8.9 Agriculture and Soils

8.9.1 Introduction

This subsection describes the potential environmental effects on agriculture and soils from the construction and operation of the project. Potential impacts are assessed for the proposed Vernon Power Plant (VPP) site, the sewer line, electric transmission line and the natural gas supply pipeline.

Subsection 8.9.2 presents the laws, ordinances, regulations, and standards (LORS) applicable to agriculture and soils. Subsection 8.9.3 describes the existing environment that could be affected, including agricultural use and soil types. Subsection 8.9.4 identifies potential environmental effects, if any, from project development, and Subsection 8.9.5 presents mitigation measures. Subsection 8.9.6 describes the required permits and provides agency contacts. Subsection 8.9.7 provides the references used to develop this subsection.

8.9.2 Applicable Laws, Ordinances, Regulations, and Standards

Federal, state, county, and local LORS applicable to agriculture and soils are discussed below and summarized in Table 8.9-1.

8.9.2.1 Federal

8.9.2.1.1 Federal Water Pollution Control Act of 1972 and the Clean Water Act of 1977

The Federal Water Pollution Control Act of 1972, commonly referred to as the Clean Water Act (CWA) following amendment in 1977, establishes requirements for discharge of stormwater or wastewater from any point source that would affect the beneficial uses of waters of the United States. The State Water Resources Control Board (SWRCB) adopted one statewide National Pollution Discharge Elimination System (NPDES) General Permit that would apply to storm water discharges associated with construction, industrial, and municipal activities. The Regional Water Quality Control Board (RWQCB) is the administering agency for the NPDES permit program; however, the U.S. Environmental Protection Agency (USEPA) may retain jurisdiction at its discretion. The CWA's primary effect on agriculture and soils within the project area consist of control of soil erosion and sedimentation during construction, including the preparation and execution of erosion and sedimentation control plans and measures for any soil disturbance during construction.

8.9.2.1.2 USDA Engineering Standards

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), *National Engineering Handbook*, 1983, Sections 2 and 3 provide standards for soil conservation during planning, design, and construction activities. The project would need to conform to these standards during grading and construction to limit soil erosion.

TABLE 8.9-1
Laws, Ordinances, Regulations, and Standards for Agricultural and Soil Resources

LORS	Purpose	Regulating Agency	Applicability (AFC Section Explaining Conformance)
Federal			
Federal Water Pollution Control Act of 1972; Clean Water Act of 1977 (including 1987 amendments).	Regulates stormwater discharge from construction and industrial activities	RWQCB – Los Angeles Region 4 under State Water Resources Control Board. USEPA may retain jurisdiction at its discretion.	Subsections 8.9.2.1 and 8.9.4.2.
Natural Resources Conservation Service (1983), *National Engineering Handbook*, Sections 2 and 3.	Standards for soil conservation	Natural Resources Conservation Commission	Subsections 8.9.2.1 and 8.9.5.
State			
Porter-Cologne Water Quality Control Act of 1972; Cal. Water Code 13260-13269: 23 CCR Chapter 9.	Regulates stormwater discharge	CEC and the Los Angeles Region under State Water Resources Control Board	Subsections 8.9.2.2 and 8.9.4.2.
Local			
City of Vernon Municipal Code	Encroachment Permit and Construction Permit	Public Works Division	Subsections 8.9.2.3 and 8.9.6
City of Bell Municipal Code	Franchise Agreement; Encroachment Permit; and Excavation Permit	City Attorney, Building and Planning Department, and Engineering Department	Subsections 8.9.2.3 and 8.9.6
City of Commerce Municipal Code	Plan review required prior to permit submittals to County of Los Angeles	Planning Division	Subsections 8.9.2.3 and 8.9.6
City of Bell Gardens Municipal Code	Encroachment Permit and Excavation Permit	Department of Public Works	Subsections 8.9.2.3 and 8.9.6
County of Los Angeles	Encroachment Permit, Construction Permit, and Excavation Permit	Department of Public Works, Construction Division	Subsections 8.9.2.3 and 8.9.6
Union Pacific Railroad (UPRR) Utility Specifications	Utility encroachments on UPRR rights-of-way	Los Angeles Area office, Real Estate Department	Subsections 8.9.2.3 and 8.9.6

8.9.2.2 State

8.9.2.2.1 California Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1972 is the state equivalent of the federal CWA, and its effect on the VPP would be similar. The California Water Code requires protection of water quality by appropriate design, sizing, and construction of erosion and sediment controls. The discharge of soil into surface waters resulting from Department land disturbance may require filing a report of waste discharge (see Water Code Section 13260a). The RWQCB, which controls surface water discharges, may become involved indirectly if soil erosion threatens water quality.

8.9.2.3 Local

Within the City of Vernon, the proposed project would require a construction permit for the VPP site and an encroachment permit for linear features that would cross any public rights-of-way. The Public Works Division is responsible for reviewing plans and for inspecting construction projects while in progress.

The VPP will connect to the electrical transmission system via a new 230-kV transmission line that would loop a single Velasco-to-Century 230-kV circuit into the project switchyard, then exit the switchyard and head north on Soto and east on Leonis Boulevard to the LADWP right-of-way. The total distance is about 4,500 feet (see Section 5, Electric Transmission). This proposed corridor is located entirely within the City of Vernon.

An alternative transmission line route would use Southern California Edison's (SCE) Laguna Bell Substation. The alternative electric transmission line would connect from the plant's switchyard to the Laguna Bell Substation. The 230-kV transmission line would exit the switchyard and head north on Soto Street and east on Leonis Boulevard. It would continue on Leonis Boulevard past the LADWP right-of-way down District Boulevard and cross the Los Angeles River. It would then follow an existing 66-kV subtransmission line along the east side of the river. The 66-kV line will be removed and replaced with Vernon's spare circuit and the idle SCE circuit. At Randolph Street, the route turns east and proceeds to the Laguna Bell Substation. Total distance is approximately 5 miles. On the east side of the Los Angeles River, Randolph Street forms the boundary between the cities of Commerce (to the north) and Bell Gardens (to the south). A railroad alignment and right-of-way runs parallel to Randolph Street over this entire segment.

The following is a brief description of the LORS for the different cities and other agencies that would or could have jurisdiction over the alternative electrical transmission alignment. These include the LORS for the cities of Bell, Commerce, and Bell Gardens, as well as the County of Los Angeles, and the UPRR.

The City of Bell requires a Franchise Agreement for new utilities that are arranged through the City Attorney and the City Council. Encroachment Permits and Excavation Permits are also required through the Building and Planning Departments. These permits require plan checks by the Engineering Departments along with fees to pay for site inspections during construction (Alvarado, pers. comm., 2005). It is also likely that the City of Bell will require new utilities along Randolph Street to be located underground. If Southern California Edison facilities (poles or rights-of-way) were used for the VPP transmission line, the City of Bell would also want to see proof of that agreement. (Alvarado, pers. comm., 2005).

The City of Bell Gardens would require an Encroachment Permit and an Excavation Permit from the Department of Public Works. These permits require a plan review. (Vahid, pers. comm., 2005). The City of Commerce does not issue any permits (Gomez, pers. comm., 2005). However, the City Engineering Department does provide a required plan review before the requisite permits applications (encroachment, excavation, and construction) are submitted to the County of Los Angeles Department of Public Works, Construction Division (http://www/ladpw.org/prg/business/page_04.cfm).

The UPRR would also require an Encroachment Permit for any utility crossing or running parallel within their right-of-way along Randolph Street. This permit is required for either aboveground or belowground utilities. An insurance policy covering the installation is also required.[1] The Los Angeles Junction railroad (LA Junction) near District Boulevard and the Los Angeles River may require a permit to cross their railroad tracks, depending on whether vehicles need to enter the right-of-way or not (Alexander, pers. comm., 2006).

8.9.3 Environmental Setting

The proposed VPP site is located within an urban area of the Los Angeles Basin that is dominated by industrial/commercial land uses. The proposed VPP will be constructed on 5.8 acres. In addition to the grading at the main plant site, equipment and material laydown during construction and construction parking will be at the following remote areas:

- Two Laydown/Fabrication areas will be located north and northwest of the proposed VPP site, one area comprising of approximately 4.21 acres will be located at the northwest corner of Seville Avenue and East 45th Street and the other area comprising of approximately 2.8 acres will be located at the northeast corner of Seville Avenue and 46th Street.
- Parking and/or offices will be located within a quarter-mile radius to the north, northwest, and east of the proposed VPP location. Parking and offices at the southeast corner of Leonis Boulevard and Seville Avenue will comprise of approximately 1.07 acres; Parking at the northwest corner of Leonis Boulevard and Soto Street will comprise of approximately 0.28 acre; and parking directly east of the VPP, across Soto Street will comprise of 0.58 acre.

All of these areas are paved and will remain paved during construction. The properties immediately surrounding the proposed VPP site in the city of Vernon are used for industrial and commercial activities.

Based on review of aerial photographs and documentation from a nearby project, there are no active commercial agricultural uses within the proposed VPP site; however, there are limited agricultural uses in the project vicinity: one site within the LADWP transmission line corridor between Fruitland Avenue and East 50th Street; one within the SCE transmission line corridor about 1,300 feet north of the Laguna Bell Substation, between the UPRR tracks and East Slauson Avenue (see Figure 8.9-2). Neither of these two agricultural areas would be directly affected by the proposed linear features for the VPP.

There are no important farmlands (as defined for the Farmland Mapping and Monitoring Program) mapped within a mile of the proposed project area (CDC, 2004). The proposed sewer, gas and electrical corridors will follow existing roadway or railroad rights-of-way through urban areas and the existing recycled and potable water supply pipelines will be connected adjacent to the VPP site.

Soil survey mapping units characterizing the types and distribution of soils within the project area, as shown on Figure 8.9-1, are taken from: *Report and General Soil Map, Los Angeles County, California* (NRCS, 2002). The electronic shape files for these mapping units were scanned from the general soil map. Detailed soil descriptions were developed from the soil survey publication (NRCS, 2002) and from Official Series Descriptions on the NRCS website.

[1] UPRR's website is http://www.uprr.com/reus/pipeline/install.shtml.

It should be noted that, because of the densely developed, urban nature of the VPP site and vicinity, there is a high probability that actual soil conditions could vary significantly from those described. This condition could occur because of historic grading (mixing) of locally occurring soils or from imported fill brought in where native soil bearing properties were not sufficient to support building foundations or other facilities.

Data for the affected environment are summarized and presented below:

- Soil types for the project site and along the project gas supply pipeline and electrical transmission alignments are identified in Figure 8.9-1.
- Table 8.9-2 summarizes the characteristics of each of the individual soil mapping units identified on Figure 8.9-1 in the project vicinity including the site boundaries and the project's linear facilities. The table summarizes depth, texture, drainage, permeability, erosion hazard rating, land capability classification, and fertility as an indicator of its revegetation potential.

TABLE 8.9-2
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description
13	**Tujunga-Soboba association; 0 to 5 percent slopes:**
	This soil comprises of approximately 1.6 miles of the proposed electrical transmission line linear. Approximately 0.85 miles run along Leonis Blvd. on the west side of the channelized Los Angeles River. On the east side of the Los Angeles River approximately 0.73 miles parallel the river channel then heads east along Randolph Street. The soils of this association are formed in parent materials on nearly level and gently sloping alluvial fans. They occur between Sea level and 3,700 feet of elevation.
	The Land Capability Classification for non-irrigated soils is VIIe-4 (indicating soils unsuited to commercial crop production and severe limitations due to erosion hazard caused by sandy soil textures).
	Tujunga soils make up about 60 percent of this soil mapping unit. They are deep soils (> 60 inches) and have sand or loamy fine sand surface layers under lain by similar soil textures in the substratum.
	Tujunga soils are somewhat excessively or excessively drained. Flooding may never occur or it may occur frequently depending on the location.
	Tujunga soils have a rapid permeability and negligible or very low runoff.
	Tujunga soils have a low inherent fertility
	Taxonomic Class: Mixed, thermic Typic Xeropsamments
	Soboba soils make up about 30 percent of this soil mapping unit with the remaining 10 percent composed of unnamed sandy and cobbly material in the beds if intermittent streams.
	Soboba soils are deep (> 60 inches) and have very fine sandy loam surface soils underlain by very cobbly loamy coarse sand in the substratum.
	Soboba soils are excessively drained. Occasional flooding of these soils may occur.
	Soboba soils have a very rapid permeability and very slow runoff.
	Soboba soils have a very low inherent fertility.
	Taxonomic Class: Sandy-skeletal, mixed, thermic Typic Xerofluvents

TABLE 8.9-2
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description
14	**Hanford association; 2 to 5 percent slopes:** This soil unit comprises the entire site and area containing the proposed sewer, water, and gas supply linears in proximity to the site. It also comprises the approximately 1.8 miles of electrical transmission line that runs over the Los Angeles River from Leonis Blvd. and along the east side of the river south toward Randolph Street. A segment of approximately 0.2 miles runs along Randolph Street. The soils of this association are formed in parent materials on gently sloping alluvial fans. They occur between Sea level and 3,500 feet in elevation. The Land Capability Classification for non-irrigated soils is IVec-1 (indicating soils with severe limitations for choice of plants because of problems with erosion and dry climate). **Hanford** soils make up about 85 percent of this soil mapping unit with the remaining soils comprised of Yolo (10 percent) and Hesperia (5 percent) soils **Hanford** soils are deep (> 60 inches) and have sandy loam surface and gravelly loamy coarse sand substratum. **Hanford** soils are well-drained; they have moderately rapid permeability and negligible to low runoff. **Hanford** soils a very low inherent fertility. Taxonomic Class: Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents
15	**Yolo association:** This soil mapping unit would not be affected by the VPP project but the information is included because this could be a considerable component (up to 10 percent) of the Hanford association. Soils are formed in alluvial fans between the elevation of 1,175 and 1,200 ft. Typical profile: Silt loam surface over a silt loam subsoil. Deep soils (> 60 inches) and well-drained Permeability is moderate; Runoff is slow to medium Inherent fertility is high. Taxonomic class: Fine-silty, mixed, superactive, non-acid, thermic Mollic Xerofluvent

TABLE 8.9-2
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description
21	**Ramona-Placentia association, 2 to 5 percent slopes:** This soil comprises approximately 0.6 mile of the proposed electrical transmission line linear along Randolph Street, on east side of the channelized Los Angeles River near the Laguna Bell Station. The soils of this association are formed in parent materials on gently sloping terraces. They occur between Sea level and 1,300 feet of elevation. The Land Capability Classification is not given for non-irrigated soils. For the Ramona soils, the irrigated Land Capability Classification is IIIe-1 (indicating soils with severe limitations for choice of plants because of problems with erosion). For the Placentia soils, the irrigated Land Capability Classification is IVe-3 (indicating soils with severe limitations for choice of plants or management because of problems with erosion due to clayey soil or slow permeability). **Ramona** soils make up about 80 percent of this soil mapping unit. They are deep (> 60 inches) and have heavy loam, loam, or sandy loam surface layers with dense clay loam or clay subsoil. **Ramona** soils are well drained; they have moderately slow to slow (subsoil) permeability; and slow to rapid runoff. **Ramona** soils have a moderate inherent fertility. **Ramona** soils have a high shrink/swell capacity. Taxonomic Class: Fine-loamy, mixed, superactive, thermic Typic Haploxeralfs **Placentia** soils make up about 15 percent of this soil mapping unit with Hanford soils making up the remaining 5 percent. **Placentia** soils moderately deep (> 18 inches) over a clay subsoil. They have a loam or sandy loam surface texture over a dense clay loam subsoil. **Placentia** soils are moderately well drained; they have very slow permeability; and very rapid runoff. **Placentia** soils have a low inherent fertility **Placentia** soils have a high shrink/swell capacity. Taxonomic Class: Fine, smectitic, thermic Typic Natrixeralfs

Notes:

Soil characteristics are based on soil mapping descriptions provided in the published soil survey (NRCS, 2002) and in the NRCS Official Series Descriptions provided on the NRCS website.

Soil descriptions are limited to those soil units that could be affected by the VPP project. Other soil mapping units that are outside of the project area, but shown on Figure 8.9-1 include the Yolo association and the Chino association. While the Yolo association map unit is outside of the project area, a brief description is provided because these soils could comprise up to 10 percent of the Hanford association soil mapping unit in which the majority of the VPP project occurs.

8.9.3.1 Agricultural Use On and Around the Proposed VPP Site

The types of land use surrounding the proposed VPP site are presented and discussed in Section 8.4, Land Use. A review of project-specific and web-based aerial photographs and biological surveys, confirmed that the site and immediately surrounding land uses are not used to support livestock. However, some agricultural production is supported within the LADWP transmission line right-of-way between Fruitland Avenue and East 50th Street and within the SCE transmission corridor to the north of the Laguna Bell Substation (see Figure 8.9-2).

The LADWP transmission corridor land parcel is used to produce edible cactus plants, unspecified row crops, and unspecified crops within plastic hot houses. The proposed natural gas line along East 50th Street would pass to the north of this agricultural parcel and so, this parcel would not be directly impacted by the VPP project.

Another agricultural parcel, identified within the SCE transmission corridor, was being used for a plant nursery for a wide variety of landscape plants such as palms trees, hedges (privet); and vines (jasmine and honeysuckle). Again, because the alternative transmission line for the VPP would run to the south of this area along Randolph Street, there would be no direct impacts to this agricultural parcel from the VPP project.

The soils mapped at the VPP and surrounding areas are indicated to be of the soil capability subclass IVec-1 (without irrigation) indicating that these soils have severe limitations for choice of plants or management (or both) due to potential for soil erosion and dry climate.

Of the mapped soils, only the Hanford soils are associated with prime agricultural land or other important farmland classifications. However, none of the important farmland terms apply to the VPP site or vicinity because those lands have been developed for urban (industrial, commercial, or residential) uses.

The Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation (CDC) provide statistics on conversion of farmland to non-agricultural uses for Los Angeles County where the VPP site is located (CDC, 2005). In the year 2004, Los Angeles County had approximately 44,051 acres of Important Farmlands (including Prime Farmland, Farmland of Statewide and Local Importance and Unique Farmlands) and an additional 233,399 acres of grazing land. In the period from 2002 to 2004, Important Farmlands had shown a net increase of almost 1,599 acres (3.8 percent) within the county. In the prior review period (2000-2002), there was only a net change (loss) of 79 acres within the county. A review of the "Important Farmlands" mapping by the FMMP shows that the project site and surrounding areas to be designated as "Urban and Built-Up Land."

8.9.3.2 Agricultural Uses Along the VPP Linear Features

Based on a site visit and a review of available aerial photographs, there no parcels of land that are used for agricultural production that would be directly impacted by the proposed VPP linears. Agricultural land parcels are depicted on Figure 8.9-2 and described in Section 8.9.3.1.

8.9.3.2.1 Transmission Line

From the switchyard, the 230-kV transmission line would head north on Soto and east on Leonis to the LADWP right-of-way. It would loop a single Velasco to Century 230-kV circuit into the project switchyard. Total distance is about 4,500 feet. Should the alternative SCE connection to Laguna Bell Substation be used, it is located approximately 5 miles away in the City of Commerce. This alternative transmission line route would follow existing, developed roadways and rights-of-way north on Soto and east on Leonis through the City of Vernon. It would continue on Leonis past the LADWP right-of-way down District Boulevard and cross the Los Angeles River. It would then follow an existing 66-kV subtransmission line south along the east side of the river to Randolph Street. At Randolph Street, the route turns east and proceeds to the Laguna Bell Substation.

8.9.3.2.2 Sewer Line

Two sewer line routes are being considered. Under Alternative A, the project would have an 18-inch sanitary sewer line that would travel from the west side of the plant south along Seville Avenue to Fruitland Avenue, then west along Fruitland Avenue to Malabar Street, then south on Malabar to 52nd Street, then west on 52nd Street to Santa Fe Avenue, then south on Santa Fe Avenue to 52nd Street, then west on 52nd Street to Alameda Street for a total distance of about 1 mile (see Figure 8.9-1). Under Alternative B, the 18-inch sewer line would travel from the east side of the plant, south on Soto Street to 54th Street, then east to Boyle Avenue, and then south to Slauson Avenue, for a total distance of about 1 mile. The sewer line will not cross any areas under agricultural production.

8.9.3.2.3 Natural Gas Line

The VPP would also have a natural gas supply pipeline that will extend from the old H. Gonzales City Gate Meter Yard on the southwest corner of Downey Road and 50th Street, and then head west along 50th Street to the plant site (see Figure 8.9-1). As previously described, the area under the LADWP transmission line on the north side of Fruitland Avenue but south of East 50th Street is currently in small-scale agricultural production. Construction of the gas line will not directly impact agricultural activities at that location.

8.9.3.2.4 Recycled and Potable Water Lines

The source of process water for the VPP site will be from an existing recycled water pipeline located along Boyle Avenue. The 2,000-foot-long connection will travel from the plant site east along 50th Street to Boyle Avenue. However, as described in Section 7, the Central Basin Municipal Water District's (CBMWD) main recycled water line will need to be extended to another pumping station before sufficient volume of recycled water will be available for VPP. CBMWD has committed to having its system improvements completed before recycled water is needed by VPP. The plant will also connect to potable water provided via existing city mains located in Soto Street and Seville Avenue.

Because all of the VPP linears would be constructed within existing streets adjacent to or near the plant site, their construction will have no impact on agricultural land uses. For the same reason, the proposed SBEF project will not affect any land that is under a Williamson Act agreement.

8.9.3.3 Soil Types within the Study Area and Prime Farmlands

Table 8.9-2 provides a description of the properties of the soil mapping units that are found in the vicinity of the proposed VPP site, laydown area, and along the proposed linear routes. As indicated, the soil mapping units in the project area are located within the Hanford association soil mapping unit and have a relatively low capability to support commercial crop production (soil capability class IVec-1). The proposed VPP project will not affect any Prime Farmlands or other important farmlands because the site and surrounding areas have already been developed for urban land uses (industrial, commercial, and residential.). As previously mentioned, the proposed project construction activities may occur near some parcels that are currently used for agricultural production (i.e., cactus plants or row crops) that fall near the proposed gas supply However, no direct impacts to agricultural parcels will occur.

The drainage class information does not reveal the presence of somewhat-poorly or poorly drained soils that would indicate a potential for jurisdiction wetlands in the project area.

8.9.3.4 Soil Loss and Erosion

The factors that have the largest effect on soil loss include steep slopes, lack of vegetation, and erodible soils composed of large proportions of fine sands. The soils found in the VPP site, laydown area, and along the linear features are nearly level (or very slightly sloped). While these soils do not have vegetative cover, they are currently paved or otherwise covered by existing facilities. In general, the soil types at the VPP site and along the linear features, as indicated by the NRCS mapping (2002), have surface soil conditions that are relatively coarse grained (sand, loamy sand, sandy loam, or very fine sandy loam). These conditions could have a relatively high potential for water and wind erosion. However, the erosion potential is somewhat mitigated by the fact that the proposed areas where construction activities will occur is surrounded by other developed properties and buildings that will limit locally significant ground-level winds that could lead to excessive wind erosion, and steep slopes are not present.

Best management practices (BMPs) will be used to minimize erosion at the site during construction. These measures typically include mulching, physical stabilization, dust suppression, berms, ditches, and sediment barriers. Water erosion will be mitigated through the use of sediment barriers and wind erosion potential will be reduced significantly by keeping soil moist or by covering soil piles with mulch or other wind protection barriers. These temporary measures would be removed from the site after the completion of construction and the site will be paved or completely covered. The final state of the site during operations will be completely paved or otherwise covered so soil erosion loss at that point would be negligible.

8.9.3.4.1 Water Erosion

Despite the low potential for soil erosion in the VPP project area, an estimate of erosion by water is provided in Table 8.9-3. This estimate of soil loss by water erosion was developed using the Revised Universal Soil Loss Equation (RUSLE2) program using the following assumptions:

- The 5.8-acre VPP site is currently being cleared of structures. If necessary, the site will be graded at the beginning of construction to ensure proper drainage. To be conservative, it was assumed that active soil grading on the plant site would occur over a 2-month period, but no active grading is expected for the construction parking, fabrication, and laydown areas. It was then assumed that the soil for the site would be disturbed for an additional 22-month construction period. All laydown, fabrication, and parking areas are paved; therefore, soil loss was not estimated for these features.

- The total offsite area for the approximately 1-mile-long natural gas supply pipeline trench (assuming a 5-foot width) is 0.512 acre. It is conservatively estimated that the pipeline area would be exposed for a 6-month period before being repaved.

- The total offsite area for the approximately 5,800-foot-long sanitary sewer trench (assuming a 5-foot width and that the more conservative Alternative A is used) is 0.669 acre. For the purpose of estimating soil loss, a similar approach to that described for the natural gas pipeline above was used with a construction duration estimated at 8 months.

- For the 230-kV transmission line, overhead towers would be used to connect the conductors to the LADWP transmission lines. The length of the connection would be about 4,500 feet. It is estimated that new poles would be installed at a 150-foot spacing along this entire length and that the disturbed foot print for each tower would be 4 feet by 4 feet. This alternative would have an estimated 29 poles with a total disturbed impact area of 0.0104 acre.
- For the 230-kV alternative transmission line, overhead towers would be used from the plant switchyard to the Laguna Bell Substation. The 230-kV transmission line would exit the switchyard and head north on Soto Street and east on Leonis Blvd. It would continue on Leonis past the LADWP right-of-way down District Blvd. and cross the Los Angeles River. It would then follow an existing 66-kV subtransmission line along the east side of the river. The 66-kV line will be removed and replaced with Vernon's spare circuit and the idle SCE circuit. At Randolph Street, the route turns east and proceeds to the Laguna Bell Substation. Total distance is approximately 5 miles. Using the same approach as described above, this alternative transmission line route would have an estimated 180 poles with a total disturbed impact area of 0.065 acre.
- Conservative estimates of soil loss (in tons) were made for sandy loam. Of the different surface soil types mapped in the VPP site and vicinity, this is the soil texture that gave the highest (most conservative) erosion estimate.
- RUSLE2 rainfall erosivity conditions were estimated for the VPP site coordinates using site-specific rainfall estimates from on-line National Weather Service data (NOAA Atlas 2) at http://hdss.nws.noaa.gov/cgi-bin/hdsc/na2.perl?qlat=33.9978 $qlon=-118.2221 & Submit=submit.
- Assumes a 100-foot slope length. Estimated soil unit slope is the midpoint of the minimum and maximum of the unit slope class.

TABLE 8.9-3
Estimate of Soil Loss by Water Erosion Using Revised Universal Soil Loss Equation (RUSLE2)

			Estimates Using Revised Universal Soil Loss Equation[a]		
Feature (acreage)[b]	**Activity**	**Duration (months)[c]**	**Soil Loss (tons) without BMPs**	**Soil Loss (tons) with BMPs**	**Soil Loss (tons/yr) No Project**
Site (5.8 acres)	Grading	2	10.6	0.1	0.21
	Construction	22	56.4	1.6	--
Gas Pipeline (0.516 acres)	Grading/excavation	6	2.8	1.4	0.02
Sewer Line A (0.669 acres)	Grading/excavation	8	4.91	0.07	0.024
Sewer Line B (0.597 acres)	Grading/excavation	8	4.4	0.06	0.02

TABLE 8.9-3
Estimate of Soil Loss by Water Erosion Using Revised Universal Soil Loss Equation (RUSLE2)

			Estimates Using Revised Universal Soil Loss Equation[a]		
Feature (acreage)[b]	**Activity**	**Duration (months)[c]**	**Soil Loss (tons) without BMPs**	**Soil Loss (tons) with BMPs**	**Soil Loss (tons/yr) No Project**
Proposed Transmission Line (0.010 acres)	Grading/excavation	7	0.06	0.001	0.0004
Alternative Transmission Line (0.066 acres)	Grading/excavation	7	1.6	0.005	0.010
Total Project Soil Loss Estimates					
—Site, Gas, Sewer Line A, and Proposed Transmission Line	All activities listed above	24	**74.8**	**3.158**	**0.25**
—Site, gas line, Sewer Line A, and Alternate Transmission Line	All activities listed above	24	**76.3**	**3.162**	**0.26**

[a] Soil losses (tons/acre/year) are estimated using RUSLE2 software available online http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_index.htm.

The soil characteristics were estimated using generalized RUSLE2 soil profiles corresponding most closely to the described soil unit.

Soil loss (R-factors) were estimated using 2-year, 6-hour point precipitation frequency amount for the nearest National Weather Service station to the AESH site online at http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html.

Estimates of actual soil losses use the RUSLE2 soil loss times the duration and the affected area. The No Project Alternative estimate does not have a specific duration so loss is given as tons/year.

[b] The area for all pipelines was estimated by assuming a 5-foot wide trench times the length of the proposed linear. Overhead transmission lines acreages were estimated by determining the number of poles (length divided by a 150-foot average spacing) and estimating a 4 by 4-foot footprint for each pole.

[c] The estimate of project time to complete each feature is derived from VPP construction schedule shown in Table 8.8-8

Project Assumptions:

- The entire VPP site (5.8 acres) will be disturbed.
- All laydown, fabrication and parking areas are paved and so no soil loss is estimated for these features.
- Overhead transmission lines will have towers at every 150 feet and each tower will have a 4-foot x 4-foot footprint.

RUSLE2 Assumptions:

100-ft slope length. Estimated soil unit slope is the midpoint of the minimum and maximum of the unit slope class. Rock cover percent estimated to be zero throughout project area.

Construction soil losses assume the following inputs: Management - Bare ground; Contouring - None, rows up and down hill; Diversion/terracing - None; Strips and Barriers - None.

Grading soil losses assume the following inputs: Management - Bare ground/rough surface; Contouring - None, rows up and down hill; Diversion/terracing - None; Strips and Barriers - None.

Construction with BMP soil losses assume the following inputs: Management - Silt fence; Contouring - Perfect, no row grade; Diversion/terracing - None; Strips and Barriers - 2 fences, 1 at end of RUSLE slope.

No Project soil losses assume the following inputs: Management - Dense grass, not harvested; Contouring - None, rows up and down hill; Diversion/terracing - None; Strips and Barriers - None.

Soil losses are estimated using the following RUSLE2 conditions:

- **Construction** soil losses were approximated using Management as "bare ground, smooth surface;" Contouring: None, rows up and down hill; Diversion/terracing: None; and Strips and Barriers: None.
- **Active grading** soil losses were approximated using Management as "bare ground, rough surface" soil conditions; Contouring: None, rows up and down hill; Diversion/terracing: None; and Strips and Barriers: None.
- **Construction** soil losses **with implementation of construction BMPs** was approximated using Management as "Silt fence;" Contouring: Perfect, no row grade; Diversion/terracing: None; and Strips and Barriers: 2 fences, one at end of RUSLE2 slope.
- A **"No Project"** soil loss estimate was also approximated using Management as "Dense grass – not harvested;" Contouring: None, rows up and down hill; Diversion /terracing: None; and Strips and Barriers: None.

It should be recognized that the estimate of accelerated soil loss by water is very conservative because of the 'worst-case' assumptions noted above. Furthermore, the full implementation of construction BMPs to reduce soil erosion will likely reduce soil losses to near negligible levels. This is especially important in light of the potential to encounter unknown subsurface contaminants in previous developed industrial areas during excavation.

8.9.3.4.2 Wind Erosion

The potential for wind erosion of surface material at the VPP was estimated by calculating the total suspended particulates that could be emitted from active grading activities and the wind erosion of exposed soil. The total site area and grading duration were multiplied by emission factors to estimate the total suspended particulate matter (TSP) emitted from the site. Fugitive dust from site grading was calculated using the default particulate matter less than 10 microns in equivalent diameter (PM_{10}) emission factor used in URBEMIS2002, SCAQMD CEQA Handbook (1993 and 2006), and AP-42.

Mitigation measures, such as watering exposed surfaces, are used to reduce PM_{10} emissions during construction activities. The PM_{10} reduction efficiencies are taken from the South Coast Air Quality Management District (SCAQMD) CEQA Handbook (1993) and were used to estimate the effectiveness of the mitigation measures. Table 8.9-4 summarizes the mitigation measures and PM_{10} efficiencies applied to the emission calculations.

TABLE 8.9-4
Mitigation Measures for Fugitive Dust Emissions

Mitigation Measure	PM_{10} Emission Reduction Efficiency	Efficiency Applied
Water active sites at least twice daily	34-68%	50%
Enclose, cover, water twice daily, or apply non-toxic soil binders, according to manufacturer's specifications, to exposed piles (i.e., gravel, sand, dirt) with 5 percent or greater silt content	30-74%	50%

Source: SCAQMD CEQA Handbook, Table 11-4. (1993)

Table 8.9-5 summarizes the mitigated TSP predicted to be emitted from the site from grading and the wind erosion of exposed soil. Without mitigation, the maximum predicted erosion of material from the site with implementation of mitigation measures is estimated at 5.78 tons over the course of the project construction cycle. This estimate is reduced to approximately 2.88 tons by implementing basic mitigation measures. These estimates are extremely conservative because they make use of emission rates for a generalized soil rather than for specific soil properties and assume the worst-case for blowing conditions. It is expected that actual wind erosion would be much lower because of the developed urban nature of the project area. Existing buildings surrounding the construction areas would be expected to significantly reduce erosive winds at ground level.

TABLE 8.9-5
Estimate of Total Suspended Particulates (TSP) Emitted from Grading and Wind Erosion

Emission Source	Area	Duration (months)	Unmitigated TSP (tons)	Mitigated TSP (tons)
Grading Dust:				
Project Site	5.8 acres	2	2.13	1.06
Gas Pipeline	0.512 acre	6	0.56	0.28
Sewer Line A	0.669 acre	8	0.98	0.48
OH Transmission Line	0.066 acre	7	0.09	0.04
Wind Blown Dust:				
Project Site	5.8 acres	11	2.02	1.01
Estimated Total			**5.78**	**2.88**

Assumptions:

Assumes grading for entire site will be completed in a 2-month period.

Assumes bare soil at half the project site is exposed for 22 months after grading during construction phase.

The natural gas pipeline will be trenched within or adjacent to existing paved roadways and that a 5-ft wide trench will be adequate.

The most conservative (i.e., longest) lengths were used for the sewer line and OH transmission line.

Data Sources:

[a] PM_{10} Emission Factor Source: URBEMIS2002 User's Guide, May 2003

[b] PM_{10} to TSP Conversion Factor Source: http://www.baaqmd.gov/pmt/handbook/s12c03fr.htm

SCAQMD CEQA Handbook (1993) Table 11-4 for mitigation efficiency rates (as summarized in Table 8.9-4)

8.9.3.5 Other Significant Soil Characteristics

If the alternative transmission line route is used, a significant soil characteristic concerning the proposed project is the potential for soils with a high shrink/swell potential, especially at the far eastern end of the alternative electrical transmission line, near the Laguna Bell Substation. This soil property is associated with the Ramona-Placentia association soils. Expansive clays have the potential to be unsuitable for use as bearing surfaces for foundations and pipelines due to their potential to heave or collapse with changing moisture content.

With the alternative transmission line, it is also expected that gravelly or cobbly substrates could exist in the vicinity of the channelized Los Angeles River where the Tujunga-Soboba association soils are mapped. This could pose a problem if an underground installation is required and horizontal directional drilling or jack-and-bore techniques are used to cross this area for the electrical transmission line.

The presence of somewhat poorly- or poorly-drained soils was not revealed by soil survey information in the project area that would indicate a potential for jurisdictional wetlands.

8.9.4 Potential Environmental Consequences

The following subsections describe the potential environmental effects on agricultural production and soils during the construction and operation phases of the project.

The potential for impacts to agricultural and soils resources were evaluated with respect to the criteria described in the Appendix G checklist of CEQA. An impact is considered potentially significant if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps for the Farmland Mapping and Monitoring Program by the California Resources Agency to non-agricultural use
- Conflict with existing zoning for agricultural use or a Williamson Act contract
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use
- Impact jurisdictional wetlands
- Result in substantial soil erosion

The following subsections describe the anticipated environmental impacts on agricultural production and soils during plant construction and operation.

8.9.4.1 Impacts on Agricultural Soils or Wetland Soils

As previously indicated, the VPP site and associated linear features are located within an urban area of Los Angeles County. This area is already developed for industrial, commercial, and residential land uses and there are only a few small-scale agricultural uses near the VPP site or near the proposed linear features (i.e., cactus and other small farming operations within the LADWP transmission line right-of-way and plant nursery within the SCE transmission line corridor north of the Laguna Bell Substation). The mapped soils in these areas are not well suited for commercial crop production and the proposed VPP will not have any direct impact on agricultural soils or important farmlands. For this reason, the VPP will not affect any properties currently under a Williamson Act contract or conflict with existing zoning for agricultural use.

Based on an assessment of the soil survey information and knowledge of the site conditions, the proposed VPP will not affect wetland soils.

8.9.4.2 Construction

Construction activities can potentially impact soil resources by increasing soil erosion and soil compaction. The effect of soil erosion would be that soil lost during or after construction could increase the sediment load in surface receiving waters downstream of the construction site. The magnitude, extent, and duration of this construction-related impact depend on the erodibility of the soil (discussed above), the proximity of the construction activity to receiving waters, and the construction methods, duration, and season.

There is some potential for erosion associated with the soil types at the VPP and surrounding areas. However, by requiring the use of BMPs during construction, the impacts from soil erosion are expected to be less than significant. Typical BMPs are outlined in Section 8.9.5.

Construction of the proposed project would result in soil compaction during the construction of foundations, pump station, pipelines, and paved roadway and parking areas. Soil compaction would also result from vehicle traffic along temporary access roads. Soil compaction increases soil density by reducing soil pore space. This, in turn, reduces the ability of the soil to absorb precipitation and transmit gases for respiration of soil microfauna. Soil compaction can result in increased runoff, erosion, and sedimentation. The incorporation of BMPs during project construction will result in less than significant impacts from soil compaction during construction.

Since the site and project linears will be constructed in currently developed areas that will be repaved or otherwise protected after construction, the overall anticipated effects of construction are considered to be less than significant with mitigation incorporated.

8.9.4.3 Operation

Operation of the VPP plant would not result in impacts to the soil from erosion or compaction. Routine vehicle traffic during plant operation will be limited to existing roads, all of which will be paved, and standard operational activities should not involve the disruption of soil. Therefore, impacts to soil from project operations would be less than significant.

8.9.4.4 Effects of Generating Facility Emissions on Soil-Vegetation Systems

There is a concern in some areas that emissions from the generating facility, principally nitrogen (as oxide of nitrogen emissions) from the combustors or particulate matter from the cooling towers, would have an adverse effect on soil-vegetation systems in the project vicinity. This is principally a concern where environments that are highly sensitive to nutrients or salts, such as serpentine habitats, are downwind of the project.

In this case, the dominant land use around the project is urban and there are no serpentine habitats in the project area. The addition of small amounts of nitrogen to the industrial and commercial areas would be a less than significant impact because of the paucity of vegetation in these areas. Within the more vegetated residential areas, the addition of small amounts of nitrogen would be insignificant within the context of fertilizers, herbicides, and pesticides typically used by homeowners.

8.9.4.5 Cumulative Effects

As previously described, the effects on soil erosion, sedimentation, and compaction associated with the VPP are not considered to be significant. Therefore, the cumulative impacts of the proposed VPP would be negligible.

8.9.5 Mitigation Measures

Erosion control measures would be required during construction to help maintain water quality, protect property from erosion damage, and prevent accelerated soil erosion or dust generation that destroys soil productivity and soil capacity. Temporary erosion control measures could be installed before construction begins, would be maintained and evaluated during construction, and would be removed from the site after the completion of construction.

8.9.5.1 Temporary Erosion Control Measures

Temporary erosion control measures would be implemented before construction begins, and would be evaluated and maintained during construction. These measures typically include revegetation, mulching, physical stabilization, dust suppression, berms, ditches, and sediment barriers.

In the cases of both the proposed and alternative transmission line linears, temporary erosion control might include asphalt patching until permanent paving can be completed. If required on non-paved areas disturbed by the pipeline construction, revegetation would be accomplished using locally prevalent, fast-growing plant species compatible with adjacent existing plant species.

During construction of the project and the related linear facilities, dust erosion control measures would be implemented to minimize the wind-blown erosion of soil from the site. Water would be sprayed on the soil in construction areas to control dust and during revegetation.

Sediment barriers, such as straw bales, sand bags, or silt fences, slow runoff and trap sediment. Sediment barriers are generally placed below disturbed areas, at the base of exposed slopes, and along streets and property lines below the disturbed area. Sediment barriers are often placed around sensitive areas, such as wetlands, creeks, or storm drains, to prevent contamination by sediment-laden water.

The VPP site is relatively level; therefore, it is not considered necessary to place barriers around the property boundary. However, some barriers would be placed in locations where offsite drainage could occur to prevent sediment from leaving the site. If used, straw bales would be properly installed (staked and keyed), then removed or used as mulch after construction. Runoff detention basins, drainage diversions, and other large-scale sediment traps are not considered necessary due to the level topography and surrounding paved areas. Any soil stockpiles would be stabilized and covered if left onsite for long periods of time, including placement of sediment barriers around the base of the stockpile. These methods can also be employed during trenching operations for the recycled water supply line.

8.9.5.2 Permanent Erosion Control Measures

Permanent erosion control measures on the site will include graveling, paving and drainage systems.

A Drainage, Erosion and Sedimentation Control Plan (DESCP) will be developed in conjunction with California Energy Commission (CEC) staff to set performance standards and monitor the effectiveness of soil loss mitigation measures. This plan will address the timing and methods for monitoring plant establishment, as well as reporting and response requirements.

8.9.6 Permits and Agency Contacts

Permits required for the project, the responsible agencies, and proposed schedule are shown in Table 8.9-6.

TABLE 8.9-6
Permits and Agency Contacts for VPP Soils

Permit or Approval	Schedule	Agency Contact	Applicability
Project Linears and Proposed Transmission Line			
Erosion and Sediment Control Plan	Prior to construction	California Energy Commission 1516 Ninth Street, MS-2000 Sacramento, CA 95814	Regulation of drainage and erosion associated with site and linear facilities during construction
Approval of Grading Plan; issuance of construction, grading, and encroachment permits	Minimum of 30 days prior to construction	Kevin Wilson, Director of Community Services and Water City of Vernon Community Services Department 4305 Santa Fe Avenue Vernon, CA 90058 (323) 583-8811 ext 245	Site grading, and excavation at site or along linears within public rights-of-way
Construction Activity, Stormwater and NPDES Permit	Prior to construction	Kristie Chung Los Angeles RWQCB 320 W. 4th Street, Suite 200 Los Angeles, CA 90013 (213) 620-2283	Regulation of stormwater discharge from site and linear facilities during construction
Alternate Transmission Line Corridor			
Encroachment Permit	Approximately 6 months prior to construction	Joan M. Preble Real Estate Manager for LA County Union Pacific Railroad 1400 Douglas, Mail Stop 1690 Omaha, NE 68179 (402) 544-8535	Utility encroachments that run parallel or across the UPRR alignment along Randolph Street
Encroachment Permit	Approximately 1 week prior to construction	Marion S. Alexander Trainmaster Los Angeles Junction Railway Company 4433 Exchange Avenue Los Angeles, CA 90058 (323) 277-2008 Office (323) 228-6311 Cell	Utility encroachments that run parallel or across the LA Junction alignment.

TABLE 8.9-6
Permits and Agency Contacts for VPP Soils

Permit or Approval	Schedule	Agency Contact	Applicability
Franchise agreement, Encroachment Agreement, and Excavation Permit	Approximately 3 months before construction	Carlos Alvarado Engineer City of Bell Building and Planning Department 6330 Pine Avenue Bell, CA 90201 (323) 588-6211	Installation of electrical transmission facilities within public rights-of-way
Plan Check	Two weeks prior to submittal of permits to County of LA, Department of Public Works	Victor San Lucas City Engineer City of Commerce 2535 Commerce Way Commerce, CA 90040 (323) 722-4805	Installation of electrical transmission facilities within public rights-of-way
Encroachment Permit and Excavation Permit	Minimum 1 week prior to construction	Hormoz Vahid City Engineer City of Bell Gardens 7100 S. Garfield Avenue Bell Gardens, CA 90201 (562) 806-7770	Installation of electrical transmission facilities within public rights-of-way
Encroachment Permit and Construction Permit	Minimum 2 months prior to construction	Wu Tan County of Los Angeles Department of Public Works Construction Division, Permit Section P.O. Box 1460 Alhambra, CA 91802 (626) 458-4937	Installation of electrical transmission facilities within City of Bell public rights-of-way

8.9.6.1 Site and Linears

An encroachment permit will be obtained from the City of Vernon before construction begins at the VPP site or along the linear features. Once the project is licensed and starts into final design, grading and construction plans for the proposed project would be first approved by a Certified Building Official (CBO) as required by the CEC Compliance group. Plans approved by the CBO are then submitted to the City of Vernon.

8.9.6.2 Alternative Transmission Line

Prior to construction of the alternative electrical transmission line north on Soto Street then east on Leonis Boulevard past the LADWP right-of-way down District Boulevard and across the Los Angeles River south to Randolph Street, the required permits would be sought from the cities of Bell, Commerce, and Bell Gardens. In addition, permits would be obtained for railroads crossed, if applicable. Those permits could include Franchise Agreements, Encroachment Permits, and Excavation Permits. The Franchise Agreements, if required for permanent installed facilities are typically arranged through the City Planning Departments, City Councils, and City Attorneys. The Encroachment Permits and Excavation Permits require a plan review by local staff and may also require a traffic control plan.

After the plan review by the City of Bell staff, required permits will be sought for proposed activities with the Los Angeles County. Those permits could include construction and encroachment permits.

An encroachment permit will also be obtained for the 230-kV electrical transmission line where it will crosses the railroad tracts near the Los Angeles River and where it crosses the UPRR alignment in order to reach the Laguna Bell Substation.

8.9.7 References

Alexander, Marion. 2006. Trainmaster, LA Junction, personal conversation with Bojana Maric of CH2M HILL on February 6.

Alvarado, Carlos. City Engineer, Building and Planning Department, City of Bell, California. Personal communication with CH2M HILL personnel on September 6, 2005.

California Department of Conservation (CDC). 2005. Farmland Mapping and Monitoring Program Statistics web page at http://www.consrv.ca.gov/dlrp/FMMP/fmmp_stats.htm.

County of Los Angeles Department of Public Works, Construction Division. http://www/ladpw.org/prg/business/page_04.cfm. Accessed February 9, 2006.

Gomez, Marza. Office Manager for City Engineer, City of Commerce, California. Personal communication with CH2M HILL personnel on September 2, 2005.

National Resource Conservation Service (NRCS) (formerly the Soil Conservation Service [SCS] of the U.S. Department of Agriculture). 2002 (last review date). *Report and General Soil Map, Los Angeles County, California*. Produced in cooperation with the Antelope Valley and Santa Monica Mountains Resource Conservation Districts.

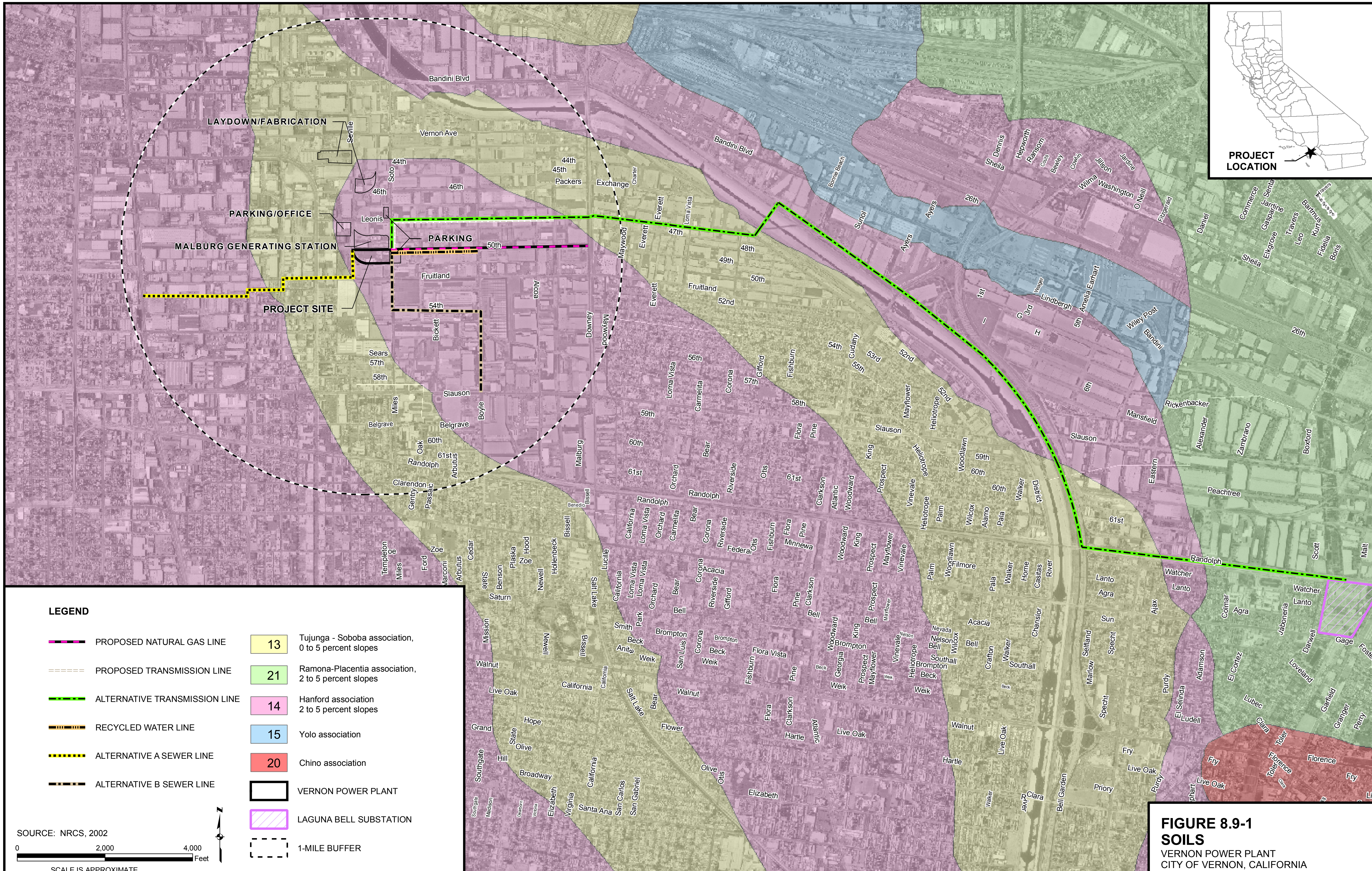
National Weather Service data (NOAA Atlas 2) at http://hdss.nws.noaa.gov/cgi-bin/hdsc/na2.perl?qlat=33.9978 $qlon=-118.2221 & Submit=submit. Accessed February 9, 2006.

NRCS. 1983. *National Engineering Handbook*.

South Coast Air Quality Management District (SCAQMD). 1993. *CEQA Handbook.*

U.S Environmental Protection Agency (USEPA). 1995. *Compilation of Air Pollutant Emission Factors AP-42*. Volume I: Stationary Point and Area Sources. Fifth Edition. January.

Vahid, Hormoz. Inspector, Public Works Department, City of Bell Gardens. Personal communication with CH2M HILL personnel on September 6, 2005.



RDD \\RDD40004508\RDDGIS\VERNON\MXDS\VVP2\VPP2_FIG8_9-1_SOILS.MXD 2/14/2006 12:47:09

FIGURE 8.9-2
AGRICULTURAL AREAS IN PROXIMITY TO THE VERNON POWER PLANT
VERNON POWER PLANT
CITY OF VERNON, CALIFORNIA

CH2MHILL

RDD \\RDD40004508\RDDGIS\VERNON\MXDS\VVP2\VPP2_FIG8_9-2_AG.MXD 2/12/2006 15:46:05