5.13 Visual Resources

Visual resources are natural and cultural features of the environment that contribute to the public's enjoyment of the environment. Visual, or aesthetic, impacts are generally defined in terms of a project's physical characteristics, potential visibility, and the extent to which the project would change the visual character and quality of the environment in which it would be located.

This section was prepared following California Energy Commission (CEC) guidelines for preparing visual impact assessments for Applications for Certification (AFC). Section 5.13.1 documents the visual conditions that currently exist in the CPV Vaca Station (CPVVS) project area. Section 5.13.2 presents an environmental analysis of the potential aesthetic effects in the project area. Section 5.13.3 discusses the potential cumulative effects of this and other projects in the area. Section 5.13.4 summarizes the mitigation measures proposed to reduce project impacts on visual resources. Section 5.13.5 describes the laws, ordinances, regulations, and standards (LORS) related to visual resources. Section 5.13.6 presents the agencies involved and agency contacts. Section 5.13.7 lists required permits. Section 5.13.8 cites the references used in preparation of this section.

Figure 5.13-1 shows the location of the site, the CPVVS's estimated visibility from the surrounding area, and the locations of the key observation points (KOPs) referenced in this section. The existing views and simulated views of the project from the KOPs follow as Figures 5.13-2, 5.13-3, and 5.13-4.

5.13.1 Affected Environment

5.13.1.1 Regional Setting

The project site is 1.75 miles east of Vacaville, California (see Figure 5.13-1). The project site is located on a parcel owned by the City of Vacaville (City). This parcel is an island of Vacaville surrounded by Solano County (County) land. A segment of the electric transmission line associated with the project would be located on the City-owned parcel, but the rest would travel through unincorporated County territory.

Vacaville is the only large city in the vicinity. The city of Dixon lies 9 miles to the north and the city of Fairfield is 7 miles to the southwest. The small community of Elmira is about half a mile northwest of the project site. A riparian corridor passes between the project site and Elmira.

The project site is adjacent to the City's Easterly Wastewater Treatment Plant (EWTP). Aside from the treatment plant, the project site is surrounded by rural land uses such as cropland, rural residences, and undeveloped open space. The closest rural residence is 800 feet south of the project site. The next closest residences are located along Lewis Road, approximately 1,500 feet north and south of the project site. A transmission line is visible west of the project site along Meridian Road; and subdivisions that form the eastern edge of Vacaville proper are visible 1.75 miles east along Leisure Town Road.

The project would not be subject to any City or County policies or projects to preserve scenic resources. In 1999, the City of Vacaville embarked on a program to improve the visual

landscape of Vacaville from its two freeways, Interstates 80 and 505 (City of Vacaville, 1999). However, the project site would not be visible from either freeway because it is 3.75 miles from the closer of the two.

The project is also at least 3.75 miles from any state, county, or city scenic roadways and, therefore, would be well beyond the range within which any substantial visual effect would be likely.

5.13.1.2 Project Site and Linear Routes

The project site is currently an undeveloped field surrounded by open space, farmland, rural residences, and the EWTP. Despite the treatment plant, the project vicinity has a rural character because EWTP does not outwardly appear to be an infrastructure facility. The plant is a series of low-slung structures surrounded by a high stucco wall. Plant facilities are painted a cream color and the buildings have red tile roofs. A few infrastructural elements are also located near the project site. A line of wooden utility poles is adjacent to the project parcel along Fry Road. To the west, lattice steel transmission towers are barely visible.

The CPVVS would have three offsite linear appurtenances. A utility corridor would be constructed to connect the proposed project to the EWTP for potable water and sewer service. A natural gas pipeline along Fry Road would be built extending 1 mile east from the project site. Also, an electric transmission line would be built along Fry Road extending 1 mile west of the project site. However, only the transmission line would be visible because the other two linear appurtenances would be underground.

5.13.1.3 Construction Laydown Area

Construction laydown and parking areas will be within existing site boundaries and on City property, on a 24-acre parcel immediately north of the plant site (See Figure 1.1-3).

5.13.1.4 Potential Project Visibility

Figure 5.13-1 is a map that indicates the location of the proposed project and the nearby areas from which it has the potential to be visible. Because the terrain is relatively flat, views would be largely obstructed by structures or vegetation rather than by landforms. This map highlights the areas from which views toward the project site are known to be blocked. The project would not be visible from the community of Elmira or from Vacaville west of Leisure Town Road.

5.13.1.5 Sensitive Viewing Areas and Key Observation Points

To structure the analysis of CPVVS's effects on visual resources, the view areas that would be the most sensitive to the project's potential visual impacts and the sensitive receptors[1] in those areas were identified. Representative viewpoints from these sensitive receptor locations are referred to as KOPs. The three KOPs chosen for this analysis represent the best viewing conditions from the three major areas of viewer sensitivity: the view from Fry Road at Lewis Road, the view from the closest residence, and the view from Vacaville along Leisure Town Road. The locations of the KOPs are indicated on Figure 5.13-1.

[1] Typically, residents and recreationists are considered sensitive receptors to changes in the landscape. This is because of the potential for effects to their long-term views or their enjoyment of a particular landscape or activity.

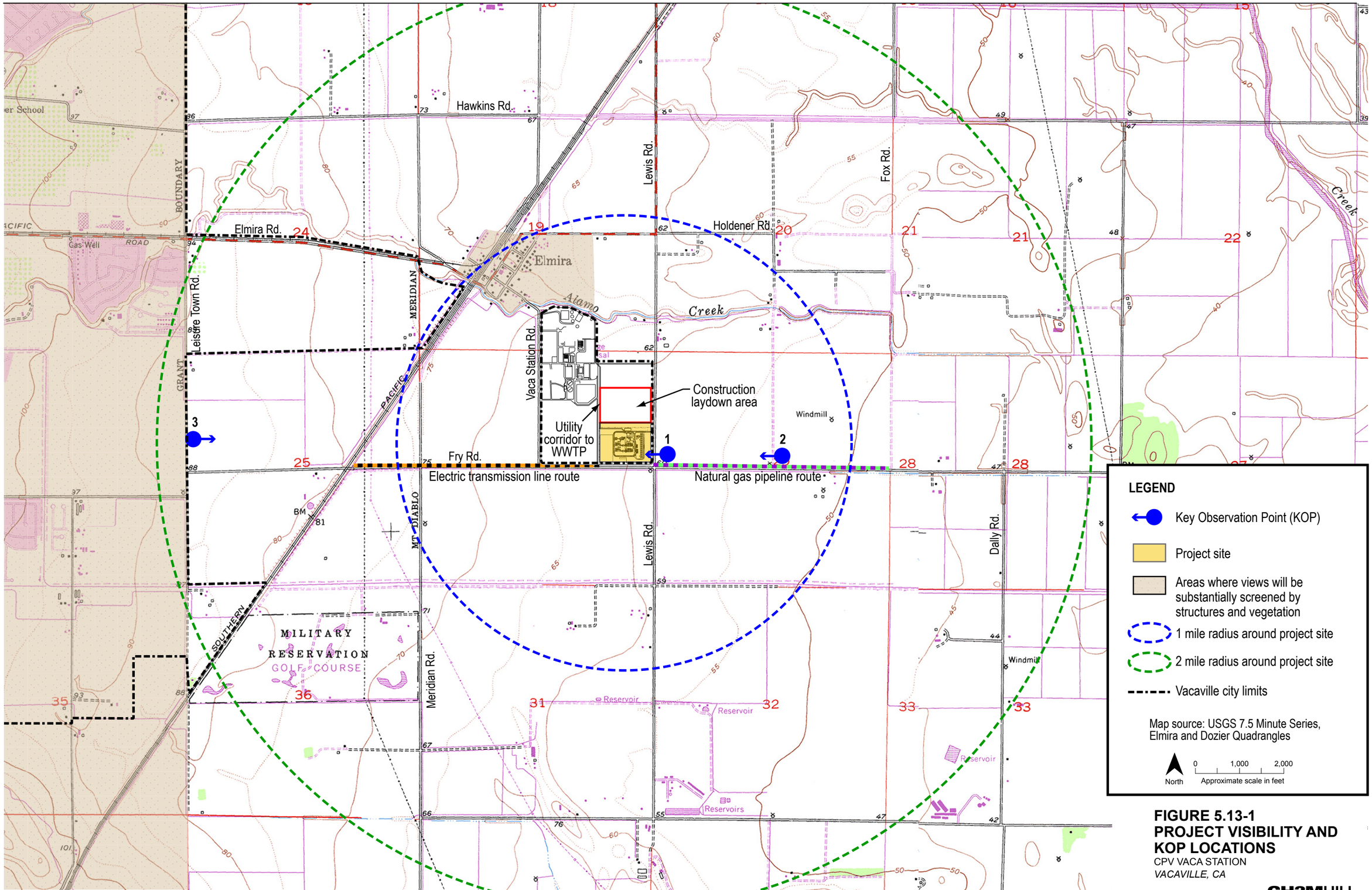

FIGURE 5.13-1
PROJECT VISIBILITY AND KOP LOCATIONS
CPV VACA STATION
VACAVILLE, CA

CH2MHILL

CG052008001BAO VEC_project_site.ai 08-04-08 dash

A. KOP-1. Existing view toward the project site from Fry Road at Lewis Road.

B. KOP-1. Simulated view toward the project site from Fry Road at Lewis Road.

FIGURE 5.13-2
KOP 1
CPV VACA STATION
VACAVILLE, CA

A. KOP-2. Existing view toward the project site from closest residence.

B. KOP-2. Simulated view toward the project site from closest residence.

FIGURE 5.13-3
KOP 2
CPV VACA STATION
VACAVILLE, CA

A. KOP-3. Existing view toward the project site from Leisure Town Road.

B. KOP-3. Simulated view toward the project site from Leisure Town Road.

FIGURE 5.13-4
KOP 3
CPV VACA STATION
VACAVILLE, CA

Based on fieldwork conducted by CH2M HILL in March 2008, the existing views from each of the KOPs were documented and evaluated. Assessments of existing levels of scenic quality were made based on professional judgment that took a broad spectrum of factors into consideration, including:

- Natural features, including topography, water courses, rock outcrops, and natural vegetation
- The positive and negative effects of cultural alterations and built structures on visual quality
- Visual composition, including an assessment of the vividness, intactness, and unity of patterns in the landscape[2]

The final scenic quality ratings assigned to each view fit within the rating scale summarized in Table 5.13-1. Development of this scale builds on a scale used with an artificial intelligence system for evaluation of landscape visual quality (Buhyoff et al., 1994), and incorporates landscape assessment concepts applied by the U.S. Department of Agriculture Forest Service (ISFS) and the U.S. Department of Transportation (DOT).

TABLE 5.13-1
Landscape Scenic Quality Scale

Rating	Explanation
Outstanding Visual Quality	A rating reserved for landscapes with exceptionally high visual quality. These landscapes are significant nationally or regionally. They usually contain exceptional natural or cultural features that contribute to this rating. They are what we think of as “picture post card” landscapes. People are attracted to these landscapes to view them.
High Visual Quality	Landscapes that have high quality scenic value. This may be due to cultural or natural features contained in the landscape or to the arrangement of spaces contained in the landscape that causes the landscape to be visually interesting or a particularly comfortable place for people. These landscapes have high levels of vividness, unity, and intactness.
Moderately High Visual Quality	Landscapes that have above average scenic value but are not of high scenic value. The scenic value of these landscapes may be due to built or natural features contained within the landscape, to the arrangement of spaces, in the landscape or to the two-dimensional attributes of the landscape. Levels of vividness, unity, and intactness are moderate to high.
Moderate Visual Quality	Landscapes that are common or typical and average scenic value. They usually lack significant cultural or natural features. Their scenic value is primarily a result of the arrangement of spaces contained in the landscape and the two-dimensional visual attributes of the landscape. Levels of vividness, unity, and intactness are average.
Moderately Low Visual Quality	Landscapes that have below average scenic value but not low scenic value. They may contain visually discordant man-made alterations, but these features do not dominate the landscape. They often lack spaces that people will perceive as inviting and provide little interest in terms of two-dimensional visual attributes of the landscape.
Low Visual Quality	Landscapes that have below average scenic value. They may contain visually discordant man-made alterations, and often provide little interest in terms of two-dimensional visual attributes of the landscape. Levels of vividness, unity, and intactness are below average.

Note: Rating scale based on Buhyoff et al., 1994; DOT, 1988; and USFS, 1995.

[2] Vividness is the memorability of the visual impression received from contrasting landscape elements as they combine to form a striking and distinctive visual pattern. Intactness is the integrity of visual order in the natural and built landscape, and the extent to which the landscape is free from visual encroachment. Unity is the degree to which the visual resources of the landscape join together to form a coherent, harmonious visual pattern. Unity refers to the compositional harmony of compatibility between landscape elements. (DOT, 1988)

5.13.1.5.1 KOP-1 – View from Fry Road at Lewis Road

Figure 5.13-2 depicts the view from KOP-1, on the northeast corner of Fry Road at Lewis Road. This viewpoint was selected because it represents the perspective of roadway users driving toward Vacaville along Fry Road. It represents the most close-up view of the project and provides the basis for developing a "worst case" assessment of the project's visual effects on this area.

The character of the existing view is mostly rural. The foreground contains Fry Road, with open fields on either side. A line of suburban development is barely visible in the middleground and the Vaca Mountains form a backdrop to the view. A few infrastructure elements are visible, such as wooden utility poles on the right side of Fry Road and lattice steel transmission towers in the distance. The open fields backed by hills contribute to a moderately high level of vividness. The level of visual intactness is average due to the presence of the infrastructure elements. The level of visual unity is average to moderately high because the elements of the view add up to a relatively harmonious composition. Considering the levels of visual vividness, intactness, and unity, the overall visual quality of the exiting view from KOP 1 is average to moderately high.

This view has the potential to be seen by motorists along Fry Road. Fry Road is a collector road that is traveled by approximately 4,000 vehicles per day. The motorists represent commuters, local workers, and local residents. Because this view is primarily seen by roadway users, the level of visual sensitivity is moderate.

5.13.1.5.2 KOP-2 – View from Residence at 5711 Fry Road

Figure 5.13-3 is the view from KOP-2, a viewpoint along Fry Road, 0.25 mile east of the project site. This is the view from a nearby residence and was chosen to represent the worst-case scenario from rural residences in the area east of the project site. This view approximates the view from the front of the residents' house and driveway. Nearby residences are also located along Lewis Road, north and south of the project site. However, the view of the project from other rural residences would be oblique rather than frontal.

In KOP-2, the project site is identifiable as the yellowish field beyond the green field in the foreground. The character of the existing view is rural. The foreground is characterized by the resident's mail box and Fry Road flanked by a green field and wooden utility poles. The middleground is characterized by a faint line of structures that represent the western edge of residential development in the city of Vacaville. The Vaca Mountains form the backdrop to the image. The vividness of the image is moderately high due to the rural scene of green fields backed by mountains. However, the utility poles contrast with the rural elements causing the level of visual intactness to be average. However, because the image's composition is relatively harmonious, the level of visual unity is moderately high. Considering the levels of visual vividness, intactness, and unity, the overall visual quality of the exiting view from KOP 2 is moderately high.

KOP-2 may represent views from up to 20 rural residences within 2 miles of the project. Because it represents potential views from people's homes, the level of visual sensitivity is assumed to be high.

5.13.1.5.3 KOP-3 – View from Leisure Town Road

Figure 5.13-4 is the view toward the project site from Leisure Town Road, 1.75 miles to the west. This viewpoint was selected because it provides a view of the project site from the closest point in Vacaville proper. It also provides a view from the closest residential subdivisions. Up to 100 residences would potentially have similar views from their second story back windows and several hundred more would potentially have similar views upon entering or leaving their subdivision via Leisure Town Road.

In this view, the project site is identifiable as the area near the sewage treatment plant between two lattice steel transmission towers in the middleground of the view. The foreground is dominated by a green, cultivated field. In the middleground, a series of electric transmission towers, the community of Elmira, and scattered residential and commercial buildings are visible. The visual character of this view is semi-rural to infrastructural. The open space and agricultural field in the foreground create a moderately high level of vividness. But the concentration of electric transmission towers causes the visual intactness and unity to be average. Considering the levels of visual vividness, intactness, and unity, the overall visual quality of the existing view from KOP 3 is average.

Leisure Town Road is an arterial that is traveled by approximately 9,900 vehicles per day. The motorists are assumed to be residents and commuters. Because the view from KOP-3 represents the view from residential neighborhoods, the level of visual sensitivity is assumed to be high. However, because residences along Leisure Town Road face away from the project site, only the second-story back windows would potentially have views of the project. Views from the first floors would be screened by fences or by vegetation.

5.13.2 Environmental Analysis

5.13.2.1 Analysis Procedure

This visual assessment was conducted by applying the systematic method for evaluating the potential aesthetic effects of proposed power plant projects that has been adopted by the staff of the CEC. This methodology, which the CEC first applied in its evaluation of the impacts of the Roseville Energy Park Project, is summarized in Appendix 5.13A.

As an initial step, planning documents (including City of Vacaville and Solano County documents) were reviewed to gain insight into the intended land uses and the guidelines for the preservation of visual resources. Consideration was then given to the existing visual setting within the project viewshed (the geographical area in which the project can be seen). An assessment was then made of the visual changes that the project would cause in terms of the questions related to aesthetics included in the California Environmental Quality Act (CEQA) Guidelines checklist (listed below). Appendix 5.13A provides a more complete description of the visual resources evaluation process.

Site reconnaissance was conducted by CH2M HILL to assess the surrounding area, to identify potential KOPs, and to take photographs representing the existing visual conditions. A single-lens reflex 35-mm camera with a 50-mm lens (view angle 40 degrees) was used to shoot the photographs.

Photographs are presented as the “before” conditions from each KOP. Visual simulations were produced to illustrate the “after” visual conditions from each KOP. The simulations

provide the viewer with a representation of the location, scale, and appearance of the proposed project. They represent the project's appearance 5 years after completion of construction and installation of the landscaping. The simulations are the result of a computer modeling process described briefly below and are accurate within the constraints of the available data.

Computer modeling techniques were used to produce the simulations of the site as they would appear after development of the project. Existing topographic and site data provided the basis for developing an initial digital model. The project engineers provided site plans for the proposed generation facility and the transmission system. Three-dimensional (3-D) models of these facilities were created and combined with the digital site model.

For each viewpoint, viewer location was digitized from topographic maps and scaled aerial photos, using 5 feet as the assumed eye level. Computer "wire frame" perspective plots were then overlaid on the photographs of the views from the KOPs to verify scale and viewpoint location. Digital visual simulation images were produced as a next step, based on computer renderings of the 3-D model combined with high-resolution digital versions of base photographs.

Once all potential impacts were examined, a determination was made as to whether any impacts would reach a level that would be significant under CEQA's standards, and thus require mitigation beyond that proposed as a part of the initial project design. Under CEQA, any required mitigation must be specific to an identified impact, and must be feasible.

5.13.2.2 Impact Evaluation Criteria

The following criteria from the CEQA Guidelines were considered in determining whether a visual impact would be significant.

The CEQA Guidelines define a "significant effect" on the environment to mean a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including… objects of historic or aesthetic significance" (14 CCR 15382).

Appendix G of the CEQA Guidelines, under Aesthetics, lists the following four questions to be addressed regarding whether the potential impacts of a project are significant:

1. Would the project have a substantial adverse effect on a scenic vista?
2. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway?
3. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?
4. Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

5.13.2.3 Project Appearance

5.13.2.3.1 Project Structures and Dimensions

The proposed project facilities are described in detail in Chapter 2.0, Project Description. Figure 2.1-1 shows the general arrangement and layout of the proposed project features on the site, and Figure 2.1-2 provides typical elevation views. Table 5.13-2 summarizes the dimensions, finishes, and materials of the generating facility's major features.

TABLE 5.13-2
Approximate Dimensions and Colors, Materials, and Finishes of the Major Project Features

Feature	Height (feet)	Length (feet)	Width (feet)	Diameter (feet)	Color	Materials	Finish
Exhaust Stacks	150	—	—	18.5	Gray	Metal	Flat/Untextured
HRSG	<100	120	43	—	Gray	Metal	Flat/Untextured
Combustion Turbine Generator	20	40	35	—	Gray	Metal	Flat/Untextured
CT and ST Generator Step Up Transformers	35	10	30	—	Gray	Metal	Flat/Untextured
Steam Turbine Generator	80	80	50		Gray	Metal	Flat/Untextured
Cooling Tower	35	55	35	—	Gray	Metal	Flat/Untextured
Raw/Fire Water Storage Tank	70	—	—	75	Gray	Metal	Flat/Untextured
Demineralized Water Storage Tank	30	—	—	30	Gray	Metal	Flat/Untextured
Water Treatment Building	25	150	410	—	Gray	Metal	Flat/Untextured
Neutralization Tank	40	—	—	15	Gray	Metal	Flat/Untextured
Utility Bridge	55	30	208	—	Gray	Metal	Flat/Untextured
Electric Transmission Structures	95	—	3	—	Gray	Metal	Flat/Untextured

The exteriors of major project equipment would be treated with a neutral gray finish to optimize its visual integration with the surrounding environment. The project would be surrounded by a chain-link security fence.

5.13.2.3.2 Transmission Line

A single-circuit, 230-kV transmission line would be built and would extend 1 mile west along Fry Road to a new substation adjacent to the PG&E 230-kV Vaca-Dixon to Birds Landing transmission line.

5.13.2.3.3 Pipelines

A utility corridor would be built to provide potable water and sewer connections to the wastewater treatment plant. A natural gas pipeline would be built from the project site 1 mile east along Fry Road.

5.13.2.3.4 Construction Laydown Area

As detailed in Section 2.2, construction of the project would take place from the fourth quarter of 2009 to the second quarter of 2013. During the construction period, equipment laydown would occur in the 24-acre parcel adjacent to the north side of the project site along Lewis Road. Parking would occur adjacent to the laydown area on Lewis Road. During this time, construction materials, construction equipment, trucks, and parked vehicles would be visible on this site. After construction is complete, all construction debris would be removed from the laydown area.

5.13.2.3.5 Landscaping

The City of Vacaville has prepared a landscape plan for the Fry Road and Lewis Road edges of the project site. This landscape plan is part of a plan the City has developed for the perimeter of the larger City-owned parcel of which the project site is a part. Under this plan, a landscape buffer would be created that would extend 1,400 feet along the parcel's western edge along Vaca Station Road, would extend along the parcel's entire length along Fry Road between Vaca Station Road and Lewis Road, and would wrap around the Lewis Road side of the parcel and extend 900 feet to the northern boundary of the project site. The planting strip would begin at the edge of the road right-of-way and extend 70 feet into the parcel. The planting concept is to use two rows of trees spaced 30 feet on-center, with a 30-foot distance between the center lines of each row. The trees in the row closest to the street are expected to be toyon (*heteromeles arbutifolia*) or similar trees, which would be planted as 36-inch box specimens, that will be approximately 6 feet tall at planting, 14 feet tall at 5 years, and 25 feet tall at maturity. The trees in the row behind are expected to be coast redwoods (*sequoia sempervirens*) or similar trees, which would be planted as 36-inch box specimens, that will be approximately 12 feet tall at planting, 27 feet tall at 5 years, and 125 feet or taller at maturity. Figure 5.13-5 depicts the appearance of this landscaping at 5 years after planting, and Figure 5.13-6 depict its appearance at maturity.

5.13.2.3.6 Lighting

The power plant could be operated 24 hours per day, 7 days per week and would require night lighting for safety and security. The lights would provide illumination for operation under normal conditions, for safety under emergency conditions, and for manual operations during a power outage. The system would also provide 120-volt convenience outlets for portable lamps and tools.

To reduce offsite lighting impacts, lighting at the facility would be restricted to areas required for safety and operation. Exterior lights would be hooded and would be directed on site to minimize significant light or glare. Low-pressure sodium lamps and fixtures of a non-glare type would be specified. In addition, switched lighting circuits would be provided for areas where lighting is not required for normal operation or safety to allow these areas to remain dark at most times and to minimize the amount of lighting potentially visible off site.

FIGURE 5.13-5
CONCEPTUAL LANDSCAPING AT 5 YEARS FROM PLANTING
CPV VACA STATION
VACAVILLE, CA

CH2MHILL

EY052008001SAC Figure_5.13-5.ai 08-20-08 tdaus

FIGURE 5.13-6
CONCEPTUAL LANDSCAPING AT MATURITY
CPV VACA STATION
VACAVILLE, CA

CH2MHILL

EY052008001SAC Figure_5.13-6.ai 08-20-08 tdaus

Project construction activities would occur between 6:00 a.m. and 7:00 p.m., Monday through Saturday. During some construction periods and during the startup phase some activities would continue 24 hours a day, 7 days a week. During periods when nighttime construction activities take place, illumination that meets state and federal worker safety regulations would be required. To the extent possible, the night lighting would point toward the center of the site where activities are occurring, and would be shielded. Task-specific lighting would be used to the extent practical while complying with worker safety regulations.

5.13.2.3.7 Water Vapor Plumes

Experience with plants of this type has demonstrated that the high velocity and temperature of the stack exhaust result in a quick dispersion of stack plumes, minimizing the probability that a visible plume would be created above the stacks. It is likely that formation of visible plumes from the project would be a rare occurrence related to unusual combinations of cold and damp conditions, and that when present, the plumes would be relatively small. Cooling tower and heat recovery steam generator exhaust design parameters are described in Appendix 5.1A in Table 5.1A-4.

5.13.2.4 Assessment of Visual Effects

5.13.2.4.1 KOP-1 – View from Fry Road at Lewis Road

Figure 5.13-2 presents a photo of the existing view toward the project site from Fry Road at Lewis Road (Figure 5.13-2a) and a simulation of the view as it would appear during the project's operational period (Figure 5.13-2b). Comparison of the two images indicates that when the proposed project is in place, the change to the view would be considerable. The proposed power plant dominates the foreground view. Because of the scale of the proposed power plant and its proximity to the roadway, it would change the character of the view from rural to somewhat industrial. The level of vividness would decrease from moderately high to average because the proposed plant would block much of the view of the Vaca Mountains and the view of the agricultural fields. The level of intactness would change from average to low because the plant is an industrial element in an otherwise rural setting. The level of unity would change from moderately high to average or moderately low since the elements do not add up to a harmonious composition. Considering the levels of visual vividness, intactness, and unity, the overall level of visual quality from this viewpoint would be reduced from moderately high to moderately low. As a consequence, the level of visual impact to this view would be high.

5.13.2.4.2 KOP-2 – View from 5711 Fry Road

Figure 5.13-3 presents a photo of the existing view toward the project site from the residence at 5711 Fry Road (Figure 5.13-3a) and a simulation of the view as it would appear during the project's operational period (Figure 5.13-3b). Comparison of the two images indicates that when the proposed project is in place, the change to the view would be considerable. The power plant and transmission towers would dominate the primary view from a nearby residence. With the introduction of these elements, character of the view would change from rural to somewhat industrial. Since some of the view of the hills and the sense of open space would be lost, the degree of vividness of the view would decrease from moderately high to average. The addition of a strongly industrial element in a rural landscape would cause the degree of intactness to change from average to moderately low. Because the harmoniousness of the composition would be reduced, unity would decrease from

moderately high to moderately low. Considering the levels of visual vividness, intactness, and unity, the overall level of visual quality from this viewpoint would be reduced from moderately high to moderately low. As a consequence, the overall level of visual impact to this view would be high.

5.13.2.4.3 KOP-3 – View from Leisure Town Road

Figure 5.13-4 presents a photo of the existing view toward the project site from Leisure Town Road, the arterial that marks the eastern edge of Vacaville proper (Figure 5.13-4a) and a simulation of the view as it would appear during the project's operational period (Figure 5.13-4b). Comparison of the two images indicates that when the proposed project is in place, the change to the view would be moderate. The facility can be seen in the middleground of the image between lattice steel transmission towers. The CPVVS is visible beyond the agricultural field as small grey towers backed by a long, low-slung structure. Though small from this distance, the project would change the character of the view because it adds a strongly industrial element to a mostly rural and infrastructural scene. Because these new features do not block views of valued features in the landscape such as the agricultural field in the foreground, nor do they alter the existing skyline, there would be essentially no change to the view's existing levels of vividness and unity. However, intactness would be somewhat diminished because the project represents a visually encroaching element. Considering the levels of visual vividness, intactness, and unity of the image, the overall level of visual quality from this viewpoint would remain average. As a consequence, the overall level of visual impact to this view would be low.

5.13.2.4.4 Light and Glare

The project's effects on visual conditions during hours of darkness would be limited. As indicated in Section 5.13.2.3.6, some night lighting would be required for operational safety and security. There would be additional visible lighting associated with the project stacks, and open site areas. High illumination areas not occupied on a regular basis would be provided with switches or motion detectors to light these areas only when occupied. At times when lights are turned on, the lighting would not be highly visible offsite and would not produce offsite glare effects. The offsite light visibility and glare would be restricted by specification of non-glare fixtures and placement of lights to direct illumination into only those areas where it is needed. With the construction of the CPVVS, the overall change in ambient lighting conditions in the area surrounding the site would not be substantial.

Lighting that may be required to facilitate night construction activities would, to the extent feasible and consistent with worker safety codes, be directed toward the center of the construction site and shielded to prevent light from straying off site. Task-specific construction lighting would be used to the extent practical while complying with worker safety regulations. In spite of these measures, there may be limited times during the 24-month construction period when the project site may appear as a brightly lit area as seen in views from surrounding hillside residential areas.

5.13.2.4.5 Water Vapor Plumes

No significant water vapor plumes are expected to form, but there is the potential to create small visible plumes when the power plant is operating during times of low temperature and high humidity. Given these conditions, the most likely times for plume formation would be cold nights. In the Roseville Energy Park Project (03-AFC-01), the standard that CEC staff applied in evaluating the visual impacts of steam plumes was that plumes are

significant if they occur in more than 20 percent of daylight hours between October and March on clear days.[3] Given that plume formation occurs mostly during times of low temperature and high humidity, it is unlikely that they would form on more than 20 percent of clear days between March and October, since daylight hours during these months tend to have relatively high temperatures and low humidity.

5.13.2.5 Impact Significance

A discussion regarding whether the visual effects of the project would be significant pursuant to CEQA is provided below. The assessment of these impacts applies the criteria set forth in Appendix G of the CEQA Guidelines. The CEQA Guidelines define a "significant effect" on the environment to mean a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including objects of historic or aesthetic significance." (14 CCR 15382) The four questions related to aesthetics that are posed for lead agencies and the answers to them are:

Would the project have a substantial adverse effect on a scenic vista?

No. There are no state-designated scenic roads or vista points in the nearby (2-mile radius) project viewshed.

Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No. This question does not apply to the proposed CPVVS project because none of the project facilities would fall within the boundaries of a state scenic highway.

Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Yes. The proposed project would substantially alter the existing visual character of the project site and its surroundings. The project area currently has a primarily rural character. The proposed project would change the character to somewhat industrial.

The proposed project would also substantially alter the existing visual quality of the project area and its surroundings. Due to the scale of the proposed project and its proximity to the roadway, the proposed project dominates views from surrounding areas and is visually at odds with the existing landscape. The project would alter the visual quality of the immediate vicinity (KOP-1) and of that from near by rural residences (KOP-2). The proposed project would not substantially alter the quality of views from Vacaville (KOP-3). The project features represent a substantial change in the visual character and quality of views from KOPs 1 and 2 and, without mitigation, this impact would be considered significant.

Would the project create a new source of substantial light and glare that would adversely affect day or nighttime views in the area?

No. As described in Section 5.13.2.4.4, project light fixtures would be restricted to areas required for safety and operations. Lighting would be directed onsite and would be shielded from public view. Non-glare fixtures would be specified, as would switches,

[3] California Energy Commission. 2004. Final Staff Assessment for the Roseville Energy Park. p. 4.12-13p

sensors, and timers to minimize the use of the lights. These measures would substantially reduce the offsite visibility of project lighting.

Given the limited level of lighting proposed for the project and the measures that would be taken to minimize offsite effects, CPVVS's night lighting impacts would be less than significant.

Because none of the major project features would have surfaces that are highly reflective, the project would not be a source of daytime glare.

Any lighting that would be installed to facilitate nighttime construction activities would, to the extent feasible and consistent with worker safety codes, be directed toward the center of the construction site and shielded to prevent light from straying offsite. Task-specific construction lighting would be used to the extent practical while complying with worker safety regulations.

5.13.3 Cumulative Effects

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project (Public Resources Code Section 21083; 14 CCR Sections 15064(h), 15065(c), 15130, and 15355).

Applications for a large number of residential developments and other projects have been filed in Vacaville and Solano County within the last 18 months. None of the projects will be built near the CPVVS. Because of the distance between the CPVVS and any foreseeable new land uses, it is unlikely that visual impacts from the CPVVS would combine with visual impacts from these other new land uses. Cumulative noise impacts are, therefore, unlikely to occur.

5.13.4 Mitigation Measures

This analysis has documented that significant visual impacts could result from implementation of the proposed project. Therefore, mitigation measures will be proposed that could potentially reduce the visual impacts to a less-than-significant level. Mitigation measures will include a landscaping plan that would substantially screen the proposed project features from view. The City of Vacaville has a current plan to provide landscape screening for the EWTP and its potential areas of expansion that will include landscape screening that will surround the project site. This plan is conceptual and includes a double row of trees that will extend south down Lewis Road to Fry Road, along Fry Road past the CPVVS location to Vaca Station Road, and north along Vaca Station Road. The CPVVS project has been designed by agreement with the City, with a 70-foot-wide landscape buffer along both Lewis and Fry Roads, to accommodate this landscaping. The two rows of trees in the landscape design would be staggered and the trees closest to the road would be slightly smaller to provide maximum coverage. This landscape design is shown schematically in Figures 5.13-7 and 5-13-8. The City plans to develop a final design for this screening and to install it sometime in 2009–2010.

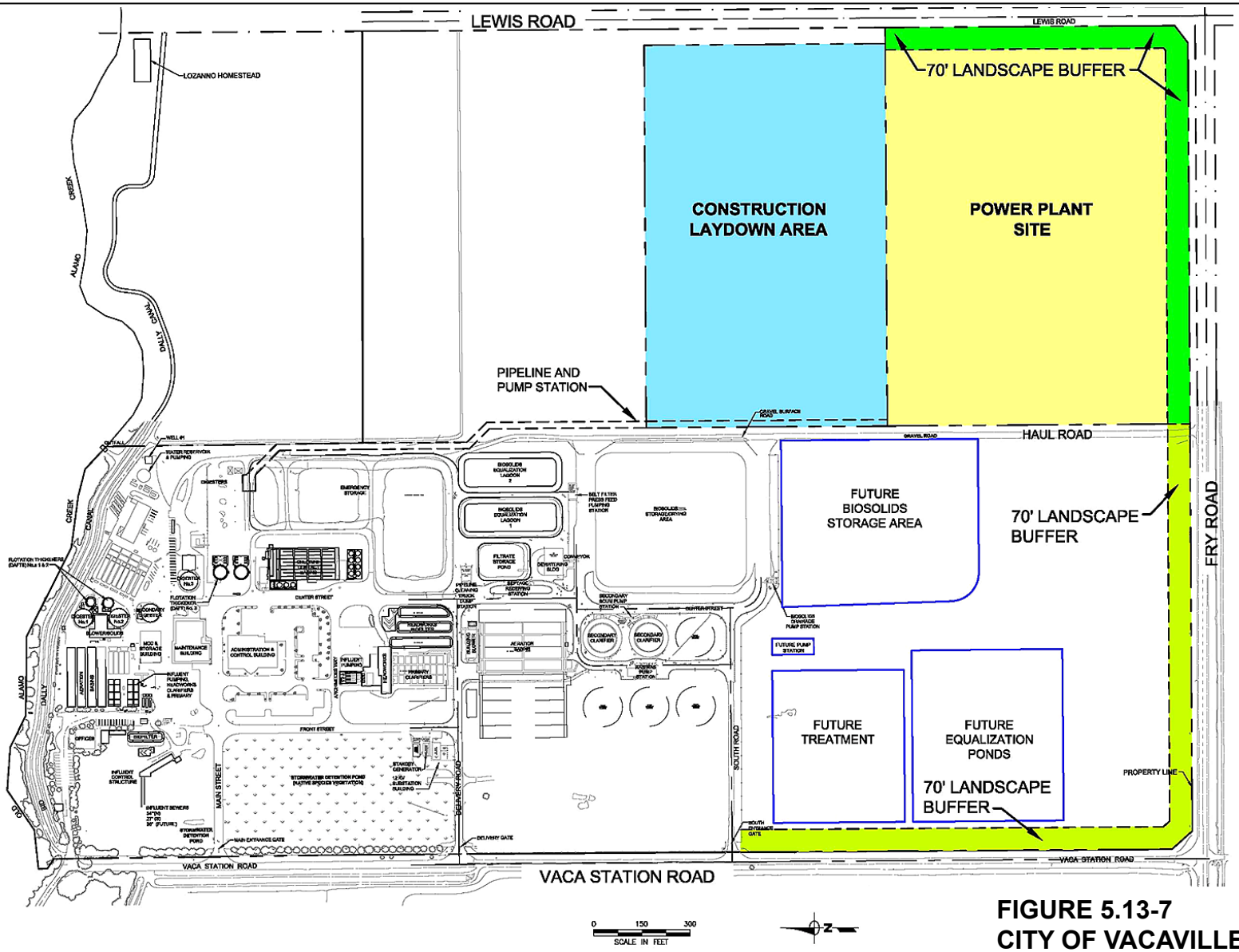

FIGURE 5.13-7
CITY OF VACAVILLE
CONCEPTUAL LANDSCAPE PLAN
CPV VACA STATION
VACAVILLE, CA

Figure source: West Yost Associates

CH2MHILL

EY052008001SAC Figure_5.13-7.ai 08-04-08 dash

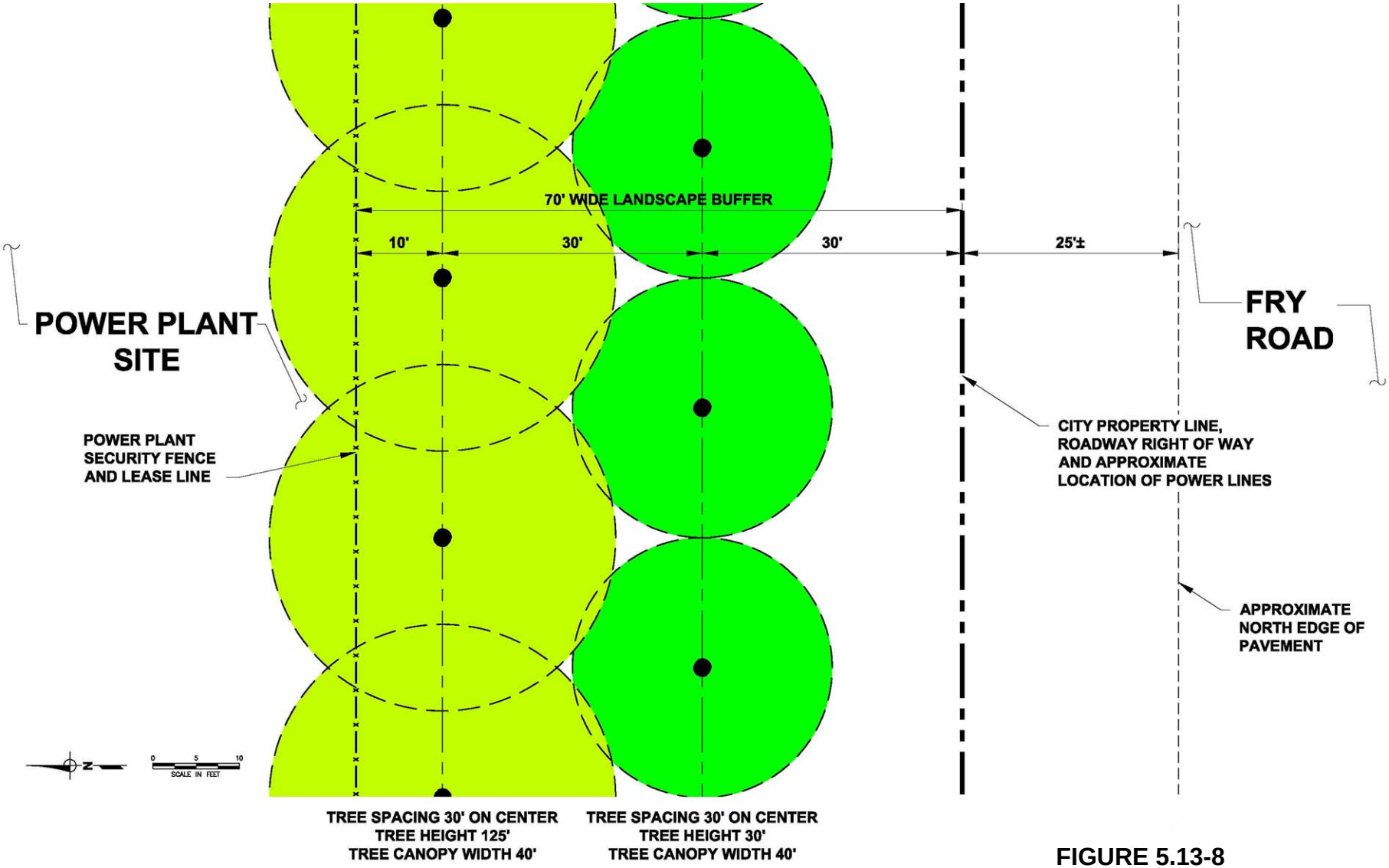

FIGURE 5.13-8
CITY OF VACAVILLE
LANDSCAPE PLAN DETAIL
CPV VACA STATION
VACAVILLE, CA

Figure source: West Yost Associates

CH2MHILL

For the purposes of visual impact assessment for this document, CPVV has assumed that the inside row of trees that will be used for screening would be redwoods and that the outer row of smaller trees/shrubs would be toyons or similar trees. Redwoods will reach mature heights of more than 125 feet with a foliage diameter of 40 feet and provide a dense visual screen. Toyons at maturity will reach 25 feet high and with 19-foot-diameter foliage.

The City's landscaping program will screen views of the project site for some distance from the east, west, and south and would screen the industrial appearance of the proposed project from view, thereby allowing it to harmonize better with the rural character of the surrounding environment. As long as the City's landscaping program provides sufficient screening, as the species mentioned above would do, the project's impact would be reduced to a level below significance. CPVV will work closely with the City to track the progress of the City's landscaping plan and provide a copy to the CEC Staff when available.

5.13.5 Laws, Ordinances, Regulations, and Standards

This subsection describes the LORS relevant to the visual resource issues associated with the CPVVS. No federal, state, or regional visual resource LORS exist. However, visual resource and urban design concerns applicable to the project are addressed in the City of Vacaville General Plan and the Vacaville Zoning Ordinance.

As indicated in the Land Use analysis (Section 5.6), the CPVVS site is within the city limits of Vacaville. However, the electric transmission lines would be on County land for most of their length.

Table 5.13-3 lists the City plans and ordinances that are pertinent to the project elements. The specific provisions of each plan or ordinance that have potential relevance to the project are identified in Sections 5.13.5.1 and 5.13.5.2.

TABLE 5.13-3
Laws, Ordinances, Regulations, and Standards for Visual Resources

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
City of Vacaville General Plan	Describes policies for land use, housing, public facilities and services, transportation, open space and conservation, city design, noise, safety, and implementation for the plan area.	City of Vacaville Community Development Department	Section 5.13.5.2
City of Vacaville Ordinances	Establishes zoning districts governing land use and requirements for buildings and district improvements.	City of Vacaville Building Division	Section 5.13.5.3
County of Solano General Plan	Describes policies for land use, housing, public facilities and services, transportation, open space and conservation, city design, noise, safety, and implementation for the plan area.	Solano County Resource Management Department	Section 5.13.5.4

5.13.5.1 City of Vacaville General Plan

The generating facility site is located within the city limits of Vacaville and is, therefore, subject to the provisions of the City of Vacaville General Plan. The project site is zoned for public utility use. The General Plans that are applicable to the project are summarized and evaluated in Table 5.13-4.

TABLE 5.13-4
Conformity with the City of Vacaville General Plan

Provision	Conformity?
Land Use Element: The strongest visual features of the City are, and will continue to be, the Vaca Mountains, Alamo Creek Ridge, and the English Hills along the western borders of the City. Creeks and associated riparian corridors are another valuable visual asset.	Yes. The proposed project would not alter views of the landforms or of riparian corridors in the vicinity of the City of Vacaville.
Land Use Element. 2.1-G 9. Preserve scenic features and the feel of a city surrounded by open space, and preserve view corridors to the hills, and other significant natural areas.	Yes. The proposed project would not alter any scenic features visible from the City including view corridors toward the hills. It would, however, diminish the feeling of open space surrounding the city because the project would be visible from its eastern limit. This effect would be mitigated by the addition of landscape screening, which would help the facility to blend in with its surroundings, and by the fact that the project is relatively far (1.75 miles) from the developed parts of the City.
Land Use Element. 2.1-G 6. Develop and implement programs to strengthen community identity, including establishing standards for design and landscaping for all development, including residential, commercial and industrial development and public facilities.	Yes. The project would be landscaped as specified by the Vacaville design standards.
Land Use Element. 2.1-I 1. Continue to implement design guidelines for all development, including residential, commercial and industrial projects and public facilities. Identify and prepare design guidelines for entry points into the City and Downtown.	Yes. All applicable design guidelines would be followed.
Land Use Element. 2.8-I 3. Implement setback, landscaping, and screening requirements for industrial development to protect adjacent non-industrial uses. Include specific standards in Policy Plans for adequate physical and aesthetic separation of industrial business parks and residential land.	Yes. All applicable design guidelines would be followed.

Source: City of Vacaville, 2007a

5.13.5.2 City of Vacaville Municipal Code

The project site lies within the Community Facilities zone established by the City of Vacaville Zoning Ordinance. The provisions of the ordinance that are applicable to the project are discussed in detail in Section 5.6, Land Use, and summarized in Table 5.13-5.

TABLE 5.13-5
Conformity with the City of Vacaville Zoning Ordinance

Provision	Conformity?
VMC 14.09.127.110 Lighting and Glare.	
A. Lighting shall be shielded and directed so as not to create a hazard or nuisance to other properties or impact traffic on adjacent streets.	Yes. CPVVS will comply with all lighting guidelines.
VMC 14.09.127.110 Lighting and Glare.	
B. Parking lot lighting shall comply with the standards of the Off-Street Parking and Loading Design Guidelines, including, but not limited to, the following: 1. Exterior lighting shall be a minimum of one foot candle and a maximum of six foot candles; 3. Flickering or flashing lights shall not be permitted; 4. A reduction in the minimum lighting or an exception to the maximum lighting standard requirement may be granted by the Director if the applicant or developer can demonstrate to the satisfaction of the Director that the minimum lighting is unnecessary or that additional lighting is needed.	Yes. CPVVS will comply with all lighting guidelines.
VMC 14.09.084.070 Landscaping.	
Perimeter landscaping shall be provided as follows: i. A minimum width of ten feet adjoining street frontages; iii. A minimum width of five feet of landscaping area when adjoining a non-residential district, except that the decision-maker may approve a reduction in the perimeter landscaping, when not adjoining a street, when compensating landscaping is provided elsewhere on the site. B. All areas within the site or lot not used or specifically intended for structures, parking, or other necessary site improvements, shall be landscaped.	Yes. CPVVS will comply with all lighting guidelines.

Source: City of Vacaville, 2007b

5.13.5.3 Solano County General Plan

The electrical transmission line route and the natural gas pipeline route would be outside the city limits of Vacaville within an unincorporated part of Solano County. Therefore, these linear facilities would be subject to the Solano County General Plan. The project site is designated Intensive Agriculture in the General Plan. The provisions of the General Plans that are applicable to the project are evaluated in Table 5.13-6.

TABLE 5.13-6
Conformity with Solano County General Plan

Provision	Conformity?
Chapter III. Agricultural and Open Space Land Use: The existing visual corridors of open space between urban communities within the County represent significant areas of open space. These visual corridors act as community buffers which provide natural barriers between communities and which help to form and protect the individual character and identity of each community.	Yes. The transmission lines are well-established elements of open space areas in this region and the presence of the proposed transmission line will not diminish the value of this area as open space. Transmission structures do not alter the landscape pattern significantly and permit existing agricultural uses to continue.
Chapter VIII. Recreation Land Use. The County shall preserve and enhance watersheds, canyons, creeks, lakes, and other scenic open space areas in appropriate open space uses.	Yes. The project would not in anyway alter or diminish views of watersheds, canyons, creeks, lakes, or other scenic open space areas.
Chapter VIII. Public Facilities. Electrical and telephone transmission lines should be located in a manner which avoids scenic areas or areas which are visually sensitive when feasible. When such areas cannot be avoided, transmission lines should be designed and located in a manner to minimize their visual impact.	Yes. The transmission lines proposed in the project would not be located in designated scenic or visually sensitive areas.
Chapter VIII. Public Facilities. All transmission lines should be located and constructed in a manner which minimized disruption of natural vegetation and agricultural activities and avoids unnecessary scarring of hill areas.	Yes. The transmission lines proposed in the project would be located along the edge of a roadway to minimize the disruption of the adjacent agricultural fields. The transmission lines would not cross any areas of natural vegetation or hills.
Draft 2008 General Plan. RS.P-35. Support and encourage practices that reduce light pollution and preserve views of the night sky. Amend the zoning ordinance to: RS.I-20 Direct the use of lighting fixtures that reduce glare and light pollution. The ordinance should provide light standards for the type and location of lighting fixtures in development projects. RS.I-22. In new developments, require the use of fixtures that direct light toward target areas and shield it from spillage.	Yes. The proposed project would conform to the guidelines in the ordinance.
Draft 2008 General Plan. RS.P-57. Require the siting of energy facilities in a manner compatible with surrounding land uses and in a manner that will protect scenic resources.	Yes. The transmission lines are well-established elements of open space areas in this region and the presence of the proposed transmission line will be consistent with the surrounding landscape. The line would be consistent with surrounding land uses in that it would respect the landscape's grid by running alongside the road and not running cross-wise through fields. The use of the steel poles adds to the compatibility with the surrounding land uses by minimizing the tower footprints' potential to interfere with continued agricultural activities.

Sources: Solano County, 1980 and 2008

5.13.5.4 Summary of Project's Conformity with Applicable LORS

The project complies with applicable laws, ordinances, regulations, and standards related to visual resource issues.

5.13.6 Agencies and Agency Contacts

The agency responsible for the design review is the City of Vacaville (Table 5.13-7).

TABLE 5.13-7
Agency Contacts for Visual Resources

Issue	Agency	Contact
Design Review	City of Vacaville	Mr. Fred Buderi, Principal Planner City of Vacaville Community Development Dept. 650 Merchant Street Vacaville, CA 95688 (707) 449-5140 http://www.ci.vacaville.ca.us/

5.13.7 Permits and Permit Schedule

The required permit that is of the most direct relevance to visual resource issues is the Design Review, which includes site plan, architectural, and landscape elements.

TABLE 5.13-8
Permits and Permit Schedule for Visual Resources

Permit or Approval	Agency Contact	Schedule
Design Review including Site Plan and Landscape Plan review	Mr. Fred Buderi, Principal Planner City of Vacaville, Community Development Dept. 650 Merchant Street Vacaville, CA 95688 (707) 449-5140 http://www.ci.vacaville.ca.us/	Prior to construction

5.13.8 References

Buhyoff, G. J., P. A. Miller, J. W. Roach, D. Zhou, and L. G. Fuller. 1994. An AI Methodology for Landscape Visual Assessments. AI Applications. Vol. 8, No. 1, pp. 1-13.

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United States Department of Agriculture Forest Service (USFS). 1995. Landscape Aesthetics: A Handbook for Scenery Management. Agriculture Handbook No. 701. December.

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