

5.15 Visual Resources

This section addresses the potential impacts to visual resources by the PHPP. Visual resources are the elements of the landscape that contribute to the aesthetic character and quality of the environment. These elements are either natural or human-made. Impacts to visual resources are rated by the extent to which changes would contrast with the existing visual character and quality of the environment. This section documents the potential for the construction, operation, and long-term presence of the Project to result in significant impacts on visual resources or sensitive receptors.

5.15.1 LORS Compliance

The Project will comply with the applicable LORS pertaining to visual resources. Table 5.15-1 summarizes the applicable Federal, State, and local LORS. Additional discussion of these LORS is provided following the table.

Table 5.15-1 Summary of Applicable Visual Resources LORS

Authority	Requirement	Where Addressed in AFC
Federal:		
None		
State:		
California Environmental Quality Act (CEQA); California Public Resources Code, Section 2100 et seq.	CEQA Guidelines require (and provide criteria for) assessment of visual resources impacts	Section 5.15.3.
Local:		
County of Los Angeles, Regional Planning Department, General Plan and Planning Ordinances / Codes	General Plan requirements for regulation of land use in unincorporated areas	Section 5.15.3
City of Palmdale, Planning Department, General Plan	Palmdale Native Desert Vegetation Ordinance	Section 5.15.3

5.15.1.1 Federal LORS

There are no Federal aesthetic/scenic/visual resources LORS that apply directly to the PHPP.

5.15.1.2 State LORS

Only one State law would apply to the PHPP related to visual resources, and it is discussed below.

California Environmental Quality Act; California Public Resources Code, Section 2100 et seq.

CEQA includes the aesthetic environment as one of the resource areas to be considered in environmental assessment documents. Appendix G of the CEQA guidelines includes several criteria for determining whether a project may have a significant effect on the environment because of aesthetic impacts. As the CEC licensing process is a CEQA-equivalent process, the CEC is the administering agency.

5.15.1.3 Local LORS

Local LORS applicable to the PHPP include:

County of Los Angeles

The Scenic Corridor (SC) Combining District designation is given to areas that contain unique scenic visual resources as viewed from a major highway or freeway. The designation safeguards the scenic qualities of the natural environment by requiring the approval and review of the siting of offsite advertising signs.

City of Palmdale Zoning Ordinance

Section 10.04 of the Palmdale Zoning Ordinance states that the City “desires to achieve a pattern and distribution of land uses” that generally meets a number of objectives. Two objectives specific to aesthetics are: 1) “to maintain and enhance significant environmental and visual resources,” and 2) “to establish Palmdale as a distinctive community with a high quality of life and a visually pleasing, secure environment for the City’s residents and businesses.”

City of Palmdale Native Desert Vegetation Ordinance

The City’s Native Desert Vegetation Ordinance is directly relevant to Project visual resources issues because, as stated in the ordinance, the Joshua trees help create the “unique natural desert aesthetics” of the area, and Joshua trees transplanted from the PHPP plant site interior are a key element of the Project’s Conceptual Landscaping Plan (see Figure 5.17-10). The ordinance also is relevant to Project biological resources issues because of the ordinance’s requirements with respect to the removal and preservation of Joshua trees and other desert vegetation currently found on the plant site. For this reason, the City’s Native Desert Vegetation Ordinance is discussed in Section 5.3, Biological Resources, as well as in the following pages.

14.04.010 Purpose and intent.

It is determined by the City Council that appropriate action must be taken in order to protect and preserve desert vegetation, and particularly Joshua trees, so as to retain the unique natural desert aesthetics in some areas of this City, and to promote the general welfare of the community.

Definitions.

“Desert vegetation” means Joshua trees and California juniper as defined by this chapter, and other living plants identified pursuant to the California Desert Native Plants Act (Food and Agricultural Code section 80001, et seq.) as protected or designated on any state or federal rare and endangered species list.

“Development proposal” means an application for approval of a specific plan, a subdivision, conditional use permit, tentative tract map, parcel map or any other development permit or entitlement application which has been filed with and is pending for consideration by the City.

“Joshua tree” means a living tree of botanical name of *Yucca brevifolia*.

14.04.040 Prohibition of removal.

- A. Desert vegetation shall not be removed, nor caused to be removed, on or from any parcel of land, except as provided by the provisions of this chapter.
- B. A native desert vegetation removal permit shall be obtained from the city’s landscape architect, or in lieu thereof, the director of public works’ designee, prior to the removal of any native desert vegetation as defined in this chapter. (Ord. 952 §2(part), 1992)

14.04.050 Desert vegetation preservation plan requirements.

All development proposal applications for sites containing native desert vegetation shall include a desert vegetation preservation plan, submitted with the development application, containing the following:

- A. A written report and a site plan which depicts the location of each Joshua tree and California juniper, discusses their age and health, identifies and locates all trees and shrubs which can be saved in place or relocated. The report shall be prepared by a desert native plant specialist.
- B. A site landscaping plan showing the proposed location of those Joshua trees or California junipers, and any other native desert vegetation that will remain on-site.
- C. A long-term maintenance program for any desert vegetation preserved on the site. The minimum term of any maintenance program shall be two growing seasons, unless a shorter length of time is determined by the City’s Landscape Architect, or in-lieu thereof, the Director of Public Works’ designee in cases where the trees retained on the site, are of such health and vigor after one growing season that their survival is assured.
- D. Such other and further information as the director of planning may deem necessary to fulfill the purposes and intent of this chapter in a particular case. (Ord. 952 §2(part), 1992).

5.15.1.4 Agencies and Agency Contacts

The local agency involved in visual resources issues is the City of Palmdale Planning Department. Contact information is provided in Table 5.15-2.

Table 5.15-2 Agencies and Agency Contacts

Agency Contact	Phone/E-mail	Permit/Issue
Connie Brown Senior Landscape Architect City of Palmdale, 38250 Sierra Highway Palmdale, CA 93550	(661) 267-5265 cbrown@cityofpalmdale.org	Conformance to Native Desert Vegetation Ordinance

5.15.1.5 Required Permits and Permit Schedule

No permits are required that are specific to visual resources. However, a City of Palmdale Native Desert Vegetation Removal Permit will be needed (see Section 5.3, Biological Resources), and Joshua trees transplanted from the plant site interior will be a key element of the site's landscaping plan (see Figure 5.17-10, Conceptual Landscaping Plan).

5.15.2 Affected Environment

The following subsections discuss the visual environment in the vicinity of the Project site.

5.15.2.1 Regional Setting

The PHPP plant site is undeveloped and vacant at present; Figure 2-2 in Section 2.0, Project Description is a photograph of the site in its current condition. The plant site does not contain significant scenic resources and its overall level of scenic quality is considered moderate. As discussed in Section 6.4, Biological Resources, the Project area is populated by Joshua trees (*Yucca brevifolia*) and a number of cacti.

The Project plant site has distant views to and from the San Gabriel Mountains (approximately 8 miles to the south). Overall visibility of the proposed plant site and its surrounding area are shown in Figure 5.15-1. The greatest potential for public views of the Project is from two roadways in the immediate vicinity of the site: Sierra Highway (approximately 1.5 miles to the west) and E Ave M (the Project site borders E Ave M to the south). Local visibility of the plant site, at a scale of 1:24,000, is shown in Figure 5.15-2. Other viewing opportunities are from the recreational trail paralleling Sierra Highway and from higher elevations to the south, at significant distances (eight miles or more from the PHPP plant site).

The nearest residence with views to the plant site's power block (where the facility's largest structures and equipment would be located), is on Palermo Road approximately 3.5 miles to the southwest of the power block which is in the eastern portions of the plant site.

Plant Site

The PHPP plant site is presently vacant and undeveloped. See Section 5.7, Land Use for a description of existing land uses of and in the vicinity of the Project. The plant site's Joshua trees represent its significant scenic resources and its overall level of scenic quality is considered moderate. The site is situated at an elevation range of approximately 2,493 to 2,535 feet. As discussed in Section 5.3, Biological Resources, the plant site is comprised mainly of Joshua Trees and cacti of the related plant community. The Project's transmission line route traverses Mojave Desert Creosote Bush Scrub community shrubs and grasses, agricultural lands, disturbed desert earth, and mountain shrub community shrub and grass vegetation, while the natural gas supply pipeline route follows disturbed road shoulders essentially for its entire length.

The Project plant site has distant views to and from the San Gabriel Mountains (approximately eight miles to the south). Overall visibility of the proposed plant site and its surrounding area are shown in Figure 5.15-1. The greatest potential for public views of the Project is from two roadways in the vicinity of the site: Sierra Highway (approximately 1.5 miles to the west) and E Ave M (the Project site is adjacent to E Ave M). As

mentioned above, other viewing opportunities are from the recreational trail paralleling Sierra Highway and from higher elevations to the south eight miles or more from the Project site).

The area surrounding the plant site is very lightly populated. The nearest residence with views to the large structures on the plant site is located on Palermo Drive approximately 3.5 miles to the southwest across the Sierra Highway.

Linear Facilities Routes

As the various Project pipelines will be buried and thus will have no visual impacts, the only linear facility addressed in the visual resources analysis is the transmission line route. Figure 5.15-2 shows the location of the transmission line route at a scale of 1:24,000, and visibility out to one-half mile. The greatest potential for public views of the transmission line is from transportation routes. Other viewing opportunities are from residences and roads in the valley and foothills and from hiking trails and roads at higher elevations in the foothills. The linear features routes do not contain significant scenic resources and overall levels of scenic quality are considered moderate to low, depending on levels of existing disturbances.

5.15.2.2 Visual Resources Evaluation Factors and Methodology

Evaluations of visual resources in connection with the PHPP are based on field observations, area maps, 2-dimensional (2D) and 3D engineering drawings, photographs of the Project area, and computer-aided photographic simulations. These simulations present views of the plant site from three locations and views of the transmission line from three locations that were selected as Key Observation Points (KOPs) for purposes of the visual resources evaluation of the Project. KOPs are shown in Figure 5.15-3.

Scenic quality judgments are made based on professional qualifications and experience applying criteria that include the following elements:

- Landscape features, including topography, water, and vegetation;
- Cultural alterations and built structures, including roads, residences and industrial buildings; and
- Visual composition, including an assessment of the vividness, intactness, and unity of patterns in the landscape¹

Landscape Scenic Quality Scale

Overall landscape scenic quality is evaluated in the range of High, Moderate, or Low, based on Buhyoff et al. (1994), U.S. Department of Transportation (DOT) Federal Highway Administration (1988); and U.S. Forest Service (1995). The elements of the rating scale are defined below:

- High Visual Quality: These landscapes contain natural and/or cultural elements of high quality scenic value. Levels of vividness, unity, and intactness are above average.

¹ Vividness is the degree of memorability and/or distinctiveness of landscape elements in the visual pattern. Intactness is the degree of integrity of visual order and/or absence of visual encroachment from discordant elements. Unity is the degree of coherent, harmonious visual patterns among the dominant elements of the landscape. (USDOT FHWA, 1988)

- **Moderate Visual Quality:** These landscapes contain natural and/or cultural elements of moderate scenic value. Levels of vividness, unity, and intactness are average.
- **Low Visual Quality:** These landscapes contain natural and/or cultural elements of low scenic value. Levels of vividness, unity, and intactness are below average.

Field investigations were conducted to document the visual characteristics and issues of the Project area, identify KOPs, and photograph existing visual conditions. Photography was conducted using a Nikon D200 digital sensor with standard 50-mm camera lens. Figures 5.15-4a through 5.15-9b present existing visual conditions and visual simulations of Project facilities from each of the KOPs. In each case, the first figure in the series (e.g., Figure 5.14-4a) represents the existing visual condition while the second figure (e.g., Figure 5.15-4b) simulates the visual environment including the Project facilities. These various simulations portray the appearance of the Project facilities in the landscape of the site and vicinity. In addition, the without-Project photographs represent the character of the landscape in the area.

The computer-aided photographic simulations were developed as described below. Computer modeling and rendering techniques were used to produce the simulated images of the views of the PHPP site as they would appear from each KOP after the completion of Project construction. Existing topographic and engineering (ArcGIS and Microstation CAD) data were utilized to construct 3-D (eye level height 5.5 feet) digital and photographic images of the generation and linear facilities. These images were combined with the digital photography from each KOP to produce a complete computer-aided image of the power generating facility and portions of the transmission system (see also AFC Section 2.0 for photographs of existing pre-Project conditions at the plant site and at representative locations along the transmission line route and simulations with Project facilities added at these same locations). Digital visual simulation images of computer renderings were combined with the digital KOP and “pre-Project” photographs. The final “hardcopy” simulation images that appear in this AFC were produced from the digital image files using a color printer.

5.15.2.3 Key Observation Points

As noted above, the approach to evaluating the visual impacts of PHPP is based on KOPs. KOPs are view receptors that are sensitive and/or considered representative. Views from these locations are the framework for analyzing existing visual conditions. In addition, KOPs serve as locations for photographic simulations of a proposed project.

In consultation with CEC Staff, six KOPs were selected to evaluate the Project’s existing conditions and potential visual impacts. They are as follows:

- KOP-1 E Ave M,
- KOP-2 Sierra Highway and E Ave M,
- KOP-3 Palermo Drive,
- KOP-4 Lancaster National Soccer Complex,
- KOP-5 Residence at 100 Street and Ave M-8, and
- KOP-6 Residence on Pearblossom Highway.

Existing visual conditions of the view from each KOP were evaluated and documented during fieldwork conducted in February and July 2008.

KOP-1 East Avenue M Northeast of the Project Plant Site.

KOP-1 is located at the northeast corner of the PHPP plant site (see Figure 5.15-1 and Figure 5.15-4a). The foreground views from KOP-1 are typical of the visual character of both the natural and cultural landscape of the Project area. The background view is comprised of the San Gabriel Mountain Range. The visual quality of this view is moderate; the Joshua tree forest is a distinctive visual pattern in the view. Due to the presence of both natural and cultural features, the visual resources do not form a strong, coherent pattern, and the visual integrity in the natural and human-built landscape is moderate. The Project facilities would be visible in the foreground by users of E Ave M. The level of visual sensitivity is moderate.

KOP-2 Sierra Highway and East Avenue M Northwest of the Project Plant Site.

KOP-2 is located approximately 1.3 miles northwest of the PHPP plant site (Figure 5.15-5a). The foreground and midground views from KOP-2 are typical of the visual character of the native Antelope Valley landscape and of other cultural elements. The background view is comprised of the San Gabriel Mountain Range. The visual quality of this view is moderate; the combination of desert landscape and large structures form distinctive visual patterns in the view. The visual resources do not form a strong, coherent pattern, and the visual integrity in the natural and human-built landscape is moderate. The Project facilities would be visible in the middle ground by viewers at this receptor. The level of visual sensitivity is moderate.

KOP-3 Palermo Drive Residences Southwest of the Project Plant Site.

KOP-3 is located approximately two miles southwest of the PHPP plant site (Figure 5.15-6a). The accompanying photograph is from street level and the surrounding homes have a higher level of visibility. The foreground and midground views from KOP-3 are typical of the visual character of cultural elements in the valley. The visual quality of this view is moderate; there are no striking or distinctive visual patterns in the view; the visual resources do not form a strong, coherent pattern, and the visual integrity in the natural and human-built landscape is moderate. The Project facilities would be visible in an elevated situation by residents at this receptor. Because this view would be experienced by residents, the level of visual sensitivity is high.

KOP-4 Lancaster National Soccer Center, Intersection of East Avenue L and 30th Street East near Transmission Line Route.

KOP-4 is located on the north side of E Ave L (Figure 5.15-7a), across the street from the transmission line route. The view from KOP-4 is typical of the visual character of the desert landscape along 30th St E and E Ave L. The background view is comprised of the large industrial structures and San Gabriel Mountain Range. The visual quality of this view is moderate; there are no striking or distinctive visual patterns in the view. Due to the presence of both multiple discordant features, the visual resources do not form a strong, coherent pattern, and the visual integrity in the human-influenced landscape is low. The transmission line would be visible in the foreground by users of the soccer facility and from 30th St E and E Ave L. The level of visual sensitivity is moderate.

KOP-5 Residence at 100 Street East and Avenue M-8 south of the Transmission Line Route.

KOP-5 is located approximately one-quarter mile south of the PHPP transmission line route (Figure 5.15-8a). The foreground and midground views from KOP-5 are typical of the visual character of the desert

landscape with minimal cultural modifications. The background view is comprised of the valley floor. The visual quality of this view is low; there are no striking or distinctive visual patterns in the view. The visual resources do not form a strong, coherent pattern, and the visual integrity in the natural and human-built landscape is minimal. The Project facilities would be visible by residents and visitors at this receptor. Because this view would be experienced by residents, the level of visual sensitivity is high.

KOP-6 Residence on Pearblossom Highway near Transmission Line Route.

KOP-6 is located along the transmission route at its intersection with Pearblossom Highway/SR 138 (see Figure 5.15-5 and Figure 5.15-9a). The foreground and middleground views from KOP-6 are comprised of the existing transmission corridor and residential structures. The background view is comprised of the San Gabriel Mountains. The visual quality of this view is moderate to low; the striking or distinctive visual patterns in the view consist of the transmission structures. The visual resources do not form a strong, coherent pattern, and the visual integrity in the natural and human-built landscape is minimal. Travelers of SR-138 are typically regional residents and commuters. See Section 5.13, Traffic and Transportation, for a description of roadway characteristics and operating capacity for SR 138. Because this view would be experienced by residents and travelers of a major highway, the level of visual sensitivity is high.

5.15.3 Environmental Impacts

The following subsections present an evaluation of the impacts on visual resources of the Project.

5.15.3.1 Impact Evaluation Criteria

The assessment of the Project's impacts is based on an evaluation of the changes to the existing visual environment that would result from Project construction and operation. For assessing impacts during Project operation, the computer-aided photographic simulations were analyzed for their contrast with the existing visual environment. Because of the temporary nature of Project construction activities, simulations were not used in the impact evaluation of that phase.

In determining the extent and implications of the visual changes, a number of factors were considered:

- The specific changes in the affected environment's composition, character, and any outstanding valued qualities;
- The context of the affected visual environment;
- The extent to which the affected environment contains places or features that have been designated in plans and policies for protection or special consideration; and
- The numbers of viewers, their activities, and the extent to which these activities are related to the visual qualities affected by proposed changes.

Significance criteria for impacts to visual resources were developed from Appendix G of the State CEQA guidelines and include the following:

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

- Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
- Would the project substantially degrade the existing visual character or quality of the site and its surroundings?
- Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

5.15.3.2 Project Appearance

The PHPP facilities are described in detail in Section 2.0, Project Description, which includes simulated views of the Project's power generating facilities and linear facilities. Chain link fencing will be installed around the plant site perimeter for security. Project equipment other than the solar arrays will have non-reflective surfaces and neutral colors to minimize their visual impacts. Table 5.15-3 presents the dimensions of major Project components that may be visible from offsite locations.

PHPP operations will require onsite nighttime lighting for safety and security. To reduce offsite lighting impacts, lighting at the facility will be restricted to areas required for safety, security, and operation. Exterior lights will be hooded, and lights will be directed onsite so that light or glare will be minimized. Low-pressure sodium lamps and fixtures of a non-glare type will be specified. Switched lighting will be provided for areas where continuous lighting is not required for normal operation, safety, or security; this will allow these areas to remain un-illuminated (dark) most of the time and thereby minimizing the amount of lighting potentially visible offsite.

Project construction activities typically will occur during normal Monday through Friday working hours, although nighttime activities may occur at certain times at the plant site during the construction period depending on the Project schedule. When and if nighttime construction activities take place, illumination will be provided that meets State and Federal worker safety regulations. To the extent possible, the nighttime construction lighting will be erected pointing toward the center of the site where activities are occurring, and will be shielded. Task-specific lighting will be used to the extent practical while complying with worker safety regulations.

Construction of the Project's 230-kV transmission line will involve installation of steel power poles. The insulators will be made of a non-reflective and non-refractive material, and the conductors will be non-specular (i.e., their surfaces will have a dulled finish so that they do not reflect sunlight).

The Project's natural gas supply pipeline will be buried and thus will not be visible. During construction of the pipeline, the ground surface of the area along the alignment will be temporarily disrupted by the presence of construction equipment; excavated piles of dirt, concrete, and pavement; and construction personnel and vehicles. These effects will be minor and temporary. After construction, the ground surfaces will be restored and the pipelines will not create a long-term change to the visual environment.

The Project's effects on visual conditions during hours of darkness will be moderate. As indicated earlier, some nighttime lighting will be required for operational safety and security. There will be a small amount of additional visible lighting associated with the Project structures and open site areas. At times when lights are turned on, the lighting will not be highly visible offsite and will not produce offsite glare effects.

Table 5.15-3 Equipment Dimensions

Description	Height (ft)	Length East-West (ft)	Depth North-South (ft)	Diameter (ft)
Combustion Turbine 1 Enclosure	35	55	25	n/a
Combustion Turbine 1 Inlet Air Filter	70	60	45	n/a
CT 1 MCC Module	20	36	12	n/a
CT 1 Lube Oil Module	15	30	11	n/a
Combustion Turbine 2 Enclosure	34	54	24	n/a
Combustion Turbine 2 Inlet Air Filter	69	62	44	n/a
CT 2 MCC Module	20	36	12	n/a
CT 2 Lube Oil Module	15	30	11	n/a
HRSG 1 (Top of Silencers)	119	140	45	n/a
HRSG 2 (Top of Silencers)	119	140	45	n/a
HRSG 1 Stack	145			19
HRSG 2 Stack	145			19
Wet Cooling Tower (No Plume Abatement)	50	288	96	n/a
Steam turbine Generator/Condenser and associated structure/equipment	70	120	40	n/a
ST MCC Module	20	20	50	n/a
CTG 1 GSU Transformer	26	35	25	n/a
CTG 2 GSU Transformer	26	35	25	n/a
STG GSU Transformer	28	35	25	n/a
Water Treatment Building	25	140	105	n/a
Clarifier Tank 1	25	n/a	n/a	44
Clarified Water Storage Tank	35	n/a	n/a	37
Filtered Water Storage Tank	30	n/a	n/a	30
Demineralized Water Tank	30	n/a	n/a	30
Pretreatment Filter Press and Shelter	20	15	30	n/a
Sludge Thickener	20	70	25	20
Fire Pump Module	15	15	25	n/a
Brine Storage Tank	35	n/a	n/a	35
Crystallizer	55	n/a	n/a	9
Ammonia Storage Tank (Horizontal)	20	n/a	40	10
Fuel Gas metering Yard	15	75	45	n/a
Administration / Warehouse	20	210	40	n/a
230 KV Switchyard	20	290	440	n/a
Switchgear Module	20	30	55	n/a

n/a = not applicable

The offsite visibility and potential glare of the lighting will be minimized by specification of non-glare fixtures and placement of lights to direct illumination into only those areas where it is needed. When viewed from nearby offsite locations, the overall change in ambient lighting conditions at the Project site will be less than significant.

To the extent feasible and consistent with worker safety codes, lighting that may be required to facilitate nighttime construction activities will be directed toward the center of the construction site and shielded to prevent light from straying offsite. Task-specific construction lighting will be used to the extent practical while complying with worker safety regulations. In spite of these measures, there may be times, when and if there is nighttime construction, when the Project site may temporarily appear as a brightly lit area as viewed from nearby locations.

5.15.3.3 Construction Phase Impacts

During the Project construction period, construction activities and construction materials, equipment, trucks, and parked vehicles, all potentially may be visible on the plant site and along linear facility routes. Construction activities will be conducted in a manner that minimizes (visible) dust emissions (See Section 5.2, Air Quality). The construction activities at the Project site and the activities along the linear routes near the plant site will temporarily introduce additional vehicles, materials, and equipment into the view from nearby areas.

In summary, visual changes associated with construction period activities at both the plant site and along linear routes will be moderate and temporary for the plant site and minor and temporary for the linear facilities (because of the short duration of linear facilities construction). Overall, Project construction impacts on visual resources are considered less than significant.

5.15.3.4 Operations Phase Impacts

The following subsection discusses the visual resources impacts during Project operations. As described below for each of the KOPs, the PHPP will change the visual appearance of the area. When viewed from eye level, during most hours of the day, the solar field would be relatively unobtrusive, with the power block visible above the solar field. From elevated locations, because of the movement of the sun and the changing orientation of the mirrors to track the sun's movement, the view would change over time. In afternoon hours when viewed from distant elevated locations to the southwest, the reflective surface of the mirror would be oriented toward the viewer. At these times, on a sunny day, the solar array would create a visual impression that more closely resembles a body of water than a power plant or other industrial facility because the array would be reflecting the blue sky. On a cloudier day, the visual impression would appear more gray. In the morning hours viewed from the same elevated locations to the southwest, viewers would have the non-reflective backs of the mirrors toward them, in which case the visual contrast with the surrounding environment would be considerably less.

While the Project itself would create a substantial visual contrast for a portion of the day, the overall impact on visual resources would be less than significant when the Project is considered in the context of its surroundings. The presence of the industrial facilities (Air Force Plant 42) to the east and south of the PHPP plant site represents a preexisting modification of the natural landscape and provides contrasting geometric shapes with the rows of solar collectors of the PHPP. Both of these factors (the prior modification and the contrasting shape), diminish the potential for impact of the PHPP facilities.

Potential impacts from the designated KOPs and the cooling tower plume are presented below followed by a discussion of impacts in terms of specific significance criteria.

Impacts from KOPs

KOP-1 East Avenue M Northeast of the PHPP Plant Site

A simulation of the view of the PHPP site from KOP-1 is shown in Figure 5.15-4b; the existing view is shown in Figure 5.15-4a. In this view, the prominent visible features of the Project would be the solar array and, secondarily, the PHPP plant structures. These features would be visible in the foreground and middleground and would present a moderate level of dominance in the view. The presence of the existing industrial structures to the south of the PHPP site would help to ameliorate the effects of the features of the PHPP site.

The neutral color and non-reflective surface of the Project structures will reduce their visual contrast with their surroundings and help them to be absorbed into the overall view. Due to their distance and location in the middle of the plant site, Project power block facilities would be moderately visible from this KOP. Therefore, the effect of the PHPP on the overall character of the view is expected to be moderate to strong. The general level of visual quality of the view from KOP-1 would change moderately. The presence of the Project features would increase moderately the vividness of the view, would have moderate effect on the overall intactness of the view, and would have moderate effect on the visual unity of the composition of the landscape. The overall impact of the Project facilities on visual resources would be less than significant.

KOP-2 Sierra Highway and East Avenue M Northwest of the PHPP Plant Site

The simulation of the view of the PHPP site and facilities from KOP-2 is shown in Figure 5.15-5b; the existing view is shown in Figure 5.15-5a. The view from KOP-2 would include the PHPP site from the same elevation; the effect of the Project on the overall character of the view is expected to be moderate. Due to the addition of mirrored reflections of the sky during the afternoon hours, the presence of the Project features would increase moderately the vividness of the view, would have moderate effect on the overall intactness of the view, and would have a moderate effect on the visual unity of the composition of the landscape. The effect on the overall character of the view is expected to be moderate. The presence of the industrial structures to the east and south would help to ameliorate the effects of the PHPP facilities. The overall impact of the Project facilities on visual resources would be less than significant.

KOP-3 Palermo Drive Residences Southwest of the PHPP Plant Site

The simulation of the view of the PHPP plant site from KOP-3 is shown in Figure 5.15-6b; the existing view is shown in Figure 5.15-6a. The view from the actual photograph at street level from KOP-3 would include a small portion of the PHPP facilities. However, views from surrounding residences would be at a slightly elevated position and show more of the PHPP site; the effect of the Project on the overall character of the views from residences is expected to be minimal to moderate. The presence of the Project features would increase minimally the vividness of the view, would have minimal effect on the overall intactness of the view, and would have minimal effect on the visual unity of the composition of the landscape. The presence of the geometric patterns of existing structures would help to ameliorate the effects of geometric features of the PHPP site. The overall impact of the Project facilities on visual resources would be less than significant.

KOP-4 Lancaster National Soccer Center, Intersection of East Avenue L and 30th Street East near Transmission Line Route

Simulations of the view of the PHPP transmission line from KOP-4 is shown in Figure 5.15-7b; the existing view is shown in Figure 5.15-7a. In the view from KOP-4, the visible features of the project would be the transmission line structures, which would be visible in the foreground and middleground and would represent a moderate level of dominance in the view.

The view from KOP-4 is at eye level. The color and non-reflective surface of the transmission line structures will reduce their visual contrast with their background and help them to be absorbed into the overall view to a moderate degree. Therefore, the Project's impact on the overall character of the view is expected to be moderate. The general level of visual quality of the view from KOP-4 will not change significantly. The presence of the Project features would not affect the vividness of the view, would have limited effect on the overall intactness of the view, and would have low to moderate effect on the visual unity of the composition of the landscape. The overall impact of the Project transmission line facilities on visual resources would be less than significant.

KOP-5 Residence at 100 Street East and Avenue M-8 south of the Transmission Line Route

The simulation of the view of the PHPP transmission line from KOP-5 is shown in Figure 5.15-8b; the existing view is shown in Figure 5.15-8a. The view from KOP-5 is at eye level. In the view from KOP-5, the visible features of the Project would be only the transmission line, which would be visible in the foreground and middleground and would present a moderate level of dominance in the view. The effect of the Project on the overall character of the view is expected to be moderate. The presence of existing foreground and middleground structures would help to ameliorate the effects of the PHPP transmission line. The overall impact of the Project facilities on visual resources would be less than significant.

KOP-6 Residence on Pearblossom Highway near Transmission Line Route

Simulations of the view of the PHPP site and facilities from KOP-6 with both transmission options are shown in Figures 5.15-9b and 5.15-9c; the existing view is shown in Figure 5.15-9a. In this view, which would be experienced by residents of the home in the foreground and by travelers on the Pearblossom Highway, the H-frame structures and conductors would be replaced by the PHPP transmission line poles and conductors. These features would be visible in the foreground and middleground and would present a minimal level of dominance in the view. The presence of the Project structures would increase minimally the vividness of the view, would have minimal effect on the overall intactness of the view, and would have minimal effect on the visual unity of the composition of the landscape. The presence of the dominant pattern of existing transmission line structures would help to ameliorate the effects of the PHPP transmission line. The overall impact of the Project facilities on visual resources would be less than significant.

Vapor Plume Analysis

Visible plumes that occur during daylight hours have the potential for producing an impact on visual resources. As the Project's HRSG exhaust stacks and its cooling tower are potential sources of visible water vapor plumes, analyses were performed to estimate the potential size and frequency of visible plume formation during daylight hours. The Seasonal and Annual Cooling Tower Impacts (SACTI, Version 9/30/90) model was applied for this analysis. KOPs-1 through -3 would experience relatively low frequency

of Project daytime plumes and the expected periodic PPHP water vapor plumes would result in a less than significant impact to visual resources.

For the HRSG stacks, an analysis of the water vapor emissions was performed to determine the frequency and dimensions of potential daylight visible plumes. For the cooling tower, the Seasonal and Annual Cooling Tower Impacts (SACTI, Version 9/30/90) model was applied to assess the expected size and frequency of occurrence of elevated visible cooling tower plumes. Details of the modeling performed are presented in Section 5.13, Traffic and Transportation in the discussion of the potential effects of vapor plumes on aircraft operations at Air Force Plant 42.

The details of the modeling methodology and results for the vapor plume modeling based on all hours (daytime and nighttime) were presented previously in Section 5.13, Traffic and Transportation. The visible plume modeling results are shown in Table 5.15.4. The maximum predicted plume length of for the combustion turbine stacks for daylight hours is 400 meters (approximately 1,300 feet) and the expected frequency of occurrence is less than one hour per year. A more representative worst-case is the 90th percentile plume length (only 10 percent of the plumes would be of greater length). The 90th percentile predicted plume length is 80 meters (approximately 260 feet) with an expected frequency of occurrence of approximately 12 hours per year. The analysis indicates that HRSG stack visible vapor plume formation would be infrequent and relatively small and thus would not be expected to cause a significant visual impact.

Table 5.15-4 HRSG and Cooling Tower Visible Plume Modeling Results

Plume Length Case	HRSG Stack		Cooling Tower	
	Length (m/ft)	Frequency (hrs/yr) ¹	Length (m/ft)	Frequency (hrs/yr) ¹
Maximum	400/1300	<1	9,790/32,100	14
90 Percentile	80/260	12	44/145	446
50 Percentile	20/66	175	12/40	3,723

¹ Average based on three years modeled.

The maximum predicted cooling tower plume length of is 9,790 meters (approximately 32,100 feet). A plume of this length is expected approximately 14 hours per year. A more representative worst-case is the 90th percentile plume length of 44 meters (approximately 145 feet) which is estimated to occur approximately 446 hours per year.

Note that the SACTI model maximum plume length case is likely an over-prediction associated with the conservative nature of the model as plumes this long are not generally observed from similar size towers. The two meteorological factors that are most significant in determining the potential for vapor plume formation are the ambient temperature and the relative humidity. Both of these quantities tend to be most favorable to vapor plume formation during nighttime winter hours in the Palmdale area. Visible vapor plumes from the Project are expected to occur infrequently and mainly at night or during periods of precipitation during the winter. For visible plumes that occur during the day, they will tend to be relatively small in dimensions and will tend to occur in the early morning or late afternoon when temperatures are lower and humidity is higher. Although infrequent, the need for a plume-abated cooling tower is still being considered due to the presence of these plumes.

Evaluation Against Significance Criteria

PHPP impacts were evaluated in terms of four questions (CEQA Guidelines Appendix G), each of which is presented below along with a response:

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

No. There are no scenic vistas in the viewshed of the Project.

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

No. Although PHPP is not within the viewshed of a scenic highway, the Joshua Trees onsite are considered by the City of Palmdale to be scenic resources. The Project will comply with City requirements to preserve a portion of the plant site's Joshua trees; the Project will utilize Joshua trees for as part of the site's landscaping plan, as shown on the Conceptual Landscaping Plan provided as Figure 5.15-10. As shown on Figure 5.15-10, Joshua trees will be transplanted in the northeastern area of the site near the site entrance from E Ave M, along the site access road near the western perimeter of the plant site, and around the parking lot and administration building.

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

No. The PHPP site is not in a designated area of natural beauty or scenic recreational area. Visual resources of the Project site and vicinity are influenced by industrial character of the surrounding environment. The presence of the PHPP facilities will not create a substantial change in the visual quality of the landscape.

The transmission line traverses areas of existing electrical structures. Due to the existing structures in the majority of views, the Project transmission line is not expected to substantially degrade existing visual quality and would have relatively little effect on the existing character and quality of the views. Therefore, the level of visual change brought about by the transmission line is expected to be low and impacts on the character and quality of the view are considered to be less than significant. The buried gas pipeline would affect the visual environment minimally and briefly and only during its construction period.

Visible vapor plumes from the Project are expected to occur infrequently and mainly at night or during periods of precipitation during the winter. Visible plumes that occur during the day will tend to be relatively small in dimensions and will tend to occur in the early morning or late afternoon when temperatures are lower and humidity is higher. As noted above, although visible plumes would be infrequent, the need for a plume-abated cooling tower is still being considered.

4. 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 discussed earlier, Project light fixtures will be restricted to areas required for safety, security, and operations. Lighting will be directed onsite; it would be shielded from public view, and non-glare fixtures and use of switches, sensors, and timers to minimize the time that lights not needed for safety and security are on would be specified. These measures should substantially reduce the offsite visibility of PHPP lighting. To the extent feasible and consistent with worker safety codes, lighting that might be installed to facilitate possible nighttime construction activities will be directed toward the center of the

construction site and shielded to prevent light from straying offsite. Task-specific construction lighting will be used to the extent practical while complying with worker safety regulations. With these measures, lighting associated with PHPP construction and operations would not pose a hazard or substantially affect day or nighttime views toward the site.

It also should be noted that the Project's largest structures will be in the power block which will be located in the center of the plant site, a quarter-mile from E Ave M. The 377-acre plant site will be occupied by the solar array field, which will surround the power block. The solar collectors will track the sun's movement across the sky and focus the sun's rays on the parabolic trough collector and thus will not produce significant lighting impacts during the day. When viewed from a distance or an elevated position, the solar field at its most reflective may appear like a lake at hours of the day when the mirrors are oriented toward the viewer (e.g., looking from the south with the sun behind the viewer on a sunny afternoon); it will not produce significant glare. At night, the solar array will not be illuminated. The issue of possible glare from the solar array and potential for impacts on aviation activities is addressed in Section 5.13, Traffic and Transportation

5.15.3.5 Cumulative Impacts

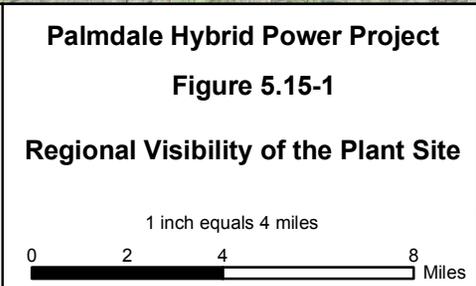
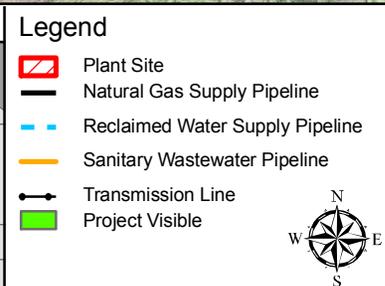
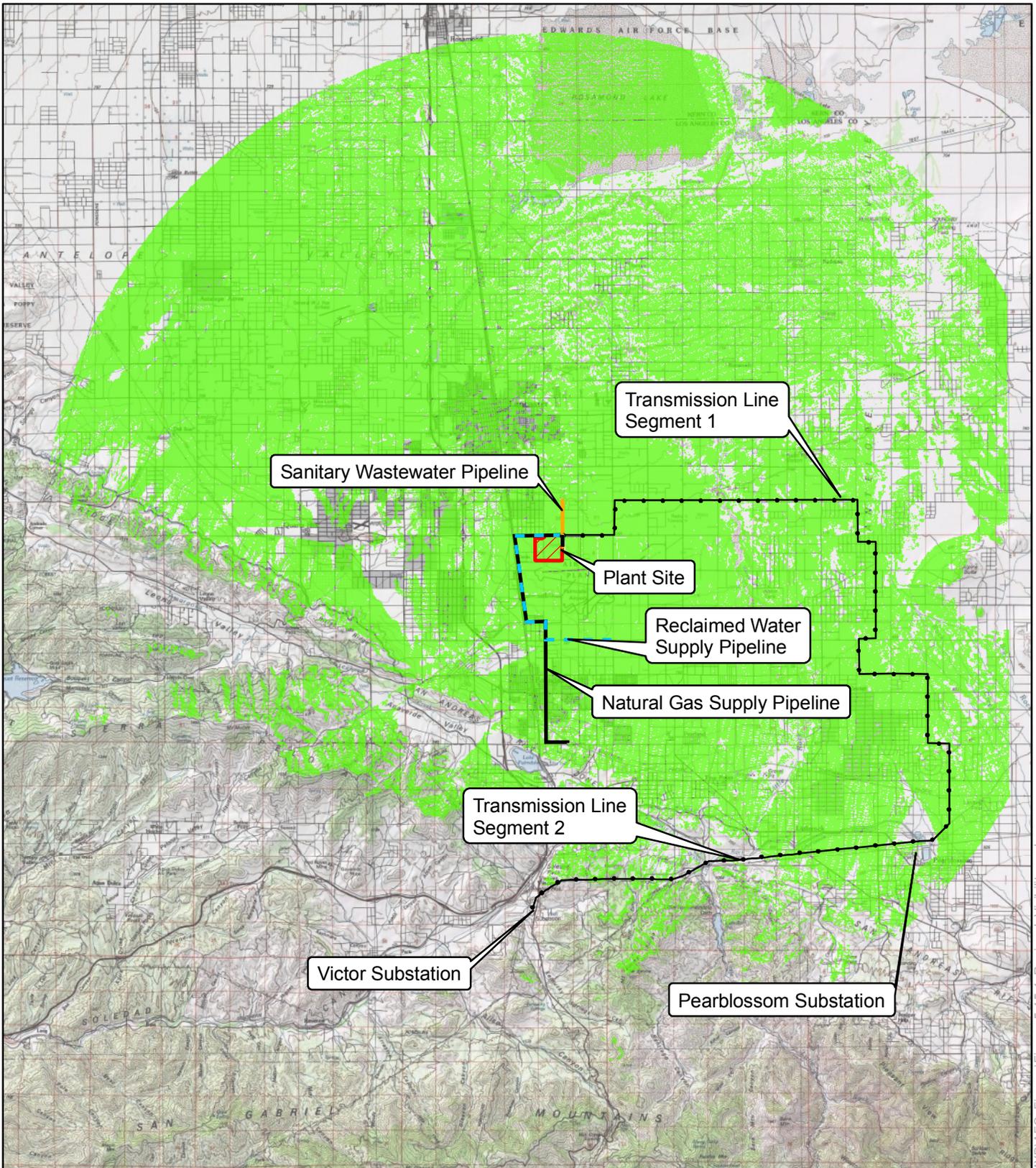
The PHPP's contribution to cumulative visual effects would be less than significant. The Project will be a large relatively low profile industrial facility near a high profile industrial facility (Air Force Plant 42) in a lightly populated industrial area. The cumulative projects identified in Section 5.1 are not in the same immediate area as the plant site. A large portion of the Project transmission line route is located within a corridor where transmission facilities already exist and where the Project would replace one kind of transmission structure (H-frame) with another (steel poles) in the same locations. .

5.15.4 Mitigation Measures

No significant adverse visual impacts would result from construction and operation of the PHPP. Therefore, no mitigation measures are proposed.

5.15.5 References

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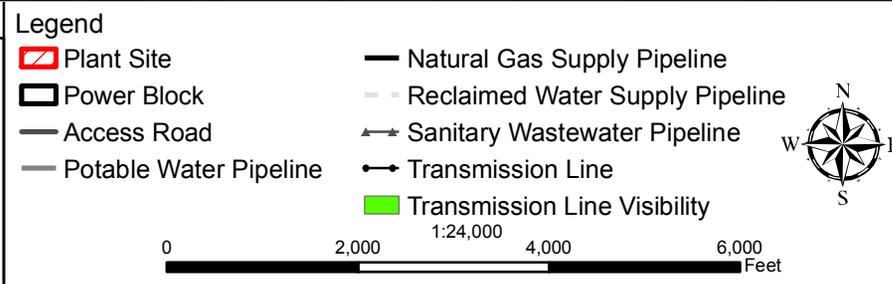
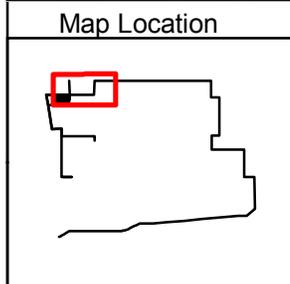
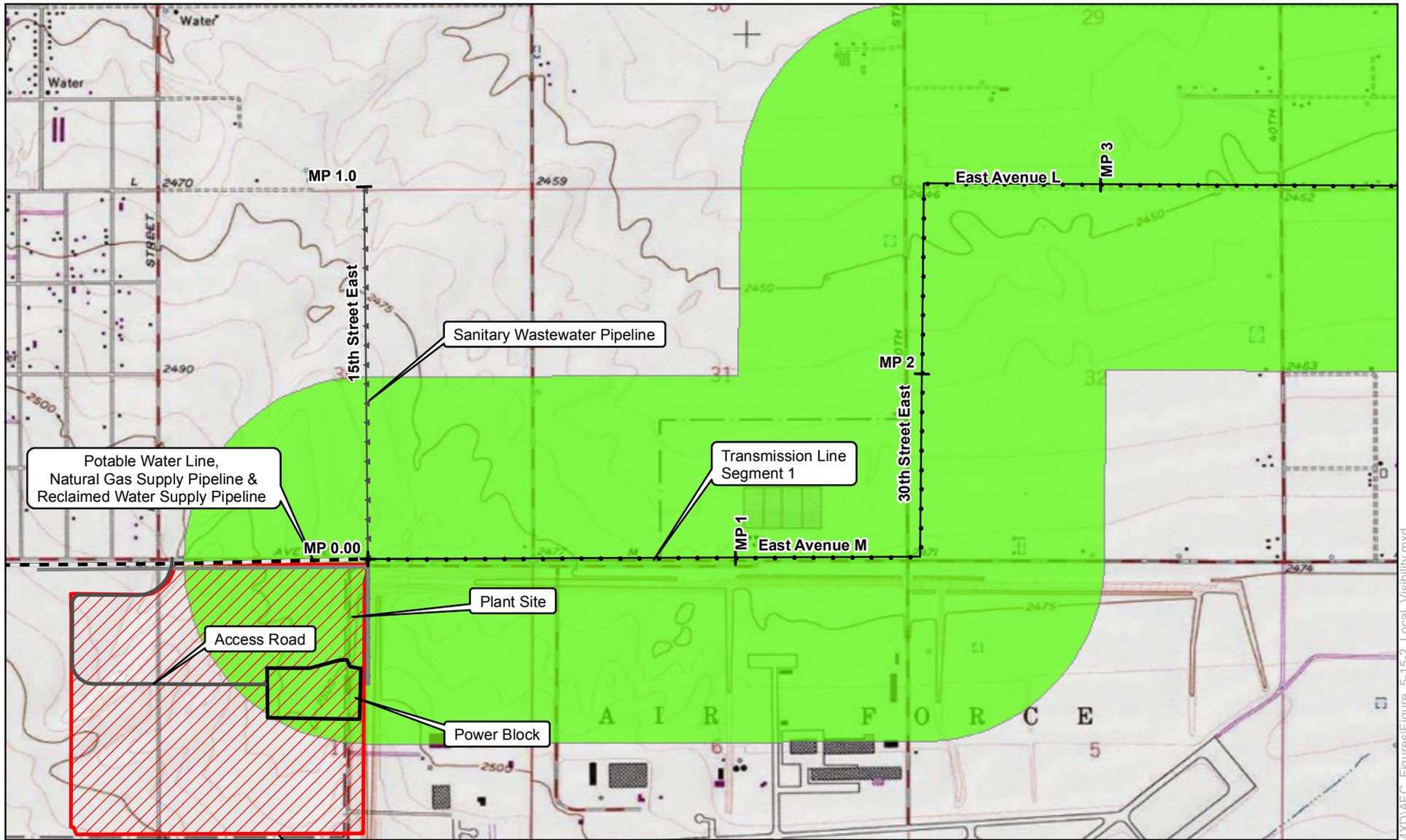


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**Figure 5.15-2
Local Visibility of the
Transmission Line**

Mapsheet 01 of 11

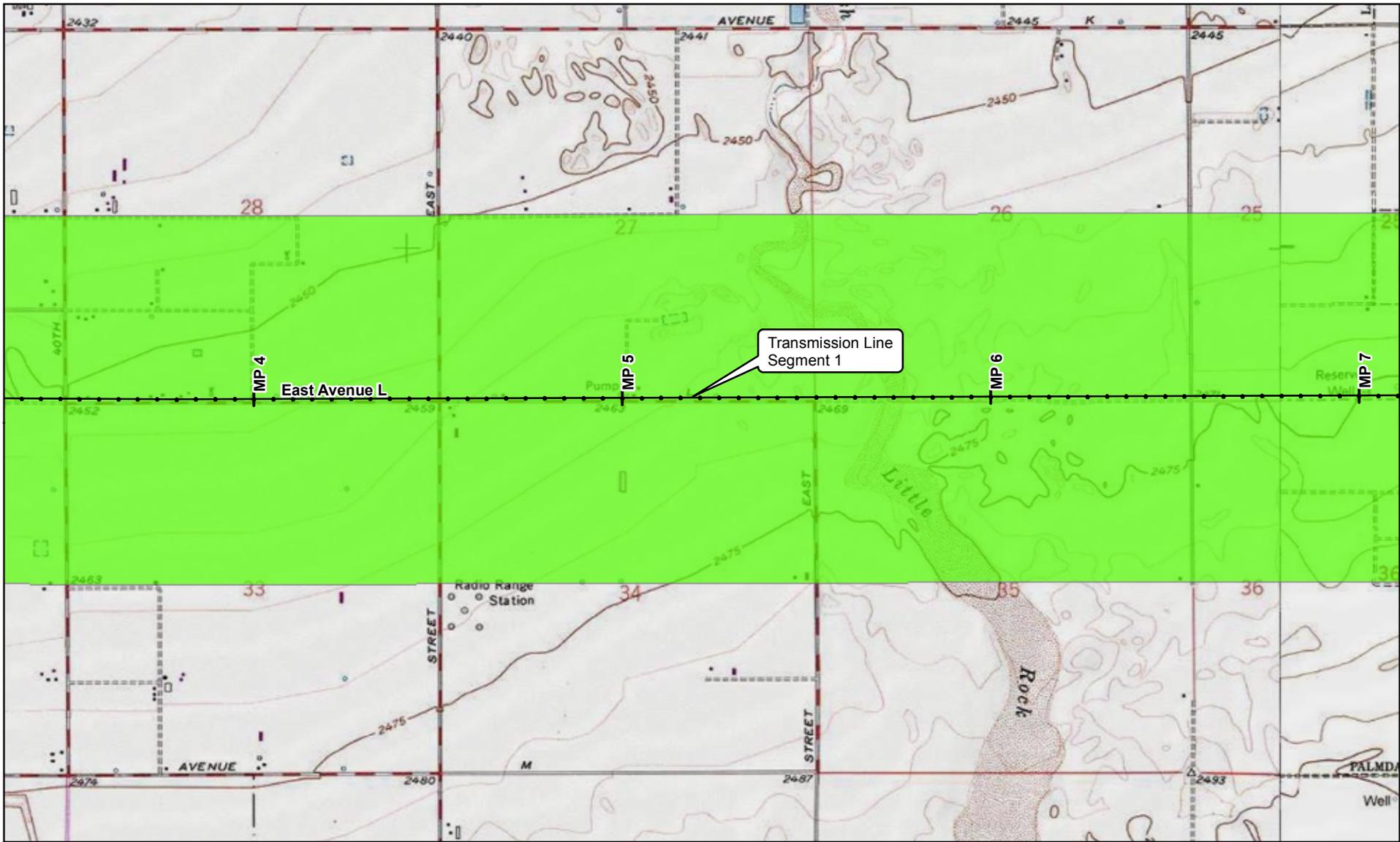
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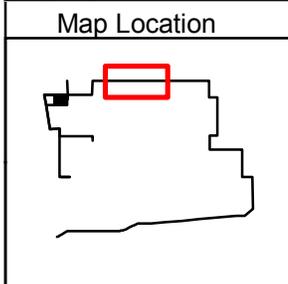
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Transmission Line Segment 1



Legend

- Plant Site
- Power Block
- Access Road
- Potable Water Pipeline
- Natural Gas Supply Pipeline
- Reclaimed Water Supply Pipeline
- Sanitary Wastewater Pipeline
- Transmission Line
- Transmission Line Visibility

1:24,000

0 2,000 4,000 6,000 Feet

Palmdale Hybrid Power Project

Figure 5.15-2
Local Visibility of the
Transmission Line

Mapsheets 02 of 11

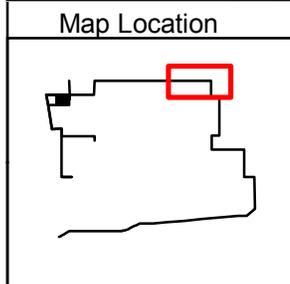
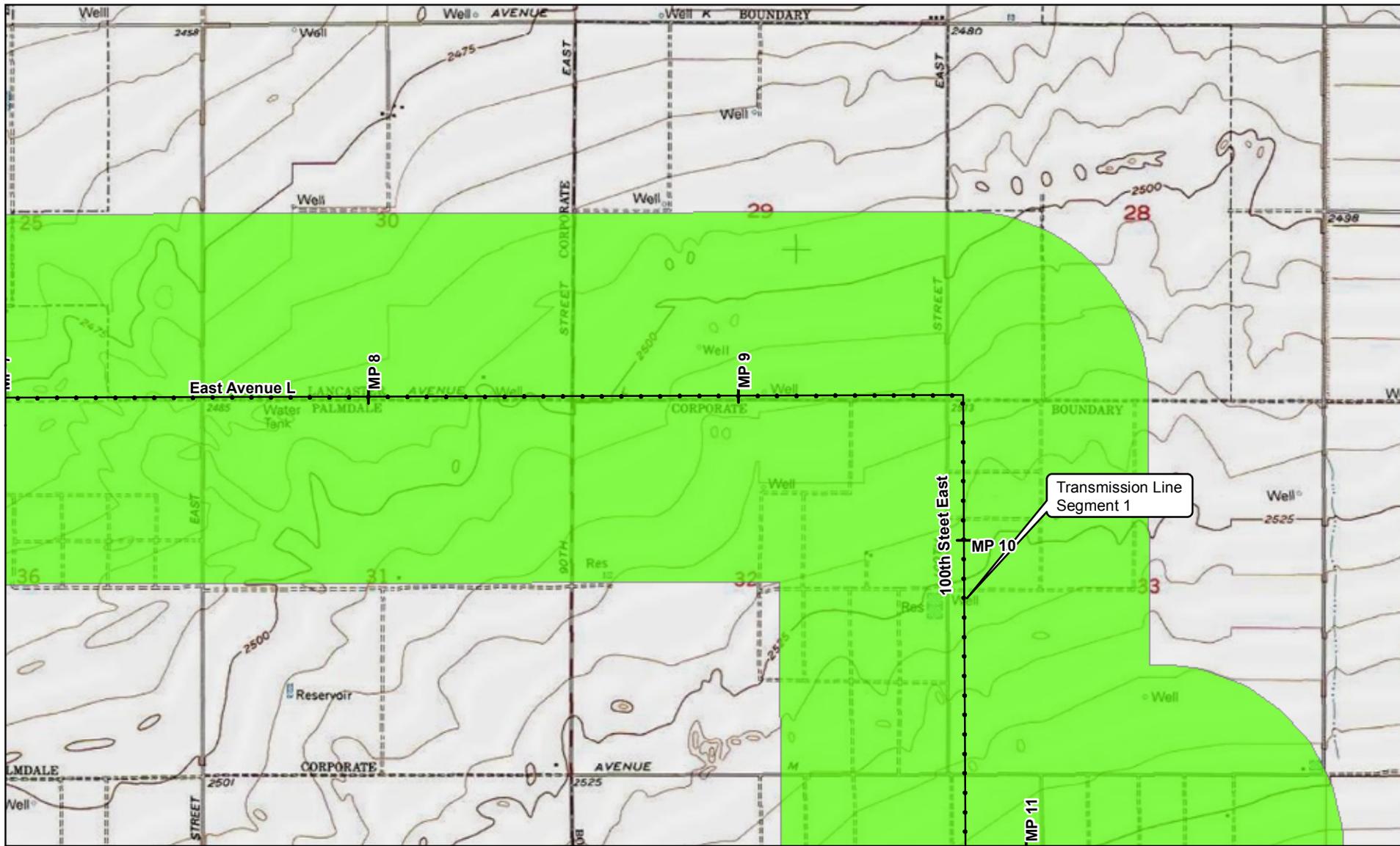
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Legend

- Plant Site
- Power Block
- Access Road
- Potable Water Pipeline
- Natural Gas Supply Pipeline
- Reclaimed Water Supply Pipeline
- Sanitary Wastewater Pipeline
- Transmission Line
- Transmission Line Visibility

Scale: 1:24,000
0 2,000 4,000 6,000 Feet

Palmdale Hybrid Power Project

Figure 5.15-2
Local Visibility of the
Transmission Line

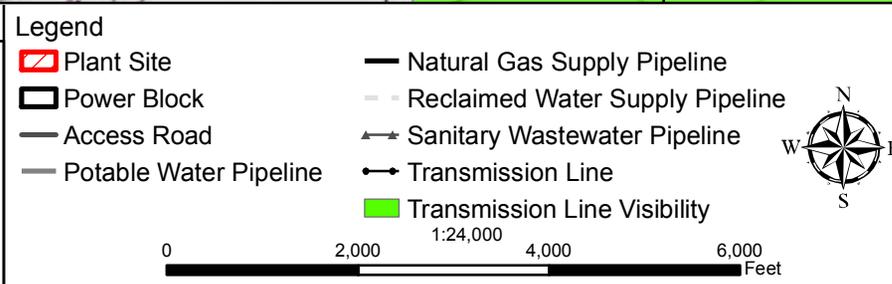
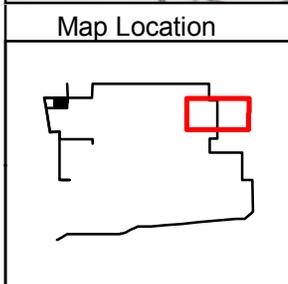
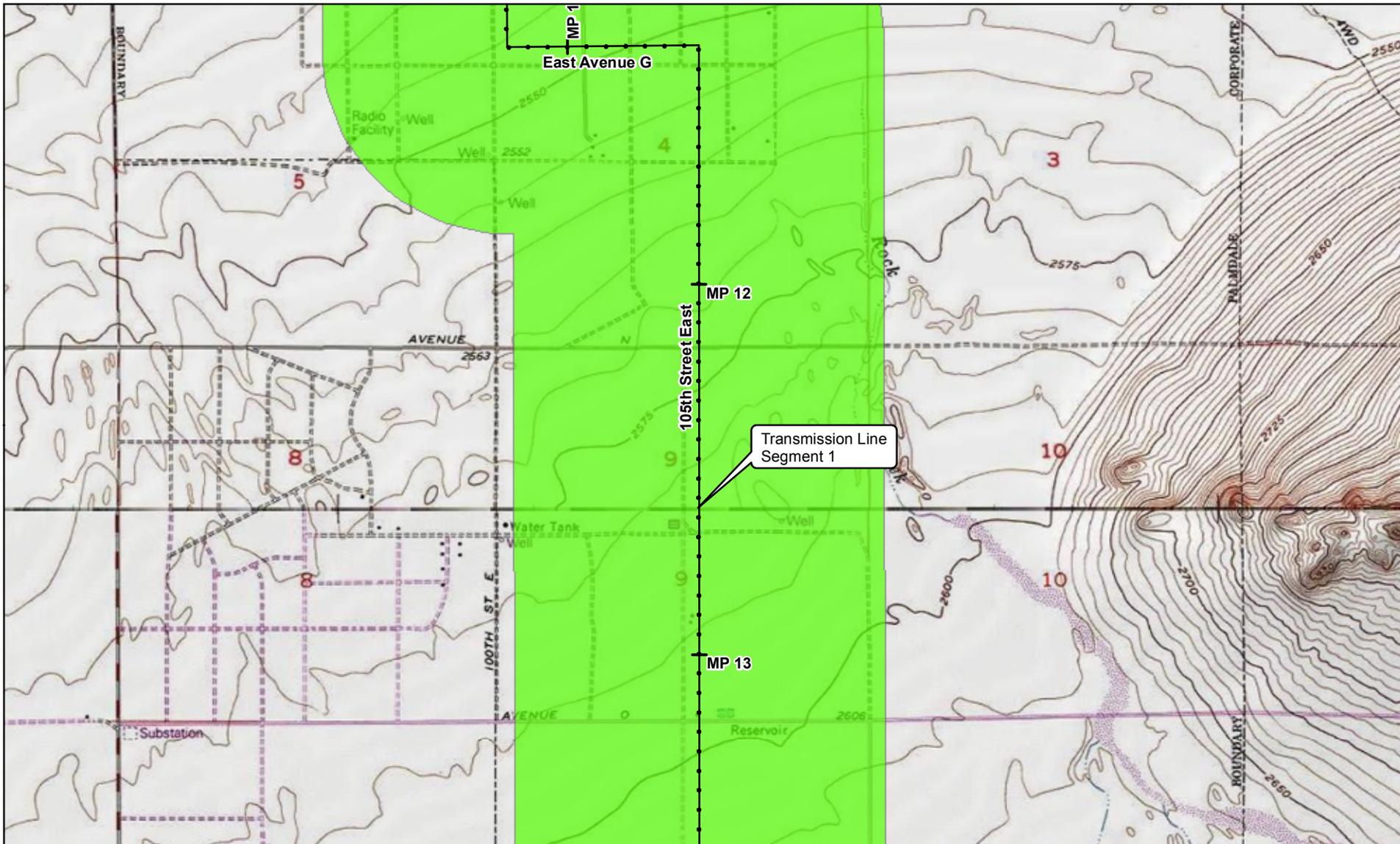
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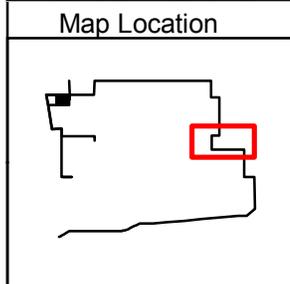
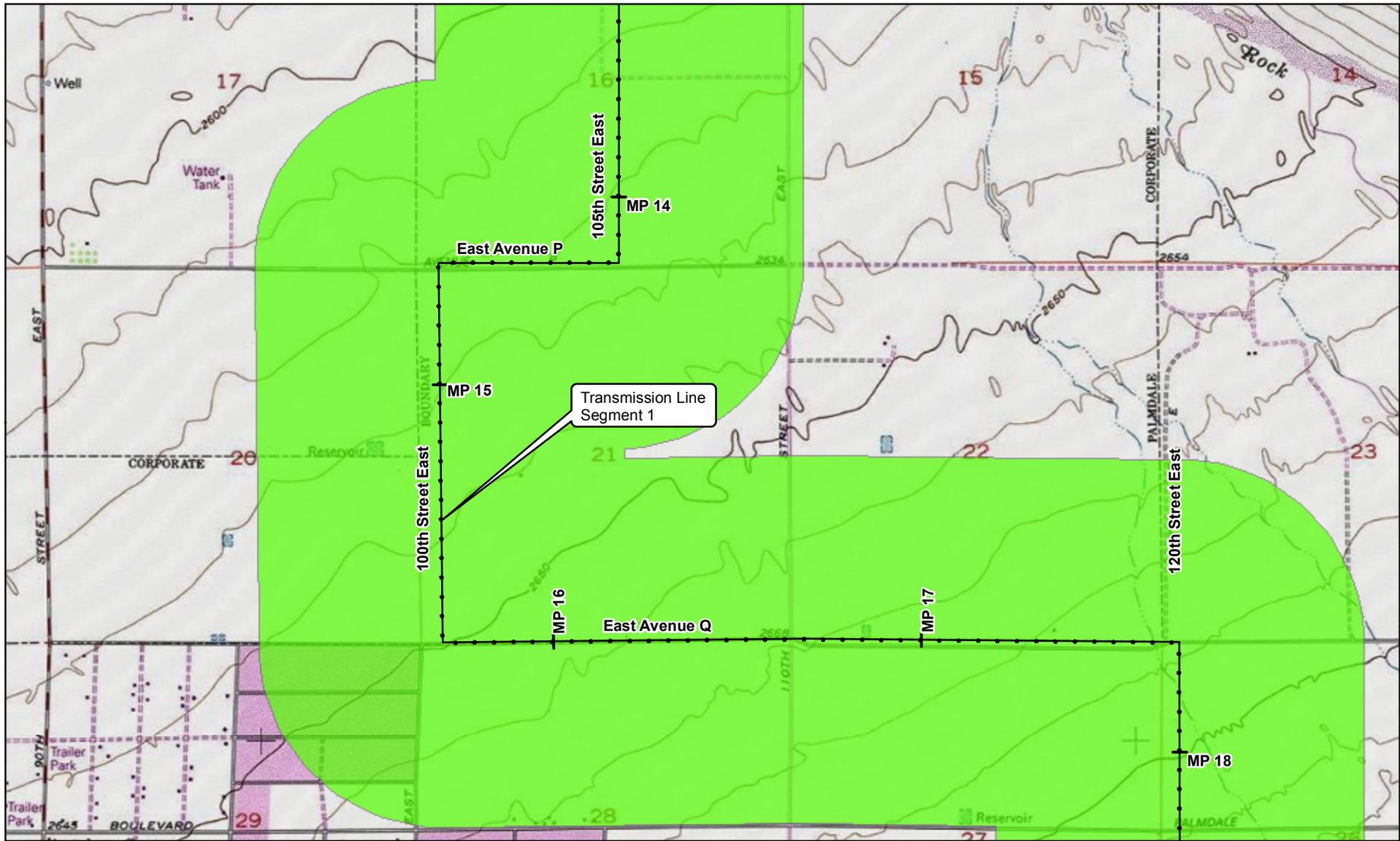
Figure 5.15-2
Local Visibility of the
Transmission Line

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Legend

- Plant Site
- Power Block
- Access Road
- Potable Water Pipeline
- Natural Gas Supply Pipeline
- Reclaimed Water Supply Pipeline
- Sanitary Wastewater Pipeline
- Transmission Line
- Transmission Line Visibility

Scale: 1:24,000
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Palmdale Hybrid Power Project

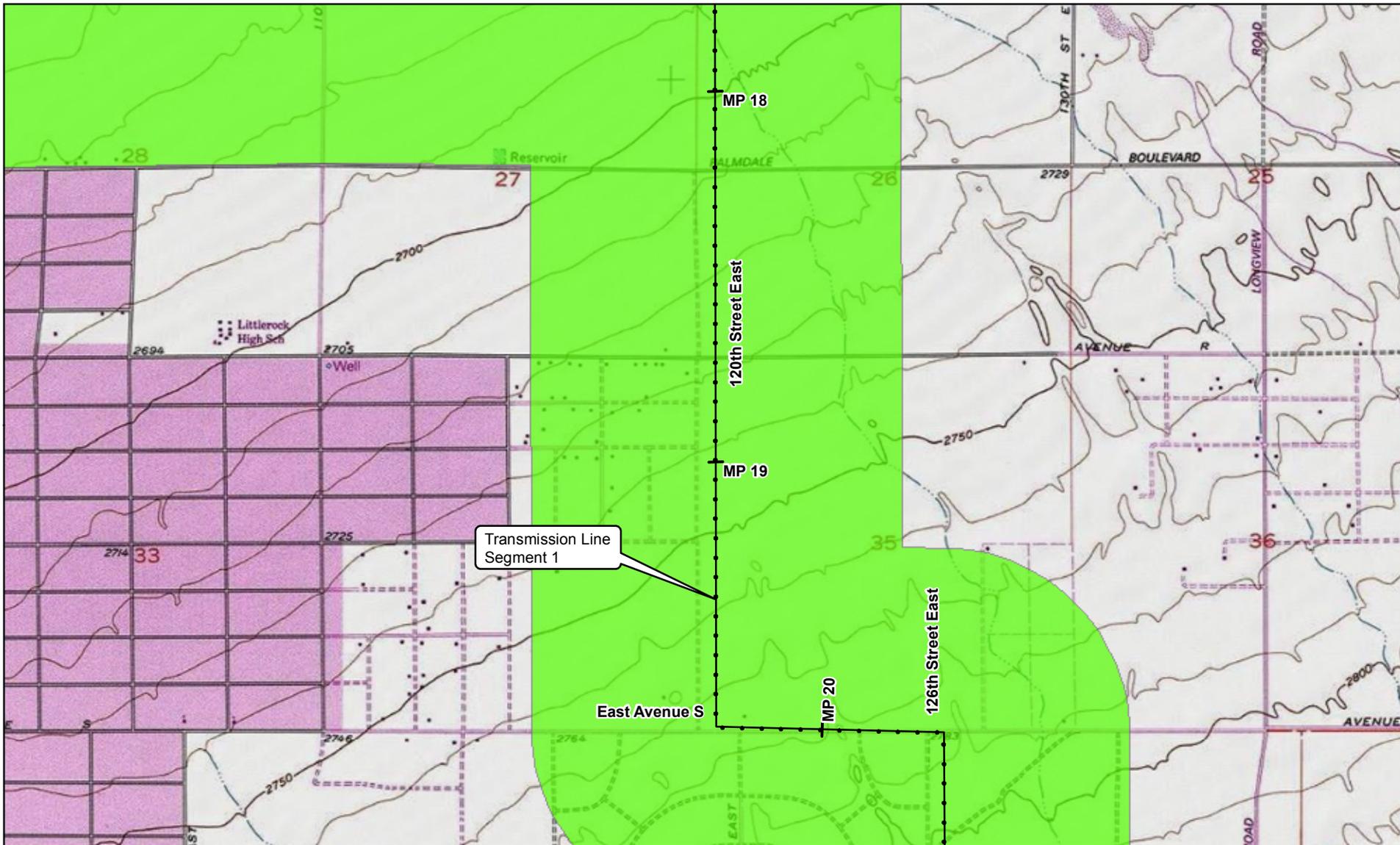
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Local Visibility of the
Transmission Line**

Mapsheet 05 of 11

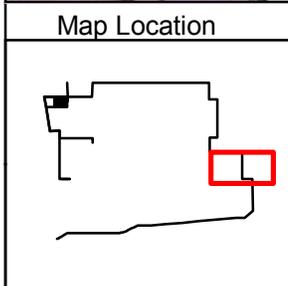
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Transmission Line Segment 1



Legend

- Plant Site
- Power Block
- Access Road
- Potable Water Pipeline
- Natural Gas Supply Pipeline
- Reclaimed Water Supply Pipeline
- Sanitary Wastewater Pipeline
- Transmission Line
- Transmission Line Visibility

1:24,000

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Figure 5.15-2
Local Visibility of the
Transmission Line

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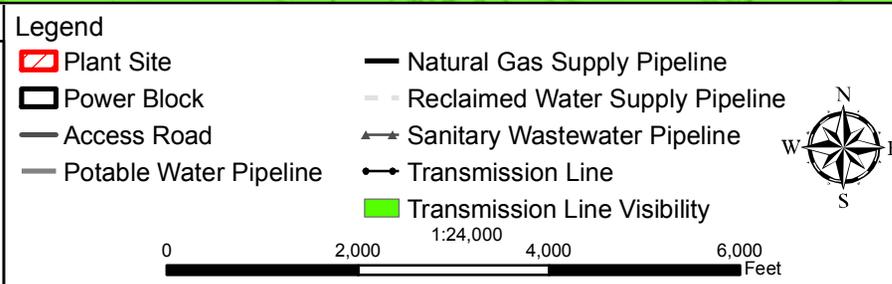
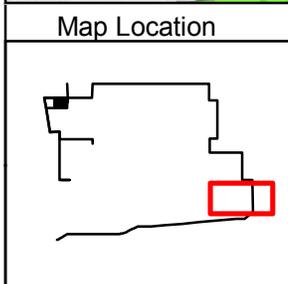
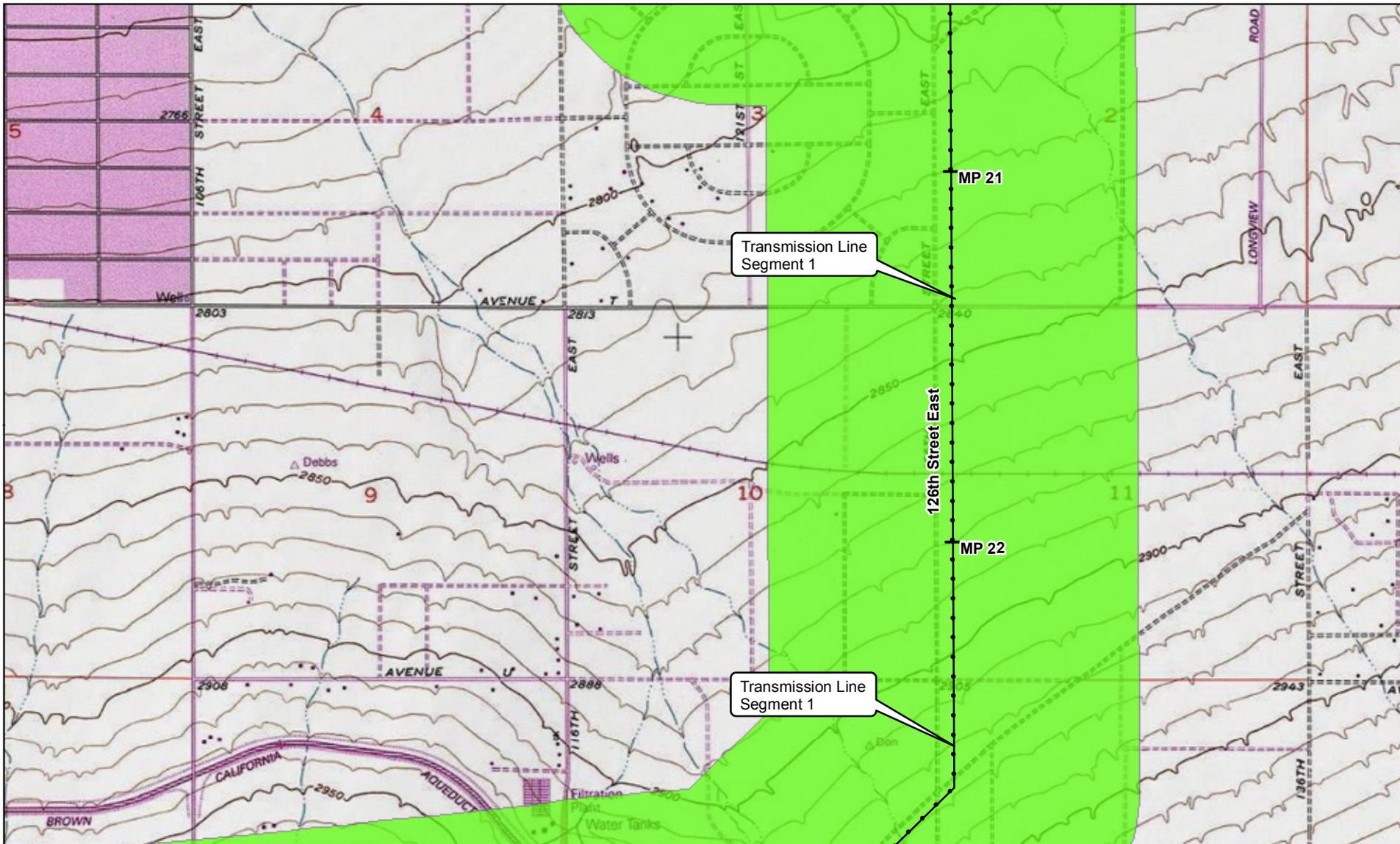
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Figure 5.15-2
Local Visibility of the
Transmission Line

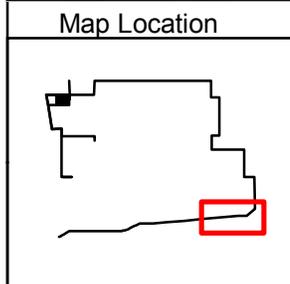
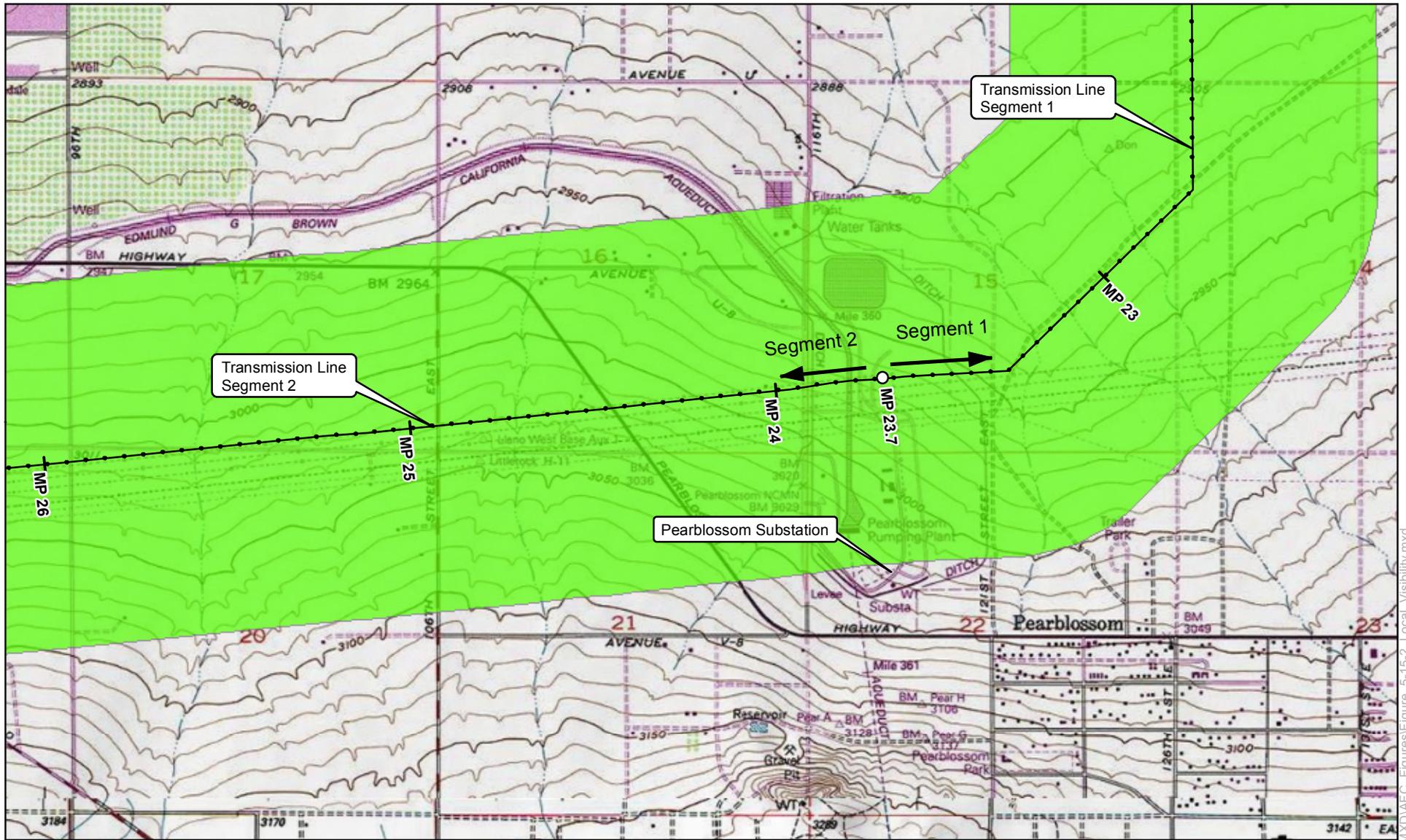
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Legend

- Plant Site
- Power Block
- Access Road
- Potable Water Pipeline
- Natural Gas Supply Pipeline
- Reclaimed Water Supply Pipeline
- Sanitary Wastewater Pipeline
- Transmission Line
- Transmission Line Visibility

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Feet

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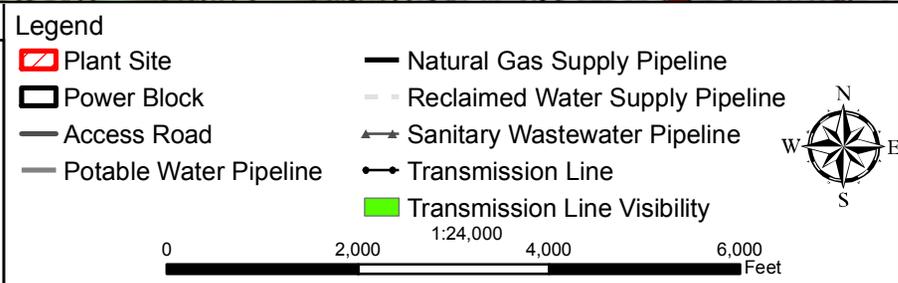
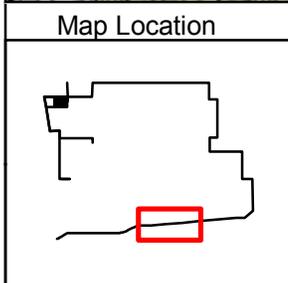
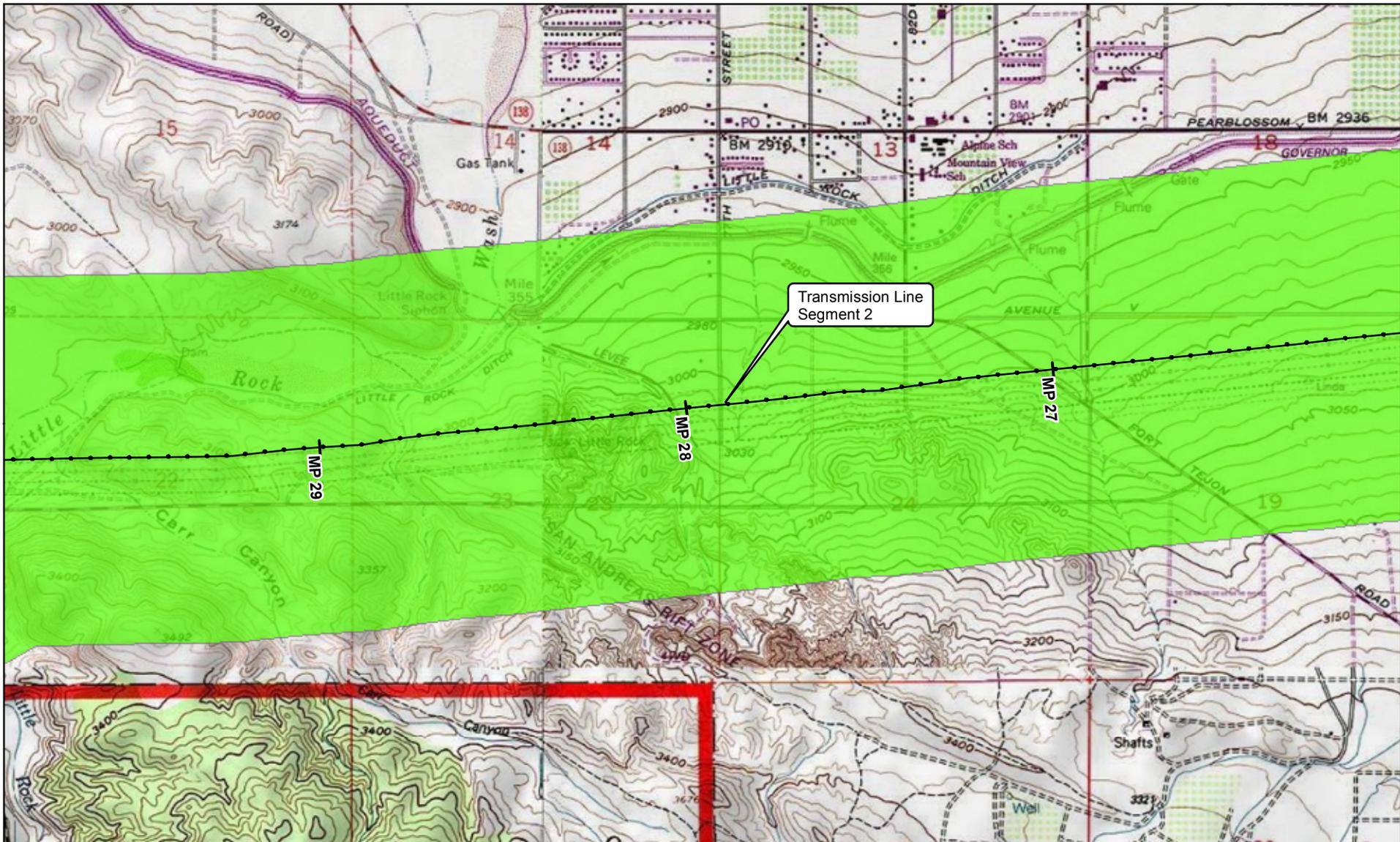
Figure 5.15-2
Local Visibility of the
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Figure 5.15-2
Local Visibility of the
Transmission Line

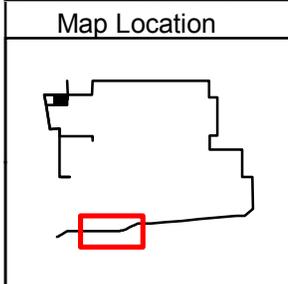
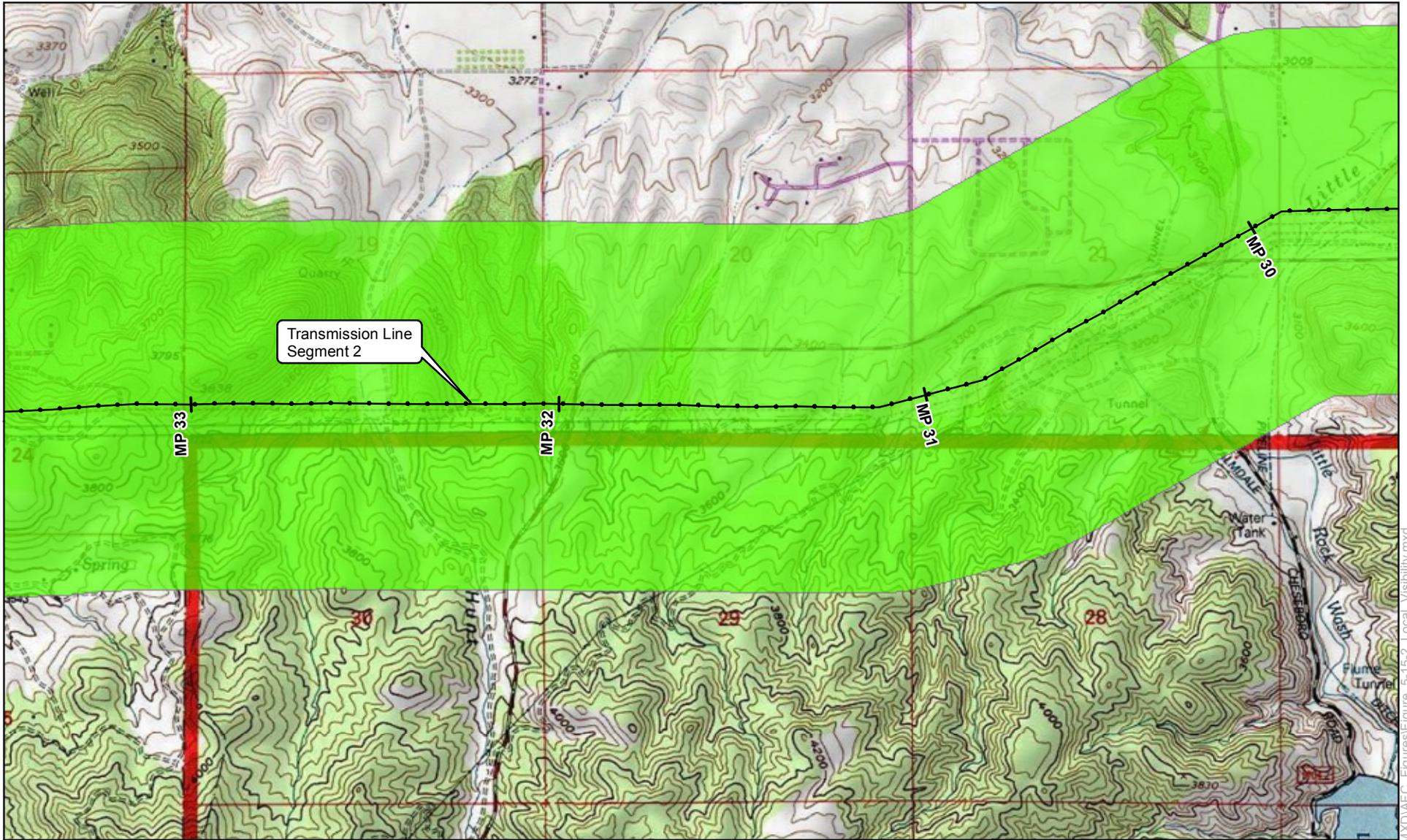
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Legend

- Plant Site
- Power Block
- Access Road
- Potable Water Pipeline
- Natural Gas Supply Pipeline
- Reclaimed Water Supply Pipeline
- Sanitary Wastewater Pipeline
- Transmission Line
- Transmission Line Visibility

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Figure 5.15-2
Local Visibility of the
Transmission Line

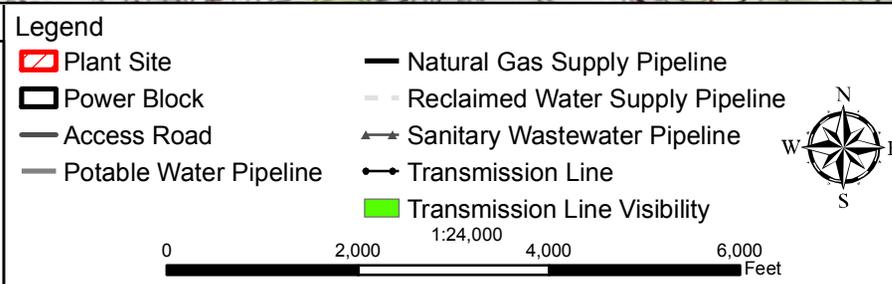
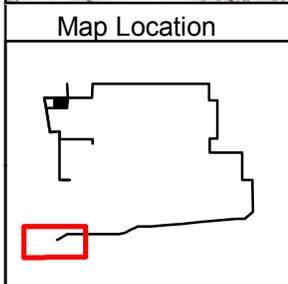
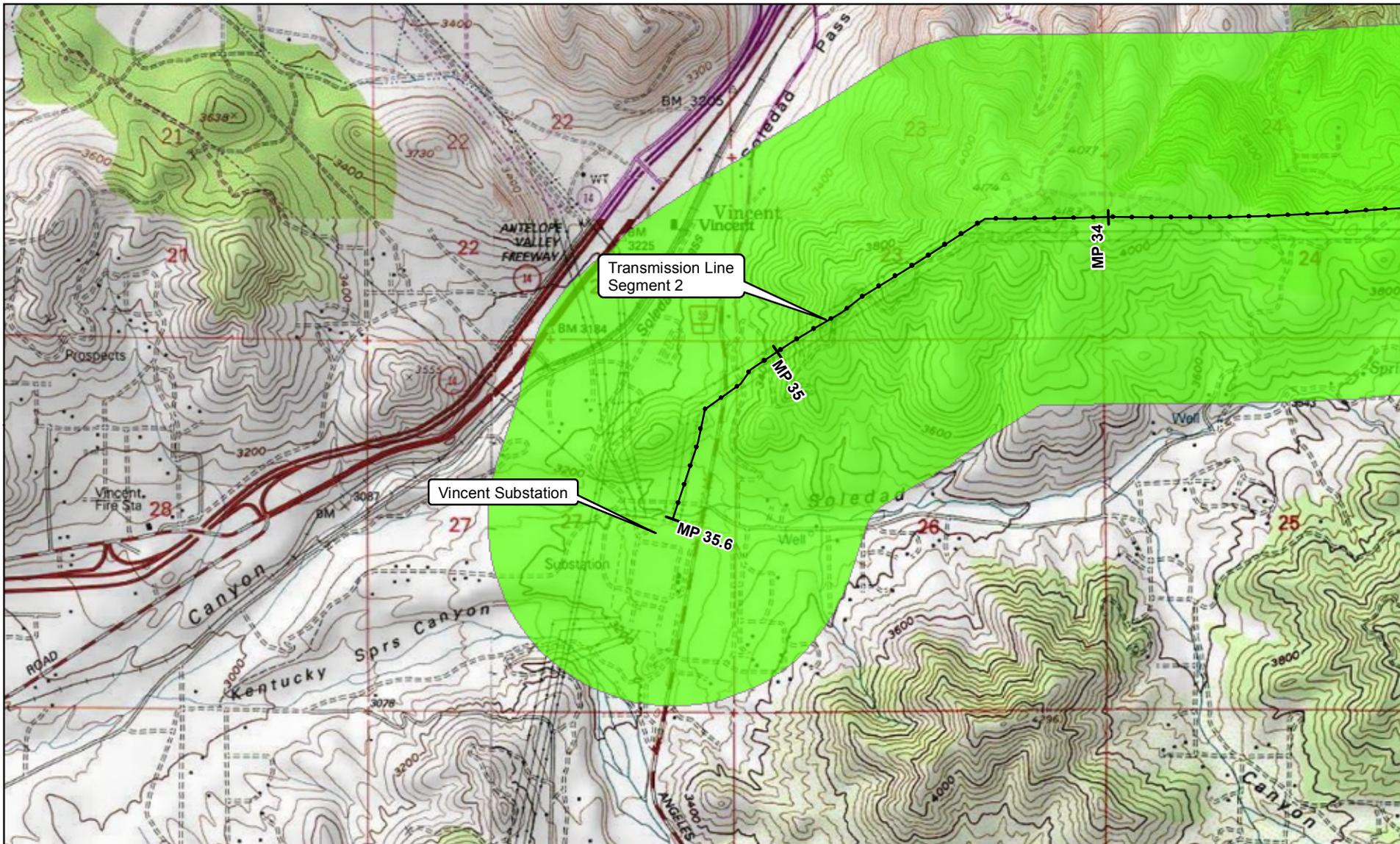
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Figure 5.15-2
Local Visibility of the
Transmission Line

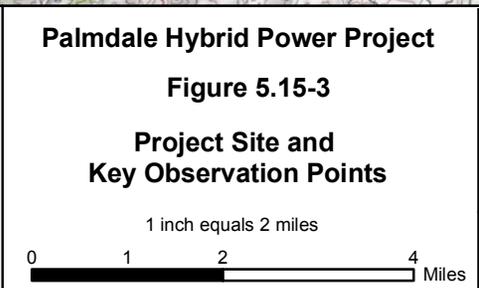
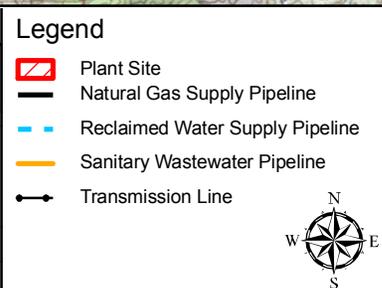
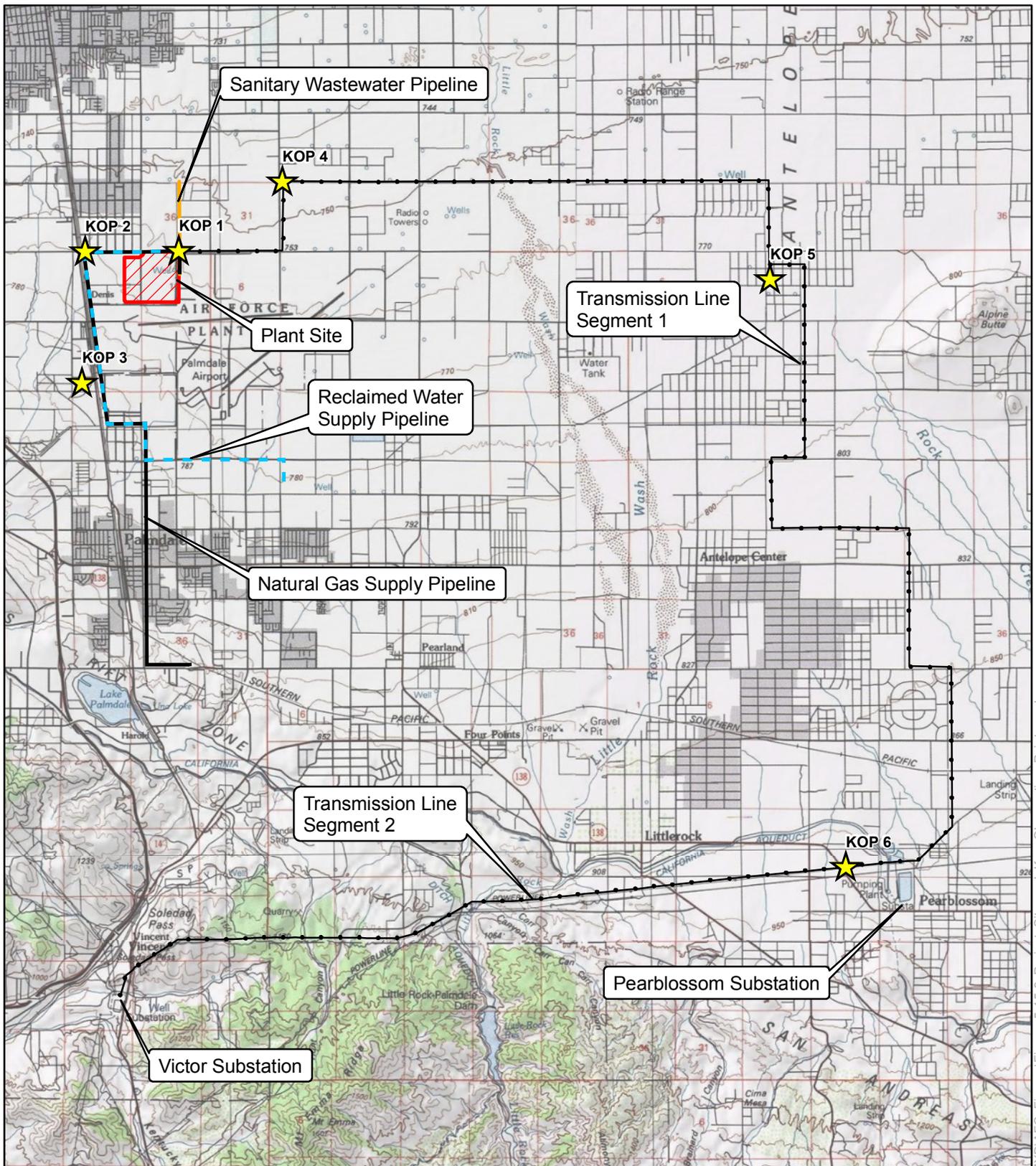
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Figure 5.15-4a

**View from KOP-1 Looking Southwest Toward
PHPP Site – Existing Condition**



Figure 5.15-4b

**View from KOP-1 Looking Southwest Toward
PHPP Site – Simulated Condition**



Figure 5.15-5a

View from KOP-2 Looking East Toward PHPP Site – Existing Condition



Figure 5.15-5b

View from KOP-2 Looking East Toward PHPP Site – Simulated Condition



Figure 5.15-6a

**View from KOP-3 Looking Northeast Toward
PHPP Site – Existing Condition**



Figure 5.15-6b

View from KOP-3 Looking East Toward PHPP Site – Simulated Condition



Figure 5.15-7a

**View from KOP-4 Looking South Toward the
Transmission Line Route – Existing
Condition**



Figure 5.15-7b

**View from KOP-4 Looking South Toward the
Transmission Line Route – Simulated
Condition**



Figure 5.15-8a

**View from KOP-5 Looking North Toward the
Transmission Line Route – Existing
Condition**



Figure 5.15-8b

**View from KOP-5 Looking North Toward the
Transmission Line Route – Simulated
Condition**



Figure 5.15-9a

**View from KOP-6 Looking West Toward the
Transmission Line Route – Existing
Condition**



Figure 5.15-9b

**View from KOP-6 Looking West Toward the
Transmission Line Route – Simulated
Condition**