (lb)	258	726	1,164	1.16	90

(2) Reference Table 3-5B for detailed calculations

Table 3-3 – Summary of All Construction Related On-Road Mobile Source Emissions

Pollutant	VOC	CO	NOx	SOx	PM10	PM2.5
Workers Commute & Delivery Trucks Exhaust (lb)	194	1,761	469	0	25	24
Workers Commute & Delivery Trucks Dust Entrainment (lb)	-	-	-	-	147	31

(3) Reference Tables 3-5C and 3-5D for detailed calculations

Fugitive dust emissions from grading activities using AP-42 methodology are updated and presented in Table 3-6. Emissions from asphalt paving and the use of touch-up architectural coatings are previously calculated in the initial SPPE application and determined to be negligible.

Table 3-4A - Onsite Off-Road Construction Equipment Activity Summary

	Equipment/Vehicle Type	Fuel	Hours/ day	(Weeks) Bi-Weekly Maximum Daily Number														
				1 - 2	3 - 4	5 - 6	7 - 8	9 - 10	11 - 12	13 - 14	15 - 16	17 - 18	19 - 20	21 - 22	23 - 24	25 - 26	27 - 28	29 - 30
Site Prep - Civil	977 Loader	D	8	1	1	1		1										
	D-8 Dozer	D	8	1	1	1												
	637 Scappers	D	8	2	2	2												
	824 Compactors	D	8	1	1	1												
	12 G Motor Grader	D	8			1		1	1									
	Water Truck	D	8	1	1	1												
	Skip Loader	D	8			1		1	1									
	613 Scraper	D	8					1	1									
	Lowbeds	D	12	2	1		1	1										
	End Dumps	D	8	6														
	Fuel Trucks	D	4	1	1	1		1	1									
Plant - Civil	Forklift	D	5			1	1		1		1		1	1				
	Backhoe	D	8				1	1	1	1	1			1				
	Compressor	D	4				2	1				1	1	1				
	Skiploader	D	8	1					1	1	1	1	1	1				
	Generator	D	8			1	1	1	1	1	1	1	1	1				
	Concrete Pump	D	4					1	1	1								
	Compact Equipment	G	4						1	2	2							
	Front-end loader	D	8							1	1	1						
Mech	Welding rigs	D	6				2	2	6	8	8	8	8	6	4	2		
	Backhoe	D	6					2	3	4	4	6	6	6	6	4	2	
	75 ton crane	D	6					1	2	2	2	2	1	1	1			
Electrical	Backhoe	D	6			2	2	1	1	1								
	Compressor	D	6			2	2	1	1	1	1							
	Front-end loader	D	6			1	1	1	1	1								
	15 ton crane	D	6			1	1	1	1	1	1	1	1	1	1	1		
	75 ton crane	D	6									1						

Table 3-4B - Offsite Construction Equipment Activity Summary

	Equipment/Vehicle Type	Fuel	Hours/ day	(Weeks) Bi-Weekly Maximum Daily Number														
				1 - 2	3 - 4	5 - 6	7 - 8	9 - 10	11 - 12	13 - 14	15 - 16	17 - 18	19 - 20	21 - 22	23 - 24	25 - 26	27 - 28	29 - 30
Water Line	Water Line Welding Rig	D	6				2	2	2	2	2	2	2	2	2			
	Water Line Backhoe	D	6			1	1	2	2	2	2	1	1	1	1			
	Water Line Compressor	D	3								1	1	1	1				
	Water Line Front-end loader	D	6					1	1	2	2	1						
	Water Line Compactor	D	6					2	2	2	2	2						
	Water Line 15 ton crane	D	6					1	1	1								
Gas Line	Gas Line Welding rigs	D	6					1	2	2	2	2	2	1	1			
	Gas Line Backhoe	D	6					1	2	2	2	1						
	Gas Line Compressor	D	4										1	1	1			
	Gas Line Front-end loader	D	5									1	1	1				
	Gas Line Compactor	D	4									2	2	2				
	Gas Line 15 ton crane	D	4					1	1	1	1	1						

Table 3-4C - Offsite On-Road Commute Activity Summary

	Motor Vehicles (Offsite)	Fuel	Miles/ Day	(Weeks) Bi-Weekly Maximum Daily Number															Total Unit Trips
				1 - 2	3 - 4	5 - 6	7 - 8	9 - 10	11 - 12	13 - 14	15 - 16	17 - 18	19 - 20	21 - 22	23 - 24	25 - 26	27 - 28	29 - 30	
Site & Plant - Civil	Construction Worker Commute	G	40	6	6	6	6	6	6										180
	On-Site Pickup Truck	G	30	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	95
	Dump Truck	D	20		1					1	1	1							20
	On-Site Water Truck	D	20	1	1	1	1	1	1	1	1	1	1	1					55
	Concrete Truck	D	20					1	2	2	1	1							35
	Delivery Truck	D	30	1		1		1		1	1	1	1	1	1	1	1	1	60
	Construction Worker Commute	G	40	2	2	3	4	5	6	8	8	6	6	6	15	15	15	15	580
Plant (Mech)	On-Site Pickup Truck	G	30			2	2	3	3	2	2	2	1	2	2	2	2	2	135
	Delivery Truck	D	30			1	1	1	1	1	1	1	1	1	1	1	1		60
	Construction Worker Commute	G	40	2	2	12	16	20	20	20	20	20	16	14	12	10	8	4	980
Plant (Elec)	On-Site Pickup Truck	G	30		1	4	4	3	3	3	3	3	3	3	3	2	2	2	195
	Dump Truck	D	20			2	2	1	1	1	1								40
	Concrete Truck	D	20			2	2	1	1	1									35
	Delivery Truck	D	30			1	1	1	1	1	1	1	1	1	1	1	1		60
	Construction Worker Commute	G	40		4	13	13	7	7	7	7	7	7	7	7	7	7	4	520
Gas Line	On-Site Pickup Truck	G	30					2	2	2	2	2	2	2	2				80
	Dump Truck	D	20						1	1	1	1	1	1					30
	On-Site Water Truck	D	20							1	1	1	1						20
	Delivery Truck	D	30					1	1	1	1	1	1						30
	Construction Worker Commute	G	40	2	2	2	2	4	8	8	8	8	8	4	4				300
Water Line	On-Site Pickup Truck	G	30			1	1	1	1	1	1	1	1	1	1	1	1	1	65
	Dump Truck	D	20					1	1	1	1	1	1	1					35
	On-Site Water Truck	D	20					1	1	1	1								20
	Delivery Truck	D	30				1	1	1	1	1	1	1	1					40
	Construction Worker Commute	G	40	2	2	4	6	12	12	12	12	12	12	10	6				510

Table 3-5A - Onsite Off-Road Construction Equipment Fuel Use Summary

	Equipment/Vehicle Type	Fuel	HP	Max. Daily Units	Max. Hr/dy	Gal/hr /Unit	Gal/dy	Project Days	Total Project (gal)	Emission Factors (1) ROG (lb/hr)	CO (lb/hr	NOx (lb/hr)	SOx (lb/hr	PM (lb/hr	CO2 (lb/hr)	Maximum Hourly Emissions ROG (lb/hr)	CO (lb/hr	NOx (lb/hr)	SOx (lb/hr	PM (lb/hr	CO2 (lb/hr)	Maximum 8-Hour Day Emissions ROG (lb/hr)	CO (lb/hr	NOx (lb/hr)	SOx (lb/hr	PM (lb/hr	CO2 (lb/hr)	Maximum Project Emissions ROG (lb/hr)	CO (lb/hr	NOx (lb/hr)	SOx (lb/hr	PM (lb/hr	CO2 (lb/hr)
Site Prep - Grading	977 Loader	D	190	1	8	10	80	16	1,280	0.1674	0.4680	1.7361	0.0017	0.0640	149	0.1674	0.4680	1.7361	0.0017	0.0640	149	1.339	3.744	13.889	0.013	0.512	1,192	21.422	59.90	222.2	0.21	8.19	19,069
	D-8 Dozer	D	335	1	8	20	160	18	2,880	0.3895	1.9869	3.5050	0.0026	0.1495	265	0.3895	1.9869	3.5050	0.0026	0.1495	265	3.116	15.895	28.040	0.021	1.196	2,119	56.09	286.12	504.7	0.37	21.53	38,142
	637 Scraper	D	650	2	8	30	480	8	3,840	0.6903	3.0787	6.6917	0.0056	0.2675	555	1.3807	6.1574	13.3835	0.0112	0.5349	1,111	11.045	49.259	107.068	0.089	4.279	8,884	88.36	394.07	856.5	0.71	34.23	71,075
	824 Compactors	D	300	1	8	15	120	10	1,200	0.0052	0.0263	0.0328	0.0001	0.0021	4	0.0052	0.0263	0.0328	0.0001	0.0021	4	0.041	0.211	0.263	0.001	0.017	35	0.41	2.11	2.6	0.01	0.17	345
	12 G Motor Grader	D	135	1	8	4	32	15	480	0.1956	0.7486	1.5300	0.0014	0.0864	124	0.1956	0.7486	1.5300	0.0014	0.0864	124	1.565	5.989	12.240	0.011	0.692	991	23.47	89.84	183.6	0.17	10.37	14,871
	Skip Loader	D	75	1	8	1	8	30	240	0.1384	0.4364	0.8116	0.0007	0.0737	59	0.1384	0.4364	0.8116	0.0007	0.0737	59	1.107	3.491	6.493	0.006	0.590	471	33.22	104.73	194.8	0.17	17.70	14,139
	613 Scraper	D	150	1	8	11	88	5	440	0.2636	0.9463	2.0299	0.0017	0.1150	148	0.2636	0.9463	2.0299	0.0017	0.1150	148	2.108	7.571	16.239	0.013	0.920	1,185	10.54	37.85	81.2	0.07	4.60	5,923
	End Dumps	D	-	6	8	5	240	5	1,200	0.0121	0.0356	0.0681	0.0001	0.0043	8	0.0725	0.2135	0.4088	0.0006	0.0258	46	0.580	1.708	3.270	0.005	0.206	366	2.90	8.54	16.4	0.02	1.03	1,830
	Water Truck	D	125	1	8	3.5	28	18	504	0.1570	0.5538	0.9885	0.0009	0.0842	81	0.1570	0.5538	0.9885	0.0009	0.0842	81	1.256	4.430	7.908	0.008	0.674	647	22.61	79.74	142.3	0.14	12.13	11,644
	Fuel Truck	D	-	1	4	5	20	20	400	0.1570	0.5538	0.9885	0.0009	0.0842	81	0.1570	0.5538	0.9885	0.0009	0.0842	81	0.628	2.215	3.954	0.004	0.337	323	12.56	44.30	79.1	0.08	6.74	6,469
												Maximum Site Preparation Emissions				**2.93**	**12.09**	**25.41**	**0.02**	**1.22**	**2,067**	**23**	**95**	**199**	**0.17**	**9**	**16,213**	**272**	**1,107**	**2,283**	**2**	**117**	**183,506**
Plant - Civil	Forklift	D	72	1	5	2.5	12.5	30	375	0.0724	0.2304	0.4055	0.0004	0.0402	31	0.0724	0.2304	0.4055	0.0004	0.0402	31	0.362	1.152	2.027	0.002	0.201	156	10.86	34.56	60.8	0.05	6.03	4,684
	Backhoe	D	79	1	8	2.5	20	30	600	0.1083	0.3703	0.6510	0.0006	0.0595	52	0.1083	0.3703	0.6510	0.0006	0.0595	52	0.866	2.962	5.208	0.005	0.476	414	25.99	88.87	156.2	0.15	14.27	12,415
	Compressor	D	37	2	4	1.25	10	35	350	0.0833	0.2011	0.2037	0.0003	0.0203	20	0.1666	0.4023	0.4075	0.0005	0.0407	39	0.667	1.609	1.630	0.002	0.163	157	23.33	56.32	57.0	0.07	5.69	5,492
	Skip Loader	D	71	1	8	5	40	35	1,400	0.1384	0.4364	0.8116	0.0007	0.0737	59	0.1384	0.4364	0.8116	0.0007	0.0737	59	1.107	3.491	6.493	0.006	0.590	471	38.75	122.18	227.3	0.19	20.65	16,496
	Generator	D	37	1	8	1.25	10	40	400	0.1238	0.3024	0.3155	0.0004	0.0307	31	0.1238	0.3024	0.3155	0.0004	0.0307	31	0.991	2.419	2.524	0.003	0.246	245	39.63	96.76	101.0	0.13	9.84	9,799
	Concrete Pump	D	12	1	4	3.15	13	15	189	0.0161	0.0545	0.0924	0.0001	0.0070	7	0.0161	0.0545	0.0924	0.0001	0.0070	7	0.065	0.218	0.370	0.000	0.028	30	0.97	3.27	5.5	0.01	0.42	445
	Compact Equipment	D	99	2	4	5.0	40	15	598	0.0052	0.0263	0.0328	0.0001	0.0021	4	0.0103	0.0527	0.0657	0.0001	0.0042	9	0.041	0.211	0.263	0.001	0.017	35	0.62	3.16	3.9	0.01	0.25	518
	Front-end loader	D	147	1	8	7.4	59	15	888	0.1659	0.6383	1.3029	0.0012	0.0733	106	0.1659	0.6383	1.3029	0.0012	0.0733	106	1.327	5.106	10.423	0.010	0.587	851	19.91	76.60	156.3	0.14	8.80	12,758
Mech	Welding rigs	D	35	8	6	1.8	85	50	4,230	0.1344	0.3128	0.2792	0.0003	0.0308	26	1.0748	2.5025	2.2336	0.0027	0.2463	208	6.449	15.015	13.402	0.016	1.478	1,246	322.44	750.74	670.1	0.81	73.89	62,299
	Boom Lifts	D	79	6	6	4.0	143	50	7,161	0.0781	0.2542	0.4910	0.0004	0.0386	38	0.4684	1.5252	2.9461	0.0027	0.2319	228	2.811	9.151	17.676	0.016	1.391	1,371	140.53	457.56	883.8	0.80	69.57	68,529
	75 ton crane	D	250	2	6	12.6	151	40	6,043	0.1392	0.3881	1.3867	0.0013	0.0535	112	0.2784	0.7761	2.7735	0.0025	0.1070	224	1.670	4.657	16.641	0.015	0.642	1,346	66.82	186.27	665.6	0.61	25.67	53,836
Electrical	Backhoe	D	79	2	6	4.0	48	25	1,194	0.1083	0.3703	0.6510	0.0006	0.0595	52	0.2166	0.7406	1.3020	0.0012	0.1189	103	1.299	4.444	7.812	0.007	0.713	621	32.49	111.09	195.3	0.18	17.84	15,518
	Compressor	D	37	2	6	1.9	22	30	671	0.0833	0.2011	0.2037	0.0003	0.0203	20	0.1666	0.4023	0.4075	0.0005	0.0407	39	1.000	2.414	2.445	0.003	0.244	235	29.99	72.41	73.3	0.09	7.32	7,061
	Front-end loader	D	147	1	6	7.4	44	25	1,110	0.1659	0.6383	1.3029	0.0012	0.0733	106	0.1659	0.6383	1.3029	0.0012	0.0733	106	0.995	3.830	7.817	0.007	0.440	638	24.88	95.75	195.4	0.18	11.00	15,947
	15 ton crane	D	230	1	6	11.6	69	65	4,517	0.1392	0.3881	1.3867	0.0013	0.0535	112	0.1392	0.3881	1.3867	0.0013	0.0535	112	0.835	2.328	8.320	0.008	0.321	673	54.29	151.35	540.8	0.49	20.86	43,742
	75 ton crane	D	250	1	6	12.6	76	5	378	0.1392	0.3881	1.3867	0.0013	0.0535	112	0.1392	0.3881	1.3867	0.0013	0.0535	112	0.835	2.328	8.320	0.008	0.321	673	4.18	11.64	41.6	0.04	1.60	3,365
																												836	2,319	4,034	3.95	293.68	332,904
	Total Diesel (Gal)								**42,569**																			**Maximum Onsite Off-Road Construction Emisions (lb)**	**1,107**	**3,426**	**6,318**	**6**	**410**	**516,410**
																												(Ton)	**0.55**	**1.71**	**3.16**	**0.00**	**0.21**	**258.21**
																												Average Annual Hourly Emission Rate (lb/hr)	0.13	0.39	0.72	0.00	0.05	58.95

(1) SCAQMD Off-Road Mobile Source Emission Factors for Year 2008 (SCAQMD CEQA Analysis Guidance Handbook).

Table 3-5B - Offsite Construction Equipment Activity Summary

	Equipment/Vehicle Type	Fuel	HP	Max. Daily Units	Max. Hr/dy	Gal/hr /Unit	Gal/dy	Project Days	Total Project (gal)	Emission Factors (1) ROG (lb/hr)	CO (lb/hr	NOx (lb/hr)	SOx (lb/hr	PM (lb/hr	CO2 (lb/hr)	Maximum Hourly Emissions ROG (lb/hr)	CO (lb/hr	NOx (lb/hr)	SOx (lb/hr	PM (lb/hr	CO2 (lb/hr)	Maximum 8-Hour Day Emissions ROG (lb/hr)	CO (lb/hr	NOx (lb/hr)	SOx (lb/hr	PM (lb/hr	CO2 (lb/hr)	Maximum Project Emissions ROG (lb/hr)	CO (lb/hr	NOx (lb/hr)	SOx (lb/hr	PM (lb/hr	CO2 (lb/hr)
Water Line	Welding Rig	D	35	2	6	1.8	21	90	1,904	0.1344	0.3128	0.2792	0.0003	0.0308	25.96	0.2687	0.6256	0.5584	0.0007	0.0616	51.92	1.612	3.754	3.350	0.004	0.369	311.5	145.10	337.83	301.5	0.36	33.25	28,035
	Backhoe	D	79	2	6	4.0	48	100	4,774	0.1083	0.3703	0.6510	0.0006	0.0595	51.73	0.2166	0.7406	1.3020	0.0012	0.1189	103.46	1.299	4.444	7.812	0.007	0.713	620.7	129.94	444.35	781.2	0.73	71.34	62,074
	Compressor	D	37	1	3	1.9	6	40	224	0.0833	0.2011	0.2037	0.0003	0.0203	19.61	0.0833	0.2011	0.2037	0.0003	0.0203	19.61	0.250	0.603	0.611	0.001	0.061	58.8	10.00	24.14	24.4	0.03	2.44	2,354
	Front-end loader	D	147	2	6	7.4	89	50	4,442	0.1659	0.6383	1.3029	0.0012	0.0733	106.32	0.3318	1.2766	2.6057	0.0024	0.1466	212.63	1.991	7.660	15.634	0.014	0.880	1,275.8	99.53	382.99	781.7	0.72	43.99	63,789
	Compactor	D	99	2	6	5.0	60	50	2,991	0.0052	0.0263	0.0328	0.0001	0.0021	4.31	0.0103	0.0527	0.0657	0.0001	0.0042	8.63	0.062	0.316	0.394	0.001	0.025	51.8	3.09	15.80	19.7	0.04	1.25	2,588
	15 ton crane	D	230	1	6	11.6	69	30	2,085	0.1392	0.3881	1.3867	0.0013	0.0535	112.16	0.1392	0.3881	1.3867	0.0013	0.0535	112.16	0.835	2.328	8.320	0.008	0.321	673.0	25.06	69.85	249.6	0.23	9.63	20,189
									16,419				**Maximum Site Emissions**			**1.05**	**3.28**	**6.12**	**0.01**	**0.41**	**508**	**6.05**	**19.10**	**36.123**	**0.03**	**2.37**	**2,992**	**413**	**1,275**	**2,158**	**2**	**162**	**179,028**
Gas Line	Welding rigs	D	35	2	6	1.8	21	80	1,692	0.1344	0.3128	0.2792	0.0003	0.0308	25.96	0.2687	0.6256	0.5584	0.0007	0.0616	51.92	1.612	3.754	3.350	0.004	0.369	311.5	128.98	300.30	268.0	0.32	29.56	24,920
	Backhoe	D	79	2	6	4.0	48	50	2,387	0.1083	0.3703	0.6510	0.0006	0.0595	51.73	0.2166	0.7406	1.3020	0.0012	0.1189	103.46	1.299	4.444	7.812	0.007	0.713	620.7	64.97	222.18	390.6	0.36	35.67	31,037
	Compressor	D	37	1	4	1.9	7	30	224	0.0833	0.2011	0.2037	0.0003	0.0203	19.61	0.0833	0.2011	0.2037	0.0003	0.0203	19.61	0.333	0.805	0.815	0.001	0.081	78.5	10.00	24.14	24.4	0.03	2.44	2,354
	Front-end loader	D	147	1	5	7.4	37	30	1,110	0.1659	0.6383	1.3029	0.0012	0.0733	106.32	0.1659	0.6383	1.3029	0.0012	0.0733	106.32	0.829	3.192	6.514	0.006	0.367	531.6	24.88	95.75	195.4	0.18	11.00	15,947
	Compactor	D	99	2	4	5.0	40	30	1,197	0.0052	0.0263	0.0328	0.0001	0.0021	4.31	0.0103	0.0527	0.0657	0.0001	0.0042	8.63	0.041	0.211	0.263	0.001	0.017	34.5	1.24	6.32	7.9	0.02	0.50	1,035
	15 ton crane	D	230	1	4	11.6	46	50	2,317	0.1392	0.3881	1.3867	0.0013	0.0535	112.16	0.1392	0.3881	1.3867	0.0013	0.0535	112.16	0.557	1.552	5.547	0.005	0.214	448.6	27.84	77.61	277.3	0.25	10.70	22,432
									8,926				**Maximum Site Emissions**			**0.88**	**2.65**	**4.82**	**0.00**	**0.33**	**402**	**4.67**	**13.96**	**24.301**	**0.02**	**1.76**	**2,025**	**258**	**726**	**1,164**	**1**	**90**	**97,724**

Table 3-5C - On-Road Mobile Source Emission Summary

	Motor Vehicles / Offsite	Fuel	Miles/ Round Trip	Total Unit Trips [1]	Emission Factors [2]						Project Emissions (lb)					
					ROG (lb/mi)	CO (lb/mi)	NOx (lb/mi)	SOx (lb/mi)	PM10 (lb/mi)	PM2.5 (lb/mi)	ROG	CO	NOx	SOx	PM10	PM2.5
Site & Plant - Civil	Worker Commute	G	40	180	1.100E-3	1.050E-2	1.100E-3	0.000E+0	1.000E-4	1.000E-4	7.92	75.60	7.92	0.00	0.72	0.72
	On-Site Pickup Truck	G	30	95	1.100E-3	1.050E-2	1.100E-3	0.000E+0	1.000E-4	1.000E-4	3.14	29.93	3.14	0.00	0.29	0.29
	Dump Truck	D	20	20	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	1.20	8.78	9.49	0.01	0.34	0.30
	On-Site Water Truck	D	20	55	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	3.29	24.14	26.08	0.03	0.94	0.81
	Concrete Truck	D	20	35	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	2.09	15.36	16.60	0.02	0.60	0.52
	Delivery Truck	D	30	60	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	5.39	39.51	42.68	0.05	1.54	1.33
	Worker Commute	G	40	580	1.100E-3	1.050E-2	1.100E-3	0.000E+0	1.000E-4	1.000E-4	25.52	243.60	25.52	0.00	2.32	2.32
Plant (Mech)	On-Site Pickup Truck	G	30	135	1.100E-3	1.050E-2	1.100E-3	0.000E+0	1.000E-4	1.000E-4	4.46	42.53	4.46	0.00	0.41	0.41
	Delivery Truck	D	30	60	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	5.39	39.51	42.68	0.05	1.54	1.33
	Worker Commute	G	40	980	1.100E-3	1.050E-2	1.100E-3	0.000E+0	1.000E-4	1.000E-4	43.12	411.60	43.12	0.00	3.92	3.92
Plant (Elec)	On-Site Pickup Truck	G	30	195	1.100E-3	1.050E-2	1.100E-3	0.000E+0	1.000E-4	1.000E-4	6.44	61.43	6.44	0.00	0.59	0.59
	Dump Truck	D	20	40	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	2.39	17.56	18.97	0.02	0.68	0.59
	Concrete Truck	D	20	35	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	2.09	15.36	16.60	0.02	0.60	0.52
	Delivery Truck	D	30	60	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	5.39	39.51	42.68	0.05	1.54	1.33
	Worker Commute	G	40	520	1.100E-3	1.050E-2	1.100E-3	0.000E+0	1.000E-4	1.000E-4	22.88	218.40	22.88	0.00	2.08	2.08
Gas Line	On-Site Pickup Truck	G	30	80	1.100E-3	1.050E-2	1.100E-3	0.000E+0	1.000E-4	1.000E-4	2.64	25.20	2.64	0.00	0.24	0.24
	Dump Truck	D	20	30	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	1.80	13.17	14.23	0.02	0.51	0.44
	On-Site Water Truck	D	20	20	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	1.20	8.78	9.49	0.01	0.34	0.30
	Delivery Truck	D	30	30	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	2.69	19.75	21.34	0.02	0.77	0.67
	Worker Commute	G	40	300	1.100E-3	1.050E-2	1.100E-3	0.000E+0	1.000E-4	1.000E-4	13.20	126.00	13.20	0.00	1.20	1.20
Water Line	On-Site Pickup Truck	G	30	65	1.100E-3	1.050E-2	1.100E-3	0.000E+0	1.000E-4	1.000E-4	2.15	20.48	2.15	0.00	0.20	0.20
	Dump Truck	D	20	35	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	2.09	15.36	16.60	0.02	0.60	0.52
	On-Site Water Truck	D	20	20	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	1.20	8.78	9.49	0.01	0.34	0.30
	Delivery Truck	D	30	40	2.993E-3	2.195E-2	2.371E-2	2.565E-5	8.561E-4	7.393E-4	3.59	26.34	28.46	0.03	1.03	0.89
	Worker Commute	G	40	510	1.100E-3	1.050E-2	1.100E-3	0.000E+0	1.000E-4	1.000E-4	22.44	214.20	22.44	0.00	2.04	2.04
										Total (lb)	**194**	**1,761**	**469**	**0**	**25**	**24**

(1) Total unit trips is the sum of round trip per vehicle type over the life of the project

(2) SCAQMD Emfac 2007 (version 2.3) Emission factors for
On-Road Passenger Vehicles & Delivery Trucks (Scenario 2008)

EXHIBIT 3-1

Table 3-5D - On-Road Mobile Source Dust Entrainment on Paved[1] Surface Emission Summary

	Motor Vehicles / Offsite	Fuel	Avg Vehicle Weight (ton)	Silt Load-ing	Miles/ Round Trip	Total Unit Trips [2]	Emission Factors [3]		PM Emissions	
							PM10 (lb/mi)	PM2.5 (lb/mi)	PM10	PM2.5
Site & Plant - Civil	Worker Commute	G	2.7	0.037	40	180	1.00E-04	2.00E-04	0.72	1.44
	On-Site Pickup Truck	G	2.7	0.037	30	95	1.00E-03	2.00E-04	2.85	0.57
	Dump Truck	D	2.7	0.037	20	20	1.00E-03	2.00E-04	0.40	0.08
	On-Site Water Truck	D	30	0.037	20	55	1.00E-03	2.00E-04	1.10	0.22
	Concrete Truck	D	2.7	0.037	20	35	1.00E-03	2.00E-04	0.70	0.14
	Delivery Truck	D	2.7	0.037	30	60	1.00E-03	2.00E-04	1.80	0.36
	Worker Commute	G	2.7	0.037	40	580	1.00E-03	2.00E-04	23.20	4.64
Plant (Mech)	On-Site Pickup Truck	G	2.7	0.037	30	135	1.00E-03	2.00E-04	4.05	0.81
	Delivery Truck	D	2.7	0.037	30	60	1.00E-03	2.00E-04	1.80	0.36
	Worker Commute	G	2.7	0.037	40	980	1.00E-03	2.00E-04	39.20	7.84
Plant (Elec)	On-Site Pickup Truck	G	2.7	0.037	30	195	1.00E-03	2.00E-04	5.85	1.17
	Dump Truck	D	2.7	0.037	20	40	1.00E-03	2.00E-04	0.80	0.16
	Concrete Truck	D	2.7	0.037	20	35	1.00E-03	2.00E-04	0.70	0.14
	Delivery Truck	D	2.7	0.037	30	60	1.00E-03	2.00E-04	1.80	0.36
	Worker Commute	G	2.7	0.037	40	520	1.00E-03	2.00E-04	20.80	4.16
Gas Line	On-Site Pickup Truck	G	2.7	0.037	30	80	1.00E-03	2.00E-04	2.40	0.48
	Dump Truck	D	2.7	0.037	20	30	1.00E-03	2.00E-04	0.60	0.12
	On-Site Water Truck	D	30	0.037	20	20	1.00E-03	2.00E-04	0.40	0.08
	Delivery Truck	D	2.7	0.037	30	30	1.00E-03	2.00E-04	0.90	0.18
	Worker Commute	G	2.7	0.037	40	300	1.00E-03	2.00E-04	12.00	2.40
Water Line	On-Site Pickup Truck	G	2.7	0.037	30	65	1.00E-03	2.00E-04	1.95	0.39
	Dump Truck	D	2.7	0.037	20	35	1.00E-03	2.00E-04	0.70	0.14
	On-Site Water Truck	D	30	0.037	20	20	1.00E-03	2.00E-04	0.40	0.08
	Delivery Truck	D	2.7	0.037	30	40	1.00E-03	2.00E-04	1.20	0.24
	Worker Commute	G	2.7	0.037	40	510	1.00E-03	2.00E-04	20.40	4.08
								Total Project:	**146.72**	**30.64**

(1) Note that all roads traveled by construction vehicles are on paved surface except for the last 500 feet (0.1 mile) where the vehicles are parked. Speed sign will be posted here to limit speed to less than 15 MPH.

(2) Total unit trips is the sum of round trip per vehicle type over the life of the project

(3) From ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997)

Table 3-6 - Earth Handling Emissions

Parameters	Data Source	Value
U Mean Wind Speed (MPH)	2002/2003 Gregory Canyon Met Data	4.80
M Soil Moisture (%)	Geotechnical report referenced 17%	15.0
D Soil Density (TCY)	Used 125 lb/ft3 based on Geotechnical Report Info	1.688
N Number of Drops		4
Dust Control Efficiency	Assume 50% for watering	0.50
EFS (lb/CY)	AP-42 Equation for Soil Handling Emissions [1]	0.000213
Area Disturbed (Acre)	Site is 8.4, use 10 to be conservative	10.00
Depth of Disturbance (ft)	Difference in elevation for the site is 40 feet	20.00
Volume Disturbed (CY)		322,666
Turnover Cycle (days)	Duration to handle estimated amount	5
Avg Daily Disturbance (CY)		64,533
Avg Daily Emissions (lb)		**13.78**
Project Grading Duration (days)		15
Project PM Emissions		**206.6**

[1] Equation from EPA AP-42 Chapter 13, Section 13.2.4

EXHIBIT 8-1

AIR MODELING RESULTS FOR THE CONSTRUCTION PHASE

Exhibit 8-1 Air Modeling Results for the Construction Phase

Modeling for the construction period is conducted with the revised construction emissions presented in Exhibit 3-1. The highest amount of emissions resulting from onsite activity is during the site preparation (grading) period. Short term emission modeling is therefore based on the maximum daily emissions during this period. Long term (i.e. annual) emission modeling is based on onsite emissions calculated over the entire construction period.

AERMOD is used for conducting emission modeling. The same 2002 and 2003 Gregory Canyon meteorological data and terrain data were used. 100 meters grids were assigned to the property boundary and out to 1,500 meters as shown in Figure 8-2. The construction schedule is set for 8:00 AM to 6:00 PM, with the likely grading period to occur any time from February to September. Ozone limiting method (OLM) is applied on NO emissions.

Modeling for the construction phase includes on-site sources only and excludes activities relating to off-site linear construction. All fugitive and combustion sources were modeled as volume sources as requested. The combustion sources are grouped into four (4) volume sources (COMB1 – COMB4). Thirteen (13) earth moving equipment are estimated at the site during the site preparation period. Thirteen (13) fugitive dust volume sources (FUG01 – FG13) are therefore randomly placed as shown in Figure 8-1 throughout the four combustion volume source quadrants. The release heights of the fugitive sources are all set to 3 meters based on the average of a maximum fugitive source height of six (6) meters and the ground. Initial lateral dimension of the fugitive sources of 13.95 meters is based on the length of side movement (30 meters) divided by 2.15. The initial vertical dimension of 2.79 meters was based on the maximum vertical dimension (6 meters) of the source divided by 2.15. The source location and parameters are shown in Tables 8-2 to 8-4.

The modeling results are summarized below for the construction phase. Table 8-5 presents the 1st to the 4th highest predicted results for each pollutant and modeling at each averaging period.

Table 8-1 – Modeling Results for the Construction Period

Pollutant	Averaging Time	2002 µg/m^3	2003 µg/m^3	Background µg/m^3	Total µg/m^3	CAAQS	NAAQS
NO_2	1 HR	273.6	326.9	150.5	477.4	338	-
NO_2	Annual	17.8	17.1	33.9	51.7	56	100
CO	1 HR	130.1	155.5	7,214	7,370	23,000	40,000
CO	8 HR	21.7	27.7	4,135	4,163	10,000	10,000
SO_2	1 HR	0.43	0.51	110	110.5	655	-
SO_2	3 HR	0.15	0.25	52.4	52.7	-	1,300
SO_2	24 HR	0.007	0.007	23.6	23.6	105	365
SO_2	Annual	0.016	0.016	10.5	10.5	-	80
PM_{10}	24 HR	17.5	16.3	57.0	74.5	50	150
PM_{10}	Annual	3.96	4.12	27.5	31.6	20	-
$PM_{2.5}$	24 HR	2.3	2.5	67.3	69.8	-	35
$PM_{2.5}$	Annual	1.59	1.49	14.1	15.7	12	15

Table 8-2 – Modeling Results for the Construction Period

Source Description	Source ID	UTM NAD 27 Easting (m)	UTM NAD27 Northing (m)	Base Elevation (m)	Release Height (m)	Horizontal Dimension (m)	Vertical Dimension (m)
Combustion	COMB01	489740	3690965	130	10	41.40	2.79
	COMB02	489823	3690962	125	10	41.40	2.79
	COMB03	489734	3690878	122	10	41.40	2.79
	COMB04	489825	3690879	118	10	41.40	2.79
Fugitive Sources	FUG01	489713	3690848	120	3	13.95	2.79
	FUG02	489713	3690929	127	3	13.95	2.79
	FUG03	489835	3690933	122	3	13.95	2.79
	FUG04	489831	3690865	117	3	13.95	2.79
	FUG05	489807	3690982	128	3	13.95	2.79
	FUG06	489711	3690899	124	3	13.95	2.79
	FUG07	490951	3690898	118	3	13.95	2.79
	FUG08	489804	3690896	121	3	13.95	2.79
	FUG09	489841	3690990	125	3	13.95	2.79
	FUG10	489772	3690948	127	3	13.95	2.79
	FUG11	489754	3690979	131	3	13.95	2.79
	FUG12	489755	3690889	123	3	13.95	2.79
	FUG13	489704	3690990	134	3	13.95	2.79

Table 8-3 – Onsite Construction Equipment Combustion Emission Rates (Each Source, COMB01 – COMB04)

Averaging Period	CO (lb/hr)	NOx (lb/hr)	SOx (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (1) (lb/hr)
1 Hour	3.02	6.35	0.005	-	-
3 Hour	-	-	0.005	-	-
8 Hour	3.02	-	-	-	-
24 Hour	-	-	0.002	0.102	0.09
Annual	-	0.180	0.0002	0.012	0.01

(1) Approximately 92% of PM_{10} emissions are $PM_{2.5}$ for off-road diesel combustion sources (SCAQMD - Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology)

Table 8-4 – Onsite Construction Equipment Fugitive Emission Rates (FUG01 – FUG13)

Source ID	24-Hour PM10 (lb/hr)	Annual PM10 (lb/hr)	24-Hour PM2.5 (lb/hr)	Annual (1) PM2.5 (lb/hr)
FUG01	1.060	0.070	0.223	0.0146
FUG02	1.060	0.070	0.223	0.0146
FUG03	1.060	0.070	0.223	0.0146
FUG04	1.060	0.070	0.223	0.0146
FUG05	1.060	0.070	0.223	0.0146
FUG06	1.060	0.070	0.223	0.0146
FUG07	1.060	0.070	0.223	0.0146
FUG08	1.060	0.070	0.223	0.0146
FUG09	1.060	0.070	0.223	0.0146
FUG10	1.060	0.070	0.223	0.0146
FUG11	1.060	0.070	0.223	0.0146
FUG12	1.060	0.070	0.223	0.0146
FUG13	1.060	0.070	0.223	0.0146

(1) Approximately 21% of PM_{10} emissions are $PM_{2.5}$ for unpaved surfaces (SCAQMD - Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology)

Figure 8-1 – Source Location

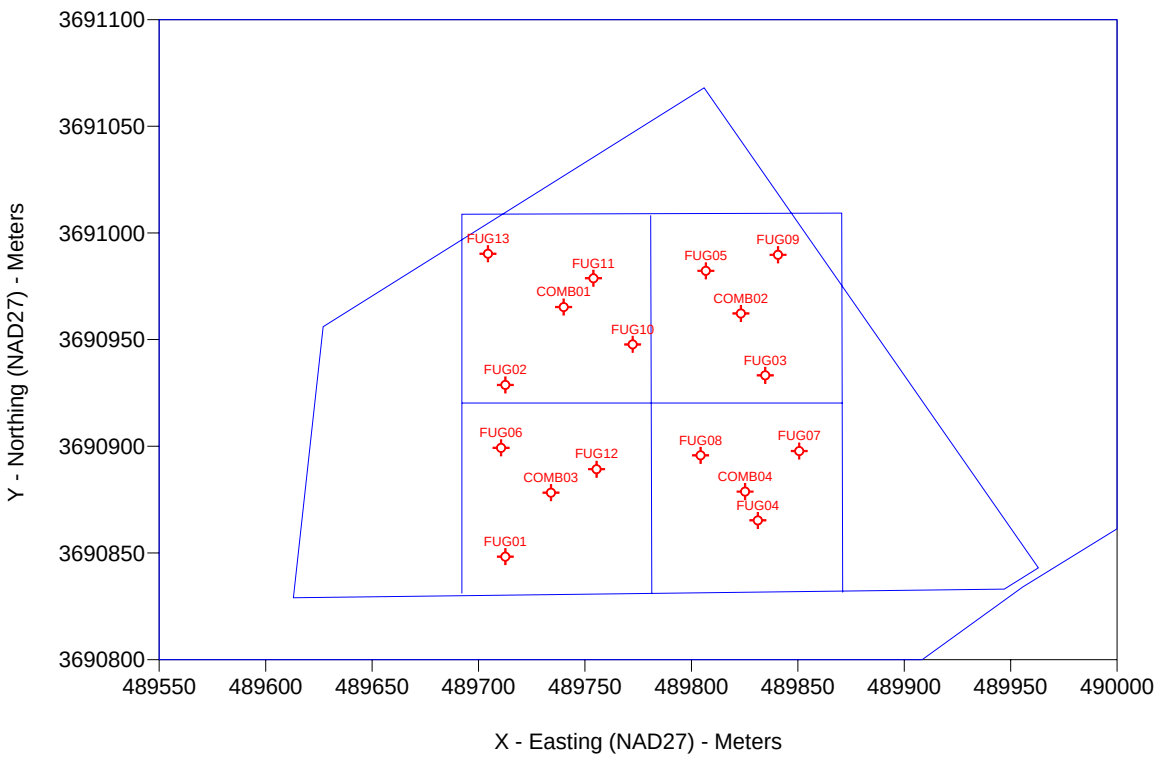


Figure 8-2 – Receptor Grids

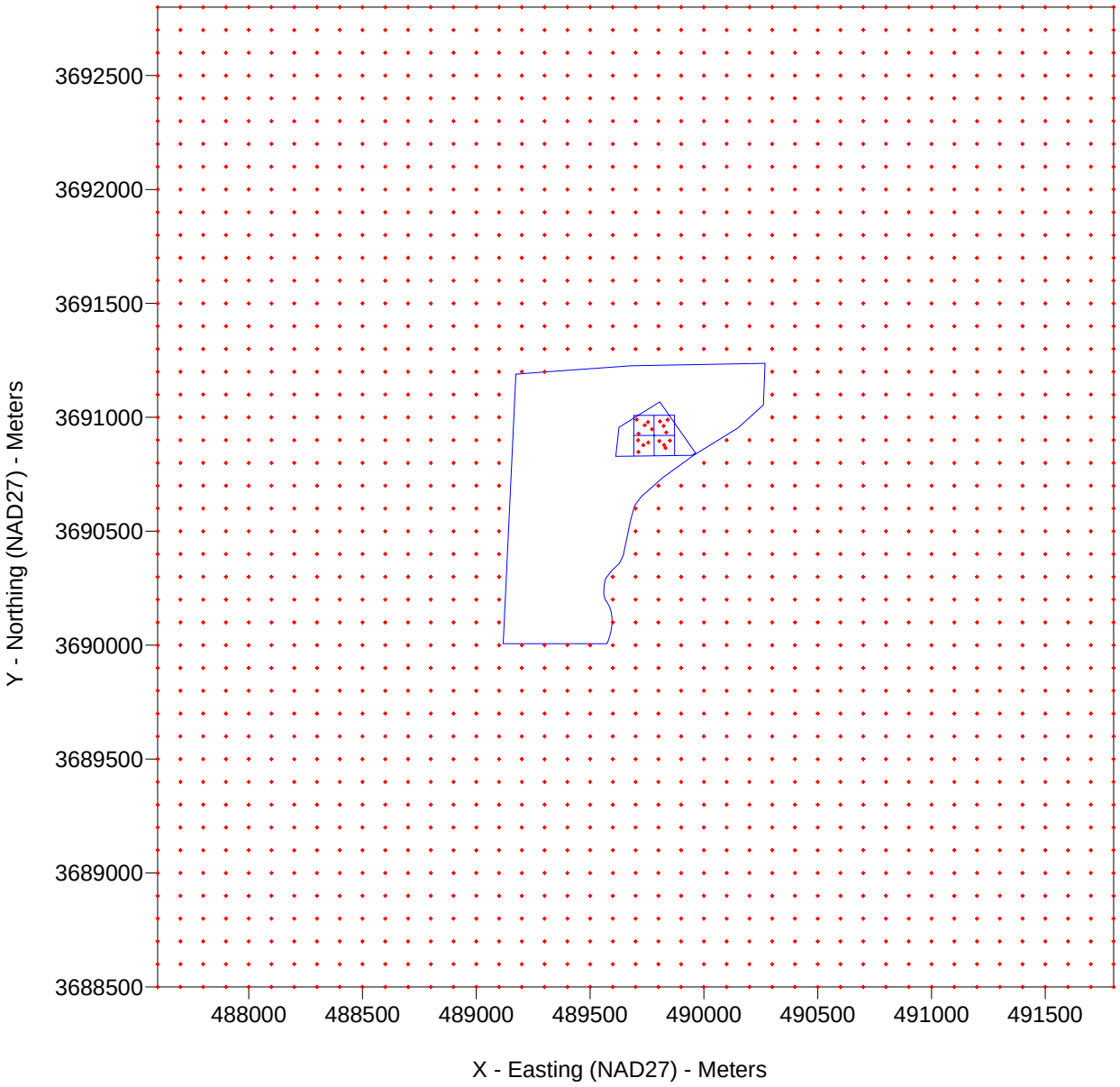


Table 8-5 – Summary of Modeling Results (Construction Phase)

Average	Pol	Met File	Rank	Conc.	East(X)	North(Y)	Elev	Time YYMMDDHH
1-HR	CO	2002	1ST	130.13	490,300	3,691,200	126	02030708
			2ND	77.40	490,300	3,691,300	137	02030708
			3RD	64.80	490,400	3,691,300	126	02021418
			4TH	59.57	490,300	3,691,200	126	02021218
		2003	1ST	155.48	489,700	3,691,300	175	03031408
			2ND	95.48	491,300	3,690,700	131	03021408
			3RD	72.74	490,300	3,691,200	126	03020718
			4TH	68.49	490,300	3,691,200	126	03030718
	NOX	2002	1ST	273.61	490,300	3,691,200	126	02030708
			2ND	162.75	490,300	3,691,300	137	02030708
			3RD	136.25	490,400	3,691,300	126	02021418
			4TH	125.26	490,300	3,691,200	126	02021218
		2003	1ST	326.92	489,700	3,691,300	175	03031408
			2ND	200.75	491,300	3,690,700	131	03021408
			3RD	152.94	490,300	3,691,200	126	03020718
			4TH	144.02	490,300	3,691,200	126	03030718
	SO2	2002	1ST	0.43	490,300	3,691,200	126	02030708
			2ND	0.26	490,300	3,691,300	137	02030708
			3RD	0.21	490,400	3,691,300	126	02021418
			4TH	0.20	490,300	3,691,200	126	02021218
		2003	1ST	0.51	489,700	3,691,300	175	03031408
			2ND	0.32	491,300	3,690,700	131	03021408
			3RD	0.24	490,300	3,691,200	126	03020718
			4TH	0.23	490,300	3,691,200	126	03030718
3-HR	SO2	2002	1ST	0.15	490,300	3,691,200	126	02030709
			2ND	0.11	489,800	3,690,700	105	02032712
			3RD	0.11	489,800	3,690,700	105	02062809
			4TH	0.11	489,800	3,690,700	105	02081709
		2003	1ST	0.25	489,600	3,691,300	173	03031409
			2ND	0.13	489,800	3,690,700	105	03020515
			3RD	0.12	489,800	3,690,700	105	03030215
			4TH	0.11	489,800	3,690,700	105	03020518
8-HR	CO	2002	1ST	21.69	490,300	3,691,200	126	02030708
			2ND	17.99	490,100	3,690,900	105	02081816
			3RD	17.62	490,100	3,690,900	105	02051916
			4TH	16.91	490,100	3,690,900	105	02062716
		2003	1ST	27.70	490,000	3,690,800	102	03021416
			2ND	21.93	489,800	3,690,700	105	03022716
			3RD	20.92	490,100	3,690,900	105	03072216
			4TH	19.59	490,100	3,690,900	105	03092416
24-HR	PM10	2002	3RD	17.52	490,300	3,691,200	126	02020524
		2003	3RD	16.34	490,300	3,691,200	126	03022224
	PM2.5	2002	8TH	2.29	490,300	3,691,100	110	02021024
		2003	8TH	2.50	490,100	3,690,900	105	03080124
	SO2	2002	1ST	0.01	490,100	3,690,900	105	02022724
			2ND	0.01	490,100	3,690,900	105	02061424
			3RD	0.01	490,100	3,690,900	105	02040324
			4TH	0.01	490,100	3,690,900	105	02081824
		2003	1ST	0.01	489,800	3,690,700	105	03020524
			2ND	0.01	490,100	3,690,900	105	03072124
			3RD	0.01	490,100	3,690,900	105	03082224
			4TH	0.01	490,100	3,690,900	105	03021424
ANNUAL	NOX	2002	1ST	17.76	490,300	3,691,300	137	1 YRS
		2003	1ST	17.15	490,300	3,691,300	137	1 YRS
	PM10	2002	1ST	3.96	489,800	3,690,700	105	1 YRS
		2003	1ST	4.12	489,800	3,690,700	105	1 YRS
	PM2.5	2002	1ST	1.59	490,300	3,691,200	126	1 YRS
		2003	1ST	1.49	490,300	3,691,200	126	1 YRS
	SO2	2002	1ST	0.02	490,300	3,691,300	137	1 YRS
		2003	1ST	0.02	490,300	3,691,300	137	1 YRS

EXHIBIT 14-1

TURBINE SYSTEM AND EXHAUST PROFILE

AT 100%, 75% AND 50% LOADS

Estimated Average Engine Performance NOT FOR GUARANTEE, REFER TO PROJECT F&ID FOR DESIGN

GE Energy

Performance By: **Larry Salguero**
Project Info:

Engine: **LM6000 PC-SPRINT w/ FIGV at -5 Degrees**
Deck Info: **G0125O - 8fk.scp** **09/25/2007**
Generator: **MEID 800LL04 60Hz, 13.8kV, 0.8PF (14849)** **9:13:43 AM**
Fuel: **Site Gas Fuel#900-1664, 20581 Btu/lb,LHV** **3.5.18**

Case #	**100**	**101**	**102**	**103**
Ambient Conditions				
Dry Bulb, °F	86.0	86.0	86.0	86.0
Wet Bulb, °F	70.5	70.5	70.5	70.5
RH, %	47.1	47.1	47.1	47.1
Altitude, ft	410.0	410.0	410.0	410.0
Ambient Pressure, psia	14.480	14.480	14.480	14.480
Engine Inlet				
Comp Inlet Temp, °F	46.0	86.0	86.0	86.0
RH, %	95.0	47.0	47.0	47.0
Conditioning	CHILL	NONE	NONE	NONE
Tons or kBtu/hr	1479	0	0	0
Pressure Losses				
Inlet Loss, inH20	5.00	5.00	5.00	5.00
Volute Loss, inH20	4.00	4.00	4.00	4.00
Exhaust Loss, inH20	12.00	12.00	12.00	12.00
kW, Gen Terms	**50269**	**37703**	**25135**	**15000**
Est. Btu/kW-hr, LHV	**8542**	**9048**	**10171**	**12778**
Fuel Flow				
MMBtu/hr, LHV	429.4	341.1	255.6	191.7
lb/hr	20863	16575	12421	9313
NOx Control	**Water**	**Water**	**Water**	**Water**
Water Injection				
lb/hr	19955	13137	10629	6237
Temperature, °F	100.0	100.0	100.0	100.0
SPRINT	**LPC**	**LPC**	**OFF**	**OFF**
lb/hr	8287	8755	0	0
Control Parameters				
HP Speed, RPM	10435	10366	10057	9719
LP Speed, RPM	3600	3600	3600	3600
PS3 - CDP, psia	457.6	386.5	320.8	261.5
T3CRF - CDT, °F	970	972	966	885
T48IN, °R	2038	1982	1885	1771
T48IN, °F	1578	1522	1425	1312
Exhaust Parameters				
Temperature, °F	840.7	844.4	818.4	789.8
lb/sec	297.2	254.8	218.3	184.0
lb/hr	1069986	917303	785986	662263
Energy, Btu/s- Ref 0 °R	100244	86211	71441	58392
Energy, Btu/s- Ref T2 °F	62370	51128	41703	33474
Cp, Btu/lb-R	0.2774	0.2774	0.2727	0.2697
Emissions (NOT FOR USE IN ENVIRONMENTAL PERMITS)				
NOx ppmvd Ref 15% O2	25	25	25	25
NOx as NO2, lb/hr	43	34	26	19
CO ppmvd Ref 15% O2	18	6	10	9
CO, lb/hr	18.37	5.37	6.00	4.13
CO2, lb/hr	56143.57	44644.87	33518.88	25166.75
HC ppmvd Ref 15% O2	2	2	2	2
HC, lb/hr	1.25	0.99	0.75	0.56
SOX as SO2, lb/hr	0.00	0.00	0.00	0.00

EXHIBIT 14-1

Estimated Average Engine Performance NOT FOR GUARANTEE, REFER TO PROJECT F&ID FOR DESIGN

GE Energy

Performance By: **Larry Salguero**
Project Info:

Engine: **LM6000 PC-SPRINT w/ FIGV at -5 Degrees**
Deck Info: **G0125O - 8fk.scp** **09/25/2007**
Generator: **MEID 800LL04 60Hz, 13.8kV, 0.8PF (14849)** **9:13:43 AM**
Fuel: **Site Gas Fuel#900-1664, 20581 Btu/lb,LHV** **3.5.18**

Case #	**100**	**101**	**102**	**103**
Maximum Emissions				
NOx ppmvd Ref 15% O2	**25**	**25**	**25**	
NOx as NO2, lb/hr	**43**	**34**	**26**	
CO ppmvd Ref 15% O2	**42**	**16**	**16**	
CO, lb/hr	**43.59**	**12.96**	**9.70**	
HC ppmvd Ref 15% O2	**10.00**	**10.00**	**10.00**	
HC, lb/hr	**6.00**	**4.77**	**3.57**	
VOC ppmvd Ref 15% O2	**2.00**	**2.00**	**2.00**	
VOC, lb/hr	**1.20**	**0.95**	**0.71**	
PM10, lb/hr	**2.70**	**2.70**	**2.70**	
Exh Wght % Wet (NOT FOR USE IN ENVIRONMENTAL PERMITS)				
AR	1.2207	1.2186	1.2346	1.2421
N2	71.5931	71.4683	72.4040	72.8388
O2	14.5059	15.0124	16.1600	16.9572
CO2	5.2471	4.8670	4.2646	3.8001
H20	7.4285	7.4304	5.9338	5.1592
SO2	0.0000	0.0000	0.0000	0.0000
CO	0.0017	0.0006	0.0008	0.0006
HC	0.0001	0.0001	0.0001	0.0001
NOX	0.0028	0.0026	0.0022	0.0020
Exh Mole % Dry (NOT FOR USE IN ENVIRONMENTAL PERMITS)				
AR	0.9674	0.9649	0.9606	0.9574
N2	80.9022	80.6939	80.3282	80.0627
O2	14.3511	14.8398	15.6963	16.3182
CO2	3.7744	3.4980	3.0117	2.6589
H20	0.0000	0.0000	0.0000	0.0000
SO2	0.0000	0.0000	0.0000	0.0000
CO	0.0019	0.0007	0.0008	0.0007
HC	0.0002	0.0002	0.0002	0.0002
NOX	0.0028	0.0026	0.0022	0.0019
Exh Mole % Wet (NOT FOR USE IN ENVIRONMENTAL PERMITS)				
AR	0.8557	0.8535	0.8713	0.8798
N2	71.5609	71.3814	72.8685	73.5746
O2	12.6941	13.1272	14.2387	14.9958
CO2	3.3386	3.0943	2.7320	2.4434
H20	11.5464	11.5405	9.2864	8.1038
SO2	0.0000	0.0000	0.0000	0.0000
CO	0.0017	0.0006	0.0008	0.0006
HC	0.0002	0.0002	0.0002	0.0001
NOX	0.0025	0.0023	0.0020	0.0018

Aero Energy Fuel Number	**900-1664 (60-0307Average HHV)**	
	Volume %	**Weight %**
Hydrogen	0.0000	0.0000
Methane	96.3900	92.0043
Ethane	1.4300	2.5583
Ethylene	0.0000	0.0000
Propane	0.2600	0.6821
Propylene	0.0000	0.0000
Butane	0.1000	0.3458
Butylene	0.0000	0.0000
Butadiene	0.0000	0.0000
Pentane	0.0300	0.1288
Cyclopentane	0.0000	0.0000
Hexane	0.0200	0.1025
Heptane	0.0000	0.0000
Carbon Monoxide	0.0000	0.0000
Carbon Dioxide	1.2900	3.3780
Nitrogen	0.4800	0.8001
Water Vapor	0.0000	0.0000
Oxygen	0.0000	0.0000
Hydrogen Sulfide	0.0000	0.0000
Ammonia	0.0000	0.0000
Btu/lb, LHV	20581	
Btu/scf, LHV	914	
Btu/scf, HHV	1013	
Btu/lb, HHV	22821	
Fuel Temp, °F	77.0	
NOx Scalar	0.978	
Specific Gravity	0.58	

EXHIBIT 14-1

Estimated Average Engine Performance NOT FOR GUARANTEE, REFER TO PROJECT F&ID FOR DESIGN

GE Energy

Performance By: **Larry Salguero**
Project Info:

Engine: **LM6000 PC-SPRINT w/ FIGV at -5 Degrees**
Deck Info: **G0125O - 8fk.scp** **09/25/2007**
Generator: **MEID 800LL04 60Hz, 13.8kV, 0.8PF (14849)** **9:13:43 AM**
Fuel: **Site Gas Fuel#900-1664, 20581 Btu/lb,LHV** **3.5.18**

Case #	**100**	**101**	**102**	**103**
Engine Exhaust				
Exhaust Avg. Mol. Wt., Wet Basis	28.0	28.0	28.2	28.3
Exhaust Flow, ACFM	595551	512439	427045	350478
Exhaust Flow, SCFM	227832	195845	166695	139843
Exhaust Flow, Btu/lb	337	338	327	317
Exhaust Flow, Calories/s	25261514	21725060	18003028	14714724
Inlet Flow Wet, pps	287.3	260.2	251.6	257.9
Inlet Flow Dry, pps	285.5	256.9	248.4	254.7
Shaft HP	68635	51610	34622	20965
Generator Information				
Capacity kW	51109	51109	51109	51109
Efficiency	0.982	0.980	0.974	0.959
Inlet Temp, °F	86.0	86.0	86.0	86.0
Gear Box Loss	N/A	N/A	N/A	N/A
TRQ48, Torque Limit Cold End	122574	96116	72146	51342
Correct Control Parameters				
PS3JQA, psia	463.381	391.383	324.853	264.804
XN25R3, rpm	6303	6269	6081	6028
8th Stage Bleed				
Flow, pps	0.0	0.0	0.0	0.0
Pressure, psia	0.000	0.000	0.000	0.000
Temperature, °R	0	0	0	0
CDP Bleed				
Flow, pps	0.0	0.0	0.0	0.0
Pressure, psia	0.000	0.000	0.000	0.000
Est. Gas Pressure at Baseplate, psig	**599.4**	**497.9**	**401.9**	**322.0**
CardPack	**8fk**	**8fk**	**8fk**	**8fk**
Exhaust CardPack	**7f5**	**7f5**	**7f5**	**7f5**
NSI	**304**	**0**	**439**	**439**
NSI	**1716**	**0**	**0**	**0**
NSI	**0**	**0**	**0**	**0**

EXHIBIT 14-1

EXHIBIT 15-1

SCR SPECIFICATIONS

PROPOSAL P-07113 /R1

TO:

INDUSTRIAL CONSTRUCTION COMPANY

CLEVELAND, OH

FOR

SCR/CO CATALYST SYSTEMS
LM-6000 TURBINE

ORANGE GROVE, CA

SEPTEMBER 05, 2007

Turner EnviroLogic

1140 S.W. 34th Avenue
Deerfield Beach, FL 33442
(800) 933-8385 (954) 422-9787
Fax: (954) 422-9723

EXHIBIT 15-1

I. INTRODUCTION

Turner EnviroLogic, Inc. is pleased to submit this revised proposal for two (2) SCR catalyst systems. These will install in the Orange Grove, CA area. Each system is designed to control NO_x and CO from LM-6000 turbine exhaust gases. This is accomplished through the use of ammonium hydroxide injection upstream of a catalytic reactor to reduce the NO_x to nitrogen. Prior to the NO_x catalyst, a layer of CO catalyst reduces CO levels as well.

Each SCR/CO system offered herein is a complete modular unit. Each system is pre-wired and pre-piped in as much as possible prior to shipment to reduce field efforts.

Each SCR/CO system has been designed using proven technology developed by Turner EnviroLogic, coupled with our experience in air pollution control, our knowledge of plant operations, and our understanding of environment regulations.

This proposal has been revised as requested by e-mail of August 28, 2007. These changes include changes to stack height, elimination of silencing, and confirmation of operating parameters.

The systems have been quoted as specified. Options and alternates have been presented for consideration. We will be happy to review our offering and the various options.

This proposal is intended to provide sufficient information for evaluation and establishment of a contract. Additional information will be provided during the engineering phases of the project.

EXHIBIT 15-1

Turner EnviroLogic, Inc. appreciates the opportunity to submit this proposal and looks forward to a successful completion of this project.

Submitted by:
Turner EnviroLogic, Inc.

Thomas K. Turner, P.E.
President

EXHIBIT 15-1

II. SYSTEM DESCRIPTION
SCR/CO CATALYST SYSTEM

The selective catalytic reduction/carbon monoxide (SCR/CO) system specified in this budgetary proposal are designed to control the NO_x and CO emissions from a natural gas fuel and low sulfur fuel oil turbine. This system uses ammonium hydroxide injection and catalysts to reduce the NO_x to nitrogen and oxidize the CO and CO_2.

The process air stream exhausts from the turbine at a temperature of 755° F-856°F. An inlet section, with expansion joint and straightening vanes provides even flow distribution for optimum performance. The turbine exhaust temperature exceeds the normal operating temperature range for the catalyst, therefore dilution air must be added to the system in order to cool the system down to an operating temperature of approximately 800°F.

After passing through the straightening vanes, the gases pass through a silencing section. Acoustic baffles reduce sound levels. After the silencer, the gases are introduced into the CO catalyst bed. In this bed, an oxidization catalyst serves to destruct CO and hydrocarbons. This is accomplished without chemical addition, using a precious metal catalyst.

Following the CO catalyst section, the gases enter the NO_x reduction section of the system. Ammonia is provided in vapor form from the ammonia skid. This skid is equipped with redundant blowers and waste heat vaporization. This uses hot exhaust gases to vaporize the ammonia. A slip stream of hot gas is drawn off near the SCR inlet and used to vaporize a liquid ammonia solution. This ammonia vapor is then introduced into the air stream via an ammonia injection grid to maximize ammonia contact with the turbine exhaust gases and distribute the mixture.

EXHIBIT 15-1

An injection blower is designed to provide continuous hot air flow to maintain uniform mixing. Manifold and headers are used to assure even distribution of the ammonia gas. The exhaust gases then pass through the NO_x reduction catalyst, where NO_x is reduced to elemental nitrogen and water vapor.

Following the catalyst section, the exhaust gas is discharged through the stack. Test ports are provided, with platform, for emission testing.

EXHIBIT 15-1

III. DESIGN PARAMETERS

The SCR/CO systems proposed are based on the following design criteria:

Process	GE LM 6000 PC sprint turbines
Turbine Rating	45 MW
Exhaust Flow (lb/hr)	848,645-1,098,758
Temperature (° F)	755° - 856°
NO_x , ppmvd @ 15% O_2	25
CO, ppmvd @ 15% O_2	8-49
Reagent	19% Ammonia Solution
Wind Speed	80 mph
Exposure	C
Seismic	Zone 4

EXHIBIT 15-1

IV. EQUIPMENT AND SERVICES

We propose to provide selective catalytic reduction/carbon momoxide (SCR/CO) system to reduce NO_x and CO emissions. This SCR/CO system includes the following equipment:

• Expansion Joints	All welded steel bellows design. Includes flanged connections and internal insulations.
• Inlet Section	Initial transition section, including flow redistribution vanes.
• CO Catalyst Section	All welded housing with catalyst support frames and access doors. Housing to be fiber lined for heat retention. Housing designed to allow easy installation and replacement of catalyst from side of housing.
• CO Catalyst	Precious metals catalyst (Platinum/ Palladium) on metal monolith substrate.

EXHIBIT 15-1

• Cooling Fans	An injection system for gas conditioning with controls two (2) 100% capacity flue gas cooling air fans. (Note that one fan will be a spare fan). Fans equipped with silencers.
• Skid	Structural skid for pre-mounting of ammonia vaporizer and injection fan, pumps, and other components. All controls will be wired to a single junction box, with terminal strip matching control panel strip, for ease of field installation.
• Ammonia Vaporizer	Skid mounted vaporizer system, utilizing waste heat. Includes air atomizing ammonia nozzle; ammonia pumps (2); vaporization chamber; and injection fans (2) with pipe.
• Injection Fan (2)	Heavy duty IAP radial blade fans, one operating and one standby. Fans are constructed using stainless steel for all wetted parts. Fans are insulated and jacketed with welded carbon steel jacket. Includes heat slinger, and belt driven TEFC motor.

EXHIBIT 15-1

• Piping	Connecting pipe, and fittings between the AIG skid on the ammonia injection header.
• Ammonia Injection Grid	Injection system using proprietary headers designed for even distribution of ammonia prior to catalyst contact. Includes primary manifold and distribution plenums. Proprietary system eliminates balancing valves.
• Control Panel	All items to be contained in NEMA 12 enclosure. Control panel shall include controls, including pump motor starters, draft control, and ammonia metering controls. Includes PLC, and touch screen panel.
• Transitions	All welded transition duct to connect expansion joint to catalyst housing, and catalyst housing stack. Construction is ¼" A-36, reinforced as required, and lined with ceramic fiber, mineral wool blanket and stainless steel liners.

EXHIBIT 15-1

• NO_x Catalyst and Housing	Ceramic based (Vanadium Titania) catalyst for NO_x reduction. Housing is all welded steel construction for air tight operation. Unit is flanged for assembly, and includes all required connections. Catalyst access panels and support frames to allow removal of catalyst.
• Insulation	Catalyst housing, transitions and ductwork internally insulated with 1" ceramic fiber and 2" mineral wool. Stainless steel retainer installed over fiber on walls, and floor.
• Purge Fans	Two (2) 5 HP roof mounted high temp fans for continuous purge when off line.
• Stack	Freestanding steel stack, of A-36 construction. Stack to have 12' outlet diameter by 80' tall and is complete with anchor base ring, flanged inlet and test ports. Stack to be painted to match SCR.

EXHIBIT 15-1

• Platform	Painted steel platform, with galvanized grating, cov covering 360° arc. Platform meets OSHA standards, and allows access to test ports, and CEMS ports.
• Ladder	Painted steel caged ladder from grade to platform. Designed to meet OSHA requirements. Includes safety gate at top of ladder.
• CFD Modeling	Computer flow modeling to verify flow, temperature, and ammonia mixing.
• Engineering	Includes development of P & ID, general arrangement, and detail drawings. All required connection information, along with loadings for foundation design, utility requirements, etc., shall be provided. Three sets of installation and operating instructions shall be provided along with priced spare parts lists and certified performance information.
• Installation Support	Onsite equipment installation supervision including all travel related expenses.

EXHIBIT 15-1

- Start-Up Support — Onsite equipment start-up supervision including all travel related expenses.

EXHIBIT 15-1

EQUIPMENT AND SERVICES TO BE PROVIDED BY OTHERS

The following items are not included under the scope of this proposal and shall be furnished by the purchaser or others of his choice:

1. Mechanical installation.
2. Electrical hook-up, including power regulation.
3. All permits or special clearances required by any government agency, including air pollution permits, local building permits, construction permits, etc.
4. Taxes, including sales and use taxes for all components, labor and services to be provided as a part of this contract.
5. Fire sprinklers or other fire protection devices which may be required.
6. Demolition and/or removal of any existing equipment, structures and concrete.
7. Foundations and concrete work.
8. Performance and/or compliance testing.
9. Final field painting or touch-up on shop painted equipments.
10. Labor, material, and equipment necessary for the loading, storage, and the installation of the equipment at the job site.
11. Ammonia tank and unloading station.
12. CEMS Systems
13. Control room and other enclosures.
14. Ammonia tank.
15. Silencers and other sound reduction.
16. All other items not specifically authorized herein.

EXHIBIT 15-1

V. PERFORMANCE DATA

Performance data have been calculated based upon the design developed for this facility. These data are based upon operating conditions as outlined in the original inquiry. Accordingly, performance data are estimated as follows:

SYSTEM INLET CONDITIONS

Turbine	GE LM6000 sprint
Capacity	45 MW
Exhaust Flow Rate	236-305 lb/sec
Exhaust Flow Rate	848,645 - 1,098,758 lb/hr
Air Volume	188,588 - 244,169 scfm
Temperature	755° F - 856°F

DESIGN PARAMETERS

SCR Air Volume	188,588 - 244,169 scfm
Cooling Air	3209 - 15087 scfm
Diluted Air Volume	203,675 - 250,819 scfm
SCR Air Temperature	800° F
NO_x	25 ppmvd
CO	8-49 ppmvd
NO_x Reduction Efficiency	90%
CO Reduction Efficiency	88%
Reagent	19% by weight, dilute ammonia solution

EXHIBIT 15-1

SCR/CO PERFORMANCE

	Natural Gas
NO_x Emissions	2.5 ppmvd
CO Emissions	6 ppmvd
NH_3 Emissions	5 ppmvd
Pressure Drop of System	7.0 w.c.
NH_3 Injection Rate	9-12 gph
Compressed Air Consumption	20 scfm @ 100 psi
Injection Fan Power	7.6 BHP
Injection Fan Motor	10 HP
Cooling Fan Power	34BHP
Cooling Fan Motor	50 HP
Purge Fan Power	3 BHP*
Purge Fan Motor	5HP*
Controls	1.5KW
Maximum Operating Parasitic Load	32KW

* Operates when turbine is not running.

VI. PRICE AND COMMERCIAL TERMS

PRICE

The two (2) SCR/CO Reduction Systems described herein are offered for the price of :

VALIDITY

All prices quoted herein are valid for acceptance within 90 days after the date of this proposal.

FREIGHT

All prices are F.O.B. shipping point. Freight will be added at cost.

TAXES AND FEES

All taxes which may become due as a result of this project shall be the purchaser's responsibility. All sales and use taxes shall be paid by the end user. Any taxes paid on behalf of the purchaser shall be included with invoices for reimbursement at actual cost. The price does not include any fees, including air pollution permit fees, construction fees nor any other fees which may be assessed by a government entity at any level.

TERMS OF PAYMENT

Progress payments are required during execution of this project. Accordingly the following payment schedule has been developed:

10% with order

25% with approval drawings

25% 4 week after approval of drawings

30% of value of components as each delivered (including catalyst)

10% upon start-up (no more than 60 days from final shipment)

Initial payments, if indicated, are due with the purchase order and before work commences. Other invoices are payable at **Net 30 Days** unless otherwise indicated. A late charge of 1½% per month will apply to all unpaid balances.

SCHEDULE

Based upon current equipment and material availability, we anticipate that the first unit can be shipped within 18 weeks after receipt of order, per the following timetable.

EVENT	TIME	ELAPSED TIME
Receipt of purchase order	0	0
General arrangement drawings	2 weeks	2 weeks
Approval of drawings	1 week	3 weeks
Fabrication	14-16 weeks	17-19 weeks
Shipping	1-2 week	20-22 weeks

Add approximately 2 weeks for each additional unit

EXHIBIT 15-1

This schedule is based upon standard deliveries. It may be possible to reduce the schedule or alter it to fit the needs of the particular project, based upon understandings reached during final negotiation.

STARTUP, TRAINING, AND SERVICE TERMS

Unless otherwise noted, prices quoted do not include services. TEI shall provide service technicians, engineers, and other personnel if requested by the purchaser as required to support startup, training, and service of equipment and systems furnished. Personnel to support these functions can be provided at a per diem rate of $750 per day. Construction supervision assistance will be provided at a per diem rate of $600 per day. Travel days and stand-by time will be charged at 8 hours per day.

Travel occurring outside the normal 8 hour work day shall be billed at $50.00 per hour. Overtime in excess of 8 hours per day or 40 hours per week shall be charged 150% of the base rate. Likewise, work on Saturday and Sunday shall be at 150% of the base rate. Required work on holidays shall be at 200% of the base rate. When service extends over a period of weeks, personnel are returned to Deerfield Beach, Florida for a weekend every two weeks at customer's expense. All actual living, travel, and other related expenses associated with service shall be invoiced at actual cost plus 10% markup.

Turner EnviroLogic, Inc. shall be given the opportunity to be present during testing to ensure SCR/CO is operated in accordance with recommended operational parameters. All costs associated with this activity are included and made part of the Firm Fixed Price.

EXHIBIT 15-1

JURISDICTION

Contracts established based on this proposal shall be governed by laws of the State of Florida, venue Broward County. In the event of any dispute or legal actions as a result of this contract, the prevailing party shall be entitled to reasonable attorney's and legal expenses.

EXHIBIT 15-1

VII. GUARANTEE

Turner EnviroLogic, Inc. guarantees the system to be furnished under the terms of this proposal to provide NO_x and CO emissions control as specified. Accordingly, the guarantee for operation of this system is as follows:

Turner EnviroLogic, Inc. guarantees the SCR/CO units quoted herein to provide reduction of listed NO_x and CO as specified in the Performance Data section of this proposal. In the event the unit fails to perform at this level, Turner EnviroLogic, Inc. will at its expense, modify the system in order to cause it to meet this guarantee. Turner EnviroLogic, Inc. shall be given the opportunity to review the operation of the SCR/CO and the proposed test method prior to testing. Turner EnviroLogic, Inc. shall be given the opportunity to be present during testing to ensure SCR/CO is operated in accordance with recommended operational parameters.

This guarantee is based on emission data and operating parameters provided by customer. If conditions vary significantly from those represented, or if different constituents are present which affect the equipment or its operation, performance will be different.

EXHIBIT 15-1

VIII. WARRANTY

Turner EnviroLogic, Inc. warrants all labor and materials for one year after date of start-up, provided routine operating and maintenance procedures are followed per Turner EnviroLogic's operating and maintenance instructions. Turner EnviroLogic, Inc. will repair or replace, at its option, items which fail during the one year warranty period. THIS EXPRESS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESIGNATION ON THE FACE HEREOF. Replacement shall include freight to plant site.

The SCR/CO catalyst are warranted for 5 years or 25,000 operating hours, which ever comes first. The catalyst had an expected life cycle of 5 years when operated at 8760 hours per year. At reduced hours of the catalyst is expected to perform satisfactory for a longer period of time

Notification of suspected warranty problems must be made immediately upon their occurrence. Turner EnviroLogic, Inc. shall be provided access to the equipment during normal working hours to evaluate and assist in correction of any deficiencies which may exist.

EXHIBIT 15-1

Warranties for purchased items, such as instrumentation, controls, valves, etc. shall be extended by TEI to customer on the same basis as the warranty provided to TEI by the original equipment manufacturer. Upon notification of failure of such parts, TEI shall ship replacements to the appropriate facility. A memo invoice for the price of these replacement parts shall be issued by TEI to the facility. This invoice will be canceled upon return of the defective part so TEI can process such parts for its own credit as well.

Turner EnviroLogic, Inc. shall not be responsible for pluggage, corrosion, or other damage resulting from the introduction of materials or compounds not outlined in this proposal. Likewise, Turner EnviroLogic, Inc. shall not be responsible for a loss of capacity or excess utility usage as a result of buildup or deposits of materials not specifically addressed in this proposal

Turner EnviroLogic, Inc. will not be responsible for premature failure or damage resulting from the introduction or materials not identified by purchaser into equipment covered by this warranty. This includes materials which may plug, foul, corrode, degrade or otherwise attack components or alter system performance.

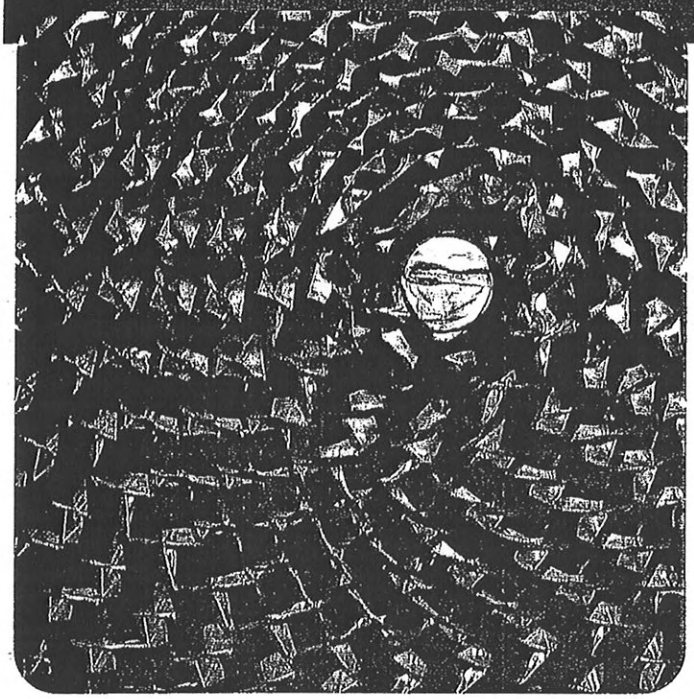
EXHIBIT 15-1

Turner EnviroLogic, Inc. will not be responsible for consequential damages. Turner EnviroLogic, Inc. will not be responsible, nor pay for repairs to the proposed system while under warranty, unless such repairs are authorized by Turner EnviroLogic, Inc. in writing prior to commencement of such repairs. Turner EnviroLogic, Inc. liability under this contract shall not exceed the contract amount.

EXHIBIT 15-1

ORANGE GROVE P.P.

Gas Turbine Oxidation Catalyst for the Control of CO and VOCs



CO

- Power Generation
- Steam Generation, Petrochemical and Refinery
- Waste-To-Energy

Performance

Johnson Matthey's oxidation catalysts are installed in some of the world's most environmentally challenging applications, consistently providing greater than 90% destruction of CO and Volatile Organic Compounds (VOC), formaldehyde, and other toxic compounds at temperatures that are typical of those found in gas turbine exhaust.

Our newly enhanced stainless steel monolith is coated with a variety of supported Platinum Group Metals (PGM) affording the highest possible catalytic activity. Designed specifically for gas turbine applications, our unique substrate foil combined with an optimized PGM catalyst coating, provides substantially improved performance over our standard oxidation catalyst by improving the mixing of exhaust gases. This high activity catalyst system provides high pollutant destruction with less catalyst volume resulting in lower backpressure. This equates to sizeable savings over the life of the turbine. The chart on the right illustrates the level of conversion achievable.

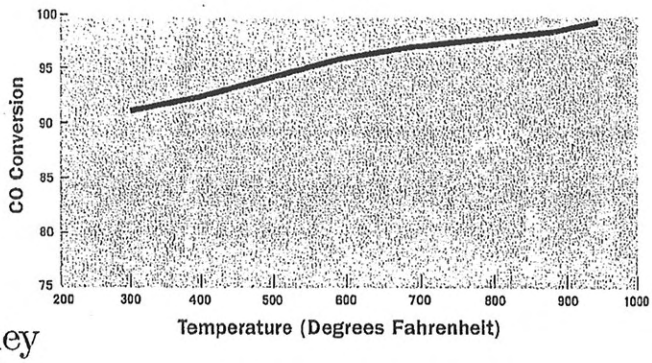
Regeneration and Refining

Johnson Matthey oxidation catalysts have an established durability of 10 or more years of continuous operation. Catalytic performance can be easily maintained and restored, if necessary, by washing. And at the end of the effective life of the catalyst, Johnson Matthey closes the loop at its West Deptford, NJ facility where spent catalyst can be refined for its recoverable value or disposed. Johnson Matthey also provides support during catalyst inspections, bed rotations, and partial bed replacements.

Dependability

Johnson Matthey has been supplying catalyst for stationary applications for over 15 years. We are committed to developing the highest quality product available. We have globally diversified our business and heavily invested in Research and Development, optimizing our technology and resources. Currently we are positioned to meet or exceed upcoming regulations making Johnson Matthey a dependable business partner.

Oxidation Catalyst Conversion

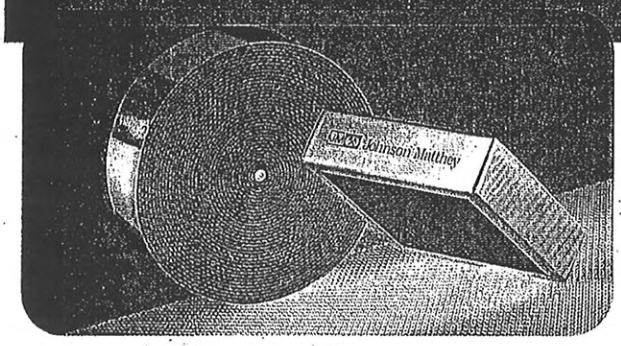


JM

Johnson Matthey
Catalytic Systems Division

EXHIBIT 15-1

Oxidation Catalyst for the Control of CO, VOC, HC



CO

- Turbines
- Boilers
- Burners/Process Heaters
- Reciprocating Engines

Performance

Johnson Matthey oxidation catalysts are installed in some of the world's most environmentally challenging applications, consistently providing up to 99% destruction of CO, VOCs, and hydrocarbon emissions. This catalyst is extremely effective in removing benzene, aromatic hydrocarbons, acrolein, formaldehyde, and other toxic compounds at temperatures that are typical of those found in engine exhaust.

Our stainless steel monolith is coated with a variety of supported Platinum Group Metals (PGM) affording the highest possible catalytic activity, durability and resistance to poisons, including sulfur. Because every installation is unique, Johnson Matthey offers a wide range of formulations in order to provide the most appropriate catalyst to meet your emission control requirements.

Utilization of our metal monoliths, which have a greater open area than ceramic substrates, results in decreased back pressure, improved energy efficiency, and a wider array of design options. The finished catalyst is assembled into panels easily conforming to your housing dimensions.

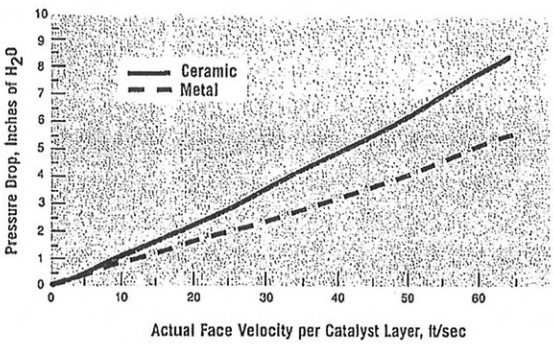
Regeneration and Refining

Johnson Matthey oxidation catalysts have an established durability of three or more years of continuous operation. Catalytic performance can be easily maintained and restored, if necessary, by washing. And at the end of the effective life of the catalyst, Johnson Matthey closes the loop at its West Deptford, NJ facility where spent catalyst can be refined for its recoverable value or disposed. Johnson Matthey also provides support during catalyst inspections, bed rotations, and partial bed replacements.

Dependability

Johnson Matthey has been supplying catalyst for stationary applications for over 15 years. We are committed to developing the highest quality product available. We have globally diversified our business and heavily invested in Research and Development, optimizing our technology and resources. Currently, we are positioned to meet or exceed upcoming regulations making Johnson Matthey a dependable business partner.

Pressure Drop of Monolithic Catalysts
Metal vs. Ceramic
200 Cells per Square inch



JM

Johnson Matthey
Catalytic Systems Division

VOC Destruction over JM Oxidation Catalyst

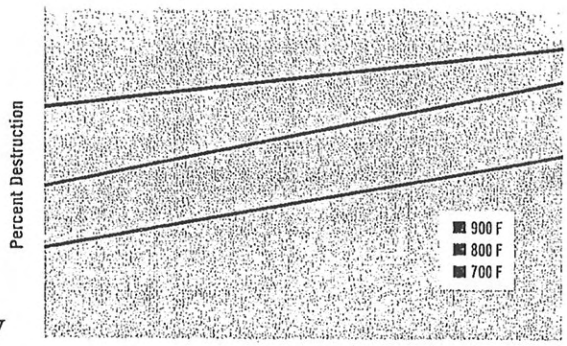


EXHIBIT 15-1

ORANGE GROVE P.P.

NOx

Topsøe DENOX Catalysts

DNX-Series

Product Specifications

DNX-620

DNX-620 is developed for use in installations where the demand to the activity is high, in the temperature range of 750 to 850 °F (400 to 450 °C). The NOx reduction is high while providing a high thermal stability. It can operate continuously at 875°F (465°C) with short time peaks up to 900°F (485°C).

The catalyst is of the low dust type.

Applications

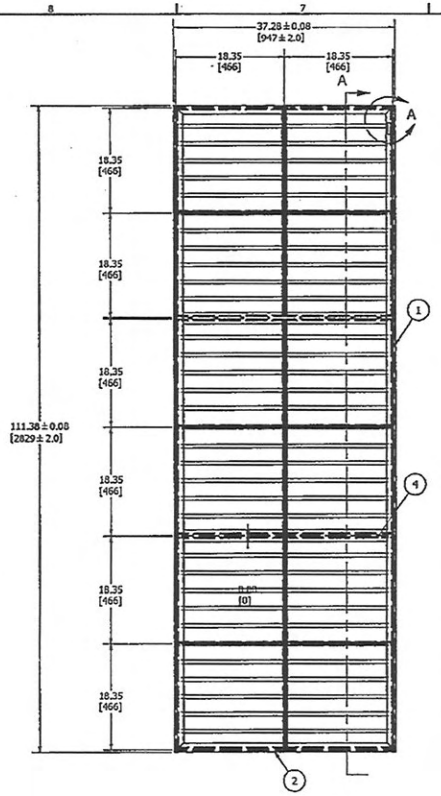
DNX-620 is normally used for installations operating primarily on a clean gas for example natural gas with some light oil as back-up. Typical example of use is in simple cycle gas turbine.

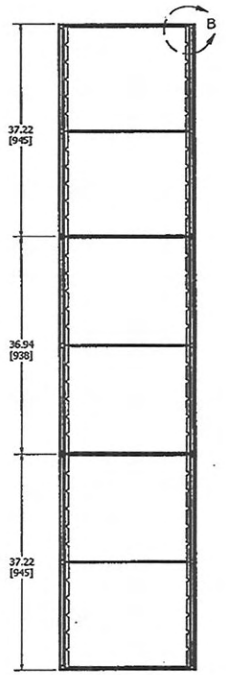
Physical and Chemical Properties

In the below table, the typical properties for the catalyst are given:

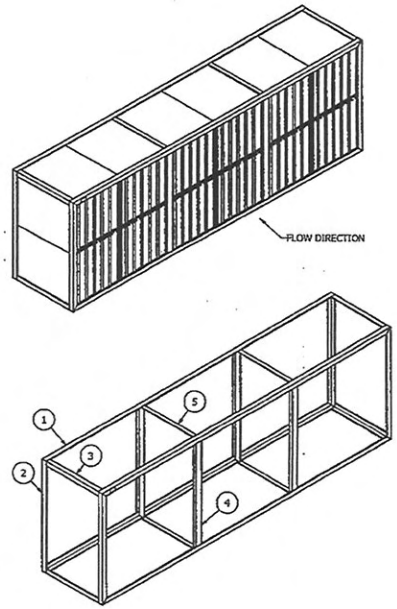
Application	
Dust Particulate Loading	<5 mg/Nm3
SO_2 concentration	Low
High temperature	Yes
Physical Properties	
Hydraulic Diameter, mm	2.75
Wall Thickness, mm	0.35
Corresponding Pitch, mm	3.1
Void, %	78
Specific Area, m^2/m^3	1140
Cells Per Square Inch, CPI	61.4
Chemical composition, %	
Vanadium Pentoxide	0-4
Tungsten Trioxide	2-4
Titanium Dioxide	80-90
Element A: 0.5 m Catalyst in Height	
Dimensions, H x W x L, mm	572 x 466 x 466
Weight, kg	41
Catalyst Volume, litre	109
Element H: 0.25 m Catalyst in Height	
Dimensions, H x W x L, mm	322 x 466 x 466
Weight, kg	21
Catalyst Volume, litre	55

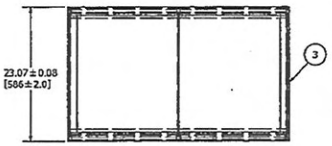
EXHIBIT 15-1

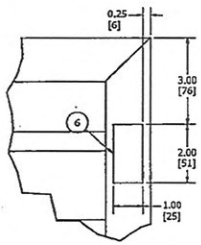




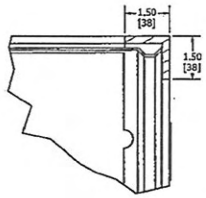
SECTION A-A
SCALE 1 / 10







DETAIL A
SCALE 1 / 2



DETAIL B
SCALE 1 / 2

GENERAL NOTES:
1.) MAKE THE TWO RACK PARTS COMPLETE WITH THE EXCEPTION OF POS. 3 & 5 ANGLE IRONS AND TEE BARS WHICH ARE TO BE WELDED ON AFTER INSTALLATION OF CASSETTES.
2.) WELDINGS ARE FULL PENETRATION AND TO BE GROUND FLUSH WITH SURFACE.
3.) WEIGHT OF MODULE APPROX. 1298 lbs [589 kg]
4.) DIMENSIONS GIVEN IN US UNITS AND MM. DRAWN DIMENSIONS IN US UNITS.
5.) DIMENSIONS OF ONE CASSETTE: 18.3" x 18.3" x 22.5" [466 x 466 x 572]

Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	L1.5x1.5x.25x111.34	ASTM A36
2	4	L1.5x1.5x.25x37.28	ASTM A36
3	4	L1.5x1.5x.25X20.07	ASTM A36
4	4	T-Bar 2x2x.25x36.78	ASTM A36
5	4	Flat Bar 1.25x.25x20.07	ASTM A36
6	1	Serial Number Plate	SS 18 Ga.
7	12	Element A DNX-620A	

CONFIDENTIAL

THIS DOCUMENT AND THE INFORMATION CONTAINED HEREIN IS CONFIDENTIAL AND MAY NOT BE DISCLOED TO ANY PERSONS OR COPIED OR REPRODUCED EXCEPT AS PERMITTED IN WRITING BY HALDOR TOPSOE INC. ALL CONTENTS OF THIS DOCUMENT AND ALL COPIES ARE THE PROPERTY OF HALDOR TOPSOE, INC.

DRAWN	bdb	6/1/2007
CHECKED	ilw	6/1/2007
QA		
MFG		
APPROVED		

HALDOR TOPSOE, INC.

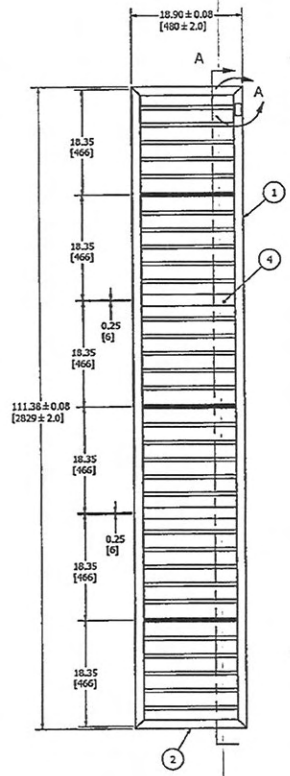
TITLE: TURNER ENVIROLOGIC
BRAINTREE, MA - WATSON STATION
SCR DeNOx TECHNOLOGY
FRAMED CATALYST MODULE, HO621A
HORIZONTAL FLOW

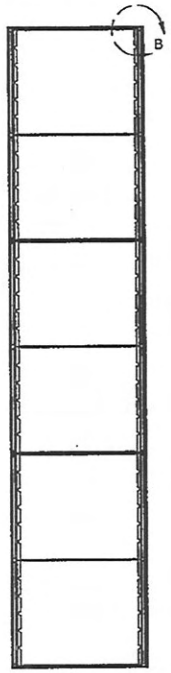
SIZE: D | DWG NO: DNX-06-6187-01 | REV: 1

SCALE | SHEET 1 OF 1

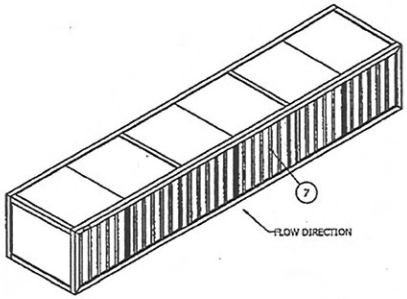
NOx

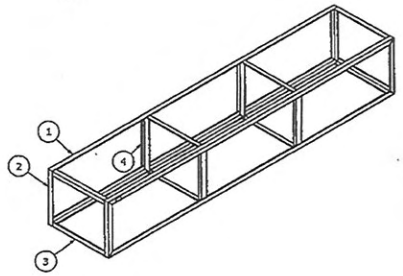
EXHIBIT 15-1

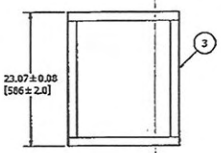


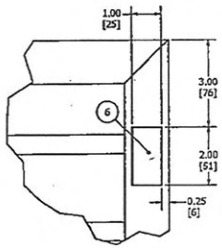


SECTION A-A
SCALE 1 / 10

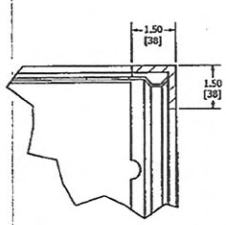








DETAIL A
SCALE 1 / 2



DETAIL B
SCALE 1 / 2

GENERAL NOTES:
1.) MAKE THE TWO RACK PARTS COMPLETE WITH THE EXCEPTION OF POS. 3 & 5 ANGLE IRONS AND TEE BARS WHICH ARE TO BE WELDED ON AFTER INSTALLATION OF CASSETTES.
2.) WELDINGS ARE FULL PENETRATION AND TO BE GROUND FLUSH WITH SURFACE.
3.) WEIGHT OF MODULE APPROX. 682 lbs [310 kg]
4.) DIMENSIONS GIVEN IN US UNITS AND MM. DRAWN DIMENSIONS IN US UNITS.
5.) DIMENSIONS OF ONE CASSETTE: 18.3" x 18.3" x 22.5" [466 x 466 x 572]

Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	L1.5x1.5x.25x111.34	ASTM A36
2	4	L1.5x1.5x.25X18.9	ASTM A36
3	4	L1.5x1.5x.25X20.07	ASTM A36
4	4	T-Bar 2x2x.25	ASTM A36
5	4	Flat Bar 1.25x.25	ASTM A36
6	1	Serial Number Plate	SS 18 Ga.
7	6	Element A DNX-620-A	

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DRAWN	bjb	6/4/2007
CHECKED		
Dwr		6/4/2007
QA		
MFG		
APPROVED		

HALDOR TOPSOE, INC.

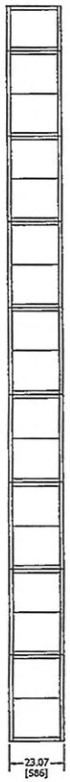
TITLE: TURNER ENVIROLOGIC
BRAINTREE, MA - WATSON STATION
SCR DeNOx TECHNOLOGY
FRAMED CATALYST MODULE, H0611A
HORIZONTAL FLOW

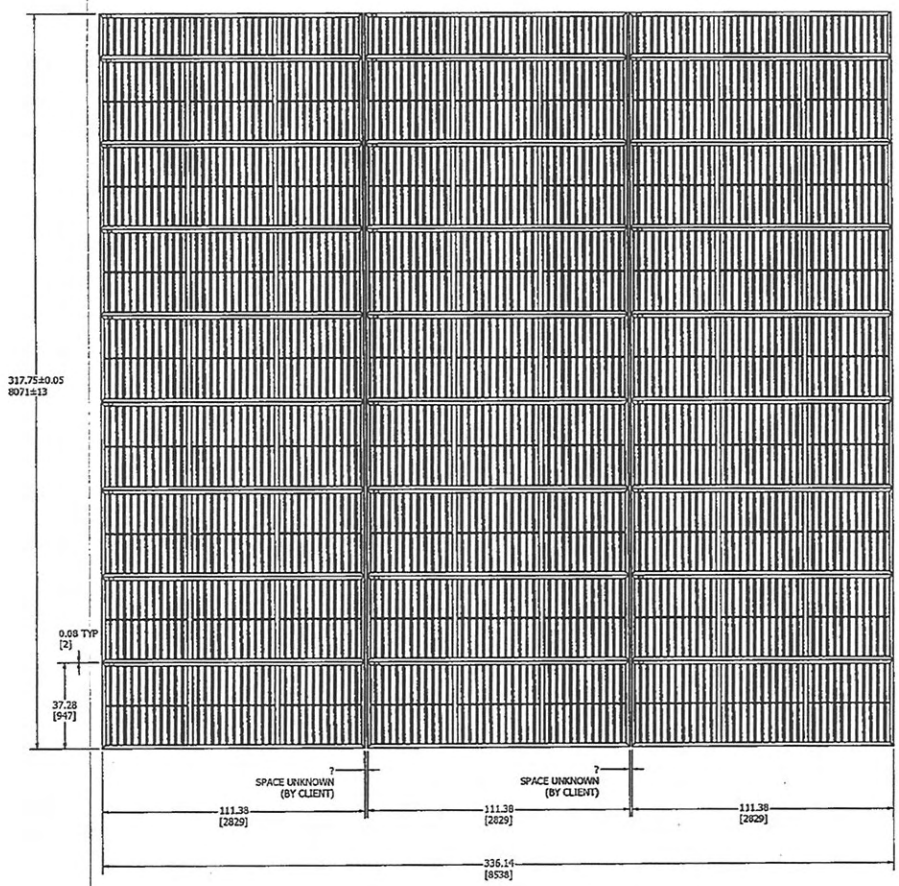
SIZE: D | DWG NO: DNX-06-6187-02 | REV: 1

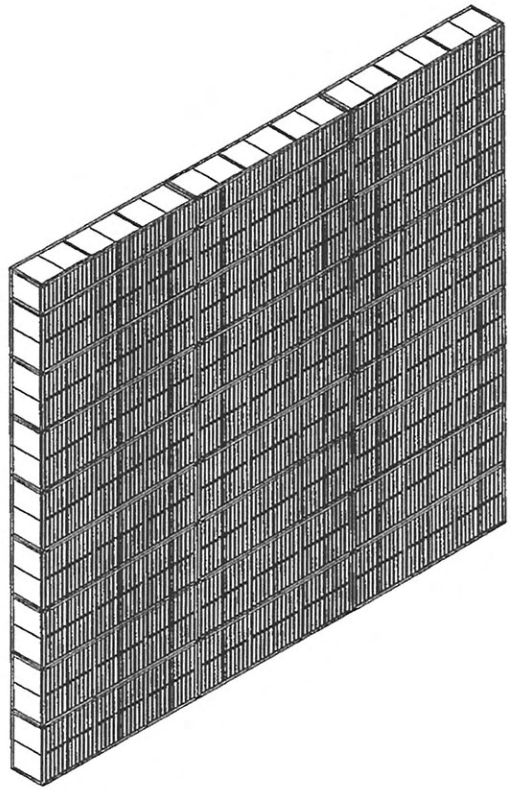
SCALE | SHEET 1 OF 1

NOX

EXHIBIT 15-1







GENERAL NOTES:
1.) ONE CATALYST BED SHOWN, TWO CATALYST BEDS ORDERED.
2.) TOTAL WEIHT OF ONE CATALYST BED IS APROX. 33,200 lbs.

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DRAWN	bdb	6/4/2007
CHECKED	lbw	6/1/2007
QA		
MFG		
APPROVED		

HALDOR TOPSOE, INC.

TITLE: TURNER ENVIROLOGIC
BRAINTREE, MA - WATSON STATION
SCR DeNOx TECHNOLOGY
GENERAL ARRANGEMENT

SIZE: D | DWG NO: DNX-06-6187-03 | REV: 1

SCALE | SHEET 1 OF 1

Nox

EXHIBIT 15-1

EXHIBIT 16-1

FIREWATER PUMP ENGINE SPECIFICATIONS

IDEAL

IDEAL EQUIPMENT COMPANY, Ltd.
PO Box 29429 Columbus Ohio 43229
Phone 614-939-5160 Fax 614-939-5161

September 17, 2007

Industrial Construction Company
10060 Brecksville Road
Brecksville, OH 44141

Attention: Hans Kern

Reference: Orange Grove Peaker Plant, Pala, California
ITT-AC Fire Pump Skid Package

With reference to the above, we are pleased to offer the following:

Engine Driven Fire Pump- 3000GPM:
One (1) Allis Chalmers model 12 x 10 x 18F, Series 8100, horizontal, centrifugal Fire Pump, UL listed and FM approved, rated 3000 GPM at 75 PSI. The Fire Pump is driven at 1770 RPM by a Cummins Model CFP6E-F35 diesel engine. The pump and engine will be mounted on a fabricated steel base plate, complete with flexible coupling and coupling guard.

Also included are the following:
(2) sets lead-acid batteries with battery racks and cables
(1) residential muffler (shipped loose for field installation)
(1) 300 gallon double wall fuel tank
(1) fuel tank, fuel spill alarm switch
(1) 10” outside test header with twelve (12), 2-1/2” brass angle hose valves with caps & chains. NST threads.
(1) ½” ball drip valve
(1) 8” pilot operated relief valve
(1) 8” x 12” enclosed cone
(1) ½” automatic air release valve
(1) 3-1/2” suction and discharge gauges
(1) ITT-AC Model 2SV-6 stage jockey pump rated 25 GPM @ 75 PSI. 2 HP, 3500 RPM, 480 volt, 3 phase, 60 cycle, TEFC motor.
(1) Cutler Hammer Jockey Pump Controller
Cutler Hammer Diesel Engine Fire Pump Controller with:

- All features required by NFPA #20
- Low fuel level alarm & switch
- Fuel spill at storage tank
- Three sets of alarm contacts for: engine running, switch off and common trouble.

Electric Fire Pump 3000 GPM:
We offer one (1) Allis Chalmers model 12x10x18F, Series 8100, horizontal split case, centrifugal Fire Pump, UL listed and FM approved, rated 3000 GPM at 75 PSI. 200 HP, 1785 rpm, 480 volt, 3 phase, 60 cycle, ODP motor.

Also included are the following:
(1) Cutler Hammer Model FD-30, Across-The-Line Type, Fire Pump Controller with 100,000 AIC, built in pressure recorder
(1) ¾" casing relief valve
(1) ½" automatic air release valve
(1) 3-1/2 suction and discharge gauges

Fire Pump Skid Package

(1) ITT-AC Skid Package consisting of the equipment listed above mounted, piped and wired including:

Condition Point: **3000GPM @ 75 PSI**

(1) Jockey pump piping: (2) gate valves and (1) check valve

(1) Fuel tank piping with cross bracing.

(2) 12" UL/FM OS&Y Flanged suction gate valve with tamper switch

(2) 12" UL/FM wafer style discharge check valve

(2) 12" UL/FM Model discharge wafer style butterfly isolation valve with tamper switch

(2) Concentric discharge increaser 125#

(1) Hose valve header connection 10" with: tee, elbow, manual drain valve, (1) UL/FM wafer style butterfly isolation valve (hose valve header, hose valve, caps & chains – **shipped loose for installation at the job site.**)

(1) steel perimeter skid base with all necessary hard copper sensing lines, pipe supports, and wiring for complete package.

(1) Common suction and discharge headers

(1) Piping for main relief valve and waste cone

(1) Single point power connection with all wiring complete at the factory

(1) All drains to common point

Unit to be factory primed and painted

All welding to be done by ASME Section 9 certified welders

State PE stamp and seismic calculations for zone 4

Estimated skid size is 38" long x 13" wide. Approximate weight 35, 000 lbs.

Total price, all the above: $

Price includes oil and anti-freeze for the engine, diesel fuel to be provided by others.

Price includes equipment start-up and assistance with the field acceptance test by our Local Distributor.

FOB: Factory, freight allowed to the job site.

Errors and omissions: This quotation is for the items listed or stated above.
No other items should be assumed or implied as being provided.

*Prices quoted are firm for thirty (30) days.
*Prices do not include any: federal, state, local or use taxes.
*Prices do not include any: permits, unloading, or rigging.

*Terms: Subject to credit approval. Terms inconsistent with ITT-AC standard terms and conditions which may appear on purchaser's formal order will not be binding on seller.

Progress Payments
10% to be included with purchase order
30% to accompany the approved submittal data
50% to be paid upon notification the equipment is ready for shipment
10% to be paid 30 days after shipment

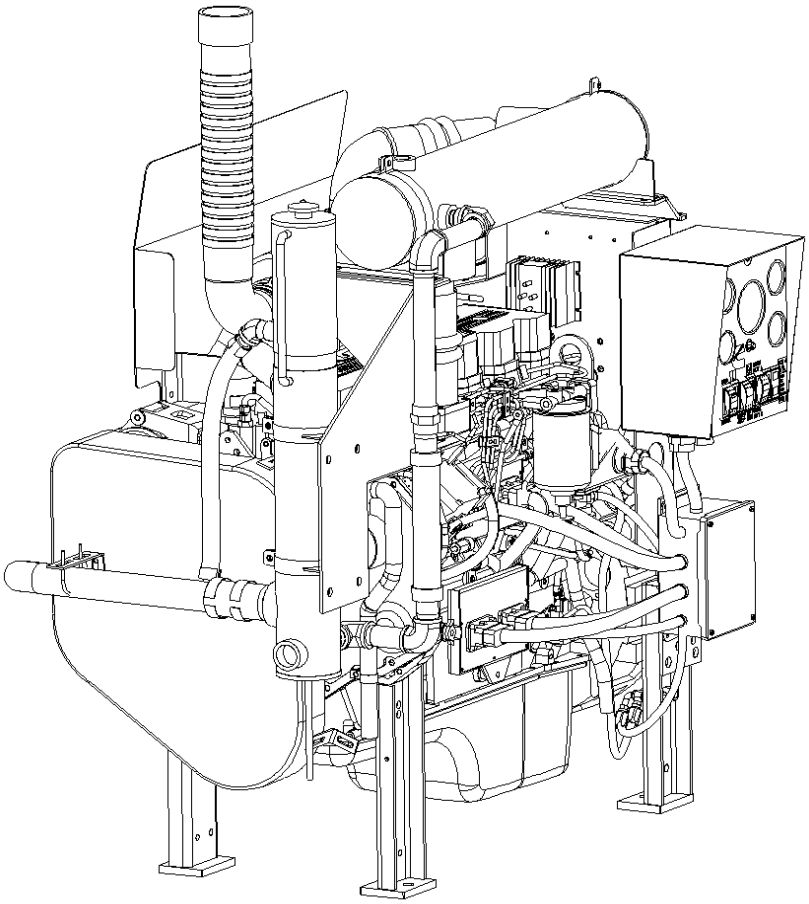
*Warranty: Standard ITT-AC warranty applies.
*Submittals: 2-4 weeks after order hold for approval.
*Shipment: 14-18 weeks after full approval and full release for fabrication.

If you have any questions, please do not hesitate to contact our office.

Sincerely,

Bill Smith

Fire Power	Engine Specification Sheet **Cummins Fire Power** DePere, WI 54115 http://www.cumminsfirepower.com	**Basic Engine Model** **CFP6E-F35, F25, F15** Curve Number: **FR - 90847** Revision Date: **August 2006**



Equipment	Standard	Optional
Air Cleaner	Direct Mounted, Disposable, Indoor Service	Disposable, Treated for High Humidity, Indoor Service
Alternator	12V-DC, 95 AMPS; With Belt Guard	24V-DC, 45 AMPS; With Belt Guard
Cooling Loop	N/A	Maximum Pressure of 400 PSI
Exhaust Protection	Metal Guards on Manifolds and Turbo	N/A
Exhaust Flex Connection	SS Flex, NPT	SS Flex, 150# Flange
Flywheel Power Take-Off	Flywheel with Mounting for Coupler	●Drive Shaft System ●Stub Shaft
Fuel Connections	Fire Resistant Flexible Supply and Return Lines	N/A
Fuel Injection	Direct Injection	N/A
Fuel Filter	Primary Filter with Priming Pump	N/A
Engine Heater	120V-AC, 1500 Watts	240V-AC, 1500 Watts
Governor, Speed	Constant Speed	N/A
Heat Exchanger	Tube & Shell Type, 60 PSI with NPTF Connections	N/A
Instrument Panel	English and Metric, Tachometer, Hourmeter, Water Temperature, Oil Pressure & Two (2) Voltmeters	N/A
Junction Box	Integral with Instrument Panel; For DC Wiring Interconnection to Engine Controller	N/A
Lube Oil Cooler	Engine Water Cooled, Plate Type	N/A
Lube Oil Filter	Full Flow with By-Pass Valve	N/A
Lube Oil Pump	Gear Driven	N/A
Manual Start	On Instrument Panel	N/A
Overspeed Controls	Electronic with Reset & Test on Instrument Panel	N/A
Raw Water Solenoid Operation	Automatic from Engine Controller & from Emergency Local Control	N/A
Run-Stop Control	On Instrument Panel with Control Position Warning Light	N/A
Run Solenoid	12V-DC	24V-DC
Starters	12V-DC	24V-DC
Throttle Control	Adjustable Speed Control	N/A
Water Pump	Poly-Vee Belt Drive with Guard	N/A

Operating Speed (RPM)

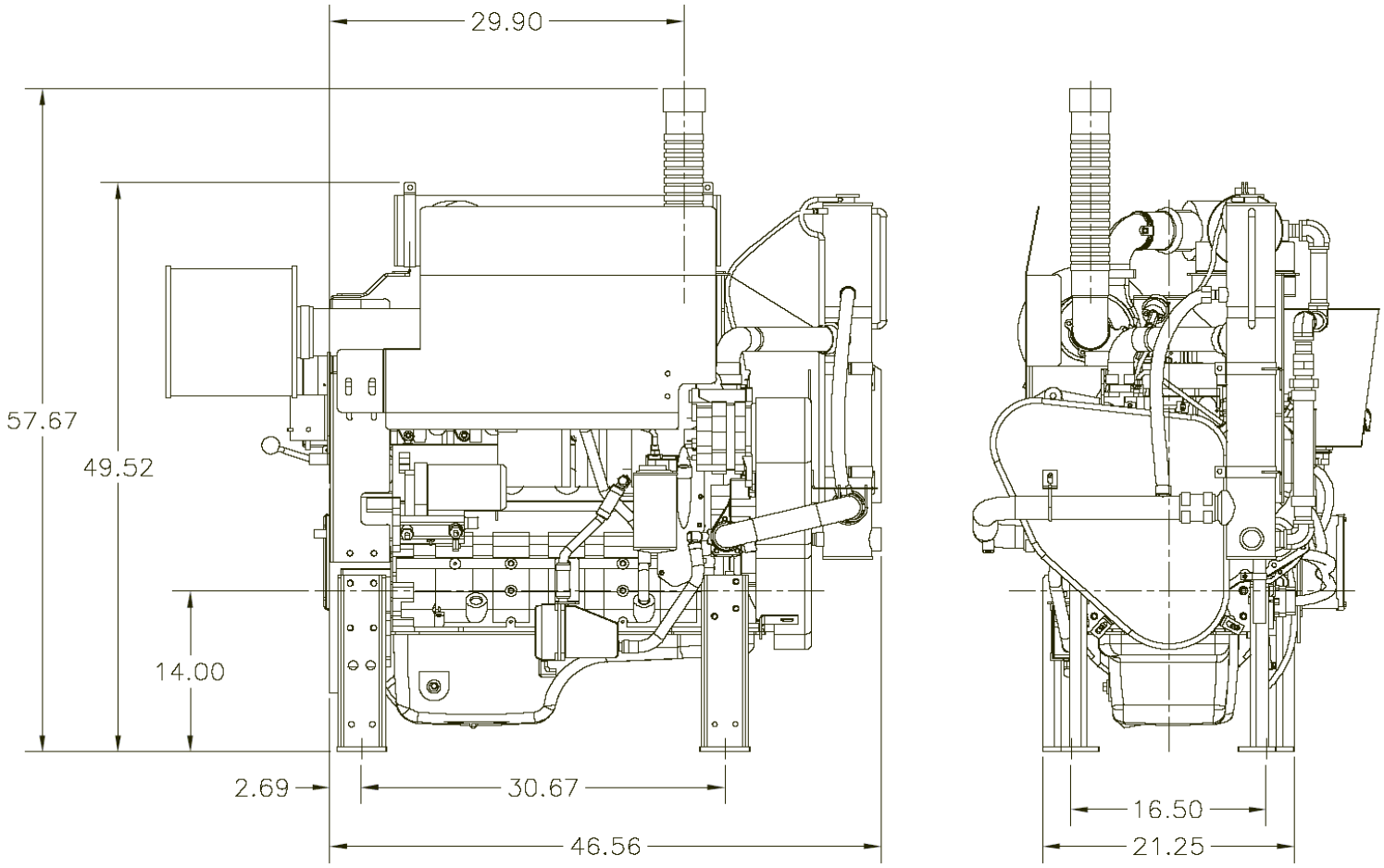
Model	1760	2100	2350	2600
CFP6E-F35	210 (157)	232 (173)	246 (183)	225 (168)
CFP6E-F25	191 (142)	215 (160)	225 (168)	215 (160)
CFP6E-F15	175 (130)	200 (149)	200 (149)	200 (149)

Ratings are: HP (kW)

Specifications

Aspiration	Turbocharged and Charge Air Cooled
Rotation	Clockwise
Weight - lb (kg)	1511 (680)
Displacement - in^3 (litre)	359 (5.9)
Engine Type	4 Cycle; In-Line, 6 Cylinder
Engine Series	Cummins QSB5.9 Series
Exhaust Emissions	EPA/CARB Tier 2

EXHIBIT 16-1



Engine Ratings Baselines

- Engines are rated at standard SAE conditions of 29.61 in. (7521 mm) Hg barometer and 77 °F (25°C) inlet air temperature (approximates 300ft. (91.4 m) above sea level) by the testing laboratory (see SAE Standard J1349).
- A deduction of 3 percent from engine horsepower rating at standard SAE conditions shall be made for diesel engines for each 1000 ft. (305 m) altitude above 300 ft. (91.4 m).
- A deduction of 1 percent from engine horsepower rating as corrected to standard SAE conditions shall be made for diesel engines for every 10°F above 77°F (24°C) ambient temperature.

Certified Power

This Cummins Fire Power fire pump driver is built to comply with NFPA-20, and is UL listed and FM approved. Although FM-UL Certified BHP ratings are shown at specific speeds, this Cummins engine can be applied at any intermediate speed. To determine the intermediate certified power, make a linear interpolation from the Cummins FM-UL certified power curve. Contact Cummins Fire Power or your pump OEM representative to obtain details.

* Subject to change without notification

For additional information, click the hyperlinks below.

CFP6E-F15
CFP6E-F25
CFP6E-F35

EXHIBIT 16-1

California ATCM Tier 2 Emission Data
EPA Tier 2 Emission Data

CFP6E-F35 Fire Pump Driver

Type: 4 Cycle; In-Line; 6 Cylinder
Aspiration: Turbocharged, Charge Air Cooled

15 PPM Diesel Fuel													
		Fuel Consumption		D2 Cycle Exhaust Emissions						Exhaust			
				Grams per BHP - HR			Grams per kW - HR			Temperature		Gas Flow	
RPM	BHP	Gal/Hr	L/hr	NMHC+NOx	CO	PM	NMHC+NOx	CO	PM	°F	°C	CFM	L/sec
1760	210	10.2	38.6	3.924	0.447	0.065	5.262	0.600	0.088	917	492	1051	496
2100	232	11.4	43.2							917	492	1207	570
2350	246	12.2	46.2							938	503	1328	627
2600	225	11.6	43.9							925	496	1380	651

The emissions values above are based on CARB approved calculations for converting EPA (500 ppm) fuel to CARB (15 ppm) fuel.

300-500 PPM Diesel Fuel													
		Fuel Consumption		D2 Cycle Exhaust Emissions						Exhaust			
				Grams per BHP - HR			Grams per kW - HR			Temperature		Gas Flow	
RPM	BHP	Gal/Hr	L/hr	NMHC+NOx	CO	PM	NMHC+NOx	CO	PM	°F	°C	CFM	L/sec
1760	210	10.2	38.61108	4.265	0.447	0.075	5.720	0.600	0.100	917	492	1051	496
2100	232	11.4	43.15356							917	492	1207	570
2350	246	12.2	46.18188							938	503	1328	627
2600	225	11.6	43.91064							925	496	1380	651

QSB5.9 Base Model Manufactured by Cummins Inc.
- Using fuel rating 90847

Reference EPA Standard Engine Family: 5CEXL0359ABE

No special options needed to meet current regulation emissions for all 50 states

Test Methods:

EPA/CARB Nonroad emissions recorded per 40CFR89 (ref. ISO8178-1) and weighted at load points prescribed in Subpart E, Appendix A, for Constant Speed Engines (ref. ISO8178-4, D2).

Diesel Fuel Specifications:

Cetane Number: 40-48
Reference: ASTM D975 No. 2-D

Reference Conditions:

Air Inlet Temperature: 25°C (77°F)
Fuel Inlet Temperature: 40°C (104°F)
Barometric Pressure: 100 kPa (29.53 in Hg)
Humidity: 10.7 g/kg (75 grains H_2O/lb) of dry air; required for NOx correctior
Restrictions: Intake Restriction set to a maximum allowable limit for clean filter; Exhaust Back Pressure set to maximum allowable limit.

Tests conducted using alternate test methods, instrumentation, fuel or reference conditions can yield different results.

EXHIBIT 17-1

MSDS ON ULTRA-LOW SULFUR DIESEL

Material Safety Data Sheet

1. Chemical product and company identification

Product name	ECD ULTRA LOW SULFUR DIESEL
MSDS #	0000000795
Historic MSDS #:	None.
Code	0000000795
Product use	Fuel.
Supplier	BP Products North America Inc. 150 West Warrenville Road Naperville, Illinois 60563-8460 USA
EMERGENCY HEALTH INFORMATION:	1 (800) 447-8735 Outside the US: +1 703-527-3887 (CHEMTREC)
EMERGENCY SPILL INFORMATION:	1 (800) 424-9300 CHEMTREC (USA)
OTHER PRODUCT INFORMATION	1 (866) 4 BP - MSDS (866-427-6737 Toll Free - North America) email: bpcares@bp.com

2. Composition/information on ingredients

Ingredient name	CAS #	% by weight
Petroleum distillates	8008-20-6	100

3. Hazards identification

Physical state Liquid.

Color Amber. to Various colors. (may be dyed Red.)

Emergency overview WARNING!

COMBUSTIBLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FLASH FIRE.
HARMFUL IF SWALLOWED.
ASPIRATION HAZARD.
HARMFUL OR FATAL IF LIQUID IS ASPIRATED INTO LUNGS.
CAUSES SKIN IRRITATION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.
INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS, AND NAUSEA, AND MAY LEAD TO UNCONSCIOUSNESS.

Do not ingest. If ingested do not induce vomiting. Avoid contact with eyes, skin and clothing. Do not breathe vapor or mist. Keep away from heat, sparks and flame. Keep container closed. Use with adequate ventilation. Use only with adequate ventilation Wash thoroughly after handling.

Routes of entry Dermal contact. Eye contact. Inhalation. Ingestion.

Potential health effects

Eyes Slightly irritating to the eyes.

Skin Causes skin irritation.

EXHIBIT 17-1

Inhalation	May cause respiratory tract irritation. Inhalation causes headaches, dizziness, drowsiness, and nausea, and may lead to unconsciousness. See toxicological Information (section 11).
Ingestion	Harmful if swallowed. Aspiration hazard if swallowed -- harmful or fatal if liquid is aspirated into lungs. See toxicological Information (section 11).
Medical conditions aggravated by over-exposure	None identified.

See toxicological Information (section 11).

4. First aid measures

Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
Skin contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion	If swallowed, do NOT induce vomiting. Never give anything by mouth to an unconscious person. Aspiration hazard if swallowed- can enter lungs and cause damage. Get medical attention immediately.

5. Fire-fighting measures

Flammability of the product	Combustible liquid.
Flash point	51.667 °C (Closed cup) Tagliabue.
Explosion limits	Lower: 0.6 % Upper: 7.5 %
Products of combustion	These products are carbon oxides (CO, CO_2) (carbon monoxide, carbon dioxide).
Unusual fire/explosion hazards	Combustible liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas, travel considerable distance to source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Fire-fighting media and instructions	In case of fire, use water fog, foam, dry chemicals, or carbon dioxide. DO NOT FIGHT FIRE WHEN IT REACHES MATERIAL. Withdraw from fire and let it burn. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. First move people out of line-of-sight of the scene and away from windows. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
Protective clothing (fire)	Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
Special remarks on fire hazards	Do not use water jet.

6. Accidental release measures

Personal precautions	Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (See Section: "Exposure controls/personal protection"). Follow all fire fighting procedures (See Section: "Fire-fighting measures"). Do not touch or walk through spilled material.
Environmental precautions and clean-up methods	If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion proof means to transfer material to a sealed, appropriate container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal. Avoid contact of spilled material with soil and prevent runoff entering surface waterways. See Section 13 for Waste Disposal Information.

Personal protection in case of a large spill

Splash goggles. Chemical resistant protective suit. Vapor respirator. Boots. Gloves.
CAUTION: The protection provided by air-purifying respirators is limited. Use a positive pressure air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are not known, or if concentrations exceed the protection limits of air-purifying respirator. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

7. Handling and storage

Handling

Aspiration hazard if swallowed- can enter lungs and cause damage. Never siphon by mouth. Do not ingest. If ingested do not induce vomiting. When using do not eat, drink or smoke. Avoid contact with skin and clothing. Avoid prolonged or repeated contact with skin. Avoid contact with eyes. Use only with adequate ventilation Avoid breathing vapor or mist. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling. Empty containers may contain harmful, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld, reuse or dispose of containers unless adequate precautions are taken against these hazards.

Storage

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Store and use only in equipment/containers designed for use with this product.

8. Exposure controls/personal protection

Occupational exposure limits

Ingredient name	Occupational exposure limits
Petroleum distillates	**ACGIH TLV (United States, 1/2006). Skin** TWA: 200 mg/m^3 8 hour(s).

Control Measures

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. In accordance with good industrial hygiene and safety work practices, airborne exposures should be controlled to the lowest extent practicable.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Personal protection

Eyes

Avoid contact with eyes. Safety glasses with side shields.

Skin and body

Avoid contact with skin and clothing. Wear suitable protective clothing.

Respiratory

Use only with adequate ventilation Do not breathe vapor or mist. If ventilation is inadequate, use a NIOSH certified respirator with an organic vapor cartridge and P95 particulate filter.

CAUTION: The protection provided by air-purifying respirators is limited. Use a positive pressure air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are not known, or if concentrations exceed the protection limits of air-purifying respirator.

Hands

Wear gloves that cannot be penetrated by chemicals or oil.

The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Consult your supervisor or S.O.P. for special handling directions

Consult local authorities for acceptable exposure limits.

EXHIBIT 17-1

9. Physical and chemical properties

Physical state	Liquid.
Odor	Petroleum
Color	Amber. to Various colors. (may be dyed Red.)
Heat of combustion	Not available.
Boiling point / Range	171.11 to 357.22 °C
Specific gravity	<1 (Water = 1)
Solubility	negligible <0.1%
Viscosity	Kinematic: 1.8 to 3.6 mm^2/s (1.8 to 3.6 cSt) at 37.778°C

10. Stability and reactivity

Stability and reactivity	Stable under recommended storage and handling conditions (See Section: "Handling and storage").
Conditions to avoid	Keep away from heat, sparks and flame. Avoid all possible sources of ignition (spark or flame).
Incompatibility with various substances	Reactive or incompatible with the following materials: oxidizing materials, acids and alkalis. halogenated compounds.
Hazardous decomposition products	These products are carbon oxides (CO, CO_2) (carbon monoxide, carbon dioxide)
Hazardous polymerization	Will not occur.

11. Toxicological information

Acute toxicity

Aspiration of this product into the lungs can cause chemical pneumonia and can be fatal. Aspiration into the lungs can occur while vomiting after ingestion of this product. Do not siphon by mouth.

Chronic toxicity

Carcinogenic effects

No component of this product at levels greater than 0.1% is identified as a carcinogen by ACGIH or the International Agency for Research on Cancer (IARC). No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program (NTP) or the U.S. Occupational Safety and Health Act (OSHA).

Other chronic toxicity data

Middle distillate: From skin-painting studies of petroleum distillates of similar composition and distillate range, it has been shown that these types of materials often possess weak carcinogenic activity in laboratory animals. In these tests, the material is painted on the shaved backs of mice twice a week for their lifetime. The material is not washed off between applications. Therefore, there may be a potential risk of skin cancer from prolonged or repeated skin contact with this product in the absence of good personal hygiene. This particular product has not been tested for carcinogenic activity, but we have chosen to be cautious in light of the findings with other distillate streams.

Occasional skin contact with this product is not expected to have serious effects, but good personal hygiene should be practiced and repeated skin contact avoided. This product can also be expected to produce skin irritation upon prolonged or repeated skin contact. Personal hygiene measures taken to prevent skin irritation are expected to be adequate to prevent risk of skin cancer.

Diesel exhaust particulates have been classified by the National Toxicological Program (NTP) to be a reasonably anticipated human carcinogen. Exposure should be minimized to reduce potential risk.

EXHIBIT 17-1

12. Ecological information

Ecotoxicity Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Mobility Spillages may penetrate the soil causing ground water contamination.

Bioaccumulative potential This product is not expected to bioaccumulate through food chains in the environment.

Other ecological information Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

13. Disposal considerations

Waste information Avoid contact of spilled material and runoff with soil and surface waterways. Consult an environmental professional to determine if local, regional or national regulations would classify spilled or contaminated materials as hazardous waste. Use only approved transporters, recyclers, treatment, storage or disposal facilities. Dispose of in accordance with all applicable local and national regulations.

Consult your local or regional authorities.

14. Transport information

International transport regulations

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	NA1993	Diesel Fuel	Combustible liquid.	III	-----	**Reportable quantity** 100 lbs. (45.36 kg)
TDG Classification	UN1202	Gas oil	3	III		Not determined.
IMDG Classification	UN1202	Gas oil	3	III		Not determined.
IATA Classification	UN1202	Gas oil	3	III		Not determined.

15. Regulatory information

U.S. Federal regulations US INVENTORY (TSCA): In compliance.

TSCA 12(b) one-time export notification:: naphthalene

This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: ECD ULTRA LOW SULFUR DIESEL: Fire hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard

SARA 313

Form R - Reporting requirements This product does not contain any hazardous ingredients at or above regulated thresholds.

Supplier notification This product does not contain any hazardous ingredients at or above regulated thresholds.

EXHIBIT 17-1

CERCLA Sections 102a/103 Hazardous Substances (40 CFR Part 302.4):: o-Xylene: 1000 lbs. (453.6 kg); naphthalene: 100 lbs. (45.36 kg); xylene: 100 lbs. (45.36 kg); Ethylbenzene: 1000 lbs. (453.6 kg); Xylene: 100 lbs. (45.36 kg); Cumene: 5000 lbs. (2268 kg); xylene: 100 lbs. (45.36 kg);

State regulations

Massachusetts RTK:Straight run kerosine; 1,2,4-Trimethylbenzene
New Jersey:Straight run kerosine; 1,2,4-Trimethylbenzene
Pennsylvania RTK:Straight run kerosine (generic environmental hazard); 1,2,4-Trimethylbenzene (environmental hazard, generic environmental hazard)

WARNING: This product contains a chemical known to the State of California to cause cancer. naphthalene; Ethylbenzene

Prop 65 chemicals will result under certain conditions from the use of this material. For example, burning fuels produces combustion products including diesel exhaust, a Prop 65 carcinogen, and carbon monoxide, a Prop 65 reproductive toxin.

Inventories

AUSTRALIAN INVENTORY (AICS): Not determined.

CANADA INVENTORY (DSL): In compliance.

CHINA INVENTORY (IECS): Not determined.

EC INVENTORY (EINECS/ELINCS): Not determined.

JAPAN INVENTORY (ENCS): Not determined.

KOREA INVENTORY (ECL): Not determined.

PHILIPPINE INVENTORY (PICCS): Not determined.

16. Other information

Label requirements

WARNING!

COMBUSTIBLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FLASH FIRE.
HARMFUL IF SWALLOWED.
ASPIRATION HAZARD.
HARMFUL OR FATAL IF LIQUID IS ASPIRATED INTO LUNGS.
CAUSES SKIN IRRITATION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.
INHALATION CAUSES HEADACHES, DIZZINESS, DROWSINESS, AND NAUSEA, AND MAY LEAD TO UNCONSCIOUSNESS.

HMIS® Rating :

Health	**0**	*
Flammability	**2**	
Physical Hazard	**0**	
Personal protection	**X**	

National Fire Protection Association (U.S.A.)

History

Date of issue 07/05/2006.

Date of previous issue No Previous Validation.

Prepared by Product Stewardship

Notice to reader

NOTICE : This Material Safety Data Sheet is based upon data considered to be accurate at the time of its preparation. Despite our efforts, it may not be up to date or applicable to the circumstances of any particular case. We are not responsible for any damage or injury resulting from abnormal use, from any failure to follow appropriate practices or from hazards inherent in the nature of the product.

EXHIBIT 17-1

EXHIBIT 18-1

CHILLER SPECIFICATIONS

4300 Dixie Drive
Houston, Texas 77021
(713) 877-8700
(713) 877-8701 Fax

July 30, 2007

Hans Kern

IC Construction
10060 Brecksville
Brecksville, Ohio 44141

Re: 2 by GE AEP LM6000PC-S, J Power, San Diego
Packaged Turbine Inlet Cooling Chiller Plant
TAS # 0704012 – 00 Orange Grove

Dear Hans:

The TAS Proposal for Orange Grove is attached. It reflects the present costs for the project after receiving sub vendor firm proposals for individual components. It includes the most recent costs increases of July2008. Project schedule is indicative of the cycle time necessary for a project of this magnitude and is a replica of the San Francisco Reliability Project (MUNI). Any reference to Aux Lube oil system (s) and additional Chiller skids are a carryover from MUNI and should be ignored. The durations even with those extractions will remain the same.

TAS recognizes this formal proposal and the previous budgetary are substantially different. We will be happy to work with IC Construction to find ways to achieve the same performance through optimization and value engineering as the project becomes better defined.

One area of concentration will be Sound where you recently informed us of a permit value of 40dba for far field. Presently we have our normal cooling tower fans and enclosed Chiller skid, which yields 85dba at 3 feet (near field). I will try and get you the octave bands for those selections shortly. Strategy to meet the low far field requirement would need a collaborative effort between IC Construction, TAS and the Project Owners to provide the most cost effective approach. This as well as the scope and equipment to achieve are not a part of this offer. One alternative is to put the Cooling tower structure on grade to minimize noise values.

The information included within this proposal is the work product of TAS and is considered proprietary. It is for the sole use of IC Construction and its partners and or the Project Owners, J Power, to use in conjunction with the evaluation, purchase and design of the Chiller System with TAS.

Sincerely,

TAS, LTD.

Joe Stuparich
Director TIC

Enclosures: Proposal 0612022-01

Copies to: J.Reickman (TAS rep)
Beth Long (TAS rep)

4300 Dixie Drive, Houston, Texas 77021, (713) 877-8700 • (713) 877-8701 Fax
www.tas.com

TURBINE INLET COOLING PROPOSAL

FOR

IC Construction
10060 Brecksville
Brecksville, Ohio 44141

J Power
Orange Grove
San Diego, CA

TAS Proposal # 0704012 00

Turbine Inlet Cooling
Proposal
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July 20th, 2007

IC Construction
10060 Brecksville
Brecksville, Ohio 44141

2 by GE AEP LM6000PC-S, San Diego
Packaged Turbine Inlet Cooling Chiller Plant
PROPOSAL 0704012 -01

ATTN: Hans Kern,

We are pleased to provide the following equipment proposal for your evaluation.

For this plant site we propose Qty one (1) D-30C Chiller System Module providing 3110 nominal tons of chiller output at the specified design conditions of 87°F -DB/70.5°F -WB. At these conditions the system has an operating efficiency of [.714] kw/TR when delivering 46.0°F air to the turbine inlet.

This system will be designed to operate at the base load conditions of the gas turbine at the specified design ambient conditions. The chiller system will consist of a heavy structural steel base and frame with packaged piping, valves, pumps, switchgear and controls, factory installed and pre-wired. The system is prefabricated under an ISO 9001:200 Quality management system to the maximum extent possible such that field installation consists of setting chiller skids on prepared foundations, erecting the cooling tower support structure, setting the cooling tower cells and piping, connecting utility services, control interfaces and connection to the plant chilled water supply/return headers. TAS will guarantee the performance as noted in this proposal (T2, parasitics, etc).

The pricing of this proposal is based on acceptance of our standard terms and conditions. Alternatives and options are set forth in this Proposal for Buyer's consideration. This Proposal is provided for a firm fixed amount and constitutes a binding offer valid for thirty (30) days from the date above.

All subsequent changes and/or agreements negotiated and to be added to or deleted from the scope of this preliminary proposal will be made in writing and included in the attached Comments & Exceptions Document on an ongoing basis until conclusion of the discussions and incorporation into a final conformed proposal. All other documents and agreements, both written and verbal, related to this project are hereby superseded by this Proposal.

We are looking forward to working with you on this project.

Respectfully Submitted,

Joe Stuparich
Director TIC
Turbine Air Systems

cc: Chuck Chavis
Brian Kariker
John Rieckman
Ted Pullen Jr.

BASE PROPOSAL PRICING SUMMARY

NOTE: Sales tax, as applicable, is not included in the following prices, pending receipt of a sales exempt certificate by the Purchaser.

BASE EQUIPMENT PROPOSAL

(1) D-30C Chiller Package with PLC Based Central Controls.. included

- 2 x 100% 150 HP Chilled Water Pumps- w/ODP, EPACT Motors and FVNR Starter(s) ..... Included
- 2 x 100% 125 HP Cooling Water Pumps - w/ ODP, EPACT Motors and FVNR Starter(s) .. Included

- First Fill, lubricants and refrigerants ..... Included
- Internal Piping- (ANSI B31.1), Valves, Instrumentation & Controls ..... Included
- External Piping- (ANSI B31.1), with stamp to piping ..... Included
- ASHRAE Compliant Ventilation System ..... Included
- Insulated Panel Enclosure on Structural Steel Base- (Seismic Zone 4 Design) ..... Included
- Internal Lightning and Utility receptacles ..... Included
- Cooling Tower Systems, galvanized basin..... Included
  - 3 x 75 HP Single Speed Cooling Tower Fans, w/ FVNR Starters
  - Cooling Tower Fan Vibration Switches-1 per Cell
  - CT Structure- (Overhead)
  - CT External Piping
- Startup & Commissioning/TDI/Training (6 weeks total) Included

Total Package ..... _____

OPTIONS

- Factory Witness Test ..... Later
- Technical Direction Services..... Included in Base Above
- Training .....Included in Base Above
- Freight estimate for delivery in accordance with the Schedule herein $100,000
- 2 Year Recommended Spare Parts ..... Later

PROPOSAL VALIDITY

This proposal is valid for thirty (30) days from the date shown on page one unless provisions in the attached cover letter override this provision.

DELIVERY

Delivery is quoted EXW- (Ex-Works) TAS-Houston and other subcontractor facilities, in accordance with INCO Terms 2000, 40 weeks after receipt of order. See Schedule for individual tasks.

PAYMENT TERMS

10% on Receipt of order
15% on TAS submission of engineering approval drawings
20% on commencement of fabrication
30% on commencement of assembly
20% on ready to ship
5% on O&M documentation submission

This payment schedule is for an equipment supply scope of work. These payment terms are not subject to retention. All payments due via wire transfer net 30 days after date of invoice. Final of payment to be received no later than 120 days from shipment.

Final payment to be invoiced upon completion of Performance Test, or no later than 120 days from shipment, whichever occurs first.

A modified payment schedule will be used if the scope of work includes installation on a turnkey basis.

CANCELLATION SCHEDULE

Order Placement to 3 wks after order	10% of P.O. amount.
3 wks after order through 6 wks after order	35% of P.O. amount.
6 wks after order through 9 wks after order	70% of P.O. amount.
9 wks after order through time to deliver	100% of P.O. amount.

EXCLUDED ITEMS

All Foundations
Installation
Testing
Return Condensate Piping
Chilled Water Supply/Return Piping to/from Coils
Cooling Water Supply/Return Piping- (Remote CT's Only)
Make-Up Water, Drain, Blowdown Piping from Package Limits
All Pipe Racks External to Chiller Package
Chilled Water Fill(s), Flush, Drain, Chemical Treatment & Disposal
Factory Performance Test
Pre-Shipment Inspection By Third Parties
Delivery to Site
Cargo Insurance
Off-Loading At Site
Export/Import Documentation
Delay and Performance Liquidated Damages
Site Performance Test
Performance & Payment Bonds, or Letters of Credit
Import/Export Customs Duties Other Than During Manufacturing
VAT, Excise, Property and Any non-U.S. taxes
Currency Exchange Responsibility – USD bid only
Warranty Response Labor To Uncover Defect
Shipping Of Defective Parts During Warranty Period

Confidentiality, Restricted Use Of Information

PROPRIETARY AND CONFIDENTIAL DATA: The Company's Proposal contains information that is proprietary and confidential to the Company and others. By accepting this Proposal for consideration, the Customer acknowledges that: (a) information in the Company's Proposal is confidential, (b) disclosure of confidential information is prohibited, (c) disclosure of confidential information will result in irreparable harm to the Company, and may result in legal liability to the Customer, and (d) the Customer will maintain the confidentiality of the records, use them for the limited purpose for which it has been provided, and comply with the following requirements.
USER RESPONSIBILITY FOR MAINTAINING CONFIDENTIALITY: The Customer agrees that the Customer is solely responsible for maintaining the confidentiality of this Proposal and that disclosure is prohibited, except as provided herein. The Customer must handle such information with the same degree of care with which it would treat its own confidential information and must use reasonable efforts to safeguard the information from unauthorized disclosure.
LIMITED USE OF RECORDS: The Customer must use the information only for the specific project identified in the Proposal Letter and may not use electronic files of this Proposal and information for any other purpose. No part of this Proposal document may be reproduced in any form or used in any data retrieval system other than for the User's limited business use defined herein.
LIMITED DISCLOSURE ALLOWED; INDEMNITY FOR DISCLOSURE: Disclosure is prohibited, except to those individuals employed by the Customer who are directly involved in the specified Project for which this Proposal has been provided and have a technical or business related need to know the information. However, before disclosing information to such recipient, the Customer must inform him or her that: (a) the information is confidential, and (b) disclosure and use of the information is restricted as set forth in herein and under the law. If the Proposal information is disclosed, then the Customer is solely responsible for any damages arising out of the disclosure and will fully indemnify the Company and hold it harmless for such damages. **This provision will survive Customer's notification to Company that it is no longer considering Company's Proposal for the Project specified in the Proposal Letter**.
EXCEPTIONS TO CONFIDENTIALITY: There is no requirement to maintain the confidentiality of information that was known to the User before soliciting this *Proposal*; that was publicly available at the time it was accessed by or transmitted to the Customer; that was properly provided to the Customer by a third party without restriction; that the Customer developed independently; or that is required to be disclosed by law. However, if the User is legally required to disclose confidential information, it will promptly notify the Company and permit the Company to seek an appropriate protective order at the Company's expense.

TURBINE AIR SYSTEMS

2007 Technical Assistance for Startup, Installation, and Service

Effective Date: April 1, 2007

Rate Classification	*Standard Rate*	*Overtime*	*Double Time*	*High Security Areas*
General Labor	*$ 63*	*$95*	*$125*	*+15%*
Skilled Labor	*$130*	*$195*	*$260*	*+15%*
Field Representative	*$150*	*$225*	*$300*	*+15%*
Specialty Support Field Eng	*$200*	*$300*	*$400*	*+15%*
Site Manager	*$150*	*$225*	*$300*	*+15%*

SERVICES AVAILABLE:

General Labor: Installation labor for field erection, typically subcontracted.
Skilled Labor: Union labor, e.g. pipe fitter, service fitter, local area Trane service representative.
Field Representative: Provides technical advice and counsel based on good engineering, manufacturing, installation and operation practices applicable to the equipment during installation and start-up.
Specialty Field Support Engineer: May be any of the following:

- Mechanical Chiller: Specialist skilled in methods required for commissioning by preparing and charging the refrigerant, purging the system and adjusting to optimize the mechanical chilling performance and life expectancy of the system components.
- Vibration: Specialist experienced in setup and calibration of the equipment used for vibration data acquisition, vibration machinery diagnostics, rotor balance analysis, and recommendations on installation of balance weights.
- Software Technology: Specialist skilled in diagnostic review and setup of the control system; Tracer Summit and Allen Bradley PLC, and/or emergent technology.
- Eddy Current Testing: Specialist skilled in the testing of evaporator and condenser tubes and providing a report with recommendations on improving the water treatment chemistry, if required.
- Thermographic Analysis: Specialist utilizing infra red technology to ensure no localized hot spots or looseness of connections within the switchgear and MCC compartments.
- Performance Test Director: Specialist to perform and collect test data and satisfy and contractual requirement.

Site Manager: Manage and provide single point interface on chiller module installation and balance of plant equipment supplied
by TAS. In our experience, most multiple unit installations have benefited greatly with this type of service. Our Site Manager an also assist the Owner and EPC Contractor in finding ways to avoid costly delays during installation and commissioning.
Equipment Rental: Winterization hot air blower is available for rent at $4,000 pr week. Includes blower and all hoses. Diesel fuel is considered an operating cost and would be the responsibility of the customer. Customer is responsible for returning the equipment kit when finished.
NOTES:
1. APPLICABLE RATES: The normal workweek is five consecutive eight-hour days. Time in excess of the normal workweek and TAS holidays will be billed at the overtime or double overtime rate, except for Site Managers. Standard Time: 0800hrs to 1630hrs M-F; Overtime: 1630hrs to 2359hrs M-F and 0800hrs to 2359hrs Saturday; Double Time: 000hrs to 0800hrs any day and all day Sunday.
2. MINIMUM CHARGE: A minimum charge of 8 hours standard rate plus per diem and air travel is charged for any field work.
3. WAITING TIME: If the Field Representative is available for work, but is requested by the customer to wait, waiting time will
be charged at 8 hours per day, (standard rate, including weekend days)
4. TRAVEL TIME: Travel time is charged at the same rate as time-on-site.
5. TRAVEL AND LIVING EXPENSES (T&L): T&L will be billed for any portion of a day worked as follows:

- $210 per day per employee plus air travel at cost plus 15% administrative adder.
- Overseas travel billed at Business Class rate plus 15% administrative adder.
- $300 per day per employee will be charged for high cost locations (i.e. California, New York, Hong Kong, etc.).

6. Holidays: the following days are considered to be holidays for overtime purposes: Good Friday, Easter Sunday (mid April per calendar), Memorial Day, Independence Day, Labor Day, Thanksgiving (Thursday & Friday), Christmas Eve and Christmas Day, New Year's Eve and New Years Day.

4300 Dixie Drive Tel: 713-877-8700 Fax: 713-877-8701
Houston, TX Website: www.tas.com E-mail: sales@tas.com

EXHIBIT 18-1

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1.0 PACKAGED SYSTEM DESCRIPTION AND SCOPE OF SUPPLY

The TAS D-Series D-Series Chiller Packages are described in this document. The packages are designed to provide 2500 – 3000 refrigeration tons at the design conditions. Each package includes integrated chilled water pumps, cooling water pumps and all MCC's. The chiller package consists of a (1) duplex centrifugal chiller mounted on a heavy structural steel skid with packaged piping, valves, pumps, MCC's and controls installed and pre-wired. The "duplex" chiller has two independent compressors (separate refrigerant loops) mounted on a common frame, sharing evaporator and condenser tubes. The chiller package is designed to maintain the specified leaving water temperature at ambient temperatures up to the design point.

This chiller system is fully factory packaged, which greatly reduces field labor and construction and schedule risk, similar to the advantages gained in packaged turbines. Each chiller is built to meet the OEM's requirements for chilling applications, including the mounting in a weatherproof enclosure with a complete heating, cooling, and ventilation system to allow packages to be mounted outdoors in virtually any climate.
cooling, and ventilation system to allow packages to be mounted outdoors in virtually any climate.

1.1 CENTRIFUGAL CHILLERS

D-Series packages utilize the Trane CenTraVac Model CDHF-Two-Stage R-123 Direct Drive Hermetic Centrifugal Water Chillers.

The CenTraVac chillers represent the latest technology available from Trane. The dual compressor combination gives the highest efficiency available by utilizing the higher refrigerant suction pressures available at the upstream compressor. Additionally, the single pass water piping of the Evaporator & Condenser results in very low pressure drop which saves substantial pump horsepower vs. 2 pass chillers (which have about 6 to 8 times the pressure drop).

The Trane Company has manufactured the CenTraVac chiller for over 60 years utilizing a low speed, direct drive low-pressure design. This proven design incorporates simplicity and long life coupled with superior reliability, low maintenance, performance and efficiency. Of the over 50,000 chillers manufactured by The Trane Company since 1938, over 92% remain in operation today. Trane CenTraVac chillers are recognized as having the industry's highest efficiency and best turndown performance capabilities.

1.1.1 DUAL INDEPENDENT REFRIGERANT CIRCUITS—REDUNDANT DESIGN

This "duplex" is essentially two chillers in one. It has two completely independent refrigerant circuits, compressors, controls systems, lubrication systems, motors, and switchgear. This means even should a major failure occur in the chiller, the chiller would still be able to maintain approximately 50% of the total chiller capacity.

1.1.2 RELIABLE LOW SPEED DIRECT DRIVE DESIGN

The reliability, maintenance, and running life of any machine are a function of the number of moving parts, the complexity of the design, the quality of the components and the speed at which they operate. The Trane CenTraVac chiller has a minimum of moving parts. The reliability and maintenance problems associated with high-speed gearboxes, couplings, multiple shafts, shaft seals or complex lubrication systems are eliminated, as these items are not required. In addition, the CenTraVac chiller requires only two bearings versus competitive designs requiring five to nine bearings.

There is less wear on components operating at low speeds. The Trane Centrifugal chiller design has been based upon a low speed (3000/3,600 rpm – 50/60Hz) direct drive compressor. Competitive chillers can operate at speeds up to 10 times that of the CenTraVac chiller (36,000 rpm).

In addition to the slow speeds, the CenTraVac bearings do not absorb compressor thrust on a film of oil like a hydronic thrust bearing, therefore the oil's temperature and viscosity are not critical, so an elaborate bearing lubrication system is not required. In addition, Trane uses only top quality components - the single rotating shaft is supported by two Class 5 aircraft grade bearings.

EXHIBIT 18-1

1.1.3 VIBRATION-FREE, QUIET OPERATION

The low speed, multi-stage, direct drive design has the added benefit of providing very smooth and quiet chiller operation. The compression process is performed in two stages, which reduces compressor noise and vibration; and there is no noise generated by high-speed gears. The compressor and motor assembly is balanced to a maximum vibration amplitude of one mil. The compressor never goes through a critical speed at any time during startup, operation, or shutdown. The low speed CenTraVac has the lowest sound ratings and vibration levels in the industry.

1.1.4 MOTOR COOLING AND PROTECTION FROM PLANT ENVIRONMENT

The compressor motor is mounted inside the chiller casing, and operates in a controlled environment that is constantly clean and cool. The motor is cooled by the liquid refrigerant, which circulates uniformly over the stator windings and between the rotor and stator. The compressor motors are specifically designed for operation within the refrigerant atmosphere. No motor maintenance is required with this environmentally protected motor design. Trane CenTraVac chillers have the highest compressor motor reliability rating in the industry. Trane has been using this motor in MV applications since 1992 and during that time, over 1920 chillers have shipped; a total of 13 motors have failed during that time. This results in a better than 0.6% failure rate, which is much less than most open motors that are exposed to environmental dust and contamination.

1.1.5 LOW PRESSURE – HERMETIC "EARTH-WISE ZERO-EMISSIONS" DESIGN

The Trane CenTraVac chiller is designed to operate at pressures very close to atmospheric, using R-123 refrigerant with the evaporator section operating in a vacuum and the condenser section operating in a slight positive pressure (<15 psig) versus atmospheric pressure. In comparison, designs incorporating R-134A refrigerant have a pressure differential 20 times greater and designs incorporating R-22 refrigerant have a pressure differential 30 times greater.

Refrigerant operating pressures are important because the driving force behind any refrigerant leak is the pressure differential between the refrigerant and atmospheric pressure. In addition, during the past several years over two hundred design enhancements have been incorporated in the CenTraVac chiller resulting in a leak tight casing design. The absence of a gear-driven open motor design also contributes to the leak tight design.

The low-pressure design eliminates the potential of a catastrophic loss of refrigerant that is possible with a high-pressure design. Very little refrigerant will be lost if a minor leak forms with the low-pressure design, because air leaks into the chiller rather than having refrigerant leak out. Any air that leaks into the chiller is purged from the system by the Purge System (discussed below). In addition, abnormal purge operation is easily monitored, which gives an early warning if a leak is developing.

The low-pressure operation, coupled with the leak-tight casing design, accounts for the lowest leak rate of any chiller on the market. The CenTraVac chiller will typically lose less than ½ of one percent of the refrigerant charge per year, including servicing, which helps the environment and reduces the need for costly replacement refrigerant. In addition, the total refrigerant charge of this design is only about 3700 lbs of refrigerant for this chiller, so annual refrigerant losses should be less than about 19 lbs/yr.

1.1.6 ENERGY EFFICIENT DESIGN

Energy efficiency is very important because a chiller's typical energy consumption costs per year can equal the entire first cost of the chiller. The high efficiency of the CenTraVac is achieved by utilizing a superior compressor design where the compressor and motor are required to do less work. The basic CenTraVac design incorporates a low-pressure, multi-stage compressor with an inter-stage economizer. The inter-stage economizer increases the refrigeration effect and efficiency of the CenTraVac refrigeration cycle by 7%. The direct-drive design eliminates the efficiency losses caused by the drag and friction of gears. CenTraVac electrical consumption is typically 10-20% less than gear-driven, high-pressure chillers.

1.1.7 SUPERIOR PART LOAD TURNDOWN AND HIGH HEAD PERFORMANCE

The multi-stage centrifugal impeller design of the CenTraVac chiller also gives it superior part load turndown and high head capabilities versus single stage designs. The Dual Compressor CenTraVac chiller is capable of turndown to about 5% of capacity, without the need for hot gas bypass. Single stage designs can typically only turn down to about 15 - 20% of full load before requiring hot gas bypass.

Hot gas bypass wastes energy by artificially loading the compressor with hot compressor discharge gas and it also increases the complexity of the chiller. The CenTraVac multi-stage compressor design allows for a greater range of operation keeping the chiller up and running under full-load and part-load conditions. It is particularly well suited for the high fouling factors, lower chilled water temperatures, lower water flows, and high condenser cooling water temperatures associated with industrial and power plant applications.

1.1.8 EPA CLIMATE PROTECTION AWARD

In recognition of it's environmental leadership, the Trane CenTraVac chiller recently won the prestigious U.S. EPA Climate Protection Award due to it's proven record as the world's most efficient, lowest emissions chiller. The EPA citation stated:

> **"This chiller uses an environmentally balanced alternative refrigerant and leads the industry with superior performance, boasting efficiencies of 0.48 kilowatts per ton or better at ARI rated conditions and a "near zero" refrigerant leak rate level. Performance exceeds all other product technologies currently in the marketplace, typically by 5 to 20 percent."**

The future lies in chillers that address all of the major environmental concerns: refrigerant leakage, global warming, ozone depletion and energy efficiency.

1.1.9 MANUFACTURING QUALITY – ISO 9001 & ARI CERTIFIED

The Trane manufacturing facility in LaCrosse, Wisconsin incorporates a quality assurance system that is ISO9001 certified. This system is documented in procedures that define how quality assurance activities are managed, performed and continuously monitored. The system is designed to assure maximum consistency in meeting customer requirements.

The Trane CenTraVac chiller is certified as being manufactured to American Refrigeration Institute (ARI) industry standards for refrigeration packages.

1.1.10 STRONG LOCAL SERVICE CAPABILITIES

The combination of the Trane ISO9001 quality certified manufacturing process, the basic reliability of the CenTraVac chiller, and the support of qualified Trane service operations and technicians in most major cities around the U.S. combine to keep CenTraVac chillers operating at a high level of reliability. Local Trane technicians are factory trained and benefit from the increased resources inherent with having more centrifugal chillers in operation than all competitive manufacturers combined. In addition, specialized personnel are available from Houston specifically for startup, service, or controls programming of the Turbine Air Systems package.

1.1.11 CHILLER CONSTRUCTION SPECIFICATIONS

This chiller is factory assembled and complete with centrifugal compressor/motor assembly suitable for MV power supply, integral lubrication system, economizer, evaporator and condenser heat exchangers, microprocessor control panel, purge system and oil pump. This chiller will be constructed as follows:

1.1.11.1COMPRESSORS (Two Compressors / Chiller)

- Guide Vanes - Two sets of fully modulating variable inlet guide vanes provide capacity control. The guide vanes are controlled by an externally mounted electric vane operator in response to refrigeration load on the evaporator.

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- Impellers - Fully shrouded impellers are high strength aluminum alloy and directly connected to the motor rotor shaft operating at approximately 3000/3,600 rpm (50/60 Hz). Impellers are dynamically balanced and over-speed tested at 4,500 rpm; the motor compressor assembly is balanced to a maximum vibration amplitude of one mil as measured on the motor housing.
- Compressor Casing - Separate volute casings of refrigerant-tight, close-grained cast iron are used on the centrifugal compressor; each incorporating a parallel wall, deep throat diffuser surrounded by a collection scroll. The diffuser passages are machined to ensure high efficiency. All casings are proof-tested at 45 psig and leak-tested with a refrigerant trace gas.
- Motor - Compressor motor is hermetically sealed two-pole, low-slip squirrel cage, induction-type. A load limit system provides protection against operation in excess of its design rating. The rotor shaft is of heat-treated carbon steel and designed such that the first critical speed is well above the operating speed. The control circuit prevents the motor from energizing unless positive oil pressure is established. Impellers are keyed directly to the motor shaft and locked in position. Nonferrous, labyrinth-type seals minimize re-circulation and gas leakage between the stages of the compressor.
- Motor Cooling - Cooling is accomplished by the transfer of heat from the motor to a liquid coolant. The motor cooling system has no moving parts. Units utilize liquid refrigerant from the condenser or economizer as the coolant. The refrigerant circulates uniformly over the stator windings and between the rotor and stator. The windings of all motors are specifically insulated for operation within a refrigerant atmosphere.
- Lubrication - A direct-drive system, positive-displacement oil pump driven by a low voltage one-quarter horsepower motor is submerged in the oil sump to assure a positive oil supply to the two compressor bearings at all times. Low watt-density heaters maintain the oil temperature at a level that minimizes its affinity for refrigerant. Oil cooling is provided by refrigerant.

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1.1.11.2EVAPORATOR

- Shell and Water Boxes - The evaporator shell is formed of carbon steel plate and incorporates a carbon rupture disc in accordance with the ANSI/ASHRAE 15-1978 Safety Code. A refrigerant temperature thermo well is provided for customer use or for use with a low limit controller. A 150-psig water boxes will be provided with 150# raised face flanged connections.
- Tube Sheets - A thick carbon steel tube sheet is welded to each end of the shell and is drilled and reamed to accommodate the tubes. Three annular grooves are machined into each tube hole to provide a positive liquid and vapor seal between the refrigerant and waterside of the shell after tube rolling. Intermediate tube support sheets are positioned along the length of the shell to avoid contact and relative motion between adjacent tubes.
- Tubes - Individually replaceable externally finned internally enhanced (0.028" wall) 3/4 inch diameter seamless copper tubes are utilized as the evaporator heat transfer surface. Tubes are mechanically expanded into the tube sheets and intermediate supports to provide a leak-free seal and eliminate tube contact and abrasion due to relative motion.
- Eliminators - Multiple layers of metal mesh screen form the eliminators and are installed over the tube bundle along the entire length of the evaporator to prevent liquid refrigerant carry-over into the compressor.
- Refrigerant Distribution - A refrigerant distribution compartment in the base of the evaporator assures uniform wetting of the heat transfer surface over the entire length of the shell and under varying loads. High velocity refrigerant spray impingement on the tubes is prevented throughout this design.
- Refrigerant Flow Control - A multiple orifice flow control system helps to maintain the correct pressure differential between the condenser, economizer and evaporator over the entire range of loading. This patented system contains no moving parts.
- Shell Tests - The refrigerant side of the evaporator shell, complete with tubes, but without water box covers, is proof-tested at 45 psig, vacuum leak-tested and pressure leak-tested using a refrigerant trace gas. The waterside of the shell, with water boxes in place, is hydrostatically tested at one and one-half times the design working pressure, but not less than 225 psig.

1.1.11.3CONDENSER

- Shell and Water Boxes - The condenser shell is formed of carbon steel plate. 150-psig water boxes with 150# ANSI welded raised face flanged connections will be provided.
- Tube Sheets - A thick carbon steel tube sheet is welded to each end of the shell and is drilled and reamed to accommodate the tubes. Three annular grooves are machined into each tube hole to provide a positive liquid and vapor seal between the refrigerant and water sides of the shell after tube rolling. Intermediate tube support sheets are positioned along the length of the shell to avoid contact and relative motion between adjacent tubes.
- Tubes - Individually replaceable externally finned internally enhanced (0.028 wall) 1.0 inch diameter seamless copper tubes are utilized as the condenser heat transfer surface. Tubes are mechanically expanded into the tube sheets to provide a leak-free seal.
- Refrigerant Distribution - A baffle between the tube bundle and the condenser shell distributes the hot gas longitudinally throughout the condenser downward over the tube bundle preventing direct impingement of high velocity compressor discharge gas upon the tubes.
- Shell Tests - The refrigerant side of the condenser shell, complete with tubes, but without water boxes, is proof-tested at 45 psig, vacuum leak-tested using a refrigerant trace gas. The water side of the shell with water boxes in place is hydrostatically tested at 150 percent of the design working pressure, but not less than 225 psig.

1.1.11.4ECONOMIZER The single-stage economizer is an inter-stage pressure chamber that utilizes an orifice system to help maintain the correct differential between condensing and

economizer pressures over the entire range of loading. This patented system contains no moving parts and improves the part-load efficiency of this chiller.

1.1.11.5HIGH EFFICIENCY PURIFIER PURGE SYSTEM The CenTraVac chiller utilizes a "Zero Emissions Purge" system, which reduces refrigerant losses to less than 0.002 pounds of refrigerant per pound of air purged. This purge system uses an air-cooled condensing unit with a one-quarter horsepower 120/1/60 motor. The purge system operates automatically to remove any non-condensables and water vapor that may be present in the refrigerant system. The purge can be operated at any time independent of the chiller operation.

An elapsed time meter is included to monitor leak rates and running time, which can be monitored to help identify any potential leak prior to it becoming a problem. Abnormal purge operation will cause an alarm light and alarm contact closure for remote annunciation. This provides a very early and accurate method of detecting even minor leaks of refrigerant.

1.2 CHILLER CONTROLS

This chiller will be controlled by a stand-alone Direct Digital Control (DDC) System-(Tracer CH530). The panel will be microprocessor-based, with factory packaging and testing of all required control components for reliable equipment operation. The follow are some of the advanced control features

- **Feed Forward Adaptive Control** Feed forward is an open-loop, predictive control strategy designed to anticipate and compensate for load changes. It uses evaporator entering-water temperature as an indication of load change. This allows the controller to respond faster and maintain stable leaving-water temperatures.
- **Soft Loading** Tracer CH530 uses soft loading except during manual operation. Large adjustments due to load or setpoint changes are made gradually, preventing the compressor from cycling unnecessarily. It does this by internally filtering the setpoints to avoid reaching the differential-to-stop or the current limit. Soft loading applies to the leaving chilled-water temperature and current-limit setpoints.
- **Multi-Objective Limit Arbitration** There are many objectives that the controller must meet, but it cannot satisfy more than one objective at a time. Typically, the controller's primary objective is to maintain the evaporator leaving-water temperature. Whenever Tracer CH530 senses that it can no longer meet its primary objective without triggering a protective shutdown, it focuses on the most critical secondary objective. When the secondary objective is no longer critical, the controller reverts to its primary objective.
- **Fast Restart** Tracer CH530 allows the CenTraVac to restart while the inlet guide vanes are closing and also during the post lube process. If the chiller shuts down on a non latching diagnostic, the diagnostic has 30–60 seconds to clear itself and initiate a fast restart. This includes momentary power losses.
- **Variable Water-Flow Compensation** Water-flow compensation is a new, optional, control feature for CenTraVac chillers. It is included with the water flow control (WPSR) option, along with water pressure-sensor transducers. Water-flow compensation allows the chiller to accommodate variable flow, even in combination with an Adaptive Frequency Drive™ (AFD). A more detailed discussion continues on page18.
- **Adaptive Frequency Drive (AFD)**The combination of speed control and inlet guide-vane position is now optimized mathematically and controlled simultaneously. The increased performance of the microprocessor allows the chiller to operate longer at higher efficiency and with greater stability.
- **Revolutionary EarthWise Purge** Tracer CH530-equipped chillers feature a redesigned purge. The new purge includes an auto-regenerating carbon canister to return reclaimed refrigerant back to the chiller automatically. The EarthWise™ purge is more aggressive in auto-adaptive mode than its predecessor. Adaptive mode uses historical purge data to determine when to purge and for how long, keeping the chiller at peak efficiency.
- **Chiller-Tower Optimization** Tracer Summit™ chiller-tower optimization extends Adaptive Control™ to the rest of the chiller plant. Chiller-tower optimization is a unique control algorithm for managing the chiller and cooling-tower subsystem. It considers the chiller load and real time ambient conditions, then optimizes the tower setpoint temperature to maximize the efficiency of the subsystem.

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- **Variable-Primary Flow (VPF)**Chilled-water systems that vary the water flow through chiller evaporators have caught the attention of engineers, contractors, building owners, and operators. Varying the water flow reduces the energy consumed by pumps, while requiring no extra energy for the chiller. This strategy can be a significant source of energy savings, depending on the application. Using the optional variable water-flow compensation, Tracer CH530 reliably accommodates variable evaporator water flow and virtually eliminates its effect on the chilled-water temperature.
- **VPF with an AFD.** Previous controllers could not accommodate variable water flow in combination with variable-speed drives. Water-flow compensation reacts so quickly that this energy-saving combination is now possible.
- **34°F Leaving-Water Temperature** Another benefit of Feed forward Adaptive Control is the ability to operate the CenTraVac chiller at low leaving evaporator-water temperatures without the use of glycol. Colder water is generally used in wide delta-T systems, reducing the pumping energy required and making it less expensive to deliver cooling capacity over long distances. For this reason, 34°F leaving-water temperatures are frequently used in district cooling applications, but can also be used in comfort cooling applications. Consult CenTraVac marketing when making chiller two- or three-pass selections using 34°F to 36°F leaving-water temperatures. Adherence to standard installation procedures (e.g., strainer upstream of waterbox, waterbox temperature sensor) is important when implementing low leaving-water temperatures.

1.2.1 DYNAVIEW OPERATOR INTERFACE. DynaView™ is the unit-mounted control panel and serves as the main processor and operator interface. It has a touch-sensitive overlay on a 4" wide by 3" high ¼ VGA display. Its weatherproof plastic enclosure is 9.75" wide, 8" high, and 1.6" deep. The panel enclosure is approximately 29" wide, 21½" high, and 8½" deep, with a hinged door that swings from right to left.

DynaView receives information from, and communicates commands to, the other devices on the chiller's communications link. DynaView performs the Leaving Chilled Water Temperature and Limit Control Algorithms, arbitrating capacity against any operating limit against which the chiller may find itself working.

Operator Features

- Auto/Stop commands
- Status (all subsystems)
- Setpoint adjustment (daily user points)
- 10 active diagnostics
- Mode overrides
- ASHRAE guideline and report

1.2.2 SERVICEABILITY. Previous Trane chiller controllers included a user interface that presented all chiller data necessary for both daily tasks and service or maintenance tasks. The amount of information presented on a limited display made a number of tasks difficult. A service technician's ability to assess and resolve chiller problems was hampered by the limited presentation of multiple pieces of chiller information.

Tracer CH530 adds a level of sophistication better served by a PC application that improves service technician effectiveness and minimizes chiller downtime. Tracer CH530 provides a user interface and main processor, DynaView, which is intended to serve only typical daily tasks. A portable, PC-based service tool, TechView, supports service and maintenance tasks.

The Tracer CH530 controller will be gradually applied to all Trane chillers. TechView will then serve as a common interface to all Trane chillers, and will customize itself based on the properties of the chiller with which it is communicating. Thus, the service technician learns only one service interface.

The panel bus is easy to troubleshoot using LED verification of sensors. Only the defective device is replaced. Captive screws ensure that the appropriate mounting hardware is available. TechView can communicate with individual devices or groups of devices.

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1.2.3 ACCURACY. Each device (e.g., a sensor) is connected to its own microprocessor, which converts the sensor signal from analog to digital. The calibration of the conversion is specific to the type of sensor, providing better temperature accuracy and eliminating the need for matched sensor pairs. Distributing logic to the sensors allows the main processor to focus on responding to changing conditions— in the load, the machine, its ancillary equipment, or its power supply.

1.2.4 FIELD CONNECTION. The field-connected elements are involved in physically turning the chiller on or off. This involves ensuring that the chiller is not in an emergency or external stop condition, starting the pumps, and verifying that flow has been established. The optional, factory-supplied flow switch or a customer-supplied differential- pressure switch can be used to prove flow.

- External auto stop (enable/disable).
- Emergency stop
- Chilled-water flow contacts
- Condenser-water flow contacts
- Chilled-water pump relay
- Condenser-water pump relay

1.2.5 HEAT EXCHANGER CONTROL. Fundamental internal variables that are necessary to control the chiller are gathered and acted upon by the heat exchanger control function.

- High-pressure cutout
- Evaporator entering-water temperature
- Evaporator leaving-water temperature
- Condenser entering-water temperature
- Condenser leaving-water temperature
- Evaporator saturated-refrigerant temperature
- Condenser saturated-refrigerant temperature

1.2.6 MOTOR CONTROL. This includes all functions that start, run, and stop the motor. The starter module provides the interface and control of Y-delta, across-the-line, primary reactor, autotransformer, and solid-state starters. Analog and binary signals are used to interface with the solid state starter. The motor control also provides protection to both the motor and the compressor.

- Starter module (all starters except AFD)
- Starter fault (all solid-state starters)
- Power supply
- Oil heater relay
- Oil and refrigerant pump relay with interlock
- Oil temperature
- Oil-sump pressure
- Oil-pump discharge pressure
- Compressor motor-winding temperatures

1.2.7 EARTHWISE PURGE CONTROL. The purge control function provides all the inputs and outputs to control the purge, optimizing both purge and chiller efficiency. The purge controller communicates with DynaView over the IPC3 bus communications link, uploading setpoints and downloading data and diagnostics.

1.2.8 PHASE VOLTAGE SENSORS. Includes factory-installed potential transformers in the starter for monitoring and displaying phase voltage and provides over/undervoltage protection. DynaView, TechView and Tracer Summit display the following:

- Compressor phase voltage (a-b, b-c, c-a)
- Kilowatts
- Power factor (uncorrected)

1.2.9 CHILLED-WATER RESET-(based on returned chilled-water temperature). Chilled-water reset is often a practical means of reducing energy consumption during periods of the year when heating loads are high but cooling loads are reduced. Resetting the chilled-water temperature reduces the amount of work that the compressor must do by increasing the evaporator refrigerant pressure. Chilled-water reset is also used in combination with the hot-water control. By resetting the chilled-water temperature upward, the compressor can generate a higher condenser pressure, resulting in higher leaving hot-water temperatures.

1.2.10 REFRIGERANT MONITOR. The Extended Operation package allows for a refrigerant monitor to send a 4-20 mA signal to the DynaView display. It can be calibrated to correspond to either 0-100 ppm or 0-1,000 ppm concentration levels. The concentration level is displayed at DynaView, but the chiller will not take any action based on the input from the refrigerant monitor. Alternatively, a refrigerant monitor can be connected to Tracer Summit, which has the ability to increase ventilation in the equipment room.

1.2.11 The Chiller Control Panel will provide control of chiller operation and monitoring of chiller sensors, actuators, relays, and switches. The panel is a complete system for stand-alone chiller control and includes controls to safely and efficiently operate the chiller.

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1.2.12 STANDARD PROTECTIONS. Tracer CH530 uses proportional- integral-derivative (PID) control for all limits—there is no dead band. This removes oscillation above and below setpoints and extends the capabilities of the chiller. Some of the standard protection features of the Tracer CH530 are described in this section. There are additional protection features not listed here.

- **High Condenser-Pressure Protection**. Tracer CH530's condenser limit is a PID control that keeps the condenser pressure under a specified maximum pressure. There is no dead band—the chiller runs all the way up to 100 percent of the setpoint before reducing capacity using its Adaptive Control mode.
- **Starter-Contactor Failure Protection**. Tracer CH530 controls the start and stop of the chiller through the starter. If the starter malfunctions and does not disconnect the compressor motor from the line when requested, Tracer CH530 will recognize the fault and attempt to protect the chiller by operating the evaporator-and condenser-water pumps and attempting to unload the compressor. The chiller will protect itself, to the limits of its capabilities, from a starter failure that prevents the compressor motor from disconnecting from the line.
- **Loss of Water-Flow Protection**. DynaView has an input that will accept a contact closure from a proof-of-flow device such as a flow switch or pressure switch. Customer wiring diagrams also suggest that the flow switch be wired in series with the chilled-water (condenser-water) pump starter's auxiliary contacts. When this input does not prove flow within a fixed time during the transition from Stop to Auto modes of the chiller, or if the flow is lost while the chiller is in the Auto mode of operation, the chiller will be inhibited from running by a non-latching diagnostic.
- **Evaporator Limit Protection**. Evaporator Limit is a PID control algorithm designed to prevent the chiller from tripping on its low refrigerant-temperature cutout. The machine may run up to the limit but not trip. Under these conditions the intended chilled-water setpoint may not be met, but the chiller will do as much as it can. The chiller will deliver as much cold water as possible even under adverse conditions.
- **Low Evaporator-Water Temperature**. (Also known as Freeze Stat protection) Low evaporator-water temperature protection avoids water freezing in the evaporator by immediately shutting down the chiller and attempting to operate the chilled-water pump. This protection is somewhat redundant with the Evaporator Limit protection, and prevents freezing in the event of extreme errors in the evaporator- refrigerant temperature sensor. The cutout setting should be based on the percentage of antifreeze used in the customer's water loop. The chiller's operation and maintenance documentation provides the necessary information for percent antifreeze and suggests leaving-water temperature-cutout settings for a given chilled-water temperature setpoint.
- **High-Vacuum Lockout Protection**. The Tracer chiller controller inhibits a compressor start with a latching diagnostic whenever the evaporator pressure is less than or equal to 3.1 psia for R123. This protects the motor by locking out chiller operation while the unit is in a high vacuum, to prevent starting when the evaporator is in a high-vacuum state.
- **Oil-Temperature Protection**. Low oil temperature when the oil pump and/or compressor are running may be an indication of refrigerant diluting the oil. If the oil temperature is at or below the low oil-temperature setpoint, the compressor is shut down on a latching diagnostic and cannot be started. The diagnostic is reported at the user interface. The oil heater is energized in an attempt to raise the oil temperature above the low oil- temperature setpoint. High oil-temperature protection is used to avoid overheating the oil and the bearings.
- **Low Differential Oil-Pressure Protection**. Oil pressure is indicative of oil flow and active oil-pump operation. A significant drop in oil pressure indicates a failure of the oil pump, oil leakage, or other blockage in the oil- circuit. The differential pressure during oil pump, compressor prelube mode should not fall below 12 psid. A failure on this parameter generates a shutdown diagnostic within 2 seconds of the differential pressure falling below 2/3 of the low differential oil pressure cutout. When the compressor is running, the diagnostic is issued when the differential pressure falls below the cutout setpoint for more than (cutout 3) seconds.
- **Excessive Purge Detection**. Pump-out activity is indicative of the amount of air leaking into the chiller refrigerant system. The operator should be informed when the air- leakage rate changes. Through this setpoint, the operator can indicate the expected leakage rate, and can be notified though a diagnostic if the rate is higher than expected.

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Occasionally, when a service technician performs a mechanical repair on the chiller, an unusually high pump-out rate is expected for a certain period of time following the procedure. The service excessive pump-out override allows the technician to specify a time period for the purge system to rid the chiller of air in the system. This temporarily suspends excessive purge detection.

- **Phase-Unbalance Protection**. Phase-unbalance protection is based on an average of the three phase- current inputs. The ultimate phase- unbalance trip point is 30 percent. In addition, the RLA of the motor is de-rated by resetting the active current- limit setpoint based on the current unbalance. The RLA de-rate protection can be disabled in the field-startup menu.
  The following de-rates apply when the phase-unbalance limit is enabled:
  10% unbalance = 100% RLA de-rate
  15% unbalance = 90% RLA de-rate
  20% unbalance = 85% RLA de-rate
  25% unbalance = 80% RLA de-rate
  30% unbalance = Shutdown
- **Phase-Loss Protection**. Tracer CH530 will shut down the chiller if any of the three phase currents feeding the motor drop below 10 percent RLA. The shutdown will result in a latching phase-loss diagnostic. The time to trip is 1 second at minimum, 3 seconds maximum.
- **Phase Reversal/Rotation Protection**. Tracer CH530 detects reverse phase rotation and provides a latching diagnostic when it is detected. The time to trip is 0.7 seconds for CTV. Phase-rotation protection can be disabled in TechView.
- **Momentary Power Loss and Distribution Fault Protection**. Three-phase momentary power loss (MPL) detection gives Tracer CH530 improved performance through many different power anomalies. MPLs of 2.5 cycles or longer will be detected and cause the unit to shut down. The unit will be disconnected from the line within 6 line cycles of detection. If enabled, MPL protection will be active any time the compressor is running. MPL is not active on reduced-voltage starters from the initial start signal through transition. The MPL diagnostic is an automatic reset diagnostic. MPL protection can be disabled in TechView.
  An MPL has occurred when the motor no longer consumes power. An MPL may be caused by any drop or sag in the voltage that results in a change in the direction of power flow. Different operating conditions, motor loads, motor size, inlet guide vane (IGV) position, etc. may result in different levels at which this may occur. It is difficult to define an exact voltage sag or voltage level at which a particular motor will no longer consume power, but we are able to make some general statements concerning MPL protection:
  The chiller will remain running under the following conditions:
  - Line-voltage sag of 1.5 line cycles or less for any voltage magnitude sag
  - Control-voltage sags of less than 3 line cycles for any magnitude sag
  - Control-voltage sags of 40 percent or less for any amount of time
  - Second-order or lower harmonic content on the line The chiller may shut down under the following conditions:
  - Line-voltage sags of 1.5 or more line cycles for voltage dips of 30 percent or more
  - Control-voltage sags of 3 or more line cycles for voltage dips of 40 percent or more
  - Third-order or higher harmonic content on the line
- **Current Overload Protection.** The control panel will monitor the current drawn by each line of the motor and shut the chiller off when the highest of the three line currents exceeds the trip curve. A manual reset diagnostic describing the failure will be displayed. The current overload protection does not prohibit the chiller from reaching its full-load amperage. The chiller protects itself from damage due to current overload during starting and running modes, but is allowed to reach full-load amps.
- **High Motor-Winding Temperature Protection.** This function monitors the motor temperature and terminates chiller operation when the temperature is excessive. Tracer CH530 monitors each of the three winding-temperature sensors any time Tracer CH530 is powered up, and displays each of the temperatures at the service menu. Immediately prior to start, and while running, Tracer CH530 will generate a latching diagnostic if the winding temperature exceeds 265 +/- 5°F (129.4 +/- 2.8°C).

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- **Surge Detection Protection.** Surge detection is based on current fluctuations in one of three phases. The default detection criterion is 2 occurrences of RMS current change of 30 percent within 0.8 seconds in 60 + 10 percent seconds. With Tracer CH530, the detection criterion is adjustable.
- **Overvoltage and Undervoltage Protection.** The unit will be shut down with an automatic reset if the line voltage is below or above 10 percent of nominal. Must trip at 15 percent of nominal. Time to trip = minimum of 1 minute, 10 seconds and maximum of 5 minutes, 20 seconds. Overvoltage and undervoltage protection can be disabled using TechView.
- **Power Factor and kW Measurement.** Three-phase measurement of kW and unadjusted power factor yields higher accuracy during power imbalance conditions.
- **Short-Cycling Protection.** Two selections exist, one based on motor-winding temperature and the other based on a start-to-start time.
- **Based on Motor-Winding Temperature.** If all three motor-winding temperatures are less than the 'Restart Inhibit Temperature' setpoint, the chiller will be allowed to proceed with prestart when there is need to cool. If at least one of the three motor- winding temperatures is greater than or equal to the setpoint, but less than 265? F, the chiller will enter the restart-inhibit mode. The chiller will remain in this mode until all three motor- winding temperatures are less than the setpoint. After these temperatures drop below the setpoint, they will not be checked again in this sequence. If at least one of the three motor- winding temperatures is 265? F or higher, a High Motor Winding Temp diagnostic will be called.
- **Based On Time.** This method uses a straight start-to start timer to determine when to allow the next start. A time-based restart inhibit-function is used if the Restart Inhibit Type is set to 'Time' or if the motor-winding temperatures are determined to be invalid. A 'Restart Inhibit Start-to-Start Time' setpoint is used to set the desired start-to-start time. There is no 'free' start on a power up at DynaView. The real-time clock is used to determine when the next start will be allowed, based on the previous start. When the start is inhibited by the restart-inhibit function, the time remaining is displayed along with the restart-inhibit mode.

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1.3 CENTRAL CONTROLS SYSTEM

A central controls system will be provided for controlling the entire Central Chiller Plant System. The system proposed will monitor and control chiller and all chiller related auxiliary equipment.

Operation and monitoring of the system will be provided, locally, through full color graphical touch screen HMI interface. Optionally, a remote operator station can be provided. Remote operation is provided through a Pentium based PC with an SVGA monitor and printer.

All chiller system data including specific chiller information, pump & fan status, chilled water temperatures and system run status will be displayed on dynamic color graphics. General and specific alarm information for each chiller will also be provided at the operator's terminal.

The Central Controls System will communicate via a proprietary protocol with the chiller microprocessor panel(s). This link will provide the necessary system information to and from the Central Controls System and the Chiller(s) for reliable package operation.

The Central Controls System will be provided with an Ethernet interface for connection to any LAN with Internet access. This will allow for remote monitoring from outside the plant. This can significantly improve the ability of the customer or TAS to diagnose problems and solutions quickly without having to dispatch a technician to the jobsite.

1.3.1 STANDARD CUSTOMER HARD-WIRED INTERFACES. The following customer interface points are standard and required to be hard wired to the Package Central Control System. Contact TAS for other available points.

- Chilled Water Setpoint-(4-20mA Input)
- Chiller Plant Enable-(dry contact Input)
- Chiller Plant ESD-(dry contact Input)
- Chiller Package Common Alarm-(dry contact output)
- Remote Console Communications Cable-Ethernet, 'Blue Hose', Fiber Optic, Shielded Cable, etc.
- Cooling Mode Select--(dry contact Input)-when purchased with an optional Heating Package
- Heating Mode Select--(dry contact Input)-when purchased with an optional Heating Package

1.3.2 SYSTEM INSTRUMENTATION. D Series Packages include the following standard instrumentation.

- Chilled Water Supply and Return Isolation Valves
- Cooling Water Supply and Return Isolation Valves
- Temperature Transmitter for Condenser Entering Water
- Temperature Transmitter for Chilled Leaving Water
- Flow Switch for Condenser Water
- Flow Switch for Chilled Water
- Pressure Transmitter for Chilled Water-(Suction Header)
- Pressure Transmitter for Chilled Water-(Leaving Package Pressure)
- Refrigerant Monitor
- (3) Common Alarm Exterior Lights

1.3.3 VISUAL ALARMS. The alarm system will be tied into (2) outdoor alarm lights for alerting area personnel if there is a problem with operational alarm, shutdown or refrigerant leak detected.

1.3.4 REFRIGERANT MONITORING SYSTEM. A Refrigerant monitoring system will be provided which will detect refrigerant concentrations of 1 ppm or greater in the chiller package enclosure. This system utilizes a photo-acoustic sensing technology for accurate, false-alarm resistant operation. This system will tie into the Tracer Summit control system for truly integrated operation.

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1.4 STARTERS & SWITCHGEAR.

The package is designed to require a single MV power feeder and a single LV power feeder. All MV and LV MCC's, bus connections, and step-down transformers to utility and control voltages included and pre-wired on the chiller package to minimize field wiring required at the site. All Switchgear, starters and control enclosures are located in an isolated climate controlled 'Dry-Room' within the overall package enclosure.

1.4.1 MV SWITCHGEAR & STARTERS. MV X-Line rated motor starters will be provided and pre-wired for each of the Centrifugal compressor motors. Each of these starters will be provided with the necessary features and options required to comply with Trane's starter specifications. The starter, in combination with the CH530 microprocessor control panel will include an advanced motor protection system incorporating electronic three phase overloads and current transformers. This electronic motor protection system will monitor and protect against the conditions discussed in section 1.2.12. Optional secondary motor protection is available through local Multi-Lins located in each starter. Optional Solid State Soft Starts are also available.

1.4.2 LV STARTERS. A single NEMA 1G-LV MCC 'line-up' is provided. All starters and motors, except Cooling Tower Fans, are pre-wired prior to shipment. The Central Control System, which provides control and sequencing, is located in a dedicated vertical section of the LV MCC. MLO-(Main-Lug Only) compartment for the Incoming Power Feeder, Package Utility Power Transformer, and other optional system equipment such as KW, Watt VAR, Amp Meters are also included in the LV MCC 'lineup'. Optional Solid State Soft Starts are also available. Each starter will be provided with the following features/accessories:

- NEMA Design Contactor
- Thermal Magnetic Disconnect-(HMCP)
- Solid-State Overload
- CPT-Oversized when heaters are required
- Hand-Off-Auto-(HOA) Switch
- Running Light
- Stopped Light

1.4.3 CENTRAL CONTROLS SECTION. A single, or multiple door Section is included in the LV MCC for the Central Controls System. Located on the door of this section is the CH-530 Chiller Controller and a touch screen Human Machine Interface-(HMI). Within the cabinet are the Central Control processors, I/O and communications equipment. All customer control interfaces are made within this cabinet.

1.5 PRIMARY CHILLED WATER PUMPS

Primary Chilled Water Pumps are included and provided in the quantities and duties indicated on the System datasheet. The primary chilled water pumps are tied into and operated by the Central Package Controls System. . Lead/Lag pump operation is standard. Each pump is equipped with the following ancillaries:

- Suction and Discharge Isolation Valve
- Suction and Discharge Pressure Gage w/ Instrument Valve
- D-Flanged/Close Coupled Motor
- Drain & Vent Valves connected to package drain system
- Located within a drip containment area.

EXHIBIT 18-1

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1.6 CONDENSER WATER PUMPS

Condenser Water Pumps are included and provided in the quantities and duties indicated on the System datasheet. The condenser water pumps are tied into and operated by the Central Package Controls System. . Lead/Lag pump operation is standard. Each pump is equipped with the following ancillaries:

- Suction and Discharge Isolation Valve
- Suction and Discharge Pressure Gage w/ Instrument Valve
- D-Flanged/Close Coupled Motor
- Drain & Vent Valves connected to package drain system
- Located within a drip containment area.

1.7 CHILLER PACKAGING FEATURES

The system described above will be mounted on a heavy structural skid bases with removable lifting lugs. All internal piping and wiring will be completed and tested prior to shipment; such that upon arrival a minimal number of pipe sections will need to be re-installed. All chilled water and condenser water piping will be brought to the package boundaries for easy interconnect with the field piping. The chilled and cooling water piping connections are located on the same end of the package; thus greatly increasing field piping flexibility for systems that where the TAS cooling Tower is not used.

The Chiller and chilled water piping are provided pre-insulated with Armorflex insulation to prevent sweating and conserve temperature.

Power feeders to each compressor motor will have been 'rolled-back' for shipment. These connections need only be laid back in their tray and re-terminated. Control and utility wiring between package sections will require that only a minimal number of wires be re-terminated in the 'shipping-break' junction box.

The chiller package enclosure will have all overhead lighting as well as emergency power lighting to illuminate the interior of the enclosure. In addition, it will have (2) LV service/utility electrical outlets.

A weatherproof and insulated enclosure will be provided over the entire package to provide weather protection and acoustical attenuation as well as thermal insulation. This enclosure will be designed for a minimum of 110 mph wind loading and a snow loading of 55 PSF. The roof will be sloped to facilitate rain & snow drainage. Roof sections over the Chillers are designed for easy removal in the event of major compressor maintenance.

Two with wall-mounted Air-Conditioning and Heating systems are provided to maintain the interior temperature at acceptable levels in the 'Dry-Room' and equipment areas.

A ventilation system is be provided and interfaced to the Central Control System. In the event of a refrigerant lead Control system will annunciate an alarm and automatically start the ventilation fans. This system complies with ASHRAE standards for equipment room design.

A 1.5 Ton overhead monorail crane will be provided to allow easy maintenance and repair for the pumps. The rail will extend to the service door located on the end near the pumps.

COOLING TOWER SYSTEM

2.1 COOLING TOWER

TAS provides EVAPCO Model AT induced-draft counter-flow cooling tower modules to match up with the Chiller Package.

The pan will be constructed of G-235 hot-dip galvanized steel for long life and durability. G-235 hot-dip galvanized steel designates an average coating thickness of 2.35 ounces of zinc per square foot on the steel. Standard pan accessories include overflow, drain, anti-vortexing hood, type 304 stainless steel strainers, and brass make-up valve with plastic float. The entire pan area will incorporate a stepped configuration for reduced water volume, lower operating weight and easier pan maintenance. The upper and lower pan bottoms will be sloped to provide positive drainage of the complete basin section.

The casing will be constructed of G-235 hot-dip galvanized steel. The casing panels will totally encase the sides of the fill section to protect the surface from direct atmospheric contact.

Totally enclosed air over TEAO ball bearing fan motors with 1.15 service factor will be furnished suitable for cooling tower service on 3ϕMV service. Motors will be mounted on an adjustable base that allows the motors to swing to the outside of the unit for servicing.

The fan drive will be a multi-groove, solid back V-belt type with taper lock sheaves designed for 150% of the motor nameplate horsepower. The belt material will be neoprene reinforced with polyester cord and specifically designed for cooling tower service. Fan and motor sheaves will be aluminum alloy construction. Belt adjustment will be accomplished from the exterior of the unit. Bearing lube lines will be extended to the exterior of the unit for easy maintenance.

Fans will be heavy-duty axial propeller types statically balanced. The fans will be fabricated by the cooling tower manufacturer for single source responsibility and reliability. The fans will be constructed of extruded aluminum alloy blades, installed in a closely fitted cowl with venturi air inlet for maximum fan efficiency. Each fan blade will be individually adjustable. The fan cowl will be covered with a heavy gauge hot dip galvanized wire fan guard.

Fan shaft bearings will be heavy-duty self-aligning ball type with self-locking collars and grease fittings extended to be outside of the unit. Bearings will be designed for a minimum L-10 life of 75,000 hours.

Cooling tower fan drive components will be covered by a five-year manufacturer's plan. Drive components protected by this warranty will include the fans, bearings, fan shafts, drive sheaves and fan motors.

The cooling tower fill will be PVC (Polyvinyl Chloride) of cross-fluted design for optimum heat transfer efficiency. The cross-fluted sheets shall be bonded together for strength and durability. The fill will be fabricated, formed and installed by the cooling tower manufacturer and will be elevated a minimum of 4 feet above the floor of the cold water basin to facilitate cleaning. The fill will be suitable for use as a working platform. The PVC fill will be self-extinguishing for fire resistance with a flame spread rating of 5 per ASTM E84-81a. It will also be resistant to rot decay and biological attack. The fill will be able to withstand a water temperature of 130 deg. F.

The spray header and branches will be constructed of Schedule 40 polyvinyl chloride (PVC) pipe for corrosion resistance and will have a steel connection to attach the external piping. The spray header and branches will be removable for cleaning purposes. ABS spray nozzles with large 3/8 by 1 inch orifice openings and integral sludge ring to eliminate clogging. The nozzles will be threaded into the water distribution piping to assure positive positioning.

EXHIBIT 18-1

The eliminators are constructed entirely of inert polyvinyl chloride (PVC) in easily handled sections and are completely separate from the fill section for maximum efficiency. The eliminator design will incorporate three changes in air direction to assure removal of all entrained moisture from the discharge air stream. Maximum drift rate will be less than .001% of the circulating water rate.

The louver screens are constructed of polyvinyl chloride (PVC) and mounted in easily removable frames on all four sides of the cooling tower for access to the entire basin area for maintenance. The louvers have a minimum of two changes in air direction to prevent splash-out, block direct sunlight from entering the basin, and have a minimum 3¾"opening to prevent debris from entering the basin.

All pan and casing material are constructed of G-235 heavy gauge mill hot-dip galvanized steel for maximum protection against corrosion. During fabrication, all panel edges are coated with a 95% pure zinc-rich compound.

Cooling tower fan vibration switches, cooling tower sump heaters, and sump stainless steel upgrades are available as options, but are not included in this base proposal.

2.2 COOLING TOWER INSTRUMENTATION

The following instruments are provided as standard on all cooling towers

- Vibration Transmitters-(Each Fan Motor)
- Level switch-(Each Common Basin)

2.3 COOLING WATER PIPING-(Optional Not Included)

All large-bore cooling water piping necessary to connect the cooling towers to the packages is included. This includes all piping to be prefabricated and spooled up to allow quick bolt up and/or final weld connection for easy installation in the field (see optional TAS field installation price) by customer's EPC contractor. Also included are all isolation valves for the cooling water supply and return to each chiller package. Local pressure and temperature indicators are provided for use in the testing and balancing of the system.

2.4 COOLING TOWER STRUCTURE & PLATFORMS-(Optional Not Included)

A prefabricated and hot-dipped galvanized support structure, to allow mounting of the Cooling Towers directly above the Chiller Packages, is included. This structure includes galvanized walkways & handrails for access around the tower. This arrangement minimizes the site space required and allows the cooling water piping to be prefabricated for ease of installation. The structure also serves as the mounting structure for conduit and/or cable trays supplying power and control signals to the cooling towers.

One (1) caged access ladder is provided for access to the cooling towers and platforms.

A monorail is also provided with the structure to facilitate roof and compressor removal in the event of major compressor maintenance.

2.5 OTHER COOLING TOWER OPTIONS

- COOLING TOWER LOW NOISE PACKAGES. A variety of low noise options are available for sites with more stringent noise constraints. Contact TAS for discussion and application of this option.
- COOLING TOWER STAINLESS STEEL CONSTRUCTION. Complete or partial cooling tower construction with Stainless steel is available. Contact TAS for discussion and application of this option.
- COOLING TOWER EXTERIOR LIGHTING. An Exterior lighting system is available for perimeter lighting on the cooling tower structure.
- COOLING TOWER STAIRS. Galvanized Stair Access is available in lieu of TAS Standard Caged ladders for more convenient platform access.
- COOLING TOWER BASIN HEATERS. Basin heaters are available for freeze protection of the Tower basins.

3.0 CHILLER SYSTEM OPTIONS

3.1 PERFORMANCE MONITORING PACKAGE (PMP)

The Performance Monitoring Package (PMP) consists of a high-accuracy Flow Meter for both the chill water loop and the condenser water loop (per package). Also included are three –(3) Temperature Transmitters located at the coils. This instrumentation is utilizes to determine an energy balance at the delivery point (net tons). The package also includes a kW meter for both the MV and LV feeds. This is a mandatory option when performance guarantees are required by the project scope.

The following trim and controls shall be furnished:

- Combination thermometer and pressure gauge.
- Water temperature control operator.
- Manual reset high limit safety control.
- Low water cutoff.
- ASME safety relief valves.
- Main gas safety shutoff valve
- Auxiliary safety shutoff valve
- Pilot solenoid valve & shutoff cock
- Adjustable cam gas metering valve
- Gas pilot assembly & ignition transformer
- Main manual gas shutoff & leakage test cocks
- High & low gas pressure switches
- Pilot & main gas pressure regulators
- Air safety switch
- Electronic combustion safety control with UV sensor.
- Single point electrical connection to reduce installation costs (including fuses/circuit breakers).
- One Control Circuit Transformer installed.

4.0 POWER DISTRIBUTION CENTER-PDC (OPTIONAL NOT INCLUDED)

TAS can optionally provide a Power Distribution Center(s), that will accept a single MV feeder and provide the required number of MV feeds and LV feeds to the chiller system. Each PDC consists of the following:

- MV Incoming Feeder Breaker
- MV Chiller Module Feeder Breakers-MV Starters
- LV Chiller Module Feeder Breakers-LV Starters & Accessories
- LV Secondary Pump Skid Feeder Breaker-(TES Systems Only)
- LV Utility Transformer-PDC utilities,
- 125VDC Battery Charger & Batteries for Local SWG Operation
- 125VAC Control Power UPS
- Central PLC Control Cabinet & HMI
- MultiLin 735 Protective relays on all Feeder Breakers
- Structural Steel Base with Enclosure
- Wall Mounted Room Conditioner

Step-down Transformers are shipped loose for external pad mounting. Field wiring from Transformers to/from PDC, and PDC to Chiller Packages is to be provided by Purchaser.

Similar units are available for HV systems also. Contact TAS for additional details.

EXHIBIT 18-1

5.0 THERMAL ENERGY STORAGE-(TES) TANK-(OPTIONAL NOT INCLUDED)

The Thermal Energy Storage (TES) System employs the principle of thermal stratification for storing warm and cold water in a single storage vessel. A complete TES tank with all internal flow distributors as described herein to store thermally stratified water (or aqueous fluid) will be provided. The TES tank is integrated with the chilled water system through the Secondary Pump Skid described below. The TES system will store chilled water (or aqueous fluid) produced during "off-peak" periods to meet "on-peak" thermal loads. The tank is an above-ground, vertical, cylindrical, flat bottom tank of all-welded steel construction. The tank will have a column-supported, fixed roof.

TAS utilizes only the most experienced and experienced TES Tan Subcontractors. All of our contractors have a minimum of ten years experience in the turnkey design and supply of TES Tank Systems, including individual systems of at least 120,000 ton-hour capacity. The system and internals provided shall be of the tank subcontractor's own design and shall utilize principles and details proven operationally successful by numerous field installations. All internal piping, including internal flow distributor and overflow, shall be welded carbon steel. The exterior paint system shall conform to External Coating System No. 1 as defined in AWWA D102. The Interior paint system shall conform to Internal Coating System No. 1 as defined in AWWA D102. The insulation system shall meet or exceed the system performance requirements for heat gain; and capable of withstanding a 100 mph wind loading.

The TES Tank Subcontractor will furnish an up-to-date soils investigation report, by a qualified Geotechnical Engineer, performed in accordance with the "Guide for Soil Investigations". The foundation, as a minimum, shall be a reinforced concrete ringwall meeting the construction tolerances and design requirements of AWWA D100 and ACI 318 and be sloped to prevent the accumulation of rainwater. A sand cushion and insulation shall be insulated shall be supplied under the tank. The foundation will be designed the to meet the recommendations of the geotechnical report.

Following construction the TES tank will be hydrotested in accordance with AWWA D100. The tank will be filled and tested after the completion and acceptance of the tank coating. Upon completion of an acceptable test, the test water will be retained for process use. The hydrotest inspection is a visual leak inspection made from grade and existing ladders, stairways and platforms.

The TES Tank shall have as a minimum the following fittings and accessories:

- (2) shell access manholes with hinged door.
- (2) rain-proof roof access hatches (one located near the center of the roof).
- (1) warm water inlet nozzle.
- (1) cold water inlet nozzle.
- (1) overflow nozzle with an internal overflow pipe and an external seize-resistant, anti-thermosipho device.
- (1) center column clean out nozzle with blind flange.
- (1) $^{1}/_{8}$ inch diameter center column bleed hole.
- (1) roof vent
- (1) level instrument nozzle.
- (1) fire protection nozzle (*if applicable-dual purpose installations*).
- Temperature transmitters w/carbon steel shell mounted thermowells.
- Conduit attachments for thermal charge and level instrumentation.
- (1) straight external ladder with galvanized fall prevention device (and 2 belts) as required by OSH and a walk-thru at the roof with 10 feet of handrail.
- Grounding lugs as specified in subparagraph 6-4.1.4 (c) of NFPA 780.
- Level instrumentation with high and low level alarm capability
- (1) fill/drain nozzle with elbow turned down with antifreeze valve (if conditions require)".

EXHIBIT 18-1

The materials, design, fabrication, erection and inspection of the welded steel thermal energy storage tank and foundation, shall conform to the latest editions of the following Standards, Codes, and Guides:

- American Concrete Institute (ACI):
  - (a) ACI 301 - Specification for Structural Concrete;
  - (b) ACI 318 - Building Code Requirements for Structural Concrete.
- American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE):
  - (a) ASHRAE Applications Handbook, Chapter 39, Thermal Storage;
  - (b) ASHRAE Design Guide for Cool Thermal Storage;
  - (c) ASHRAE Standard 150, Method for Testing the Performance of Cool Storage Systems.
- American Society of Mechanical Engineers(ASME):
  - (a) ASME B31.1- Code for Pressure Piping - Power Piping.
- American Water Works Association (AWWA):
  - (a) AWWA D100 Welded Steel Tanks for Water Storage;
  - (b) AWWA D102 Painting Steel Water Storage Tanks.
- Air-conditioning & Refrigeration Institute (ARI):
  - (a) Guideline T - Specifying the Thermal Performance of Cool Storage Equipment;
  - (b). ARI Standard 900, Thermal Storage Equipment Used for Cooling.
- National Fire Protection Association (NFPA):
  - (a) NFPA 780 – Standard for the Installation of Lightning Protection Systems.
  - (b) NFPA 22 – Standard for Water Tanks for Private Fire Protection.
  (Applies to dual service fire protection tanks).
- Steel Structures Painting Manual and SSPC Standards, Volumes 1 and 2.

6.0 SECONDARY PUMP SKIDS-(TES Systems Only)

Each Secondary Pump Skid consists CHW pumps with VFD drives mounted on a structural steel base and enclosed. An electrical 'dry-room' inside the package contains the VFD drives and local controls.

7.0 INSTALLATION MANPOWER REQUIREMENTS

Typical installation manpower requirements of a D Series package consists of the following:

Table I. Manpower Requirements

Trades	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Superintendent	1	1	1	1	1	1
Lead (Mech.)	1	1	1	1	1	1
Pipe Fitter(s)	0	1	1	0	0	0
Welder(s)	0	2	2	1	0	0
Helper(s)/Gen. Labor	2	2	2	1	1	1
Electrician(s)	1	2	2	2	1	0
Insulators	0	0	0	0	0	0
Man Hours / Day	10	10	10	10	10	10
Days / Week	5	5	5	5	5	5
Man Hours / Week	250	450	450	250	200	150

Total man-hours: 1800

Notes:

1. Table I is based on the chiller plant concrete foundation being completed and ready to accept equipment prior to Week 1. If the foundation work is to be included in TAS' scope, then add one additional 250-hour man-week of labor and approximately three weeks of foundation cure time prior to the Week 1 shown in Table I.
2. Table I is based on installing chiller plant island with chilled water supply and return piping at boundary limit only. Chilled water supply and return piping from chiller plant island to turbine filter house structures, turbine filter house coils, supply and reverse return manifolds, and turbine filter house structure riser piping are not considered in Table I.
3. Table I does not include concessions for foul weather, work stoppages, standby time, and holidays.
4. For a D-35W Packaged Chiller Plant use a 1.05 multiplier for total man-hours.

Exclusions:

1. Cranes, crane operator and riggers
2. Local site support – offices, transportation, support, communications, etc.
3. Foundations
4. Materials and tools
5. Startup and commissioning is not included – quoted separately
6. No insulation included for chilled water piping

Table I – Summary of Events:

Week 1: Mobilization to site. Set construction trailer, tool lockers. Receive crane, jig lifts, and forklift. Offload chiller and pump modules as they arrive on site and set on foundation. Level and align pump and chiller modules and fasten the skids together. Install skid anchoring devices and grout. Install enclosure flashing between skids and make weather tight. Reconnect power cables to lighting and A/C units. Reconnect cable to MV and LV motors.

Week 2: Raise cooling tower structure support legs and grout in. Install cooling tower support deck and catwalks. Receive and offload cooling towers onto cooling tower support deck. Fasten cooling towers to support deck. Install cooling tower piping. Begin installing chiller plant exterior lighting.

Week 3: Finish installing cooling tower piping. Finish installing cooling tower structure ladders, catwalks, and handrails. Finish installing chiller plant exterior lighting. Finish terminations for cooling tower LV motors and cooling tower end devices.

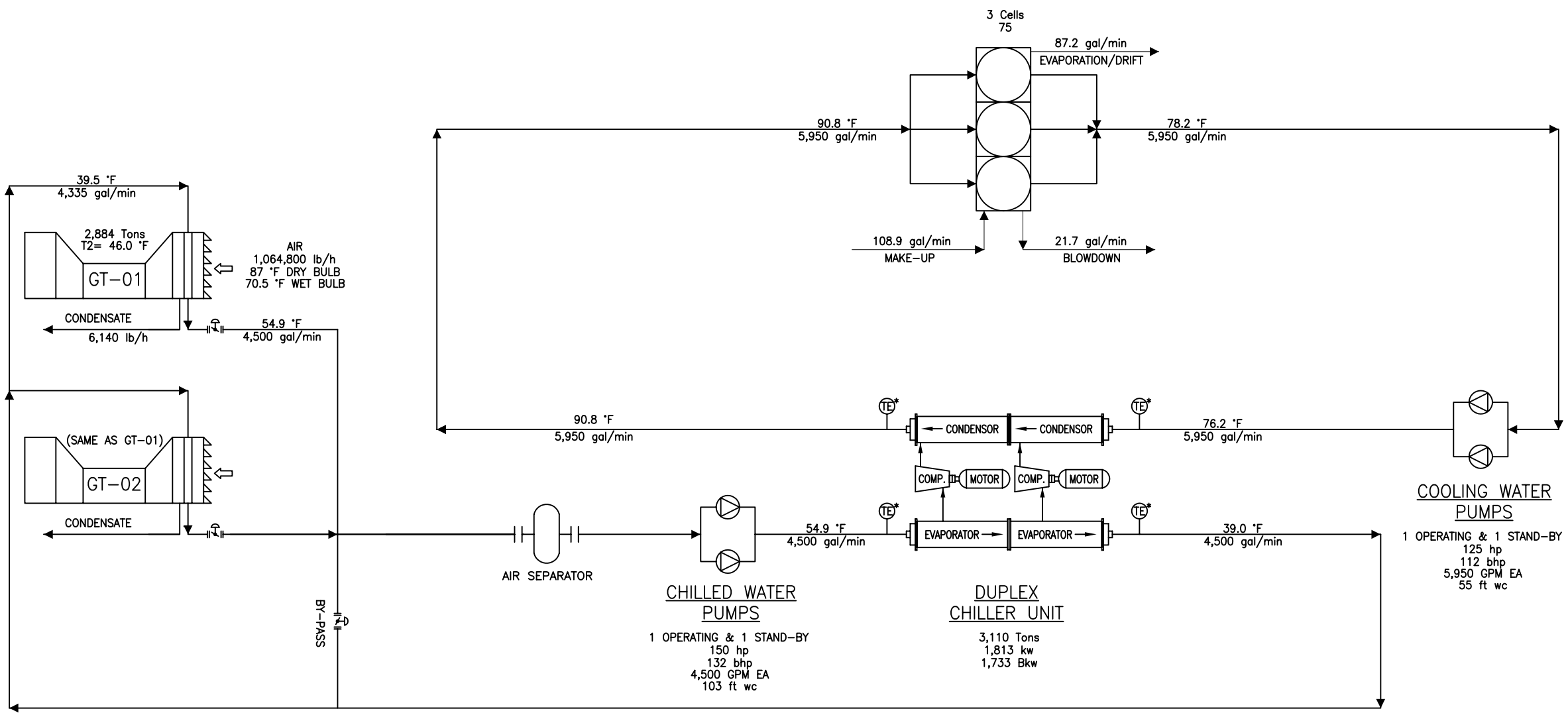
Week 4: Finish installation of below cooling tower deck cable trays and cabling. Touch-up paint in interior of chiller plant modules.

Week 5: Finish chiller plant Megger and Hi-Pot testing for all MV and LV cables. Finish control wiring point-to-point continuity checks. Touch up paint on all plant external piping.

Week 6: Clean up area and prepare for demobilization. Chiller plant walk through with the Owner and resolution of any punch list items. Demobilize.

EXHIBIT 18-1

EXHIBIT 18-1



SITE CLIMATIC DESIGN CONDITIONS

DRY BULB(DBT) =	87 °F
WET BULB(WBT) =	70.5 °F
ALTITUDE =	75 ft

MODULE CAPACITIES

NET COIL TONS EA. =	2,884 Tons
NET COIL TONS TOTAL =	2,884 Tons
GROSS CHILLER TONS =	3,110 Tons
GROSS CHILLER TONS (TOTAL) =	3,110 Tons
SYSTEM EFFICIENCY (ARI) =	0.714 kW/Tons
FLUID=	Water

REFERENCE DRAWINGS

PRELIMINARY

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A	ISSUED FOR PROPOSAL	MAL			7/20/07

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CHECKED BY: DATE:
APPROVED BY: DATE:
PROJ. MGR:
CUST. P.O. NO.
SCALE: NOT TO SCALE
SITE:
TAS JOB. NO. 704012

TURBINE AIR SYSTEMS
4300 DIXIE DRIVE HOUSTON, TX 77021 PHONE: (713) 877-8700 FAX: (713) 877-8701

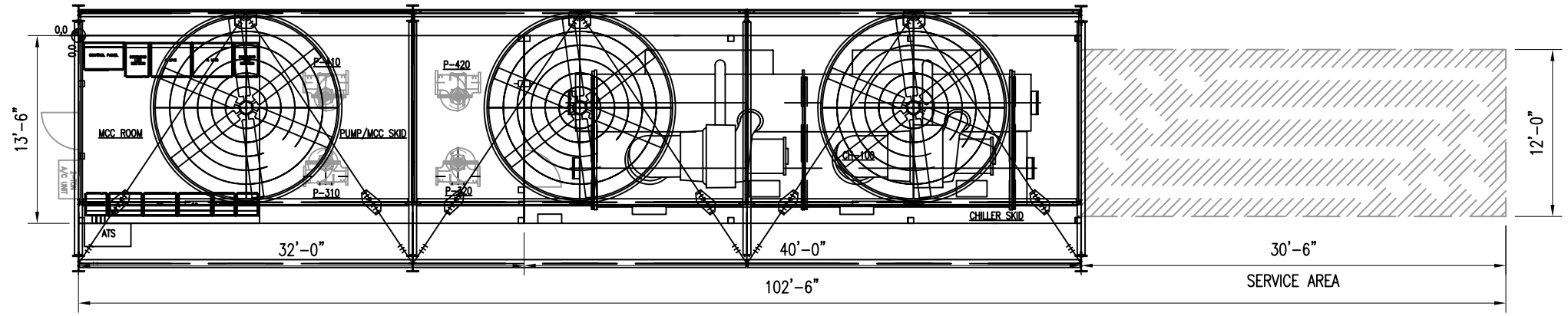
PROCESS FLOW DIAGRAM
D-30C CHILLED WATER PLANT
J POWER SAN DIEGO
SAN DIEGO, CALIFORNIA

DWG. NO. 0704012-010 | SHEET 1 OF 1 | CAT. – | REV. A

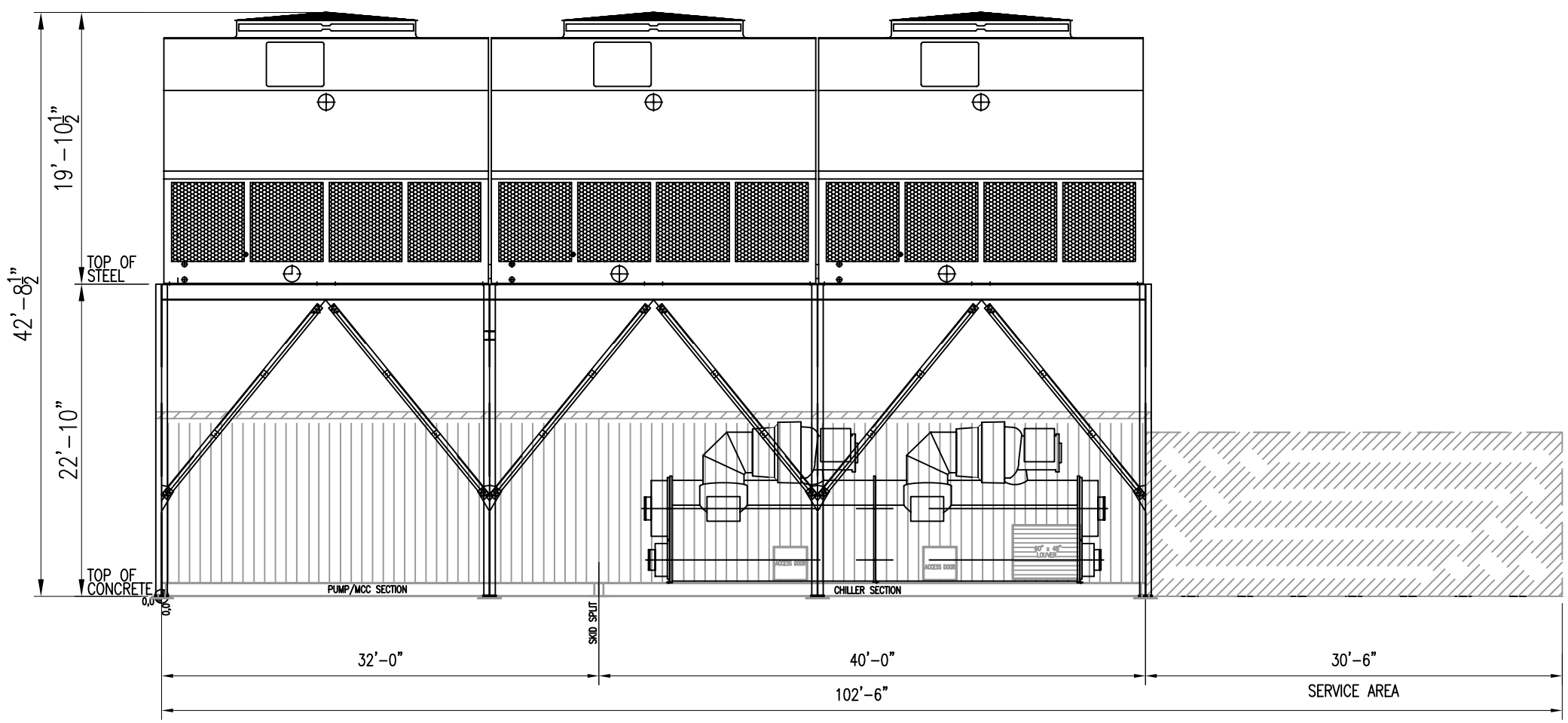
CHAWS, CHUCK Oct. 4, 06 T:\Proposals\0704012-J Power SD\03.00 Engineering\03.01 Drawings\0704012-010-01RA

DWG. NO. 0704012-010 SHT 1 OF 1

EXHIBIT 18-1



PLAN VIEW



ELEVATION VIEW

NOTES:

* MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 6318065, 6470686, 6769258, 6848267

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APPROVED BY: DATE:
PROJ. MGR:
CUST. P.O. NO.
SCALE: NOT TO SCALE
SITE:
TAS JOB. NO. 0704012

TURBINE AIR SYSTEMS
4300 DIXIE DRIVE HOUSTON, TX 77021 PHONE: (713) 877-8700 FAX: (713) 877-8701

GENERAL ARRANGEMENT
D30 SERIES CHILLED WATER PLANT
J POWER SAN DIEGO
SAN DIEGO, CALIFORNIA

DWG. NO.	SHEET	OF	CAT.	REV.
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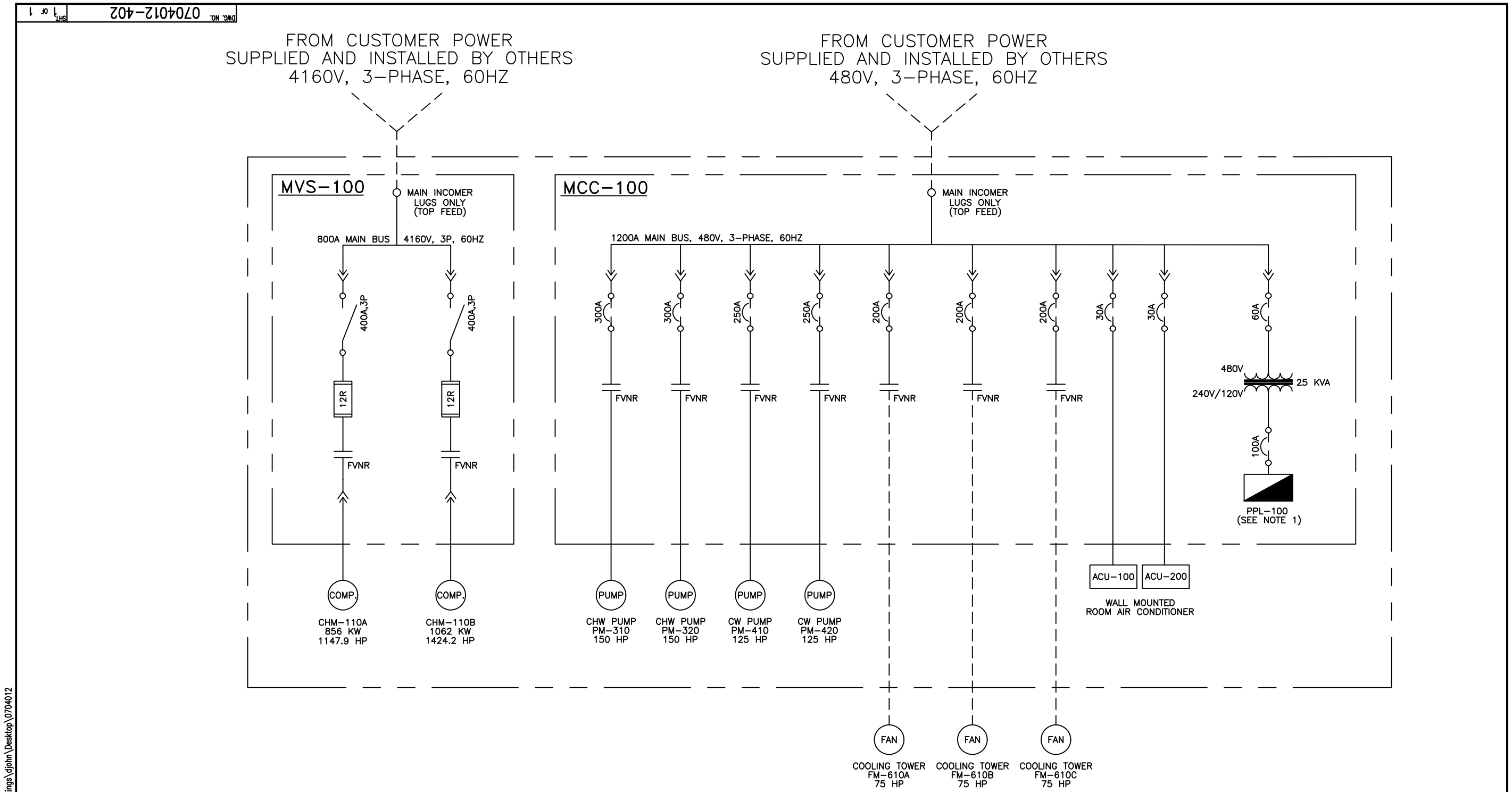
DWG. NO. 0704012-200 SHT. 1 OF 1

EXHIBIT 18-1



NOTES:

1) PPL-100 BRANCH BREAKERS: 2NO.-30AT,2P; 2NO.-20AT,2P; 4NO.-40AT,1P; & 6NO.-20AT,1P

REFERENCE DRAWINGS

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A	ISSUED FOR INFORMATION	DJ			

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CHECKED BY: DATE:
APPROVED BY: DATE:
PROJ. MGR:
CUST. P.O. NO.
SCALE: NTS
SITE:
TAS JOB. NO. 0704012

TURBINE AIR SYSTEMS
ISO 9001:2000

SIMPLIFIED ONE LINE DIAGRAM
CHILLER PLANT
J POWER SAN DIEGO
SAN DIEGO, CALIFORNIA

DWG. NO. 0704012-402 | SHEET 1 OF 1 | REV. A

DWG. NO. 0704012-402 SHT 1 OF 1

JOHN, DAVIE Jul. 26, 07C:\Documents and Settings\djohn\Desktop\0704012

PROJECT: 0704012 00a				CUSTOMER: J Power SD				REV:	
LOCATION: San Diego, CA				Voltage	4160	Frequency	60Hz	00a	
LOAD NO.	Chiller/ Compressor Tag	MAX. kW	MAX. HP	RATED bkW	RATED bHP	POWER FACTOR	MOTOR EFF.	MOTOR RLA	MOTOR FLA
1	CHU-110A <Rmt Mtd X-line>	856.0	1,147.9	788.9	1,057.9	Included in Motor kW Calc		119.2	129.3
2	CHU-110B <Rmt Mtd X-line>	1,062.0	1,424.2	939.0	1,259.2			141.9	160.5
3									
4									
5									
6									
	Chiller Totals Per Skid	1,918.0	2,572.1	1,727.9	2,317.2			261.1	289.8

International Voltages	Primary Pump Motors:		Voltage	480	Weg	ODP	60Hz	1800 RPM	
LOAD NO.	Pump Tag Number	Motor kW	Pump HP	Motor bkW	Pump bHP	PF (fl)	EFF.	RLA	FLA
7	P-310 <FVNR>	117.7	150.0	103.6	132.0	0.880	0.950	141.6	160.9
8	P-320 <FVNR>	117.7	150.0	0.0	0.0	0.880	0.950	0.0	160.9
9									
10									
11									
12									
13	P-410 <FVNR>	98.6	125.0	88.4	112.0	0.870	0.945	122.2	136.4
14	P-420 <FVNR>	98.6	125.0	0.0	0.0	0.870	0.945	0.0	136.4
15									
16									
17									
18									
	Pump Totals Per Skid	432.8	550.0	192.0	244.0			263.8	594.6

	Condenser/Cooling Tower Fans:		Voltage	480	Weg	TEFC	60Hz	1800 RPM	
LOAD NO.	Fan Tag Number	Motor kW	Fan HP	Motor bkW	Fan HP	PF (fl)	EFF.	RLA	FLA
19	F-610A <FVNR>	59.2	75.0	59.2	75.0	0.880	0.945	80.9	80.9
20	F-610B <FVNR>	59.2	75.0	59.2	75.0	0.880	0.945	80.9	80.9
21	F-610C <FVNR>	59.2	75.0	59.2	75.0	0.880	0.945	80.9	80.9
22									
23									
24									
25									
26									
27									
28									
29									
30									
	Pump Totals Per Skid	177.5	225.0	177.5	225.0			242.7	242.7

	LV Secondary Pump Motors:		Voltage	480	Weg	TEFC	60Hz	1800 RPM	
LOAD NO.	Pump Tag Number	Motor kW	Pump HP	Motor bkW	Pump bHP	PF (fl)	EFF.	RLA	FLA
31									
32									
33									
34									
35									
36									
37									
38									
39									
	Pump Totals Per Skid	0.0	0.0	0.0	0.0			0.0	0.0

40	Wall A/C Unit (LV)	11.8	kW	14.2	Amps @ 480V	Unit 1:	6 Tons
41	Wall A/C Unit (LV)	6.0	kW	7.2	Amps @ 480V	Unit 2:	3 Tons
42	Wall A/C Unit (LV)	0.0	kW	0.0	Amps @ 480V	Unit 3:	None
43	Wall A/C Unit (LV)	0.0	kW	0.0	Amps @ 480V	Unit 4:	None
44	Wall A/C Unit (LV)	0.0	kW	0.0	Amps @ 480V	Unit 5:	None
45	Wall A/C Unit (LV)	0.0	kW	0.0	Amps @ 480V	Unit 6:	None

UTILITY LOSSES		Sec. Volts	Running kW (bkW)		Transformer		FLA	AVAIL. AMPS	KVA
46	MV Trans Loss	4160	7.1	1,727.9	2500	4160 SECONDARY KVA	289.8	347.0	2,088.1
47	LV Trans Loss	480	1.6	387.3	750	480 SECONDARY KVA	837.3	902.1	696.1
48	Utilities Trans Loss	120	0.01	2.5	3	120V SEC. KVA	8.8	25.0	1.1

120V LOADS		QTY	AMPS	kW
49	Lights	8.0	5.3	0.64
50	Vents	2.0	7.2	0.86
51	Controls	1.0	5.0	0.60
52	Chillers	0.0	0.0	0.00
53	120V A/C Unit	0.0	0.0	0.00

NOTES

1. CHWS/R:39.0°F/55.5°F
2. CWS/R: 76.2°F/90.81°F 70.5DEG WB
3. CHW - 2 X 100% - 4500 GPM, 103' WC
4. CW - 2 X 100% - 5950 GPM, 55' WC
5. D-Skid
6.

TOTAL POWER CONSUMPTION

SPECIFIC POWER CONSUMPTION	
Tons	3,110
Total kW (Non-ARI)	2,117
kW/Ton (Non-ARI)	0.681
Total kW (ARI*)	2,221
kW/Ton (ARI*)	0.714

*Zero Negative Tolerance

FULL RUNNING LOAD @ RLA		
VOLTAGE	AMPS	kW
120V	17.6	2.1
480V	527.9	387.3
4160V	261.1	1,727.9
NON-ARI		2,117.3

MAXIMUM POSSIBLE LOAD @ FLA		
VOLTAGE	AMPS	kW
120V	17.6	2.1
480V	858.7	628.1
4160V	289.8	1,918.0
		2,548.2

Cooling Tower Data Sheet

Project:	Phil Collison
Equipment Reference:	EVAPCO, Inc.
Product Type: AT Cooling Tower	AL, AF

Date: 07/19/07 Page: 1

Selection Criteria

Capacity (Tons):	2,895.67
Capacity (MBH):	43,435.000
Fluid:	Water
Flow (GPM):	5,950.0
Entering Fluid Temp (F):	90.8
Leaving Fluid Temp (F):	76.2
Wet Bulb (F):	70.5

Selection

Qty	Model	Capacity (Tons)	Percent Capacity
1	AT 314-1272	2,892.77	99.9

One or more parameters is outside of CTI certification limits.

All Weights, Dimensions and Technical Data are Shown per Unit

# Fans:	3	Overall Length:	71' 8.000"
# Fan Motors @ HP:	(3) @ 75.00 (460/3/60)	Overall Width:	13' 11.250"
# Heaters @ kW:	(6) @ 16.00	Overall Height:	19' 3.500"
Air Flow (CFM):	685,300		
Inlet Pressure Drop (PSI):	1.0	Operating Weight (lbs):	110,070
Evaporated Water Rate (gpm):	69.5	Shipping Weight (lbs):	62,520
		Heaviest Section (lbs):	13,660

Base Model:

Options Selected:

Contactor for Heater Package
El. Heaters (0F / -18C ambient) (6) @ 16 kW
Equalizer Connection (1) 12 inches
External Service Platform with Ladder
Fan Motor: Inverter Duty
Vibration Switch

EXHIBIT 21-1

WATER QUALITY PROFILE

2006 Water Quality Report Table

b Parameter	c Units	d State MCL [MRDL]	f PHG (MCLG) [MRDLG]	g Range Average	h Treatment Plant Effluent: Weymouth Plant	Diemer Plant	Jensen Plant	Skinner Plant	Mills Plant	i Major Sources in Drinking Water
a Percent State Project Water	%	NA	NA	Range Average	60-85 73	59-71 65	100 100	41-59 51	100 100	NA
e PRIMARY STANDARDS - Mandatory Health-Related Standards										
CLARITY										
Combined Filter Effluent Turbidity	NTU %	0.3 95 (a)	NA	Highest % < 0.3	0.09 100%	0.08 100%	0.05 100%	0.11 100%	0.06 100%	Soil runoff
MICROBIOLOGICAL										
Total Coliform Bacteria	%	5.0 (b)	(0)	Range Average	Distribution System-wide: 0% Distribution System-wide: 0%					Naturally present in the environment
Fecal Coliform and *E. coli*	(c)	(c)	(0)	Distribution System-wide Fecal Coliform-positive samples = 0 Distribution System-wide *E.coli*-positive samples = 0						Human and animal fecal waste
Heterotrophic Plate Count (HPC) (d)	CFU/mL	TT	NA	Range Average	Distribution System-wide: Distribution System-wide:		TT TT			Naturally present in the environment
Cryptosporidium (e)	Oocysts/ 200 L	TT	(0)	Range Average	ND ND	ND ND	ND ND	ND ND	ND ND	Human and animal fecal waste
Giardia (e)	Cysts/ 200 L	TT	(0)	Range Average	ND ND	ND ND	ND ND	ND ND	ND ND	Human and animal fecal waste
Total Culturable Viruses (e)	P or A/ 1000 L	TT	(0)	Range Average	A A	A A	A A	A A	A A	Human and animal fecal waste
Legionella	MPN/ 100 L	TT	(0)	Range Average	TT TT	TT TT	TT TT	TT TT	TT TT	Naturally present in the environment
ORGANIC CHEMICALS										
Acrylamide	NA	TT	(0)	Range Average	TT TT	TT TT	TT TT	TT TT	TT TT	Water treatment chemical impurities
Epichlorohydrin	NA	TT	(0)	Range Average	TT TT	TT TT	TT TT	TT TT	TT TT	Water treatment chemical impurities
INORGANIC CHEMICALS										
Aluminum (f)	ppb	1000	600	Range Average	ND-190 ND	ND-58 ND	ND-110 81	ND ND	ND-100 58	Residue from water treatment process; natural deposits erosion
Arsenic	ppb	50	0.004	Range Average	ND-2.4 ND	ND ND	ND ND	ND ND	ND-2.0 ND	Natural deposits erosion; glass and electronics production wastes
Fluoride (naturally-occurring)	ppm	2	1	Range Average	ND-0.15 0.13	0.12-0.18 0.15	0.16-0.22 0.18	0.16-0.23 0.20	ND ND	Erosion of natural deposits; water additive for tooth health
Nitrate (as N) (g)	ppm	10	10	Range Average	ND-0.63 0.45	ND-0.68 0.45	ND-0.54 0.47	ND-0.45 ND	ND-0.81 0.54	Runoff and leaching from fertilizer use; sewage; natural erosion
Nitrate and Nitrite (as N)	ppm	10	10	Range Average	ND-0.63 0.45	ND-0.68 0.45	ND-0.54 0.47	ND-0.45 ND	ND-0.81 0.54	Runoff and leaching from fertilizer use; sewage; natural erosion
RADIONUCLIDES (h)										
Gross Alpha Particle Activity	pCi/L	15	(0)	Range Average	ND ND	ND-7.2 ND	ND-4.2 ND	ND-5.5 ND	ND ND	Erosion of natural deposits
Gross Beta Particle Activity	pCi/L	50	(0)	Range Average	ND ND	ND-6.4 ND	ND ND	ND ND	ND ND	Decay of natural and man-made deposits
Uranium	pCi/L	20	0.43	Range Average	ND ND	ND ND	1.1-1.9 1.4	1.5-3.2 2.3	ND ND	Erosion of natural deposits
DISINFECTION BY-PRODUCTS, DISINFECTANT RESIDUALS, AND DISINFECTION BY-PRODUCTS PRECURSORS										
Total Trihalomethanes (TTHM) (i)	ppb	80	NA	Range Average	34-63 46	32-59 45	15-50 24	41-69 53	6-38 15	By-product of drinking water chlorination
Total Trihalomethanes (TTHM) (i)	ppb	80	NA	Range Highest RAA	Distribution System-wide: Distribution System-wide:			12-73 43		By-product of drinking water chlorination
Haloacetic Acids (five) (HAA5) (i, j)	ppb	60	NA	Range Average	13-35 25	12-32 22	5-19 7.9	20-29 25	4.1-9.5 5.7	By-product of drinking water chlorination
Haloacetic Acids (five) (HAA5) (i, j)	ppb	60	NA	Range Highest RAA	Distribution System-wide: Distribution System-wide:			5-41 18		By-product of drinking water chlorination
Total Chlorine Residual	ppm	[4.0]	[4.0]	Range Highest RAA	Distribution System-wide: Distribution System-wide:			1.4-2.8 2.4		Drinking water disinfectant added for treatment
Bromate (k)	ppb	10	(0)	Range Highest RAA	NA NA	NA NA	3.3-7.2 5.6	NA NA	3.1-10 5.8	By-product of drinking water ozonation
DBP Precursor Control (TOC) (i)	ppm	TT	NA	Range Average	TT TT	TT TT	TT TT	TT TT	TT TT	Various natural and man-made sources
e SECONDARY STANDARDS - Aesthetic Standards										
Aluminum (f)	ppb	200	600	Range Average	ND-190 ND	ND-58 ND	ND-110 81	ND ND	ND-100 58	Residue from water treatment process; natural deposits erosion
Chloride	ppm	500	NA	Range Average	42-98 61	47-97 66	44-56 50	68-95 78	27-94 46	Runoff/leaching from natural deposits; seawater influence
Color	Units	15	NA	Range Average	1-4 2	1-2 2	1-2 1	1-2 2	1-2 1	Naturally occurring organic materials
Corrosivity (l) (as Saturation Index)	SI	non-corrosive	NA	Range Average	0.04-0.30 0.19	0.07-0.29 0.20	0.02-0.26 0.14	0.17-0.45 0.28	-0.03-0.31 0.14	Elemental balance in water; affected by temperature, other factors
Odor Threshold (m)	TON	3	NA	Range Average	2 2	2 2	2 2	2 2	3 3	Naturally occurring organic materials
Specific Conductance	µS/cm	1600	NA	Range Average	482-829 595	536-810 652	411-539 480	650-880 748	256-598 362	Substances that form ions in water; seawater influence
Sulfate	ppm	500	NA	Range Average	78-162 116	106-159 132	55-86 69	118-184 154	24-68 39	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (TDS)	ppm	1000	NA	Range Average	270-481 344	307-458 378	236-304 273	381-518 438	140-320 200	Runoff/leaching from natural deposits; seawater influence
Turbidity (a)	NTU	5	NA	Range Average	0.05-0.07 0.06	0.04-0.06 0.05	0.04 0.04	0.05-0.08 0.06	0.04-0.05 0.05	Soil runoff

EXHIBIT 21-1

RAINBOW MUNICIPAL WATER DISTRICT
ANNUAL DRINKING WATER QUALITY REPORT 2005

Rainbow Municipal Water District (RMWD) is pleased to provide you the Annual Drinking Water Quality Report for 2005. This brochure is a snap shot of the water quality information that was compiled during 2005. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and State standards. Last year, we conducted more than 1,488 tests for total coliform bacteria. We detected total coliform bacteria at one site in the month of October, which complies with the level that the State allows. For more information, see the next two paragraphs marked Open Reservoir Statement and Violation.

Open Reservoir Statement

The District's water storage and distribution system includes over 300 miles of pipeline, twelve closed steel tanks, and four open reservoirs. The four open reservoirs contain up to 86% of the total storage capacity. When originally built, the reservoirs met health standards; however, today's standards are more stringent and require treated water reservoirs to be covered. Uncovered treated water reservoirs may pose a significant contamination risk to the water supply by contact from humans, animals, birds, windblown materials and vandalism. Open reservoirs are also the most vulnerable part of a water system to terrorism. Because these reservoirs are not covered, the District monitors all storage facilities daily in accordance with the California Department of Health Services (CDHS) Open Reservoir Policy to ensure that fences, drains, diversion structures, and liners are in the very best condition. Bacteriological tests are taken at each open reservoir five times a week. The finished water leaving these open reservoirs is disinfected by injecting chlorine before it enters the distribution system.

Violation

RMWD routinely monitors the distribution system for drinking water contaminants. The CDHS requires that no more than 5% of the water samples collected per month may test positive for total coliform. Coliform bacteria are generally not harmful by themselves but are used as an indicator. *Coliform bacteria are bacteria, which are naturally present in the environment and are used as an indicator that other, potentially harmful bacteria may be present.* Usually, coliform bacteria are a sign that there could be a problem with the treatment system or the distribution system. Whenever we detect coliform bacteria in any sample, we do follow-up testing to see if other bacteria of greater concern, such as fecal coliform or E. coli, are present. E. coli bacteria was detected in the water supply from the Beck Reservoir on February 4, 2005. These bacteria may cause sickness, and are a particular concern for people with weakened immune systems. Beck Reservoir is uncovered and exposed to bacterial contamination from a number of sources. Water coming out of Beck Reservoir is blended with water from the San Diego County Water Authority. Although E. Coli was not detected in the sample taken after the blend, CDHS does not consider this blending operation adequate disinfection. The District opted to isolate Beck Reservoir from the distribution system February 7, 2005 rather than issue a Boil Water Order. Beck reservoir was brought back online on February 25, 2005 after a temporary chlorination system was installed at the reservoir outlet. We collected 124 water samples from the system during the month of October. One of the water samples showed the presence of total coliform bacteria. We did not find any of these bacteria in our subsequent testing.

CDHS issued Citation 05-14-05C-011 to the District on August 16, 2005 which is attributed to RMWD's failure to provide a reliable and adequate supply of pure, wholesome, healthful and potable water mainly due to the operation of uncovered drinking water reservoirs. The citation also stated RMWD did not have an adequate plan stating how long the open reservoirs could be shut down due to water quality problems or breakdown of chlorination facilities without jeopardizing the District's ability to meet water demands to customers.

CDHS also issued Citation 05-14-05C-020 to the District on December 6, 2005. The Citation was attributed to RMWD's failure to provide a reliable and adequate supply of pure, wholesome, healthful and potable water mainly due to the operation of uncovered drinking water reservoirs and failure to meet some deadlines in Citation 05-14-05C-011.

Where does my water come from?

RMWD purchases 100% of its treated water from the San Diego County Water Authority (SDCWA). The SDCWA in turn purchases its water from the Metropolitan Water District of Southern California (MWD). Water is transmitted to our District from SDCWA and MWD using a complex system of aqueducts and pipes. The water contains a mixture of chlorine and ammonia, which creates a strong disinfectant known as chloramines. Chlorine residual is constantly monitored, and when applicable the District injects small amounts of chlorine into the water at facilities throughout the District. Should a water quality problem occur, RMWD is prepared to take remedial action as set forth in an Operational Plan approved by the Department of Health Services.

Introduction… *continued on page 2*

EXHIBIT 21-1

Introduction… *continued from front page*

Source water assessment and its availability

In December 2002, Metropolitan Water District of Southern California completed its source water assessment of its Colorado River and State Water Project supplies. Colorado River supplies are considered to be most vulnerable to recreation, urban/storm runoff, increasing urbanization in the watershed and wastewater. State Water Project supplies are considered to be most vulnerable to urban/storm water runoff, wildlife, agriculture, recreation and wastewater. A copy of the assessment can be obtained by contacting MWD at (213) 217-6850.

How can I get involved?

For additional water quality or operational clarification, please contact the Operations Department at (760) 728-1178 or visit our website at www.rainbowmwd.com. We want our valued customers to be informed about their water utility. If you want to learn more, you are invited to attend any of our regularly scheduled Board of Directors meetings. Meetings are held every third Friday of the month at 9:00 a.m. at the District headquarters located at 3707 Old Highway 395, Fallbrook, CA. 92028.

Why are there contaminants in my drinking water?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1-800-426-4791 or look for it on the EPA's web site (www.epa.gov/safewater.com). The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and in some cases radioactive material and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

• **Microbial contaminants**, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

• **Inorganic contaminants**, such as salts and metals, that can be naturally-occurring or result from urban runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

• **Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff and residential uses.

• **Organic chemical contaminants**, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production and can also come from gas stations, urban stormwater runoff and septic systems.

• **Radioactive contaminants**, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is healthy, USEPA and the State Department of Health Services prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

RMWD routinely monitors for contaminants in your drinking water according to federal and state laws. The table in this brochure shows the results of our monitoring for the period of January 1st to December 31st, 2005.

Do I need to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791). Cryptosporidium ("crypto") is a microscopic organism found in California's rivers and streams, and comes from animal wastes in the watershed. When ingested by humans, it may result in a variety of gastrointestinal symptoms including diarrhea, nausea and fever. The Metropolitan Water District of Southern California has tested for crypto in its treated water supplies for years. Since 1997, this organism has not been detected in either of Metropolitan's source water or treated water.

Certified Operators

The District's water operators are certified in both water distribution and water treatment. Drinking water operator competency is critical for the protection of public health and the maintenance of safe, optimal, and reliable operations of water treatment and distribution facilities. Minimum Federal guidelines ensure that operators have the operational skills, knowledge, experience, education, and training required to operate a water system. Once water operators are initially trained and certified, regular recertification will ensure continual competency. The requirements to be issued by EPA and CDHS will provide baseline standards for efficient and effective State water operator certification programs.

PRIMARY STANDARDS – MANDATORY HEALTH-RELATED STANDARDS

Microbiological Contaminants (to be completed only if there was a detection of bacteria)	**Highest No. of detections**	**No. of months in violation**	**MCL**	**MCLG**	**Typical Source of Bacteria**
MICROBIOLOGICAL					
Total Coliform Bacteria	1 in Oct.	0	More than 1 sample in a month with a detection	0	Naturally present in the environment
Fecal Coliform or *E. coli*	0 in the year	0	A routine sample and a repeat sample detect total coliform and either sample also detects fecal coliform or *E. coli*	0	Human and animal fecal waste

EXHIBIT 21-1

PRIMARY STANDARDS – MANDATORY HEALTH-RELATED STANDARDS

INORGANIC COMPOUNDS

Lead and Copper (to be completed only if there was a detection of lead or copper in the last sample set)	**No. of samples collected**	**90th percentile level detected**	**No. sites exceeding AL**	**AL**	**PHG**	**Typical Source of Contaminant**
Copper (f) (ppm)	30	0.38	0	1.3 mg/l	0.17	Internal corrosion of household plumbing systems; erosion of natural deposits.
Lead (f) (ppb)	30	<0.005	0	AL=15	2	Internal corrosion of household water plumbing systems; Discharges from industrial manufacturers, erosion of natural deposits.

Parameter (a)	**Average**	**Range**	**MCL**	**PHG MCLG**	**Major Sources in Drinking Water**
DETECTION OF CONTAMINANTS WITH A PRIMARY STANDARD					
Fluoride (ppm)	0.25	0.17-0.28	2	1	Erosion of natural deposits; water additive for tooth health
Haloacetic Acids(HAA5) (e)(ppb)	38	27-93	60	NA	By-product of drinking water chlorination.
TTHM (e)(ppb) [Total trihalomethanes]	62	28-140	80	NA	By-product of drinking water chlorination.
Total Chlorine Residual [MRDL] (ppm)	1.9	1.5-2.3	4	NA	Drinking water disinfectant added for treatment.
DBP Precursors Control (TOC) (ppm)	2.4	2.0-2.7	TT	0.30	Various natural and man-made sources.
RADIONUCLIDE (pCi/L)					
Gross Alpha Particle Activity (pCi/L)	5.0	4.7-5.4	15	0	Erosion of natural deposits.
Gross Beta Particle Activity (pCi/L)	ND	ND - 4.5	50	0	Decay of natural and man-made deposits.
Uranium (pCi/L)	ND	2.5-2.9	20.0	0.43	Erosion of natural deposits.
SECONDARY STANDARDS - AESTHETICS STANDARDS					
Chloride (ppm)	82	75-86	500	NA	Runoff/leaching from natural deposits; Seawater influence.
Color (units)	5	3-7	15	NA	Naturally occurring organic materials.
Specific Conductance (umho/cm)	831	691-930	1600	NA	Substances that form ions when in water; seawater influence.
Sulfate (ppm)	169	86-209	500	NA	Runoff/leaching from natural deposits; industrial wastes.
Total Dissolved Solids (TDS) (ppm)	490	352-562	1000	NA	Runoff/leaching from natural deposits.
Turbidity (monthly)(NTU)(b)	2.0	0.72-5.1	5	NA	Soil runoff.
ADDITIONAL PARAMETERS					
Hardness (ppm)	229	155-267	NA	NA	Leaching from natural deposits.
Sodium (ppm)	78	62-87	NA	NA	Runoff/leaching from natural deposits; Seawater influence.
Boron (ppb)	150	150-160	NA	AL= 1000	Leaching from natural deposits.

Este informe contiene informacion muy importante sobre la calidad de su agua beber. Traduscalo o hable con alguien que lo entienda bien.

EXHIBIT 21-1

EXHIBIT 27-1

REVISED AIR MODELING RESULTS FOR FACILITY OPERATION

Exhibit 27-1 Revised Air Modeling Results for the Operational Phase

With the revised emission estimates for the operational phase of the project, emission modeling using AERMOD for three different load conditions and two years of local meteorological data is conducted to update the predicted concentrations anticipated from the operation of the facility. The methodology as specified in Appendix 6.2-E is followed. The emission rates for all averaging period are presented in Exhibit 028-1, Tables 28-3, 28-4 and 28-5.

The results of the modeling are presented below. Input/output modeling files are provided on a CD along with other air modeling files completed for this set of data request. Additionally, the 1st to the 4th highest predicted concentrations along with coordinates are provided in Tables 27-2 through 27-4.

Table 27-1 – Summary of Modeling Results for Facility Operation

Pollutant	Averaging Time	50% Load		75% Load		100% Load		Back-ground µg/m^3	Max Total µg/m^3	Most Stringent AAQS µg/m^3
		2002 µg/m^3	2003 µg/m^3	2002 µg/m^3	2003 µg/m^3	2002 µg/m^3	2003 µg/m^3			
NO_2	1 HR	92.97	**114.26**	91.08	111.90	88.05	111.78	150.5	264.8	338
NO_2	Annual	0.55	0.63	0.61	0.69	0.68	**0.77**	33.9	34.7	100
CO	1 HR	132.46	172.12	132.37	172.10	132.34	**172.15**	7,214	7,386	23,000
CO	8 HR	**88.11**	86.49	78.92	78.81	73.17	72.03	4,135	4,223	10,000
SO_2	1 HR	7.21	8.87	7.88	9.87	8.42	**10.75**	110	120.8	655
SO_2	3 HR	**5.51**	4.62	5.51	4.76	5.41	5.02	52.4	57.9	105
SO_2	24 HR	**2.68**	2.28	2.40	2.13	2.24	2.01	23.6	26.3	1,300
SO_2	Annual	0.09	0.10	0.10	0.12	0.12	**0.14**	10.5	10.6	80
PM_{10}(1)	24 HR	2.41	2.23	2.52	2.32	**2.63**	2.39	57.0	59.6(3)	50
PM_{10}	Annual	0.29	0.33	0.32	0.36	0.34	**0.38**	27.5	27.9(4)	20
$PM_{2.5}$(2)	24 HR	2.29	2.23	2.52	2.32	**2.63**	2.39	67.3	69.7(5)	35
$PM_{2.5}$	Annual	0.29	0.33	0.32	0.36	0.34	**0.38**	14.1	14.5(6)	12

(1) 3rd highest value

(2) Over 99% of PM_{10} emissions are $PM_{2.5}$ for natural gas combustion source (CARB)

(3) Highest measured ambient concentration in the last three years is above the CAAQS; however, the highest measured ambient concentration in 2006 of 42 µg/m^3 with the predicted increment would meet the CAAQS.

(4) Background concentration is above the AAQS.

(5) Highest measured ambient concentration in the last three years is above the CAAQS; however, the highest measured ambient concentration in 2006 of 31.8 µg/m^3 with the predicted increment would meet the CAAQS.

(6) Highest measured ambient concentration in the last three years is above the CAAQS; however, the highest measured ambient concentration in 2006 of 11.5 µg/m^3 with the predicted increment would meet the CAAQS.

The highlighted and bolded results above are the highest predicted concentration from the various modeling scenarios for each pollutant at each averaging period. It is then added to the background concentration and compared to the more stringent AAQS. Except for $PM_{10/2.5}$, the resulting concentrations for all pollutants are below the AAQS. The predicted increments of for $PM_{10/2.5}$ are below the significance threshold as defined by EPA and San Diego County. The $PM_{10/2.5}$ will also be mitigated as proposed in Data Response 1.

Table 27-2 – Summary of Modeling Results (100% Load Condition)

Group	Average	Pol	Met File	Rank	Conc.	East(X)	North(Y)	Elev	Time YYMMDDHH
100% Load Scenario 1 - one turbine at start up and one at steady state.	1-HR	CO	2002	1ST	132.34	489,493	3,691,232	172	02092124
				2ND	126.60	489,778	3,691,228	174	02070623
				3RD	122.66	489,778	3,691,228	174	02010924
				4TH	120.38	489,778	3,691,228	174	02100721
			2003	1ST	172.15	489,753	3,691,228	166	03120220
				2ND	145.52	489,753	3,691,228	166	03021404
				3RD	142.92	489,768	3,691,232	173	03021404
				4TH	128.46	489,768	3,691,232	173	03011121
		NOX	2002	1ST	88.05	489,143	3,690,807	298	02060403
				2ND	83.89	489,118	3,690,832	301	02032624
				3RD	79.80	489,143	3,690,782	301	02032624
				4TH	77.02	489,143	3,690,782	301	02021404
			2003	1ST	111.78	489,118	3,690,932	286	03010907
				2ND	85.62	489,118	3,690,832	301	03010907
				3RD	74.86	489,118	3,690,782	305	03092001
				4TH	72.69	489,143	3,690,807	298	03010907
		SO2	2002	1ST	8.42	489,118	3,690,807	306	02060403
				2ND	8.01	489,118	3,690,832	301	02032624
				3RD	7.52	489,156	3,690,796	296	02110106
				4TH	7.33	489,143	3,690,782	301	02021404
			2003	1ST	10.75	489,118	3,690,932	286	03010907
				2ND	8.26	489,093	3,690,857	307	03101323
				3RD	7.09	489,118	3,690,782	305	03092001
				4TH	6.86	489,143	3,690,782	301	03081102
100% Load Scenario 2 - both turbines at start up.	1-HR	CO	2002	1ST	135.98	489,143	3,690,807	298	02060403
				2ND	129.50	489,118	3,690,832	301	02032624
				3RD	123.11	489,778	3,691,228	174	02010924
				4TH	120.99	489,778	3,691,228	174	02100721
			2003	1ST	137.69	489,143	3,690,807	298	02060403
				2ND	131.02	489,118	3,690,832	301	02032624
				3RD	123.51	489,156	3,690,796	296	02110106
				4TH	120.04	489,143	3,690,782	301	02021404
		NOX	2002	1ST	7.88	489,118	3,690,807	306	02060403
				2ND	7.50	489,118	3,690,832	301	02032624
				3RD	7.02	489,156	3,690,796	296	02110106
				4TH	6.86	489,143	3,690,782	301	02021404
			2003	1ST	172.95	489,118	3,690,932	286	03010907
				2ND	145.80	489,753	3,691,228	166	03021404
				3RD	143.38	489,768	3,691,232	173	03021404
				4TH	128.96	489,768	3,691,232	173	03011121
		SO2	2002	1ST	175.86	489,118	3,690,932	286	03010907
				2ND	134.89	489,093	3,690,857	307	03101323
				3RD	115.97	489,118	3,690,782	305	03092001
				4TH	112.16	489,143	3,690,782	301	03081102
			2003	1ST	10.05	489,118	3,690,932	286	03010907
				2ND	7.72	489,093	3,690,857	307	03101323
				3RD	6.64	489,118	3,690,782	305	03092001
				4TH	6.40	489,143	3,690,782	301	03081102

Table 27-2 – Summary of Modeling Results (100% Load Condition) - Continued

Group	Average	Pol	Met File	Rank	Conc.	East(X)	North(Y)	Elev	Time YYMMDDHH
100% Load	3-HR	SO2	2002	1ST	5.41	489,900	3,691,500	255	02081303
				2ND	4.41	489,900	3,691,500	255	02110103
				3RD	4.05	489,900	3,691,700	274	02111021
				4TH	4.03	489,900	3,691,600	267	02111021
			2003	1ST	5.03	489,800	3,691,600	307	03062024
				2ND	4.71	489,800	3,691,600	307	03091824
				3RD	4.70	489,800	3,691,600	307	03051824
				4TH	3.96	489,800	3,691,600	307	03080224
	8-HR	CO	2002	1ST	73.17	489,118	3,690,607	249	02120308
				2ND	65.03	489,147	3,690,623	235	02020608
				3RD	61.14	489,146	3,690,598	235	02122408
				4TH	58.91	489,146	3,690,598	235	02121208
			2003	1ST	72.03	489,118	3,690,582	243	03121208
				2ND	65.59	489,146	3,690,598	235	03012808
				3RD	62.84	489,147	3,690,623	235	03022108
				4TH	61.36	489,146	3,690,598	235	03022108
	24-HR	PM10	2002	1ST	3.22	489,118	3,690,607	249	02120324
				2ND	2.94	489,146	3,690,598	235	02121224
				3RD	2.63	489,118	3,690,557	236	02121924
				4TH	2.52	489,118	3,690,582	243	02121924
			2003	1ST	2.89	489,146	3,690,598	235	03020924
				2ND	2.58	489,146	3,690,598	235	03012824
				3RD	2.39	489,143	3,690,607	237	03120924
				4TH	2.37	489,152	3,690,722	265	03111724
		SO2	2002	1ST	2.24	489,118	3,690,607	249	02120324
				2ND	2.04	489,146	3,690,598	235	02121224
				3RD	1.83	489,118	3,690,557	236	02121924
				4TH	1.75	489,118	3,690,582	243	02121924
			2003	1ST	2.01	489,146	3,690,598	235	03020924
				2ND	1.79	489,146	3,690,598	235	03012824
				3RD	1.66	489,143	3,690,607	237	03120924
				4TH	1.65	489,152	3,690,722	265	03111724
	ANNUAL	NOX	2002	1ST	0.68	489,118	3,690,632	254	1 Yr
			2003	1ST	0.77	489,152	3,690,722	265	1 Yr
		PM10	2002	1ST	0.34	489,118	3,690,632	254	1 Yr
			2003	1ST	0.38	489,152	3,690,722	265	1 Yr
		SO2	2002	1ST	0.12	489,118	3,690,632	254	1 Yr
			2003	1ST	0.14	489,152	3,690,722	265	1 Yr

Table 27-3 – Summary of Modeling Results (75% Load Condition)

Group	Average	Pol	Met File	Rank	Conc.	East(X)	North(Y)	Elev	Time YYMMDDHH
75% Load	1-HR	CO		1ST	132.46	489,493	3,691,232	172	02092124
				2ND	126.74	489,778	3,691,228	174	02070623
				3RD	122.78	489,778	3,691,228	174	02010924
			2002	4TH	120.46	489,778	3,691,228	174	02100721
				1ST	172.12	489,753	3,691,228	166	03120220
				2ND	145.60	489,753	3,691,228	166	03021404
				3RD	143.17	489,768	3,691,232	173	03021404
			2003	4TH	128.61	489,768	3,691,232	173	03011121
		NOX		1ST	92.97	489,156	3,690,796	296	02060403
				2ND	88.40	489,157	3,690,820	289	02032624
				3RD	85.23	489,800	3,691,500	263	02101021
			2002	4TH	78.82	489,156	3,690,796	296	02021404
				1ST	114.26	489,143	3,690,907	275	03010907
				2ND	90.48	489,158	3,690,845	280	03101323
				3RD	81.34	489,143	3,690,832	291	03092001
			2003	4TH	75.05	489,143	3,690,757	292	03081102
		SO2		1ST	7.21	489,157	3,690,820	289	02060403
				2ND	6.79	489,143	3,690,832	291	02032624
				3RD	6.40	489,156	3,690,796	296	02110106
			2002	4TH	6.11	489,156	3,690,796	296	02021404
				1ST	8.89	489,143	3,690,932	275	03010907
				2ND	7.03	489,143	3,690,857	284	03101323
				3RD	6.20	489,154	3,690,771	295	03062503
			2003	4TH	5.86	489,154	3,690,771	295	03081102
	3-HR	SO2		1ST	5.51	489,900	3,691,500	255	02081303
				2ND	4.47	489,900	3,691,500	255	02110103
				3RD	4.41	489,900	3,691,500	255	02051703
			2002	4TH	3.98	489,900	3,691,500	255	02111021
				1ST	4.62	489,800	3,691,500	263	03062024
				2ND	4.06	489,800	3,691,600	307	03051824
				3RD	3.92	489,800	3,691,600	307	03091824
			2003	4TH	3.77	489,800	3,691,500	263	03090124
	8-HR	CO		1ST	88.11	489,146	3,690,598	235	02120308
				2ND	74.96	489,145	3,690,574	229	02122408
				3RD	70.70	489,142	3,690,500	228	02120308
			2002	4TH	68.26	489,143	3,690,607	237	02030608
				1ST	86.49	489,146	3,690,598	235	03121208
				2ND	73.18	489,145	3,690,574	229	03012808
				3RD	69.27	489,143	3,690,557	224	03020908
			2003	4TH	67.36	489,145	3,690,574	229	03022208
	24-HR	PM10		1ST	2.97	489,143	3,690,607	237	02120324
				2ND	2.53	489,145	3,690,574	229	02121224
				3RD	2.41	489,143	3,690,557	224	02121924
			2002	4TH	2.29	489,143	3,690,582	232	02122324
				1ST	2.53	489,145	3,690,574	229	03020924
				2ND	2.24	489,146	3,690,598	235	03120924
				3RD	2.23	489,143	3,690,607	237	03020324
			2003	4TH	2.17	489,143	3,690,607	237	03121224
		SO2		1ST	2.68	489,143	3,690,607	237	02120324
				2ND	2.29	489,145	3,690,574	229	02121224
				3RD	2.18	489,143	3,690,557	224	02121924
			2002	4TH	2.07	489,143	3,690,582	232	02122324
				1ST	2.28	489,145	3,690,574	229	03020924
				2ND	2.03	489,146	3,690,598	235	03120924
				3RD	2.01	489,143	3,690,607	237	03020324
			2003	4TH	1.96	489,143	3,690,607	237	03121224
	ANNUAL	NOX	2002	1ST	0.55	489,143	3,690,607	237	1 Yr
			2003	1ST	0.63	489,151	3,690,697	250	1 Yr
		PM10	2002	1ST	0.29	489,143	3,690,607	237	1 Yr
			2003	1ST	0.33	489,151	3,690,697	250	1 Yr
		SO2	2002	1ST	0.09	489,143	3,690,607	237	1 Yr
			2003	1ST	0.10	489,151	3,690,697	250	1 Yr

Table 27-4 – Summary of Modeling Results (50% Load Condition)

Group	Average	Pol	Met File	Rank	Conc.	East(X)	North(Y)	Elev	Time YYMMDDHH
50% Load	1-HR	CO		1ST	132.37	489,493	3,691,232	172	02092124
				2ND	126.62	489,778	3,691,228	174	02070623
				3RD	122.68	489,778	3,691,228	174	02010924
			2002	4TH	120.39	489,778	3,691,228	174	02100721
				1ST	172.10	489,753	3,691,228	166	03120220
				2ND	145.54	489,753	3,691,228	166	03021404
				3RD	142.99	489,768	3,691,232	173	03021404
			2003	4TH	128.49	489,768	3,691,232	173	03011121
		NOX		1ST	91.08	489,156	3,690,796	296	02060403
				2ND	85.76	489,143	3,690,832	291	02032624
				3RD	80.92	489,143	3,690,782	301	02032624
			2002	4TH	78.71	489,156	3,690,796	296	02021404
				1ST	111.90	489,118	3,690,932	286	03010907
				2ND	87.65	489,118	3,690,857	295	03101323
				3RD	77.09	489,156	3,690,796	296	03062503
			2003	4TH	73.66	489,154	3,690,771	295	03081102
		SO2		1ST	7.96	489,143	3,690,807	298	02060403
				2ND	7.49	489,143	3,690,832	291	02032624
				3RD	7.17	489,156	3,690,796	296	02110106
			2002	4TH	6.91	489,156	3,690,796	296	02021404
				1ST	9.87	489,118	3,690,932	286	03010907
				2ND	7.78	489,118	3,690,857	295	03101323
				3RD	6.87	489,156	3,690,796	296	03092001
			2003	4TH	6.52	489,154	3,690,771	295	03092001
	3-HR	SO2		1ST	5.51	489,900	3,691,500	255	02081303
				2ND	4.45	489,900	3,691,500	255	02110103
				3RD	4.20	489,900	3,691,600	267	02111021
			2002	4TH	3.97	489,900	3,691,500	255	02070903
				1ST	4.76	489,800	3,691,600	307	03062024
				2ND	4.47	489,800	3,691,600	307	03051824
				3RD	4.41	489,800	3,691,600	307	03091824
			2003	4TH	3.71	489,800	3,691,600	307	03080224
	8-HR	CO		1ST	78.92	489,118	3,690,582	243	02120308
				2ND	68.08	489,143	3,690,682	245	02022008
				3RD	64.50	489,145	3,690,574	229	02020608
			2002	4TH	61.84	489,143	3,690,557	224	02120308
				1ST	78.81	489,143	3,690,607	237	03121208
				2ND	69.10	489,143	3,690,582	232	03012808
				3RD	67.15	489,147	3,690,623	235	03012808
			2003	4TH	63.72	489,143	3,690,582	232	03022108
	24-HR	PM10		1ST	3.06	489,118	3,690,582	243	02120324
				2ND	2.75	489,146	3,690,598	235	02121224
				3RD	2.52	489,143	3,690,582	232	02121924
			2002	4TH	2.41	489,146	3,690,598	235	02122324
				1ST	2.72	489,143	3,690,582	232	03020924
				2ND	2.41	489,143	3,690,582	232	03012824
				3RD	2.32	489,146	3,690,598	235	03120924
			2003	4TH	2.23	489,146	3,690,598	235	03012424
		SO2		1ST	2.40	489,118	3,690,582	243	02120324
				2ND	2.15	489,146	3,690,598	235	02121224
				3RD	1.97	489,143	3,690,582	232	02121924
			2002	4TH	1.89	489,146	3,690,598	235	02122324
				1ST	2.13	489,143	3,690,582	232	03020924
				2ND	1.89	489,143	3,690,582	232	03012824
				3RD	1.82	489,146	3,690,598	235	03120924
			2003	4TH	1.75	489,146	3,690,598	235	03012424
	ANNUAL	NOX	2002	1ST	0.61	489,118	3,690,607	249	1 Yr
			2003	1ST	0.69	489,118	3,690,632	254	1 Yr
		PM10	2002	1ST	0.32	489,118	3,690,607	249	1 Yr
			2003	1ST	0.36	489,118	3,690,632	254	1 Yr
		SO2	2002	1ST	0.10	489,118	3,690,607	249	1 Yr
			2003	1ST	0.12	489,118	3,690,632	254	1 Yr

EXHIBIT 28-1

REVISED EMISSION ESTIMATES FOR THE OPERATIONAL PHASE

Exhibit 28-1 Revised Emission Estimates for the Operational Phase

The emissions for the operational phase were revised to reflect updated performance profile provided by GE (Exhibit 014-1) and changes made to the SOx emission factor (Data Response 9). PM emissions were also updated for the cooling tower. The following is a summary of emissions for maximum (100%) load condition.

Table 28-1 – Summary of Operational Emissions

Pollutant	NOx	CO	VOC	$PM_{10/2.5}$	SOx
Maximum Hourly Emissions (lb/hr)	19.66	21.26	2.77	5.77	1.88
Maximum Daily Emissions (lb/day)	213.7	267.4	28.2	89.6	31.2
Maximum Annual Emissions (TPY)	17.7	22.8	1.97	8.78	3.17
Annual Average Emissions (TPY)	5.7	7.36	0.67	2.75	0.99

Table 28-2 provides detailed calculations and bases for these emission rates. The hourly emission estimate is based on one turbine at start-up condition and the second reaching steady state condition. For modeling purpose, the scenario where both turbines are at start-up conditions were also modeled and determined to meet the respective air quality standards.

The engine emissions are provided in Table 28-3 and cooling tower emissions are provided in Table 28-4. Tables 28-5, 28-6, and 28-7 presents the emission inputs for each pollutant and averaging time at load conditions of 100%, 75% and 50%. Emissions from the engines were also adjusted to reflect the proper averaging period.

Table 28-2 - Turbine Emission Estimates During Operational Phase

Turbine Emissions Factors (100% Load)

Base Load Emissions Per Turbine		NOx	CO	VOC	PM10	SO_2
Steady State Uncontrolled (lb/hr)		43.00	18.37	1.25	2.70	1.00
Steady State Controlled (lb/hr)		4.30	6.12	0.42	2.70	1.00
Start/Stop Emissions Per Turbine	Minutes	NOx	CO	VOC	PM10	SO_2
Startup Emissions (lb/event)	10	3.00	5.60	1.10	0.67	0.14
Warm-up Emissions (lb/event)	30	10.93	7.50	1.11	1.50	0.41
Shutdown Emissions (lb/event)	8	2.20	3.70	0.60	0.53	0.11
Startup Emissions / Hour / Turbine	Hour	NOx	CO	VOC	PM10	SO_2
Startup	0.167	3.00	5.60	1.10	0.67	0.14
Warm-up	0.500	10.93	7.50	1.11	1.50	0.41
Steady State Controlled	0.333	1.43	2.04	0.14	0.90	0.33
Total Hourly Emission / Turbine	1.000	15.36	15.14	2.35	3.07	0.88
Shutdown Emissions / Hour / Turbine	Hour	NOx	CO	VOC	PM10	SO_2
Steady State Controlled	0.867	3.73	5.31	0.36	2.34	0.87
Shutdown	0.133	2.20	3.70	0.60	0.53	0.11
Total Hourly Emission / Turbine	1.000	5.93	9.01	0.96	2.87	0.98

Facility Turbine Emissions (2 Turbines)

Maximum Hourly Emissions	T1	T2	Hours	NOx	CO	VOC	PM10	SO_2
Startup Event	1	0	0.167	3.00	5.60	1.10	0.67	0.14
Warm-up Event	1	0	0.500	10.93	7.50	1.11	1.50	0.41
Steady State	1	1	1.333	5.73	8.16	0.56	3.60	1.33
Total Maximum Hourly (lb/hr)			**2.00**	**19.66**	**21.26**	**2.77**	**5.77**	**1.88**
Maximum Eight Hours Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Startup Event	3	3	1.00	18.00	33.60	6.60	4.02	0.84
Warm-up Event	3	3	3.00	65.58	45.00	6.66	9.00	2.46
Shutdown Event	3	3	0.80	13.20	22.20	3.60	3.18	0.66
Steady State Controlled	1	1	11.20	48.16	68.58	4.67	30.24	11.21
Total Maximum Daily (lb/day)			**16.00**	**144.94**	**169.38**	**21.53**	**46.44**	**15.17**
Maximum Daily Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Startup Event	3	3	1.00	18.00	33.60	6.60	4.02	0.84
Warm-up Event	3	3	3.00	65.58	45.00	6.66	9.00	2.46
Shutdown Event	3	3	0.80	13.20	22.20	3.60	3.18	0.66
Steady State Controlled	1	1	27.20	116.96	166.55	11.33	73.44	27.23
Total Maximum Daily (lb/day)			**32.00**	**213.74**	**267.35**	**28.19**	**89.64**	**31.19**
Maximum Annual Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Startup Event	250	250	83.33	1,500	2,800	550	335	70
Warm-up Event	250	250	250.00	5,465	3,750	555	750	205
Shutdown Event	250	250	66.67	1,100	1,850	300	265	55
Steady State Uncontrolled	20	20	40	1,720	735	50	108	40
Steady State Controlled	2980	2980	5,960	25,628	36,495	2,483	16,092	5,966
Total Maximium Annual Daily (lb/yr)			**6,400**	**35,413**	**45,630**	**3,938**	**17,550**	**6,336**
			Tons	**17.71**	**22.81**	**1.97**	**8.78**	**3.17**
Annual Average Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Startup Event	100	100	33.33	600	1,120	220	134	28
Warm-up Event	100	100	100.00	2,186	1,500	222	300	82
Shutdown Event	100	100	26.67	440	740	120	106	22
Steady State Uncontrolled	4	4	8	344	147	10	22	8
Steady State Controlled	916	916	1,832	7,878	11,218	763	4,946	1,834
Total Maximium Annual Daily (lb/yr)			**2,000**	**11,448**	**14,725**	**1,335**	**5,508**	**1,974**
			Tons	**5.72**	**7.36**	**0.67**	**2.75**	**0.99**

Notes:
1. Uncontrolled emission data based on updated GE performance data provided 9/26/2007
2. Controlled emissions are based on targeted BACT thresholds of 2.5 ppm NOx, 6 ppm CO.
3. Oxidation catalyst presumed to have the same oxidation potential for CO and VOC.
4. Calculations are based on annual average ambient temperature of 70.5 °F
5. Maximum one hour emissions based on staggered startup of the turbines
6. Startup events are 10 minutes (0.167 hour) each
7. Warm-up events are 30 minutes (0.500 hour) each
8. Shutdown events are 8 minutes (0.130 hour) each
9. Startup and shutdown emissions are based on GE data at ISO conditions
10. Warm-up emissions are based on linear emission reduction ramp

Turbine Emissions Factors (75% Load)

Base Load Emissions Per Turbine		NOx	CO	VOC	PM10	SO_2
Steady State Uncontrolled (lb/hr)		34.00	12.96	0.99	2.32	0.80
Steady State Controlled (lb/hr)		3.40	4.32	0.33	2.32	0.80
Start/Stop Emissions Per Turbine	Minutes	NOx	CO	VOC	PM10	SO_2
Startup Emissions (lb/event)	10	3.00	5.60	1.10	0.67	0.14
Warm-up Emissions (lb/event)	30	10.93	7.50	1.11	1.50	0.41
Shutdown Emissions (lb/event)	8	2.20	3.70	0.60	0.53	0.11
Startup Emissions / Hour / Turbine	Hour	NOx	CO	VOC	PM10	SO_2
Startup	0.167	3.00	5.60	1.10	0.67	0.14
Warm-up	0.500	10.93	7.50	1.11	1.50	0.41
Steady State Controlled	0.333	1.13	1.44	0.11	0.77	0.27
Total Hourly Emission / Turbine	1.000	15.06	14.54	2.32	2.94	0.82
Shutdown Emissions / Hour / Turbine	Hour	NOx	CO	VOC	PM10	SO_2
Steady State Controlled	0.867	2.95	3.74	0.29	2.01	0.69
Shutdown	0.133	2.20	3.70	0.60	0.53	0.11
Total Hourly Emission / Turbine	1.000	5.15	7.44	0.89	2.54	0.80

Facility Turbine Emissions (2 Turbines)

Maximum Hourly Emissions	T1	T2	Hours	NOx	CO	VOC	PM10	SO_2
Startup Event	1	0	0.167	3.00	5.60	1.10	0.67	0.14
Warm-up Event	1	0	0.500	10.93	7.50	1.11	1.50	0.41
Steady State	1	1	1.333	4.53	5.76	0.44	3.10	1.06
Total Maximum Hourly (lb/hr)			**2.00**	**18.46**	**18.86**	**2.65**	**5.27**	**1.61**
Maximum Eight Hours Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Startup Event	3	3	1.00	18.00	33.60	6.60	4.02	0.84
Warm-up Event	3	3	3.00	65.58	45.00	6.66	9.00	2.46
Shutdown Event	3	3	0.80	13.20	22.20	3.60	3.18	0.66
Steady State Controlled	1	1	11.20	38.08	48.38	3.70	26.02	8.91
Total Maximum Daily (lb/day)			**16.00**	**134.86**	**149.18**	**20.56**	**42.22**	**12.87**
Maximum Daily Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Startup Event	3	3	1.00	18.00	33.60	6.60	4.02	0.84
Warm-up Event	3	3	3.00	65.58	45.00	6.66	9.00	2.46
Shutdown Event	3	3	0.80	13.20	22.20	3.60	3.18	0.66
Steady State Controlled	1	1	27.20	92.48	117.50	8.98	63.19	21.63
Total Maximum Daily (lb/day)			**32.00**	**189.26**	**218.30**	**25.84**	**79.39**	**25.59**
Maximum Annual Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Startup Event	250	250	83.33	1,500	2,800	550	335	70
Warm-up Event	250	250	250.00	5,465	3,750	555	750	205
Shutdown Event	250	250	66.67	1,100	1,850	300	265	55
Steady State Uncontrolled	20	20	40	1,360	518	40	93	32
Steady State Controlled	2980	2980	5,960	20,264	25,747	1,967	13,846	4,739
Total Maximium Annual Daily (lb/yr)			**6,400**	**29,689**	**34,666**	**3,411**	**15,289**	**5,101**
			Tons	**14.84**	**17.33**	**1.71**	**7.64**	**2.55**

Notes:
1. VOC emission factor based on the higher of estimated emission and the guaranteed levels.
2. PM10 emissions for partial load is adjusted by exhaust flowrate.
3. SO2 emissions calculated using projected fuel consumption.

Turbine Emissions Factors (50% Load)

Base Load Emissions Per Turbine		NOx	CO	VOC	PM10	SO_2
Steady State Uncontrolled (lb/hr)		26.00	9.70	0.75	1.94	0.60
Steady State Controlled (lb/hr)		2.60	3.23	0.25	1.94	0.60
Start/Stop Emissions Per Turbine	Minutes	NOx	CO	VOC	PM10	SO_2
Startup Emissions (lb/event)	10	3.00	5.60	1.10	0.67	0.14
Warm-up Emissions (lb/event)	30	10.93	7.50	1.11	1.50	0.41
Shutdown Emissions (lb/event)	8	2.20	3.70	0.60	0.53	0.11
Startup Emissions / Hour / Turbine	Hour	NOx	CO	VOC	PM10	SO_2
Startup	0.167	3.00	5.60	1.10	0.67	0.14
Warm-up	0.500	10.93	7.50	1.11	1.50	0.41
Steady State Controlled	0.333	0.87	1.08	0.08	0.65	0.20
Total Hourly Emission / Turbine	1.000	14.80	14.18	2.29	2.82	0.75
Shutdown Emissions / Hour / Turbine	Hour	NOx	CO	VOC	PM10	SO_2
Steady State Controlled	0.867	2.25	2.80	0.22	1.68	0.52
Shutdown	0.133	2.20	3.70	0.60	0.53	0.11
Total Hourly Emission / Turbine	1.000	4.45	6.50	0.82	2.21	0.63

Facility Turbine Emissions (2 Turbines)

Maximum Hourly Emissions	T1	T2	Hours	NOx	CO	VOC	PM10	SO_2
Startup Event	1	0	0.167	3.00	5.60	1.10	0.67	0.14
Warm-up Event	1	0	0.500	10.93	7.50	1.11	1.50	0.41
Steady State	1	1	1.333	3.47	4.31	0.33	2.58	0.79
Total Maximum Hourly (lb/hr)			**2.00**	**17.40**	**17.41**	**2.54**	**4.75**	**1.34**
Maximum Eight Hours Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Startup Event	3	3	1.00	18.00	33.60	6.60	4.02	0.84
Warm-up Event	3	3	3.00	65.58	45.00	6.66	9.00	2.46
Shutdown Event	3	3	0.80	13.20	22.20	3.60	3.18	0.66
Steady State Controlled	1	1	11.20	29.12	36.21	2.80	21.68	6.67
Total Maximum Daily (lb/day)			**16.00**	**125.90**	**137.01**	**19.66**	**37.88**	**10.63**
Maximum Daily Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Startup Event	3	3	1.00	18.00	33.60	6.60	4.02	0.84
Warm-up Event	3	3	3.00	65.58	45.00	6.66	9.00	2.46
Shutdown Event	3	3	0.80	13.20	22.20	3.60	3.18	0.66
Steady State Controlled	1	1	27.20	70.72	87.95	6.80	52.66	16.21
Total Maximum Daily (lb/day)			**32.00**	**167.50**	**188.75**	**23.66**	**68.86**	**20.17**
Maximum Annual Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Startup Event	250	250	83.33	1,500	2,800	550	335	70
Warm-up Event	250	250	250.00	5,465	3,750	555	750	205
Shutdown Event	250	250	66.67	1,100	1,850	300	265	55
Steady State Uncontrolled	20	20	40	1,040	388	30	77	24
Steady State Controlled	2980	2980	5,960	15,496	19,271	1,490	11,539	3,551
Total Maximium Annual Daily (lb/yr)			**6,400**	**24,601**	**28,059**	**2,925**	**12,966**	**3,905**
			Tons	**12.30**	**14.03**	**1.46**	**6.48**	**1.95**

EXHIBIT 28-1

Table 28-3 - Engines Emission Estimates During Operational Phase

Emergency Diesel Fire Water Pump Emissions

Parameters

Made & Model	Cummins CFP6E-F35, 4 Cycle, 6 Cylinder	
Aspiration	Turbocharged, Charge Air Cooled	
Rated Horsepower	210	BHP
Exhaust Flow Rate	1,051	ACFM
Exhaust Temperature	917	°F
Stack Diameter	0.33	Feet
Stack Height (8 ft building + 4 ft stack)	12	Feet
Fuel Type	Ultra low sulfure diesel	
Fuel Consumption	10	gal/hr
Fuel Density (s.g. = 0.845)	7.05	lb/gal
Test Frequency	52	Weeks/Year
Test Duration	30	Minutes
Expected Annual Non-Emergency Usage*	52	Hours/Year

* Each hour of operation is characterized by 1/2 hour on and 1/2 hour off.

Emergency Water Pump	NOx	CO	VOC	PM10	SO2**
Emission Factor (g/HP/hr)	3.82	0.447	0.10	0.065	-
Emision Rates (lb/hr)*	0.88	0.10	0.02	0.02	0.001
Annual Emissions (lb/yr)	**45.93**	**5.37**	**1.20**	**0.78**	**0.05**

** SO2 emissions based on fuel consumption, 15 ppm ULSD, and complete combustion to SO2

Black-Start Engine Generator Emissions

Parameters

Made & Model	Caterpillar G3516B LE	
Rated Horsepower	1,449	BHP
Maximum Engine Power	1,818	BHP
Total Efficiency	79.7	%
Fuel Consumption	7,261	Btu/bhp-hr
Exhaust Flow Rate	11,923	ACFM
Exhaust Temperature	974	°F
Stack Diameter	1.50	Feet
Stack Height (12 ft building + 3 ft stack)	15	Feet
Test Frequency	14	per Year
Test Duration	1	Hour
Expected Annual Non-Emergency Usage	14	Hours/Year

Black Start Engine Generator	NOx	CO	VOC	PM10	SO2***	
Emission Factor (g/HP/hr)	0.50	2.50	5.40		0.0021	lb/MMBTU
Emision Rates (lb/hr)	0.797	3.985	8.607	0.055	0.022	
Annual Emissions (lb/yr)	**11.16**	**55.79**	**120.50**	**0.77**	**0.31**	

PM10 emission factor from EPA AP-42 for natural gas 2-stroke lean-burn engines and includes fliterable and condensable emisssions

*** SO2 factor derived from 0.75 gr S/100 scf, 1015 Btu/Scf natural gas (calculation shown in data response 9)

Table 28-4 - Cooling Tower Emission Estimates During Operational Phase

Parameters		
Cooling tower circulation rate (w)	5,950	gal/min
Total dissolved solids (TDS)	2,590	ppmw
Drift loss of circulating water (n)	0.06	gal/min
Density of water (d)	8.34	lb/gal
Maximum annual operating hours (T)	3,200	hours
Maximum daily operating hours (T)	16	hours

PM10 Emission (E) = (TDS/1E6) (n) (d) (60) (T)

PM10 Emissions (lb/day)	0.1479	lb/day
PM10 Emissions (lb/yr)	246.77	lb/yr

Table 28-5 - Modeling Emission Data Summary (Turbines at 100% Load - Operational Phase)

Notes:
- Both turbines operating at 100% load. Inlet air chilled, SPRINT on.
- SO2 emission factor for turbines updated per data request response 9.
- All emission factors based on updated GE performance data
- Maximum hourly turbine emissions based on one turbine at start-up & one at steady state.
- Fire water pump tested ½ hour per week, black start engine tested/run ½ hour 14 times per year.
- Cooling tower exhaust flowrate & temperature provided by supplier

Exhaust Parameters	Flow (CFM)	Temp (°F)	Vel (FPS)	Dia. (ft)	Height (ft)
Turbine 1	595,551	840.7	74.82	13	80
Turbine 2	595,551	840.7	74.82	13	80
Black Start Generator	11,923	974.0	112.51	1.50	15
Firewater Pump (Horizontal exhaust)	1,051	917.0	204.91	0.33	15
Chiller Evaporator - Cell 1	685,300	85.2	86.09	13	42
Chiller Evaporator - Cell 2	685,300	85.2	86.09	13	42
Chiller Evaporator - Cell 3	685,300	85.2	86.09	13	42

Maximum 1-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)	4.30	6.12			1.00
Turbine 2 (lb/hr)	15.36	15.14			0.88
Black Start Generator (lb/hr)	0.80	3.98			0.022
Firewater Pump (lb/hr)	0.88	0.10			0.001
Chiller Evaporator (lb/hr)					

Maximum Average 3-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)					1.00
Turbine 2 (lb/hr)					1.00
Black Start Generator (lb/hr)					0.0074
Firewater Pump (lb/hr)					0.0004
Chiller Evaporator (lb/hr)					

Maximum Average 8-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)		21.17			
Turbine 2 (lb/hr)		21.17			
Black Start Generator (lb/hr)		0.498			
Firewater Pump (lb/hr)		0.013			
Chiller Evaporator (lb/hr)					

Maximum Average 24-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)				1.87	1.30
Turbine 2 (lb/hr)				1.87	1.30
Black Start Generator (lb/hr)				2.29E-03	9.21E-04
Firewater Pump (lb/hr)				6.26E-04	4.41E-05
Chiller Evaporator (lb/hr) Cell 1				2.05E-03	
Chiller Evaporator (lb/hr) Cell 2				2.05E-03	
Chiller Evaporator (lb/hr) Cell 3				2.05E-03	

Average Annual Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)	2.02	2.60	0.22	1.00	0.36
Turbine 2 (lb/hr)	2.02	2.60	0.22	1.00	0.36
Black Start Generator (lb/hr)	1.27E-03	6.37E-03	1.38E-02	8.79E-05	3.53E-05
Firewater Pump (lb/hr)	5.24E-03	6.13E-04	1.37E-04	8.91E-05	6.28E-06
Chiller Evaporator (lb/hr) Cell 1				9.39E-03	
Chiller Evaporator (lb/hr) Cell 2				9.39E-03	
Chiller Evaporator (lb/hr) Cell 3				9.39E-03	

Metrics Units

Exhaust Parameters	Flow (CMS)	Temp (°K)	Vel (m/s)	Dia. (m)	Height (m)
Turbine 1	281.04	722.43	22.80	3.96	24.38
Turbine 2	281.04	722.43	22.80	3.96	24.38
Black Start Generator	5.63	796.48	34.29	0.46	4.57
Firewater Pump (Horizontal exhaust)	0.50	764.82	62.45	0.10	4.57
Chiller Evaporator - Cell 1	323.39	302.71	26.24	3.96	12.80
Chiller Evaporator - Cell 2	323.39	302.71	26.24	3.96	12.80
Chiller Evaporator - Cell 3	323.39	302.71	26.24	3.96	12.80

Maximum 1-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)	0.54	0.77			0.13
Turbine 2 (g/s)	1.94	1.91			0.11
Black Start Generator (g/s)	0.10	0.50			0.00
Firewater Pump (g/s)	0.11	0.01			0.00
Chiller Evaporator (g/s)					

Maximum Average 3-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)					0.13
Turbine 2 (g/s)					0.13
Black Start Generator (g/s)					0.001
Firewater Pump (g/s)					0.000
Chiller Evaporator (g/s)					

Maximum Average 8-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)		2.67			
Turbine 2 (g/s)		2.67			
Black Start Generator (g/s)		0.063			
Firewater Pump (g/s)		0.002			
Chiller Evaporator (g/s)		-			

Maximum Average 24-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)				0.23580	0.16
Turbine 2 (g/s)				0.23580	0.16
Black Start Generator (g/s)				2.89E-04	1.16E-04
Firewater Pump (g/s)				7.90E-05	5.56E-06
Chiller Evaporator (g/s) Cell 1				2.59E-04	
Chiller Evaporator (g/s) Cell 2				2.59E-04	
Chiller Evaporator (g/s) Cell 2				2.59E-04	

Average Annual Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)	0.26	0.33	0.03	0.1265	0.05
Turbine 2 (g/s)	0.26	0.33	0.03	0.1265	0.05
Black Start Generator (g/s)	1.61E-04	8.04E-04	1.74E-03	1.11E-05	4.46E-06
Firewater Pump (g/s)	6.62E-04	7.74E-05	1.73E-05	1.13E-05	7.93E-07
Chiller Evaporator (g/s) Cell 1				1.19E-03	
Chiller Evaporator (g/s) Cell 2				1.19E-03	
Chiller Evaporator (g/s) Cell 2				1.19E-03	

Table 28-6 - Modeling Emission Data Summary (Turbines at 75% Load - Operational Phase)

Notes:
- Both turbines operating at 75% load. Inlet air not chilled, SPRINT on.
- SO2 emission factor for turbines updated per data request response 9.
- All emission factors based on updated GE performance data
- Maximum hourly turbine emissions based on one turbine at start-up & one at steady state.
- Fire water pump tested ½ hour per week, black start engine tested/run ½ hour 14 times per year.
- Cooling tower exhaust flowrate & temperature provided by supplier

Exhaust Parameters	Flow (CFM)	Temp (°F)	Vel (FPS)	Dia. (ft)	Height (ft)
Turbine 1	512,439	844.4	64.38	13	80
Turbine 2	512,439	844.4	64.38	13	80
Black Start Generator	11,923	974.0	112.51	1.50	15
Firewater Pump (Horizontal exhaust)	1,051	917.0	204.91	0.33	15
Chiller Evaporator - Cell 1	685,300	85.2	86.09	13	42
Chiller Evaporator - Cell 2	685,300	85.2	86.09	13	42
Chiller Evaporator - Cell 3	685,300	85.2	86.09	13	42

Maximum 1-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)	3.40	4.32			0.80
Turbine 2 (lb/hr)	15.06	14.54			0.82
Black Start Generator (lb/hr)	0.80	3.98			0.022
Firewater Pump (lb/hr)	0.88	0.10			0.001
Chiller Evaporator (lb/hr)					

Maximum Average 3-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)					0.80
Turbine 2 (lb/hr)					1.00
Black Start Generator (lb/hr)					0.0074
Firewater Pump (lb/hr)					0.0004
Chiller Evaporator (lb/hr)					

Maximum Average 8-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)		21.17			
Turbine 2 (lb/hr)		21.17			
Black Start Generator (lb/hr)		0.498			
Firewater Pump (lb/hr)		0.013			
Chiller Evaporator (lb/hr)					

Maximum Average 24-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)				1.65	1.30
Turbine 2 (lb/hr)				1.65	1.30
Black Start Generator (lb/hr)				2.29E-03	9.21E-04
Firewater Pump (lb/hr)				6.26E-04	4.41E-05
Chiller Evaporator (lb/hr) Cell 1					
Chiller Evaporator (lb/hr) Cell 2					
Chiller Evaporator (lb/hr) Cell 3					

Average Annual Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)	1.69	1.98	0.19	0.87	0.29
Turbine 2 (lb/hr)	1.69	1.98	0.19	0.87	0.29
Black Start Generator (lb/hr)	1.27E-03	6.37E-03	1.38E-02	8.79E-05	3.53E-05
Firewater Pump (lb/hr)	5.24E-03	6.13E-04	1.37E-04	8.91E-05	6.28E-06
Chiller Evaporator (lb/hr) Cell 1					
Chiller Evaporator (lb/hr) Cell 2					
Chiller Evaporator (lb/hr) Cell 3					

Metrics Units

Exhaust Parameters	Flow (CMS)	Temp (°K)	Vel (m/s)	Dia. (m)	Height (m)
Turbine 1	241.82	724.48	19.62	3.96	24.38
Turbine 2	241.82	724.48	19.62	3.96	24.38
Black Start Generator	5.63	796.48	34.29	0.46	4.57
Firewater Pump (Horizontal exhaust)	0.50	764.82	62.45	0.10	4.57
Chiller Evaporator - Cell 1	323.39	302.71	26.24	3.96	12.80
Chiller Evaporator - Cell 2	323.39	302.71	26.24	3.96	12.80
Chiller Evaporator - Cell 2	323.39	302.71	26.24	3.96	12.80

Maximum 1-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)	0.43	0.55			0.10
Turbine 2 (g/s)	1.90	1.84			0.10
Black Start Generator (g/s)	0.10	0.50			0.00
Firewater Pump (g/s)	0.11	0.01			0.00
Chiller Evaporator (g/s)					

Maximum Average 3-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)					0.10
Turbine 2 (g/s)					0.13
Black Start Generator (g/s)					0.001
Firewater Pump (g/s)					0.000
Chiller Evaporator (g/s)					

Maximum Average 8-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)		2.67			
Turbine 2 (g/s)		2.67			
Black Start Generator (g/s)		0.063			
Firewater Pump (g/s)		0.002			
Chiller Evaporator (g/s)					

Maximum Average 24-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)				0.2088	0.16
Turbine 2 (g/s)				0.2088	0.16
Black Start Generator (g/s)				2.89E-04	1.16E-04
Firewater Pump (g/s)				7.90E-05	5.56E-06
Chiller Evaporator (g/s) Cell 1					
Chiller Evaporator (g/s) Cell 2					
Chiller Evaporator (g/s) Cell 3					

Average Annual Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)	0.21	0.25	0.02	0.1102	0.04
Turbine 2 (g/s)	0.21	0.25	0.02	0.1102	0.04
Black Start Generator (g/s)	1.61E-04	8.04E-04	1.74E-03	1.11E-05	4.46E-06
Firewater Pump (g/s)	6.62E-04	7.74E-05	1.73E-05	1.13E-05	7.93E-07
Chiller Evaporator (g/s) Cell 1					
Chiller Evaporator (g/s) Cell 2					
Chiller Evaporator (g/s) Cell 3					

Table 28-7 - Modeling Emission Data Summary (Turbines at 50% Load - Operational Phase)

Notes:
- Both turbines operating at 100% load. Inlet air not chilled, SPRINT off.
- SO2 emission factor for turbines updated per data request response 9.
- All emission factors based on updated GE performance data
- Maximum hourly turbine emissions based on one turbine at start-up & one at steady state.
- Fire water pump tested ½ hour per week, black start engine tested/run ½ hour 14 times per year.
- Cooling tower exhaust flowrate & temperature provided by supplier

Exhaust Parameters	Flow (CFM)	Temp (°F)	Vel (FPS)	Dia. (ft)	Height (ft)
Turbine 1	427,045	818.4	53.65	13	80
Turbine 2	427,045	818.4	53.65	13	80
Black Start Generator	11,923	974.0	112.51	1.50	15
Firewater Pump (Horizontal exhaust)	1,051	917.0	204.91	0.33	15
Chiller Evaporator - Cell 1	685,300	85.2	86.09	13	42
Chiller Evaporator - Cell 2	685,300	85.2	86.09	13	42
Chiller Evaporator - Cell 3	685,300	85.2	86.09	13	42

Maximum 1-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)	2.60	3.23			0.60
Turbine 2 (lb/hr)	14.80	14.18			0.75
Black Start Generator (lb/hr)	0.80	3.98			0.022
Firewater Pump (lb/hr)	0.88	0.10			0.001
Chiller Evaporator (lb/hr)					

Maximum Average 3-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)					0.60
Turbine 2 (lb/hr)					1.00
Black Start Generator (lb/hr)					0.0074
Firewater Pump (lb/hr)					0.0004
Chiller Evaporator (lb/hr)					

Maximum Average 8-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)		21.17			
Turbine 2 (lb/hr)		21.17			
Black Start Generator (lb/hr)		0.498			
Firewater Pump (lb/hr)		0.013			
Chiller Evaporator (lb/hr)					

Maximum Average 24-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)				1.43	1.30
Turbine 2 (lb/hr)				1.43	1.30
Black Start Generator (lb/hr)				2.29E-03	9.21E-04
Firewater Pump (lb/hr)				6.26E-04	4.41E-05
Chiller Evaporator (lb/hr) Cell 1					
Chiller Evaporator (lb/hr) Cell 2					
Chiller Evaporator (lb/hr) Cell 2					

Average Annual Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)	1.40	1.60	0.17	0.74	0.22
Turbine 2 (lb/hr)	1.40	1.60	0.17	0.74	0.22
Black Start Generator (lb/hr)	1.27E-03	6.37E-03	1.38E-02	8.79E-05	3.53E-05
Firewater Pump (lb/hr)	5.24E-03	6.13E-04	1.37E-04	8.91E-05	6.28E-06
Chiller Evaporator (lb/hr) Cell 1					
Chiller Evaporator (lb/hr) Cell 2					
Chiller Evaporator (lb/hr) Cell 3					

Metrics Units

Exhaust Parameters	Flow (CMS)	Temp (°K)	Vel (m/s)	Dia. (m)	Height (m)
Turbine 1	201.52	710.04	16.35	3.96	24.38
Turbine 2	201.52	710.04	16.35	3.96	24.38
Black Start Generator	5.63	796.48	34.29	0.46	4.57
Firewater Pump (Horizontal exhaust)	0.50	764.82	62.45	0.10	4.57
Chiller Evaporator - Cell 1	323.39	302.71	26.24	3.96	12.80
Chiller Evaporator - Cell 2	323.39	302.71	26.24	3.96	12.80
Chiller Evaporator - Cell 2	323.39	302.71	26.24	3.96	12.80

Maximum 1-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)	0.33	0.41			0.08
Turbine 2 (g/s)	1.87	1.79			0.09
Black Start Generator (g/s)	0.10	0.50			0.00
Firewater Pump (g/s)	0.11	0.01			0.00
Chiller Evaporator (g/s)					

Maximum Average 3-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)					0.08
Turbine 2 (g/s)					0.13
Black Start Generator (g/s)					0.001
Firewater Pump (g/s)					0.000
Chiller Evaporator (g/s)					

Maximum Average 8-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)		2.67			
Turbine 2 (g/s)		2.67			
Black Start Generator (g/s)		0.063			
Firewater Pump (g/s)		0.002			
Chiller Evaporator (g/s)					

Maximum Average 24-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)				0.1811	0.16
Turbine 2 (g/s)				0.1811	0.16
Black Start Generator (g/s)				2.89E-04	1.16E-04
Firewater Pump (g/s)				7.90E-05	5.56E-06
Chiller Evaporator (g/s) Cell 1					
Chiller Evaporator (g/s) Cell 2					
Chiller Evaporator (g/s) Cell 2					

Average Annual Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)	0.18	0.20	0.02	0.0934	0.03
Turbine 2 (g/s)	0.18	0.20	0.02	0.0934	0.03
Black Start Generator (g/s)	1.61E-04	8.04E-04	1.74E-03	1.11E-05	4.46E-06
Firewater Pump (g/s)	6.62E-04	7.74E-05	1.73E-05	1.13E-05	7.93E-07
Chiller Evaporator (g/s) Cell 1					
Chiller Evaporator (g/s) Cell 2					
Chiller Evaporator (g/s) Cell 3					

EXHIBIT 30-1

REVISED AIR MODELING RESULTS FOR THE COMISSIONING PHASE

Exhibit 30-1 Revised Air Modeling Results for the Commissioning Phase

The emissions for the commissioning phase were revised to reflect updated performance profile provided by GE (Exhibit 014-1). The emission estimates were based on each turbine being commissioned separately and operating at less than 30% load (< 15 MW) without add-on control of the oxidation catalyst and SCR system. The commissioning process is described in details in Data Response 12.

Detailed emission calculations for the commissioning period are provided in Table 30-1. Emission rates for each pollutant at averaging times of 1, 3, 8 and 24 hours are provided in Table 30-2. Long term (i.e. annual) modeling was not completed because the commissioning period is not expected to last more than a few weeks. Modeling was completed using AERMOD and the identical process used for the operational phase of the facility. The uncontrolled emission of one turbine is modeled without any other sources such as the engines and cooling tower.

Results of air modeling are summarized below. The input/output files are provided in the accompanied CD.

Pollutant	Averaging Time	2002 µg/m^3	2003 µg/m^3	Background µg/m^3	Max Total µg/m^3	Most Stringent of AAQS	Meets AAQS
NO_2	1 HR	110.61	138.44	150.5	289	338	Yes
CO	1 HR	24.04	30.09	7,214	7,244	23,000	Yes
CO	8 HR	9.51	8.94	4,135	4,145	10,000	Yes
SO_2	1 HR	2.62	3.28	110	113	655	Yes
SO_2	3 HR	1.66	1.73	52.4	54.1	1,300	Yes
SO_2	24 HR	0.25	0.20	23.6	24	105	Yes
PM_{10}	24 HR	0.70(1)	0.68	57.0	57.7	50	(2)
$PM_{2.5}$	24 HR	0.70(3)	0.68	67.3	68.0	35	(2)

(1) 3rd highest value

(2) Highest measured ambient concentration in the last three years is above the CAAQS; however, the highest measured ambient concentration in 2006 of 42 µg/m^3 with the predicted increment would meet the CAAQS.

(3) Over 99% of PM_{10} emissions are $PM_{2.5}$ for natural gas combustion source (CARB)

(4) Highest measured ambient concentration in the last three years is above the CAAQS; however, the highest measured ambient concentration in 2006 of 31.8 µg/m^3 with the predicted increment would meet the CAAQS.

Table 30-1 - Maximum Emission Estimates for the Commissioning of Turbines

Turbine Commissioning (< 15% Load)

Commissioning Period Emissions Per Turbine	NOx	CO	VOC	PM10	SO_2
Commissioning 15 MW Uncontrolled (lb/hr)	19.00	4.13	0.56	1.59	0.45

Facility Turbine Emissions (2 Turbines)

Maximum Hourly Emissions	T1	T2	Hours	NOx	CO	VOC	PM10	SO_2
Commissioning	1	0	1.000	19.00	4.13	0.56	1.59	0.45
Total Maximum Hourly (lb/hr)			**1.00**	**19.00**	**4.13**	**0.56**	**1.59**	**0.45**

Maximum Eight Hours Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Commissioning	1	0	8.00	152.00	33.04	4.48	12.71	3.57
Total Maximum Daily (lb/day)			**8.00**	**152.00**	**33.04**	**4.48**	**12.71**	**3.57**

Maximum Daily Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Commissioning	1	0	12.00	228.00	49.56	6.72	19.07	5.36
Total Maximum Daily (lb/day)			**12.00**	**228.00**	**49.56**	**6.72**	**19.07**	**5.36**

Estimated Actual Commissioning Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Steady State Controlled	48	48	96	1,824	396	54	153	43
Total Maximium Annual Daily (lb/yr)			**96**	**1,824**	**396**	**54**	**153**	**43**
			Tons	**0.91**	**0.20**	**0.03**	**0.08**	**0.02**

Maximum Worst-Case Emissions			Hours	NOx	CO	VOC	PM10	SO_2
Steady State Controlled	200	200	400	7,600	1,652	224	636	179
Total Maximium Annual Daily (lb/yr)			**400**	**7,600**	**1,652**	**224**	**636**	**179**
			Tons	**3.80**	**0.83**	**0.11**	**0.32**	**0.09**

Notes:
1. Uncontrolled emission data based on updated GE performance data provided 9/26/2007
2. PM10 emissions for partial load is adjusted by exhaust flowrate.
3. SO2 emissions calculated using projected fuel consumption.

Table 30-2 - Modeling Emission Data Summary (Turbines at 30% Load - Commissioning Phase)

Notes:
- Only one turbine will be commissioned without add-on control at any one time.
- SO2 emission factor for turbines updated per data request response 9.
- Emission factors based on updated GE performance data ran for 30% load (15 MW) scenario
- Maximum hourly turbine emissions based on one turbine at start-up & one at steady state.
- Fire water pump tested ½ hour per week, black start engine tested/run ½ hour 14 times per year.
- Cooling tower exhaust flowrate & temperature provided by supplier

Exhaust Parameters	Flow (CFM)	Temp (°F)	Vel (FPS)	Dia. (ft)	Height (ft)
Turbine 1	350,478	789.8	44.03	13	80
Turbine 2					
Black Start Generator					
Firewater Pump (Horizontal exhaust)					
Chiller Evaporator					

Maximum 1-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)	19.00	4.13			0.45
Turbine 2 (lb/hr)					
Black Start Generator (lb/hr)					
Firewater Pump (lb/hr)					
Chiller Evaporator (lb/hr)					

Maximum Average 3-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)					0.45
Turbine 2 (lb/hr)					
Black Start Generator (lb/hr)					
Firewater Pump (lb/hr)					
Chiller Evaporator (lb/hr)					

Maximum Average 8-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)		4.13			
Turbine 2 (lb/hr)					
Black Start Generator (lb/hr)					
Firewater Pump (lb/hr)					
Chiller Evaporator (lb/hr)					

Maximum Average 24-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (lb/hr)				0.79	0.22
Turbine 2 (lb/hr)					
Black Start Generator (lb/hr)					
Firewater Pump (lb/hr)					
Chiller Evaporator (lb/hr)					

Metrics Units

Exhaust Parameters	Flow (CMS)	Temp (°K)	Vel (m/s)	Dia. (m)	Height (m)
Turbine 1	165.39	694.15	13.42	3.96	24.38
Turbine 2					
Black Start Generator					
Firewater Pump (Horizontal exhaust)					
Chiller Evaporator - Cell 1					

Maximum 1-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)	2.40	0.52			0.06
Turbine 2 (g/s)					
Black Start Generator (g/s)					
Firewater Pump (g/s)					
Chiller Evaporator (g/s)					

Maximum Average 3-Hour Emissions	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)					0.06
Turbine 2 (g/s)					
Black Start Generator (g/s)					
Firewater Pump (g/s)					
Chiller Evaporator (g/s)					

Maximum Average 8-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)		0.52			
Turbine 2 (g/s)					
Black Start Generator (g/s)					
Firewater Pump (g/s)					
Chiller Evaporator (g/s)					

Maximum Average 24-Hour Emission Rate	NOx	CO	VOC	PM10	SO2
Turbine 1 (g/s)				0.1003	0.03
Turbine 2 (g/s)					
Black Start Generator (g/s)					
Firewater Pump (g/s)					
Chiller Evaporator (g/s)					

EXHIBIT 30-1

Table 30-3 – Summary of Modeling Results (Commissioning Phase)

Group	Average	Pol	Met File	Rank	Conc.	East(X)	North(Y)	Elev	Time YYMMDDHH
30% Load	1-HR	CO	2002	1ST	24.04	489,158	3,690,845	280	02060403
			2002	2ND	23.15	489,800	3,691,500	263	02101021
			2002	3RD	22.32	489,800	3,691,500	263	02063001
			2002	4TH	20.40	489,157	3,690,820	289	02021404
			2003	1ST	30.09	489,163	3,690,943	266	03010907
			2003	2ND	23.61	489,159	3,690,870	274	03101323
			2003	3RD	21.03	489,143	3,690,857	284	03010907
			2003	4TH	18.75	489,156	3,690,796	296	03081102
		NOX	2002	1ST	110.61	489,158	3,690,845	280	02060403
			2002	2ND	106.51	489,800	3,691,500	263	02101021
			2002	3RD	102.68	489,800	3,691,500	263	02063001
			2002	4TH	93.87	489,157	3,690,820	289	02021404
			2003	1ST	138.44	489,163	3,690,943	266	03010907
			2003	2ND	108.63	489,159	3,690,870	274	03101323
			2003	3RD	96.73	489,143	3,690,857	284	03010907
			2003	4TH	86.26	489,156	3,690,796	296	03081102
		SO2	2002	1ST	2.62	489,158	3,690,845	280	02060403
			2002	2ND	2.52	489,800	3,691,500	263	02101021
			2002	3RD	2.43	489,800	3,691,500	263	02063001
			2002	4TH	2.22	489,157	3,690,820	289	02021404
			2003	1ST	3.28	489,163	3,690,943	266	03010907
			2003	2ND	2.57	489,159	3,690,870	274	03101323
			2003	3RD	2.29	489,143	3,690,857	284	03010907
			2003	4TH	2.04	489,156	3,690,796	296	03081102
	3-HR	SO2	2002	1ST	1.66	489,900	3,691,500	255	02081303
			2002	2ND	1.53	489,900	3,691,500	255	02110103
			2002	3RD	1.40	489,900	3,691,400	233	02081103
			2002	4TH	1.35	489,900	3,691,500	255	02111021
			2003	1ST	1.73	489,800	3,691,500	263	03062024
			2003	2ND	1.34	489,800	3,691,500	263	03080224
			2003	3RD	1.28	489,800	3,691,500	263	03091824
			2003	4TH	1.27	489,800	3,691,500	263	03051824
	8-HR	CO	2002	1ST	9.51	489,147	3,690,623	235	02120308
			2002	2ND	8.22	489,143	3,690,557	224	02122408
			2002	3RD	7.85	489,144	3,690,549	221	02112208
			2002	4TH	7.18	489,147	3,690,623	235	02122408
			2003	1ST	8.94	489,147	3,690,623	235	03121208
			2003	2ND	7.56	489,146	3,690,598	235	03011008
			2003	3RD	7.14	489,143	3,690,557	224	03022208
			2003	4TH	6.91	489,145	3,690,574	229	03012808
	24-HR	PM10	2002	1ST	0.92	489,147	3,690,623	235	02120324
			2002	2ND	0.77	489,144	3,690,549	221	02121924
			2002	3RD	0.70	489,145	3,690,574	229	02121224
			2002	4TH	0.69	489,143	3,690,557	224	02121324
			2003	1ST	0.74	489,150	3,690,672	238	03020324
			2003	2ND	0.71	489,151	3,690,697	250	03020324
			2003	3RD	0.68	489,147	3,690,623	235	03120924
			2003	4TH	0.66	489,143	3,690,582	232	03020324
		SO2	2002	1ST	0.25	489,147	3,690,623	235	02120324
			2002	2ND	0.21	489,144	3,690,549	221	02121924
			2002	3RD	0.19	489,145	3,690,574	229	02121224
			2002	4TH	0.19	489,143	3,690,557	224	02121324
			2003	1ST	0.20	489,150	3,690,672	238	03020324
			2003	2ND	0.20	489,151	3,690,697	250	03020324
			2003	3RD	0.19	489,147	3,690,623	235	03120924
			2003	4TH	0.18	489,143	3,690,582	232	03020324

EXHIBIT 32-1

SDAPCD CUMULATIVE PROJECT INFORMATION

Charles Diep

From: Gould, Cynthia [Cynthia.Gould@sdcounty.ca.gov]
Sent: Tuesday, June 12, 2007 11:41 AM
To: Diep, Charles (Irvine,CA-US)
Subject: RE: Public Data Request - Sources Filing for ATC within 6 miles of Project since 2006

The permits are all retired, no activity. I will work on this right now, and will get back to you before I leave today. Thank you.

Cynthia R. Gould, B.A., B.S., GISci
APCD Aide, Permit Processing
10124 Old Grove Road
San Diego, CA 92131
(858) 586-2618
fax: (858) 586-2601
Celebrating 50 years of air quality progress!

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From: Diep, Charles (Irvine,CA-US) [mailto:CDiep@trcsolutions.com]
Sent: Tuesday, June 12, 2007 11:26 AM
To: Gould, Cynthia
Subject: RE: Public Data Request - Sources Filing for ATC within 6 miles of Project since 2006

Thanks Cynthia,

Our proposed site is across HWY-76 from the old Hanson Aggregates quarry. To our knowledge, the facility is no longer operational and the Pala Indian tribe has acquired the property. Are the permits for Hanson Aggregates still active?

The zip codes covered by the six miles radius include whole or portions of 92003, 92028, 92059, 92082, 92026, 92084 and 92828.

Thank you for your assistance.

Charles.

From: Gould, Cynthia [mailto:Cynthia.Gould@sdcounty.ca.gov]
Sent: Tuesday, June 12, 2007 10:28 AM
To: Diep, Charles (Irvine,CA-US)
Subject: RE: Public Data Request - Sources Filing for ATC within 6 miles of Project since 2006
Importance: High

Hello, there is an aggregate plant, Hanson's Aggregates, at 10331 Hwy 76 – 4 miles east of Interstate 15. This is the only major source emitter in Pala. I'm sure this plant will fall within the 6 mile radius. Also, the most recent Authority to Construct was in July 2003. Attached is the emissions inventory with the plant highlighted. Sincerely, Cynthia

Cynthia R. Gould, B.A., B.S., GISci
APCD Aide, Permit Processing
10124 Old Grove Road
San Diego, CA 92131

EXHIBIT 32-1

(858) 586-2618
fax: (858) 586-2601
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From: Diep, Charles (Irvine,CA-US) [mailto:CDiep@trcsolutions.com]
Sent: Tuesday, June 12, 2007 10:16 AM
To: Gould, Cynthia
Subject: Public Data Request - Sources Filing for ATC within 6 miles of Project since 2006

Hi Cynthia,

Thank you for your assistance on this matter. The address is approximately 10000 Pala Road, Pala, CA 92059. I will get you a map shortly. We will complete the request form as soon as we receive it.

Thanks, Charles.

Charles Diep, P.E., C.P.P.
Sr. Project Manager
CDiep@TRCSolutions.com

TRC

21 Technology Drive, Irvine, CA 92618
Tel (949) 789-4406 Fax (949) 727-3022

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COMPANY NAME	EQUIPMENT ADDRESS	CITY	APCD ID	EI Source ID	> = 10 tpy of any criteria poll.	FACILITY TOTALS (Criteria Pollutants)					Year of Data (Crit)	Report Date (Crit)
						CO (tpy)	NOX (tpy)	PM10 (tpy)	VOC or ROG (tpy)	SOX (tpy)		
Hanson Aggreg-Escondido	550 Tulip N	Escondido	00282A	0282	yes			10.6			2005	11/7/02
Hanson Aggreg-Lakeside1	12533 HWY 67	Lakeside	00396A	0068	yes	0.2	0.8	17.7	0.1	0.1	2005	11/8/02
Hanson Aggreg-Lakeside2	14054 El Monte Rd (Portable)	Lakeside	93262A	93262		0.2	1.1	3.2	0.1	0.1	2004	9/14/01
Hanson Aggreg-Otay Valley Rd	Otay Valley Road	Otay	02558A	5867	yes			60.2			2005	10/25/02
Hanson Aggreg-Pala	10331 Highway 76, 4 Miles East of	Pala	00135A	0135	yes	2.5	11.7	14.4	1.0	0.1	2004	9/14/01
Hanson Aggreg-San Diego	9229 Harris Plant Road	San Diego	00180A	0077	yes	10.1	3.0	26.3	1.0	0.1	2005	11/7/02
Hanson Aggreg-San Marcos	720 Twin Oaks Valley Rd S	San Marcos	88183A	7270	yes	1.5	0.7	153.1	1.4	0.1	2005	11/15/01
Hanson Aggreg-San Marcos	724 Twin Oaks Valley Rd	San Marcos	93097A	93097							2000	4/29/98

EXHIBIT 32-1

Charles Diep

From: Gould, Cynthia [Cynthia.Gould@sdcounty.ca.gov]
Sent: Tuesday, June 12, 2007 1:35 PM
To: Diep, Charles (Irvine,CA-US)
Subject: RE: Public Data Request - Sources Filing for ATC within 6 miles of Project since 2006
Importance: High
Attachments: Pala AC 2003_2006.xls

Hello Charles: attached is the list of Authority to Constructs for those zip codes you provided me. These companies are not major emitters and are not covered in our emissions inventory. I hope you find this information useful. There are some before 2006 that were included in the query's results. Thank you.

Cynthia R. Gould, B.A., B.S., GISci
APCD Aide, Permit Processing
10124 Old Grove Road
San Diego, CA 92131
(858) 586-2618
fax: (858) 586-2601
Celebrating 50 years of air quality progress!

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From: Diep, Charles (Irvine,CA-US) [mailto:CDiep@trcsolutions.com]
Sent: Tuesday, June 12, 2007 11:26 AM
To: Gould, Cynthia
Subject: RE: Public Data Request - Sources Filing for ATC within 6 miles of Project since 2006

Thanks Cynthia,

Our proposed site is across HWY-76 from the old Hanson Aggregates quarry. To our knowledge, the facility is no longer operational and the Pala Indian tribe has acquired the property. Are the permits for Hanson Aggregates still active?

The zip codes covered by the six miles radius include whole or portions of 92003, 92028, 92059, 92082, 92026, 92084 and 92828.

Thank you for your assistance.

Charles.

From: Gould, Cynthia [mailto:Cynthia.Gould@sdcounty.ca.gov]
Sent: Tuesday, June 12, 2007 10:28 AM
To: Diep, Charles (Irvine,CA-US)
Subject: RE: Public Data Request - Sources Filing for ATC within 6 miles of Project since 2006
Importance: High

Hello, there is an aggregate plant, Hanson's Aggregates, at 10331 Hwy 76 – 4 miles east of Interstate 15. This is the only major source emitter in Pala. I'm sure this plant will fall within the 6 mile radius. Also, the most recent Authority to Construct was in July 2003. Attached is the emissions inventory with the plant highlighted. Sincerely, Cynthia

Cynthia R. Gould, B.A., B.S., GISci
APCD Aide, Permit Processing
10124 Old Grove Road
San Diego, CA 92131
(858) 586-2618
fax: (858) 586-2601
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From: Diep, Charles (Irvine,CA-US) [mailto:CDiep@trcsolutions.com]
Sent: Tuesday, June 12, 2007 10:16 AM
To: Gould, Cynthia
Subject: Public Data Request - Sources Filing for ATC within 6 miles of Project since 2006

Hi Cynthia,

Thank you for your assistance on this matter. The address is approximately 10000 Pala Road, Pala, CA 92059. I will get you a map shortly. We will complete the request form as soon as we receive it.

Thanks, Charles.

Charles Diep, P.E., C.P.P.
Sr. Project Manager
CDiep@TRCSolutions.com

TRC

21 Technology Drive, Irvine, CA 92618
Tel (949) 789-4406 Fax (949) 727-3022

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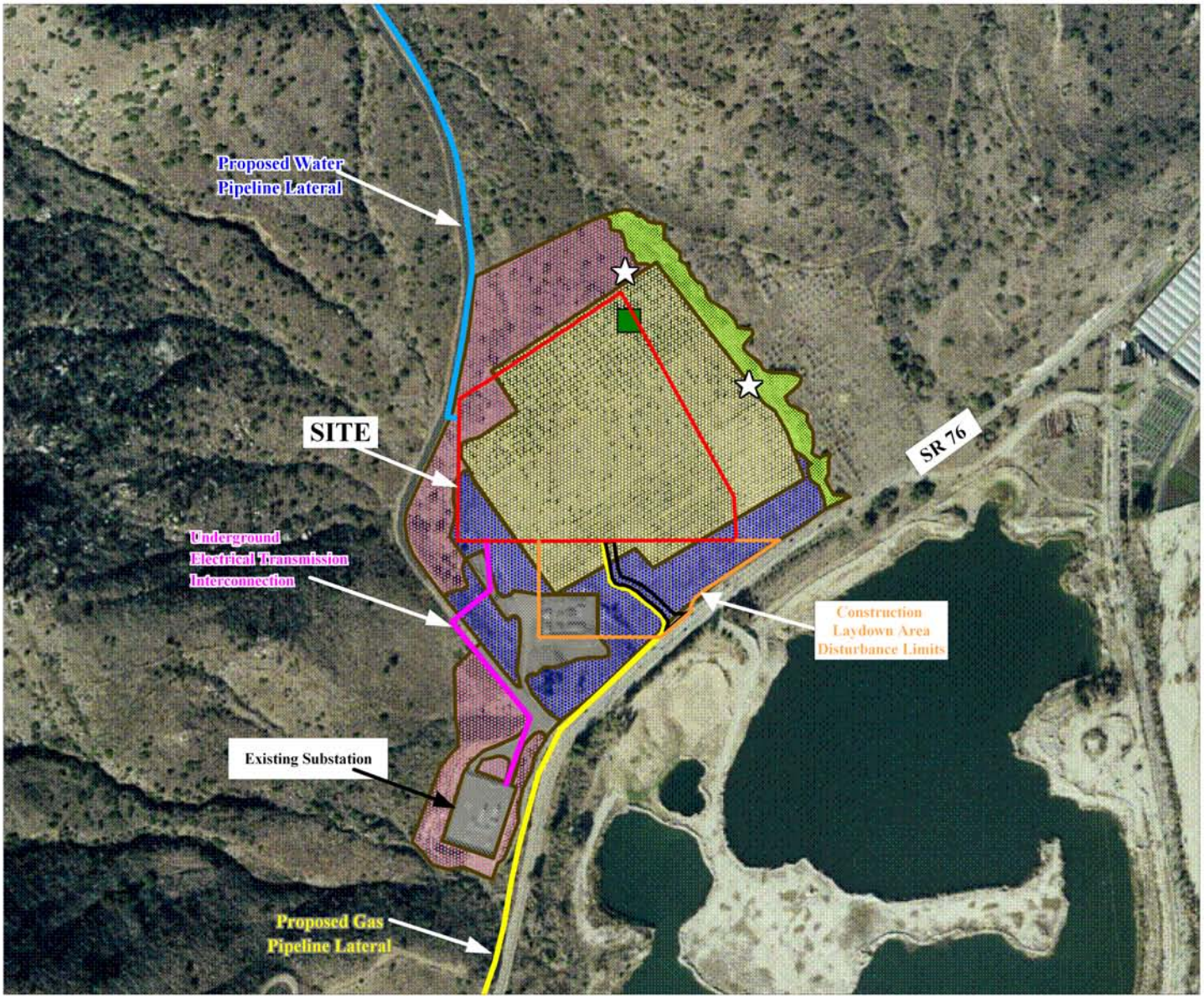
FEE_ SCHED	ID_ NUM	ID_ CODE	DBA	CONTACT_TITLE	STREET_ NUM	STREET_NAME	CITY	STATE	ZIP	TELEPHONE _VOICE	AP_ NUM	ENG_AP_ DISP	AP_ TYPE	EQUIP_DESC	ENG_SECTION	AP_RECVD_DATE
52B	8196	A	CALCLEAN INC	ENG SHENOI NOEL		PORTABLE	ESCONDIDO	CA	92026	714-734-9137	985119		New	THERMAL OXIDIZER SOLLECO MODEL 500	Chemical	2/28/07 11:19 AM
27C	8561	A	SHIPYARD SUPPLIES COASTAL COATINGS INC	OWNER JUAN LOZA	1809	MAIN ST	FALLBROOK	CA	92028	619-702-5267	983232		New	TWO GRACO AIRLESS PUMPS EACH W/ TWO NOZZLES	Chemical	6/21/05 10:33 AM
56B	8597	A	SAN ELIJO POWERS AUTHORITY MOONLIGHT BEACH PS	JOHN CLARK CHIEF PLANT OPERATOR	301	THIRD ST	FALLBROOK	CA	92028	760-753-6203	982724		New	1000 CFM ODOR SCRUBBER @ 1 MGD PUMP STATION	Title V	3/7/05 1:47 PM
34H	8597	A	SAN ELIJO POWERS AUTHORITY MOONLIGHT BEACH PS	JOHN CLARK CHIEF PLANT OPERATOR	301	THIRD ST	FALLBROOK	CA	92028	760-753-6203	982814	Approved	New	IC ENGINE KOHLER AB VOLVO PENTA D35012,1A65 540 HP DIESEL S/N TBD	Mechanical	3/21/05 10:54 AM
34D	8625	A	WYROC INC	VP SNODGRASS ROBERT	28474	TWIN OAKS VALLEY RD N	FALLBROOK	CA	92028	760-945-8800	980143	Approved	New	CONVERSION OF EXISTING PORTABLE DIESEL ENGINE TO PERMIT TO OPERATE	Mechanical	9/24/03 4:46 PM
34B	9918	A	COAST INTELLIGEN INC	RAFFESBERGER GLENN	1910	SWEETWATER RD	PALA	CA	92059	619-474-6392	981578	Approved	New	150 KW NATURAL GAS COGENERATOR MODEL E2876 E302 MFR MAN S/N 29803101644001	Mechanical	7/14/04 12:00 AM
27W	98441	A	GRANITE AGE	OWNERS GERARDO OLAGUE & THOMAS GALLARDO	1135	SWEETWATER LN	VISTA	CA	92084	619-864-0978	983728	Approved	New	ADHESIVE MATERIAL APPLICATION OPERATION POLYESTER BASE RESIN KNIFE GRADE	Chemical	10/19/05 1:35 PM
52B	99118	A	ALTON GEOSCIENCE	PROF ENG CHUA ALEX		PORTABLE	VISTA	CA	92084	858-505-8881	983869	Approved	New	DUAL PHASE EXTRACTION & TREATMENT SYSTEM	Chemical	12/2/05 11:11 AM
52B	99118	A	ALTON GEOSCIENCE	PROF ENG CHUA ALEX		PORTABLE	VISTA	CA	92084	858-505-8881	983869	Approved	New	DUAL PHASE EXTRACTION & TREATMENT SYSTEM	Chemical	12/2/05 11:11 AM
91A	99136	A	R&F PRODUCTS	PRESIDENT	1825	DIAMOND ST	VISTA	CA	92084	760-736-7007	984034		New	SPENT ABRASIVE HANDLING/RECYCLING SYSTEM. TORIT DUST COLLECTOR MODL DF03-12	Mechanical	1/24/06 4:03 PM
24C	99140	A	ZIMMER DENTAL INC	SUPV SHAW MARK	1900	ASTON AV	VISTA	CA	92084	760-929-4300	980691	Approved	New	DRY CHEMICAL MIXING TANK	Mechanical	1/30/04 12:04 PM
24C	99140	A	ZIMMER DENTAL INC	SUPV SHAW MARK	1900	ASTON AV	VISTA	CA	92084	760-929-4300	980692	Approved	New	DRY CHEMICAL MIXING TANK	Mechanical	1/30/04 12:05 PM

EXHIBIT 32-1

EXHIBIT 34-1

CONSTRUCTION LAYDOWN AREA



0 250 500
Feet

N

LEGEND

- Engelmann oak *(Quercus engelmannii)*
- Perry's tetracoccus *(Tetracoccus dioicus)*
- Open Coast Live Oak Woodland
- Diegan Coastal Sage Scrub (Mostly Revegetated & Disturbed)
- Orchard
- Nonnative Grasslands
- Disturbed and Urban/Developed

SOURCE:

Terrestrial Vegetation Community Code Based on Holland (1996), as Suggested by T. Oberbauer, (1996, Revised March 2005), DPLU, San Diego County.
Aerial : AirPhoto USA 2006

TRC

PROJECT: 29031902

ORANGE GROVE PROJECT
SAN DIEGO COUNTY, CALIFORNIA

CONSTRUCTION LAYDOWN AREA

Exhibit 34-1

TRC_Irvine\San Diego County\Biology Figures\Biology Map_const.wor Rev 10-3-07

EXHIBIT 36-1

CULTURAL RESOURCES RECORD SEARCH REPORT

(SUBMITTED UNDER CONFIDENTIAL COVER)

EXHIBIT 37-1

SUPPLEMENTAL ARCHAEOLOGICAL SURVEY REPORT AND ASSESSMENT OF POTENTIAL IMPACTS TO ARCHAEOLOGICAL RESOURCES, ORANGE GROVE PROJECT (07-SPPE-2), SAN DIEGO COUNTY, CALIFORNIA

(SUBMITTED UNDER CONFIDENTIAL COVER)

EXHIBIT 39-1

COUNTY OF SAN DIEGO HISTORIC SITE BOARD HISTORIC RESOURCES LIST

San Diego County Historic Property Listing

Historic Listing No.	Resource Name	Owner	Address / Location	City	Zip	APN	Mills Act Contract Recorded	Study Approved by DPLU	Plans Reviewed by HSB	Permit #	Resource	Status	Designation
Prior to 2002													
001	County Administration Center	County of San Diego	Pacific Coast Highway	San Diego	92101								n/a
002	Rainbow Service		8th St. and Camino Rainbow										H
003	Mount Helix Nature Theatre	Yawkey Trust Indenture of 1929	Mount Helix County Park	La Mesa	91941	496-160-20							H
004	Rock House (1889) - Bancroft	County Parks / Real Estate Services		Spring Valley	91977								H
005	Julian Hotel			Julian									J
006	Bonsall Schoolhouse		31505 Old River Road	Bonsall									n/a
007	Juba Liffreing House												H
008	Ramona Town Hall		729 Main Street	Ramona									H
009	Verlaque House												H
010	Descanso First Schoolhouse incl ruins and farm			Descanso		408-070-15							H
011	Descanso Station Restaurant incl Wayside Stop		North side of Old Highway 80, just west of Riverside Drive intersection	Descanso									H
012	Descanso Town Hall		24536 Viejas Grade Road	Descanso									H
013	Ellis Cemetery		UTM coordinates 11S/0535473/3632679										H
014	Fallbrook Masonic Cemetery			Fallbrook									H
015	Lakeside Church			Lakeside									H
016	Oddfellows Cemetery		Clemmens Lane, Fallbrook' UTM coordinates 11S/ 0476064/3692125	Fallbrook						REZ92-006			H
017	Ostrich Creek Bridge												H
018	Things Brothers Store	Louella M. and Rigaberto Vazquez, Archie O. Marron	Intersection of Thing Rd., Humphries Rd. and Emery Road	Tecate		652-120-36				REZ92-007			H
019	Patterson/Pratt/Gilles House (aka Barnett House)			Bostonia									H
020	Mataguay Historic District			-						REZ91-023			H
021	Barn at the Oaks			Jamul						REZ92-009			H
022	Ramona Nuevo Memory Gardens Cemetery		532 Ash St., Ramona	Ramona						REZ92-021			H
Oct. 2001- Sept. 2002													
2002-001	Somers-Linden Farmhouse	John Linden	1333 Lindenwood Drive	El Cajon	92021	388-592-46	12/27/2002	11/20/2002	4/15/2002	MAA02-001	Farmhouse	Historic	H
2002-002	McRae-Albright Ranchhouse	Ronald & Janie Ogdon	3754 Barbic Court	Spring Valley	91977	504-330-02	12/23/2002	11/20/2002	7/15/2002	MAA02-002	Ranchhouse	Historic	
2002-004	John B. & Bessie Cushman House	James T. & Hilary Broyles	5235 La Crescenta	Rancho Santa Fe	92067	265-061-21	11/19/2004	11/20/2002	8/19/2002	MAA02-004	House	Historic	
2002-005	Rancho Santa Fe Land Improvement Co. Spec House #1	Virginia Dewey	6107 Mimulus	Rancho Santa Fe	92067	266-232-09	12/24/2002	11/20/2002	8/19/2002	MAA02-005	House	Historic	
2002-006	Frank William Joers House	Marcia Lee	6135 La Flecha	Rancho Santa Fe	92067	266-291-12	12/23/2002	11/20/2002	8/19/2002 and 11/20/2002	MAA02-006	House	Historic	
2002-007	Frederick & Mary Allen/Boettiger House	John & Christine Tyner	5525 La Crescenta	Rancho Santa Fe	92067	265-062-09	12/18/2002	11/20/2002	9/16/2002	MAA02-007	House	Historic	
2002-008	Reynolds/Warren House	Ricky & Judy Christensen	5189 Mount Helix Drive	La Mesa	91941	496-072-28	12/23/2002	11/20/2002	9/16/2002	MAA02-008	House	Historic	
2002-009	Vincent & Adele Whelan House	Bob & Nancy Lemke	3597 Lomacitas Lane	Bonita	91902	591-100-08	12/23/2002	11/20/2002	9/16/2002	MAA02-009	House	Historic	
2002-010	Russell C. & Ella B. Allen House	Kurt A. Chilcott & Carol A. Squire	4094 Old Orchard Lane	Bonita	91902	592-060-31	12/23/2002	11/20/2002	9/16/2002	MAA02-010	House	Historic	H
Oct. 2002- Sept 2003													
2002-011	George A. Christiancy Residence	Steve Black	17078 El Mirador	Rancho Santa Fe	92067	267-100-17	12/18/2002	11/20/2002	11/18/2001	MAA02-011	House	Historic	
2003-001	Holmgren House	Vincent P. & Margaret H. O'Hara	10037 Ward Lane	La Mesa	91941	491-670-18	12/26/2003	11/18/2003	6/16/2003	MAA03-001	House	Historic	
2003-002	T.W. Lillie Residence	Todd Pitman & Carmen Pauli	4410 Carmen Drive	La Mesa	91941	497-190-61	12/26/2003	11/18/2003	8/18/2003	MAA03-002	House	Historic	
2003-003	Charles A. Shaffer House	Mili Smythe	5610 La Crescenta	Rancho Santa Fe	92067	265-101-11	N/A	11/18/2003	11/17/2003	MAA03-003	House	Historic	
2003-004	Live Oak Park Tables & Objects	County Parks	2746 Reche Road	Fallbrook	92028								
Oct. 2003- Sept. 2004													
2003-005	Camp Lockett Historic District	County Department of Parks and Recreation	Campo	Escondido	92029						Distnct		
2004-001	Hidden Lake Ranch	Christopher & Pat Thompson	9556 Del Dios Highway	Escondido	92029	272-160-70					House		
2004-002	William Gross House	Marian Liebowitz	9633 El Granito Avenue	La Mesa	91941	491-520-09, 31	12/16/2004	11/30/2004	10/18/2004	MAA04-002	House	Historic	
2004-003	Tomlinson Residence	Geier Family Trust	4928 El Mirlo	Rancho Santa Fe	92067	265-050-28	12/6/2004	11/30/2004	10/18/2004	MAA04-003	House	Historic	

Exhibit 39-1

San Diego County Historic Property Listing

Historic Listing No.	Resource Name	Owner	Address / Location	City	Zip	APN	Mills Act Contract Recorded	Study Approved by DPLU	Plans Reviewed by HSB	Permit #	Resource	Status	Designation
Oct. 2004 - Sept. 2005													
2005-002	Ferry Ranch House	Kathy Romero, Mike Meza	10414 Chase Creek Lane	Lakeside	92040	379-350-11	12/9/2005	9/15/2005	8/15/2005	MAA05-002	House	Historic	H
2005-003	Julian Ettinge Residence	Mark Whittleton	2690 South Grade Road	Alpine	91901	404-430-33,34,35	12/9/2005	8/30/2005	6/20/2005	MAA05-003	House	Historic	
2005-006	Sickler Brothers Pala Mill	County of San Diego, Real Estate Services	Wilderness Gardens Open Space Preserve: UTM coordinates 11/ S 0496845/3690178	Pala	92059	110-190-05, 08, 12, 17; 111-070-22		10/3/2005	9/19/2005		Structure	Historic	
Oct. 2005- Sept. 2006													
2005-001	Edwards Rock House	Evan Edwards Family Trust	34571 Engineers Road	Julian	92036	294-070-16	12/22/2005	12/5/2005	11/21/2005	MAA05-001	House	Historic	
2005-004	Bartlett House	Steve Hubbard, Janet Patzer	10413 Grandview Drive	La Mesa	92019	496-242-50	12/9/2005	11/7/2005	10/17/2005	MAA05-004	House	Historic	
2005-005	Lamb House	Mary Polopolus	2239 Gird Road	Fallbrook	92028	107-220-65, 66	12/9/2005	11/7/2205	10/17/2005	MAA05-005	House	Historic	
2005-007	Hare House	Darin and Catherine Simmerman	9150 Wister Drive	La Mesa	91941	491-800-05	12/22/2005	12/5/2005	11/21/2005	MAA05-007	House	Historic	
2005-008	Glenn E. Murdock House	David G. Kesner and Sheila K. Dowe	9441 Sunset Avenue	La Mesa	91941	491-462-01, 02	12/22/2005	12/5/2005	11/21/2005	MAA05-008	House	Historic	
2005-009	Marie Schumann-Heink & Hubert Guy Residence	Thomas and Tawnya Macchiarella	5310 Valle Vista	La Mesa	91941	491-440-13, 16	12/22/2005	12/19/2005	12/19/2005	MAA05-009	House	Historic	
2006-001	King Ranch House	Ziad Michel Khozam	1445 Navel Place	Escondido	92027	234-100-0300	6/19/2006	7/26/2006	6/19/2006	MAA06-001	House	Historic	
2006-002	Goldzband Residence	A. Michael Nala / Kristin Spoon	4709 La Rueda Drive	La Mesa	91941	497-102-21-00	6/7/2006		8/21/2006	MAA06-002	House	Historic	
2006-003	Alpine Woman's Club	Alpine Woman's Club	2156 Alpine Blvd.	Alpine	91901	403-261-03	7/26/2006		8/21/2006	MAA06-003	Structure	Historic	
2006-004	Youngblood/Cliff May House	Lawrence T. Shannon & Candice R. Ridge	17538 El Vuelo	Rancho Santa Fe	92067	267-020-03-00		11/9/2006	9/18/2006	MAA06-004	House	Historic	
2006-005	Descanso Rock Cabin	Robert and Joanne Elkins	25121 Oak Lane	Descanso	91916	408-232-44-00		11/9/2006	10/16/2006	MAA06-005	House	Historic	
2006-006	Fleming/Rice RSF House	Morris & Kathryn Nurmm	16811 Via de Santa Fe	Ranch Santa Fe	92067	266-293-26-00			11/20/2006	MAA06-006	House		

EXHIBIT 39-2

SAN DIEGO COUNTY HISTORIC SITE BOARD

INFORMATION REQUIRED FOR LANDMARKING APPLICATIONS

SAN DIEGO COUNTY HISTORIC SITE BOARD

INFORMATION REQUIRED FOR LANDMARKING APPLICATIONS

Revised 07/05/2007

The Historic Site Board was established by the Board of Supervisors by Ordinance 9493 dated 8/14/2002 and Section 396.7 of the County Administrative Code, to landmark significant historic and prehistoric cultural resources in the County of San Diego.

Landmarking requires that the Historic Site Board (HSB) members and staff have adequate detailed information available for the evaluation of your application. You may perform the research and compilation of the information yourself, or you may retain the services of a professional for that purpose. However, even if you choose the latter, your own research will be of assistance and potentially reduce your costs, and increase your appreciation of the resource you own.

The HSB staff is available to answer your questions on the landmarking process. Please contact Gail Wright at (858) 694-3003 or Gail.Wright@sdcounty.ca.gov; or Donna Beddow at (858) 694-3656 or Donna.Beddow@sdcounty.ca.gov, for any assistance with the application forms or with the following required information:

Executive Summary

Provide an overview of the application, including what and where the resource is located, and which criteria for listing the resource is believed to meet (see below). Include a statement identifying which components (structures and landscape and hardscape elements) are to be included in the nomination. For example the listing may include only the residence; or, it may include the residence, detached garage, and gazebo, but not the pool and pool house. Another example would be that the listing would include the house, the landscaping and the rock wall.

Significance

Significance criteria, as defined by the San Diego County Local Register of Historical Resources Ordinance 9493 and Section 396.7 of the County Administrative Code Section (e).(2) include the following:

V. (b) (1). Is associated with events that have made a significant contribution to the broad patterns of San Diego County's history and cultural heritage. Examples include resources associated with the Battle of San Pasqual, gold mining in the Julian area or the early growth of the San Diego area. These resources would be considered significant because it is associated with an event that has made a significant contribution to the broad patterns of San Diego County's history and cultural heritage.

V. (b) (2). Is associated with the lives of persons important to the history of San Diego County or its communities. Examples include resources associated with the life of George W. Marston, Kate Sessions, John D. Spreckels, Ellen Browning Scripps, Ah Quin, Manuel O. Medina, Jose Manuel Polton (Hatam), Jose Pedro Panto, Manuel Olegario Calac (or Sali), or Tom Lucas would be considered significant because they are associated with the lives of persons important to the history of San Diego County or its communities.

V. (b) (3). Embodies the distinctive characteristics of a type, period, San Diego County region, or method of construction, or represents the work of an important creative individual, or

possesses high artistic values. Examples include resources representing the work of architects William Templeton Johnson, Irving Gill, Lilian Rice, or Hazel Waterman would be considered significant because they represent the work of an important creative individual; or if a resource is identified as a Queen Anne, Mission Revival, Craftsman, Spanish Colonial, or Western Ranch Style structure, it would be significant because it embodies the distinctive characteristics of an architectural type or period.

V. (b) (4). Has yielded, or may be likely to yield, information important in prehistory or history. For example, a milling feature associated with the La Jollan prehistoric period, the floor of a prehistoric structure, or an historic stone dam would be significant because it is considered unique and is likely to yield information important to prehistory.

In order to address the above-referenced criteria, we recommend that your report include the following sections and subsections as well as a conclusion as to which of the criteria your resource applies: Note: see Additional Information below for types of resources eligible for nomination

1. Provide an explanation of which one or more of these criteria the property is met by your residence, structure, landscape or archaeological site, and why. Note: Criterion V.(b).(4) almost always applies to archaeological sites, though it may also apply to other types of resources.

2. Historical Context
   Describe how the resource relates to the history and/or prehistory of San Diego County, and what the time period for which it is significant.

3. Biographical Information
   As applicable and as researched, provide information on original owner(s) and occupant(s), architect, landscape architect, builder, subsequent owner(s) and occupant(s)

4. Detailed Description of Resource
   For a structure, describe the structure in detail, including how it has changed over time and its present condition. A series of floor plans may be helpful in this effort. If applicable, also describe the landscaping and how it has evolved. For other types of resources, provide a description, as appropriate.

5. Subsurface Components
   Were there formerly structures or features present portions of which may still exist below the surface? Examples include outhouses (privies) and various other outbuildings.

6. Archaeological Sites
   If the resource is not an archaeological site, is there potential for subsurface resources? If it is an archaeological site, has the site been tested? If so, provide a copy of the survey/testing report. The report must contain detailed description of CEQA and RPO significance.

Bibliography

Provide citations for references used.

Appendices

Include in appendices additional applicable information, such as:

1. Copy of most recent deed (Required)

2. Legal description (Required)
3. Chain of title (Required)
4. Historical photographs, including aerial photographs, if available (specifically 1928 aerial photograph) depicting features of the property (Required). The 1928 aerial photographs are now digitized and can be obtained from the County at 5201 Ruffin Road.
5. Photographs of the property and the setting as it currently exists, from all four directions (Required)
6. Site plans and/or aerial views showing property lines and the locations of structures and major landscape and hardscape elements (Required). The plans and/or views must include the entire parcel and all elements. The area to be landmarked must be clearly highlighted. In addition to the main residence or structure, other elements that are to include, as applicable:
    a. Mature landscaping
    b. Walls
    c. Driveways
    d. Pathways
    e. Outbuildings
    f. Boulders or rock formations
    g. Pools
    h. Additions to the main residence or structure, if known
7. At a minimum, include maps which show the location of the property or which help to represent or understand the significance of the resource. Include a USGS topographic map and a Thomas Brothers page map. One source for maps is SanGIS, a joint powers agency of the City of San Diego and the County. See www.sangis.org, call 858-874-7000, or visit their office at 5469 Kearney Villa Road, Suite 102, San Diego, CA 92123.
8. Copies of significant articles from newspapers, magazines, etc., which help to represent or understand the significance of the resource
9. Copies of permits, notices of completion, etc.

ADDITIONAL INFORMATION:

Types of resources eligible for nomination:

1. Building. A resource, such as a house, barn, church, factory, hotel, or similar structure created principally to shelter or assist in carrying out any form of human activity. "Building" may also be used to refer to a historically and functionally related unit, such as a courthouse and jail or a house and barn.

2. Site. A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possessed historical, cultural, or archaeological value regardless of the value of any existing building, structure, or object. A site need not be marked by physical remains if it is the location of a prehistoric or historic event, and if no buildings, structures, or objects marked it at that time. Examples of such sites are trails, designed landscapes, battlefields, habitation sites, Native American ceremonial areas, petroglyphs, and pictographs.

3. Structure. The term "structure" is used to describe a construction made for a functional purpose rather than creating human shelter. Examples of structures include mines, flumes, roads, bridges, and tunnels.

4. Object. The term "object" is used to describe those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed, as opposed to a building or structure. Although it may be moveable by nature or design, an object is associated with a specific setting or environment. Objects should be in a setting appropriate to their significant historic use, role, or character. Objects that are relocated to a museum are not eligible for listing in the Local Register. Examples of objects include but are not limited to fountains, monuments, maritime resources, trains, planes, sculptures, and boundary markers.

5. Historic District. Historic districts are united geographic entities that contain a concentration of buildings, structures, objects, and/or sites united historically, prehistorically, culturally, or architecturally. Historic districts are defined by precise geographic boundaries. Therefore, districts with unusual boundaries require a description of what lies immediately outside the area, in order to define the edge of the district and to explain the exclusion of adjoining areas. The district must meet at least one of the criteria for significance discussed below in Section (b).

   Those individual resources contributing to the significance of the historic or archaeological district, but not individually eligible, will also be listed in the Local Register. For this reason, all individual resources located within the boundaries of an historic or archaeological district must be designated as either contributing or as non-contributing to the significance of the district.

Integrity:

Integrity is the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Historical resources eligible for listing in the Local Register must meet one of the criteria of significance described in Section V (b), above, and retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Historical resources that have been preserved, rehabilitated, or restored according to the Secretary of Interior's Standards may also be evaluated for listing.

Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. It must also be judged with reference to the particular criteria under which a resource is proposed for eligibility. Alterations over time to a resource or changes in its use may themselves have historical, cultural, or architectural significance.

ATTACHMENT (1)

Approved: August 20, 2007

ATTACHMENT TO LANDMARK REQUIREMENTS:

DOCUMENTATION REQUIRED BY THE ZONING COUNTER FOR SUBMISSION OF MILLS ACT APPLICATION TO THE COUNTY OF SAN DIEGO

NOTE:

THE HISTORIC SITE BOARD MEETS THE 3RD MONDAY OF THE MONTH AT THE COUNTY ANNEX 5201 RUFFIN ROAD SUITE B, AT 6:30PM, IN THE BOARD ROOM. MILLS ACT DOCUMENTATION MUST BE SUBMITTED TO THE ZONING COUNTER AT LEAST 30-DAYS PRIOR TO ANY MEETING TO BE PLACED ON THE AGENDA.

Effective July 1, 2007

MILLS ACT APPLICATION

		FEES	DEPOSIT/FEE	FEE CODE
DPLU PLANNING		---	F	2653
DPLU ENVIRONMENTAL		$420		
DPW ENGINEERING		---		
DPW INITIAL STUDY REVIEW		---		
STORMWATER	MINOR	---		
	MAJOR	---		
DEH	SEPTIC/WELL	---		
	SEWER	---		
PARKS		---		
TOTAL		$420		

VIOLATION FEE_____

FORMS/REQUIREMENTS

346 Discretionary Permit Application Form
---- Application for Historic Designation/ Mills Act Contract Application
---- CA Department of Parks and Recreation Form # **DPR 523- A**
---- CA Department of Parks and Recreation Form # **DPR 523- B**
---- CA Department of Parks and Recreation Form # **DPR 523- J**
---- CA Department of Parks and Recreation Form # **DPR 523- L**
---- Photographs
---- Historical/Architectural Study/Supporting Documents

NOTES:

____ 1. Twelve (12) hard copies of above-referenced documents including all reports MUST be submitted, in addition to, one (1) electronic copy (pdf files on a CD) of the same items.

____ 2. All documentation should go to Project Processing for distribution.

____ 3. Questions should be directed to Donna Beddow, Gail Wright or Glenn Russell.

Discretionary Permit application Form 346 is available at the following web site:

http://www.sdcounty.ca.gov/dplu/docs/ZoningNumeric.html

EXHIBIT 40-1

CORRESPONDENCE WITH HISTORICAL SOCIETIES

Data Request #40. "Please contact local historical and archaeological societies that might have knowledge of historical or archaeological resources in the area of the project and provide copies of the inquiry letters and any responses."

Response to Data Request #40.
Urbana Preservation & Planning contacted, via electronic mail (E-Mail) or U.S. mail, the following individuals, government agencies, and/or organizations to inquire about local historical knowledge or other pertinent information regarding the land that comprises the proposed project area and related linear facilities or any buildings, structures, objects, etc. located within the area.

Lynne Newell Christenson, Ph.D., County Historian
San Diego County Department of Parks & Recreation
9150 Chesapeake Dr., Suite 200, San Diego CA 92123
(619) 472-2743/Telephone · Lynne.Christenson@sdcounty.ca.gov
(Inquiry letter submitted via E-MAIL in PDF format)

Donna Beddow / Gail Wright, Historic Site Board Staff Members
San Diego County Department of Planning & Land Use
5201 Ruffin Road, Suite B, San Diego, CA 92123
(858) 694-3656/Telephone · Donna.Beddow@sdcounty.ca.gov · Gail.Wright@sdcounty.ca.gov
(Inquiry letter submitted via E-MAIL in PDF format)

Jim Royle, Chair
San Diego County Historic Site Board
San Diego County Department of Planning & Land Use
5201 Ruffin Road, Suite B, San Diego, CA 92123
(858) 694-3656/Telephone · jwroyle@cts.com
(Inquiry letter submitted via E-MAIL in PDF format)

Jim Royle, Chair
San Diego Archaeological Center Advisory Council
16666 San Pasqual Valley Road, Escondido, CA 92027
(760) 291-0370/Telephone · jwroyle@cts.com
(Inquiry letter submitted via E-MAIL in PDF format)

Fallbrook Historical Society
P.O. Box 1375, Fallbrook, CA 92088-1702, Fallbrook, CA 92028 (Mail)
260 Rocky Crest Road, Fallbrook, CA 92028 (Physical)
(760) 723-4125/Telephone
(Inquiry letter submitted via U.S. mail)

Shasta C. Gaughen, Assistant Director
Cupa Cultural Center
35008 Pala Temecula Road, PMB 445, Pala, CA 92059
(760) 742-1590/Telephone · sgaughen@palatribe.com
(Inquiry letter submitted via via E-MAIL in PDF format)

Jane Kenealy, Archivist
San Diego Historical Society
1649 El Prado, Suite 3, San Diego, CA 92101
(619) 232-6203/Telephone · jane.kenealy@sandiegohistory.org
(Inquiry letter submitted via E-MAIL in PDF format)

Copies of the above-referenced inquiry letters, email transmittals, and any responses received have been attached to this Data Request as **Exhibit 40-1**.

Wendy L. Tinsley

From: Wendy L. Tinsley [wendy@urbanapreservation.com]
Sent: Wednesday, September 19, 2007 10:53 AM
To: 'lynne.christenson@sdcounty.ca.gov'
Subject: Historical Resource Consultation Inquiry - Proposed Project in Pala Area, San Diego County
Attachments: Inquiry Letter_Lynne Newell Christenson.pdf

Hello Lynne,
Attached please find for your review and attention, an inquiry regarding information you may potentially have pertaining to general historical knowledge or specific historical resources present for an area of land in the Pala community of north San Diego County at which a project is proposed. After you've had the opportunity to review the attached letter, please feel free to contact me in writing if you have any information that you would like to share. Thank you in advance.

Respectfully Submitted,

-Wendy.

Wendy L. Tinsley, Principal
Urbana Preservation & Planning

255 G Street #399
San Diego, CA 92101
619-543-0693/Phone
800-880-4434/E-Fax
+
248 3rd Street #841
Oakland, CA 94607
510-663-7443/Phone
800-880-4434/E-Fax

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Exhibit 40-1.

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Southern California • 255 G Street #399, San Diego, CA 92101 • 619-543-0693

September 19, 2007

Lynne Newell Christenson, Ph.D., County Historian
San Diego County Department of Parks & Recreation
9150 Chesapeake Dr., Suite 200, San Diego CA 92123
(619) 472-2743/Telephone • Lynne.Christenson@sdcounty.ca.gov

RE: Historical Resource Information Inquiry – Pala Area (VIA E-MAIL)

Dear Dr. Christenson,

Urbana Preservation & Planning (Urbana) has been retained to provide historical resource consulting services to TRC Companies, Inc. (TRC) as part of a Small Power Plant Exemption Application (Application) to the California Energy Commission for the construction and operation of a small electric generating plant in the community of Pala in north San Diego County. The project location and vicinity are illustrated on the following page. The project is proposed by J Power USA Development Co., LTD (J Power) in response to a Request for Offers by San Diego Gas & Electric Company (SDG&E) for generating new resources to support local energy reliability.

The power plant will be constructed on an approximately 16-acre site situated within a 55-acre property owned by SDG&E, as shown on the following page. An approximately 2.0 mile underground gas pipeline lateral will be constructed to convey natural gas to the site from an existing SDG&E gas transmission line. A water pipeline will be constructed along the same path as the gas pipeline, and will extend approximately 0.7 mile further than the gas lateral to intercept an existing Rainbow Water District main.

As part of the Application and related consultation process TRC has previously conducted a cultural resources inventory for the project vicinity and pursuant to Section 101 of the National Historic Preservation Act, has notified Native Americans of the project and made inquiries regarding cultural sensitivity.

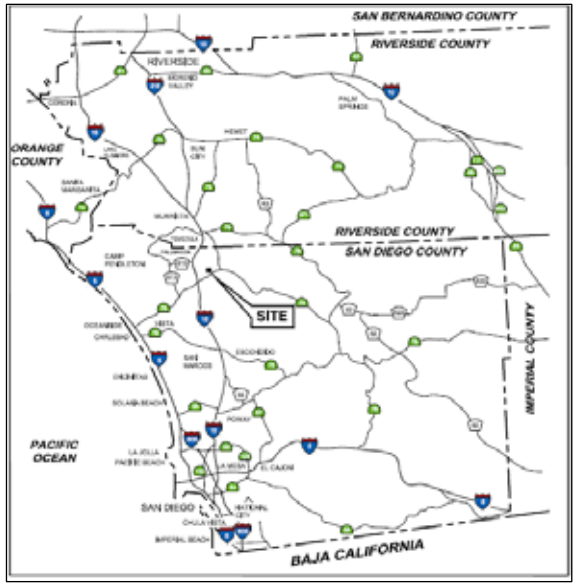
Urbana is now supplementing previous inquiries to determine whether you or your colleagues at the County of San Diego Department of Parks & Recreation might have additional knowledge or information about the history of the proposed project area, specifically any information regarding:

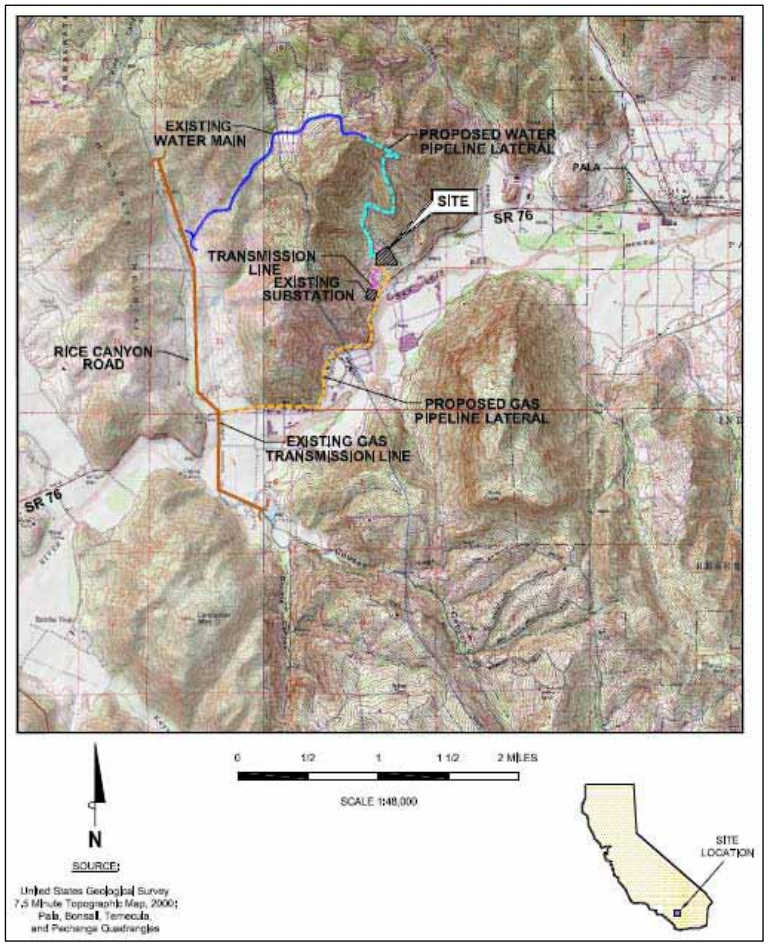
- Important historical events which may have occurred there (*potentially corresponding to California Register Criterion 1*), or
- Individuals associated with the land that may be considered significant persons (*potentially corresponding to California Register Criterion 2*), or
- Noteworthy buildings or structures that are extant or were once extant in the area (*potentially corresponding to California Register Criterion 3*), or
- Whether the proposed project site and vicinity contains resources which may contribute important information to the history of the Pala, California or the nation (*potentially corresponding to California Register Criterion 4*).

Please contact me in writing if you have any information that you would like to share regarding the history of the area or if you have any questions or comments regarding the proposed project. I appreciate your assistance and look forward to receiving your response.

Respectfully Submitted,

Wendy L. Tinsley, Principal
wendy@urbanapreservation.com


SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
RIVERSIDE
ORANGE COUNTY
RIVERSIDE COUNTY
SAN DIEGO COUNTY
SITE
IMPERIAL COUNTY
PACIFIC OCEAN
SAN DIEGO
BAJA CALIFORNIA


EXISTING WATER MAIN
PROPOSED WATER PIPELINE LATERAL
PALA
SITE
SR 76
TRANSMISSION LINE
EXISTING SUBSTATION
RICE CANYON ROAD
PROPOSED GAS PIPELINE LATERAL
EXISTING GAS TRANSMISSION LINE
SR 76
0 1/2 1 1 1/2 2 MILES
SCALE 1:48,000
N
SITE LOCATION
SOURCE:
United States Geological Survey
7.5 Minute Topographic Map, 2000;
Pala, Bonsall, Temecula,
and Pechanga Quadrangles

SDG&E PROPERTY BOUNDARY
N
APN 110-072-26
PARCEL BOUNDARY
WATER PIPELINE LATERAL
SITE BOUNDARY
EXISTING STORAGE
UNDERGROUND ELECTRICAL TRANSMISSION INTERCONNECTION
APN 110-370-01
EXISTING PALA SUBSTATION
GAS PIPELINE LATERAL
SOURCE:
Virtual Earth, 2006.
APPROXIMATE SCALE (FEET)
0 600 1200

Wendy L. Tinsley

From: Wendy L. Tinsley [wendy@urbanapreservation.com]
Sent: Wednesday, September 19, 2007 10:47 AM
To: 'Beddow, Donna'; 'Wright, Gail'
Subject: Historical Resource Consultation Inquiry - Proposed Project in Pala Area, San Diego County
Attachments: Inquiry Letter_Donna Beddow and Gail Wright.pdf

Hello Donna & Gail,
Attached please find for your review and attention, an inquiry regarding information you may potentially have pertaining to general historical knowledge or specific historical resources present for an area of land in the Pala community of north San Diego County at which a project is proposed. After you've had the opportunity to review the attached letter, please feel free to contact me in writing if you have any information that you would like to share. Thank you in advance.

Respectfully Submitted,

-Wendy.

Wendy L. Tinsley, Principal
Urbana Preservation & Planning

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September 19, 2007

Donna Beddow / Gail Wright, Historic Site Board Staff Members
San Diego County Department of Planning & Land Use
5201 Ruffin Road, Suite B, San Diego, CA 92123
(858) 694-3656/Telephone · Donna.Beddow@sdcounty.ca.gov · Gail.Wright@sdcounty.ca.gov

RE: Historical Resource Information Inquiry – Pala Area (VIA E-MAIL)

Dear Ms. Beddow and Ms. Wright,

Urbana Preservation & Planning (Urbana) has been retained to provide historical resource consulting services to TRC Companies, Inc. (TRC) as part of a Small Power Plant Exemption Application (Application) to the California Energy Commission for the construction and operation of a small electric generating plant in the community of Pala in north San Diego County. The project location and vicinity are illustrated on the following page. The project is proposed by J Power USA Development Co., LTD (J Power) in response to a Request for Offers by San Diego Gas & Electric Company (SDG&E) for generating new resources to support local energy reliability.

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Urbana is now supplementing previous inquiries to determine whether you or your colleagues at the County of San Diego Department of Planning & Land Use and related Historic Site Board might have additional knowledge or information about the history of the proposed project area, specifically any information regarding:

- Important historical events which may have occurred there (*potentially corresponding to California Register Criterion 1*), or
- Individuals associated with the land that may be considered significant persons (*potentially corresponding to California Register Criterion 2*), or
- Noteworthy buildings or structures that are extant or were once extant in the area (*potentially corresponding to California Register Criterion 3*), or
- Whether the proposed project site and vicinity contains resources which may contribute important information to the history of Pala, California or the nation (*potentially corresponding to California Register Criterion 4*).

Please contact me in writing if you have any information that you would like to share regarding the history of the area or if you have any questions or comments regarding the proposed project. I appreciate your assistance and look forward to receiving your response.

Respectfully Submitted,

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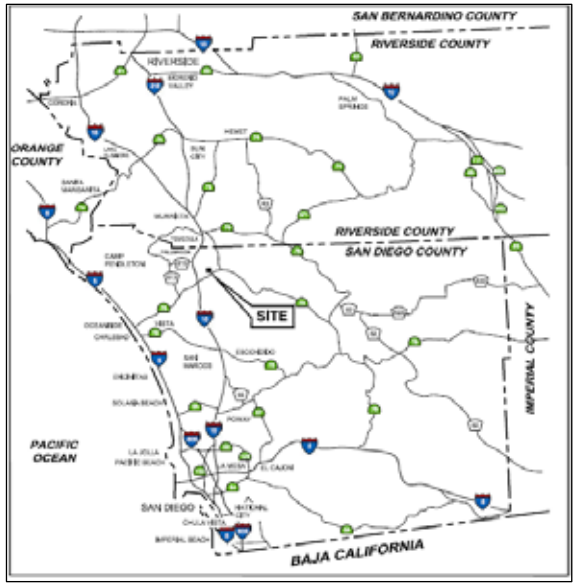

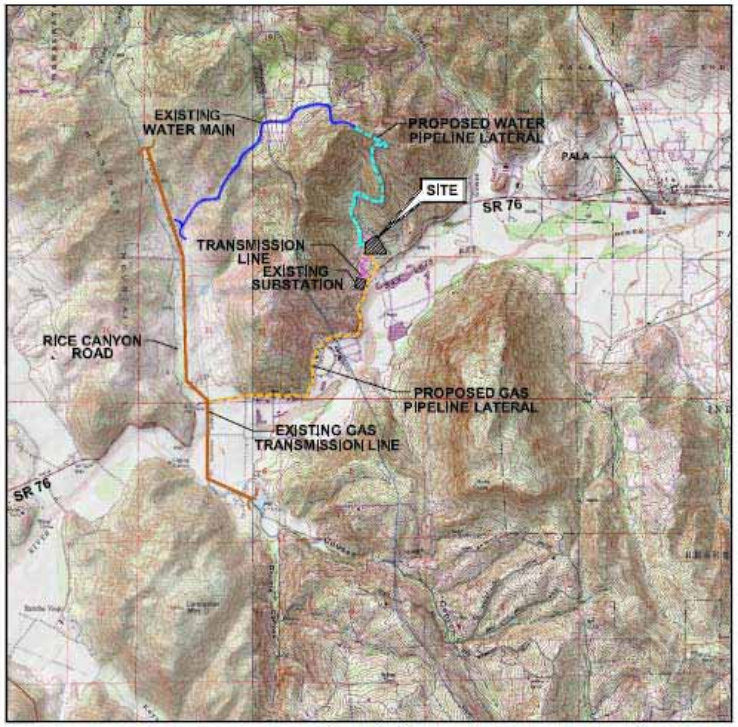

SOURCE:
United States Geological Survey 7.5 Minute Topographic Map, 2000; Pala, Bonsall, Temecula, and Pechanga Quadrangles

SOURCE:
Virtual Earth, 2006.

APPROXIMATE SCALE (FEET)
0 600 1200

Wendy L. Tinsley

From: Wendy L. Tinsley [wendy@urbanapreservation.com]
Sent: Wednesday, September 19, 2007 10:51 AM
To: 'jwroyle@cts.com'
Subject: Historical Resource Consultation Inquiry - Proposed Project in Pala Area, San Diego County
Attachments: Inquiry Letter_Jim Royle SDAC.pdf; Inquiry Letter_Jim Royle HSB.pdf

Hello Mr. Royle,
Attached please find for your review and attention, an inquiry regarding information you may potentially have pertaining to general historical knowledge or specific historical resources present for an area of land in the Pala community of north San Diego County at which a project is proposed. After you've had the opportunity to review the attached letter, please feel free to contact me in writing if you have any information that you would like to share. Thank you in advance.

Respectfully Submitted,

-Wendy.

Wendy L. Tinsley, Principal
Urbana Preservation & Planning

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September 19, 2007

Jim Royle, Chair
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16666 San Pasqual Valley Road, Escondido, CA 92027
(760) 291-0370/Telephone • jwroyle@cts.com

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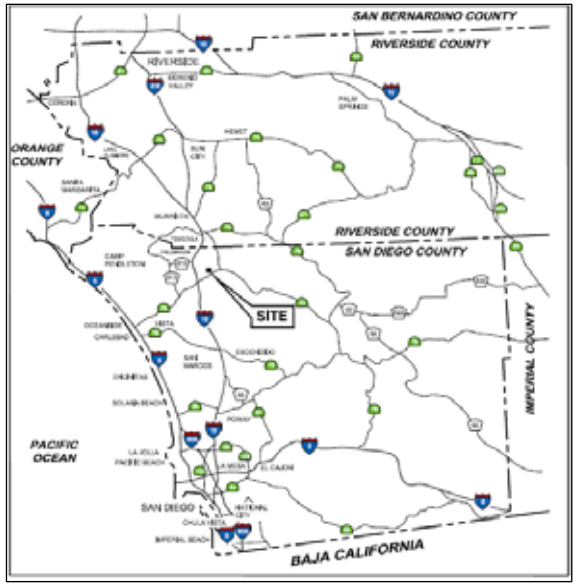

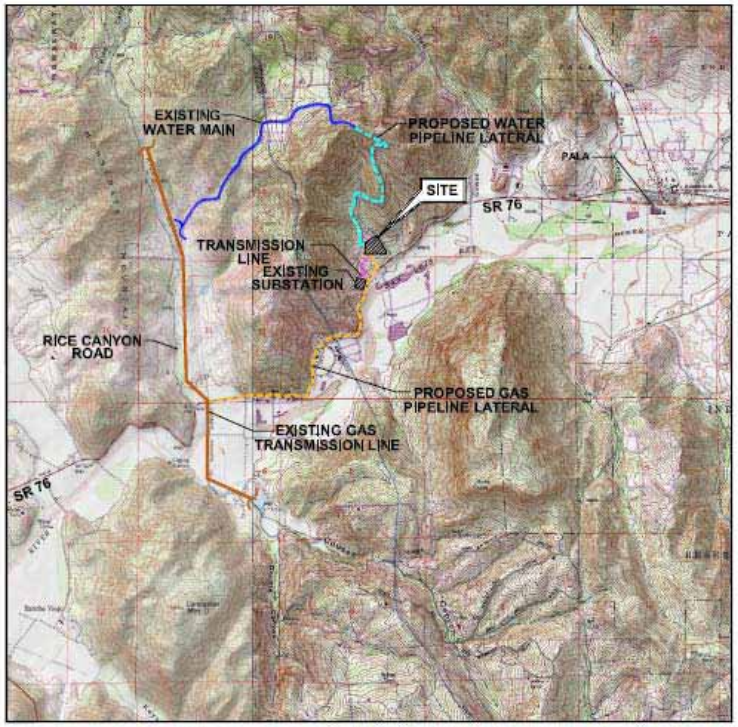

SOURCE:
United States Geological Survey 7.5 Minute Topographic Map, 2000; Pala, Bonsall, Temecula, and Pechanga Quadrangles

SOURCE:
Virtual Earth, 2006.

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Southern California • 255 G Street #399, San Diego, CA 92101 • 619-543-0693

September 19, 2007

Jim Royle, Chair
San Diego County Historic Site Board
San Diego County Department of Planning & Land Use
5201 Ruffin Road, Suite B, San Diego, CA 92123
(858) 694-3656/Telephone • jwroyle@cts.com

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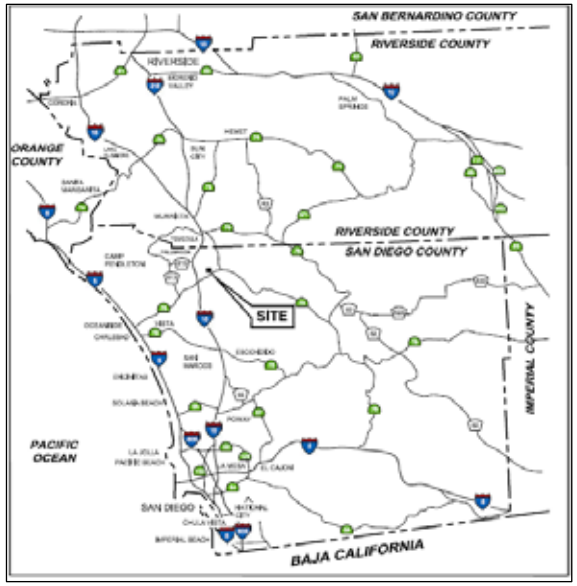
SAN BERNARDINO COUNTY
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ORANGE COUNTY
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SAN DIEGO COUNTY
SITE
IMPERIAL COUNTY
PACIFIC OCEAN
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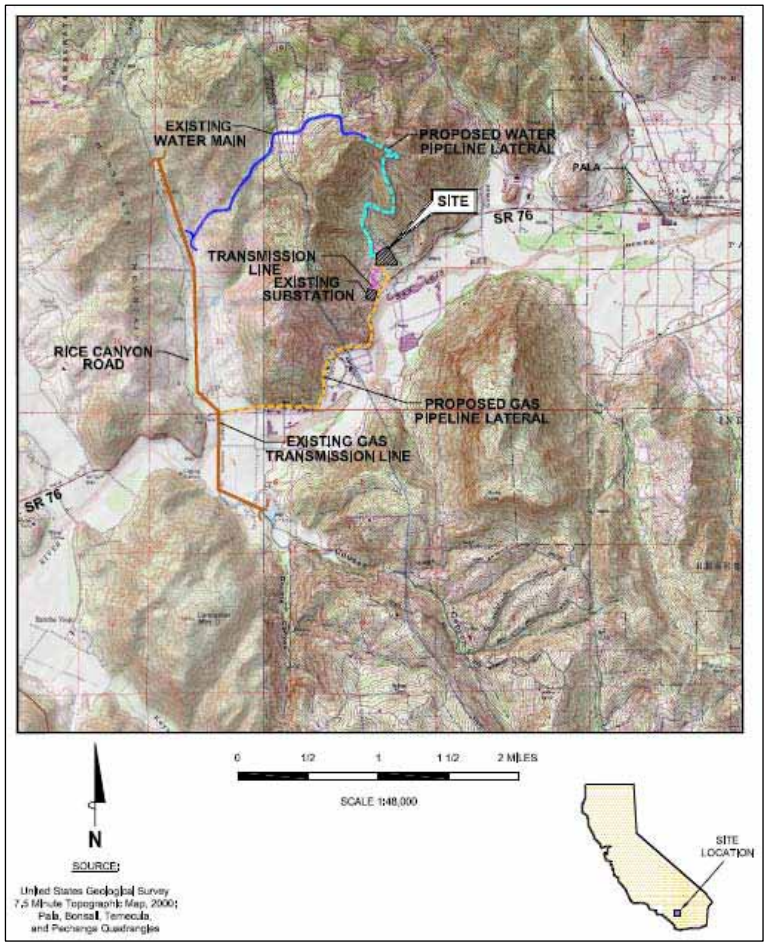
BAJA CALIFORNIA


EXISTING WATER MAIN
PROPOSED WATER PIPELINE LATERAL
PALA
SITE
SR 76
TRANSMISSION LINE
EXISTING SUBSTATION
RICE CANYON ROAD
PROPOSED GAS PIPELINE LATERAL
EXISTING GAS TRANSMISSION LINE
SR 76
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SCALE 1:48,000
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SITE LOCATION
SOURCE:
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7.5 Minute Topographic Map, 2000;
Pala, Bonsall, Temecula,
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SDG&E PROPERTY BOUNDARY
N
APN 110-072-26
PARCEL BOUNDARY
WATER PIPELINE LATERAL
SITE BOUNDARY
EXISTING STORAGE
UNDERGROUND ELECTRICAL TRANSMISSION INTERCONNECTION
APN 110-370-01
EXISTING PALA SUBSTATION
GAS PIPELINE LATERAL
SOURCE:
Virtual Earth, 2006.
APPROXIMATE SCALE (FEET)
0 600 1200

URBANA PRESERVATION & PLANNING

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Southern California • 255 G Street #399, San Diego, CA 92101 • 619-543-0693

September 19, 2007

Fallbrook Historical Society
P.O. Box 1375, Fallbrook, CA 92088-1702, Fallbrook, CA 92028 (Mail)
260 Rocky Crest Road, Fallbrook, CA 92028 (Physical)
(760) 723-4125/Telephone

RE: Historical Resource Information Inquiry – Pala Area (VIA US MAIL)

Dear Sir or Madam,

Urbana Preservation & Planning (Urbana) has been retained to provide historical resource consulting services to TRC Companies, Inc. (TRC) as part of a Small Power Plant Exemption Application (Application) to the California Energy Commission for the construction and operation of a small electric generating plant in the community of Pala in north San Diego County. The project location and vicinity are illustrated on the following page. The project is proposed by J Power USA Development Co., LTD (J Power) in response to a Request for Offers by San Diego Gas & Electric Company (SDG&E) for generating new resources to support local energy reliability.

The power plant will be constructed on an approximately 16-acre site situated within a 55-acre property owned by SDG&E, as shown on the following page. An approximately 2.0 mile underground gas pipeline lateral will be constructed to convey natural gas to the site from an existing SDG&E gas transmission line. A water pipeline will be constructed along the same path as the gas pipeline, and will extend approximately 0.7 mile further than the gas lateral to intercept an existing Rainbow Water District main.

As part of the Application and related consultation process TRC has previously conducted a cultural resources inventory for the project vicinity and pursuant to Section 101 of the National Historic Preservation Act, has notified Native Americans of the project and made inquiries regarding cultural sensitivity.

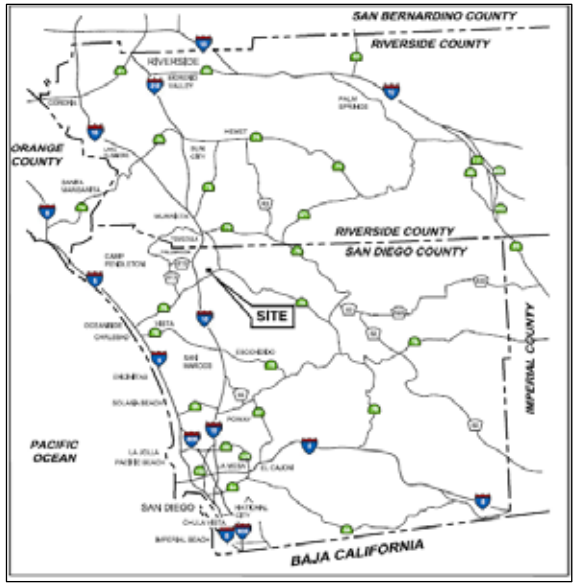
Urbana is now supplementing previous inquiries to determine whether you or your colleagues at the Fallbrook Historical Society might have additional knowledge or information about the history of the proposed project area, specifically any information regarding:

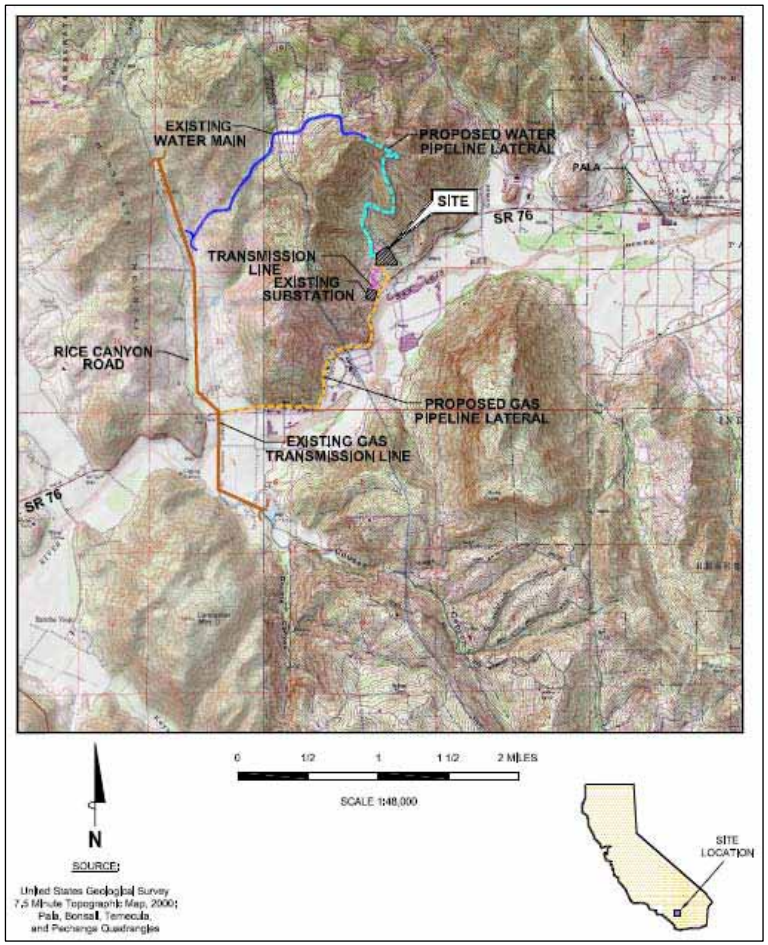
- Important historical events which may have occurred there (*potentially corresponding to California Register Criterion 1*), or
- Individuals associated with the land that may be considered significant persons (*potentially corresponding to California Register Criterion 2*), or
- Noteworthy buildings or structures that are extant or were once extant in the area (*potentially corresponding to California Register Criterion 3*), or
- Whether the proposed project site and vicinity contains resources which may contribute important information to the history of Pala, California or the nation (*potentially corresponding to California Register Criterion 4*).

Please contact me in writing if you have any information that you would like to share regarding the history of the area or if you have any questions or comments regarding the proposed project. I appreciate your assistance and look forward to receiving your response.

Respectfully Submitted,

Wendy L. Tinsley, Principal
wendy@urbanapreservation.com


SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
RIVERSIDE
ORANGE COUNTY
RIVERSIDE COUNTY
SAN DIEGO COUNTY
SITE
IMPERIAL COUNTY
PACIFIC OCEAN
SAN DIEGO
BAJA CALIFORNIA


EXISTING WATER MAIN
PROPOSED WATER PIPELINE LATERAL
PALA
SITE
SR 76
TRANSMISSION LINE
EXISTING SUBSTATION
RICE CANYON ROAD
PROPOSED GAS PIPELINE LATERAL
EXISTING GAS TRANSMISSION LINE
SR 76
0 1/2 1 1 1/2 2 MILES
SCALE 1:48,000
N
SITE LOCATION
SOURCE:
United States Geological Survey
7.5 Minute Topographic Map, 2000;
Pala, Bonsall, Temecula,
and Pechanga Quadrangles

SDG&E PROPERTY BOUNDARY
N
APN 110-072-26
PARCEL BOUNDARY
WATER PIPELINE LATERAL
SITE BOUNDARY
EXISTING STORAGE
UNDERGROUND ELECTRICAL TRANSMISSION INTERCONNECTION
APN 110-370-01
EXISTING PALA SUBSTATION
GAS PIPELINE LATERAL
SOURCE:
Virtual Earth, 2006.
APPROXIMATE SCALE (FEET)
0 600 1200

Wendy L. Tinsley

From: Wendy L. Tinsley [wendy@urbanapreservation.com]
Sent: Wednesday, September 19, 2007 11:10 AM
To: 'sgaughen@palatribe.com'
Subject: Historical Resource Consultation Inquiry - Proposed Project in Pala Area, San Diego County
Attachments: Inquiry Letter_Shasta Gaughen Cupa Cultural Center.pdf

Hello Ms. Gaughen,
Attached please find for your review and attention, an inquiry regarding information you may potentially have pertaining to general historical knowledge or specific historical resources present for an area of land in the Pala community of north San Diego County at which a project is proposed. After you've had the opportunity to review the attached letter, please feel free to contact me in writing if you have any information that you would like to share. Thank you in advance.

Respectfully Submitted,

-Wendy.

Wendy L. Tinsley, Principal
Urbana Preservation & Planning

255 G Street #399
San Diego, CA 92101
619-543-0693/Phone
800-880-4434/E-Fax
+
248 3rd Street #841
Oakland, CA 94607
510-663-7443/Phone
800-880-4434/E-Fax

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Southern California · 255 G Street #399, San Diego, CA 92101 · 619-543-0693

September 19, 2007

Shasta C. Gaughen, Assistant Director
Cupa Cultural Center
35008 Pala Temecula Road, PMB 445, Pala, CA 92059
(760) 742-1590/Telephone · sgaughen@palatribe.com

RE: Historical Resource Information Inquiry – Pala Area (VIA E-MAIL)

Dear Ms. Gaughen,

Urbana Preservation & Planning (Urbana) has been retained to provide historical resource consulting services to TRC Companies, Inc. (TRC) as part of a Small Power Plant Exemption Application (Application) to the California Energy Commission for the construction and operation of a small electric generating plant in the community of Pala in north San Diego County. The project location and vicinity are illustrated on the following page. The project is proposed by J Power USA Development Co., LTD (J Power) in response to a Request for Offers by San Diego Gas & Electric Company (SDG&E) for generating new resources to support local energy reliability.

The power plant will be constructed on an approximately 16-acre site situated within a 55-acre property owned by SDG&E, as shown on the following page. An approximately 2.0 mile underground gas pipeline lateral will be constructed to convey natural gas to the site from an existing SDG&E gas transmission line. A water pipeline will be constructed along the same path as the gas pipeline, and will extend approximately 0.7 mile further than the gas lateral to intercept an existing Rainbow Water District main.

As part of the Application and related consultation process TRC has previously conducted a cultural resources inventory for the project vicinity and pursuant to Section 101 of the National Historic Preservation Act, has notified Native Americans of the project and made inquiries regarding cultural sensitivity.

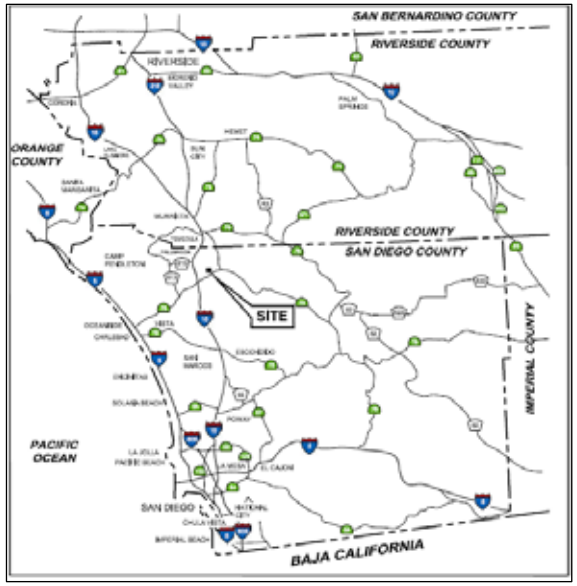
Urbana is now supplementing previous inquiries to determine whether you or your colleagues at the Cupa Cultural Center might have additional knowledge or information about the history of the proposed project area, specifically any information regarding:

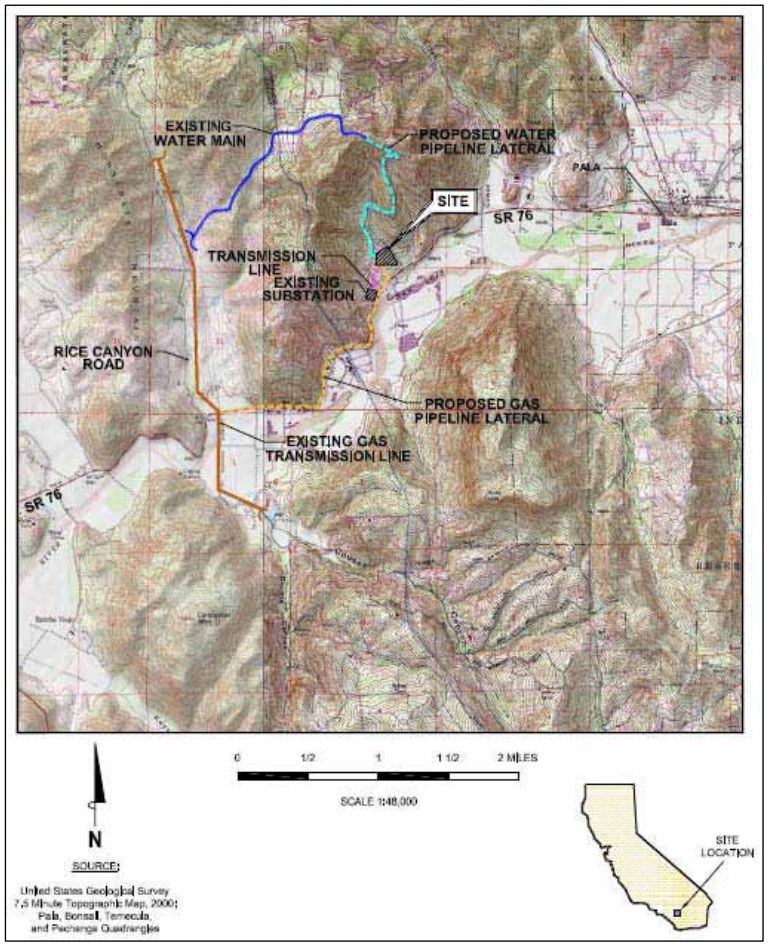
- Important historical events which may have occurred there (*potentially corresponding to California Register Criterion 1*), or
- Individuals associated with the land that may be considered significant persons (*potentially corresponding to California Register Criterion 2*), or
- Noteworthy buildings or structures that are extant or were once extant in the area (*potentially corresponding to California Register Criterion 3*), or
- Whether the proposed project site and vicinity contains resources which may contribute important information to the history of Pala, California or the nation (*potentially corresponding to California Register Criterion 4*).

Please contact me in writing if you have any information that you would like to share regarding the history of the area or if you have any questions or comments regarding the proposed project. I appreciate your assistance and look forward to receiving your response.

Respectfully Submitted,

Wendy L. Tinsley, Principal
wendy@urbanapreservation.com


SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
RIVERSIDE
ORANGE COUNTY
RIVERSIDE COUNTY
SAN DIEGO COUNTY
SITE
IMPERIAL COUNTY
PACIFIC OCEAN
SAN DIEGO
BAJA CALIFORNIA


EXISTING WATER MAIN
PROPOSED WATER PIPELINE LATERAL
PALA
SITE
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RICE CANYON ROAD
PROPOSED GAS PIPELINE LATERAL
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SCALE 1:48,000
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SITE LOCATION
SOURCE:
United States Geological Survey
7.5 Minute Topographic Map, 2000;
Pala, Bonsall, Temecula,
and Pechanga Quadrangles

SDG&E PROPERTY BOUNDARY
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APN 110-072-26
PARCEL BOUNDARY
WATER PIPELINE LATERAL
SITE BOUNDARY
EXISTING STORAGE
UNDERGROUND ELECTRICAL TRANSMISSION INTERCONNECTION
APN 110-370-01
EXISTING PALA SUBSTATION
GAS PIPELINE LATERAL
SOURCE:
Virtual Earth, 2006.
APPROXIMATE SCALE (FEET)
0 600 1200

PALA BAND OF MISSION INDIANS
Tribal Historic Preservation Office
35008 Pala Temecula Rd. PMB 445
Pala, CA 92059

Ph: (760) 891-3591
Fax: (760) 742-4543

September 19, 2007

Wendy L. Tinsley
Urbana Preservation and Planning
255 G Street #399
San Diego, California 92101

Re: Consultation, Proposed Orange Grove Generation Station, Community of Pala, San Diego County, California

Ms. Tinsley,

The Pala Band of Mission Indians Tribal Historic Preservation Office has received your notification of the project as above. This letter constitutes our response on behalf of Robert Smith, Tribal Chairman.

We have consulted our maps and have determined that the project as described is close to, but not within the boundaries of the recognized Pala Indian Reservation. It is, however, within the boundaries of territory that the Tribe considers its Traditional Use Area. Therefore, we request to be kept in the cultural resource information loop as the project progresses and would appreciate being maintained on the receiving list for project updates, reports of investigations and/or any documentation that might be generated regarding previously reported or newly discovered cultural sites.

More specifically, the proposed project area is near previously reported sites and is directly across the San Luis Rey River from a resource nominated to the National Register of Historic Places as a Traditional Cultural Property. Currently under review, much of this information is not available through the local Information Centers. We recommend that you make arrangements to visit the Cupa cultural Center on the Pala Reservation and review the holdings of the Cultural Register maintained within the Tribal Historic Preservation Office. We will be happy to work with you in summarizing the resource base within proximity to the project area.

Further, if the project boundaries are modified to extend beyond the currently proposed limits, we do request updated information and the opportunity to respond to your changes.

Finally, we recommend that Approved Cultural Monitors be present on site during all survey and all ground disturbing activities. If you do not have access to an Approved Cultural Resource Monitor, contact us and we will work with you to identify appropriately trained individuals.

We appreciate involvement with your initiative and look forward to working with you. If you have questions or need additional information, please do not hesitate to contact Joseph M. Nixon at 1 (760) 891 3592 or at e.mail jnixon@palatribe.com.

Cordially,

Joseph M. Nixon, Ph. D., RPA
Cultural Resource Coordinator
Pala Band of Mission Indians

C:\JMN\thpo\consultations\within_tua\urbana_orangegrv_9_19_07.doc

Wendy L. Tinsley

From: Wendy L. Tinsley [wendy@urbanapreservation.com]
Sent: Wednesday, September 19, 2007 10:49 AM
To: 'jane.kenealy@sandiegohistory.org'
Subject: Historical Resource Consultation Inquiry - Proposed Project in Pala Area, San Diego County
Attachments: Inquiry Letter_Jane Kenealy SDHS.pdf

Hello Jane,
Attached please find for your review and attention, an inquiry regarding information you may potentially have pertaining to general historical knowledge or specific historical resources present for an area of land in the Pala community of north San Diego County at which a project is proposed. After you've had the opportunity to review the attached letter, please feel free to contact me in writing if you have any information that you would like to share. Thank you in advance.

Respectfully Submitted,

-Wendy.

Wendy L. Tinsley, Principal
Urbana Preservation & Planning

255 G Street #399
San Diego, CA 92101
619-543-0693/Phone
800-880-4434/E-Fax
+
248 3rd Street #841
Oakland, CA 94607
510-663-7443/Phone
800-880-4434/E-Fax

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Southern California • 255 G Street #399, San Diego, CA 92101 • 619-543-0693

September 19, 2007

Jane Kenealy, Archivist
San Diego Historical Society
1649 El Prado, Suite 3, San Diego, CA 92101
(619) 232-6203/Telephone • jane.kenealy@sandiegohistory.org

RE: Historical Resource Information Inquiry – Pala Area (VIA E-MAIL)

Dear Ms. Kenealy,

Urbana Preservation & Planning (Urbana) has been retained to provide historical resource consulting services to TRC Companies, Inc. (TRC) as part of a Small Power Plant Exemption Application (Application) to the California Energy Commission for the construction and operation of a small electric generating plant in the community of Pala in north San Diego County. The project location and vicinity are illustrated on the following page. The project is proposed by J Power USA Development Co., LTD (J Power) in response to a Request for Offers by San Diego Gas & Electric Company (SDG&E) for generating new resources to support local energy reliability.

The power plant will be constructed on an approximately 16-acre site situated within a 55-acre property owned by SDG&E, as shown on the following page. An approximately 2.0 mile underground gas pipeline lateral will be constructed to convey natural gas to the site from an existing SDG&E gas transmission line. A water pipeline will be constructed along the same path as the gas pipeline, and will extend approximately 0.7 mile further than the gas lateral to intercept an existing Rainbow Water District main.

As part of the Application and related consultation process TRC has previously conducted a cultural resources inventory for the project vicinity and pursuant to Section 101 of the National Historic Preservation Act, has notified Native Americans of the project and made inquiries regarding cultural sensitivity.

Urbana is now supplementing previous inquiries to determine whether you or your colleagues at the San Diego Historical Society might have additional knowledge or information about the history of the proposed project area, specifically any information regarding:

- Important historical events which may have occurred there (*potentially corresponding to California Register Criterion 1*), or
- Individuals associated with the land that may be considered significant persons (*potentially corresponding to California Register Criterion 2*), or
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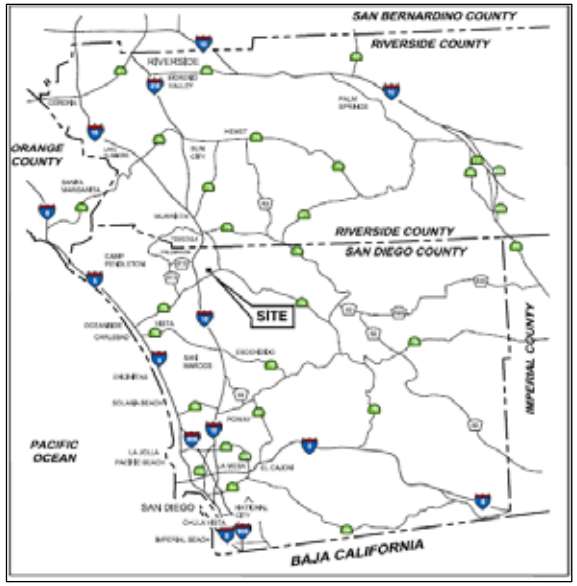
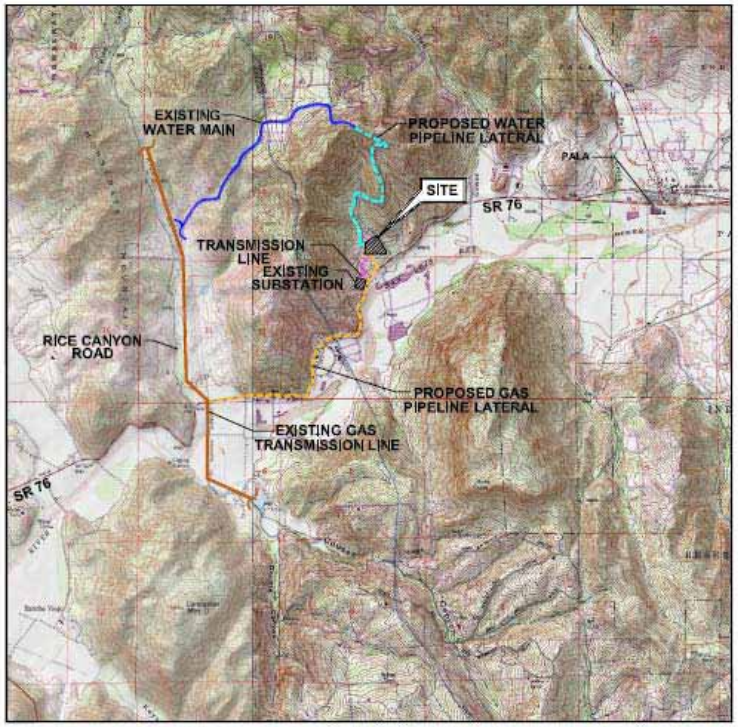
- Whether the proposed project site and vicinity contains resources which may contribute important information to the history of Pala, California or the nation (*potentially corresponding to California Register Criterion 4*).

Please contact me in writing if you have any information that you would like to share regarding the history of the area or if you have any questions or comments regarding the proposed project. I appreciate your assistance and look forward to receiving your response.

Respectfully Submitted,

Wendy L. Tinsley, Principal
wendy@urbanapreservation.com





SOURCE:
United States Geological Survey 7.5 Minute Topographic Map, 2000; Pala, Bonsall, Temecula, and Pechanga Quadrangles

SOURCE:
Virtual Earth, 2006.

APPROXIMATE SCALE (FEET)
0 600 1200

EXHIBIT 43B-1

TELEPHONE CONVERSATION LOGS

Telephone Conversation Log

Date:	September 27, 2007	**Time:**	1:51pm
Call From:	*TRC Shelby Manney*		
Phone:	949-341-7449		
Call To:	*Russell Romo, San Luis Rey Band of Mission Indians*		
Phone:	760-724-8505		858-748-1586
Subject:	SB 18 Consultation form letter		

Ms. Manney left a message for Russel Romo regarding a form letter sent June 5th, 2007. The message referenced the SB 18 consultation mentioned in the letter and a need to clarify, due to the non-government to government consultation type that would be warranted under SB 18 Cal. Government Code 65352.4. JPower's effort is covered under CEQA Section 15064.4. and due to method of consultation would not fall under SB 18 guidelines (See attached letter).

Telephone Conversation Log

Date:	September 27, 2007	**Time:**	1:55pm
Call From:	*TRC Shelby Manney*		
Phone:	949-341-7449		
Call To:	*Mark Mojado; San Luis Rey Band of Mission Indians*		
Phone:	760-742-4468		760-586-4858
Subject:	SB 18 Consultation form letter		

Both of the telephone numbers provided by David Singleton of the Native American Heritage Commission were no longer in service

Telephone Conversation Log

Date:	September 27, 2007	**Time:**	2:30pm
Call From:	*TRC Shelby Manney*		
Phone:	949-341-7449		
Call To:	*Dick Watenpaugh; Rincon Band of Mission Indians*		
Phone:	760-749-1051		
Subject:	Native American Response		

Ms. Manney contacted Mr. Watenpaugh and mentioned that TRC had not received a response from the April 4th, 2007 letter (see attached letter). Mr. Watenpaugh replied "It [TRC correspondence letter] would have been forwarded to our Environmental Department, and if they didn't respond with any comments it's because they didn't have any to make."

Telephone Conversation Log

Date:	September 27, 2007	**Time:**	1:51pm
Call From:	*TRC Shelby Manney*		
Phone:	949-341-7449		
Call To:	*Russell Romo, San Luis Rey Band of Mission Indians*		
Phone:	760-724-8505		858-748-1586
Subject:	SB 18 Consultation form letter		

Ms. Manney placed a follow-up telephone call at 1:20pm on October 1, 2007 to Russell Romo of the San Luis Rey Band of Mission Indians in order to clarify their involvement. Contact was made and a new letter will be drafted by Russell Romo to omit SB 18. This letter will be sent via e-mail.

EXHIBIT 45-1

AERIAL PHOTOGRAPHS AND MAPS USED IN PHASE I ESA

The EDR Aerial Photo Decade Package

Orange Grove
Hwy 76/Pala Del Norte Road
Pala, CA 92059

Inquiry Number: 1890880.5

April 02, 2007

EDR® Environmental Data Resources Inc

The Standard in Environmental Risk Management Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

EDR Aerial Photo Decade Package

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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Date EDR Searched Historical Sources:

Aerial Photography April 02, 2007

Target Property:

Hwy 76/Pala Del Norte Road
Pala, CA 92059

Year	***Scale***	***Details***	***Source***
1939	Aerial Photograph. Scale: 1"=555'	Flight Year: 1939	Fairchild
1946	Aerial Photograph. Scale: 1"=655'	Flight Year: 1946	Jack Ammann
1953	Aerial Photograph. Scale: 1"=555'	Flight Year: 1953	Park
1963	Aerial Photograph. Scale: 1"=555'	Flight Year: 1963	Cartwright
1976	Aerial Photograph. Scale: 1"=600'	Flight Year: 1976	AMI
1989	Aerial Photograph. Scale: 1"=666'	Flight Year: 1989	USGS
1995	Aerial Photograph. Scale: 1"=666'	Flight Year: 1995	USGS
2002	Aerial Photograph. Scale: 1"=666'	Flight Year: 2002	USGS

INQUIRY #: 1890880.5
YEAR: 1939
= 555'
N

INQUIRY #: 1890880.5
YEAR: 1946
= 655'
N

INQUIRY #: 1890880.5
YEAR: 1953
= 555'
N

INQUIRY #: 1890880.5
YEAR: 1963
= 555'
N

INQUIRY #: 1890880.5
YEAR: 1976
= 600'
N

INQUIRY #: 1890880.5
YEAR: 1989
= 666'
N

INQUIRY #: 1890880.5
YEAR: 1995
= 666'
N

INQUIRY #: 1890880.5
YEAR: 2002
= 666'
N

EDR Historical Topographic Map Report

Orange Grove
Hwy 76/Pala Del Norte Road
Pala, CA 92059

Inquiry Number: 1890880.4

March 30, 2007

EDR® Environmental Data Resources Inc

The Standard in Environmental Risk Management Information

440 Wheelers Farms Rd
Milford, Connecticut 06461

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Internet: www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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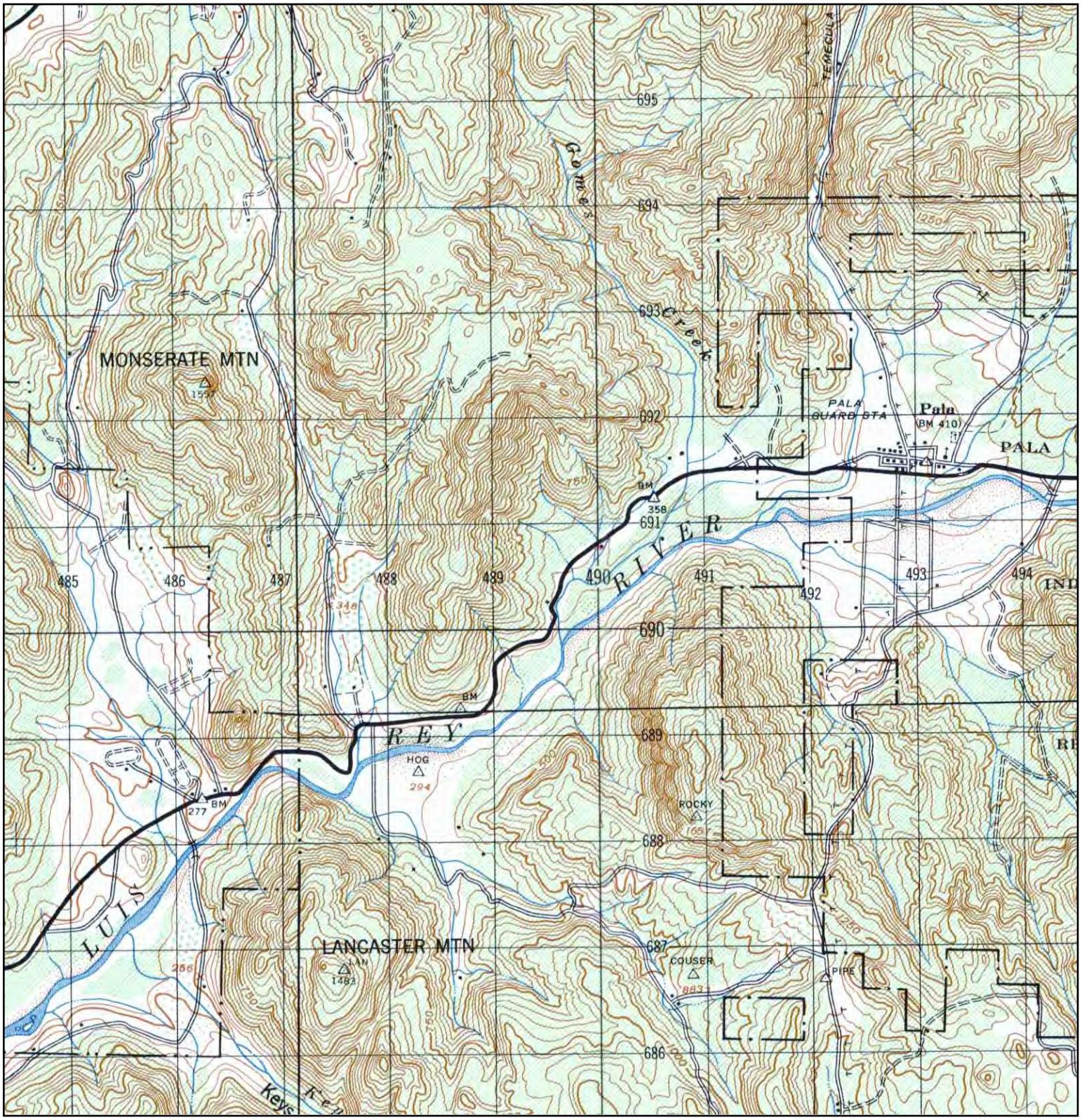
Historical Topographic Map

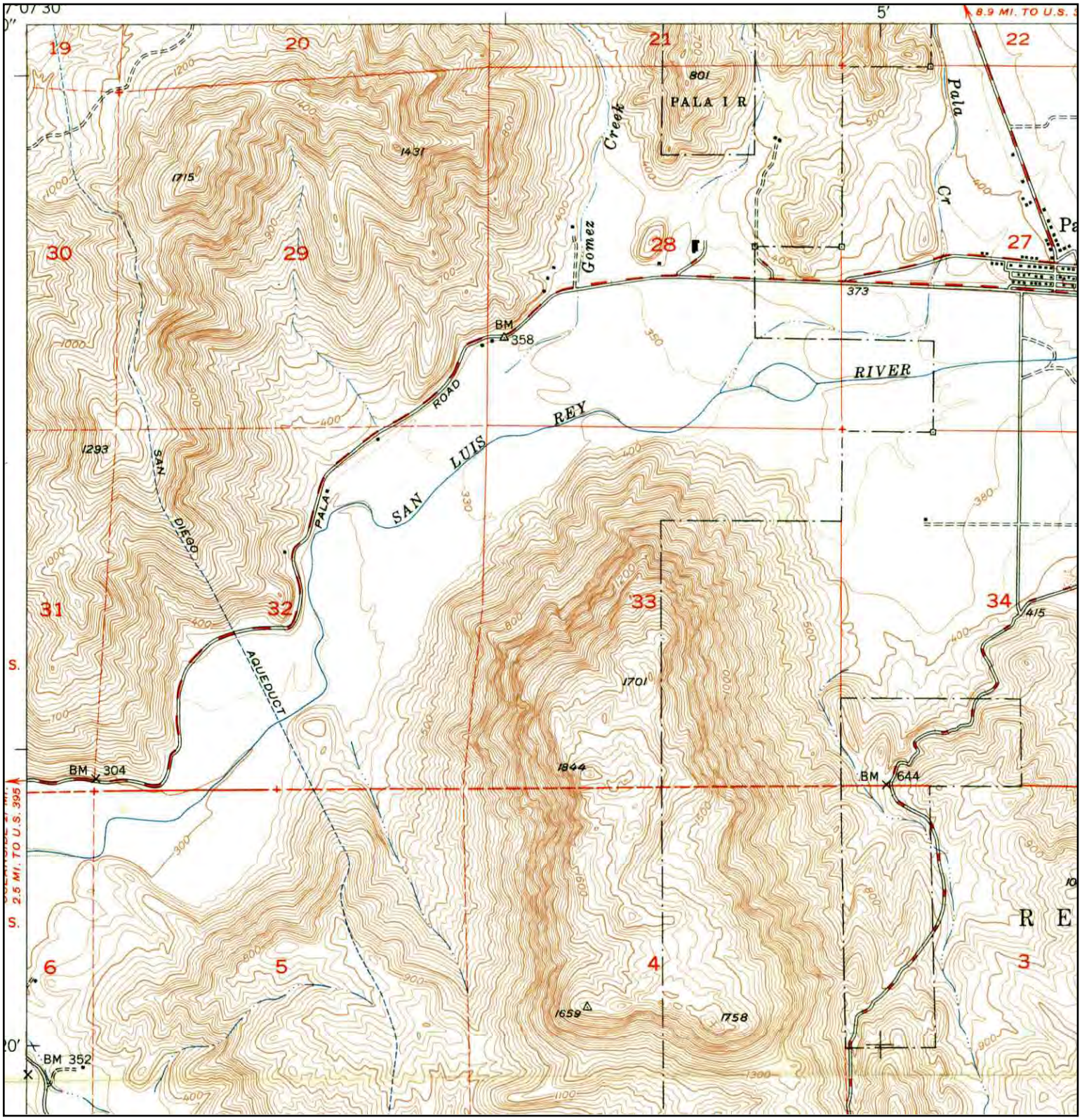
N	TARGET QUAD NAME: SOUTHERN CA SHEET 2 MAP YEAR: 1904 SERIES: 60 SCALE: 1:250000	SITE NAME: Orange Grove ADDRESS: Hwy 76/Pala Del Norte Road Pala, CA 92059 LAT/LONG: 33.3578 / 117.1111	CLIENT: TRC Environmental Consultants CONTACT: Rachel Schmidt INQUIRY#: 1890880.4 RESEARCH DATE: 03/30/2007

Historical Topographic Map



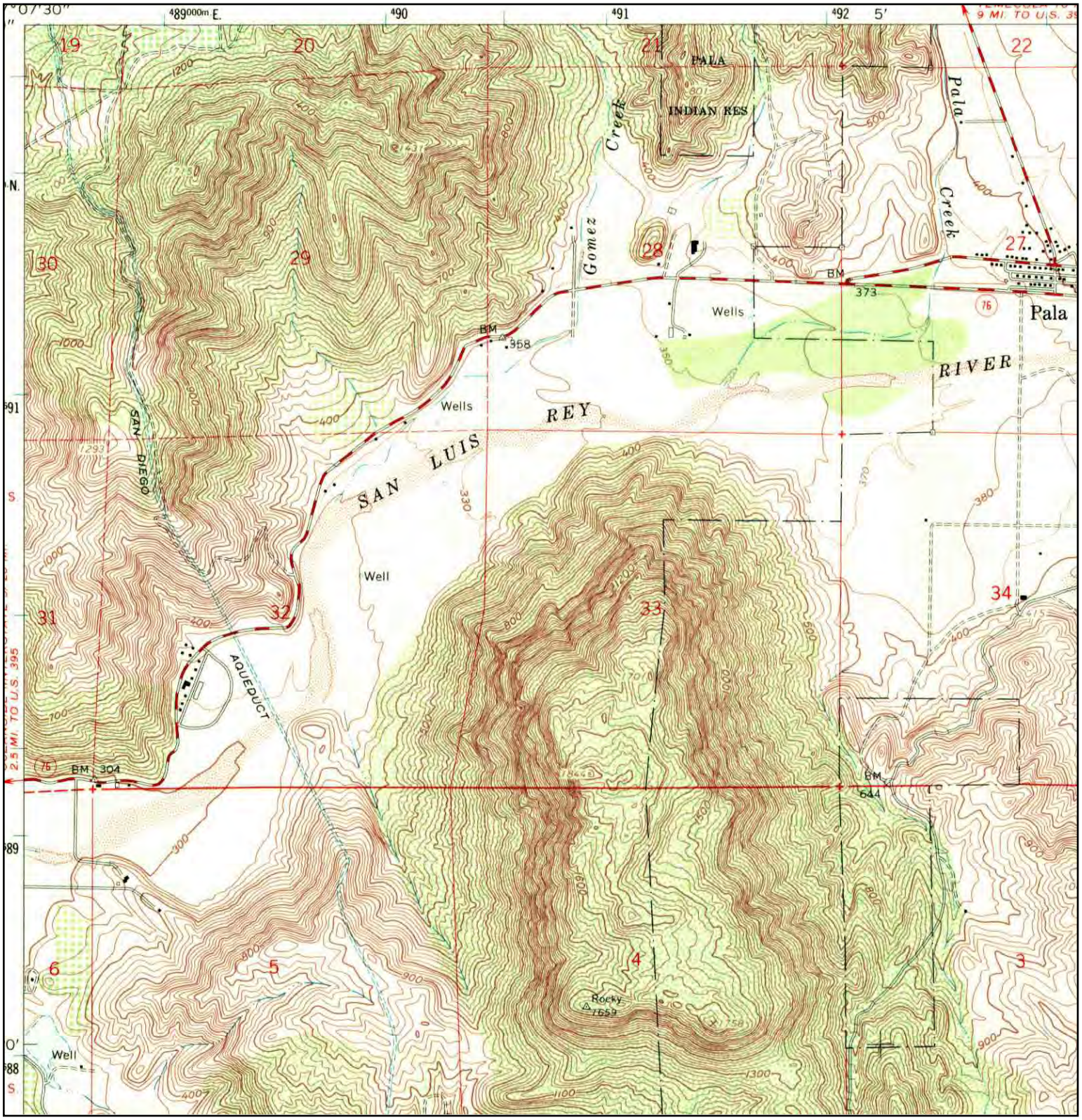
N	TARGET QUAD NAME: TEMECULA MAP YEAR: 1947 SERIES: 15 SCALE: 1:50000	SITE NAME: Orange Grove ADDRESS: Hwy 76/Pala Del Norte Road Pala, CA 92059 LAT/LONG: 33.3578 / 117.1111	CLIENT: TRC Environmental Consultants CONTACT: Rachel Schmidt INQUIRY#: 1890880.4 RESEARCH DATE: 03/30/2007

Historical Topographic Map



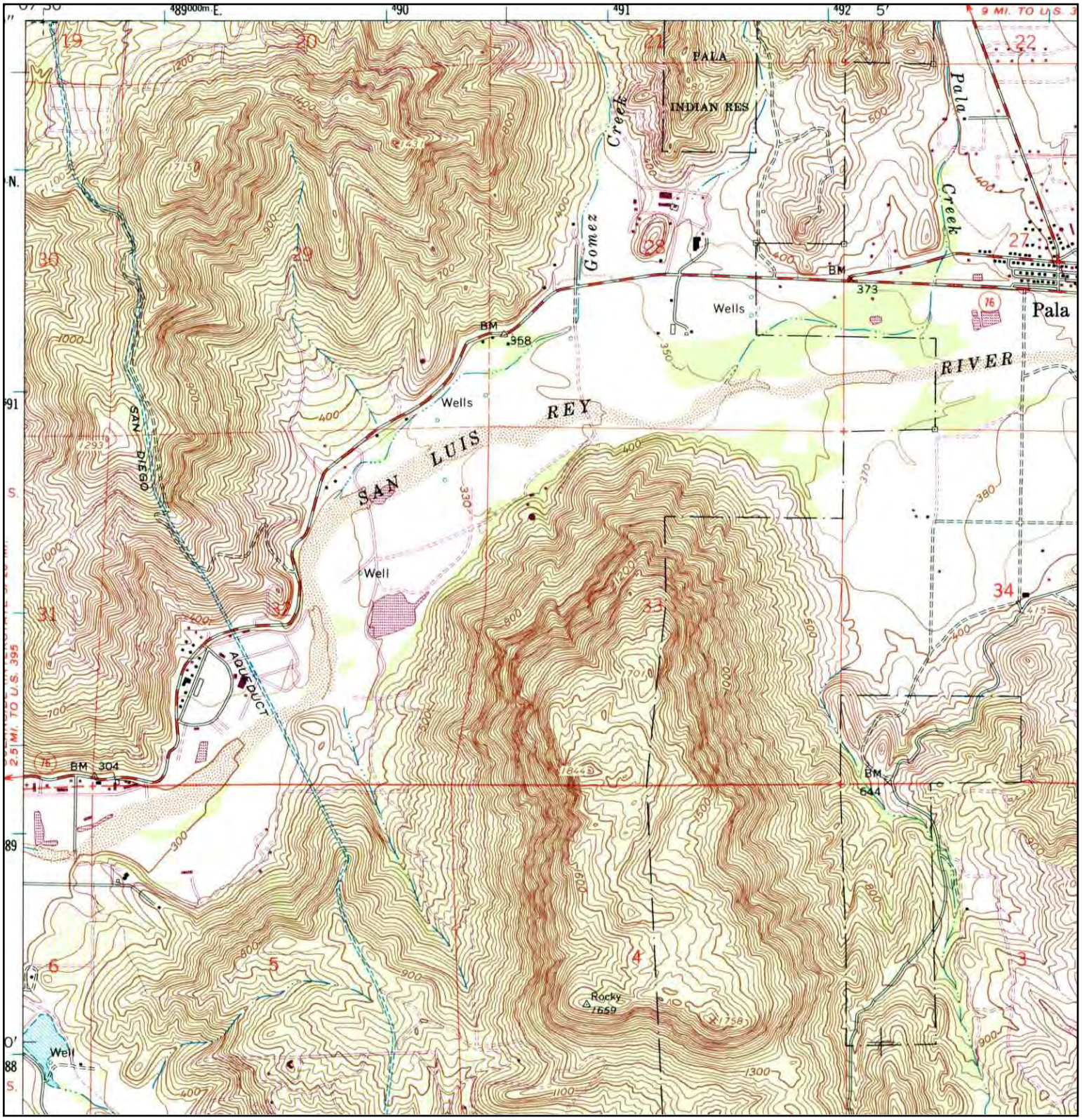
N	TARGET QUAD NAME: PALA MAP YEAR: 1950 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Orange Grove ADDRESS: Hwy 76/Pala Del Norte Road Pala, CA 92059 LAT/LONG: 33.3578 / 117.1111	CLIENT: TRC Environmental Consultants CONTACT: Rachel Schmidt INQUIRY#: 1890880.4 RESEARCH DATE: 03/30/2007

Historical Topographic Map



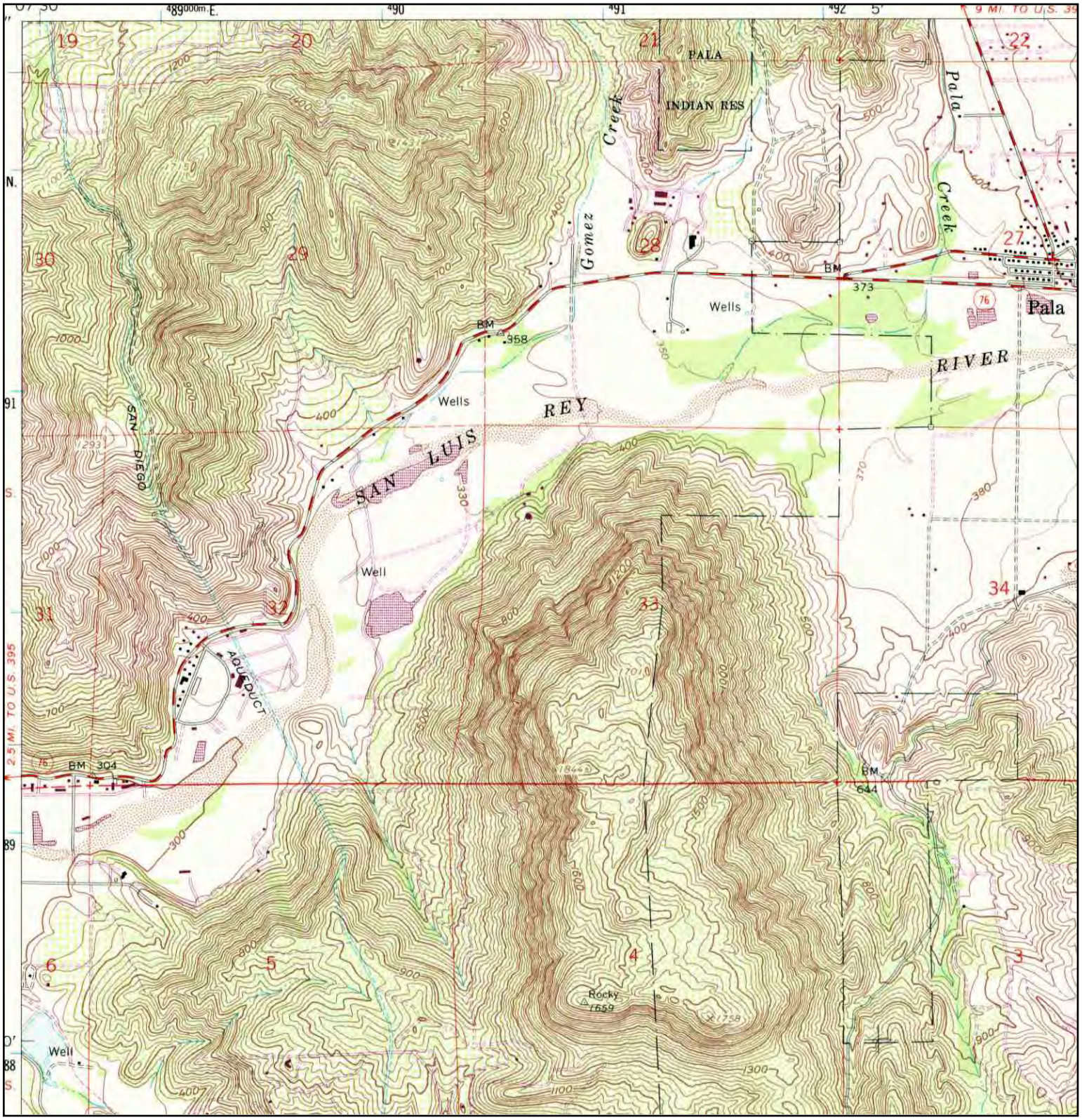
N	TARGET QUAD NAME: PALA MAP YEAR: 1968 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Orange Grove ADDRESS: Hwy 76/Pala Del Norte Road Pala, CA 92059 LAT/LONG: 33.3578 / 117.1111	CLIENT: TRC Environmental Consultants CONTACT: Rachel Schmidt INQUIRY#: 1890880.4 RESEARCH DATE: 03/30/2007

Historical Topographic Map



N	TARGET QUAD NAME: PALA MAP YEAR: 1982 PHOTOREVISED FROM:1968 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Orange Grove ADDRESS: Hwy 76/Pala Del Norte Road Pala, CA 92059 LAT/LONG: 33.3578 / 117.1111	CLIENT: TRC Environmental Consultants CONTACT: Rachel Schmidt INQUIRY#: 1890880.4 RESEARCH DATE: 03/30/2007

Historical Topographic Map



N	TARGET QUAD NAME: PALA MAP YEAR: 1988 PHOTOREVISED FROM:1968 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Orange Grove ADDRESS: Hwy 76/Pala Del Norte Road Pala, CA 92059 LAT/LONG: 33.3578 / 117.1111	CLIENT: TRC Environmental Consultants CONTACT: Rachel Schmidt INQUIRY#: 1890880.4 RESEARCH DATE: 03/30/2007

EXHIBIT 52-1

REFRIGERANT AND WATER TREATMENT CHEMICALS

EXHIBIT 52-1

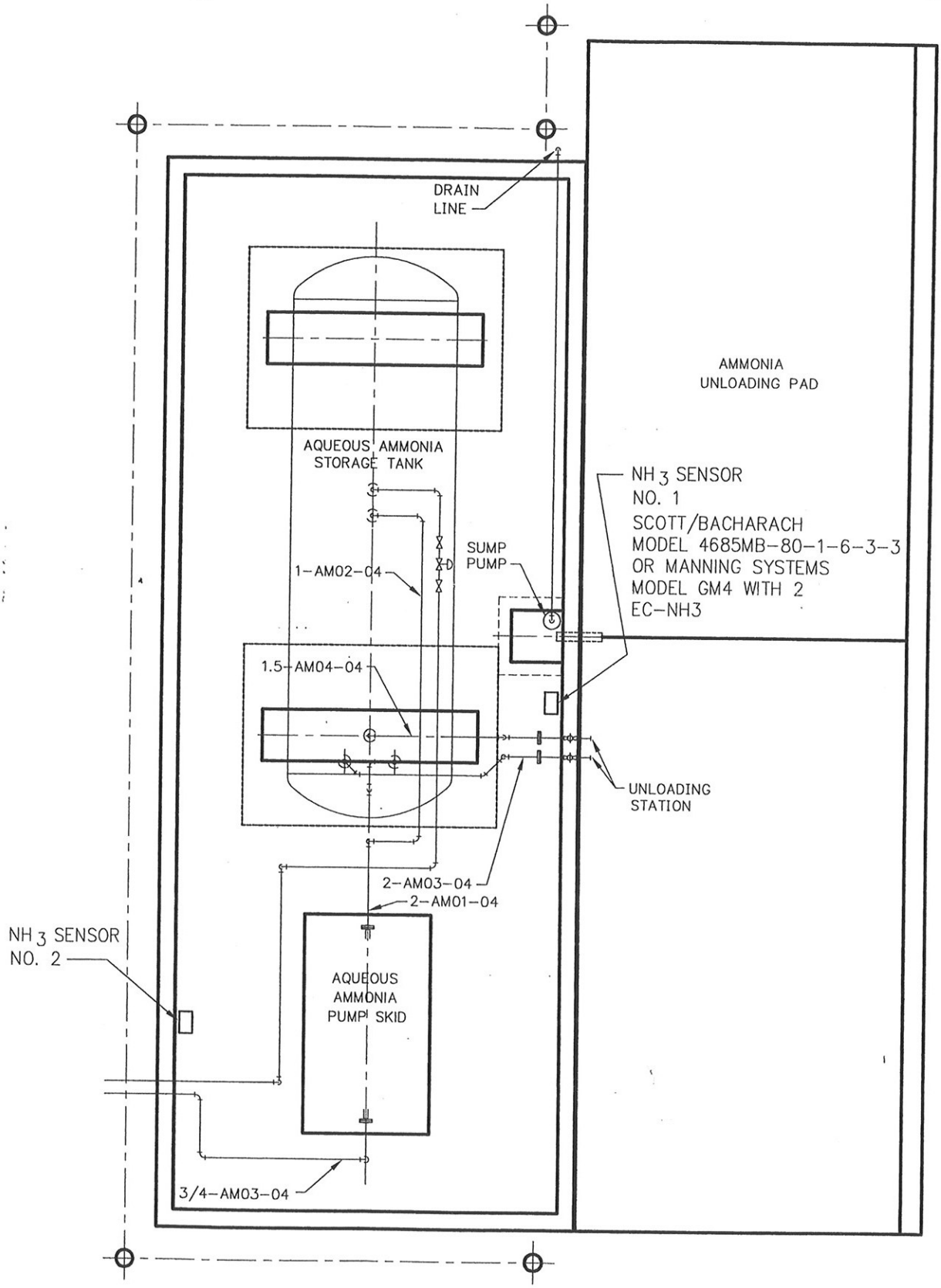
REFRIGERANT AND WATER TREATMENT CHEMICALS

Chemical	Purpose	CAS	Concentration	Maximum Stored On-Site	Location	Method of Storage	Hazard Summary	Reportable Quantity
HFC-134a	Chiller Refrigerant	811-97-2	100% exclusive of compressor lubricant	5,600 lbs	In chiller refrigerant system	In system	Asphyxiant	N/A
Sulfuric Acid	Circulating system pH control	7664-93-9	93%	2,500 lbs (approx 200 gallons)	Outdoor tank near feed point	In tank with secondary containment	Corrosive, skin, eye and lung hazard	1,000 lbs
Chlorine	Circulating system biocide	7681-52-9	12%	250 lbs	Near feed point	30-gallon drum with secondary containment	Corrosive, skin eye and lung hazard	100 lbs
Proprietary scale/corrosion control made up of: Sodium Tolyltriazole; 2-Phosphono butane-1, 2, 4-Tricarboxylic acid; Sodium poly-acrylate; Poly-phosphate; Sodium hydroxide (product pH control); Water	Circulating system scale and corrosion control	Sodium Tolyltriazole **64665-57-2;** 2-Phosphono butane-1, 2, 4-Tricarboxylic acid **3791-36-1;** Sodium poly-acrylate **9003-04-7;** Poly-phosphate **10039-32-4;** Sodium hydroxide **1310-73-2;**	Sodium Tolyltriazole: **5.0%**; 2-Phosphono butane-1, 2, 4-Tricarboxylic acid: **12.5%**; Sodium poly-acrylate: **12.5%**; Poly-phosphate: **7.5%**; Sodium hydroxide: **2.5%**; RO Water: **60.0%**	(Mixture) Sodium Tolyltriazole: **100 lbs**; 2-Phosphono butane-1, 2, 4-Tricarboxylic acid:**100 lbs**; Sodium poly-acrylate: **100 lbs**; Poly-phosphate; **100 lbs;** Sodium hydroxide; **100lbs**	Near feed point.	30-gallon drum with secondary containment	Corrosive, skin, eye and lung hazard	Sodium Tolyltriazol: **None Found**; 2-Phosphono butane-1, 2, 4-Tricarboxylic acid: **None Found;** Sodium poly-acrylate: **5,000 lbs;** Poly-phosphate: **5,000 lbs;** Sodium hydroxide:**1,000 lbs**

Water treatment products may change from time to time during operations based on market developments and other factors. The chemicals listed above are representative of those expected to be used. Changes in chemicals used at the plant will be subject to reporting requirements of 19 CCR 2729.4.

EXHIBIT 53-1

TYPICAL SCHEMATIC OF AQUEOUS AMMONIA HANDLING FACILITIES



SKETCH-01.DWG

Sega ®

Engineers-Architects-Technicians
Design-Construction-Field Service

16041 Foster
P.O. Box 1000
Stilwell, Kansas 66085-1000

DWG. TITLE:

JOB NO. .

DWG. NO.

REV 0

N:\2004\04182\DWGS\ME\AMMONIA DETECTION\SKETCH-01.DWG 3/10/05 2:03pm slampkin

Exhibit 53-1

EXHIBIT 55-1

AMMONIA DECTECTOR SPECIFICATIONS

GASPLUS™

SERIES 4600 & 4600MB UNIVERSAL TOXIC GAS AND OXYGEN TRANSMITTER

SCOTT®
HEALTH & SAFETY

Exhibit 55-1

SAFER THROUGH SCIENCE

The Series 4600 GasPLUS is a toxic gas and oxygen transmitter designed for single and multi-point monitoring applications where ruggedness, flexibility, and ease of maintenance are critical. The basic Series 4600 transmitter is a two-wire device providing a 4-20 mA output. For additional output flexibility, Series 4600 MB transmitters offer RS-485/232 MODBUS® RTU output and relay contacts in a multiwire configuration.

Advanced Gas Sensors and Universal Electronics

GasPLUS's advanced sensor technology combines with its universal transmitter electronics to help users streamline the transmitter's operation and maintenance requirements. Every "smart" sensor provides data such as gas type, range, and calibration data to the universal electronics for automatic transmitter configuration. A built-in lithium battery keeps the sensor "hot," which eliminates the need for warm-up time and enables users to maintain and calibrate the sensor remote from the instrument. A patented elastomeric connector eliminates pin alignments and makes sensor replacement quick and easy.

The GasPLUS includes a built-in intrinsically-safe barrier so the sensor can be removed without declassifying the area. The sensor connects to the transmitter with an elastomeric pad, rather than pins or plugs. This patented design makes sensor replacement quick and easy — even with gloves on.

Multiple self-diagnostics add reliability and security. The sensor end-of-life indicator provides a warning when sensor lifetime is nearing its end. The missing sensor indicator drives instrument output to a fault level if the electrical connection between the sensor and transmitter is broken. Other diagnostics continuously check electronics and software.

Operation of the instrument is simple and intuitive and does not require a costly infrared tool. A magnet is simply touched to the front panel for non-intrusive operation and calibration. The local output inhibit (with adjustable output signal) permits true one-man calibration.

4600MB - MODBUS® for Optimum Operational Flexibility

The 4600MB offers additional output flexibility and features in a multi-wire configuration. The 4600MB provides, as standard, 4-20mA analog output as well as digital output via RS-485/232 wiring configuration utilizing the MODBUS RTU protocol. As an option, the 4600MB can be equipped with three on-board relays providing two concentration and one fail relay contacts. These 5A SPST relays come with a programmable time delay to reduce nuisance activations. The programmable relay includes configurable alarm setpoints, time delay on/off, latching/non-latching mode, energized/deenergized mode, alarm reset, and rising/falling relay activation. All parameters are adjusted nonintrusively.

Features

Easy-To-Maintain & Operate

- Local display
- Non-intrusive calibration
- No sensor warm-up time
- Remote sensor maintenance
- Universal transmitter
- Sensor removal without the need to declassify the area
- Patented no-pins sensor connection

Self Diagnostics

- Sensor end-of-life indicator
- Missing sensor indicator

Rugged Design

- Conformally-coated electronics
- Horizontal conduit entries

4600MB Additional Features

- Optional built-in alarm relays
- RS-485/232 MODBUS® RTU output
- Security lockout

We Make Sensors that Make a Difference.

Unlike most gas detection companies, Scott Health & Safety develops and manufactures the gas sensors used in its detection instruments. Our team of research and development scientists work everyday to advance sensor technologies and improve manufacturing techniques. The result - over 40 reliable, stable, and gas specific sensors including our Rock Solid® series of high performance sensors.

ROCK SOLID® Sensors

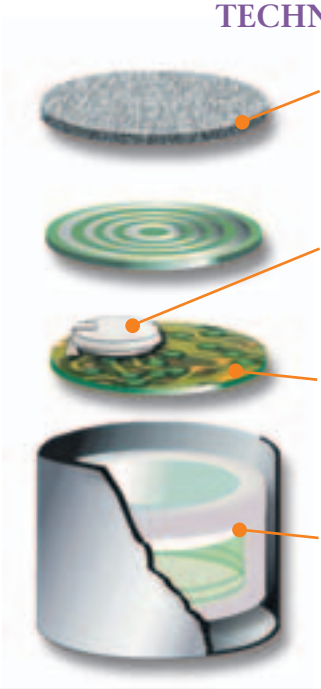
ROCK SOLID® sensors use proprietary technology that significantly enhances sensor performance. ROCK SOLID® sensors can detect gas concentrations lower than any other electrochemical gas sensor. ROCK SOLID® sensors provide:

- highest stability
- lowest zero drift
- greatest sensitivity
- fastest speed of response and recovery time
- greatest specificity to the target gas.

Sensor Self Test

Any electrochemical sensor can potentially fail without warning.The Sensor Self Test (SST) option reduces overall maintenance costs by providing users with a means to conduct an automatic functional test of the sensor. A built-in, programmable gas generator exposes the sensor to a “test gas” at user determined intervals and alerts personnel if the unit fails to respond. Only available on chlorine and hydrogen sulfide sensors.

HIGH PERFORMANCE SENSOR TECHNOLOGY



SMART SENSOR TECHNOLOGY

Using advanced electrochemical toxic gas sensors such as our high performance ROCK SOLID sensor with backup battery to retain calibration information, the 4600 Series is available to detect a multitude of toxic gases.

- Ammonia
- Arsine
- Boron Trichloride
- Boron Trifluoride
- Bromine
- Carbon Monoxide
- Chlorine
- Chlorine Dioxide
- Diborane
- Fluorine
- Germane
- Hydrogen
- Hydrogen Bromide
- Hydrogen Chloride
- Hydrogen Cyanide
- Hydrogen Fluoride
- Hydrogen Sulfide
- Methanol
- Methyl Mercaptan
- Methyl Iodide
- Nitric Oxide (NO)
- Nitrogen Dioxide
- Oxygen
- Ozone
- Phosgene
- Phosphine
- Silane
- Silicon Tetrafluoride
- Sulfur Dioxide
- TEOS
- Tungsten Hexafluoride

ORDERING OPTIONS

BLUE color prefix indicates that a Low %RH version is available. Low % RH sensors are typically used in semiconductor, HVAC controlled, and desert environments.

Bold = standard range
00 No sensor w/ standard endcap
01 No sensor w/ Rock Solid endcap
85 • Ammonia (NH_3) (0-50,**100**,150,250,500)PPM
37 • Arsine (AsH_3) Rock **Solid** (0-**500 PPB**,3,10 PPM)
65 • Arsine (AsH_3) (0-**1000 PPB, 3, 10** PPM)
27 • Boron Trichloride (BCl_3) **Rock Solid** (0-1,3,5 PPM)
29 • Boron Trifluoride (BF_3) **Rock Solid** (0-1,3,5 PPM)
99 • Bromine (Br_2) **Rock Solid** (0-1,3,5,10,15,25,30) PPM
61 • Bromine (Br_2) (0-1,3,5,10,15,25,30,50,100) PPM
82 • Carbon Monoxide (0-50, **100**,150,200,250,300,500,1000) PPM
24 • Chlorine (Cl_2) **Rock Solid** (0-1,3,5,10,15,25,30) PPM
52 • Chlorine (Cl_2) (0-1,3,**5**,10,15,25,30,50,100,200) PPM
78 • Chlorine Dioxide **Rock Solid** (0-1,3,5,10,15) PPM
53 • Chlorine Dioxide (ClO_2) (0-**1**,3,5,10,15,25,30,50,100) PPM
n/a • Dichlorosilane (SiH_2Cl_2) - **Order ROCK SOLID HCl sensor**
18 • Fluorine (F_2) **Rock Solid** (0-**1**,3,5,10,15,20,30) PPM
62 • Fluorine (F_2) (0-**1**,3,5,10,15,25,30,50,100) PPM
51 • Hydrogen (H_2) (0-1%,**4%**,5%,10%)
95 • Hydrogen Bromide **Rock Solid** (0-1,3,5,10,15,20,25,30) PPM
93 • Hydrogen Chloride **Rock Solid** (0-1,3,5,10,15,20,**25**,30) PPM
71 • Hydrogen Chloride (HCl) (0-10, **25**,50,100) PPM
19 • Hydrogen Cyanide (HCN) **Rock Solid** (0-1,**2**,3,5,10) PPM
64 • Hydrogen Cyanide (HCN) (0-10,**25**,30,50,100) PPM
91 • Hydrogen Fluoride (HF) **Rock Solid** (0-1,3,5,**10**,15,25,30) PPM
70 • Hydrogen Fluoride (HF) (0-**10**,15,25,50,100) PPM
81 • Hydrogen Sulfide (H_2S) (0-10,25,**50**,100,200) PPM
59 • Methanol (CH_3OH) (0-**500**) PPM
45 • Methyl Mercaptan (0-5 PPM w/H_2S filter)
46 • Methyl Mercaptan (0-3 ppm w/o filter)
44 • Methyl Iodide (CH_3I) (0-**25**) PPM
34(P) • Methylene Chloride (CH_2Cl_2) (0-**200**) PPM
86 • Nitric Oxide (NO) (0-25,50,100,500) PPM
84 • Nitrogen Dioxide (NO_2) (0-10,25,50,100,250) PPM
80 • Oxygen (O_2) (0-10%,**25%**)
60 • Ozone (O_3) (0-1,2,3,5,10,15,25,30,50,100) PPM
77 • Ozone **Rock Solid** (O_3) (0-**1**, 3, 5, 10, 15, 20, 25, 30 ppm
49 • Phosgene (0-1 ppm)
50 • Phosgene w/ HCN filter (0-2 ppm)
39 • Phosphine (PH_3) Rock Solid (0-500 PPB 1, 3, 5 PPM)
66 • Phosphine (PH_3) (0-1000 PPB,3,10 PPM)
32 • Silicon Tetrafluoride (SiF_4) **Rock Solid** (0-1, 3, 5 PPM)
97 • Sulfur Dioxide (SO_2) **Rock Solid** (0-1,3,5,10,15,25,50,30) PPM
83 • Sulfur Dioxide (SO_2) (0-**10**,15,25,50,100,500) PPM
25 • Tungsten Hexafluoride (WF_6) **Rock Solid** (0-1, 3, 5 PPM)

Sensor Connection / Housing

- Integral Sensor with transmitter
- Separated Sensor w/ junction box and 50' cable
- Separated Sensor, no J-box 6' cable standard (not appproved for hazardous locations)
- Condensing %RH Sensor housing, no window/includes Humishield End Cap
- 3/4" housing and and condensing humidity endcap (not appproved for hazardous locations) Model 46AA

Transmitter Output

Series 4600

- Standard (4-20 mAdc)

Series 4600MB

- 4600MB (RS-485,4-20mA) without Relays (qty3)
- 4600MB (RS-485,4-20mA) Local Relays N.O. (Low,High, Fault)
- 4600MB (RS-485,4-20mA) Local Relays N.C. (Low,High, Fault)
- SST No Relays. [For ROCK SOLID Sensors Only]
- SST Local Relays N.O. (3) [For ROCK SOLID Sensors Only]
- SST Local Relays N.C. (3) [For ROCK SOLID Sensors Only]

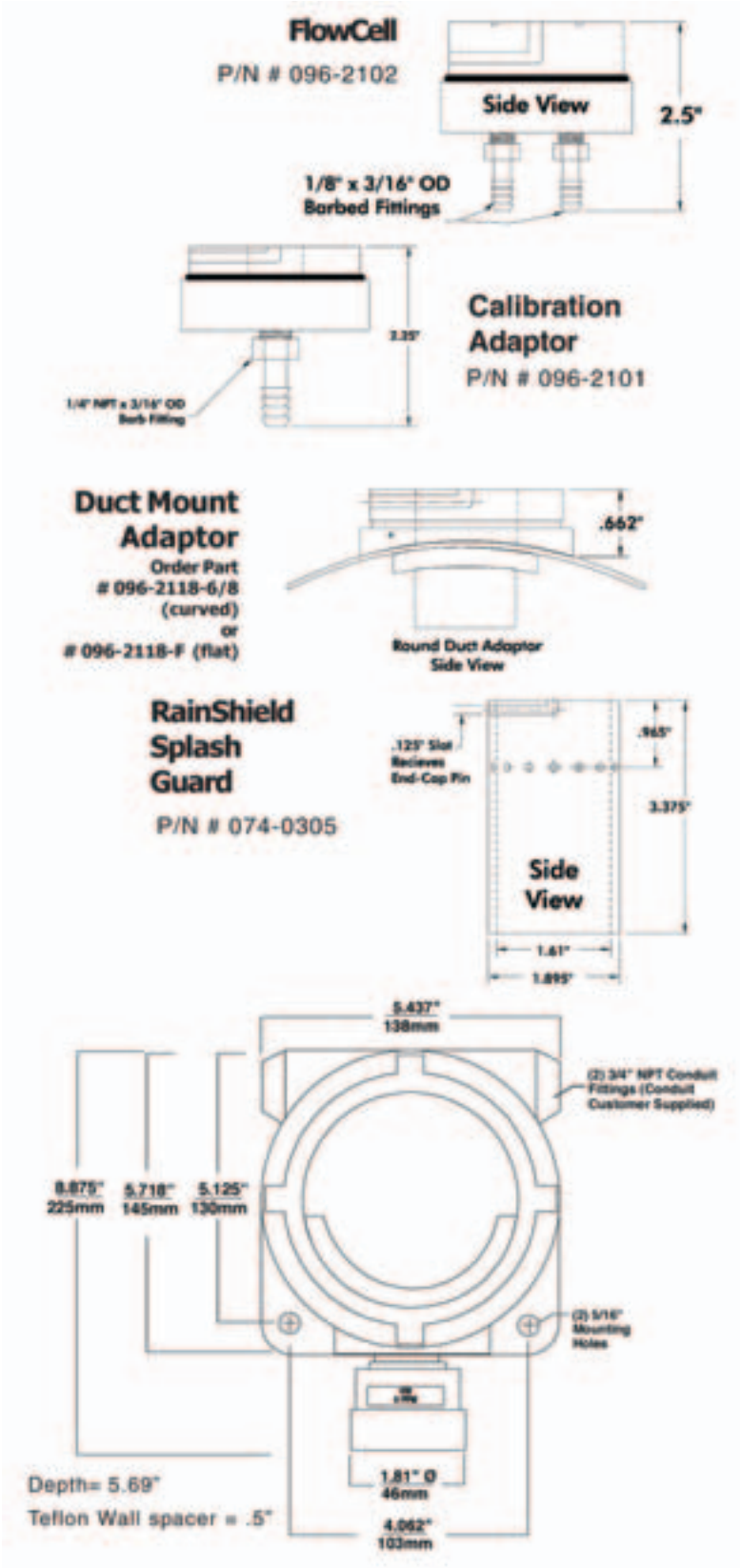
Adaptors

- No Adaptors
- 1/4 Turn Rainshield/Splash Guard (typical)
- S.S.Rainshield/Cal Adaptor w/ SS End Cap (for REMOTE sensor apps)
- 1/4 Flowcell

Sensor Self Test

- No SST
- SST Type A (4600MB ONLY) [only available in some models - call for info]

1/4 TURN ACCESSORIES



SPECIFICATIONS

All specifcations shown apply to both Series 4600 and Series 4600MB unless otherwise noted.

Enclosure . . . . . .Transmitter: Copper-free cast aluminum. Sensor housing: Stainless steelwith PVC end-cap

Temperature Range . . . . . .Transmitter: -40°F to 140°F (-40°C to 60°C)
Sensor: Depends on gas type. See Gas Capabilities Data Sheet

Operating Humidity Range . .Up to 99%RH, non-condensing (up to 100%RH with optional humishield)

Operating Pressure Range . . .0-10psig

Weight 5lbs (2.25Kg)

Power Requirements . . . . . .(4600 2 wire): 14-30 Vdc 0.6W
(4600MB 3 wire): 18-27 Vdc 1.2 W
(4600MB w/ relays): 18-27 VDC 2.0W

Output . . . . . .Analog: 4-20mA (4600MB) RS-485/232 Modbus RTU
(4600MB w/Relay): 2 alarm, 1 fail (all 5A SPST rated at 120V); userselectable latching/non-latching and energized/de-energized

Maximum Loop Load . . . . . .(4600 2 wire):460 ohm at 24VDC
(4600MB w/relays):950ohm at 24VDC

Display . . . . . .3.5 digit LCD; 0-100% bargraph; alarm indication; inhibit indication; weak sensor indication.

Local Inhibit Output . . . . . .Selectable (4600): 3.5 to 20.0 mA
(4600MB): 0-20 mA

Self-diagnostics . . . . . .Weak sensor; Missing sensor; transmitter fault

Max. Sensor Separation . . . . .50 feet (15.25m) from transmitter

Sensor Type . . . . . .Electrochemical gas diffusion

Sensor Life . . . . . .22-24 months average; disposable

Sensor Battery . . . . . .9 months continuously unpowered (no drain when powered)

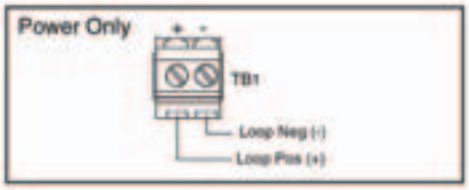
Sensor Repeatability . . . . . .±2% full scale

Sensor linearity . . . . . .±2% full scale

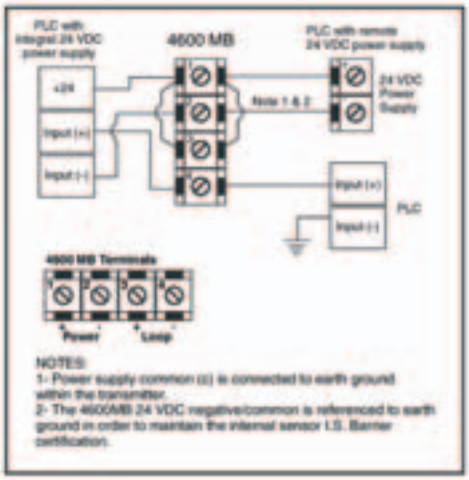
Approvals . . . . . .(4600): ETL & UL/C-UL Class I, Division 1, Groups B, C, D
(4600MB):CSA Class 1/Div 1 / Groups B,C,&D

Warranty . . . . . .1 year (sensor and transmitter)
Except Phosgene (COCl2) sensor - 6 months

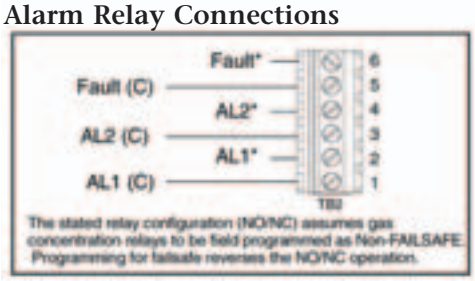
4600 Electrical Connections



4600-MB Electrical Connections



Alarm Relay Connections



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Scott Health & Safety is a global business unit of Tyco Fire & Security that supplies a variety of industries through manufacturing facilities located in the United States, United Kingdom, Asia, Finland, and Australia.

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EXHIBIT 57-1

STORM WATER MANAGEMENT PLAN

SUBMTITED TO THE COUNTY OF SAN DIEGO

Draft Storm Water Management Plan For Priority Projects (Major SWMP)

ORANGE GROVE PROJECT

Submitted by

ORANGE GROVE ENERGY, L.P.
1900 East Golf Road, Suite 1030
Schaumburg, IL 60173

August 2007

Storm Water Management Plan
For Priority Projects
(Major SWMP)

Project Name:	Orange Grove Project
Permit Number (Land Development Projects):	
Work Authorization Number (CIP):	
Applicant:	Orange Grove Energy, LP.
Applicant's Address:	1900 East Golf Road, Suite 1030, Schaumburg, IL 60173
Plan Prepare By (*Leave blank if same as applicant*):	Sega, 16041 Foster, P.O. Box 1000, Stilwell, KS, 65085
Date:	August 10, 2007
Revision Date (If applicable):	

The County of San Diego Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) (Ordinance No. 9424) requires all applications for a permit or approval associated with a Land Disturbance Activity must be accompanied by a Storm Water Management Plan (SWMP) (section 67.804.f). The purpose of the SWMP is to describe how the project will minimize the short and long-term impacts on receiving water quality. Projects that meet the criteria for a priority project are required to prepare a Major SWMP.

Since the SWMP is a living document, revisions may be necessary during various stages of approval by the County. Please provide the approval information requested below.

Project Review Stage	Does the SWMP need revisions?		If YES, Provide Revision Date
	YES	NO	
DRAFT		X	

Instructions for a Major SWMP can be downloaded at http://www.co.san-diego.ca.us/dpw/stormwater/susmp.html.

Completion of the following checklist and attachments will fulfill the requirements of a Major SWMP for the project listed above.

PROJECT DESCRIPTION

Please provide a brief description of the project in the following box. For example:
The 50-acre RC Ranch project is located on the south side of San Miguel Road in the County of San Diego (See Attachment 1). The project is approximately 1.0 mile east of the intersection of San Miguel Avenue and San Miguel Road and 1 mile south of the Sweetwater Reservoir. This project will consist of a planned residential community comprising of 45 single-family homes 72 and multi-unit dwellings.

The power plant site is located in north San Diego County, approximately 3.5 (air) miles northeast

of I-15 on SR-76, approximately two miles west of the community of Pala. The approximately 8.5 acre site is situated within an approximately 202-acre property owned by SDG&E.
The plant will supply SDG&E with new generating capacity to support reliability within the service territory. Orange Grove, L.P. will be responsible for construction of the power plant and the electric transmission line interconnection between the power plant and the substation boundary. Orange Grove Energy will operate the plant, which will employ up to 6 full-time site positions.
The natural gas line lateral will be constructed, owned and operated by SDG&E between the existing gas transmission pipeline and an onsite metering station. Natural gas fuel will be supplied by SDG&E, and electric power generated will be supplied to SDG&E under a tolling agreement. The water line will be constructed, owned and operated by Rainbow Municipal Water District between the existing water main and the site boundary.
The Orange Grove project objective is to respond to the SDG&E request for offers for new local electric capacity in an environmentally responsible and economically feasible manner. The purpose of this project is to assure reliable electric power for the public.

PRIORITY PROJECT DETERMINATION

Please check the box that best describes the project. Does the project meet one of the following criteria?

PRIORITY PROJECT	YES	NO
Redevelopment within the County Urban Area that creates or adds at least 5,000 net square feet of additional impervious surface area		X
Residential development of more than 10 units		X
Commercial developments with a land area for development of greater than 100,000 square feet		X
Automotive repair shops		X
Restaurants, where the land area for development is greater than 5.000 square feet		X
Hillside development, in an area with known erosive soil conditions, where there will be grading on any natural slope that is twenty-five percent or greater, if the development creates 5,000 square feet or more of impervious surface		X(1)
Environmentally Sensitive Areas: All development and redevelopment located within or directly adjacent to or discharging directly to an environmentally sensitive area (where discharges from the development or redevelopment will enter receiving waters within the environmentally sensitive area), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition.		X
Parking Lots 5,000 square feet or more or with 15 parking spaces or more and potentially exposed to urban runoff		X
Streets, roads, highways, and freeways which would create a new paved surface that is 5,000 square feet or greater		X

Limited Exclusion: Trenching and resurfacing work associated with utility projects are not considered priority projects. Parking lots, buildings and other structures associated with utility projects are subject to SUSMP requirements if one or more of the criteria above are met.

If you answered **NO** to all the questions, then **STOP**. Please complete a Minor SWMP for your project.

(1)San Diego DPLU is requiring this SWMP for the Major use permit package. The site slopes are 10% and the potential pollutants are similar to the selected hillside category.

If you answered **YES** to any of the questions, please continue.

The following questions provide a guide to collecting information relevant to project stormwater quality issues. Please provide a description of the findings in text box below.

	QUESTIONS	COMPLETED	NA
1.	Describe the topography of the project area.	X	
2.	Describe the local land use within the project area and adjacent areas.	X	
3.	Evaluate the presence of dry weather flow.	X	
4.	Determine the receiving waters that may be affected by the project throughout the project life cycle (i.e., construction, maintenance and operation).	X	
5.	For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.	X	
6.	Determine if there are any High Risk Areas (municipal or domestic water supply reservoirs or groundwater percolation facilities) within the project limits.	X	
7.	Determine the Regional Board special requirements, including TMDLs, effluent limits, etc.	X	
8.	Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.	X	
9.	If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater.	X	
10.	Determine contaminated or hazardous soils within the project area.	X	

Please provide a description of the findings in the following box. For example:
The project is located in the San Diego Hydrologic unit. The area is characterized by rolling grassy hills and shrubs. Runoff from the project drains into a MS4 that eventually drains to Los Coches Creek. Within the project limit there are no 303(d) impaired receiving water and no Regional Board special requirements.

The site occurs on an alluvial fan surface that slopes southward at an average grade of approximately 10 percent. The project will be constructed on lands that have already been disturbed by agriculture. The site was used as a citrus grove, but the grove has not been maintained in at least five years. Linear facilities for the project will also be located in areas that are already disturbed, so the project will result in no new ground disturbance
The existing SDG&E Pala Substation is located on a contiguous SDG&E parcel south of the site.
The maximum (construction) project disturbance is 15.8 acres. These acreages do not include areas where linear facilities will be trenched in existing roads or other urban surfacing. Native planting will occur following construction so that the long-term disturbance for the project will be only approximately 5 acres and there will be a net increase in native habitat area. (CONTINUED ON PAGE 3A)

Complete the checklist below to determine if Treatment Best Management Practices (BMPs) are required for the project.

No.	CRITERIA	YES	NO	INFORMATION
1.	Is this an emergency project		X	If YES, go to 6. If NO, continue to 2.
2.	Have TMDLs been established		X	If YES, go to 5.

(CONTINUED FROM PAGE 3)

The Site area is relatively dry with precipitation mostly occurring between December and March. There are no dry weather flows on the property. Average annual rainfall within the Hydrologic Unit ranges from approximately 11 inches at low elevations near the coast, to more than 45 inches in the highest elevations of the headwaters. The Site is situated on a gentle, relatively featureless slope that has a small up-gradient watershed and dispersing sheet flow. Surface drainage from the power plant will flow to an onsite retention/detention basin designed to contain storm water from storms with a recurrence interval of up to 50 years, and will thereby reduce erosion and sediment transport from the site compared to existing conditions.

The Site and surrounding lands drain generally southward to culverts crossing SR 76. The Site is located on a former orchard located between two drainages. The orchard is on a gently convex slope that disperses runoff, so there is minimal run-on to the Site footprint. The drainages that occur to the east and west of the Site are normally dry, but can have surface flow in response to precipitation events.

The San Luis Rey River runs south of SR 76. Near the Site, the San Luis Rey River was diverted southward by mining operations and is now confined to a diked channel located approximately 0.5 mile south of SR 76. In the project vicinity, flow in the San Luis Rey River is intermittent, responding to seasonal precipitation. The closest perennial surface waters to the Site are ponds that occur in the riverbed where past mining has exposed the water table in the alluvial aquifer.

There are no high risk areas, or known contaminated soil areas, or special Regional Board requirements within the project limits. The San Luis Rey River is down gradient of the site and is a 303(d) listed water body for Total Dissolved Solids and Chloride.

No.	CRITERIA	YES	NO	INFORMATION
	for surface waters within the project limit?			If NO, continue to 3.
3.	Will the project directly discharge to a 303(d) impaired receiving water body?		x	If YES, go to 5. If NO, continue to 4.
4.	Is this project within the urban and environmentally sensitive areas as defined on the maps in Appendix B of the *County of San Diego Standard Urban Storm Water Mitigation Plan for Land Development and Public Improvement Projects*?		x	If YES, continue to 5. If NO, go to 6.
5.	Consider approved Treatment BMPs for the project.	x		If YES, go to 7.
6.	Project is not required to consider Treatment BMPs			Document for Project Files by referencing this checklist.
7.	End	x		

Now that the need for a treatment BMPs has been determined, other information is needed to complete the SWMP.

WATERSHED

Please check the watershed(s) for the project.

☐ San Juan ☐ Santa Margarita ☒ San Luis Rey ☐ Carlsbad
☐ San Dieguito ☐ Penasquitos ☐ San Diego ☐ Pueblo San Diego
☐ Sweetwater ☐ Otay ☐ Tijuana

Please provide the hydrologic sub-area and number(s)

Number	Name
903.20	Monserate Hydrologic Area
3.21	Pala Hydrologic Sub Area

Please provide the beneficial uses for Inland Surface Waters and Ground Waters. Beneficial Uses can be obtained from the Water Quality Control Plan For The San Diego Basin, which is available at the Regional Board office or at http://www.swrcb.ca.gov/rwqcb9/programs/basinplan.html.

SURFACE WATERS	Hydrologic Unit Basin Number	MUN	AGR	IND	PROC	GWR	FRESH	POW	REC1	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN
Inland Surface Waters	3.21	x	x	x					x	x		x	x	x		x
Ground Waters	3.21	x	x	x												

X Existing Beneficial Use
0 Potential Beneficial Use
* Excepted from Municipal

POLLUTANTS OF CONCERN

Using Table 1, identify pollutants that are anticipated to be generated from the proposed priority project categories. Pollutants associated with any hazardous material sites that have been remediated or are not threatened by the proposed project are not considered a pollutant of concern.

Table 1. Anticipated and Potential Pollutants Generated by Land Use Type

	General Pollutant Categories								
Priority Project Categories	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Detached Residential Development	X	X			X	X	X	X	X
Attached Residential Development	X	X			X	P(1)	P(2)	P	X
Commercial Development >100,000 ft^2	P(1)	P(1)		P(2)	X	P(5)	X	P(3)	P(5)
Automotive Repair Shops			X	X(4)(5)	X		X		
Restaurants					X	X	X	X	
(1) Hillside Development >5,000 ft^2	X	X			X	X	X		X

(1)San Diego DPLU is requiring this SWMP for the Major use permit package. The site slopes are 10% and the potential pollutants are similar to the selected hillside category.

	General Pollutant Categories								
Priority Project Categories	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Parking Lots	P(1)	P(1)	X		X	P(1)	X		P(1)
Streets, Highways & Freeways	X	P(1)	X	X(4)	X	P(5)	X		

X = anticipated
P = potential
(1) A potential pollutant if landscaping exists on-site.
(2) A potential pollutant if the project includes uncovered parking areas.
(3) A potential pollutant if land use involves food or animal waste products.
(4) Including petroleum hydrocarbons.
(5) Including solvents.

Note: If other monitoring data that is relevant to the project is available. Please include as Attachment C.

CONSTRUCTION BMPs

Please check the construction BMPs that may be used. The BMPs selected are those that will be implemented during construction of the project. The applicant is responsible for the placement and maintenance of the BMPs selected.

- ☒ Silt Fence
- ☒ Fiber Rolls
- ☐ Street Sweeping and Vacuuming
- ☒ Storm Drain Inlet Protection
- ☒ Stockpile Management
- ☒ Solid Waste Management
- ☒ Stabilized Construction Entrance/Exit
- ☐ Dewatering Operations
- ☒ Vehicle and Equipment Maintenance
- ☒ Desilting Basin
- ☒ Gravel Bag Berm
- ☒ Sandbag Barrier
- ☒ Material Delivery and Storage
- ☒ Spill Prevention and Control
- ☒ Concrete Waste Management
- ☒ Water Conservation Practices
- ☐ Paving and Grinding Operations
- ☒ Any minor slopes created incidental to construction and not subject to a major or minor grading permit shall be protected by covering with plastic or tarp prior to a rain event, and shall have vegetative cover reestablished within 180 days of completion of the slope and prior to final building approval.

SITE DESIGN

To minimize stormwater impacts, site design measures must be addressed. The following checklist provides options for avoiding or reducing potential impacts during project planning. If

YES is checked, it is assumed that the measure was used for this project. If NO is checked, please provide a brief explanation why the option was not selected in the text box below.

	OPTIONS		YES	NO	N/A
1.	Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions?				x
2.	Can the project be designed to minimize impervious footprint?		x		
3.	Conserve natural areas where feasible?		x		
4.	Where landscape is proposed, can rooftops, impervious sidewalks, walkways, trails and patios be drained into adjacent landscaping?		x		
5.	For roadway projects, can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts?				x
6.	Can any of the following methods be utilized to minimize erosion from slopes:		x		
	6.a.	Disturbing existing slopes only when necessary?	x		
	6.b.	Minimize cut and fill areas to reduce slope lengths?	x		
	6.c.	Incorporating retaining walls to reduce steepness of slopes or to shorten slopes?	x		
	6.d.	Providing benches or terraces on high cut and fill slopes to reduce concentration of flows?	x		
	6.e.	Rounding and shaping slopes to reduce concentrated flow?	x		
	6.f.	Collecting concentrated flows in stabilized drains and channels?	x		

Please provide a brief explanation for each option that was checked N/A or NO in the following box.

1. N/A - The project does not impact critical areas.
5. N/A - The project is not a roadway project.

If the project includes work in channels, then complete the following checklist. Information shall be obtained from the project drainage report. N/A This project does not include work in channels.

No.	CRITERIA	YES	NO	N/A	COMMENTS
1.	Will the project increase velocity or volume of downstream flow?		x		If YES go to 5.
2.	Will the project discharge to unlined channels?		x		If YES go to 5.
3.	Will the project increase potential sediment load		x		If YES go to 5.

No.	CRITERIA	YES	NO	N/A	COMMENTS
	of downstream flow?				
4.	Will the project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect upstream and/or downstream channel stability?		x		If YES go to 7.
5.	Review channel lining materials and design for stream bank erosion.	x			Continue to 6.
6.	Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity.	x			Continue to 7.
7.	Include, where appropriate, energy dissipation devices at culverts.	x			Continue to 8.
8.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.	x			Continue to 9.
9.	Include, if appropriate, detention facilities to reduce peak discharges.	x			
10.	"Hardening" natural downstream areas to prevent erosion is not an acceptable technique for protecting channel slopes, unless pre-development conditions are determined to be so erosive that hardening would be required even in the absence of the proposed development.	x			Continue to 11.
11.	Provide other design principles that are comparable and equally effective.	x			Continue to 12.
12.	End	x			

SOURCE CONTROL

Please complete the following checklist for Source Control BMPs. If the BMP is not applicable for this project, then check N/A only at the main category.

BMP			YES	NO	N/A
1.	**Provide Storm Drain System Stenciling and Signage**				
	1.a.	All storm drain inlets and catch basins within the project area shall have a stencil or tile placed with prohibitive language (such as: "NO DUMPING – DRAINS TO _____") and/or graphical icons to discourage illegal dumping.	x		
	1.b.	Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks within the project area.	x		
2.	**Design Outdoors Material Storage Areas to Reduce Pollution Introduction**				
	2.a.	This is a detached single-family residential project. Therefore, personal storage areas are exempt from this requirement.			x

BMP			YES	NO	N/A
	2.b.	Hazardous materials with the potential to contaminate urban runoff shall either be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.	x		
	2.c.	The storage area shall be paved and sufficiently impervious to contain leaks and spills.	x		
	2.d.	The storage area shall have a roof or awning to minimize direct precipitation within the secondary containment area.	x		
3.	**Design Trash Storage Areas to Reduce Pollution Introduction**				
	3.a.	Paved with an impervious surface, designed not to allow run-on from adjoining areas, screened or walled to prevent off-site transport of trash; or,	x		
	3.b.	Provide attached lids on all trash containers that exclude rain, or roof or awning to minimize direct precipitation.	x		
4.	**Use Efficient Irrigation Systems & Landscape Design**				
	The following methods to reduce excessive irrigation runoff shall be considered, and incorporated and implemented where determined applicable and feasible.				
	4.a.	Employing rain shutoff devices to prevent irrigation after precipitation.	x		
	4.b.	Designing irrigation systems to each landscape area's specific water requirements.	x		
	4.c.	Using flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.	x		
	4.d.	Employing other comparable, equally effective, methods to reduce irrigation water runoff.	x		
5.	**Private Roads**				
	The design of private roadway drainage shall use at least one of the following				
	5.a.	Rural swale system: street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings.	x		
	5.b.	Urban curb/swale system: street slopes to curb, periodic swale inlets drain to vegetated swale/biofilter.			x
	5.c.	Dual drainage system: First flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder, high flows connect directly to storm water conveyance system.			x
	5.d.	Other methods that are comparable and equally effective within the project.	x		
6.	**Residential Driveways & Guest Parking**				x
	The design of driveways and private residential parking areas shall use one at least of the following features.				
	6.a.	Design driveways with shared access, flared (single lane at street) or wheelstrips (paving only under tires); or, drain into landscaping prior to discharging to the storm water conveyance system.			
	6.b.	Uncovered temporary or guest parking on private residential lots may be: paved with a permeable surface; or, designed to drain into landscaping prior to discharging to the storm water conveyance system.			
	6.c.	Other features which are comparable and equally effective.			
7.	**Dock Areas**				x

BMP			YES	NO	N/A
	Loading/unloading dock areas shall include the following.				
	7.a.	Cover loading dock areas, or design drainage to preclude urban run-on and runoff.			
	7.b.	Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.			
	7.c.	Other features which are comparable and equally effective.			
8.	**Maintenance Bays**				x
	Maintenance bays shall include the following.				
	8.a.	Repair/maintenance bays shall be indoors; or, designed to preclude urban run-on and runoff.			
	8.b.	Design a repair/maintenance bay drainage system to capture all wash water, leaks and spills. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required by local jurisdiction, obtain an Industrial Waste Discharge Permit.			
	8.c.	Other features which are comparable and equally effective.			
9.	**Vehicle Wash Areas**				x
	Priority projects that include areas for washing/steam cleaning of vehicles shall use the following.				
	9.a.	Self-contained; or covered with a roof or overhang.			
	9.b.	Equipped with a clarifier or other pretreatment facility.			
	9.c.	Properly connected to a sanitary sewer.			
	9.d.	Other features which are comparable and equally effective.			
10.	**Outdoor Processing Areas**				x
	Outdoor process equipment operations, such as rock grinding or crushing, painting or coating, grinding or sanding, degreasing or parts cleaning, waste piles, and wastewater and solid waste treatment and disposal, and other operations determined to be a potential threat to water quality by the County shall adhere to the following requirements.				
	10.a.	Cover or enclose areas that would be the most significant source of pollutants; or, slope the area toward a dead-end sump; or, discharge to the sanitary sewer system following appropriate treatment in accordance with conditions established by the applicable sewer agency.			
	10.b.	Grade or berm area to prevent run-on from surrounding areas.			
	10.c.	Installation of storm drains in areas of equipment repair is prohibited.			
	10.d.	Other features which are comparable or equally effective.			
11.	**Equipment Wash Areas**				x
	Outdoor equipment/accessory washing and steam cleaning activities shall be.				
	11.a.	Be self-contained; or covered with a roof or overhang.			
	11.b.	Be equipped with a clarifier, grease trap or other pretreatment facility, as appropriate			
	11.c.	Be properly connected to a sanitary sewer.			
	11.d.	Other features which are comparable or equally effective.			
12.	**Parking Areas**				
	The following design concepts shall be considered, and incorporated and implemented where determined applicable and feasible by the County.				
	12.a.	Where landscaping is proposed in parking areas, incorporate landscape areas into the drainage design.	x		

BMP			YES	NO	N/A
	12.b.	Overflow parking (parking stalls provided in excess of the County's minimum parking requirements) may be constructed with permeable paving.	x		
	12.c.	Other design concepts that are comparable and equally effective.	x		
13.	**Fueling Area**				x
	Non-retail fuel dispensing areas shall contain the following.				
	13.a.	Overhanging roof structure or canopy. The cover's minimum dimensions must be equal to or greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area shall drain to the project's treatment control BMP(s) prior to discharging to the storm water conveyance system.			
	13.b.	Paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete shall be prohibited.			
	13.c.	Have an appropriate slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of urban runoff.			
	13.d.	At a minimum, the concrete fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.			

Please list other project specific Source Control BMPs in the following box. Write **N/A** if there are none and briefly explain.

Diversion Trench - Trench install to divert run-on storm water around the plant site and away from industrial use areas.

TREATMENT CONTROL

To select a structural treatment BMP using Treatment Control BMP Selection Matrix (Table 2), each priority project shall compare the list of pollutants for which the downstream receiving waters are impaired (if any), with the pollutants anticipated to be generated by the project (as identified in Table 1). Any pollutants identified by Table 1, which are also causing a Clean Water Act section 303(d) impairment of the receiving waters of the project, shall be considered primary pollutants of concern. Priority projects that are anticipated to generate a primary pollutant of concern shall select a single or combination of stormwater BMPs from Table 2, which **maximizes pollutant removal** for the particular primary pollutant(s) of concern.

Priority projects that are **not** anticipated to generate a pollutant for which the receiving water is Clean Water Act Section 303(d) impaired shall select a single or combination of stormwater BMPs from Table 2, which are effective for pollutant removal of the identified secondary pollutants of concern, consistent with the "maximum extent practicable" standard.

Table 2. Treatment Control BMP Selection Matrix

Pollutant of Concern	*Treatment Control BMP Categories*						
	Biofilters	Detention Basins	Infiltration Basins(2)	Wet Ponds or Wetlands	Drainage Inserts	Filtration	Hydrodynamic Separator Systems(3)
Sediment	M	H	H	H	L	H	M
Nutrients	L	M	M	M	L	M	L
Heavy Metals	M	M	M	H	L	H	L
Organic Compounds	U	U	U	M	L	M	L
Trash & Debris	L	H	U	H	M	H	M
Oxygen Demanding Substances	L	M	M	M	L	M	L
Bacteria	U	U	H	H	L	M	L
Oil & Grease	M	M	U	U	L	H	L
Pesticides	U	U	U	L	L	U	L

(1) Copermittees are encouraged to periodically assess the performance characteristics of many of these BMPs to update this table.
(2) Including trenches and porous pavement.
(3) Also known as hydrodynamic devices and baffle boxes.

L: Low removal efficiency:
M: Medium removal efficiency:
H: High removal efficiency:
U: Unknown removal efficiency

Sources: *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (1993), *National Stormwater Best Management Practices Database* (2001), *Guide for BMP Selection in Urban Developed Areas* (2001), *and Caltrans New Technology Report (2001).*

A Treatment BMP must address runoff from developed areas. Please provide the post-construction water quality values for the project. Label outfalls on the BMP map. Q_{WQ} is dependent on the type of treatment BMP selected for the project.

Outfall	**Tributary Area (acres)**	**Q_{100} (cfs)**	**Q_{WQ} (cfs)**
1	5.5	47.49	

Please check the box(s) that best describes the Treatment BMP(s) selected for this project.

Biofilters

☐ Grass swale
☐ Grass strip
☐ Wetland vegetation swale
☐ Bioretention

Detention Basins

☒ Extended/dry detention basin with grass lining
☐ Extended/dry detention basin with impervious lining

Infiltration Basins
☐ Infiltration basin
☐ Infiltration trench
☐ Porous asphalt
☐ Porous concrete
☐ Porous modular concrete block
Wet Ponds or Wetlands
☐ Wet pond/basin (permanent pool)
☐ Constructed wetland
Drainage Inserts (See note below)
☐ Oil/Water separator
☐ Catch basin insert
☐ Storm drain inserts
☐ Catch basin screens
Filtration
☐ Media filtration
☐ Sand filtration
Hydrodynamic Separator Systems
☐ Swirl Concentrator
☐ Cyclone Separator
☐ Baffle Separator
☐ Gross Solids Removal Device
☐ Linear Radial Device

Note: Catch basin inserts and storm drain inserts are excluded from use on County maintained right-of-way and easements.

Include Treatment Datasheet as Attachment E. The datasheet should include the following:	**COMPLETED**	**NO**
1. Description of how treatment BMP was designed. Provide a description for each type of treatment BMP.	x	
2. Engineering calculations for the BMP(s)	X	

Please describe why the selected treatment BMP(s) was selected for this project. For projects utilizing a low performing BMP, please provide a detailed explanation and justification.

The treatment BMP selected for this site is detention basin. The BMP was selected because it will provide high removal efficiency for sediment, which is the main pollutant of concern for the site, and will control downstream flow intensity. In addition, the BMP has been sized so that there will not be any runoff from the site, except storm event conditions that exceed the 50 year storm event design. All of the site runoff will be contained in the detention pond area, during most storm events, and evaporated or infiltrated into the soil.

MAINTENANCE

Please check the box that best describes the maintenance mechanism(s) for this project.

CATEGORY	SELECTED	
	YES	NO
First		X
Second	X	
Third		X
Fourth		X

Please briefly describe the long-term fiscal resources for the selected maintenance mechanism(s).

The owner of the site will be responsible for maintenance of the treatment BMP. The estimated cost for maintenance of the BMP is included in attachment F. Attachment E contains the specification information for the treatment BMP and the maintenance requirements.
(CONTINUED ON PAGE 14A and 14B)

ATTACHMENTS

Please include the following attachments.

ATTACHMENT		COMPLETED	N/A
A	Project Location Map	X	
B	Site Map	X	
C	Relevant Monitoring Data	X	
D	Treatment BMP Location Map	X	
E	Treatment BMP Datasheets	X	
F	Operation and Maintenance Program for Treatment BMPs	X	
G	Engineer's Certification Sheet	X	

Note: Attachments A and B may be combined.

(CONTINUED FROM PAGE 14)

LONG-TERM FISCAL RESOURCES FOR MAINTENANCE
The following information is excerpted from the SUSMP manual to describe how the treatment BMP (detention basin) will be maintained through a financial mechanism that provides long term funding for the activities.

SECOND CATEGORY:
The County needs to assure ongoing maintenance. The nature of the proposed BMPs indicates that it is appropriate for property owners to be given primary responsibility for maintenance, on a perpetual basis (unless a stormwater utility is eventually formed). However, the County (in a "backup" role) needs to be able to step in and perform the maintenance if property owner fails, and needs to have security to provide funding for such backup maintenance. Security for "backup" maintenance after the interim period (5 years) would not be provided, however primary owner maintenance responsibility would remain. IF a stormwater utility or other permanent mechanism is put into place, it could assume either a primary or backup maintenance role.

Project BMP
- Detention Basin

Mechanisms to Assure Maintenance:

1. Stormwater Ordinance Requirement: The WPO requires this ongoing maintenance. In the event that the mechanisms below prove ineffective, or in addition to enforcing those mechanisms, civil action, criminal action or administrative citation could also be pursued for violations of the ordinance.
2. Public Nuisance Abatement: Under the WPO failure to maintain a BMP would constitute a public nuisance, which may be abated under the enforcement mechanism additional to the above, and would allow costs of maintenance to be billed to the owner, a lien placed on the property, and the tax collection process to be used.
3. Notice to Purchasers: Section 67.819(e) of the WPO requires developers to provide clear written notification to persons acquiring land upon which a BMP is located, or others assuming a BMP maintenance obligation, of the maintenance duty.
4. Conditions in Ongoing Land Use Permits: For those applications (listed in WPO Section 67.804) upon whose approval ongoing conditions may be imposed, a condition will be added which requires the owner of the land upon which the stormwater facility is located to maintain that facility in accordance with the requirements specified in the SMP. Failure to perform maintenance may then be addressed as a violation of the permit, under the ordinance governing that permit process.
5. Subdivision Public Report: Tentative Map and Tentative Parcel Map approvals will be conditioned to require that, prior to approval of a Final or Parcel Map, the subdivider shall provide evidence to the Director of Public Works, that the

subdivider has requested the California Department of Real Estate to include in the public report to be issued for the sales of lots within the subdivision, a notification regarding the maintenance requirement. (The requirement for this condition would not be applicable to subdivisions which are exempt from regulation under the Subdivided Lands Act, or for which no public report will be issued.)

6. BMP Maintenance Agreement with Easement and Covenant: An agreement will be entered into with the County, which will function three ways:
    a. It will commit the land to being used only for purposed of the BMP;
    b. It will include an agreement by the landowner, to maintain the facilities in accordance with the SMP(this obligation would be passed on to future purchasers or successors of the landowner, as a covenant); and
    c. It will include an easement giving the County the right to enter onto the land (and any necessary adjacent land needed for access) to maintain the BMPs.

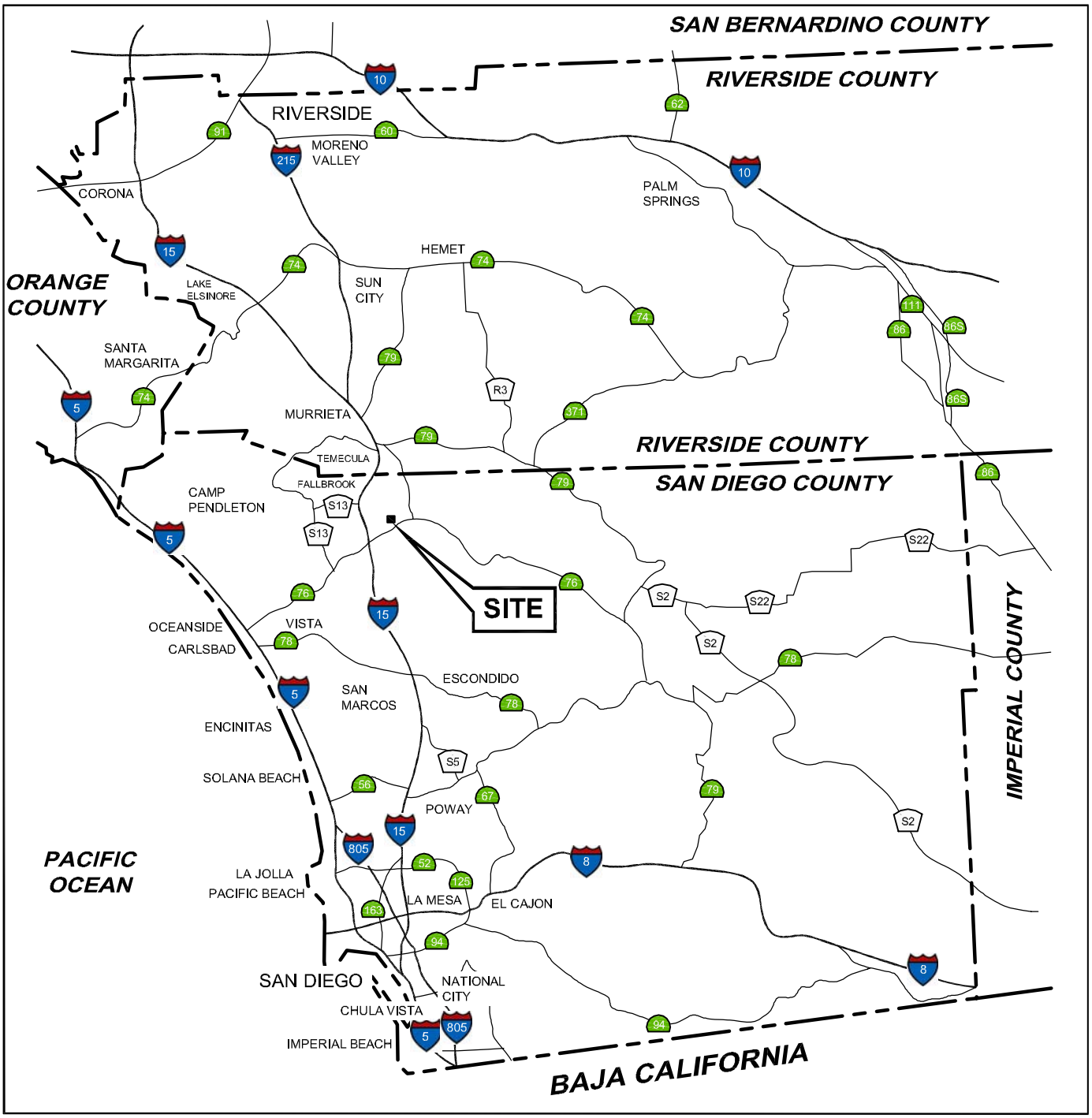
This would be required o all applications listed in WPO Section 67.804. In the case of subdivisions, this easement and covenant would be recorded on or prior to the Final or Parcel Map.

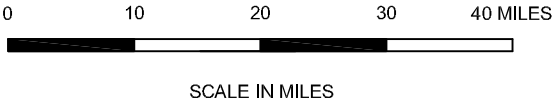
Funding:

Developer would provide the County with security to substantiate the maintenance agreement, which would remain in place for an interim period of 5 years. The amount of the security would equal the estimated cost of 2 years of maintenance activities. The security can be a Cash Deposit, Letter of Credit or other form acceptable to the County.

ATTACHMENT A

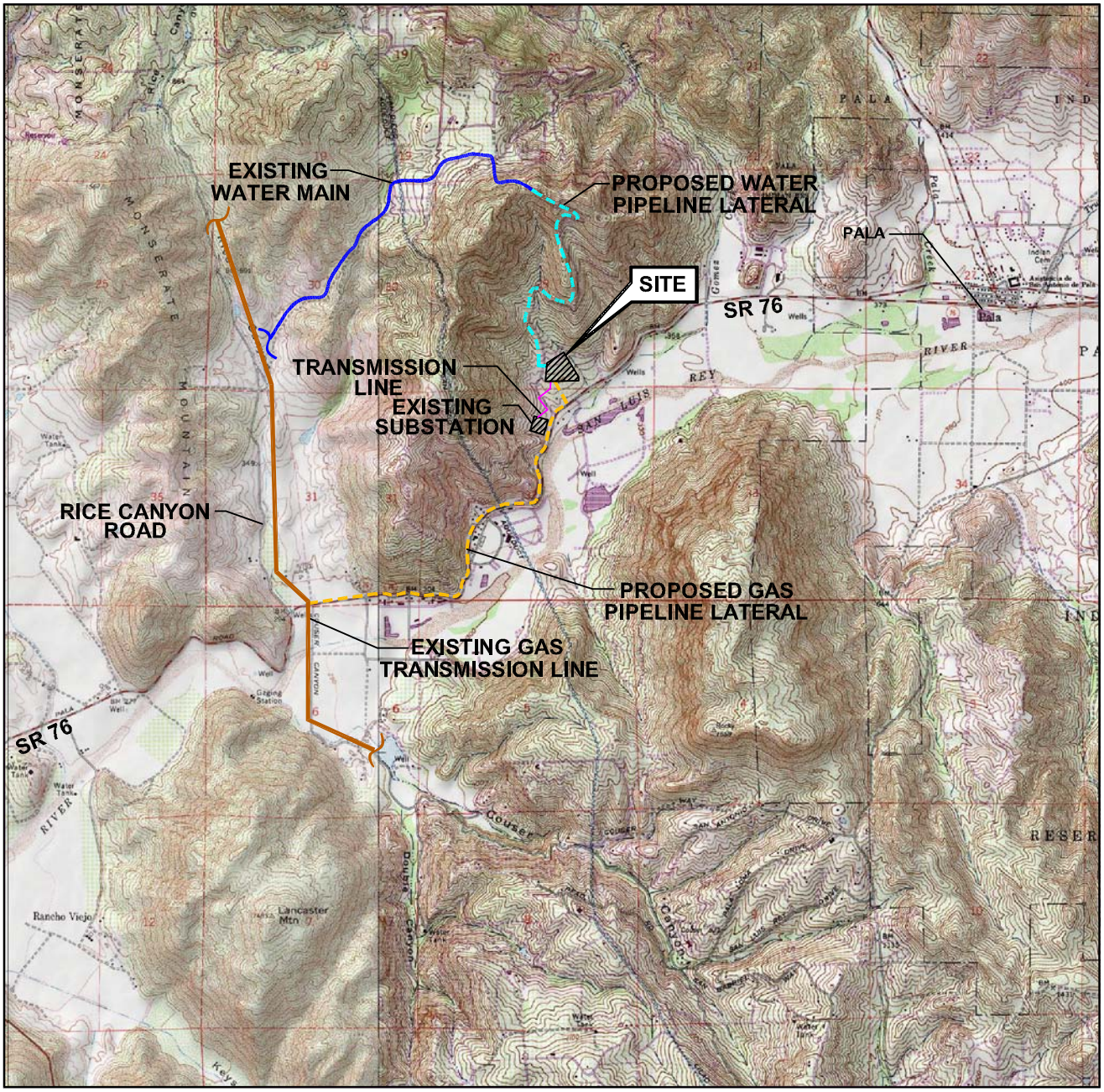
LOCATION MAP





TRC	PROJECT: 29031902	SITE LOCATION MAP
	FACILITY: ORANGE GROVE PROJECT SAN DIEGO COUNTY, CALIFORNIA	FIGURE 2.2-1

MS=1:1 L:\Graphics\ProjectsByNumber\29-xxxx\29-0319\290319 Location.dwg Jul 16, 2007 - 10:47am RCollins



N

0 1/2 1 1 1/2 2 MILES

SCALE 1:48,000

SOURCE:

United States Geological Survey
7.5 Minute Topographic Map, 2000:
Pala, Bonsall, Temecula,
and Pechanga Quadrangles

TRC

PROJECT: 29031902

FACILITY:

ORANGE GROVE PROJECT
SAN DIEGO COUNTY, CALIFORNIA

PROJECT VICINITY MAP

FIGURE 2.2-2

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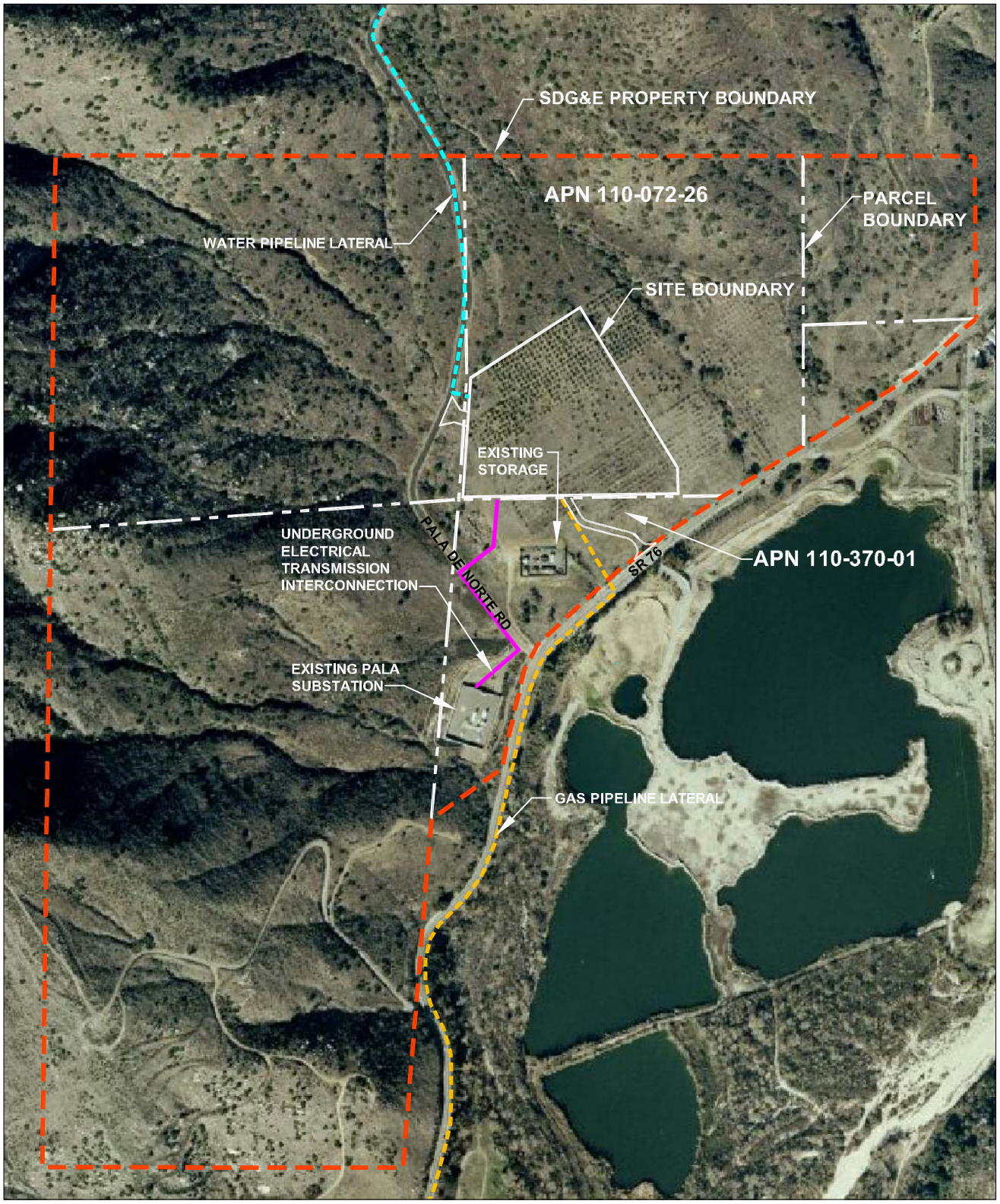
ATTACHMENT B

PROJECT SITE MAP



SOURCE:

Virtual Earth, 2006.

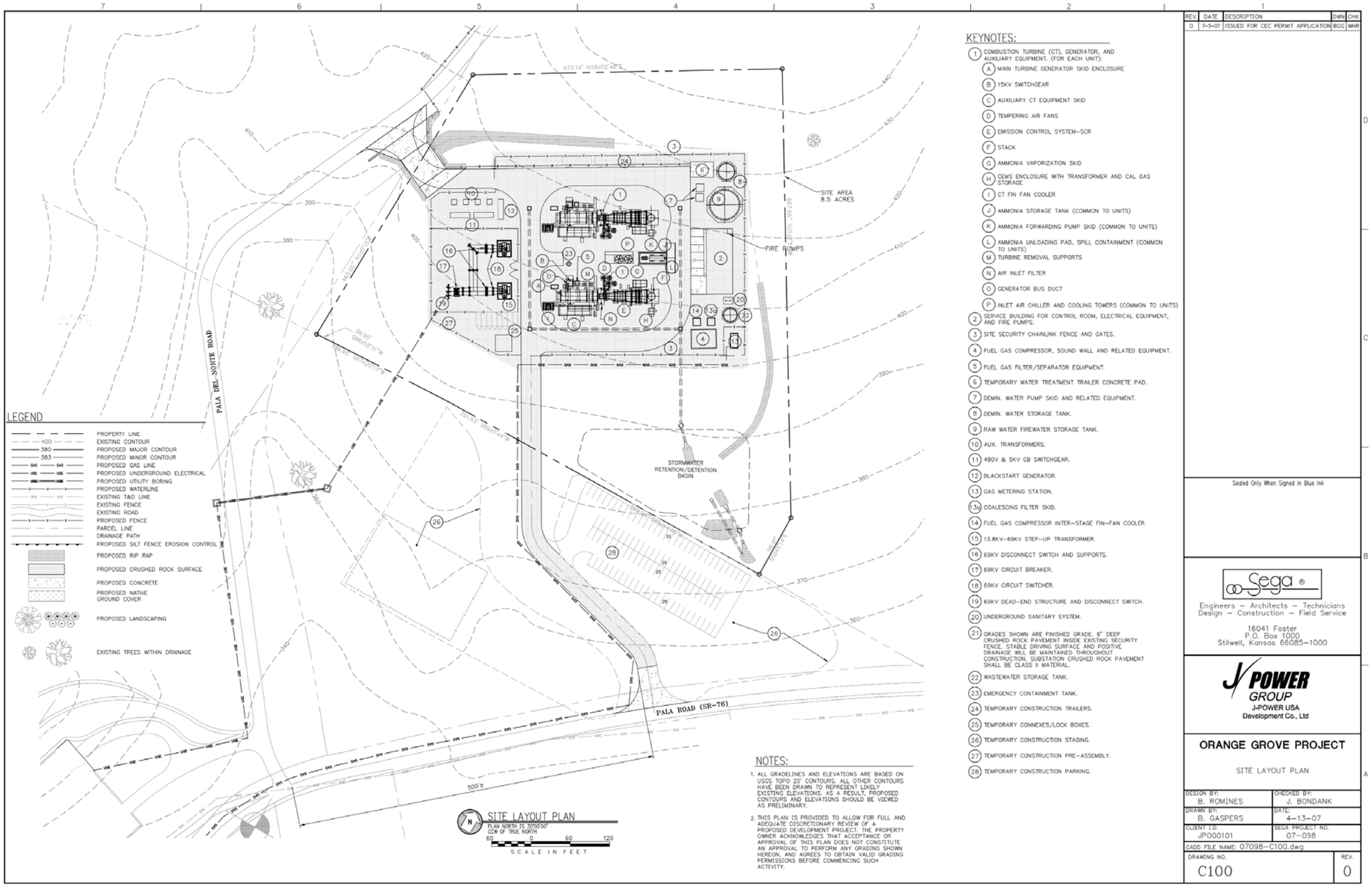
APPROXIMATE SCALE (FEET)

0 600 1200

TRC	PROJECT: 125158	SITE AND PROPERTY BOUNDARY
	FACILITY: ORANGE GROVE PROJECT SAN DIEGO COUNTY, CALIFORNIA	FIGURE 2.2-3

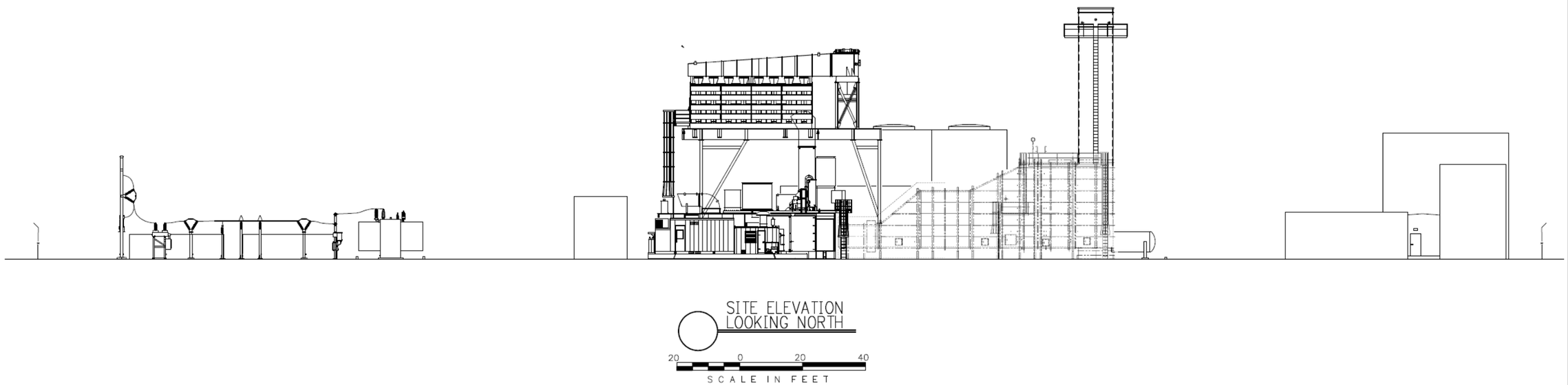
PS=1:1 L:□Graphics□ProjectsByNumber□29-xxxx□29-0319□290319 Aerial 2.dwg Jul 05, 2007 - 9:39am RCollins

Figure 2.2-4 – Site Layout Plan (C100)



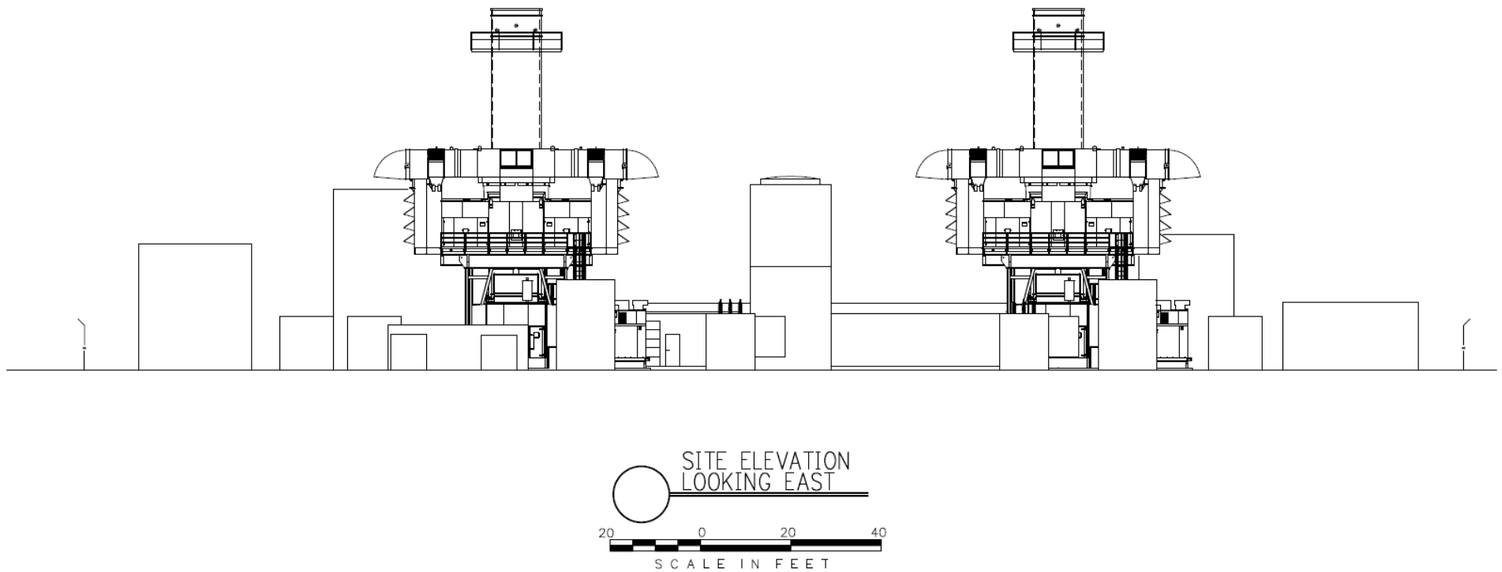
Source: Sega, Inc. – Drawing C100, June 18, 2007

Figure 2.2-5 – Facility Elevation View (GA100 - Looking North)



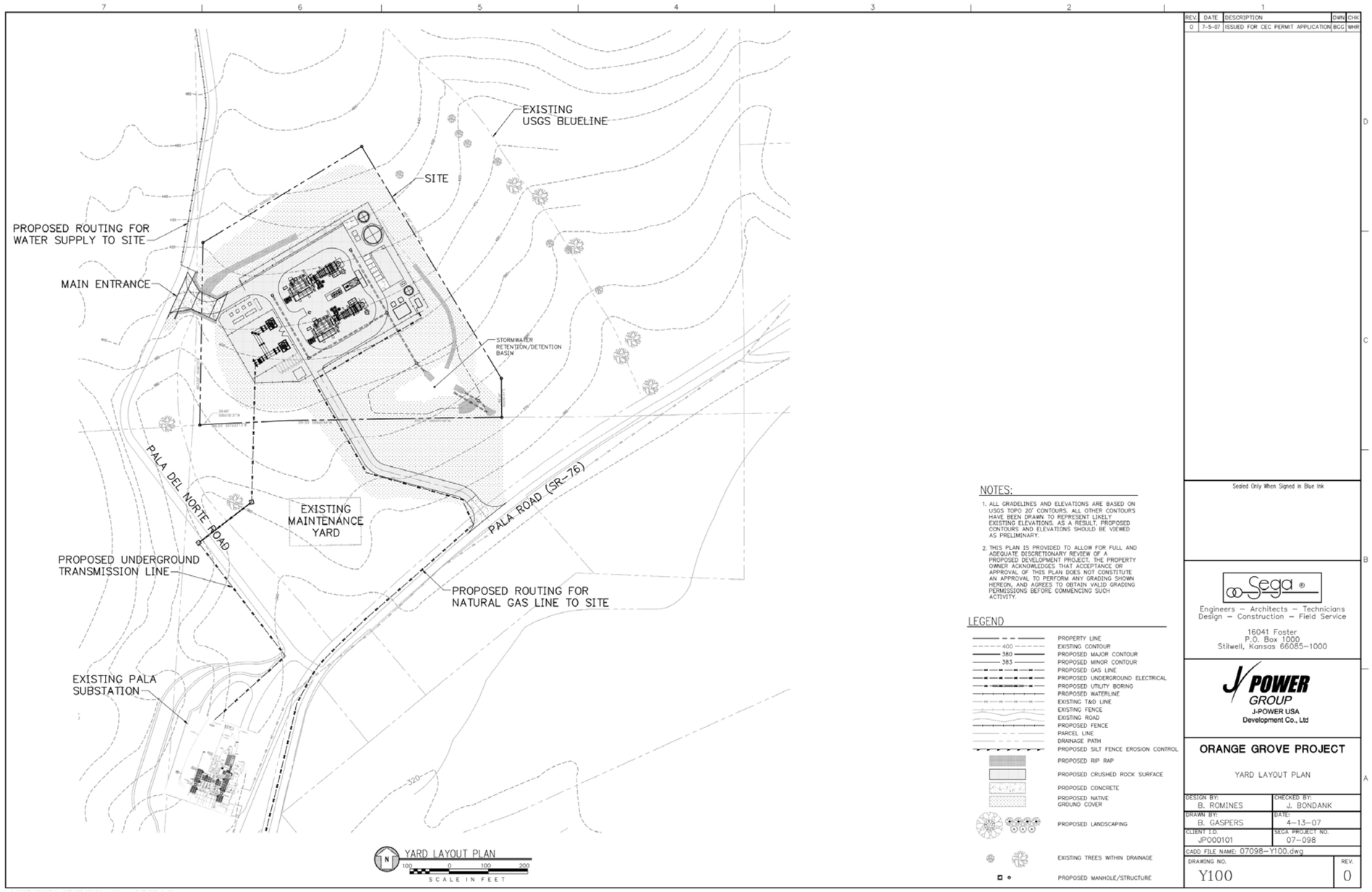
Source: Sega, Inc. – GA101, June 18, 2007

Figure 2.2-6 – Facility Elevation View (GA101 – Looking East)



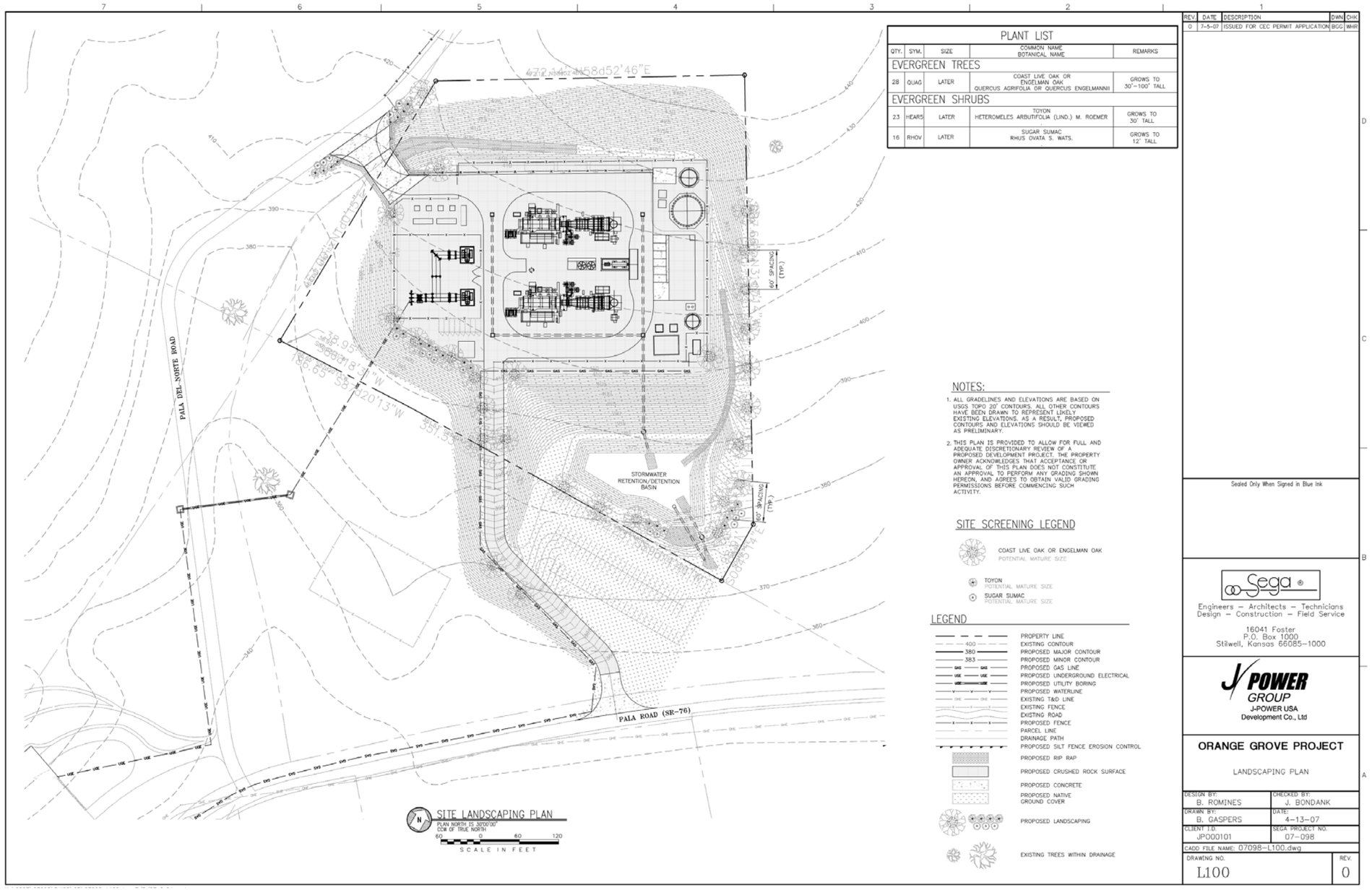
Source: Sega, Inc. – Drawing GA101, June 18, 2007

Figure 2.2-7 – Yard Layout Plan (Y100)



Source: Sega, Inc. – Drawing Y100, April 13, 2007

Figure 2.2-8 – Preliminary Landscape Plan (L100)



Source: Sega, Inc. – Drawing L100, April 13, 2007

ATTACHMENT C

RELEVANT MONITORING DATA

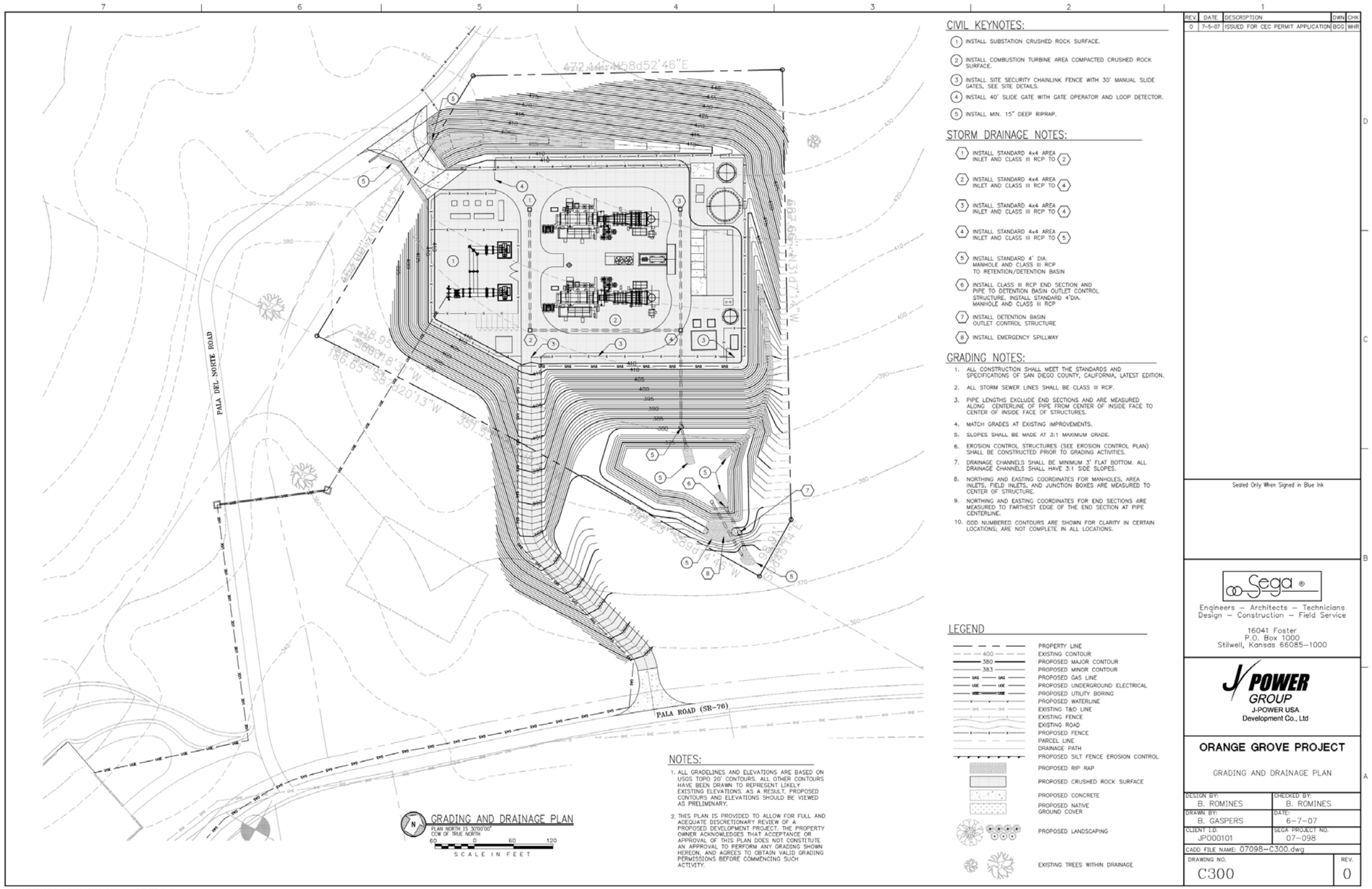
*(**NOTE:** PROVIDE RELEVANT WATER QUALITY MONITORING DATA IF AVAILABLE.)*

NO MONITORING DATA AVAILABLE

ATTACHMENT D

TREATMENT BMP LOCATION MAP

Figure 2.2-9 – Preliminary Grading and Drainage Plan (C300)



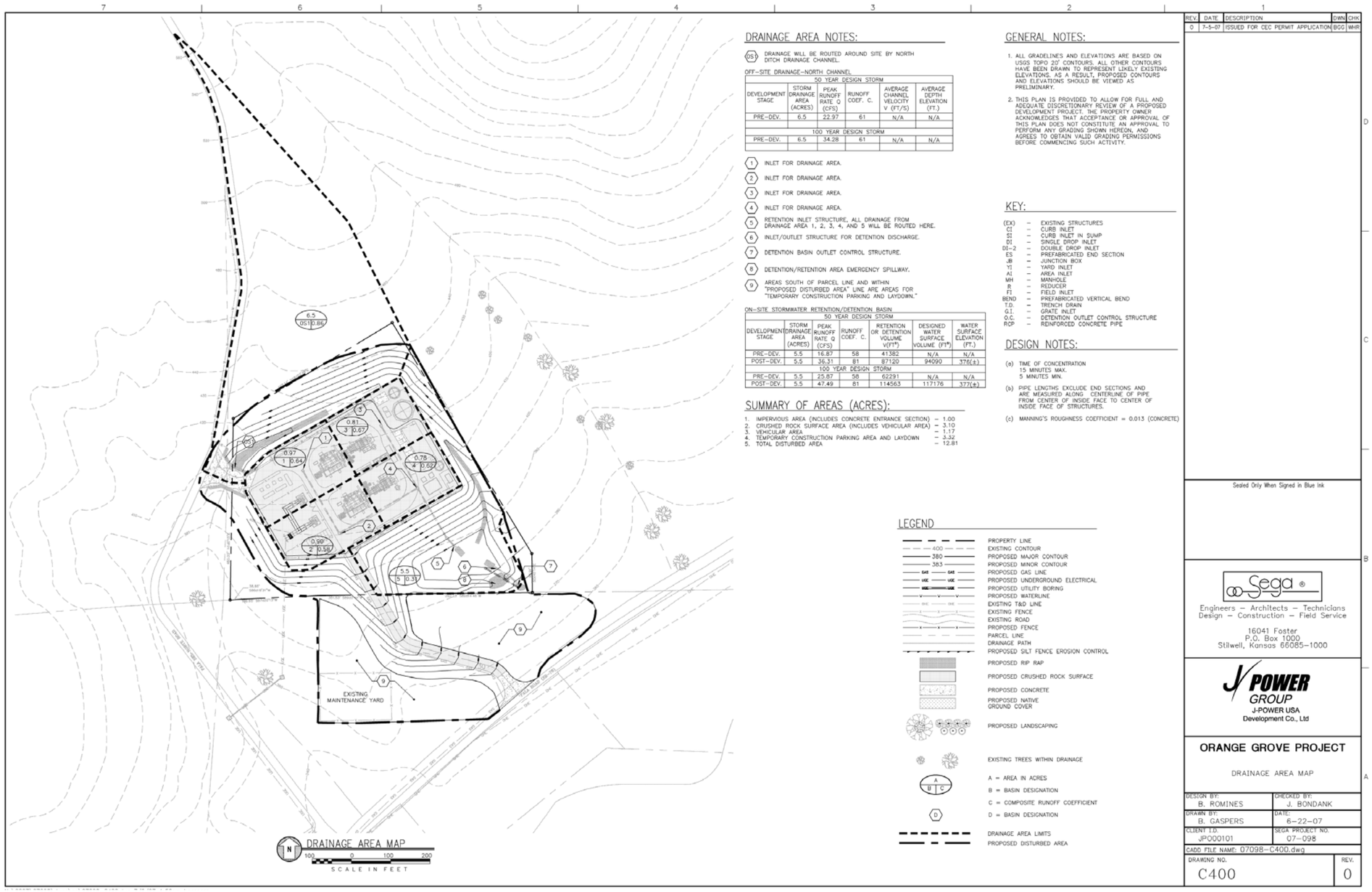
Source: Sega, Inc. – Drawing C300, June 7, 2007

ATTACHMENT E

TREATMENT BMP DATASHEET

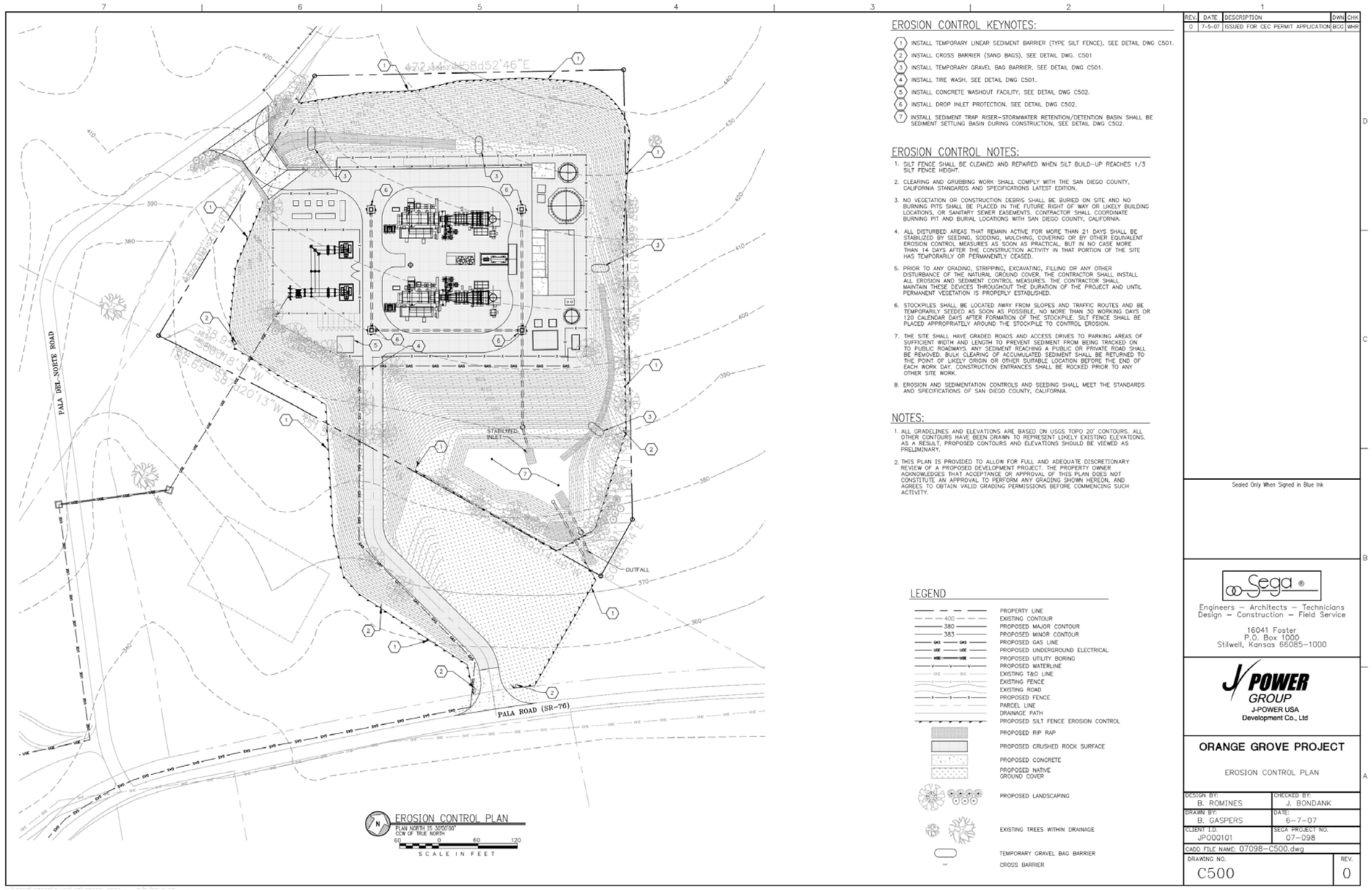
*(**NOTE:** POSSIBLE SOURCE FOR DATASHEETS CAN BE FOUND AT WWW.CABMPHANDBOOKS.COM. INCLUDE ENGINEERING CALCULATIONS FOR SIZING THE TREATMENT BMP.)*

Figure 2.2-10 – Preliminary Drainage Area Map (C400)



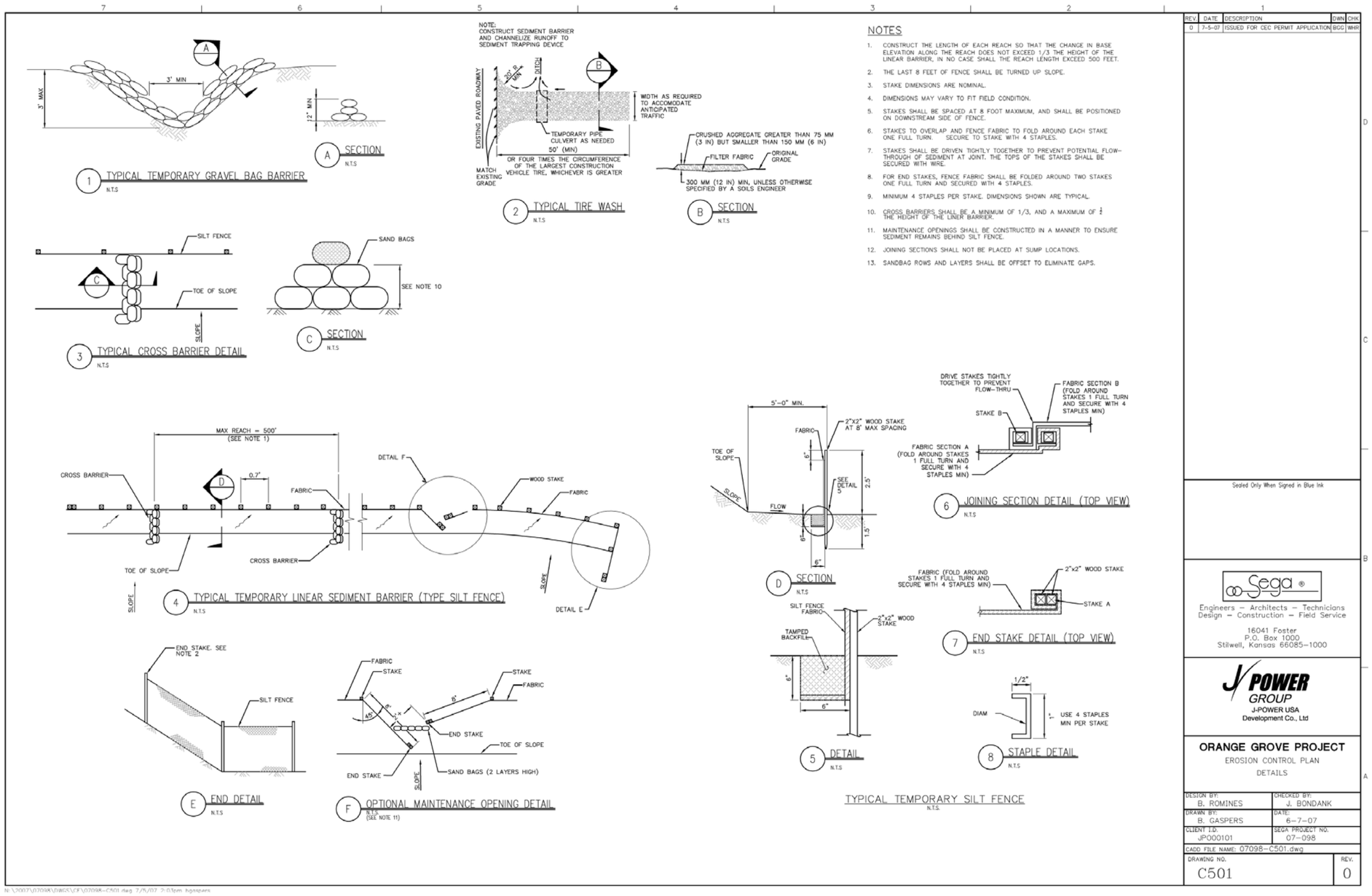
Source: Sega, Inc. – Drawing C400, June 22, 2007

Figure 2-D-1 – Erosion Control Plan



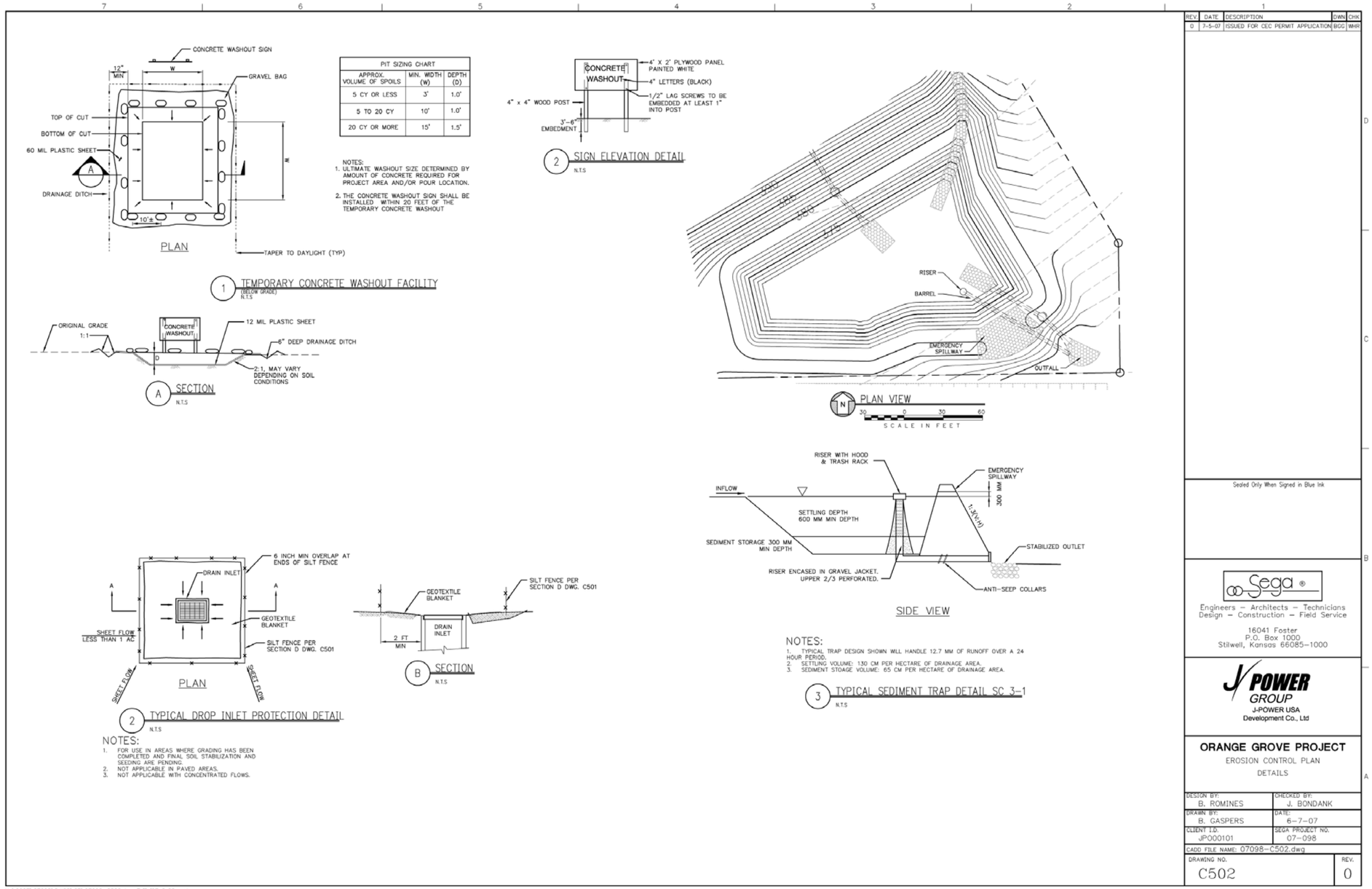
Source: Sega, Inc. – Drawing C500, June 7, 2007

Figure 2-D-2 – Erosion Control Plans Details 1



Source: Sega, Inc. – Drawing C501, June 7, 2007

Figure 2-D-3 – Erosion Control Plans Details 2



Source: Sega, Inc. – Drawing C502, June 7, 2007

San Diego County
85th Percentile Isopluvials
Draft 8/7/2003

Legend

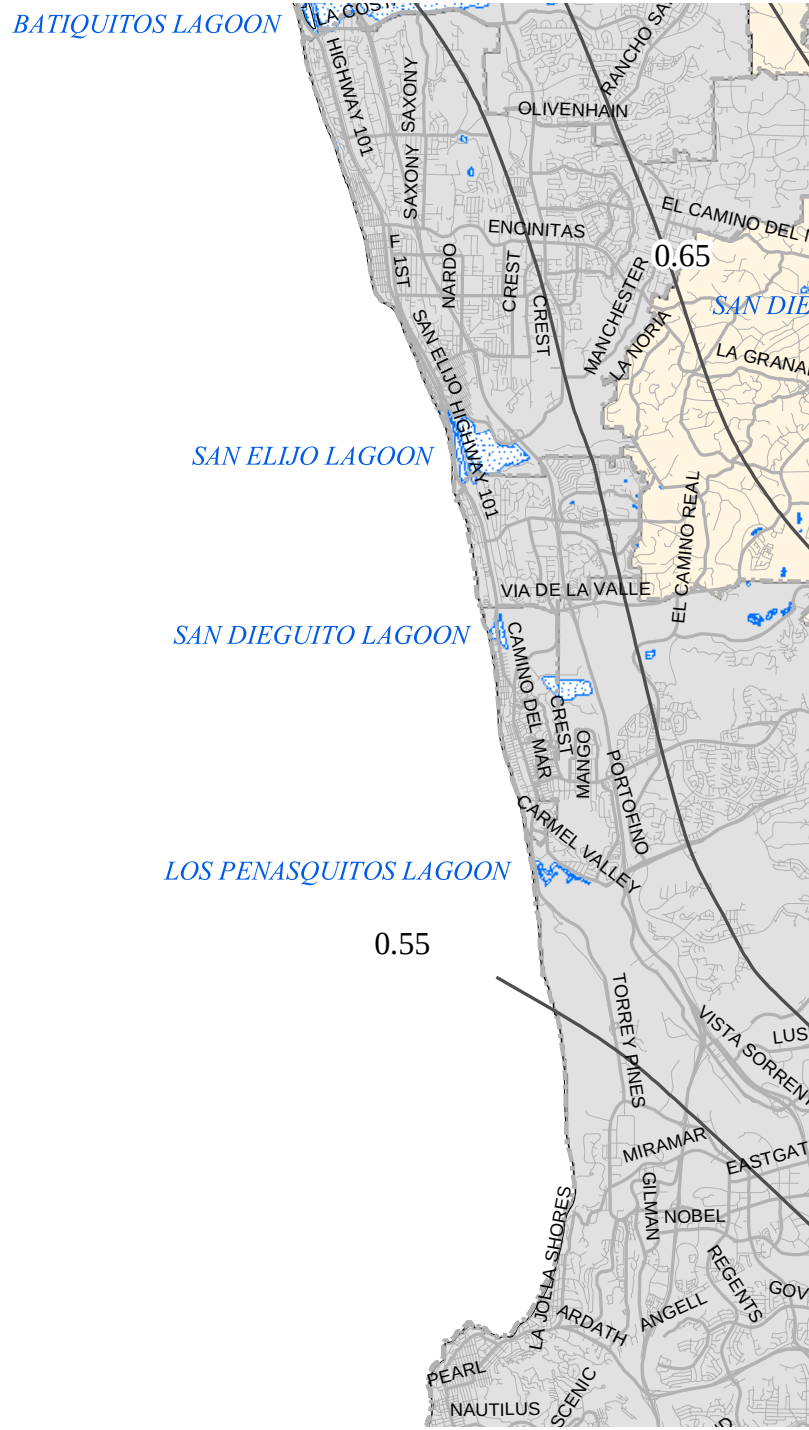
85th Percentile Rainfall in Inches

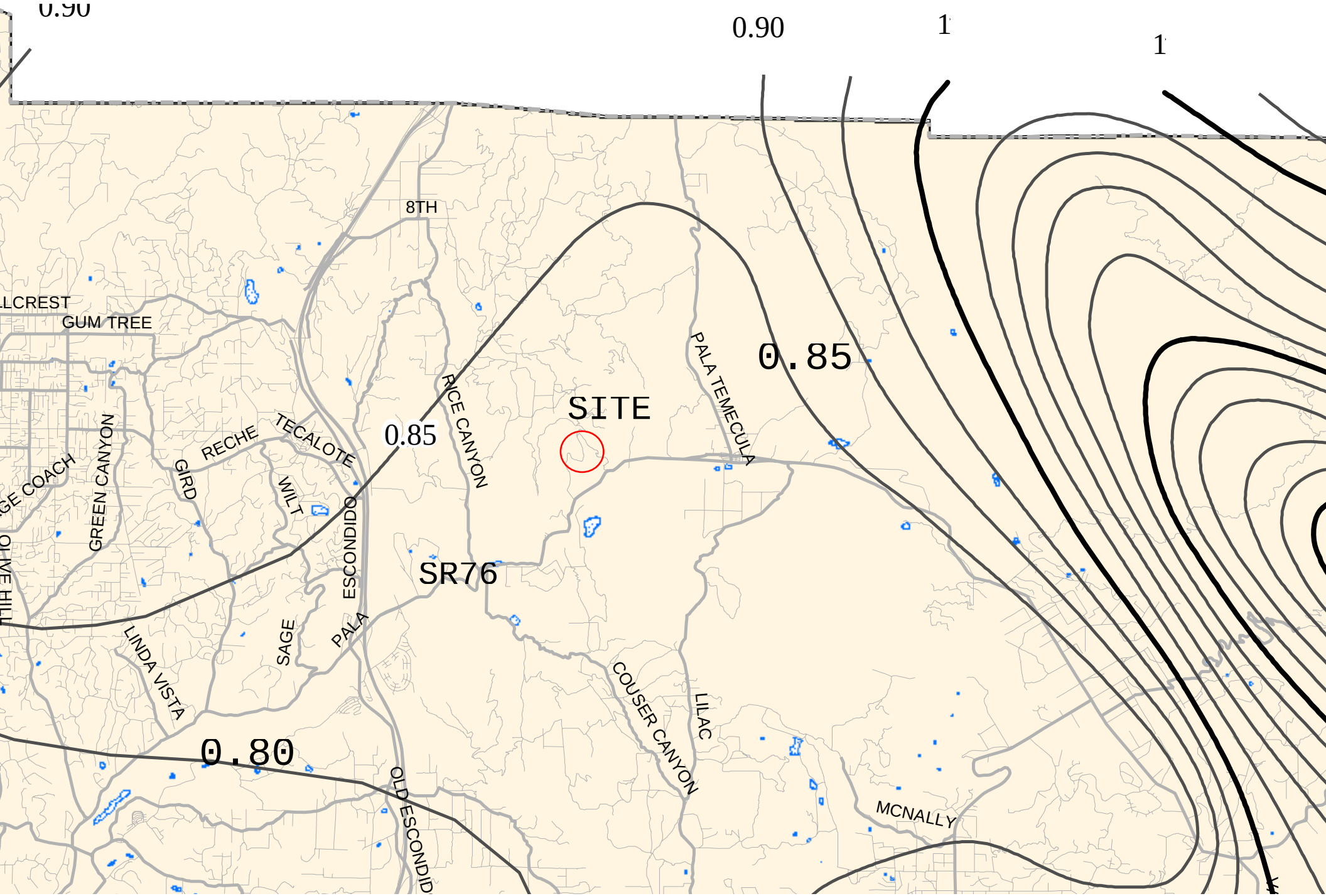
Roads

Municipal Boundaries

Lakes

NOTE:
The 85th percentile is a 24-hour rainfall total. It represents a value such that 85% of the observed 24-hour rainfall totals will be less than that value.




0.90
0.90
1
1
8TH
LLCREST
GUM TREE
0.85
SITE
PALA TEMECULA
RICE CANYON
0.85
TECALOTE
RECHE
GIRD
WILT
GREEN CANYON
GE COACH
ESCONDIDO
SR76
PALA
SAGE
LINDA VISTA
0.80
COUSER CANYON
LILAC
MCNALLY
OLD ESCONDID

F.2 Detention Basins

Detention devices are impoundments where the water quality volume is temporarily detained under quiescent conditions, allowing sediment and particulates to settle out. A conceptual schematic of a detention basin is shown in Figure 5.3.1.

Detention devices remove litter, settleable solids (debris), and total suspended solids (TSS). Pollutants, such as heavy metals, that are attached (adsorbed) to the settled particulate matter will also be removed.

Appropriate Applications and Siting Constraints

Detention devices should be considered for implementation wherever site conditions allow.

One important siting requirement is that sufficient head is available so that water stored in the device does not cause a backwater condition in the storm drain system, which would limit its capacity. A second siting requirement is that seasonally high groundwater is no higher than the bottom elevation of the device for reasons described below.

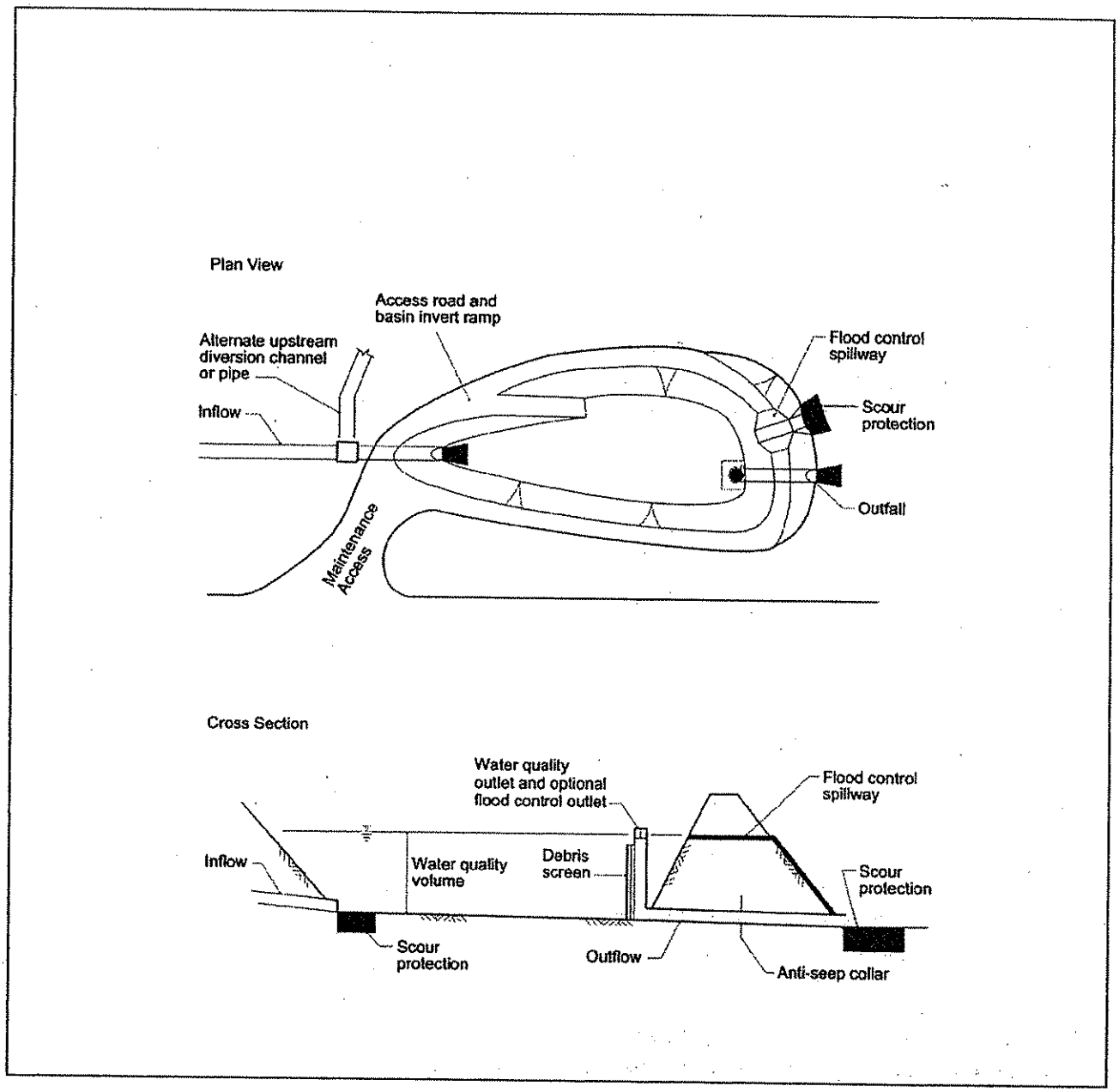


Figure F.2.1
Example of Extended Detention Basin Schematic
(Not a Standard Plan)

FACTORS AFFECTING PRELIMINARY DESIGN:

Detention devices should be designed to hold at least the 24-hour water quality volume. The maximum water level in the detention device should not cause groundwater to occur under the roadway within 0.2 m (8 inches) of the roadway subgrade. A flow-path-to-width ratio of at least 2:1 is recommended. Baffles or interior berms to accommodate the geometry of the site can accomplish this ratio.

Liners are not generally required for detention basins. Infiltration is permissible if the infiltrated water does not surface in an undesirable place off-site or threaten the stability of a slope or embankment down gradient of the basin. To protect groundwater quality and to ensure dry conditions for maintenance of unlined basins, the distance between the basin invert and seasonally high groundwater should be at least 2 m (6 ft). Where the groundwater is higher than this, the basin should be provided with an impermeable liner. In no case should the seasonally high groundwater be higher than the bottom elevation of the detention device to prevent uplift of tanks or liners.

Discharge should be accomplished through a water quality outlet. An example is shown in Figure 3.2.2. A rock pile or rock-filled gabions can serve as alternatives to the debris screen. The water quality outlet should be designed to empty the device within 24 to 72 hours. (The 24-hour limit is chosen to provide adequate settling time; the 72-hour limit is chosen to minimize the potential for mosquito breeding.) Because detention basins are not maintained for infiltration, water loss by infiltration should be disregarded when designing the hydraulic capacity of the outlet structure.

Public health and vector control authorities should be consulted to verify the acceptability of detention basins and the maximum drawdown time allowed to avoid mosquito problems.

The inlet structure of the basin should be designed to divert the peak hydraulic flow (calculated according to County procedures for flood routing and scour) when the basin is full. Alternatively, an overflow structure sized according to these criteria can be provided in one of the downstream walls or berms. A third alternative is to include a flood control outlet in the top of the water quality outlet. In this case, an additional outlet (riser or spillway) should be supplied to prevent overtopping of the walls or berms. Entering flows should be distributed uniformly at low velocity to prevent re-suspension of settled materials and to encourage quiescent conditions.

The site must have sufficient area for a perimeter maintenance road and safe access to and from the site from local roads. Basin side slopes must be shallow enough to permit tracked vehicles to access the basin bottom for maintenance. Alternatively, an access ramp should be provided. Preliminary design factors for detention basins are summarized in Table 3.2.1.

Table F.2 Summary Of Extended Detention Basin Design Factors

Description	Applications/Siting	Preliminary Design Factors
Impoundments where the water quality volume is temporarily detained Treatment Mechanisms: • Sedimentation • Infiltration (if basin unlined) Pollutants removed: • Sediment and particulates • Litter • Sorbed pollutants (heavy metals, O&G)	• Sufficient head to prevent backwater condition in the storm drain system • Seasonally high groundwater below basin invert • Consult public health and vector control authorities	• Size to capture the 24-hr water quality volume • Flow-path-to-width ratio of at least 2:1 recommended • Maximum water level should not cause groundwater to occur under the roadway within 0.2 m of the roadway subgrade • Basin invert ≥ 2 m above seasonally high groundwater or else a impermeable liner is required • Scour protection on inflow, outfall and spillway • Maintenance access (road around basin and ramp to basin invert) • Upstream diversion channel or pipe, downstream overflow structure or flood control outlet • Discharge through a water quality outlet with debris screen (or equivalent) • Outlet design to empty basin within 24 to 72 hrs • Flows should enter at low velocity

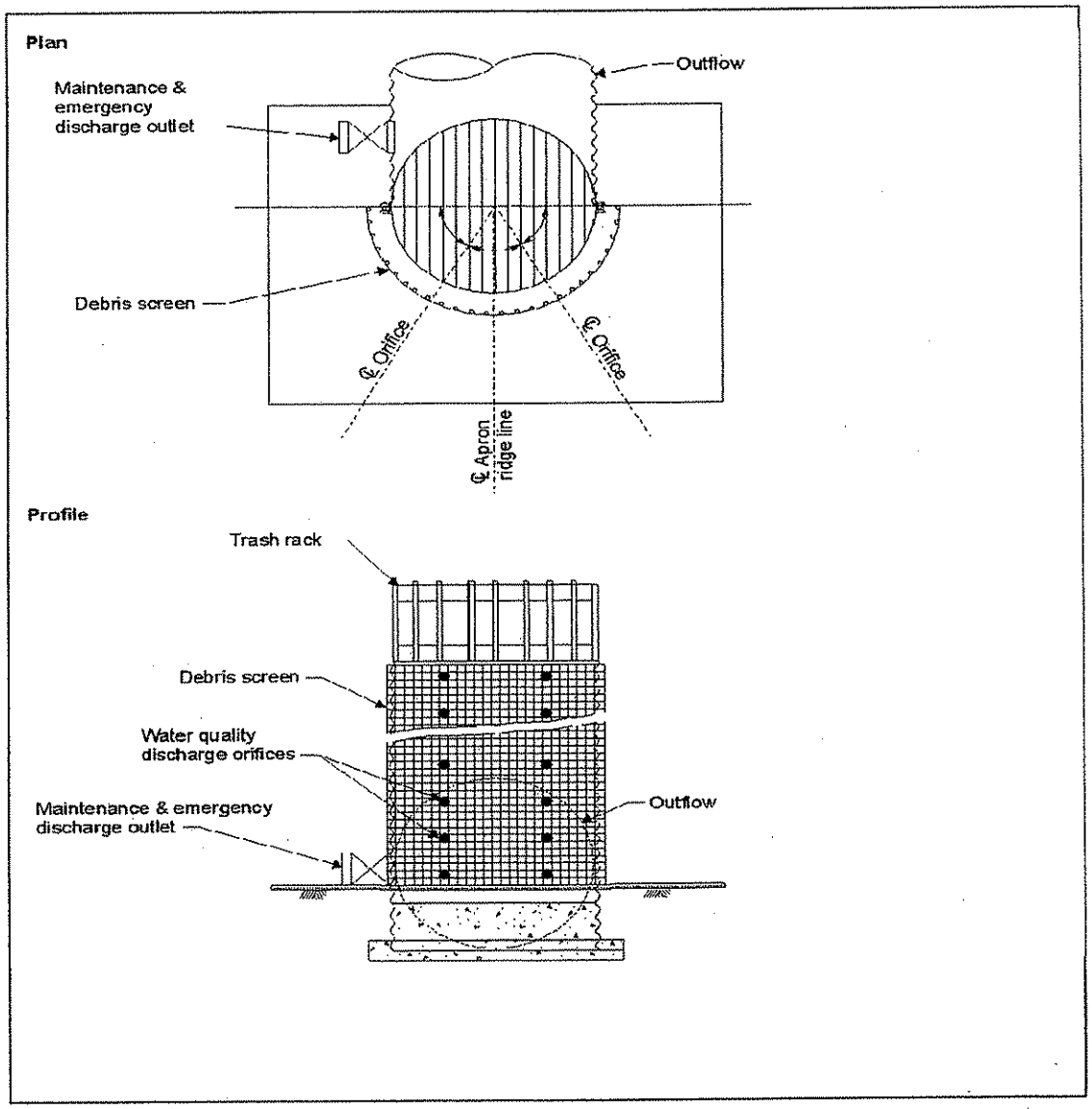


Figure F.2.2
Detention Basin Outlet Structure Schematic
(Not a Standard Plan)

Extended Detention Basin TC-22

Maintenance Concerns, Objectives, and Goals

- Vector/Pest Control
- Sediment and Trash Removal
- Vegetation/Landscape Maintenance
- Re-suspension of settled material
- Clogging of the Outlet

General Description

Dry extended detention ponds (a.k.a. dry ponds, extended detention basins, detention ponds, extended detention ponds) are basins whose outlets have been designed to detain the stormwater runoff from a water quality design storm for some minimum time (e.g., 72 hours) to allow particles and associated pollutants to settle. Unlike wet ponds, these facilities do not have a large permanent pool. They can also be used to provide flood control by including additional flood detention storage.

Inspection/Maintenance Considerations

Inspections should be conducted semi-annually and after significant storm events to identify potential problems early. Most maintenance efforts will need to be directed toward vegetation management and vector control, which may focus on basic housekeeping practices such as removal of debris accumulations and vegetation management to ensure that the basin dewaters completely (recommended 72 hour residence time or less) to prevent creating mosquito and other vector habitats.

Targeted Constituents

☑	Sediment	▲
☑	Nutrients	●
☑	Trash	■
☑	Metals	▲
☑	Bacteria	▲
☑	Oil and Grease	▲
☑	Organics	▲
☑	Oxygen Demanding	▲

Legend ***(Removal Effectiveness)***

● Low ■ High

▲ Medium

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

Inspection Activities	Suggested Frequency
■ Inspect after several storm events for bank stability, vegetation growth, and to determine if the desired residence time has been achieved. ■ Inspect outlet structure for evidence of clogging or outflow release velocities that are greater than design flow.	Post construction
■ Inspect for the following issues: differential settlement, cracking; erosion of pond banks or bottom, leakage, or tree growth on the embankment; the condition of the riprap in the inlet, clogging of outlet and pilot channels; standing water, slope stability, presence of burrows; sediment accumulation in the basin, forebay, and outlet structures; trash and debris, and the vigor and density of the grass turf on the basin side slopes and floor.	Semi-annual, after significant storms, or more frequent
■ Inspect for the following issues: subsidence, damage to the emergency spillway; inadequacy of the inlet/outlet channel erosion control measures; changes in the condition of the pilot channel, accumulated sediment volume, and semi-annual inspection items.	Annual
■ During inspections, changes to the extended storage pond or the contributing watershed should be noted, as these may affect basin performance.	Annual inspection
Maintenance Activities	**Suggested Frequency**
■ If necessary, modify the outlet orifice to achieve design values if inspection indicates modifications are necessary. ■ Repair undercut or eroded areas. ■ Mow side slopes. ■ Manage pesticide and nutrients. ■ Remove litter and debris. ■ Control vectors as necessary.	As needed
■ Remove accumulated trash and debris from the basin, around the riser pipe, side slopes, embankment, emergency spillway, and outflow trash racks. The frequency of this activity may be altered to meet specific site conditions. ■ Trim vegetation at the beginning and end of the wet season to prevent establishment of woody vegetation and for aesthetic and vector reasons.	Semi-annual, or more frequent, as needed
■ Seed or sod to restore dead or damaged ground cover. ■ Repair erosion to banks and bottom as required.	Annual maintenance (as needed)
■ Supplement wetland plants if a significant portion have not been established (at least 50% of the surface area). ■ Remove nuisance plant species.	Annual maintenance (if needed)
■ Remove sediment from the forebay to reduce frequency of main basin cleaning.	3- to 5-year maintenance
■ Monitor sediment accumulation and remove accumulated sediment and regrade about every 10 years or when the accumulated sediment volume exceeds 10-20% of the basin volume, or when accumulation reaches 6 inches or if resuspension is observed. Clean in early spring so vegetation damaged during cleaning has time to re-establish.	Every 10-25 years

Additional Information

In most cases, sediment from extended detention basin does not contain toxins at levels posing a hazardous concern. Studies to date indicate that pond sediments are likely to meet toxicity limits and can be safely landfilled or disposed of onsite. Onsite sediment disposal is always preferable (if local authorities permit it) as long as the sediments are deposited away from the shoreline to prevent their re-entry into the pond.

Sediments should be tested for toxin in compliance with current disposal requirements if land uses in the catchment include commercial or industrial zones, or if visual or olfactory indications of pollution are noticed.

References

Metropolitan Council, Urban Small Sites Best Management Practices Manual. Available at: http://www.metrocouncil.org/environment/Watershed/BMP/manual.htm

U.S. Environmental Protection Agency, Post-Construction Stormwater Management in New Development & Redevelopment BMP Factsheets. Available at: cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp_files.cfm

Ventura Countywide Stormwater Quality Management Program, Technical Guidance Manual for Stormwater Quality Control Measures. July, 2002.

ATTACHMENT F

OPERATION AND MAINTENANCE PROGRAM FOR TREATMENT BMP

*(**NOTE:** INFORMATION REGARDING OPERATION AND MAINTENANCE CAN BE OBTAINED FROM THE FOLLOWING WEB SITE: HTTP://WWW.SDCOUNTY.CA.GOV/DPW/WATERSHEDS/LAND_DEV/SUSMP.HTML.)*

APPENDIX H Estimated O & M Costs for BMP Project

Estimated vlaues derived from Caltrans Pilot BMP Study. This spreadsheet will change as additional data becomes available.

						Labor			Equipment				Materials		Total	Comments
						Per. Hrs	Rate	Cost	Type	Days	rate	Cost	Item	Cost	Cost	
Annual renewal of medium	End of wet season, April 30	None	Annually, in May	Remove characterize, and properly dispose of media.. Replace media before Oct 1	None	2	43.63	87.26	sedan	1	21.28	21.28	new adsorbent and testing & disposal costs	195	303.54	
TOTAL DRAIN INLET INSERTS-STREAM GUARDS						6		261.78				21.28		195	478.06	
EXTENDED DETENTION BASINS																
Preventive Maintenance and Routine Inspections																
DESIGN CRITERIA,																
ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE-SPECIFIC REQUIREMENTS											
Basin side slope planted for erosion protection and planted invert	Average vegetation height greater than 12-inches, emergence of trees or woody vegetation,	Visual observation and random measurements through out the side slope area	Once during wet season, once during dry season.	Cut vegetation to an average height of 6-inches and remove trimmings. Remove any trees, or woody vegetation.		48	43.63	2094.24	one-ton truck	2	26.84	53.68	string trimmer, rake, fork, bags, safety equipment	50	2197.92	
Slope stability	Evidence of erosion	Visual observation	October each year	Reseed/revegetate barren spots prior to wet season.		0	43.63	0	one-ton truck & hydroseeder	0	48.15	0	seed	150	150	
				Contact environmental or landscape architect for appropriate seed mix.												
				Scarify surface if needed.												
				If after two applications (2 seasons) of reseeding/revegetating and growth is unsuccessful both times, an erosion blanket or equivalent protection will be installed over eroding areas. No erosion blanket will be installed in the basin invert.	NOT AN ANNUAL COST	0	43.63	0	one-ton truck	0	26.84	0	blanket	0	0	
Inspect for standing water.	Standing water for more than 72 hours	Visual observation	Annually, 72 hours after a target2 storm (0.75 in) event	☐ Drain facility	None											
				☐ Check and unclog clogged orifice.	Should be Annual Mtce.											
				Notify engineer, if immediate solution.Is not evident.												
Inspection for trash and debris	Debris/trash present	Visual observation	During routine trashing, per Districts schedule.	Remove and dispose of trash and debris	None											
Inspection for sediment management and characterization of sediment for removal	☐ Sediment depth exceeds marker on staff gage	☐ Measure depth at apparent maximum and minimum accumulation of sediment. Calculate average depth	Annually	Remove and properly dispose of sediment. Regrade if necessary.		16	43.63	698.08	4-yd dump truck, backhoe & trailer, one-ton truck & hydroseederse dan	0.4	176.5	70.6	testing and disposal	460	1228.68	once every 5 years

APPENDIX H Estimated O & M Costs for BMP Project

Estimated vlaues derived from Caltrans Pilot BMP Study. This spreadsheet will change as additional data becomes available.

						Labor			Equipment				Materials		Total	Comments
						Per. Hrs	Rate	Cost	Type	Days	rate	Cost	Item	Cost	Cost	
Inspect for burrows	Burrows, holes, mounds	Visual observation	Annually and after vegetation trimming.	☐ Where burrows cause seepage, erosion and leakage, backfill firmly.												
General Maintenance Inspection	Inlet structures, outlet structures, side slopes or other features damaged, significant erosion, emergence of trees or woody vegetation, graffiti or vandalism, fence damage, etc.	Visual observation	Semi-Annually, late wet season and late dry season Monthly	Corrective action prior to wet season. Consult engineers if immediate solution is not evident.	None	16	43.63	698.08	one-ton truck	2	26.84	53.68			751.76	
TOTAL EXTENDED BASIN						80		3490.4				177.86		660	4328.36	
INFILTRATION BASINS																
Preventive Maintenance and Routine Inspections																
DESIGN CRITERIA,																
ROUTINE ACTIONS	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	SITE-SPECIFIC REQUIREMENTS											
Vegetation of basin invert and side slopes	Vegetation height exceeds 12 inches, emergence of trees or woody vegetation,	Visual observation and random measurements through out the side slope and invert area	Once during wet season, once during dry season.	Cut vegetation to an average height of 6-inches. Remove any trees, or woody vegetation.	None	48	43.63	2094.24	two-ton truck	2	50	100	string trimmer, rake, fork, bags, safety equipment	50	2244.24	
Inspect for standing water.	Standing water for more than 72 hours	Visual observation	Annually, 72 hours after a target2 storm (0.75 in) event.	☐ Drain facility, if possible.		16	43.63	698.08	one-ton truck	4	26.84	107.36			805.44	
				☐ Notify engineer to consider:												
				☐ Remove sediment, scarify invert, and regrade if necessary.				0				0			0	covered under sediment removal
				☐ If unable to achieve acceptable infiltration rate or implement alternative solution then move to decommission				0				0			0	
				☐ If standing water can not be removed then notify VCD.	None											
Inspection for trash and debris at inlet structures	Debris/trash present	Visual observation	During routine trashing, per Districts schedule.	Remove and dispose of trash and debris	None											
Inspection for sediment accumulation	Sediment depth exceeds marker on staff gage.	Measure depth at apparent maximum and minimum accumulation of sediment. Calculate average depth	Annually	Remove, characterize and properly dispose of sediment. Regrade and revegetate bare areas.	None	4	43.63	174.52	4-yd dump truck, loader & trailer, grader, sedan, one-ton truck & hydroseeder	0.5	256.94	128.47	seed, testing & disposal	150	452.99	once every 10 years
Slope stability	Evidence of erosion.	Visual observation	October each year.	Reseed/revegetate barren spots by Nov. Scarify surface if needed.		20	43.63	872.6	one-ton truck & hydroseeder	1	48.15	48.15	seed	275	1195.75	

ATTACHMENT G

CERTIFICATION SHEET

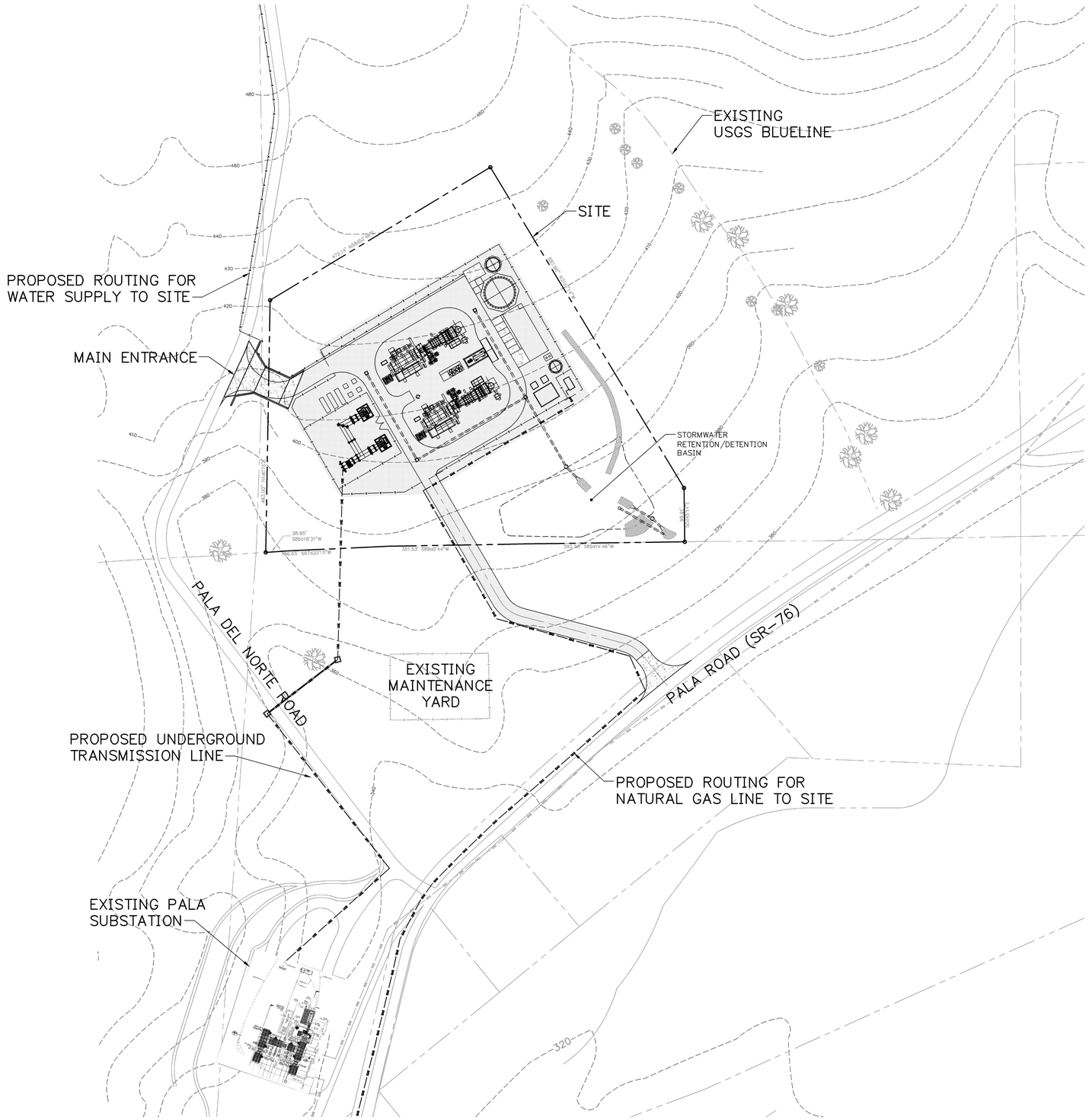
This Stormwater Management Plan has been prepared under the direction of the following Registered Civil Engineer. The Registered Civil Engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

_____ _____

DATE

EXHIBIT 58-1

YARD LAYOUT PLAN



YARD LAYOUT PLAN

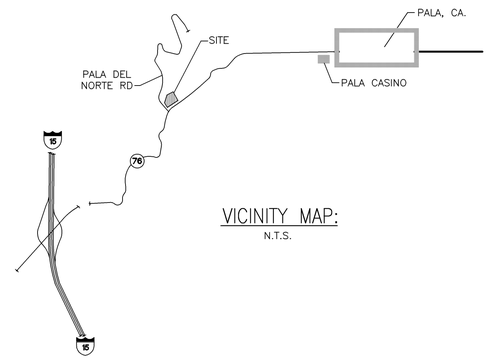
N

100 0 100 200

SCALE IN FEET

GENERAL NOTES:

1. ALL GRADELINES AND ELEVATIONS ARE BASED ON USGS TOPO 20' CONTOURS. ALL OTHER CONTOURS HAVE BEEN DRAWN TO REPRESENT LIKELY EXISTING ELEVATIONS. AS A RESULT, PROPOSED CONTOURS AND ELEVATIONS SHOULD BE VIEWED AS PRELIMINARY.
2. THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.
3. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION IN ORDER TO PROVIDE FOR NON-INTERRUPTION OF SERVICE AND TO ENSURE PROPER CLEARANCES.
4. WHERE THE NEW IMPROVEMENTS ABUT EXISTING IMPROVEMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MATCHING THE ELEVATION OF THE EXISTING IMPROVEMENTS.
5. ALL CONSTRUCTION PERFORMED ON THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF SAN DIEGO COUNTY, CALIFORNIA. WHERE DISCREPANCIES EXIST BETWEEN THE PROJECT SPECIFICATIONS AND CITY STANDARDS, THE CONTRACTOR SHALL ABIDE BY THE GREATER OR MORE RESTRICTIVE REQUIREMENTS.
6. CONTRACTOR SHALL PROVIDE FOR CONTROL OF SURFACE EROSION DURING CONSTRUCTION AND UNTIL THE OWNER ACCEPTS THE WORK AS COMPLETE. THE CONTRACTOR SHALL PROVIDE BERMS, SILT FENCE, STRAW BALES, SILT BASINS, OR OTHER MEANS TO PREVENT EROSION FROM REACHING THE PUBLIC RIGHT-OF-WAY OR ADJACENT PROPERTY. IN THE EVENT THE PREVENTION MEASURES ARE NOT EFFECTIVE, THE CONTRACTOR SHALL REMOVE ANY DEBRIS AND EROSION AND RESTORE THE RIGHT-OF-WAY AND ADJACENT PROPERTY TO ORIGINAL OR BETTER CONDITION.
7. CONTRACTOR SHALL, BY HIS OWN INVESTIGATION AND PRIOR TO COMMENCING WORK, SATISFY HIMSELF AS TO THE SURFACE AND SUBSURFACE CONDITIONS TO BE ENCOUNTERED.



VICINITY MAP:
N.T.S.

LEGEND

- PROPERTY LINE
- 400 EXISTING CONTOUR
- 380 PROPOSED MAJOR CONTOUR
- 383 PROPOSED MINOR CONTOUR
- PROPOSED GAS LINE
- PROPOSED UNDERGROUND ELECTRICAL
- PROPOSED UTILITY BORING
- PROPOSED WATERLINE
- APPROXIMATE CUT/FILL LINE
- EXISTING T&D LINE
- EXISTING FENCE
- EXISTING ROAD
- PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH
- PROPOSED SILT FENCE EROSION CONTROL
- PROPOSED RIP RAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- PROPOSED LANDSCAPING
- EXISTING TREES WITHIN DRAINAGE
- PROPOSED MANHOLE/STRUCTURE

REV.	DATE	DESCRIPTION	DWN	CHK
0	7-5-07	ISSUED FOR CEC PERMIT APPLICATION	BGG	WHR
1	8-28-07	ISSUED FOR MUP APPLICATION	BGG	WHR
2	9-21-07	ISSUED FOR DATA REQUEST RESPONSE	BGG	WHR
3	10-5-07	REVISED PER FPP REMARKS	BGG	WHR

EXHIBIT 58-1

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ORANGE GROVE ENERGY L.P.
Schaumburg, IL

ORANGE GROVE PROJECT

YARD LAYOUT PLAN

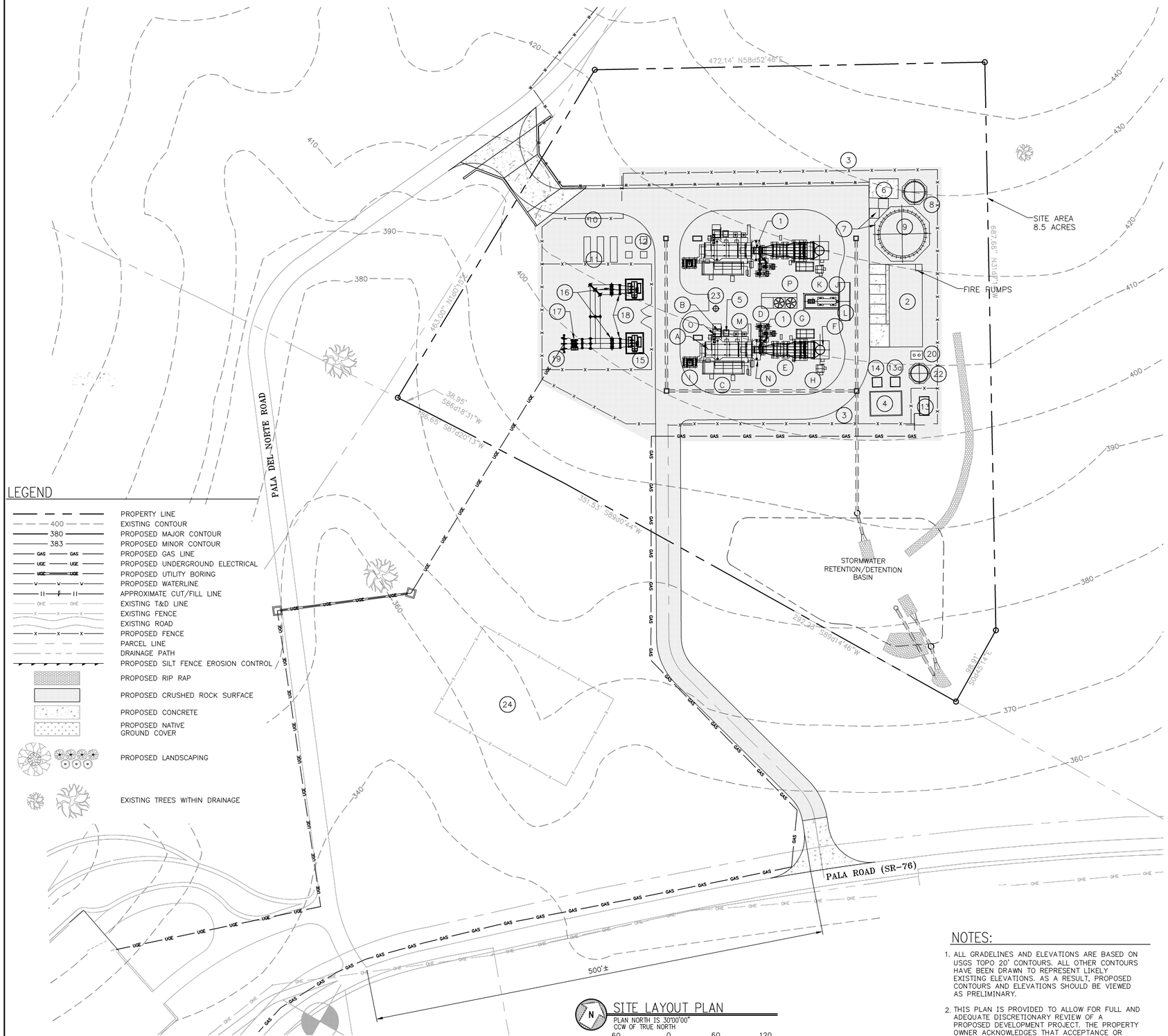
DESIGN BY: B. ROMINES	CHECKED BY: J. BONDANK
DRAWN BY: B. GASPERS	DATE: 4-13-07
CLIENT I.D. JP000101	SEGA PROJECT NO. 07-098

CADD FILE NAME: 07098-Y100.dwg

DRAWING NO. Y100 — REV. 3

EXHIBIT 58-2

SITE LAYOUT PLAN



LEGEND

- PROPERTY LINE
- 400 EXISTING CONTOUR
- 380 PROPOSED MAJOR CONTOUR
- 383 PROPOSED MINOR CONTOUR
- GAS PROPOSED GAS LINE
- UGE PROPOSED UNDERGROUND ELECTRICAL
- UGE PROPOSED UTILITY BORING
- PROPOSED WATERLINE
- APPROXIMATE CUT/FILL LINE
- OHE EXISTING T&D LINE
- EXISTING FENCE
- EXISTING ROAD
- PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH
- PROPOSED SILT FENCE EROSION CONTROL
- PROPOSED RIP RAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- PROPOSED LANDSCAPING
- EXISTING TREES WITHIN DRAINAGE

SITE LAYOUT PLAN

PLAN NORTH IS 30°00'00" CCW OF TRUE NORTH

60 0 60 120

SCALE IN FEET

KEYNOTES:

1. COMBUSTION TURBINE (CT), GENERATOR, AND AUXILIARY EQUIPMENT. (FOR EACH UNIT):
   - A MAIN TURBINE GENERATOR SKID ENCLOSURE
   - B 15KV SWITCHGEAR
   - C AUXILIARY CT EQUIPMENT SKID
   - D TEMPERING AIR FANS
   - E EMISSION CONTROL SYSTEM–SCR
   - F STACK
   - G AMMONIA VAPORIZATION SKID
   - H CEMS ENCLOSURE WITH TRANSFORMER AND CAL GAS STORAGE
   - I CT FIN FAN COOLER
   - J AMMONIA STORAGE TANK (COMMON TO UNITS)
   - K AMMONIA FORWARDING PUMP SKID (COMMON TO UNITS)
   - L AMMONIA UNLOADING PAD, SPILL CONTAINMENT (COMMON TO UNITS)
   - M TURBINE REMOVAL SUPPORTS
   - N AIR INLET FILTER
   - O GENERATOR BUS DUCT
   - P INLET AIR CHILLER AND COOLING TOWERS (COMMON TO UNITS)
2. SERVICE BUILDING FOR CONTROL ROOM, ELECTRICAL EQUIPMENT, AND FIRE PUMPS.
3. SITE SECURITY CHAINLINK FENCE AND GATES.
4. FUEL GAS COMPRESSOR, SOUND WALL AND RELATED EQUIPMENT.
5. FUEL GAS FILTER/SEPARATOR EQUIPMENT.
6. TEMPORARY WATER TREATMENT TRAILER CONCRETE PAD.
7. DEMIN. WATER PUMP SKID AND RELATED EQUIPMENT.
8. DEMIN. WATER STORAGE TANK.
9. RAW WATER FIREWATER STORAGE TANK.
10. AUX. TRANSFORMERS.
11. 480V & 5KV CB SWITCHGEAR.
12. BLACKSTART GENERATOR.
13. GAS METERING STATION.
13a. COALESCING FILTER SKID.
14. FUEL GAS COMPRESSOR INTER–STAGE FIN–FAN COOLER.
15. 13.8KV–69KV STEP–UP TRANSFORMER.
16. 69KV DISCONNECT SWITCH AND SUPPORTS.
17. 69KV CIRCUIT BREAKER.
18. 69KV CIRCUIT SWITCHER.
19. 69KV DEAD–END STRUCTURE AND DISCONNECT SWITCH.
20. UNDERGROUND SANITARY SYSTEM.
21. GRADES SHOWN ARE FINISHED GRADE. 8" DEEP CRUSHED ROCK PAVEMENT INSIDE EXISTING SECURITY FENCE. STABLE DRIVING SURFACE AND POSITIVE DRAINAGE WILL BE MAINTAINED THROUGHOUT CONSTRUCTION. SUBSTATION CRUSHED ROCK PAVEMENT SHALL BE CLASS II MATERIAL.
22. WASTEWATER STORAGE TANK.
23. EMERGENCY CONTAINMENT TANK.
24. EXISTING CITRUS GROVE MAINTENANCE YARD.

NOTES:

1. ALL GRADELINES AND ELEVATIONS ARE BASED ON USGS TOPO 20' CONTOURS. ALL OTHER CONTOURS HAVE BEEN DRAWN TO REPRESENT LIKELY EXISTING ELEVATIONS. AS A RESULT, PROPOSED CONTOURS AND ELEVATIONS SHOULD BE VIEWED AS PRELIMINARY.
2. THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.

REV.	DATE	DESCRIPTION	DWN	CHK
0	7–5–07	ISSUED FOR CEC PERMIT APPLICATION	BGG	WHR
1	8–28–07	ISSUED FOR MUP APPLICATION	BGG	WHR
2	9–21–07	ISSUED FOR DATA REQUEST RESPONSE	BGG	WHR
3	10–5–07	REVISED PER FPP REMARKS	BGG	WHR

EXHIBIT 58-2

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ORANGE GROVE PROJECT

SITE LAYOUT PLAN

DESIGN BY: B. ROMINES	CHECKED BY: J. BONDANK
DRAWN BY: B. GASPERS	DATE: 4–13–07
CLIENT I.D. JP000101	SEGA PROJECT NO. 07–098

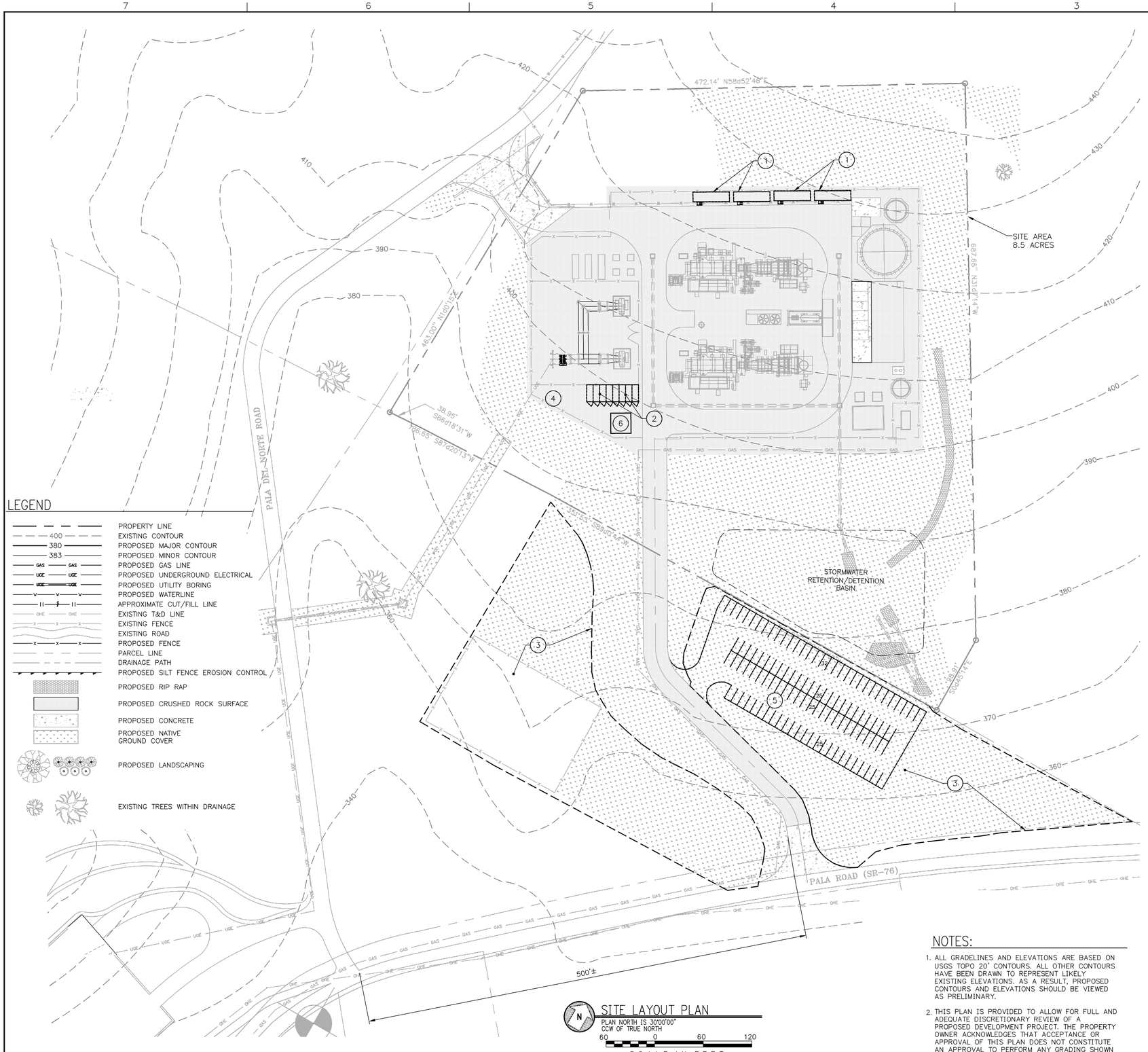
CADD FILE NAME: 07098–C100.dwg

DRAWING NO. C100 — REV. 3

EXHIBIT 58-3

CONSTRUCTION LAYOUT PLAN

REV.	DATE	DESCRIPTION	DWN	CHK
0	9-21-07	ISSUED FOR DATA REQUEST RESPONSE	BGG	WHR
1	10-5-07	REVISED PER FPP REMARKS	BGG	WHR



KEYNOTES:

1. TEMPORARY CONSTRUCTION TRAILERS.
2. TEMPORARY CONNEXES/LOCK BOXES.
3. TEMPORARY CONSTRUCTION STAGING.
4. TEMPORARY CONSTRUCTION PRE-ASSEMBLY.
5. TEMPORARY CONSTRUCTION PARKING.
6. INSTALL CONCRETE WASHOUT FACILITY, SEE DETAIL DWG C502.

LEGEND

- PROPERTY LINE
- 400 EXISTING CONTOUR
- 380 PROPOSED MAJOR CONTOUR
- 383 PROPOSED MINOR CONTOUR
- GAS PROPOSED GAS LINE
- UGE PROPOSED UNDERGROUND ELECTRICAL
- UGE PROPOSED UTILITY BORING
- PROPOSED WATERLINE
- APPROXIMATE CUT/FILL LINE
- OHE EXISTING T&D LINE
- EXISTING FENCE
- EXISTING ROAD
- PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH
- PROPOSED SILT FENCE EROSION CONTROL
- PROPOSED RIP RAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- PROPOSED LANDSCAPING
- EXISTING TREES WITHIN DRAINAGE

SITE LAYOUT PLAN

PLAN NORTH IS 30°00'00" CCW OF TRUE NORTH

60 0 60 120

SCALE IN FEET

NOTES:

1. ALL GRADELINES AND ELEVATIONS ARE BASED ON USGS TOPO 20' CONTOURS. ALL OTHER CONTOURS HAVE BEEN DRAWN TO REPRESENT LIKELY EXISTING ELEVATIONS. AS A RESULT, PROPOSED CONTOURS AND ELEVATIONS SHOULD BE VIEWED AS PRELIMINARY.
2. THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.

EXHIBIT 58-3

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CONSTRUCTION LAYOUT PLAN

DESIGN BY: B. ROMINES	CHECKED BY: J. BONDANK
DRAWN BY: B. GASPERS	DATE: 9-19-07
CLIENT I.D. JPO00101	SEGA PROJECT NO. 07-098

CADD FILE NAME: 07098-C150.dwg

DRAWING NO.	REV.
C150	1

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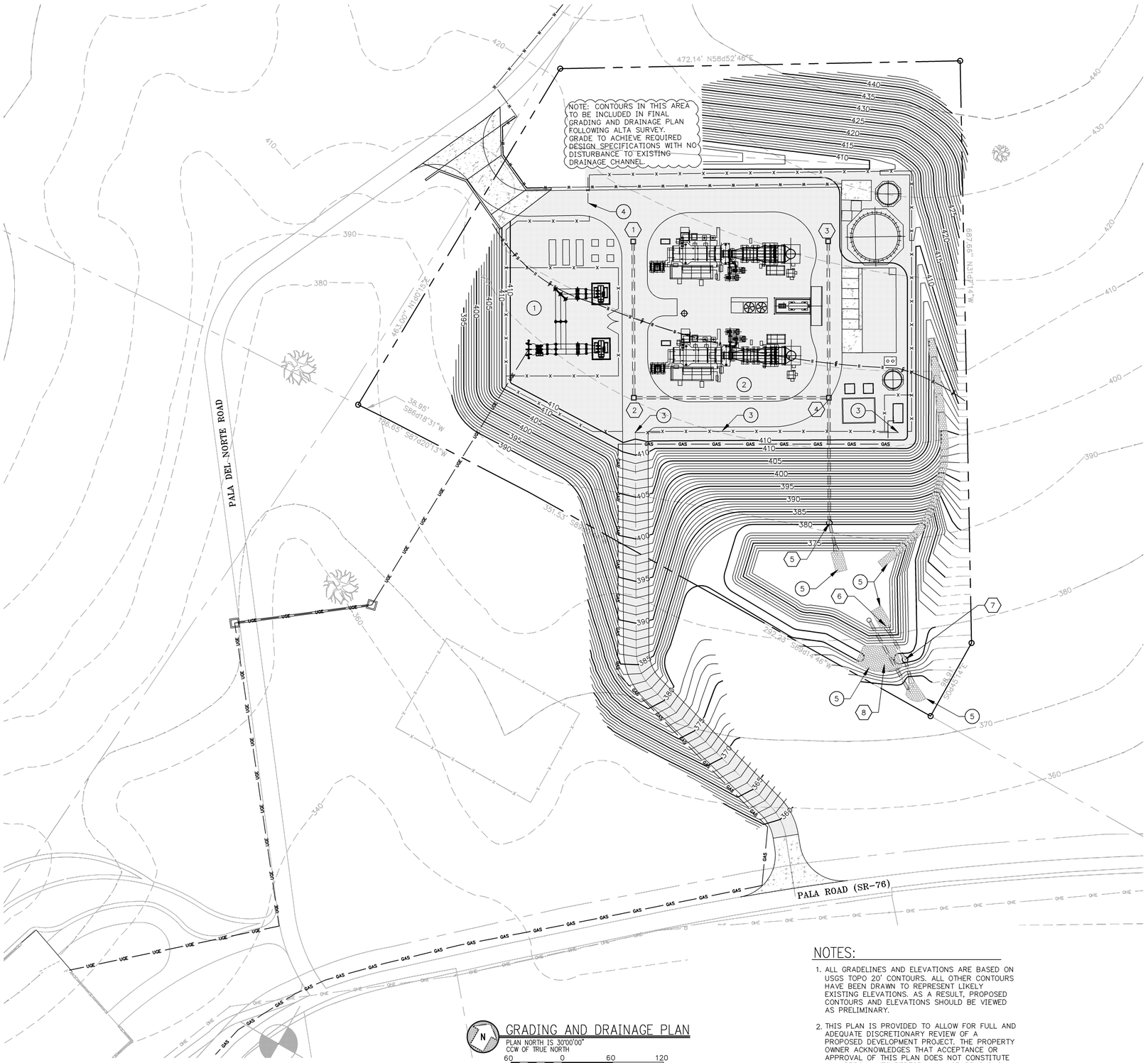
EXHIBIT 58-4

GRADING AND DRAINAGE PLAN



GRADING AND DRAINAGE PLAN

PLAN NORTH IS 30°00'00" CCW OF TRUE NORTH

60 0 60 120

SCALE IN FEET

NOTES:

1. ALL GRADELINES AND ELEVATIONS ARE BASED ON USGS TOPO 20' CONTOURS. ALL OTHER CONTOURS HAVE BEEN DRAWN TO REPRESENT LIKELY EXISTING ELEVATIONS. AS A RESULT, PROPOSED CONTOURS AND ELEVATIONS SHOULD BE VIEWED AS PRELIMINARY.
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CIVIL KEYNOTES:

1. INSTALL SUBSTATION CRUSHED ROCK SURFACE.
2. INSTALL COMBUSTION TURBINE AREA COMPACTED CRUSHED ROCK SURFACE.
3. INSTALL SITE SECURITY CHAINLINK FENCE WITH 30' MANUAL SLIDE GATES, SEE SITE DETAILS.
4. INSTALL 40' SLIDE GATE WITH GATE OPERATOR AND LOOP DETECTOR.
5. INSTALL MIN. 15" DEEP RIPRAP.

STORM DRAINAGE NOTES:

1. INSTALL STANDARD 4x4 AREA INLET AND CLASS III RCP TO 2
2. INSTALL STANDARD 4x4 AREA INLET AND CLASS III RCP TO 4
3. INSTALL STANDARD 4x4 AREA INLET AND CLASS III RCP TO 4
4. INSTALL STANDARD 4x4 AREA INLET AND CLASS III RCP TO 5
5. INSTALL STANDARD 4' DIA. MANHOLE AND CLASS III RCP TO RETENTION/DETENTION BASIN
6. INSTALL CLASS III RCP END SECTION AND PIPE TO DETENTION BASIN OUTLET CONTROL STRUCTURE. INSTALL STANDARD 4'DIA. MANHOLE AND CLASS III RCP
7. INSTALL DETENTION BASIN OUTLET CONTROL STRUCTURE
8. INSTALL EMERGENCY SPILLWAY

GRADING NOTES:

1. ALL CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF SAN DIEGO COUNTY, CALIFORNIA, LATEST EDITION.
2. ALL STORM SEWER LINES SHALL BE CLASS III RCP.
3. PIPE LENGTHS EXCLUDE END SECTIONS AND ARE MEASURED ALONG CENTERLINE OF PIPE FROM CENTER OF INSIDE FACE TO CENTER OF INSIDE FACE OF STRUCTURES.
4. MATCH GRADES AT EXISTING IMPROVEMENTS.
5. SLOPES SHALL BE MADE AT 3:1 MAXIMUM GRADE.
6. EROSION CONTROL STRUCTURES (SEE EROSION CONTROL PLAN) SHALL BE CONSTRUCTED PRIOR TO GRADING ACTIVITIES.
7. DRAINAGE CHANNELS SHALL BE MINIMUM 3' FLAT BOTTOM. ALL DRAINAGE CHANNELS SHALL HAVE 3:1 SIDE SLOPES.
8. NORTHING AND EASTING COORDINATES FOR MANHOLES, AREA INLETS, FIELD INLETS, AND JUNCTION BOXES ARE MEASURED TO CENTER OF STRUCTURE.
9. NORTHING AND EASTING COORDINATES FOR END SECTIONS ARE MEASURED TO FARTHEST EDGE OF THE END SECTION AT PIPE CENTERLINE.
10. ODD NUMBERED CONTOURS ARE SHOWN FOR CLARITY IN CERTAIN LOCATIONS; ARE NOT COMPLETE IN ALL LOCATIONS.

LEGEND

- PROPERTY LINE
- 400 — EXISTING CONTOUR
- 380 — PROPOSED MAJOR CONTOUR
- 383 — PROPOSED MINOR CONTOUR
- GAS — PROPOSED GAS LINE
- UGE — PROPOSED UNDERGROUND ELECTRICAL
- UGE — PROPOSED UTILITY BORING
- PROPOSED WATERLINE
- APPROXIMATE CUT/FILL LINE
- OHE — EXISTING T&D LINE
- EXISTING FENCE
- EXISTING ROAD
- PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH
- PROPOSED SILT FENCE EROSION CONTROL
- PROPOSED RIP RAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- PROPOSED LANDSCAPING
- EXISTING TREES WITHIN DRAINAGE

REV.	DATE	DESCRIPTION	DWN	CHK
0	7-5-07	GRADING REVISED	BGG	WHR
1	7-13-07	ISSUED FOR CEC PERMIT APPLICATION	BGG	WHR
2	9-21-07	ISSUED FOR DATA REQUEST RESPONSE	BGG	WHR
3	10-5-07	REVISED PER FPP REMARKS	BGG	WHR

EXHIBIT 58-4

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Schaumburg, IL

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GRADING AND DRAINAGE PLAN

DESIGN BY: B. ROMINES	CHECKED BY: B. ROMINES
DRAWN BY: B. GASPERS	DATE: 6-7-07
CLIENT I.D. JP000101	SEGA PROJECT NO. 07-098
CADD FILE NAME: 07098-C300.dwg	
DRAWING NO. C300	REV. 3

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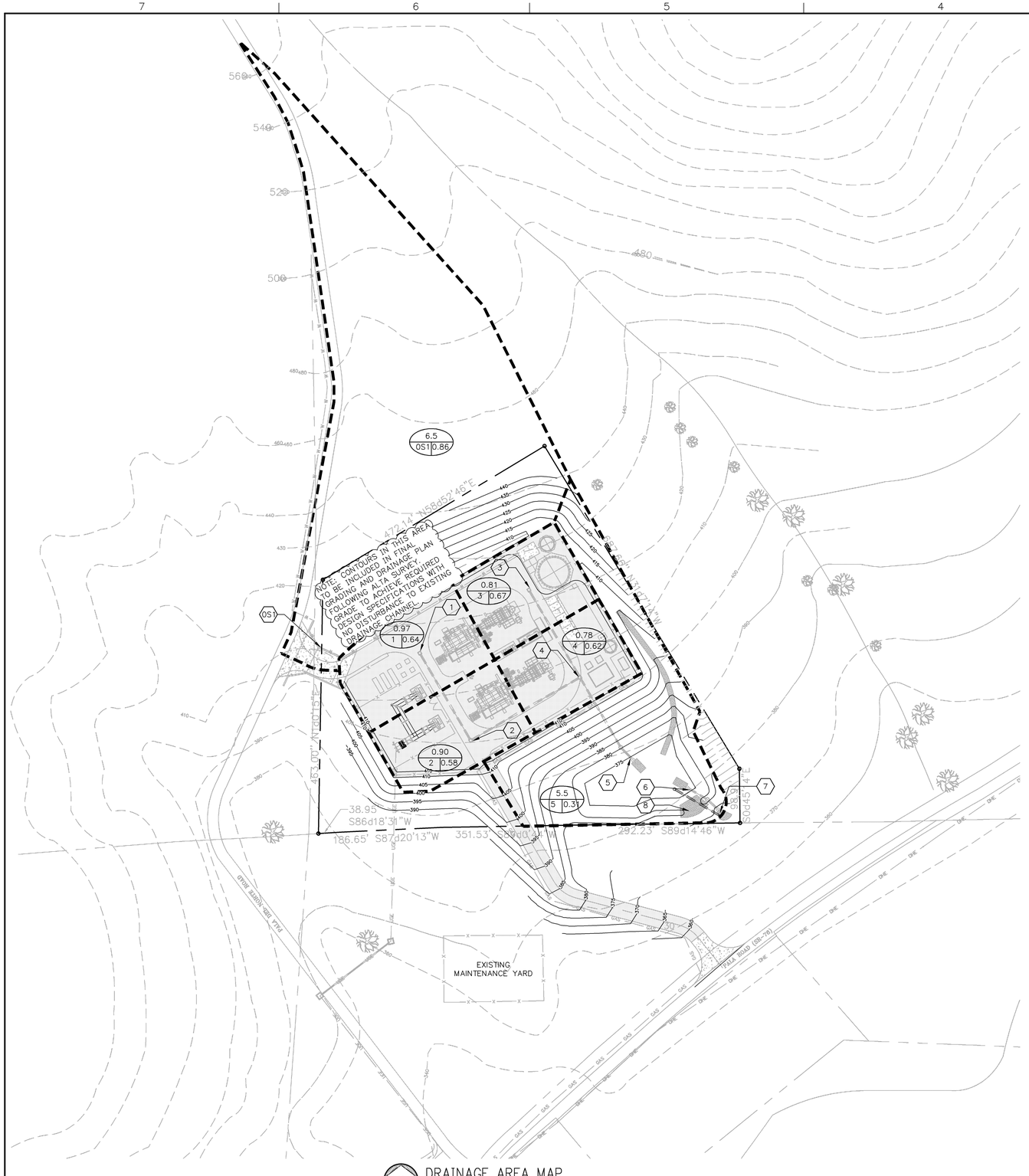
EXHIBIT 58-5

DRAINAGE AREA MAP



DRAINAGE AREA NOTES:

(OS) DRAINAGE WILL BE ROUTED AROUND SITE BY NORTH DITCH DRAINAGE CHANNEL.

OFF-SITE DRAINAGE-NORTH CHANNEL

50 YEAR DESIGN STORM					
DEVELOPMENT STAGE	STORM DRAINAGE AREA (ACRES)	PEAK RUNOFF RATE Q (CFS)	RUNOFF COEF. C.	AVERAGE CHANNEL VELOCITY V (FT/S)	AVERAGE DEPTH ELEVATION (FT.)
PRE-DEV.	6.5	22.97	61	N/A	N/A
100 YEAR DESIGN STORM					
PRE-DEV.	6.5	34.28	61	N/A	N/A

(1) INLET FOR DRAINAGE AREA.

(2) INLET FOR DRAINAGE AREA.

(3) INLET FOR DRAINAGE AREA.

(4) INLET FOR DRAINAGE AREA.

(5) RETENTION INLET STRUCTURE, ALL DRAINAGE FROM DRAINAGE AREA 1, 2, 3, 4, AND 5 WILL BE ROUTED HERE.

(6) INLET/OUTLET STRUCTURE FOR DETENTION DISCHARGE.

(7) DETENTION BASIN OUTLET CONTROL STRUCTURE.

(8) DETENTION/RETENTION AREA EMERGENCY SPILLWAY.

ON-SITE STORMWATER RETENTION/DETENTION BASIN

50 YEAR DESIGN STORM						
DEVELOPMENT STAGE	STORM DRAINAGE AREA (ACRES)	PEAK RUNOFF RATE Q (CFS)	RUNOFF COEF. C.	RETENTION OR DETENTION VOLUME V(FT^3)	DESIGNED WATER SURFACE VOLUME (FT^3)	WATER SURFACE ELEVATION (FT.)
PRE-DEV.	5.5	16.87	58	41382	N/A	N/A
POST-DEV.	5.5	36.31	81	87120	94090	376(±)
100 YEAR DESIGN STORM						
PRE-DEV.	5.5	25.87	58	62291	N/A	N/A
POST-DEV.	5.5	47.49	81	114563	117176	377(±)

GENERAL NOTES:

1. ALL GRADELINES AND ELEVATIONS ARE BASED ON USGS TOPO 20' CONTOURS. ALL OTHER CONTOURS HAVE BEEN DRAWN TO REPRESENT LIKELY EXISTING ELEVATIONS. AS A RESULT, PROPOSED CONTOURS AND ELEVATIONS SHOULD BE VIEWED AS PRELIMINARY.
2. THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.

KEY:

(EX)	–	EXISTING STRUCTURES
CI	–	CURB INLET
SI	–	CURB INLET IN SUMP
DI	–	SINGLE DROP INLET
DI-2	–	DOUBLE DROP INLET
ES	–	PREFABRICATED END SECTION
JB	–	JUNCTION BOX
YI	–	YARD INLET
AI	–	AREA INLET
MH	–	MANHOLE
R	–	REDUCER
FI	–	FIELD INLET
BEND	–	PREFABRICATED VERTICAL BEND
T.D.	–	TRENCH DRAIN
G.I.	–	GRATE INLET
O.C.	–	DETENTION OUTLET CONTROL STRUCTURE
RCP	–	REINFORCED CONCRETE PIPE

DESIGN NOTES:

(a) TIME OF CONCENTRATION
15 MINUTES MAX.
5 MINUTES MIN.

(b) PIPE LENGTHS EXCLUDE END SECTIONS AND ARE MEASURED ALONG CENTERLINE OF PIPE FROM CENTER OF INSIDE FACE TO CENTER OF INSIDE FACE OF STRUCTURES.

(c) MANNING'S ROUGHNESS COEFFICIENT = 0.013 (CONCRETE)

LEGEND

PROPERTY LINE
400 EXISTING CONTOUR
380 PROPOSED MAJOR CONTOUR
383 PROPOSED MINOR CONTOUR
GAS PROPOSED GAS LINE
UGE PROPOSED UNDERGROUND ELECTRICAL
UGE PROPOSED UTILITY BORING
W PROPOSED WATERLINE
APPROXIMATE CUT/FILL LINE
OHE EXISTING T&D LINE
X EXISTING FENCE
EXISTING ROAD
X PROPOSED FENCE
PARCEL LINE
DRAINAGE PATH
PROPOSED SILT FENCE EROSION CONTROL
PROPOSED RIP RAP
PROPOSED CRUSHED ROCK SURFACE
PROPOSED CONCRETE
PROPOSED NATIVE GROUND COVER
PROPOSED LANDSCAPING
EXISTING TREES WITHIN DRAINAGE
A = AREA IN ACRES
B = BASIN DESIGNATION
C = COMPOSITE RUNOFF COEFFICIENT
D = BASIN DESIGNATION
DRAINAGE AREA LIMITS

REV.	DATE	DESCRIPTION	DWN	CHK
0	7-5-07	GRADING REVISED	BGG	WHR
1	7-13-07	ISSUED FOR CEC PERMIT APPLICATION	BGG	WHR
2	9-21-07	ISSUED FOR DATA REQUEST RESPONSE	BGG	WHR
3	10-5-07	REVISED PER FPP REMARKS	BGG	WHR

EXHIBIT 58-5

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ORANGE GROVE PROJECT

DRAINAGE AREA MAP

DESIGN BY: B. ROMINES	CHECKED BY: J. BONDANK
DRAWN BY: B. GASPERS	DATE: 6-22-07
CLIENT I.D. JP000101	SEGA PROJECT NO. 07-098
CADD FILE NAME: 07098-C400.dwg	
DRAWING NO. C400	REV. 3

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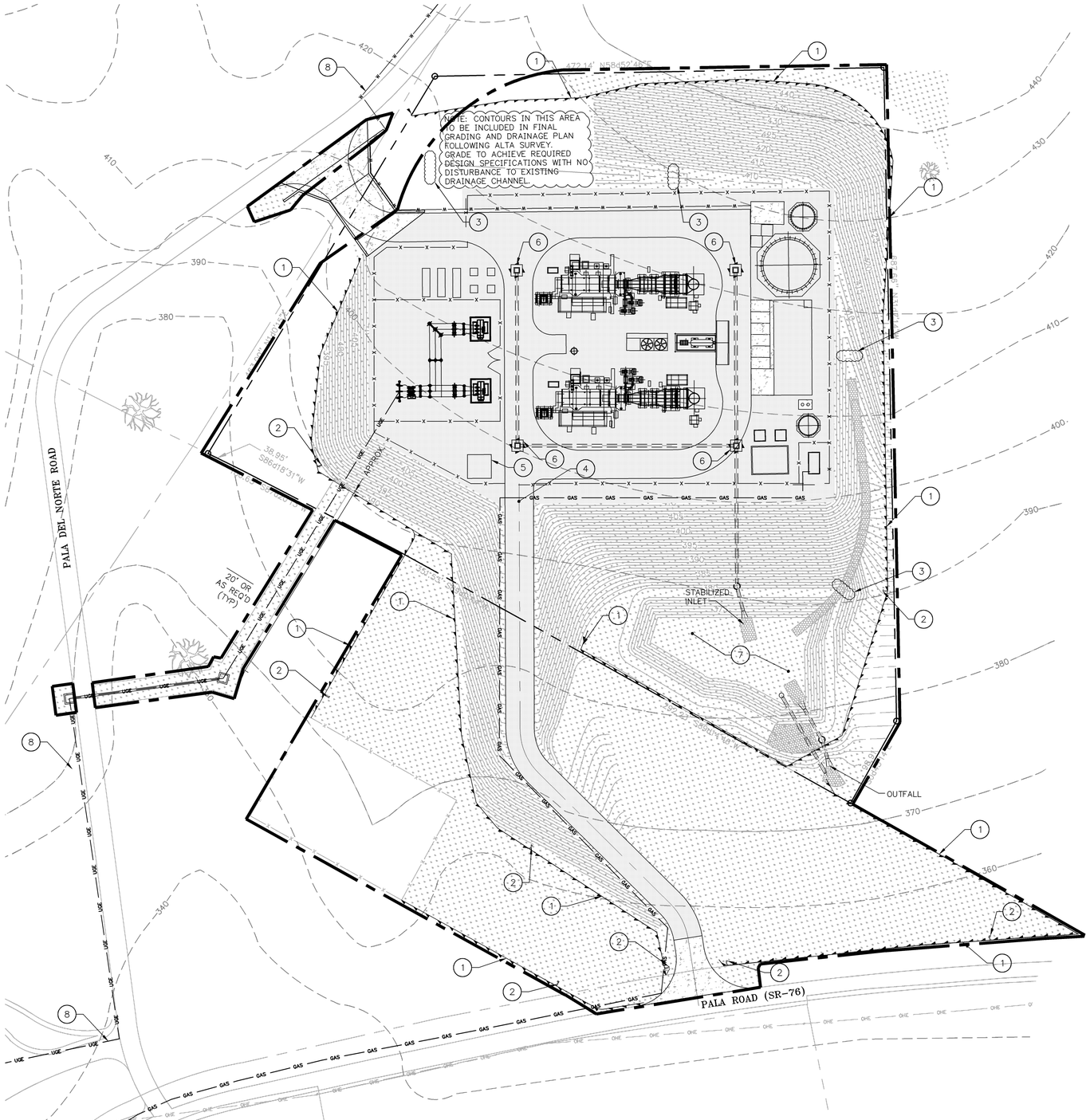
EXHIBIT 58-6

EROSION CONTROL PLAN



EROSION CONTROL PLAN

PLAN NORTH IS 30°00'00" CCW OF TRUE NORTH

60 0 60 120

SCALE IN FEET

EROSION CONTROL KEYNOTES:

1. INSTALL TEMPORARY LINEAR SEDIMENT BARRIER (TYPE SILT FENCE), SEE DETAIL DWG C501.
2. INSTALL CROSS BARRIER (SAND BAGS), SEE DETAIL DWG. C501
3. INSTALL TEMPORARY GRAVEL BAG BARRIER, SEE DETAIL DWG C501.
4. INSTALL TIRE WASH, SEE DETAIL DWG C501.
5. INSTALL CONCRETE WASHOUT FACILITY, SEE DETAIL DWG C502.
6. INSTALL DROP INLET PROTECTION, SEE DETAIL DWG C502.
7. INSTALL SEDIMENT TRAP RISER–STORMWATER RETENTION/DETENTION BASIN SHALL BE SEDIMENT SETTLING BASIN DURING CONSTRUCTION, SEE DETAIL DWG C502.
8. THE LINEAR UTILITY LINE CONSTRUCTION ALONG ROADS WILL OCCUR ENTIRELY WITHIN LIMITS OF THE ROAD AND/OR SHOULDERS AND THERE WILL BE NO NEW SURFACE DISTURBANCE.
9. AREAS SOUTH OF PARCEL LINE AND WITHIN "PROPOSED DISTURBED AREA" LINE ARE AREAS FOR "TEMPORARY CONSTRUCTION PARKING AND LAYDOWN". THESE AREAS MAY INCLUDE MINOR SURFACE GRADING AND TEMPORARY INSTALLATION OF CRUSHED ROCK DURING CONSTRUCTION. AT THE END OF CONSTRUCTION THESE AREAS WILL BE RETURNED TO NATIVE GROUND COVER.

EROSION CONTROL NOTES:

1. SILT FENCE SHALL BE CLEANED AND REPAIRED WHEN SILT BUILD–UP REACHES 1/3 SILT FENCE HEIGHT.
2. CLEARING AND GRUBBING WORK SHALL COMPLY WITH THE SAN DIEGO COUNTY, CALIFORNIA STANDARDS AND SPECIFICATIONS LATEST EDITION.
3. NO VEGETATION OR CONSTRUCTION DEBRIS SHALL BE BURIED ON SITE AND NO BURNING PITS SHALL BE PLACED IN THE FUTURE RIGHT OF WAY OR LIKELY BUILDING LOCATIONS, OR SANITARY SEWER EASEMENTS. CONTRACTOR SHALL COORDINATE BURNING PIT AND BURIAL LOCATIONS WITH SAN DIEGO COUNTY, CALIFORNIA.
4. ALL DISTURBED AREAS THAT REMAIN ACTIVE FOR MORE THAN 21 DAYS SHALL BE STABILIZED BY SEEDING, SODDING, MULCHING, COVERING OR BY OTHER EQUIVALENT EROSION CONTROL MEASURES AS SOON AS PRACTICAL, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
5. PRIOR TO ANY GRADING, STRIPPING, EXCAVATING, FILLING OR ANY OTHER DISTURBANCE OF THE NATURAL GROUND COVER, THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES. THE CONTRACTOR SHALL MAINTAIN THESE DEVICES THROUGHOUT THE DURATION OF THE PROJECT AND UNTIL PERMANENT VEGETATION IS PROPERLY ESTABLISHED.
6. STOCKPILES SHALL BE LOCATED AWAY FROM SLOPES AND TRAFFIC ROUTES AND BE TEMPORARILY SEEDED AS SOON AS POSSIBLE, NO MORE THAN 30 WORKING DAYS OR 120 CALENDAR DAYS AFTER FORMATION OF THE STOCKPILE. SILT FENCE SHALL BE PLACED APPROPRIATELY AROUND THE STOCKPILE TO CONTROL EROSION.
7. THE SITE SHALL HAVE GRADED ROADS AND ACCESS DRIVES TO PARKING AREAS OF SUFFICIENT WIDTH AND LENGTH TO PREVENT SEDIMENT FROM BEING TRACKED ON TO PUBLIC ROADWAYS. ANY SEDIMENT REACHING A PUBLIC OR PRIVATE ROAD SHALL BE REMOVED. BULK CLEARING OF ACCUMULATED SEDIMENT SHALL BE RETURNED TO THE POINT OF LIKELY ORIGIN OR OTHER SUITABLE LOCATION BEFORE THE END OF EACH WORK DAY. CONSTRUCTION ENTRANCES SHALL BE ROCKED PRIOR TO ANY OTHER SITE WORK.
8. EROSION AND SEDIMENTATION CONTROLS AND SEEDING SHALL MEET THE STANDARDS AND SPECIFICATIONS OF SAN DIEGO COUNTY, CALIFORNIA.

NOTES:

1. ALL GRADELINES AND ELEVATIONS ARE BASED ON USGS TOPO 20' CONTOURS. ALL OTHER CONTOURS HAVE BEEN DRAWN TO REPRESENT LIKELY EXISTING ELEVATIONS. AS A RESULT, PROPOSED CONTOURS AND ELEVATIONS SHOULD BE VIEWED AS PRELIMINARY.
2. THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.

SUMMARY OF DISTURBED AREAS (ACRES):

1.	IMPERVIOUS AREA (INCLUDES CONCRETE ENTRANCE SECTIONS)	– 1.00
2.	CRUSHED ROCK SURFACE AREA (INCLUDES VEHICULAR AREA) VEHICULAR AREA (1.35)	– 3.49
3.	AREAS TO BE GRADED AND RETURNED TO NATIVE COVER.	– 5.45
4.	TEMPORARY CONSTRUCTION PARKING AREA AND LAYDOWN	– 3.44
5.	TOTAL DISTURBED AREA	– 13.38

STORM WATER QUALITY NOTES:

CONSTRUCTION BMP'S: THIS PROJECT SHALL COMPLY WITH ALL REQUIREMENTS OF THE STATE PERMIT; CALIFORNIA REGIONAL WATER DUALITY CONTROL BOARD, SAN DIEGO ORDER NO. 2001–01, NPDES NO. CAS0108758. NOTES 1–6 BELOW REPRESENT KEY MINIMUM REQUIREMENTS FOR CONSTRUCTION BMP'S.

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANUP OF ALL SILT AND MUD ON ADJACENT STREET(S), DUE TO CONSTRUCTION VEHICLES OR ANY OTHER CONSTRUCTION ACTIVITY AT THE END OF EACH WORK DAY OR AFTER A STORM EVENT THAT CAUSES A BREECH IN INSTALLED CONSTRUCTION BMP'S WHICH MAY COMPROMISE STORM WATER QUALITY WITHIN ANY STREET(S). A STABILIZED CONSTRUCTION EXIT MAY BE REQUIRED TO PREVENT CONSTRUCTION VEHICLES OR EQUIPMENT FROM TRACKING MUD OR SILT ONTO THE STREET.
2. ALL STOCKPILES OF SOIL AND/OR BUILDING MATERIALS THAT ARE INTENDED TO BE LEFT FOR A PERIOD GREATER THAN SEVEN CALENDAR DAYS ARE TO BE COVERED. ALL REMOVABLE BMP DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE FIVE–DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.
3. A CONCRETE WASHOUT SHALL BE PROVIDED ON ALL PROJECTS THAT PROPOSE THE CONSTRUCTION OF ANY CONCRETE IMPROVEMENTS THAT ARE TO BE POURED IN PLACE ON SITE.
4. THE CONTRACTOR SHALL RESTORE ALL EROSION/SEDIMENT CONTROL DEVICES TO WORKING ORDER AFTER EACH RUN–OFF PRODUCING RAINFALL OR AFTER ANY MATERIAL BREACH IN EFFECTIVENESS.
5. ALL SLOPES THAT ARE CREATED OR DISTURBED BY CONSTRUCTION ACTIVITY MUST BE PROTECTED AGAINST EROSION AND SEDIMENT TRANSPORT AT ALL TIMES.

THE STORAGE OF ALL CONSTRUCTION MATERIALS AND EQUIPMENT MUST BE PROTECTED AGAINST ANY POTENTIAL RELEASE OF POLLUTANTS INTO THE ENVIRONMENT.

LEGEND

	PROPERTY LINE
400	EXISTING CONTOUR
380	PROPOSED MAJOR CONTOUR
383	PROPOSED MINOR CONTOUR
GAS	PROPOSED GAS LINE
UGE	PROPOSED UNDERGROUND ELECTRICAL
UGE	PROPOSED UTILITY BORING
W	PROPOSED WATERLINE
	APPROXIMATE CUT/FILL LINE
OHE	EXISTING T&D LINE
X	EXISTING FENCE
	EXISTING ROAD
X	PROPOSED FENCE
	PARCEL LINE
	DRAINAGE PATH
	PROPOSED SILT FENCE EROSION CONTROL
	PROPOSED RIP RAP
	PROPOSED CRUSHED ROCK SURFACE
	PROPOSED CONCRETE
	PROPOSED NATIVE GROUND COVER
	PROPOSED LANDSCAPING
	EXISTING TREES WITHIN DRAINAGE
	TEMPORARY GRAVEL BAG BARRIER
	CROSS BARRIER
	PROPOSED DISTURBED AREA

REV.	DATE	DESCRIPTION	DWN	CHK
0	7–5–07	GRADING REVISED	BGG	WHR
1	7–13–07	ISSUED FOR CEC PERMIT APPLICATION	BGG	WHR
2	9–21–07	ISSUED FOR DATA REQUEST RESPONSE	BGG	WHR
3	10–5–07	REVISED PER FPP REMARKS	BGG	WHR
4	10–8–07	REVISED PER FPP REMARKS	BGG	WHR

EXHIBIT 58-6

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Stilwell, Kansas 66085–1000

ORANGE GROVE ENERGY L.P.
Schaumburg, IL

ORANGE GROVE PROJECT

EROSION CONTROL PLAN

DESIGN BY: B. ROMINES	CHECKED BY: J. BONDANK
DRAWN BY: B. GASPERS	DATE: 6–7–07
CLIENT I.D. JP000101	SEGA PROJECT NO. 07–098

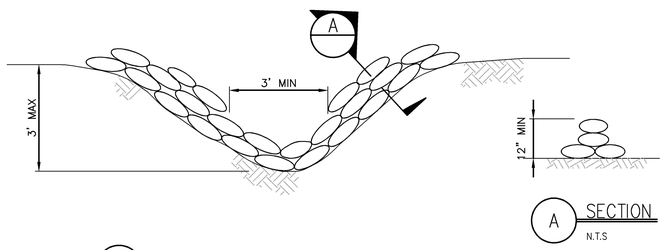
CADD FILE NAME: 07098–C500.dwg

DRAWING NO. C500 — REV. 4

N:\2007\07098\dwgs\ce\07098–C500.dwg 10/8/07 11:08am bgaspers

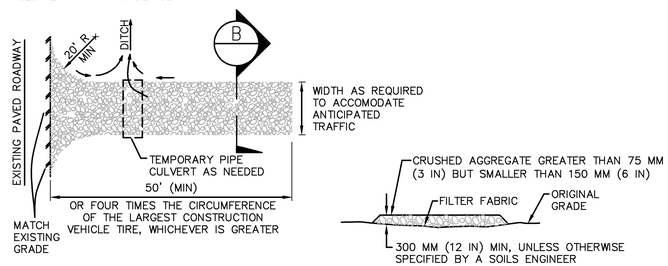
EXHIBIT 58-7

EROSION CONTROL PLAN DETAILS



1 TYPICAL TEMPORARY GRAVEL BAG BARRIER
N.T.S

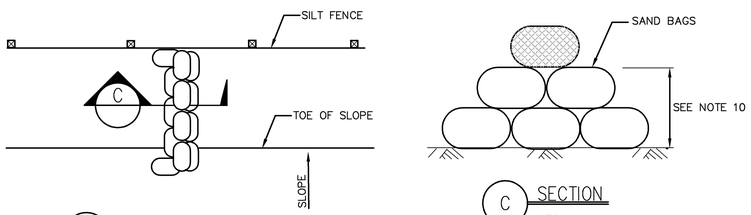
NOTE:
CONSTRUCT SEDIMENT BARRIER AND CHANNELIZE RUNOFF TO SEDIMENT TRAPPING DEVICE



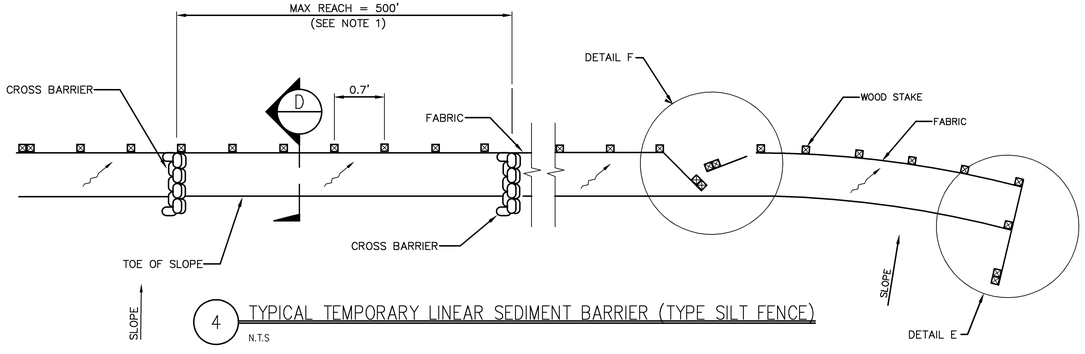
2 TYPICAL TIRE WASH
N.T.S

NOTES

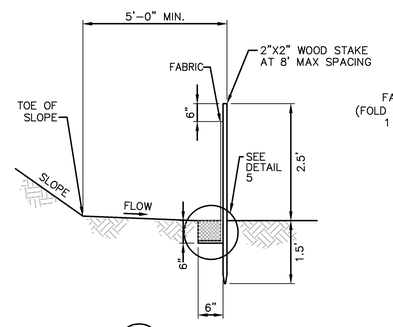
1. CONSTRUCT THE LENGTH OF EACH REACH SO THAT THE CHANGE IN BASE ELEVATION ALONG THE REACH DOES NOT EXCEED 1/3 THE HEIGHT OF THE LINEAR BARRIER, IN NO CASE SHALL THE REACH LENGTH EXCEED 500 FEET.
2. THE LAST 8 FEET OF FENCE SHALL BE TURNED UP SLOPE.
3. STAKE DIMENSIONS ARE NOMINAL.
4. DIMENSIONS MAY VARY TO FIT FIELD CONDITION.
5. STAKES SHALL BE SPACED AT 8 FOOT MAXIMUM, AND SHALL BE POSITIONED ON DOWNSTREAM SIDE OF FENCE.
6. STAKES TO OVERLAP AND FENCE FABRIC TO FOLD AROUND EACH STAKE ONE FULL TURN. SECURE TO STAKE WITH 4 STAPLES.
7. STAKES SHALL BE DRIVEN TIGHTLY TOGETHER TO PREVENT POTENTIAL FLOW-THROUGH OF SEDIMENT AT JOINT. THE TOPS OF THE STAKES SHALL BE SECURED WITH WIRE.
8. FOR END STAKES, FENCE FABRIC SHALL BE FOLDED AROUND TWO STAKES ONE FULL TURN AND SECURED WITH 4 STAPLES.
9. MINIMUM 4 STAPLES PER STAKE. DIMENSIONS SHOWN ARE TYPICAL.
10. CROSS BARRIERS SHALL BE A MINIMUM OF 1/3, AND A MAXIMUM OF $\frac{1}{2}$ THE HEIGHT OF THE LINER BARRIER.
11. MAINTENANCE OPENINGS SHALL BE CONSTRUCTED IN A MANNER TO ENSURE SEDIMENT REMAINS BEHIND SILT FENCE.
12. JOINING SECTIONS SHALL NOT BE PLACED AT SUMP LOCATIONS.
13. SANDBAG ROWS AND LAYERS SHALL BE OFFSET TO ELIMINATE GAPS.



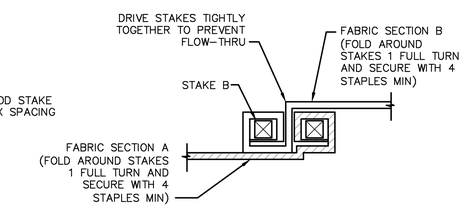
3 TYPICAL CROSS BARRIER DETAIL
N.T.S



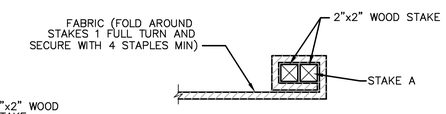
4 TYPICAL TEMPORARY LINEAR SEDIMENT BARRIER (TYPE SILT FENCE)
N.T.S



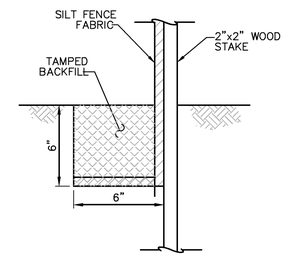
D SECTION
N.T.S



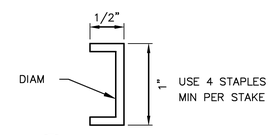
6 JOINING SECTION DETAIL (TOP VIEW)
N.T.S



7 END STAKE DETAIL (TOP VIEW)
N.T.S

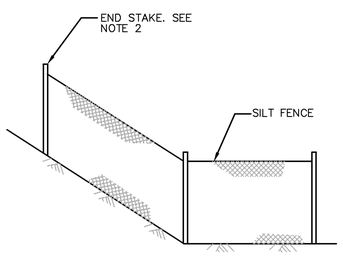


5 DETAIL
N.T.S

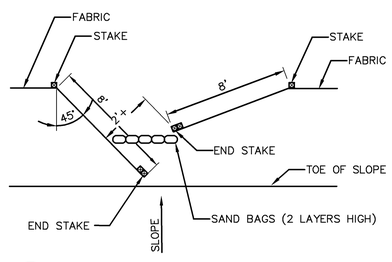


8 STAPLE DETAIL
N.T.S

TYPICAL TEMPORARY SILT FENCE
N.T.S.



E END DETAIL
N.T.S



F OPTIONAL MAINTENANCE OPENING DETAIL
N.T.S.
(SEE NOTE 11)

REV.	DATE	DESCRIPTION	DWN	CHK
0	7-5-07	ISSUED FOR CEC PERMIT APPLICATION	BGG	WHR
1	9-21-07	ISSUED FOR DATA REQUEST RESPONSE	BGG	WHR

EXHIBIT 58-7

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P.O. Box 1000
Stilwell, Kansas 66085-1000

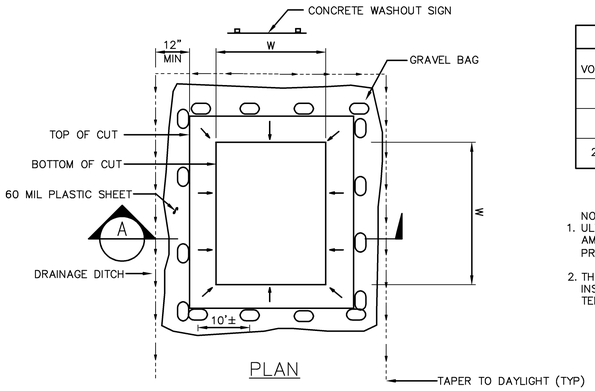
ORANGE GROVE ENERGY L.P.
Schaumburg, IL

ORANGE GROVE PROJECT
EROSION CONTROL PLAN
DETAILS

DESIGN BY: B. ROMINES	CHECKED BY: J. BONDANK
DRAWN BY: B. GASPERS	DATE: 6-7-07
CLIENT I.D. JP000101	SEGA PROJECT NO. 07-098
CADD FILE NAME: 07098-C501.dwg	
DRAWING NO. C501	REV. 1

EXHIBIT 58-8

EROSION CONTROL PLAN DETAILS

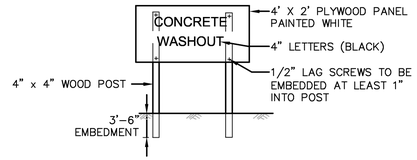


PLAN

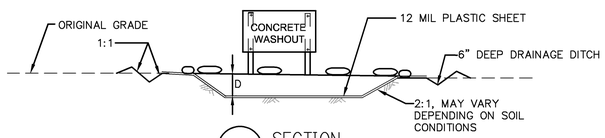
1 TEMPORARY CONCRETE WASHOUT FACILITY
(BELOW GRADE)
N.T.S

PIT SIZING CHART		
APPROX. VOLUME OF SPOILS	MIN. WIDTH (W)	DEPTH (D)
5 CY OR LESS	3'	1.0'
5 TO 20 CY	10'	1.0'
20 CY OR MORE	15'	1.5'

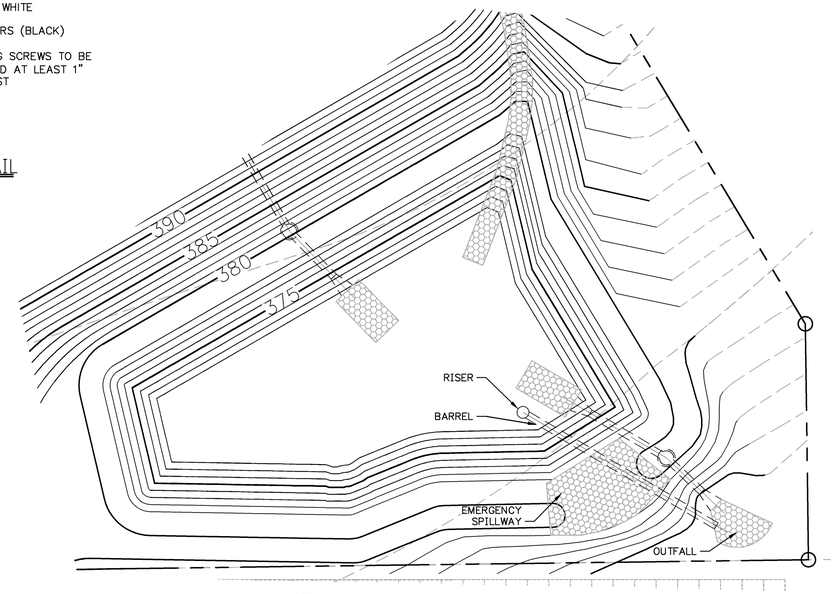
NOTES:
1. ULTIMATE WASHOUT SIZE DETERMINED BY AMOUNT OF CONCRETE REQUIRED FOR PROJECT AREA AND/OR POUR LOCATION.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 20 FEET OF THE TEMPORARY CONCRETE WASHOUT



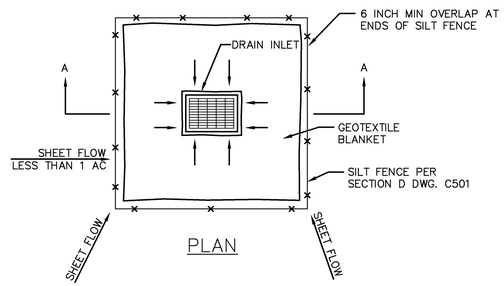
2 SIGN ELEVATION DETAIL
N.T.S



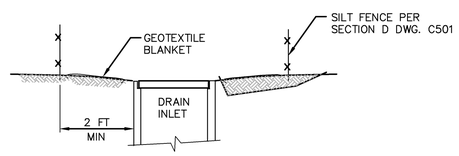
A SECTION
N.T.S



N PLAN VIEW
30 0 30 60
SCALE IN FEET



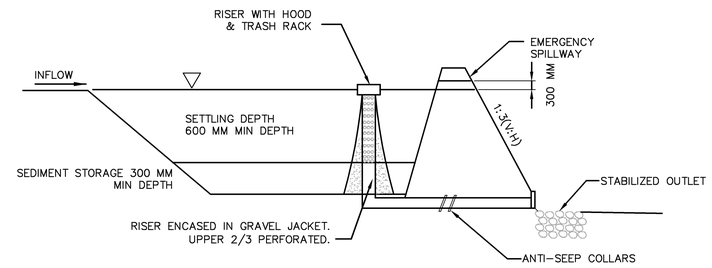
PLAN



B SECTION
N.T.S

2 TYPICAL DROP INLET PROTECTION DETAIL
N.T.S

NOTES:
1. FOR USE IN AREAS WHERE GRADING HAS BEEN COMPLETED AND FINAL SOIL STABILIZATION AND SEEDING ARE PENDING.
2. NOT APPLICABLE IN PAVED AREAS.
3. NOT APPLICABLE WITH CONCENTRATED FLOWS.



SIDE VIEW

NOTES:
1. TYPICAL TRAP DESIGN SHOWN WILL HANDLE 12.7 MM OF RUNOFF OVER A 24 HOUR PERIOD.
2. SETTLING VOLUME: 130 CM PER HECTARE OF DRAINAGE AREA.
3. SEDIMENT STOAGE VOLUME: 65 CM PER HECTARE OF DRAINAGE AREA.

3 TYPICAL SEDIMENT TRAP DETAIL SC 3-1
N.T.S

REV.	DATE	DESCRIPTION	DWN	CHK
0	7-5-07	ISSUED FOR CEC PERMIT APPLICATION	BGG	WHR
1	9-21-07	ISSUED FOR DATA REQUEST RESPONSE	BGG	WHR

EXHIBIT 58-8

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Stilwell, Kansas 66085-1000

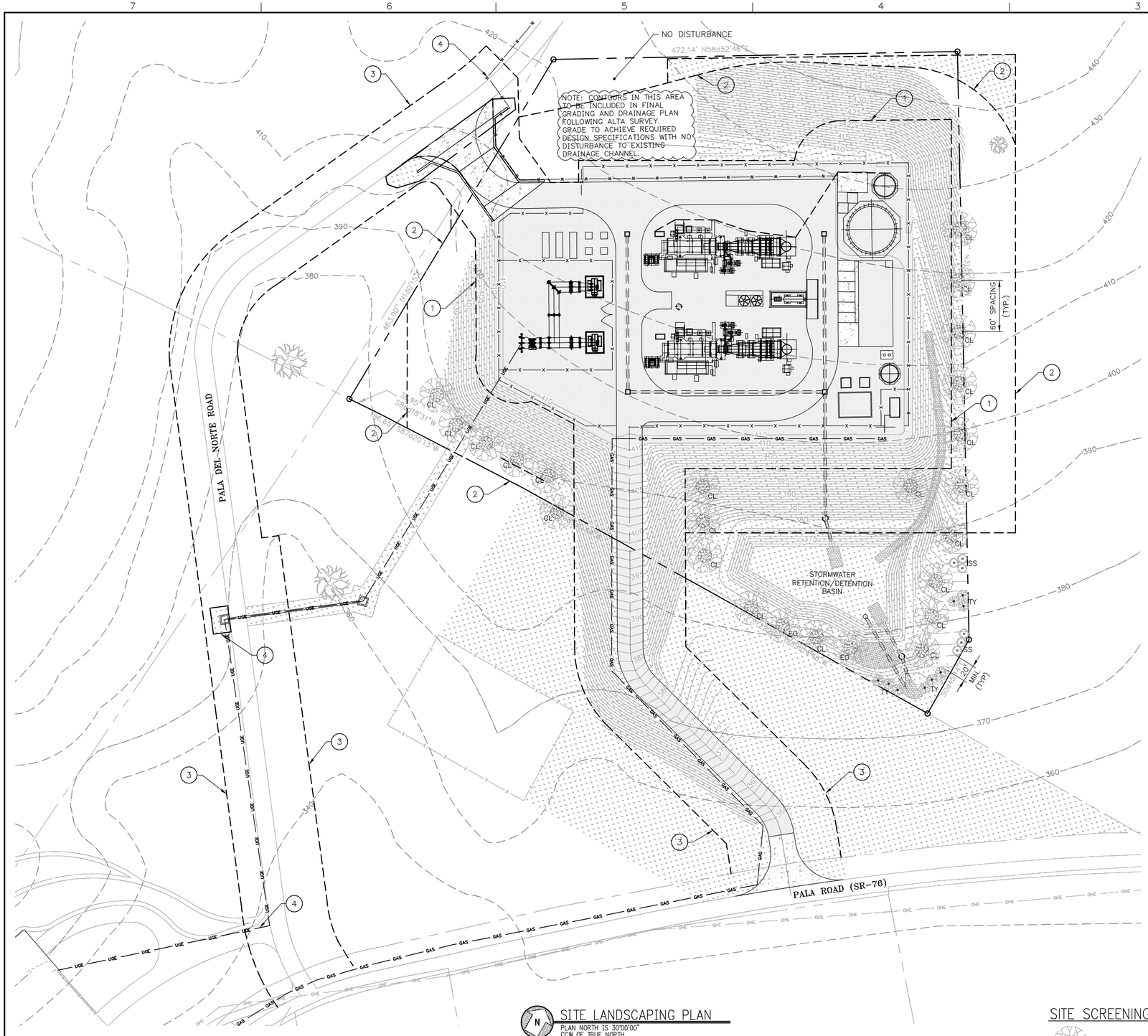
ORANGE GROVE ENERGY L.P.
Schaumburg, IL

ORANGE GROVE PROJECT
EROSION CONTROL PLAN
DETAILS

DESIGN BY: B. ROMINES	CHECKED BY: J. BONDANK
DRAWN BY: B. GASPERS	DATE: 6-7-07
CLIENT I.D. JP000101	SEGA PROJECT NO. 07-098
CADD FILE NAME: 07098-C502.dwg	
DRAWING NO. C502	REV. 1

EXHIBIT 58-9

LANDSCAPING PLAN



SITE LANDSCAPING PLAN

PLAN NORTH IS 30°00'00" CCW OF TRUE NORTH

60 0 60 120

SCALE IN FEET

PLANT LIST

QTY.	SYM.	SIZE	COMMON NAME / BOTANICAL NAME	REMARKS
EVERGREEN TREES				
22	CL	LATER	COAST LIVE OAK / QUERCUS AGRIFOLIA	GROWS TO 30'–100' TALL
2	EO	LATER	ENGELMANN OAK / QUERCUS ENGELMANNII	GROWS TO 20'–50' TALL

NOTES:
1. ALL LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN ACCORDANCE WITH THE FIRE PROTECTION PLAN LIMBED UP TO 6'.
2. NO SHRUBS, PLANTS, OR BUSHES UNDER THE DRIP LINE.
3. CALTRANS #2 TO BE USED (LESS THAN: 1/2" DIAMETER X 4" TO 6" LONG) UNDER ENTIRE DRIP LINE AT LESS THAN 4" DEPTH.
4. MATURE CANOPY NO CLOSER THAN 30' TO WEST AND SOUTH SECURITY FENCE AND NO CLOSER THAN 40' TO EAST SECURITY FENCE.
5. FUEL MODIFICATION BUFFER OF 50' AROUND OAK TREES NEAR PROPERTY LINE.

QTY.	SYM.	SIZE	COMMON NAME / BOTANICAL NAME	REMARKS
EVERGREEN SHRUBS				
6	TY	LATER	TOYON / HETEROMELES ARBUTIFOLIA (LIND.) M. ROEMER	GROWS TO 30' TALL
3	SS	LATER	SUGAR SUMAC / RHUS OVATA S. WATS.	GROWS TO 12' TALL

NOTES:
1. ALL LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN ACCORDANCE WITH THE FIRE PROTECTION PLAN.

QTY.	SYM.	SIZE	COMMON NAME / BOTANICAL NAME	REMARKS
NATIVE GROUND COVER				
–	N/A	N/A	COASTAL SAGE SCRUB	AREAS OUTSIDE OF FUEL MODIFICATION ZONES
–	N/A	N/A	PER FIRE PROTECTION PLAN	AREAS WITHIN FUEL MODIFICATION ZONES

NOTES:
1. ALL LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN ACCORDANCE WITH THE FIRE PROTECTION PLAN.

KEYNOTES:

1. FIRE PROTECTION ZONE A (DEFENSIBLE SPACE): FROM SECURITY FENCE TO 50' OUTSIDE OF SECURITY FENCE. PLEASE REFERENCE THE FIRE PROTECTION PLAN FOR DETAILS.
2. FIRE PROTECTION ZONE B: FROM ZONE A LINE 75' OUTSIDE OF ZONE A (125' FROM SECURITY FENCING). PLEASE REFERENCE THE FIRE PROTECTION PLAN FOR DETAILS.
3. ROADWAY FUEL MODIFICATION ZONE: FROM EDGE OF ROADWAY TO 50' OUTSIDE EDGE OF ROADWAYS. PLEASE REFERENCE THE FIRE PROTECTION PLAN FOR DETAILS.
4. CONSTRUCTION WILL OCCUR WITHIN THE LIMITS OF THE ROAD AND/OR SHOULDERS. THERE WILL BE NO NEW SURFACE DISTURBANCE.

NOTES:

1. ALL GRADELINES AND ELEVATIONS ARE BASED ON USGS TOPO 20' CONTOURS. ALL OTHER CONTOURS HAVE BEEN DRAWN TO REPRESENT LIKELY EXISTING ELEVATIONS. AS A RESULT, PROPOSED CONTOURS AND ELEVATIONS SHOULD BE VIEWED AS PRELIMINARY.
2. THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMISSIONS BEFORE COMMENCING SUCH ACTIVITY.

LEGEND

- PROPERTY LINE
- 400 EXISTING CONTOUR
- 380 PROPOSED MAJOR CONTOUR
- 383 PROPOSED MINOR CONTOUR
- GAS PROPOSED GAS LINE
- UGE PROPOSED UNDERGROUND ELECTRICAL
- UGE PROPOSED UTILITY BORING
- PROPOSED WATERLINE
- APPROXIMATE CUT/FILL LINE
- OHE EXISTING T&D LINE
- EXISTING FENCE
- EXISTING ROAD
- PROPOSED FENCE
- PARCEL LINE
- DRAINAGE PATH
- PROPOSED SILT FENCE EROSION CONTROL
- PROPOSED RIP RAP
- PROPOSED CRUSHED ROCK SURFACE
- PROPOSED CONCRETE
- PROPOSED NATIVE GROUND COVER
- PROPOSED LANDSCAPING
- EXISTING TREES WITHIN DRAINAGE

SITE SCREENING LEGEND

- CL COAST LIVE OAK — POTENTIAL MATURE SIZE
- EO ENGELMANN OAK — POTENTIAL MATURE SIZE
- TY TOYON — POTENTIAL MATURE SIZE
- SS SUGAR SUMAC — POTENTIAL MATURE SIZE

REV.	DATE	DESCRIPTION	DWN	CHK
0	7–5–07	GRADING REVISED	BGG	WHR
1	7–13–07	ISSUED FOR CEC PERMIT APPLICATION	BGG	WHR
2	9–21–07	ISSUED FOR DATA REQUEST RESPONSE	BGG	WHR
3	10–5–07	REVISED PER FPP REMARKS	BGG	WHR

EXHIBIT 58-9

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P.O. Box 1000
Stilwell, Kansas 66085–1000

ORANGE GROVE ENERGY L.P.
Schaumburg, IL

ORANGE GROVE PROJECT

LANDSCAPING PLAN

DESIGN BY: B. ROMINES	CHECKED BY: J. BONDANK
DRAWN BY: B. GASPERS	DATE: 4–13–07
CLIENT I.D. JP000101	SEGA PROJECT NO. 07–098
CADD FILE NAME: 07098–L100.dwg	
DRAWING NO. L100	REV. 3

N:\2007\07098\dwgs\ce\07098–L100.dwg 10/5/07 8:51am bgaspers

EXHIBIT 58-10

ESTIMATED EXCAVATION QUANTITIES FOR MAJOR PROJECT ELEMENTS

EXHIBIT 58-10

ESTIMATED EXCAVATION QUANTITIES FOR MAJOR PROJECT ELEMENTS

ORANGE GROVE PROJECT

PROJECT ELEMENT	EXCAVATION QUANTITY (CY)	MATERIAL TYPE	MATERIAL USE	TEMPORARY OR PERMANENT	BASIS OF QUANTITY ESTIMATE
Building Pad and adjacent storm water basin	50,000 (max.)	Insitu earth	Material excavated from onsite cut will be used for onsite fill for building pad, secondary access road, and storm water basin.	Permanent	SPPE Application Section 2.13.1 and preliminary grading plan (Drawing C300)
Underground Transmission Line	820	Insitu earth/ road fill	Backfill	Temporary	Average 2-foot wide ditch six feet deep by 1000 LF, plus two 20 cy pits at each end of the horizontal bore (Drawing Y100)
Water Pipeline	1,800	Insitu earth/ road fill	Backfill	Temporary	Average 2-foot side ditch three feet deep and 1.5 miles long.
Gas Pipeline	3,500	Insitu earth/ road fill	Backfill	Temporary	Average 2-foot wide ditch 4.5 feet deep and 2.0 miles long.

EXHIBIT 59-1

DPLU POLICY ON BRIDGES ON PRIVATE PROPERTY

County of San Diego
Department of PLANNING AND LAND USE
Codes Division

Subject:	Policy Number	Effective Date	Page 1
BRIDGES ON PRIVATE PROPERTY	MP-21	04-01-81	of 2

PURPOSE

To provide guidelines, design criteria and other requirements pertaining to the issuance of building permits for bridge structures on private property.

BACKGROUND

Bridges for various uses require permits for their construction. Bridges within public rights-of-way require permits from the Department of Public Works, and the construction will be under its jurisdiction. Bridges on private property require permits from the Department of Planning and Land Use. There have been no formal guidelines for permits for the latter, until formulation of this policy.

POLICY

The Department of Planning and Land Use will issue building permits for all bridge structures on private property and private roads. The Department of Public Works will approve bridge structures that are to be built in areas covered by irrevocable offers of dedication with permits subsequently issued by DPLU. Bridges may be vehicular, pedestrian or utility (i.e., sewer line, gas pipe line, water transmission.)

REQUIREMENTS

Bridges shall be designed for the largest loads anticipated over the life of the bridge.

All bridges serving as primary access from a public road to a residence or business for vehicular traffic shall be designed for a minimum of HS15-44 loading per A.A.S.H.T.O.

All pedestrian bridges shall be designed for the following loading conditions:

a. Spans up to 50 feet in length shall be designed for a live load of 100 pounds per square foot.

b. Spans over 50 feet in length shall be designed for a live load of 60 pounds per square foot.

c. All bridges shall be designed for a wind load of 30 pounds per square foot on the full vertical projected surface of the bridge as if enclosed.

d. All bridges with an inside clear width of 6'-0" or greater shall be designed for a vehicle load of 10,000 plus 30% for impact. The load shall be distributed assuming a four-wheel vehicle with 5,200 pounds on each rear wheel and 1,300 pounds on each front wheel. The wheels shall be spaced based on a pickup driving down the center of the bridge.

Department of PLANNING AND LAND USE
Codes Division

Subject:	Policy Number	Effective Date	Page
BRIDGES ON PRIVATE PROPERTY	MP-21	04-01-21	of 2

Plans for all bridges must be designed and signed by a registered civil or structural engineer, licensed in California.

Wherever these structures bridge a water course that drains more than 20 acres or whenever they are located in a designated flood plain, such plans must be approved by Flood Control Division, Department of Public Works. The Department of Public Works approves the hydrologic calculations and issues the water course permit. Appropriate measures for erosion control shall be provided.

Unlike conventional building permits, bridge permits need not be withheld until rough grading approval by the Construction Division of the Department of Public Works; rather they are handled in the same fashion as retaining walls in L-grading permits.

Final approval of the structure will not be given by the Department of Planning and Land Use until final grading clearance has been obtained in writing from the Department of Public Works.

The DPLU Plan Checker/Engineer shall specify special inspectors and certifications. When DPLU is to make the inspections, the Plan Checker shall specify that three inspections be called: (1) foundation, (2) bottom chord, and (3) final. "Bottom Chord" is to be called for so that elevation above flood level can be checked against the approved plans. The Plan Checker shall specify at what point in construction the bottom chord inspection is to be made.

Sheila M. Chaffin
Deputy Director, Codes
Department of Planning and Land Use

J.E. FRANDSEN
Deputy County Engineer

Jim Frandsen
Deputy Director, Land Development Support Services
Department of Public Works

SMC:DSS:sf

EXHIBIT 63-1

PROJECT FACILITY AVAILABILITY FORM

COUNTY OF SAN DIEGO
DEPT. OF PLANNING & LAND USE
5201 RUFFIN ROAD, SUITE B
SAN DIEGO, CA 92123-1666
(858) 565-5981 # (888) 267-8770

PROJECT FACILITY AVAILABILITY FORM

WATER

W

Please type or use pen

J-POWER USA DEVELOPMENT CO, LTD
Owner's Name / Phone

1900 E. GOLF RD, SUITE 1030
Owner's Mailing Address / Street

SCHAUMBURG, IL 60173
City / State / Zip

ORG_____
ACCT_____
ACT_____
TASK_____
DATE 7/11/07 AMT $ 30

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A.
- ☐ Major Subdivision (TM)
- ☐ Minor Subdivision (TPM)
- ☐ Boundary Adjustment
- ☐ Rezone (Reclassification) from_____ to_____ zone.
- ☒ Major Use Permit (MUP), purpose: POWER GENERATING FACILITY
- ☐ Time Extension...Case No._____
- ☐ Expired Map...Case No._____
- ☐ Other_____
- ☐ Specific Plan or Specific Plan Amendment
- ☐ Certificate of Compliance:_____

Assessor's Parcel Number(s) (Add extra if necessary)

110	072	26

B.
- ☐ Residential ..... Total number of dwelling units_____
- ☐ Commercial..... Gross floor area_____
- ☒ Industrial ..... Gross floor area 4000 sq ft
- ☐ Other ..... Gross floor area_____

Thomas Bros. Page 1029 Grid E-5

C. ☒ Total Project acreage 8.6 Total number of lots 1

Pala Del Norte
Project address / Street

D. Is the project proposing the use of groundwater? ☐ Yes ☒ No
Is the project proposing the use of reclaimed water? ☐ Yes ☒ No

Fallbrook 92028
Community Planning Area/Subregion / Zip

Owner/Applicant agrees to pay all necessary construction costs, dedicate all district required easements to extend service to the project and COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature:_____ Date: 09 JUNE 2007

Address: 1900 E. GOLF RD, SCHAUMBURG, IL 60173 Phone: 720-221-7954

(On completion of above, present to the district that provides water protection to complete Section 2 below.)

SECTION 2: FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name: Rainbow MWD Service area Fallbrook

A.
- ☒ Project is in the district.
- ☐ Project is not in the district but is within its Sphere of Influence boundary, owner must apply for annexation.
- ☐ Project is not in the district and is not within its Sphere of Influence boundary.
- ☐ The project is not located entirely within the district and a potential boundary issue exists with the District.

B. ☐ Facilities to serve the project ☒ ARE ☐ ARE NOT reasonably expected to be available within the next 5 years based on the capital facility plans of the district. Explain in space below or on attached_____. (Number of sheets)
☐ Project will not be served for the following reason(s):_____

C.
- ☐ **District conditions are attached. Number of sheets attached:**_____
- ☐ **District has specific water reclamation conditions which are attached. Number of sheets attached:**_____
- ☒ **District will submit conditions at a later date.**

D. ☐ **How far will the pipeline(s) have to be extended to serve the project?**_____

This Project Facility Availability Form is valid until final discretionary action is taken pursuant to the application for the proposed project or until it is withdrawn, unless a shorter expiration date is otherwise noted.

Authorized signature: _____ Print name Brian Lee

Print title District Engineer Phone 760.728.1178 Date 7/11/07

NOTE: THIS DOCUMENT IS NOT A COMMITMENT OF SERVICE OR FACILITIES BY THE DISTRICT
On completion of Section 2 by the district, applicant is to submit this form with application to:
Zoning Counter, Department of Planning and Land Use, 5201 Ruffin Road, San Diego, CA 92123

DPLU-399W (02/07)

EXHIBIT 63-2

RAINBOW MUNICIPAL WATER DISTRICT CONDITIONS LETTER

PAMS1-1A

RAINBOW
MUNICIPAL WATER DISTRICT
Committed to Excellence

September 17, 2007

Department of Planning and Land Use
Project Processing Control Center
5201 Ruffin Road, Suite B
San Diego, CA 92123-1666

SUBJECT: Case No. MUP07-009, APN 110-072-26, Power Generation Facility

C. Conditions:

A system study shall be conducted by the District at the applicant's cost. Applicant shall submit the proper deposit to the District to cover the cost of the study, plan checks and inspections.

Currently there is no water main abutting the subject parcel. Water facilities identified in the study shall be constructed at no cost to the District. A minimum 8 inch CMLC (concrete mortar lined and coated) or DIP (ductile iron pipe) water main must be extended from either north where the water main ends on Pala Del Norte Road or from the West near Rice Canyon Road, whatever deems more feasible by the Design Engineer. All design and construction must comply with the current Rainbow Municipal Water District standards.

If you have any questions regarding the above conditions contact me at (760) 728-1178 x199.

Sincerely,

Sherry Rebueno
Assistant Engineer

RECEIVED
SEP 18 2007
DEPARTMENT OF PLANNING AND LAND USE

3707 Old Highway 395 • Fallbrook, CA 92028-2500
Phone: (760) 728-1178 • Fax: (760) 728-2575 • www.rainbowmwd.com

EXHIBIT 71-1

TABLE 6.11-3 – EXISTING AND PROJECTED LEVELS OF SERVICE

WITHOUT PROJECT WORKERS/ DELIVERIES

(REV 1, 10/8/07)

EXHIBIT 71-1

TABLE 6.11 -3 – EXISTING AND PROJECTED LEVELS OF SERVICE WITHOUT PROJECT WORKERS/ DELIVERIES

(REV 1, 10/8/07)

INTERSECTION	EXISTING (2007) LOS (AM/PM)	2008 WITHOUT PROJECT WORKERS LOS (AM/PM)
Hwy 76 at I-15 SB Ramps	B/E	B/E
Hwy 76 at I-15 NB Ramps	~~C~~B/D	C/E
Hwy 76 at Rice Canyon Road		
EB Approach	A/A	A/A
WB Approach	A/A	A/A
SB Approach	B/B	B/B
Hwy 76 at Pala del Norte Road		
EB Approach	A/A	A/A
WB Approach	A/A	A/A
SB Approach	A/B	A/B
Freeway Segments		
I-15 south of Hwy 76		
NB	A/D	A/D
SB	D/A	D/A
I-15 north of Hwy 76		
NB	A/D	A/D
SB	D/A	D/A
Highway Segments		
Hwy 76 – west of Old Highway 395	E/E	E/E
Hwy 76 – I-15 NB Ramps to Rice Canyon Road	C/D	C/D
Hwy 76 – Rice Canyon Road to Project	C/C	C/D
Ramps		
I-15 NB Off-Ramp	A/D	A/E
I-15 NB On-Ramp	A/D	A/D
I-15 SB Off-Ramp	D/B	E/B
I-15 SB On-Ramp	C/B	C/B

EXHIBIT 71-2

TABLE 6.11-6 – PROJECTED LEVELS OF SERVICE – CONSTRUCTION

(REV 1, 10/8/07)

EXHIBIT 71-2

TABLE 6.11-6 – PROJECTED LEVELS OF SERVICE CONSTRUCTION

(REV 1, 10/8/07)

INTERSECTION	EXISTING (2007) LOS (AM/PM)	2008 WITHOUT PROJECT WORKERS LOS (AM/PM)	2008 WITH PROJECT CONSTRUCTION WORKERS LOS (AM/PM)
Hwy 76 at I-15 SB Ramps	B/**E**	B/**E**	B/**E**
Hwy 76 at I-15 NB Ramps	~~C~~B/**D**	C/**E**	B/**E**
Hwy 76 at Rice Canyon Road			
• EB Approach	A/A	A/A	A/A
• WB Approach	A/A	A/A	A/A
• SB Approach	B/B	B/B	B/B
Hwy 76 at Pala del Norte Road			
• EB Approach	A/A	A/A	A/A
• WB Approach	A/A	A/A	A/A
• SB Approach	A/B	A/B	A/B
Freeway Segments			
I-15 south of Hwy 76			
• **NB**	A/**D**	A/**D**	A/**D**
• **SB**	**D**/A	**D**/A	**D**/A
I-15 north of Hwy 76			
• **NB**	A/**D**	A/**D**	A/**D**
• **SB**	**D**/A	**D**/A	**D**/A
Highway Segments			
Hwy 76 – west of Old Highway 395	**E/E**	**E/E**	**E/E**
Hwy 76 – I-15 NB Ramps to Rice Canyon Road	C/**D**	C/**D**	C/**D**
Hwy 76 – Rice Canyon Road to Project	C/C	C/**D**	C/**D**
Ramps			
I-15 NB Off-Ramp	A/**D**	A/**E**	A/**E**
I-15 NB On-Ramp	A/**D**	A/**D**	A/**D**
I-15 SB Off-Ramp	**D**/B	**E**/B	**E**/B
I-15 SB On-Ramp	C/B	C/B	C/B

EXHIBIT 71-3

TABLE 6.11-8 – PROJECTED LEVELS OF SERVICE – OPERATION

(REV 1, 10/8/07)

EXHIBIT 71-3

TABLE 6.11-8 – PROJECTED LEVELS OF SERVICE – OPERATION

(REV 1, 10/8/07)

INTERSECTION	EXISTING (2007) LOS (AM/PM)	2008 WITHOUT PROJECT WORKERS LOS (AM/PM)	2008 WITH PROJECT CONSTRUCTION WORKERS LOS (AM/PM)
Hwy 76 at I-15 SB Ramps	B/E	B/E	B/E
Hwy 76 at I-15 NB Ramps	~~C~~B/D	C/E	C/E
Hwy 76 at Rice Canyon Road			
EB Approach	A/A	A/A	A/A
WB Approach	A/A	A/A	A/A
SB Approach	B/B	B/B	B/B
Hwy 76 at Pala del Norte Road			
EB Approach	A/A	A/A	A/A
WB Approach	A/A	A/A	A/A
SB Approach	A/B	A/B	A/B
Freeway Segments			
I-15 south of Hwy 76			
NB	A/D	A/D	A/D
SB	D/A	D/A	D/A
I-15 north of Hwy 76			
NB	A/D	A/D	A/D
SB	D/A	D/A	D/A
Highway Segments			
Hwy 76 – west of Old Highway 395	E/E	E/E	E/E
Hwy 76 – I-15 NB Ramps to Rice Canyon Road	C/D	C/D	C/D
Hwy 76 – Rice Canyon Road to Project	C/C	C/D	C/D
Ramps			
I-15 NB Off-Ramp	A/D	A/E	A/E
I-15 NB On-Ramp	A/D	A/D	A/D
I-15 SB Off-Ramp	D/B	E/B	E/B
I-15 SB On-Ramp	C/B	C/B	C/B

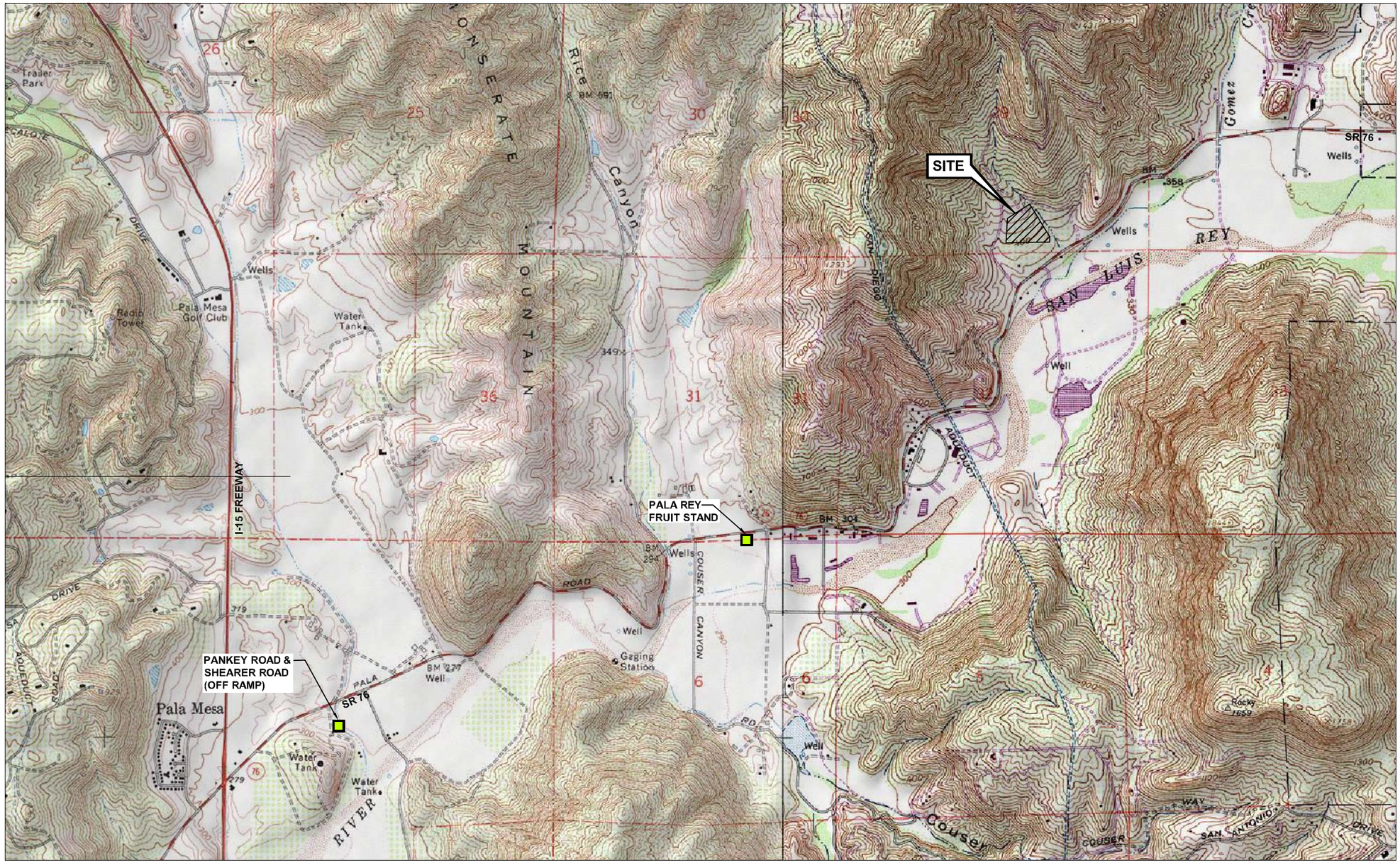
EXHIBIT 72-1

SCHOOL BUS STOPS ALONG HIGHWAY 76

BETWEEN PALA AND INTERSTATE 15

LEGEND

BUS STOP LOCATION



N

SOURCE:

United States Geological Survey
7.5 Minute Topographic Map, 2000:
Pala, Bonsall, Temecula,
and Pechanga Quadrangles

0 1/4 1/2 3/4 1 MILE

SCALE 1:24,000

TRC

PROJECT: 29031902

FACILITY:

ORANGE GROVE PROJECT
SAN DIEGO COUNTY, CALIFORNIA

SCHOOL BUS STOPS ALONG HIGHWAY 76 BETWEEN PALA AND INTERSTATE 15

EXHIBIT 72-1

MS=1:1 L:\Graphics\ProjectsByNumber\29-xxxx\29-0319\290319 Exhibit 72-1.dwg Oct 02, 2007 - 11:14am Rcollins

EXHIBIT 72-2

MORNING BUS ROUTES ON SR-76

BETWEEN I-15 AND THE PROJECT SITE

EXHIBIT 72-2

MORNING BUS ROUTES ON SR 76

BETWEEN I-15 AND THE PROJECT SITE[1]

BUS ROUTE NAME & NUMBER	ESTIMATED TIME PASSING I-15 ON SR 76	SCHEDULED TIME AT PANKEY RD & SHEARER CROSSING	SCHEDULED TIME AT HWY 76 & PALA REY RANCH FRUIT STAND	ESTIMATED TIME PASSING SITE
East Bound				
Bus # 201 Sullivan Middle School	6:35 am			6:40 am
Bus # 201 Bonsall Elementary	7:20 am			7:25 am
Bus # 202 Bonsall Elementary	7:22 am		7:27 am	7:30 am
Bus # 202 Sullivan Middle School	6:15 am	6:17 am	6:22 am	6:25 am
West Bound				
Bus # 201 Sullivan Middle School	7:05 am			6:58 am
Bus # 201 Bonsall Elementary	8:00 am	7:53 am		7:48 am
Bus # 202 Bonsall Elementary	7:55 am			7:42 am
Bus # 202 Sullivan Middle School	6:45 am			6:32 am

[1] Source: Bonsall Union School District Bus Transportation Routes 2007-2008.

EXHIBIT 72-3

AFTERNOON BUS ROUTES ON SR-76

BETWEEN I-15 AND THE PROJECT SITE

EXHIBIT 72-3

AFTERNOON BUS ROUTES ON SR-76

BETWEEN I-15 AND THE PROJECT SITE[1]

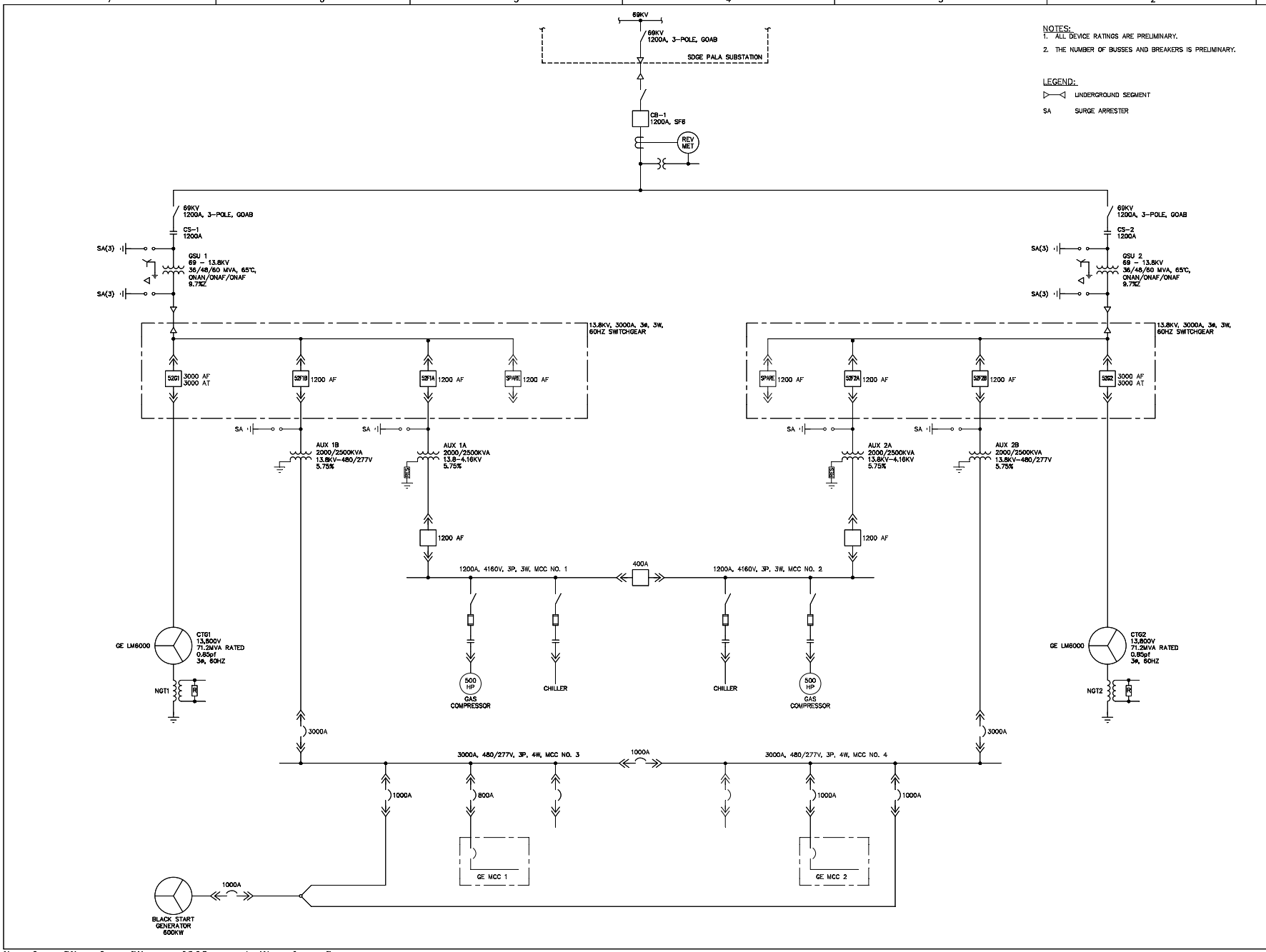
BUS ROUTE NAME & NUMBER	ESTIMATED TIME PASSING I-15 ON SR 76	SCHEDULED TIME AT PANKEY RD & SHEARER CROSSING	SCHEDULED TIME AT SR 76 & PALA REY RANCH FRUIT STAND	ESTIMATED TIME TO PASS SITE
East Bound				
Bus # 201 Sullivan Middle School/Bonsall Elementary	2:20 pm	2:23 pm		2:30 pm
Bus # 201 Bonsall Elementary	3:35 pm	3:38 pm		3:43 pm
Bus # 202 Bonsall Elementary	3:40 pm		3:48 pm[2]	
Bus # 202 Sullivan Middle School	2:30 pm		2:34 pm	2:37 pm
West Bound				
Bus # 201 Sullivan Middle School	3:10 pm			2:50 pm
Bus # 201 Bonsall Elementary	4:20 pm			4:02 pm
Bus # 202 Bonsall Elementary	3:52 pm[2]			
Bus # 202 Sullivan Middle School	3:10 pm		2:55 pm	2:50 pm

[1] Source: Bonsall Union School District Bus Transportation Routes 2007-2008.
[2] This route runs east bound to its termination at the Pala Rey fruit stand and then becomes a west bound route.

EXHIBIT 76-1

CONCEPTUAL SYSTEM ONE LINE DIAGRAM

N:\2007\07201\dwgs\ee\07201-E100.dwg



NOTES:
1. ALL DEVICE RATINGS ARE PRELIMINARY.
2. THE NUMBER OF BUSSES AND BREAKERS IS PRELIMINARY.

LEGEND:
UNDERGROUND SEGMENT
SA SURGE ARRESTER

REV.	DATE	DESCRIPTION	DWN	CHK
A	3-11-07	PRELIMINARY	RLK	JKB
B	5-29-07	ISSUED FOR REVIEW	BGG	JKB
C	9-21-07	ISSUED PER CEC DATA REQUEST	BGG	JKB

Sealed Only When Signed In Blue Ink

Sega ®
Engineers – Architects – Technicians
Design – Construction – Field Service
16041 Foster
P.O. Box 1000
Stilwell, Kansas 66085–1000

ORANGE GROVE ENERGY L.P.
Schaumburg, IL

ORANGE GROVE PROJECT

CONCEPTUAL SYSTEM ONE–LINE

DESIGN BY: JKB	CHECKED BY: JKB
DRAWN BY: RLK	DATE: 4–13–07
CLIENT I.D. JP000101	SEGA PROJECT NO. 07–0201
CADD FILE NAME: 07201–E100	
DRAWING NO. E100	REV. C

$(getvar, "dwgprefix")$(getvar, "dwgname")$(edtime, 0, M"/"D"/"YY H:MMam/pm)$(getvar, "loginname")

Exhibit 76-1

EXHIBIT 86-1

KOP 1 – EXISTING CONDITION

Figure 6.13-13 - KOP 1 Existing Condition

TRC	Project: **Orange Grove Project - SPPE Application**	**EXHIBIT 86-1**

EXHIBIT 86-2

KOP 2 – EXISTING CONDITION

Figure 6.13-14 - KOP 2 Existing Condition

TRC	Project: **Orange Grove Project - SPPE Application**	**EXHIBIT 86-2**

EXHIBIT 86-3

KOP 3 – EXISTING CONDITION

Figure 6.13-15 - KOP 3 Existing Condition

TRC	Project: **Orange Grove Project - SPPE Application**	**EXHIBIT 86-3**

EXHIBIT 86-4

KOP 1 – IMMEDIATELY AFTER CONSTRUCTION

Figure 6.13-17 - KOP 1 Immediately After Construction

TRC	Project: **Orange Grove Project - SPPE Application** Map Source: Sega, Inc. 2007.	**EXHIBIT 86-4**

EXHIBIT 86-5

KOP 1 – 10 YEARS AFTER CONSTRUCTION

Figure 6.13-18 - KOP 1 Ten (10) Years After Construction

TRC	Project: **Orange Grove Project - SPPE Application** Map Source: Sega, Inc. 2007.	**EXHIBIT 86-5**

EXHIBIT 86-6

KOP 1 – 20 YEARS AFTER CONSTRUCTION

Figure 6.13-19 - KOP 1 Twenty (20) Years After Construction

TRC	Project: **Orange Grove Project - SPPE Application** Map Source: Sega, Inc. 2007.	**EXHIBIT 86-6**

EXHIBIT 86-7

KOP 2 – IMMEDIATELY AFTER CONSTRUCTION

Figure 6.13-20 - KOP 2 Immediately After Construction

TRC	Project: **Orange Grove Project - SPPE Application**	**EXHIBIT 86-7**
	Map Source: Sega, Inc. 2007.	

EXHIBIT 86-8

KOP 2 – 10 YEARS AFTER CONSTRUCTION

Figure 6.13-21 - KOP 2 Ten (10) Years After Construction

TRC	Project: **Orange Grove Project - SPPE Application** Map Source: Sega, Inc. 2007.	**EXHIBIT 86-8**

EXHIBIT 86-9

KOP 2 – 20 YEARS AFTER CONSTRUCTION

Figure 6.13-22 - KOP 2 Twenty (20) Years After Construction

TRC	Project: **Orange Grove Project - SPPE Application**	**EXHIBIT 86-9**
	Map Source: Sega, Inc. 2007.	

EXHIBIT 86-10

KOP 3 – IMMEDIATELY AFTER CONSTRUCTION

Figure 6.13-23 - KOP 3 Immediately After Construction

TRC	Project: **Orange Grove Project - SPPE Application**	**EXHIBIT 86-10**
	Map Source: Sega, Inc. 2007.	

EXHIBIT 86-11

KOP 3 – 10 YEARS AFTER CONSTRUCTION

Figure 6.13-24 - KOP 3 Ten (10) Years After Construction

TRC	Project: **Orange Grove Project - SPPE Application**	**EXHIBIT 86-11**
	Map Source: Sega, Inc. 2007.	

EXHIBIT 86-12

KOP 3 – 20 YEARS AFTER CONSTRUCTION

Figure 6.13-25 - KOP 3 Twenty (20) Years After Construction

TRC	Project: **Orange Grove Project - SPPE Application** Map Source: Sega, Inc. 2007.	**EXHIBIT 86-12**

EXHIBIT 93-1

TABLE 6.14-3 – OPERATION WASTE STREAMS

(REV 1, 10/8/07)

EXHIBIT 93-1

TABLE 6.14-3 – OPERATION WASTE STREAMS (REV. 1, 10/8/07)

TYPE	PHASE	EXAMPLES	DESCRIPTION/ COMPOSITION	~~ANNUAL~~ QUANTITY GENERATED[1]~~(1)~~	FREQUENCY OF GENERATION	WASTE MANAGEMENT METHOD		SIZE/VOLUME OF WASTE HAULING VEHCILE	NUMBER OF VEHICLE TRIPS	TOTAL MATERIAL QUANTITY	% OF OFFSITE FACILITY CAPACITY[2]
						ONSITE	OFFSITE				
Non-hazardous	Solids	~~Office waste~~Recyclable municipal solid waste materials ~~• Other municipal trash~~	Paper products, trash, ~~minor construction debris~~packaging materials~~,~~ and other household-type waste	0.5~~1~~ ton/year	~~Annually~~ Continuous	Containerize/ Housekeeping	Recycle ~~and Dispose at Class III landfill~~	10-wheel commercial refuse hauling truck	1 per week	12.5 tons	Not applicable[3]
		Other municipal solid waste (e.g., household-type waste)	Mixed trash	0.5 ton/year	Continuous	Containerize/ Housekeeping	Class III landfill	10-wheel commercial refuse hauling truck	1 per week	12.5 tons	De minimis[4]
		CTG used air filters	CTG used air filters~~,~~ ~~paper and metal~~	~~500~~ 300 filters (0.3 ton) per event	One change-out event a~~A~~pprox. every 3 years	~~Containerize/ Housekeeping~~ Roll-off dumpster	~~Dispose at~~ Class III landfill	1,300 cu. ft. roll-off truck	2 per event (every three years)	2.4 tons	De minimis[4]
	Liquids	Sanitary wastewater	Sanitary wastewater plus potable water drains septic system pump-out	~~Periodic use by 6 onsite personnel~~750 cu. ft. per event	~~Intermittent~~ One pump-out appx. every 5 years	~~Discharge to septic~~Septic tank and leach field	~~None~~Licensed treatment facility	750 cu. ft. pump-out truck	1 every five years	3,750 cu. ft. (28,000 gallons)	De minimis[5]
		Water treatment ~~waste streams~~units	~~Spent resin and other water treatment chemicals~~Portable operational units	~~300 gals/year~~ One every other week	~~Continuous~~ Every other week	Portable water treatment units (Trailer-mounted)	Recycled/ regenerated offsite by ~~outside~~ vendor	Semi-truck (2,500 cu. ft. trailer)	1 every other week	Not applicable[6]	Not applicable[6]
		Turbine wash and plant drains	Offline turbine wash water and plant drain water	300 gallons per month	Intermittent	Wastewater tank	Non-hazardous wastewater treatment facility	10-wheel tank truck	1 per quarter	90,000 gallons	De minimis[7]
Hazardous	Solids	• RCRA hazardous waste solids • Non-RCRA hazardous waste solids	Waste paint, containers, ~~small batteries~~, petroleum wastes, oily rags, sorbent and universal waste	~~< One 55 gallon drum~~1.5 tons/year	~~Monthly~~ Periodic	Store less than 180 days as allowed by regulations	Recycle or dispose at Class I landfill	1,300 cu. ft. truck (project contributes partial load)	1 per month	37.5 tons	De minimis[8]
		Fuel Gas System	Used coalescer filters~~. Paper, metal, hydrocarbons.~~	~~< One 55 gallon drum~~0.4 tons/year	Semi-annually	Store < ~~90~~ 180 days	Recycle	1,300 cu. ft. truck (project contributes partial load)	See footnote[9]	10 tons	De minimis[8]
		Lead-Acid batteries (sealed)	Spent batteries used in reciprocating engine starting systems, plant uninterruptible control power systems	30 batteries	Approx. 30 batteries every 7-10 years, plus the occasional failed battery	None	Recycle	1,300 cu. ft. truck (project contributes partial load)	1 every 7-10 years	1.9 tons	De minimis[10]

TYPE	PHASE	EXAMPLES	DESCRIPTION/ COMPOSITION	~~ANNUAL~~ QUANTITY GENERATED[1]~~(1)~~	FREQUENCY OF GENER-ATION	WASTE MANAGEMENT METHOD		SIZE/VOLUME OF WASTE HAULING VEHCILE	NUMBER OF VEHICLE TRIPS	TOTAL MATERIAL QUANTITY	% OF OFFSITE FACILITY CAPACITY[2]
						ONSITE	OFFSITE				
		Used oil filters	CTGs, reciprocating engines (diesel fire pump and black start generator), fuel gas compressors. Paper, metal, hydrocarbons.	~~< One 55 gallon drum~~0.8 ton/year	Approx. Quarterly	Store for <180~~90~~ days	Recycle	1,300 cu. ft. truck (project contributes partial load)	See footnote[9]	20 tons	De minimis[11]
		Depleted CO oxidation catalyst	CTG emissions control. Metal and heavy metals, including platinum group	25 tons/five years	~~Every~~ Once every 5 years	None	Recycle to vendor ~~or dispose of in Class 1 landfill~~	3,000 cu. ft. semi-truck	Two trucks every five years	Not applicable[6]	Not applicable[6]
		Depleted SCR catalyst	CTG emissions control. Metal and heavy metals, including vanadium	25 tons	Every 5 years	None	Recycle to vendor ~~or dispose of in Class 1 landfill~~	3,000 cu. ft. semi-truck	Two trucks every five years	Not applicable[6]	Not applicable[6]
	Liquids	Transformer oil	~~Dielectric and coolant.~~ Mineral oil	No waste routinely generated	~~N/A~~Not applicable[12]	None	~~Recycled, if maintenance dictates~~Recycle	10-wheel or semi tank truck	Not applicable[12]	Not applicable[12]	Not applicable[12]
		Miscellaneous used lubricating oils	Used crankcase oil, as used in fuel gas compressors, fire pump engine and black-start engine	~~100~~ 200 gallons/year	Semi-annually	Store <~~90~~ 180 days	Recycle	1,300 cu. ft. truck (project contributes partial load)	See footnote[9]	5,000 gallons	De minimis[13]
		CTG washwater	CTG internal component washwater including detergent. Not expected to be hazardous, but may be.	Approx. 200 gallons/month	Monthly	Store <180 days in an on-site drain tank; tested.	Recycle or disposed of at permitted facility	1,300 cu. ft. truck (project contributes partial load)	See footnote[9]	60,000 gallons	De minimis[7]
		CTG Lubricating oils	~~Lubricant and coolant.~~ -Waste synthetic and mineral oils.	No waste routinely generated	Not applicable[6]~~N/A~~	Pumped from equipment to 55-gallon drums as needed	Transported offsite to authorized recycling facility	1,300 cu. ft. truck (project contributes partial load)	Not applicable[12]	Not applicable[12]	Not applicable[12]
		Fuel Gas System	Oily water. Condensate entrained in natural gas mixed with blow-by oil from fuel gas compressors.	30 gallons/month	Monthly	Collected in 55-gallon drum. Store <180 days	Transported offsite to authorized recycling facility	1,300 cu. ft. truck (project contributes partial load)	See footnote[9]	9,000 gallons	De minimis[13]

~~(1)Quantity will vary from year to year.~~

[1] Generation rates are estimated and will vary over time.
[2] De minimis, as used in this table means less than one hundredth of one percent.
[3] Non-hazardous recyclable products are a marketable commodity and not considered to have a capacity limit.
[4] The sum of wastes in this table that may be disposed of in a Class III landfill over 25 years of operation is 14.9 tons. Even considering only the Class III landfill capacity identified in Table 6.14-1 of the SPPE Application, there is more than 95 million cubic yards of permitted landfill capacity. Using an in-place density of approximately 0.5 tons per cubic yard, the available capacity is approximately 47 million tons. Therefore, the waste identified in this table represents approximately 0.00003 percent of capacity.
[5] Even considering only the Fallbrook Public Utilities District facilities, the waste generated will be a de minimis percent of available capacity. The district is currently has a permitted capacity of 2.7 million gpd, with a current usage of 1.5 gpd, providing 1.2 mgd excess capacity.
[6] Returned to vendor for regeneration.
[7] Even considering the current capacity of only the following licensed example treatment facilities, the waste generated will be a de minimis percent of the annual capacity: DeMenno/Kerdoon Compton Facility (40 million gallons annual capacity); Remedy Environmental, Anaheim (12 million gallons annual capacity).

[8] Even considering only the capacity of the Chemical Waste Management, Inc Kettlemen Hills Facility (7.3 million cubic yards capacity available), the amount of waste generated will be de minimis.
[9] One truck per month identified for RCRA and Non-RCRA hazardous waste above accounts for periodic offsite shipments of all hazardous wastes and hazardous recyclable materials shipped offsite in drums or smaller containers.
[10] Even considering the current capacity of only the following licensed example treatment facilities, the waste generated will be a de minimis percent of the annual capacity: Kinsbursky Brothers, Aneheim (60 million pounds annual capacity); Exide Batteries, Vernon (60 million pounds annual capacity).
[11] Even considering the current capacity of only one possible option, the Tamco Steel, Rancho Cucamonga (500,000 tons annual capacity) the amount of waste generated will be a deminimis percentage of annual capacity.
[12] Not expected to be generated by routine operations. This item is identified for completeness and would only be generated in the event of an unexpected condition.
[13] Even considering the current capacity of only the following licensed example TSDF facilities, the wastes generated will be a de minimis percent of the annual capacity: DeMenno/Kerdoon, Compton Facility (40 millon gallons annual capacity available).

EXHIBIT 94-1

TABLE 6.14-2 – CONSTRUCTION WASTES AND MANAGEMENT

(REV. 1, 10/8/07)

EXHIBIT 94-1

TABLE 6.14-2 – CONSTRUCTION WASTES AND MANAGEMENT (REV. 1, 10/8/07)

WASTE TYPE	PHASE	EXAMPLE COMPOSITION	ESTIMATED AMOUNT	ESTIMATED FREQUENCY OF GENERATION	WASTE MANAGEMENT METHOD		SIZE/VOLUME OF WASTE HAULING VEHICLES	NUMBER OF VEHICLE TRIPS	TOTAL QUANTITY	% OF OFFSITE FACILITY CAPACITY[1]
					ONSITE	OFFSITE				
Non-hazardous or hazardous	Solids	Oily rags, oil absorbent, and empty containers generated during normal construction activities	55 gallon drum (250 lbs)	Monthly	Store for <90 days	Oily rags would be recycled. Class I landfill disposal for other solids, if required due to waste classification.	5 ton box van	1 per 3 months	< 1 ton	De minimis-[2]
Non-hazardous	Solids	Wood (orchard trees)	600 trees (60 tons)	One-time	~~Remove~~ Chip and haul	Recycle	23 ton end-dump	4 (one time)	60 tons	Not applicable
		Scrap wood~~, steel, glass, plastic, paper, trash, construction debris, household-type waste~~	~~40~~ 10 cubic yards	Weekly	Containerize / House-keeping	Recycle ~~or dispose at Class III~~	23 ton roll-off	1 per week	260 cubic yards	Not applicable
		Scrap steel	10 cubic yards	Weekly	Containerize / House-keeping	Recycle	23 ton roll-off	1 per week	260 cubic yards	Not applicable
		Plastic/paper	10 cubic yards	Weekly	Containerize / House-keeping	Recycle	23 ton roll-off	1 per week	260 cubic yards	Not applicable
		Mixed trash (household-type waste)	10 cubic yards (2 tons)	Weekly	Containerize / House-keeping	Class III landfill	23 ton roll-off	1 per week	52 tons	De minimis[3]
	Liquids	Hydrotest water	25,000 gallons	One-time: Prior to initial startup	Sample and evaporate/in filtrate onsite if suitable	Ship offsite to licensed wastewater treatment facility if needed	5,000 gallon vacuum truck, if offsite disposal is needed	6 (one time)	25,000 gallons	De minimis[4]
	Liquids	Sanitary waste from portable chemical toilets	40 gallons	Daily	Periodically pumped to tanker truck by licensed contractors	Discharge by contractor to sanitary sewer ~~and municipal sewage~~or treatment plant	2,500 gallon vacuum truck	1 per week	52,000 gallons	De minimis[5]

[1] De minimis, as used in this table, means less than one hundredth of one percent, except as otherwise noted.

[2] Even considering only the capacity of the Chemical Waste Management Kettleman Hills Facility (7.3 million cubic yards capacity available), the amount of waste generated will be de minimis.

3 Even considering only the Class III landfill capacity identified in Table 6.14-1 of the SPPE Application, there currently is over 6,600 tons per day of disposal capacity available (i.e., permitted daily rate minus actual daily rate, as shown in SPPE Application Table 6.14-1. Therefore, the 52 tons that will be generated over the 6-month term of project construction represents approximately 1 percent of the available disposal capacity for a single day of landfill operations and a de minimus contribution to overall Class III landfill capacity.

[4] Even considering only the current capacity of only the following example licensed treatment facilities, the amount of water generated will a de minimis percent of the capacity: DeMenno/Kerdoon, Compton Facility (40 million gallons annual capacity); Remedy Environmental, Anaheim (12 million gallons annual capacity).

[5] Even considering only the Fallbrook Utilities District facilities, the waste generated will be a de minimis percent of available capacity. The district currently has a permitted capacity of 2.7 million gpd, with a current usage rate of 1.5 mgd, providing 1.2 mgd excess capacity.

EXHIBIT 94-2

TABLE 6.14-2A – CONSTRUCTION WASTES AND MANAGEMENT

FOR SDG&E GAS PIPELINE CONSTRUCTION

EXHIBIT 94-2

TABLE 6.14-2A – CONSTRUCTION WASTES AND MANAGEMENT FOR SDG&E GAS PIPELINE CONSTRUCTION

WASTE TYPE	PHASE	EXAMPLE COMPOSITION	ESTIMATED AMOUNT	ESTIMATED FREQUENCY OF GENERATION	WASTE MANAGEMENT METHOD		SIZE/VOLUME OF WASTE HAULING VEHICLES	NUMBER OF VEHICLE TRIPS	TOTAL QUANTITY	% OF OFFSITE FACILITY CAPACITY[1]
					ONSITE	OFFSITE				
Non-hazardous or hazardous	Solids	Oily rags, oil absorbent, and empty containers generated during normal construction activities	55 gallon drum (250 lbs)	Monthly	Store for <90 days	Oily rags would be recycled. Class I landfill disposal for other solids.	5 ton box van	1 (one time)	< 1 ton	De minimis[2]
		Scrap wood	5 cubic yards	Monthly	Stockpile at staging area	Landfill	23 ton roll-off	1 per month	15 cubic yards	Not applicable
		Scrap steel	5 cubic yards	Monthly	Containerize / House-keeping	Recycle	23 ton roll-off	1 per month	15 cubic yards	Not applicable
		Plastic/paper	5 cubic yards	Monthly	Containerize / House-keeping	Recycle	23 ton roll-off	1 per month	15 cubic yards	Not applicable
		Mixed trash (household-type waste)	5 cubic yards	Monthly	Containerize / House-keeping	Class III landfill	23 ton roll-off	1 per month	15 cubic yards	De minimis[3]
	Liquids	Hydrotest water	75,000 gallons	One-time: Prior to initial startup	Sample and evaporate/in filtrate onsite if suitable	Ship offsite to licensed wastewater treatment facility if needed	5,000 gallon vacuum truck, if offsite disposal is needed	15 (one time)	75,000 gallons	De minimis[4]
		Sanitary waste from portable chemical toilets	20 gallons	Daily	Periodically pumped to tanker truck by licensed contractors	Discharge by contractor to sanitary sewer or treatment plant	2,500 gallon vacuum truck	1 per week	26,000 gallons	De minimis[5]

[1] De minimis, as used in this table, means less than one hundredth of one percent.
[2] Even considering only the capacity of the Chemical Waste Management Kettleman Hills Facility (7.3 million cubic yards available capacity), the amount of waste generated will be de minimis.
3 Even considering only the Class III landfill capacity identified in Table 6.14-1 of the SPPE Application, there currently is over 6,600 tons per day of disposal capacity available (i.e., permitted daily rate minus actual daily rate), as shown in SPPE Application Table 6.14-1. Therefore, the 15 cubic yards that will be generated over the 6-month term of project construction will be a de minimus percent of the available disposal capacity and a de minimus contribution to overall Class III landfill capacity.
[4] Even considering only the current capacity of only the following example licensed treatment facilities, the amount of water generated will a de minimis percent of the capacity: DeMenno/Kerdoon, Compton Facility (40 million gallons annual capacity); Remedy Environmental, Anaheim (12 million gallons annual capacity).
[5] Even considering only the Fallbrook Utilities District facilities, the waste generated will be a de minimis percent of available capacity. The district currently has a permitted capacity of 2.7 million gpd, with a current usage rate of 1.5 mgd, providing 1.2 mgd excess capacity.

EXHIBIT 98-1

LORS RELEVANT TO WASTE MANAGEMENT AT THE ORANGE GROVE PROJECT

EXHIBIT 98-1

SAN DIEGO COUNTY WASTE MANAGEMENT LORS

AUTHORITY	AGENCY	REQUIREMENTS	COMPLIANCE
County of San Diego Code of Regulatory Ordinances, Title 6 – Health and Sanitation, Division 4 – Disease Control, Chapter 2	San Diego County Environmental Health Department	Abatement of public nuisances	Project will prevent and control vectors associated with waste materials through proper waste management practices.
County of San Diego Code of Regulatory Ordinances, Title 6 – Health and Sanitation, Division 8 – Sewage and refuse disposal, chapter 5	San Diego County Environmental Health Department	Management of solid waste	Project will properly handle, store, and dispose of refuse/ solid waste
County of San Diego Code of Regulatory Ordinances, Title 6 – Health and Sanitation, Division 8 – Sewage and refuse disposal, chapter 7	San Diego County Environmental Health Department	Accumulation of junk	Project will prevent the accumulation of junk materials/ equipment through route offsite shipment of waste and recyclable materials
County of San Diego Code of Regulatory Ordinances, Title 6 – Health and Sanitation, Division 8 – Sewage and refuse disposal, chapter 11	San Diego County Environmental Health Department	Hazardous materials inventory and response plan	Project will prepare and maintain an inventory and response plan for hazardous waste materials stored onsite