

# Executive Summary

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## 1.1 Project Overview

GWF Energy LLC (GWF) filed an Application for Certification (AFC) with the California Energy Commission (CEC) for the Tracy Peaker Project (TPP) on August 16, 2001, and an AFC Supplement on October 2, 2001 (01-AFC-16). The CEC found the AFC data adequate on October 17, 2001. Two sets of data responses were submitted by GWF to the CEC Staff on November 1, 2001 and November 28, 2001, respectively. The CEC released a staff assessment on December 28, 2001, and a supplemental staff assessment on February 1, 2002. The CEC published its Presiding Member's Proposed Decision on May 31, 2002, with the project receiving its Final Decision on July 17, 2002. These documents are incorporated by reference into this AFC and are presented in electronic form in Appendix 1A.

GWF proposes to modify the existing TPP, a nominal 169-megawatt (MW) simple-cycle power plant, by converting the facility into a combined-cycle power plant with a nominal 145 MW, net, of additional generating capacity. The modifications to the facility will be referred to hereinafter as the GWF Tracy Combined Cycle Power Plant (GWF Tracy) with a new nominal generating capacity of 314 MW net. GWF Tracy will occupy a 16.38-acre, fenced site within the existing GWF-owned 40-acre parcel in an unincorporated portion of San Joaquin County immediately southwest of Tracy, California, and approximately 20 miles southwest of Stockton, California. Figures 1.1-1 and 1.1-2 presents a vicinity map and project location of the GWF Tracy site.

Major components and features of the proposed GWF Tracy project include:

- Temporary disturbance of approximately 12.3 acres for construction laydown and parking on a previously disturbed portion of the 40-acre parcel that is outside of the existing plant fence line
- Permanent disturbance of approximately 3.28 acres associated with the relocation of the stormwater retention basin
- No new, expanded, or modified offsite linear facilities for fuel or water
- Replacement of landscaping and irrigation systems removed during construction
- Demolition and removal of the two existing oxidation catalyst and selective catalytic reduction (SCR) systems, including existing 100-foot stacks
- Demolition of the existing stormwater evaporation/percolation basin to accommodate the air-cooled (dry) condenser (ACC) unit on the existing site
- Addition of two new heat recovery steam generators (HRSG), each receiving the exhaust from one of the existing General Electric Frame 7EA combustion turbine generators (CTGs), and equipped with 324 MMBtu/hr, HHV capacity, natural gas-fired duct burners

- Addition of a new higher efficiency oxidation catalyst system within each HRSG to control carbon monoxide (CO) and volatile organic compounds (VOC) emissions to outlet concentration of less than 2 ppmvd at 15% oxygen (O<sub>2</sub>) and less than 2 ppmvd at 15% O<sub>2</sub>, respectively.
- Addition of a new higher-efficiency SCR system within each HRSG reusing the existing aqueous ammonia storage system to control oxides of nitrogen (NO<sub>x</sub>) emissions to less than 2 parts per million volume dry (ppmvd) at 15% O<sub>2</sub>
- Addition of two new 150-foot-tall, 17-foot-diameter, exhaust stacks replacing the existing exhaust stacks, each equipped with existing continuous emissions monitoring systems for CO, NO<sub>x</sub> and O<sub>2</sub>
- Addition of a new 85 MMBtu/hr capacity natural gas-fired auxiliary boiler equipped with ultra low NO<sub>x</sub> burner(s) and 50-foot-tall, 48-inch-diameter stack
- Addition of a new nominal 145 MW (net output) condensing steam turbine generator (STG)
- Addition of a new STG lube oil cooler
- Addition of a new 114-foot-tall by 234-foot-long by 215-foot-wide ACC system for system heat rejection
- Addition of a new 400,000 gallon fire/service water storage tank, modification to increase the existing 250,000-gallon firewater tank to 300,000 gallons, and the addition of a 125,000-gallon demineralized water tank
- Addition of a new nominal 288-horsepower, diesel-fired emergency firewater pump
- Onsite modifications to the water piping system, fire protection system, natural gas piping system, and stormwater drainage collection system
- Addition of a new water treatment building to house required equipment for boiler makeup water
- Modification of the wastewater treatment system to optimize water supply requirements and minimize offsite wastewater disposal
- A small increase in annual water consumption of approximately 24.9 acre-feet per year for HRSG feedwater makeup and the lube oil cooler
- No change to the current water service connection and supply from the Byron-Bethany Irrigation District (previously Plainview Water District) from the Delta-Mendota Canal
- Construction of a new stormwater evaporation/percolation basin sized accordingly to contain the additional plant acreage
- Addition of an onsite 115-kilovolt (kV) switchyard to provide an additional circuit breaker and transformer for the STG power output.
- Addition of an onsite 115-kV overhead transmission line from the steam turbine generator step up transformer to the existing 115-kV switchyard.

- Expansion of the existing PG&E Schulte Switching Station to loop in the existing 115-kV Tesla-Manteca transmission line.
- Placement of two 45-foot-tall, 5.5-foot-diameter, tubular steel transmission structures to facilitate a connection into the existing 115-kV Tesla-Manteca transmission line.
- Reconductoring of three short segments of the electrical transmission line (totaling approximately 3 miles) downstream of the first point of interconnection (one 0.7-mile segment adjacent to the GWF Tracy site, and two segments, approximately 1.6 miles and 0.7 mile, respectively, near the intersection of I-5 and I-205 near the Kasson Substation).

The project will not require any the construction of any offsite linear features. However, as indicated above, approximately 3 miles of transmission line past the point of first interconnection will be reconducted. The reconducting will only involve replacement of the existing conductors with larger ampacity conductors. The existing transmission structures will be reused in place. The locations of the segments being reconducted are shown on Figure 1.1-3. Figure 1.1-4 presents a general arrangement drawing of GWF Tracy. Appendix 1B provides a list of current property owners, addresses, and assessor's parcel numbers for all parcels within 500 feet of the proposed transmission line reconducting segments and within 1,000 feet of GWF Tracy.

## 1.2 Project Objectives

The objectives of GWF Tracy are to develop an electrical generating facility that:

- Meets the expanding need for efficient and reliable electrical generating resources located in the load center of the San Joaquin County and City of Tracy region.
- Accomplishes "brownfield" redevelopment and expansion of an existing power plant for a net increase in electrical generation capacity of 145 MW to support electrical system and local resource supply requirements in San Joaquin County and the city of Tracy. The California Public Utility Commission has a stated preference for "brownfield" power projects pursuant to Decision No. 04-12-048.
- Provides additional electrical capacity in the San Joaquin County and city of Tracy area while reducing emissions of greenhouse gases through more efficient electrical generation.
- Utilizes the existing TPP infrastructure to reduce environmental impacts and costs. The infrastructure at TPP will support GWF Tracy with only minor changes needed. A new electrical interconnection will be required and installation of two termination structures outside the current project boundaries will be added as part of the project.

GWF Tracy would provide power to the grid to help meet the demand for electricity and to help replace less-efficient fossil fuel generation resources retired because of age or cost of producing power. GWF Tracy would enhance the reliability of the state's electrical system by providing power generation near the centers of electrical demand. In addition, as demonstrated by the analyses in this AFC, the project would not result in any significant environmental impacts. Therefore, there are no alternative sites that would be preferred over the project as proposed.

## 1.3 Project Operation

GWF Tracy would be operated and maintained by a full-time staff of approximately 17 employees. Staffing requirements would include operators, technicians, and mechanics as well as a plant manager. Operations personnel typically work in a rotational shift system; maintenance and instrument technicians generally work 8-hour shifts on a 5-day a week basis. These shift schedules are anticipated to be followed at GWF Tracy.

GWF Tracy is expected to operate a maximum of 8,000 hours per year, which includes 4,900 hours of operation with no supplemental use of natural gas (duct-firing) and 3,100 hours of operation with duct-firing, not including 325 startup/shutdown events.

## 1.4 Project Ownership

GWF Energy LLC would construct, own, and operate GWF Tracy. GWF Energy also owns and operates the Hanford Energy Park Peaker and the Henrietta Peaking Plant, both of which are in Kings County. GWF Energy LLC is 50 percent owned by PSEG California Corporation and 50 percent owned by Harbinger GWF LLC. PSEG California Corporation is owned by PSEG Global USA Inc. Harbinger GWF LLC is owned by Harbert Cogen, Inc. Since 1989, a subsidiary of PSEG Global USA Inc. and Harbert Cogen, Inc., GWF Power Systems, has constructed, owned, and operated six solid-fuel small power plant/cogeneration facilities in California with a combined generating capacity of 125 MW. Five of these plants are in Contra Costa County and one is in Hanford, California.

## 1.5 Project Schedule

GWF Energy LLC is filing this AFC under the CEC's 12-month licensing process. Assuming the project receives a license by September 2009, construction would begin in the fall of 2011. Pre-operational testing of the power plant would begin in the first quarter of 2013, and full-scale commercial operation is expected to commence by the second quarter of 2013.

## 1.6 Project Alternatives

If the Applicant were not to build GWF Tracy (the "no project" alternative), it would not be possible to meet the project objectives. The "no project" alternative would forego all of the benefits associated with GWF Tracy. In addition, the "no project" alternative would result in more energy production from the existing onsite power plant at a lower thermal efficiency. The "no project" alternative would eliminate future local economic benefits (construction and operation payroll, purchase of local goods and services, local sales and property tax) associated with construction and operation of GWF Tracy, as well as the long-term benefits associated with more efficient and cost-effective electricity generation to the region's commercial and residential rate-payers and for the regional economy. The "no project" alternative would also result in higher greenhouse gas emissions per megawatt of electricity generated as compared to the proposed project.

In summary, the “no project” alternative would not serve the growing needs of San Joaquin County, the City of Tracy, and California’s businesses and residents for economical, reliable, and environmentally sound generation resources.

## 1.7 Environmental Considerations

Pursuant to the requirements set forth in existing environmental laws and the CEC’s regulations, sixteen areas of possible environmental impact from the proposed project were investigated. Detailed descriptions and analyses of these areas are presented in Sections 5.1 through 5.16 of the AFC. As discussed in detail in this AFC, with the implementation of the proposed mitigation measures and the anticipated Conditions of Certification, no significant unmitigated environmental impacts would be associated with the construction and operation of GWF Tracy. This executive summary highlights findings related to five subject areas that have historically been of interest in CEC proceedings: air quality, biological resources, noise, visual resources, and water resources.

### 1.7.1 Air Quality

GWF Tracy would result in a net regional air quality benefit for nonattainment pollutants based on the inclusion of state-of-the-art control technology and previously surrendered air emission offsets that are greater than the project emissions. The proposed combined-cycle systems would be equipped with best available control technology (BACT) to control criteria pollutant emissions. These BACT measures would include clean-burning, natural gas-fired duct burners; installation of a higher-efficiency, aqueous-ammonia-type SCR; and installation of a higher-efficiency oxidation catalyst. Exhaust gas concentrations of  $\text{NO}_x$  would be reduced from a maximum of 5 ppmvd at 15%  $\text{O}_2$  to a maximum of 2 ppmvd at 15%  $\text{O}_2$ . Exhaust gas concentrations of CO would be reduced from a maximum of 6 ppmvd at 15%  $\text{O}_2$  to a maximum of 2 ppmvd at 15%  $\text{O}_2$ . Exhaust gas concentrations of VOCs would be controlled to a maximum of 2 ppmvd at 15%  $\text{O}_2$ . Emissions of  $\text{SO}_2$  and  $\text{PM}_{10}$  would be minimized through the exclusive use of clean-burning natural gas. Ammonia ( $\text{NH}_3$ ) slip would be reduced from 10 ppmvd to 5 ppmvd.

Emissions sources during GWF Tracy construction would include heavy equipment exhaust and fugitive dust from disturbed areas. Water would be routinely applied to minimize fugitive dust emissions. Air dispersion modeling results for attainment pollutants (i.e.,  $\text{NO}_x$ , CO, and  $\text{SO}_2$ ) demonstrate that expected air quality impacts associated with emissions of these pollutants would be well below their respective significance levels.

Operational emission estimates were based on both commissioning of the project and full-load operational emissions, including startup/shutdown events. Both California and federal law require major sources of nonattainment pollutants in nonattainment areas to mitigate air quality impacts by providing emission offsets in the form of emission reduction credits. GWF Tracy would result in a net reduction of previously permitted emissions of  $\text{NO}_x$ , an ozone precursor.

Air dispersion modeling results demonstrate that the project will not cause or contribute to violations of applicable ambient air quality standards. Therefore, air quality impacts are considered insignificant.

## 1.7.2 Biological Resources

GWF Tracy will be constructed on land previously disturbed during the construction of the TPP. Compensation for habitat loss was previously accomplished under the San Joaquin Multi-Species Compensation Plan (SJMSCP) for the TPP. Avoidance measures outlined in the SJMSCP will be implemented for GWF Tracy, and areas of temporary disturbance will be restored to baseline conditions. The proposed reconductoring work will include upgrades to existing aboveground infrastructure only. Effects associated with reconductoring are temporary in nature, and, therefore, cumulative effects of reconductoring are immeasurable.

## 1.7.3 Noise

The San Joaquin County Code establishes noise limits in terms of hourly average noise equivalent sound levels ( $L_{eq}$ ) and maximum noise levels at noise-sensitive outdoor activity areas. The daytime (7 a.m. to 10 p.m.) hourly average and maximum limits are 50 and 70 A-weighted decibels (dBA), respectively. The nighttime (10 p.m. to 7 a.m.) hourly and maximum levels are 45 and 65 dBA, respectively. A 25-hour ambient noise monitoring at the project site was conducted and a noise generation model was prepared for GWF Tracy. The modeling shows that noise attributable to the project at the nearest residential receptors, to the west and southwest of the project, would be approximately 42 dBA, meeting the County's daytime and nighttime standards. Therefore, GWF Tracy will result in no significant noise impacts.

## 1.7.4 Visual Resources

The most prominent visual feature of GWF Tracy will be the proposed ACC. Analysis of simulated views of the project from sensitive viewing positions (key observation points or KOPs) shows that the project would not cause significant adverse visual impacts. Ratings of existing visual or scenic quality from KOPs range from low to moderate. Viewer sensitivity at these points is rated as low for vehicle drivers to high for residential. The project is not located in a scenic or protected viewshed. Overall, GWF Tracy would have a limited effect on the visual quality of the views from these areas. There would be no net change in visual quality rating from any of the KOPs. Section 5.13 contains a detailed discussion of the visual resources assessment. Changes in the appearance of the facility would be noticeable, but not substantial. Therefore, GWF Tracy will have no significant visual impacts.

## 1.7.5 Water Resources

The water to be used as process makeup for the power cycle systems will be supplied by existing water service from the Byron Bethany Irrigation District and treated onsite. Total water use would be about 37 gallons per minute (gpm) (average daily use), or about 18.24 million gallons per year (54.4 acre-feet), which represents an increase of 24.9 acre-feet per year, assuming 8,000 hours per year of operation. The plant would be a near-zero wastewater discharge facility. Small quantities (less than 1 gallon per minute) of industrial wastewater from the plant would be stored on site and periodically transported from the plant via licensed haulers for offsite recycle or disposal. Non-contact stormwater from the plant site would be channeled and directed to an onsite evaporation/percolation basin. All sanitary wastewater would be routed to an existing onsite septic tank/leach field. All other

wastewater generated would be handled and disposed of according to standard procedures and all applicable LORS. The project would not have an adverse effect on the availability or quality of water resources. Section 5.15 contains a detailed analysis of water resources. Based on the above, GWF Tracy will result in no significant impacts to water resources.

## 1.8 Key Benefits

### 1.8.1 Environmental Benefits

GWF Tracy would provide power to the grid to help meet the demand for electricity and to help replace less-efficient fossil fuel generation resources retired because of age or cost of producing power. GWF Tracy would enhance the reliability of the state's electrical system by providing power generation near the centers of electrical demand. In addition, as demonstrated by the analyses in this AFC, the project would not result in any significant environmental impacts with previously implemented mitigation measures.

### 1.8.2 Employment and Economic Benefits

The project will provide for a peak of approximately 400 construction jobs over the 22-month construction period. In addition to the direct employment benefit, GWF Tracy will require and use the services of local or regional firms for major maintenance and overhauls, plant supplies, and other support services throughout the life of the facility.

GWF Tracy will provide an estimated \$50 million in construction payroll, as well as the purchase of materials and supplies during construction. Assuming, conservatively, that 60 percent of the construction workforce will reside in San Joaquin County, it is expected that approximately \$30 million of this economic benefit will stay in the local area during the 22-month construction period. These additional funds will cause a temporary beneficial impact by creating the potential for other employment opportunities for local workers in other service areas, such as transportation and retail. Assuming a capital cost \$232 million, GWF Tracy will generate \$2,396,100 in property taxes annually. Since the property taxes are collected at the county level, their disbursement is also at the county level.

## 1.9 Persons Who Prepared the AFC

Persons with primary responsibility for the preparation of each section of this AFC are listed in Appendix 1C. The primary contacts for this AFC for purposes of the CEC's Proof of Service list are provided below.

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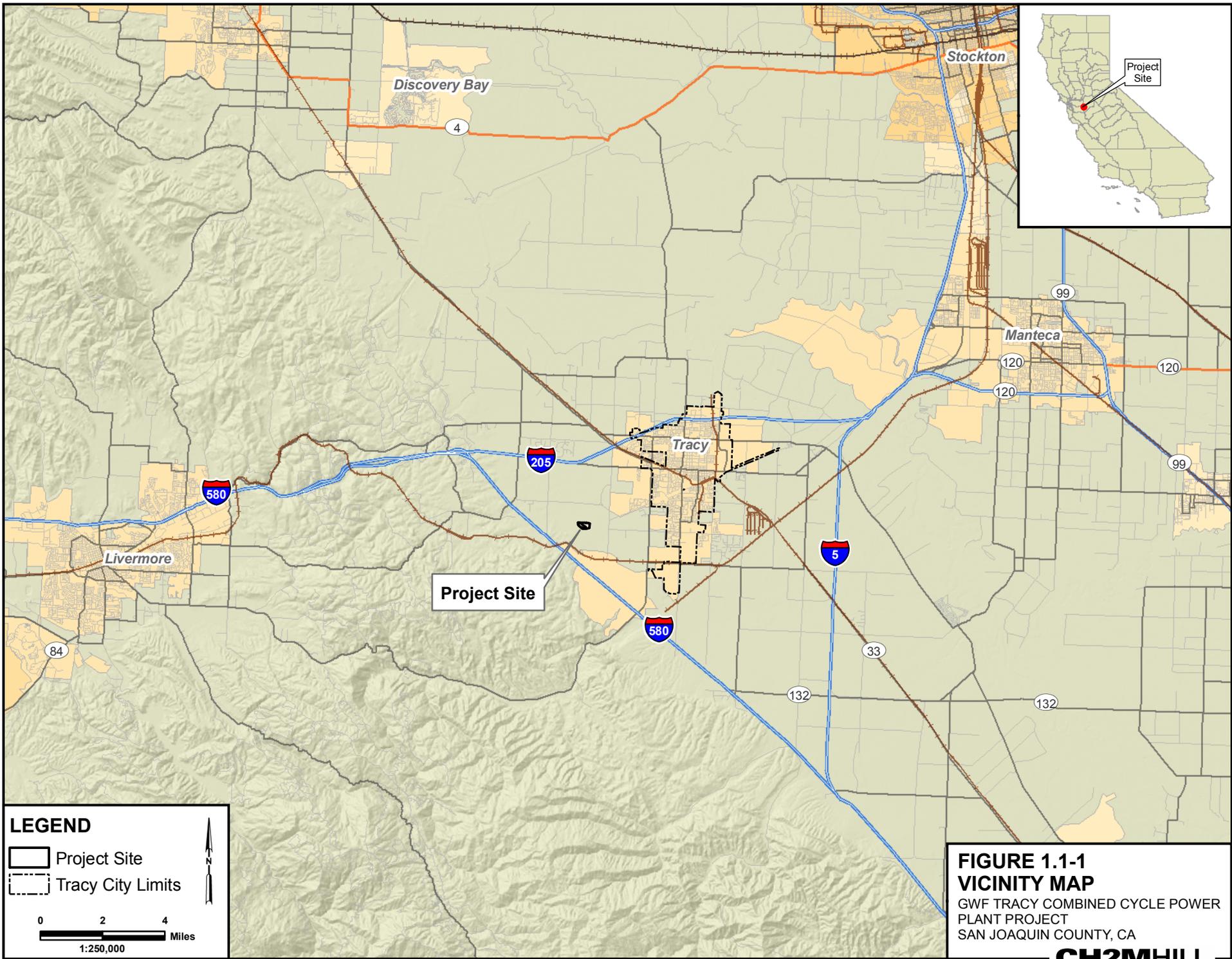
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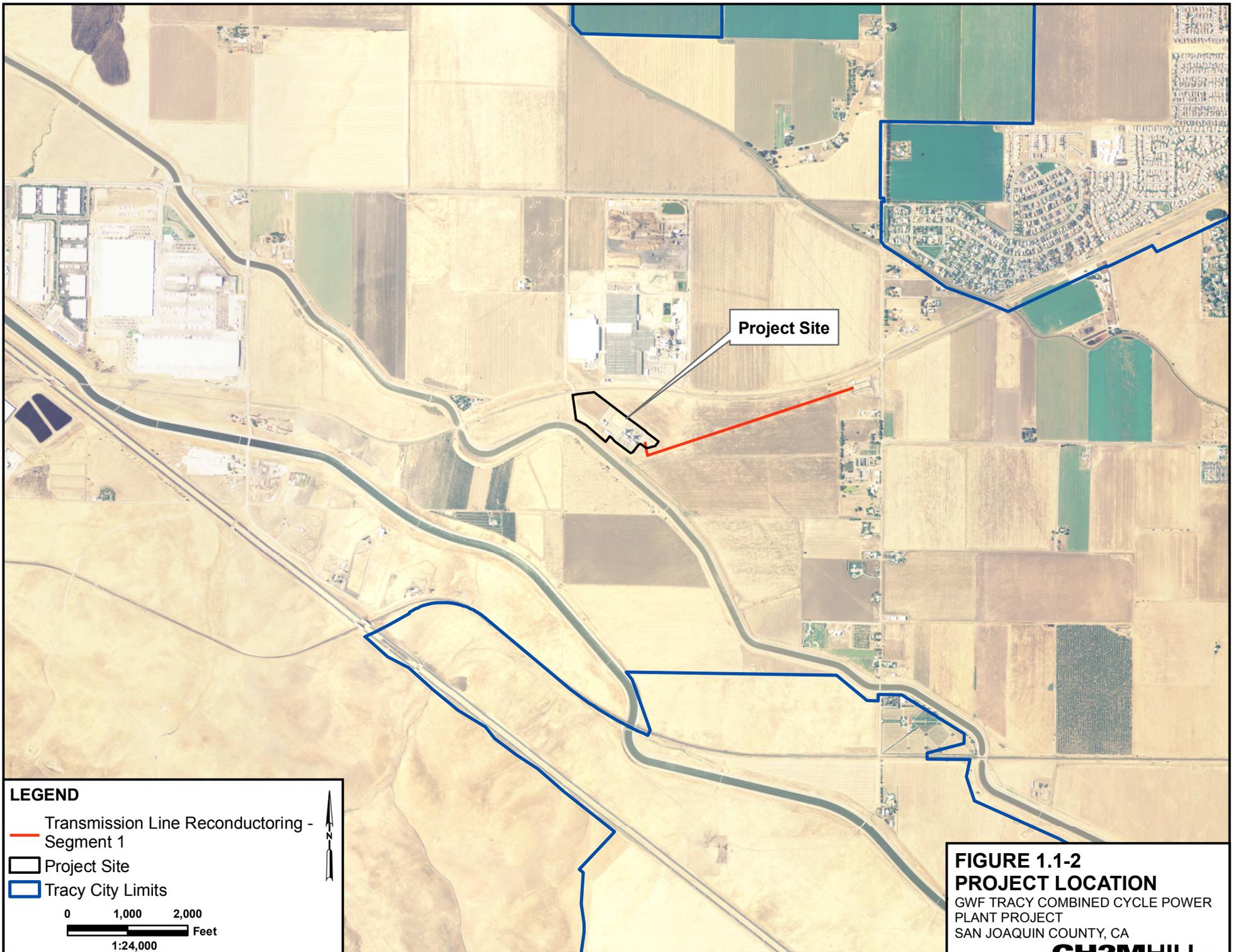
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**FIGURE 1.1-1  
VICINITY MAP**

GWF TRACY COMBINED CYCLE POWER  
PLANT PROJECT  
SAN JOAQUIN COUNTY, CA





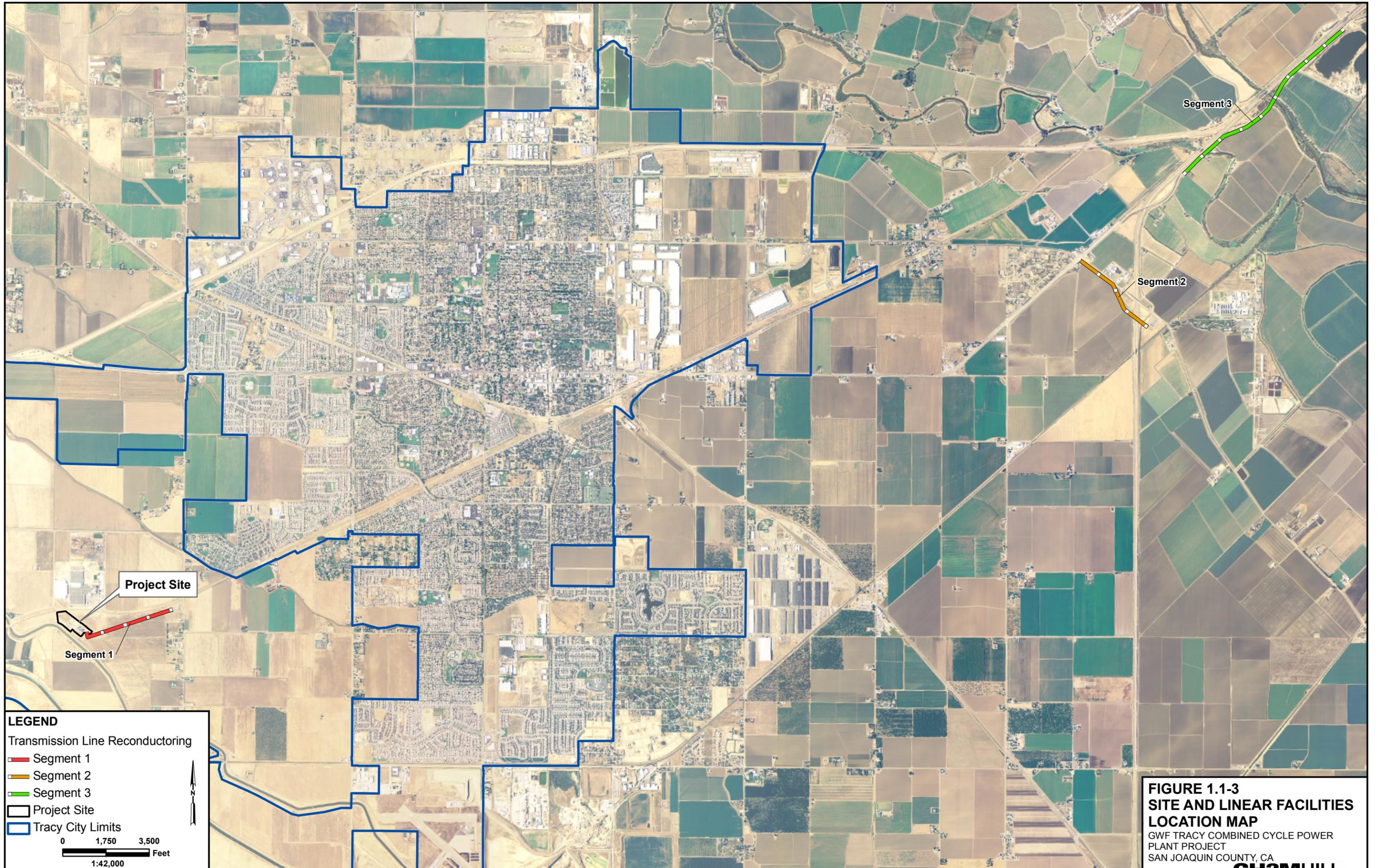
**LEGEND**

-  Transmission Line Reconductoring - Segment 1
-  Project Site
-  Tracy City Limits

0 1,000 2,000  
Feet  
1:24,000



**FIGURE 1.1-2  
PROJECT LOCATION**  
GWF TRACY COMBINED CYCLE POWER  
PLANT PROJECT  
SAN JOAQUIN COUNTY, CA  
**CH2MHILL**



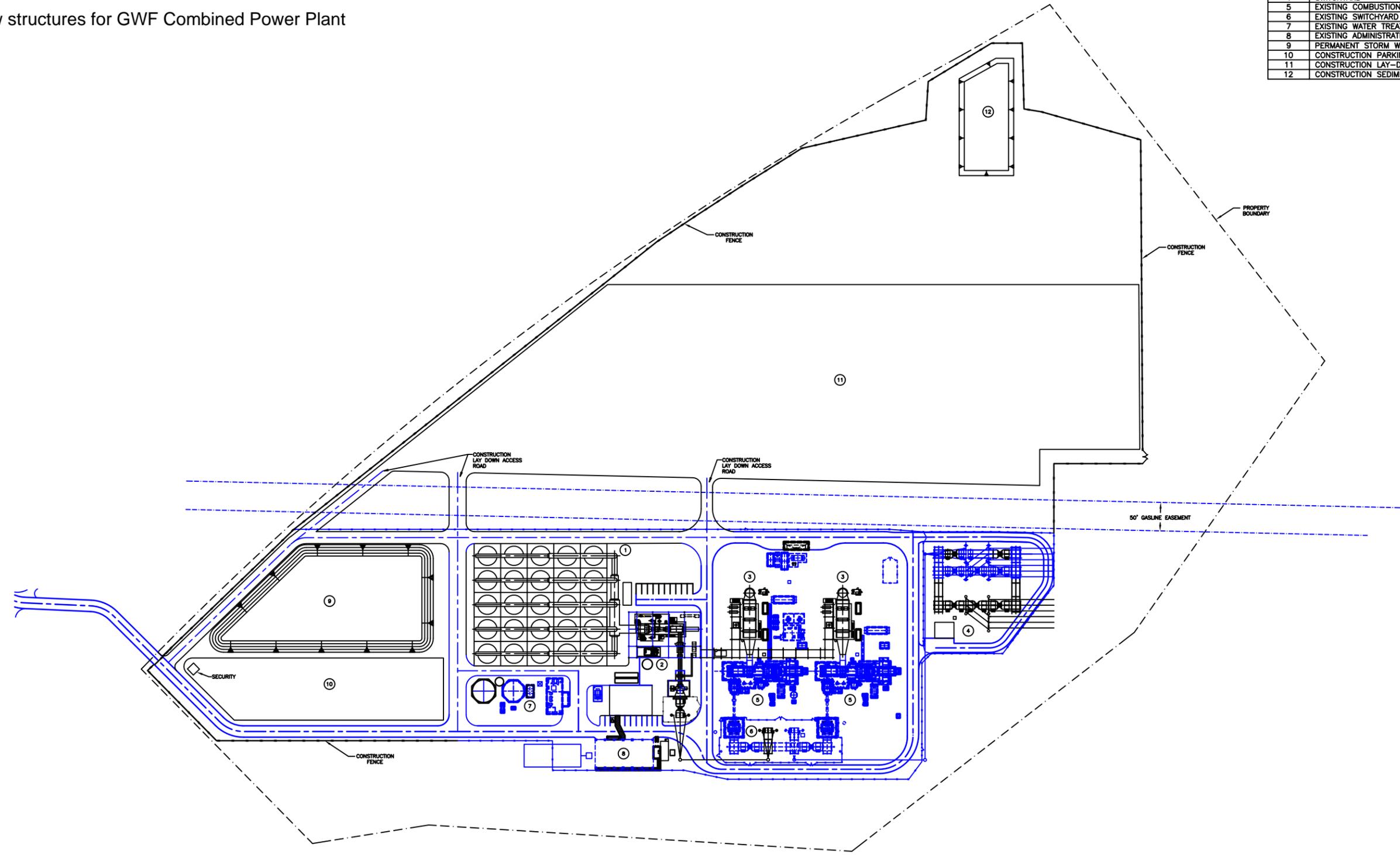
**FIGURE 1.1-3  
SITE AND LINEAR FACILITIES  
LOCATION MAP**

GWF TRACY COMBINED CYCLE POWER  
PLANT PROJECT  
SAN JOAQUIN COUNTY, CA

**Legend:**

- Existing Tracy Peaker Plant
- New structures for GWF Combined Power Plant

EQUIPMENT LIST	
ITEM NO.	DESCRIPTION
1	AIR COOLED CONDENSER
2	STEAM TURBINE/GENERATOR
3	HEAT RECOVERY STEAM GENERATOR
4	SWITCHYARD
5	EXISTING COMBUSTION TURBINE/GENERATOR
6	EXISTING SWITCHYARD
7	EXISTING WATER TREATMENT
8	EXISTING ADMINISTRATION/MAINTENANCE
9	PERMANENT STORM WATER RETENTION POND
10	CONSTRUCTION PARKING AND TRAILERS
11	CONSTRUCTION LAY-DOWN AND PARKING
12	CONSTRUCTION SEDIMENT BASIN



**FIGURE 1.1-4  
GENERAL ARRANGEMENT**  
GWF TRACY COMBINED CYCLE  
POWER PLANT PROJECT  
SAN JOAQUIN COUNTY, CA

Figure source: Black & Veatch Corporation, Drawing #160129-DM-S1002E