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4.10 NOISE

Would the project:		Potentially Significant Impact	Potentially Significant Unless APMs Incorporated	Less than Significant Impact	No Impact
a.	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑	☐
b.	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☑	☐
c.	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☑	☐
d.	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☑	☐
e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑
f.	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

4.10.1 Introduction

This section of the PEA describes existing conditions and the potential effects of the Proposed Project in relation to noise and vibration. It includes a study of the noise impacts resulting from the construction, operation, and maintenance of the Proposed Project. The study identifies the location of any sensitive receptors and describes the ordinary construction restrictions that would be implemented to minimize noise during construction, operation, and maintenance of the Proposed Project.

Construction noise-related impacts from the Proposed Project would be short-term at any given location and therefore minimal. Construction noise, while varying according to the equipment in use, would be minimized by the attenuating effect of distance; the intermittent and short duration of the noise; and the use of functional mufflers on all construction equipment. Further, the nature of construction to be performed for the Proposed Project dictates that construction activities and associated noise levels would move along the corridor and that no one residence would be exposed to significant noise levels for more than a few days. The new 230 kV transmission line is being added to areas with existing transmission and power lines and therefore would not substantially change operations and maintenance activities compared to existing baseline conditions. When operational, the transmission line would not generate significant levels of noise.

4.10.2 Methodology

Information regarding the potentially applicable noise standards was obtained from federal, state, regional, and local literature reviews. Evaluation of potential noise impacts from the Proposed Project included examining typical noise levels associated with the proposed construction equipment and resulting construction, operation, and maintenance activities. Data for construction equipment emissions and operational noise emissions were obtained from the literature (see Tables 4-10.6 and 4-10.8).

4.10.3 Existing Conditions

4.10.3.1 Regulatory Setting

Federal

There are no federal noise standards that directly regulate the noise from operation of electrical power lines or substation facilities. However, in 1974 the EPA established guidelines for noise levels in order to protect the general population from any identified effects of noise. These guidelines are summarized in the Table 4.10-1, EPA Guidelines.

Table 4.10-1: EPA Guidelines

Sound Level Evaluation	Limit	Purpose of Guideline
L_{eq} (24)	70 dBA	Protect against hearing loss
L_{dn}	55 dBA	Protect against activity interference and annoyance in residential areas, farms, and other outdoors areas where quiet is a basis for use
L_{eq} (24)	55 dBA	Protect against outdoor activity interference where limited time is spent (e.g. school yards, playgrounds)
L_{dn}	45 dBA	Protect against indoor activity interference and annoyance in residences
L_{eq} (24)	45 dBA	Protect against indoor activity interference in school yards
Source: *EPA, 1978*		

These levels are not enforceable standards or regulations. They are provided in order to protect the public health and welfare, and to provide guidelines for the creation and implementation of local noise standards.

Common noise terms used are defined below.

L_{eq} — The equivalent noise level over a specified period of time (i.e., 1-hour). It is a single value of sound that includes all of the varying sound energy in a given duration.

L_{dn} — The day-night noise level is the A-weighted sound level over a 24-hour period with an additional 10 db penalty imposed on sounds that occur between 10 p.m. and 7 a.m.

Statistical Sound Levels —The A-weighted sound level exceeded a certain percentage of the time. The L_{90} is the sound level exceeded 90 percent of the time and is often considered the background or residual noise level. The L_{10} is the sound level exceeded 10 percent of the time and is a measurement of intrusive sounds, such as aircraft overflight.

The following federal laws have been passed in order to regulate and limit noise levels.

Noise Pollution and Abatement Act of 1970

The Noise Pollution and Abatement Act of 1970 was passed in order to establish the Office of Noise Abatement and Control (ONAC) within the EPA. ONAC is authorized to conduct investigations of noise, as well as its effect on public health and welfare. These investigations include the identification of noise sources, projected future noise levels, and the effects of the noise on people, property, and animals.

It was concluded in 1981 that noise issues were best handled at the state or local government level. ONAC's funding was phased out in 1982 as the primary responsibility for regulating noise was passed from the federal government to the state and local governments. Despite being defunded, the Noise Control Act of 1972 and the Quiet Communities Act of 1978 have not been rescinded by Congress and remain in effect. These Acts are described below.

Noise Control Act of 1972

The Noise Control Act of 1972 is a statute that initiated a federal program of regulating noise pollution, in order to protect human health and minimize the annoyance of noise to the general public. It set emission standards for virtually every source of noise, and informed local governments of their responsibilities in land use planning in order to address noise.

Quiet Communities Act of 1978

The Quiet Communities Act of 1978 amended the Noise Control Act. It promoted the development of effective state and local noise control programs, and provided funds for research. It also produced educational materials on the harmful effects of noise, and mitigation measures. The FAA, Federal Railroad Administration, DOT, and Department of Labor have since developed their own noise control programs. Each agency has set its own criteria for unacceptable noise.

Federal Transit Administration

The Federal Transit Administration, under the DOT, created a noise and vibration impact assessment manual. It provides guidance for evaluating construction, roadway, and railway noise sources. The manual also presents techniques for predicting and assessing potential noise and vibration impacts, primarily based on the receptor land use.

Federal Aviation Administration

The FAA has established 65 decibels (dB) Community Noise Equivalent Level (CNEL) as the noise standard associated with aircraft noise. The CNEL is a time-weighted descriptor that applies penalties of 5 A-weighted sound level (dBA) to the evening hours and 10 dBA to the nighttime hours to account for the increased sensitivity to noise during the periods. The penalty values are added to the hourly equivalent sound levels (L_{eq}) prior to computing the weighted 24-hour CNEL level.

State

California Noise Control Act

The California Noise Control Act states that excessive noise is a serious hazard to public health and welfare. It declares that exposure to certain levels of noise can result in damage, whether it be psychological, physiological, or even economic. This act declares that the State of California is responsible for protecting the health and welfare of its citizens, and must control, prevent, and abate hazardous noise.

California Department of Transportation- and Construction-Induced Vibration Guidance

This guidance provides practical methodologies on addressing vibration issues associated with the construction, operation, and maintenance of California DOT projects. Continuous/frequent intermittent vibration sources are significant when their peak particle velocity (PPV) exceeds 0.1 inch per second. Table 4.10-2, Human Response to Transient Vibration outlines some more specific criteria for human annoyance due to vibration. Though the guidance is non-enforceable, it provides the basis for evaluating potential vibration from the Proposed Project.

Table 4.10-2: Human Response to Transient Vibration

Human Response	PPV (inches/second)
Severe	2.0
Strongly Perceptible	0.9
Distinctly Perceptible	0.24
Barely Perceptible	0.035
Source: *Caltrans, 2004*	

Local

City of San Diego

The City of San Diego Noise ordinance contains sound level limits and other noise regulations. Normal operation of the power lines and any associated equipment is limited to the noise limits summarized in Table 4.10-3, City of San Diego Sound Level Limits.

Table 4.10-3: City of San Diego Sound Level Limits

Location	Time	One-Hour Average Sound Level Limits (dBA)
Single Family Residential	7 a.m. to 7 p.m.	50
	7 p.m. to 10 p.m.	45
	10 p.m. to 7 a.m.	40
Multi-Family Residential	7 a.m. to 7 p.m.	55
	7 p.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
All Other Residential	7 a.m. to 7 p.m.	60
	7 p.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
Commercial	7 a.m. to 7 p.m.	65
	7 p.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	60
Industrial Zones	Anytime	70

Source: *City of San Diego Municipal Code*

The San Diego Municipal Code provides separate limitations on construction noise, which is not subject to the limits in Table 4.10-3. Construction noise is prohibited outside the hours of 7 a.m. to 7 p.m., and is prohibited on Sundays and holidays. Construction noise is further limited to an average of 75 dBA over an eight-hour period, when measured at the boundary line of the property where the noise source is located, or on any occupied property where the noise is being received.

In the event certain projects cannot conform to the requirements of the noise ordinance, the San Diego Municipal Code expressly authorizes the City to grant a permit to allow temporary deviations from those requirements. The permit process is outlined in Section 59.5.0404(a) of the Municipal Code. An application for a permit may be made to the city noise abatement and control administrator, who evaluates the request and determines if a permit will be issued. The evaluation includes review of the potential impact the noise may have on each property that would be affected, the value to the community of the work being done, and other factors.

City of Poway

Chapter 8.08 of the City of Poway Municipal Code addresses noise abatement and control, and is very similar to the City of San Diego Municipal Code. Normal operation of the new transmission line and any associated equipment is limited to the noise limits summarized in Table 4.10-4, City of Poway Sound Level Limits.

Table 4.10-4: City of Poway Sound Level Limits

Location	Time	One-Hour Average Sound Level Limits (dBA)
Residential, Agriculture, and Semi-Rural Zones with a General Plan Land Use Designation density of less than 11 dwelling units per acre	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	40
Residential, Agriculture, and Semi-Rural Zones with a General Plan Land Use Designation density of 11 or more dwelling units per acre	7 a.m. to 7 p.m.	55
	7 p.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
Commercial Zones	7 a.m. to 7 p.m.	60
	7 p.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	55
Industrial Zones	Anytime	70
Source: *City of Poway Municipal Code*		

The City of Poway Municipal Code provides separate limitations on construction noise, which is not subject to the limits in Table 4.10-4. Construction noise is prohibited outside the hours of 7 a.m. to 5 p.m., and is prohibited on Sundays and holidays. Construction noise is further limited to an average of 75 dBA over an eight-hour period, when measured at the boundary line of the property where the noise source is located, or on any occupied property where the noise is being received. An application for a variance may be made to the City Engineer, who evaluates the request and determines if a variance will be issued. The evaluation includes review of the potential impact the noise may have on each property that would be affected, the value to the community of the work being done, and other factors.

4.10.3.2 Noise Setting

Overall Project Setting

The Proposed Project would replace and relocate existing electric transmission and power line facilities within existing utility corridors and franchise position within city streets. The Proposed Project would also add one new transmission line that would also be located within existing utility corridors and within franchise position (Carmel Valley Road).

The Proposed Project passes through developed residential and commercial areas as well as densely vegetated undeveloped areas. The majority of the transmission line is located within the City of San Diego, but also passes through the City of Poway, the MCAS Miramar AIA, and the northern-most portion of MCAS Miramar.

Summary of Noise-Sensitive Receptors

Noise sensitive areas are considered to be any areas where there are dwelling units, or sites where frequent human uses occur. This includes residences, schools, libraries, hospitals, and public parks. Residences were identified within varying distances to the project, as close as 50 feet to the existing SDG&E ROW (refer to Figure 4.9-1 and Appendix 3-B).

4.10.3.3 Noise Surveys

A noise survey along the existing transmission and power line corridor was conducted during the evening on October 25th and into the early morning hours of October 26, 2013 by TRC. Short term sampling, typically 10 minutes in duration, was utilized in order to characterize the existing sound levels along the transmission line. Ten locations were selected as representative sound monitoring locations (see Figure 4.10-1, Noise Measurement Locations and Ambient Noise Levels). These locations were chosen to focus on residential areas that are close to the corridor.

Monitoring was conducted in the evening hours in order to minimize extraneous sources. The contributing sources of sound included vehicular traffic (both on distant and local roads), some insect noise, and occasional dogs barking. Weather conditions included high humidity, which is conducive to the generation of corona noise. Corona noise is the audible hum and crackling noise that can be heard from higher voltage transmission lines, particularly during inclement weather. Monitoring therefore likely captured the near worst case results, during the presence of audible corona noise. Many of the monitoring locations are located near existing power and transmission lines running along the corridor, and corona noise could be heard at all locations except Calle de los Ninos, Celome Way, Duck Pond Lane, and Hunters Glen Drive. Table 4.10-5, Summary of Measured Ambient Noise Levels, provides the L_{eq}, L_{10}, and L_{90} measurements for each of the ten locations.

Table 4.10-5: Summary of Measured Ambient Noise Levels (dBA)

Location	Distance to ROW (ft)	L_{eq} (dBA)	L_{10} (dBA)	L_{90} (dBA)
Fortino Point	150	43.5	45.2	40.1
Cypress Canyon Park Drive	250	42.2	43.5	40.1
Ivy Hill Road	100	47.0	47.9	44.6
Calle de los Ninos	500	47.2	48.9	43.5
Paseo Montalban	50	43.1	46.0	37.2
Mediatrice Lane	300	39.6	41.4	36.8
Celome Way	100	39.6	41.3	34.1
Duck Pond Lane	2,000	40.6	42.5	37.8
Hunters Glen Drive	500	34.7	35.7	31.0
Manor Gate Drive	200	42.2	39.2	36.1
Source: *TRC, 2013*				

Measured L_{eq} sound levels ranged from approximately 35 dBA to 47 dBA. The measured levels reflect the total noise environment, not only corona noise. The measured levels are typical of suburban areas.

4.10.4 Potential Impacts

The Proposed Project involves the construction of new transmission and power line facilities and the replacement or relocation of existing power line and transmission line facilities as-needed in order to accommodate the new 230 kV transmission line. All proposed overhead facilities would be located within existing SDG&E ROW and utility corridors and proposed underground facilities would be located within existing franchise position. Construction of the Proposed Project would result in increases in noise; however these increases would be temporary in nature and would not result in significant impacts at any one location. Operations and maintenance would result in slight increases in corona noise during inclement weather, but would not result in significant impacts at any one location.

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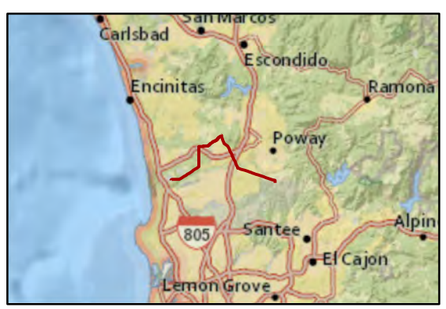

Sycamore to Peñasquitos 230 kV Transmission Line Project

Noise Monitoring Location Map

Figure 4.10-1

Noise Monitoring Location

Proposed Route

0 1 2 3 Miles

3/13/2014

TRC

SDGE

A Sempra Energy utility

Service Layer Credits: Sources: Esri, DeLorme, HERE, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, iPC

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BACK OF FIGURE 4.10-1

4.10.4.1 Significance Criteria

Standards of impact significance were derived from Appendix G of the *CEQA Guidelines*. Under these guidelines, the Proposed Project could have a potentially significant impact regarding noise if it would result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

e) Exposure of people residing or working in the project area to excessive noise levels for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public-use airport; or

f) Exposure of people residing or working in the project area to excessive noise levels for a project within the vicinity of a private airstrip.

4.10.4.2 Question 10a – Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Construction – Less than Significant Impact

Overhead Line Construction

Construction of the Proposed Project is expected to take approximately twelve months to complete. New steel poles are proposed to be installed along the Proposed Project alignment, mainly within Segments A and D. Each pole installation site can be considered a separate construction site. Construction at each site would include clearing of the pole sites, foundation excavation, grading, concrete placement, steel pole installation, and wire stringing. Along sections of the transmission line that currently employ wood poles, the existing wood poles would be completely removed[1], and the holes backfilled with soil from the pole replacement. In situations where pole removal would impact sensitive resources, the pole would be truncated slightly below grade and the base would be left in place. Construction would require the temporary use of noise-generating equipment. The construction equipment to be used (Refer to Section 3.4.11) is similar to that used during typical public works projects. Typical noise levels from these construction sources are provided in Table 4.10-6, Typical Overhead Line Construction Sound Levels, for a reference distance of 50 feet.

[1] All existing wood poles would be completely removed with the exception of five 138 kV wood H-frame structures that currently have distribution underbuild along Segment A that would be topped so that only a single pole and the distribution line remains (refer to Section 3.3.6.2).

Table 4.10-6: Typical Overhead Line Construction Sound Levels

Equipment[1]	Maximum Noise Level at 50 feet (dBA)
Air Compressor	80 (1)
Aerial Bucket Truck	75 (2)
Backhoe	80 (2)
Crane	81 (2)
Bulldozer	82 (2)
Drill Rig/Truck-mounted augur	85 (2)
Grader	85 (1)
Helicopter at Takeoff	90 (3)
Mower	88 (4)
Portable Generator	73 (2)
Rock Drill/rock drilling equipment	81 (2)
Truck (Dump Truck, Flatbed Truck)	84 (2)
Wire Pulling Machine (pulling rig)	80 (4)

Notes:
[1] Noise levels listed are for typical equipment used during construction, and not all potential equipment used for the Proposed Project is listed herein. The equipment used is considered to be representative of the equipment that would be used during construction of the Proposed Project.
Sources: *(1) BBN 1971, 1977; (2) Federal Highway Administration, 2006; (3) TRC, 2001; (4) Ebasco, 1989.*

It is important to note that the equipment presented would not generally be operated continuously, nor would the equipment always operate simultaneously. There would therefore be times when no equipment is operating and noise would be at ambient levels. Typical usage factors for this type of construction equipment were applied to the above sound levels in order to arrive at the average sound level that may occur during a typical workday. Usage factors are applied irrespective of workday duration. The usage factors account for the fact that equipment are not always operated at full throttle conditions, and are not used for an entire workday. Table 4.10-7, Construction Sound Levels Adjusted for Workday, provides the construction sound levels, adjusted to reflect a typical workday, expected at various distances from a pole site, from 50 feet out to 1,000 feet, covering the range of distances to nearby residences.

Table 4.10-7: Overhead Line Construction Sound Levels Adjusted for Workday

Equipment	Adjusted Noise Level for Workday (dBA)				
	50 feet	100 feet	200 feet	500 feet	1,000 feet
Air Compressor	73	67	61	53	46
Aerial Bucket Truck	73	67	61	53	46
Backhoe	76	70	64	56	49
Crane	76	70	64	56	49
Bulldozer	81	75	69	61	54
Drill Rig/Truck-mounted Augur	78	72	66	58	51
Grader	75	69	63	55	48
Mower	75	69	63	55	48
Portable Generator	70	64	58	50	43
Rock Drill/rock drilling equipment	74	68	62	54	47
Truck (Dump Truck, Flatbed Truck)	81	75	69	61	54
Wire Pulling Machine (pulling rig)	74	68	62	54	47

Helicopter usage for Proposed Project construction would be limited to those hours deemed acceptable for construction activities by the City of San Diego Noise Code (7 a.m. to 7 p.m.) and the City of Poway Noise Code (7 a.m. to 5 p.m.). Helicopter usage at any one location would be very brief as the lines are being strung or during pole removal and installation activities.

Underground Line Construction

An underground transmission line is proposed for Section B of the Proposed Project. Installation of the underground transmission line involves installing vaults, trenching and duct bank installation, cable pulling and splicing, and site cleanup. The construction equipment for underground trenching operations differs from the overhead pole installation. Typical noise levels from representative construction sources are provided in Table 4.10-8, Typical Trenching Construction Sound Levels, for a reference distance of 50 feet.

Table 4.10-8: Typical Underground Line Construction Sound Levels

Equipment[1]	Maximum Noise Level at 50 feet (dBA)
Backhoe	80 (1)
Concrete Saw	90 (1)
Crane	81 (1)
Excavator	81 (1)

Table 4.10-8 (cont.): Typical Underground Line Construction Sound Levels

Equipment[1]	Maximum Noise Level at 50 feet (dBA)
Jackhammer	85 (1)
Paver	77 (1)
Truck (Dump Truck, Flatbed Truck)	84 (1)
Vacuum Truck	85 (1)
Wire Pulling Machine (pulling rig)	80 (2)

Notes:
[1] Noise levels listed are for typical equipment used during construction, and not all potential equipment used for the Proposed Project is listed herein. The equipment used is considered to be representative of the equipment that will be used during construction of the Proposed Project.

Sources: *(1) Federal Highway Administration, 2006; (2) Ebasco, 1989.*

As is the case with the overhead construction, the equipment presented would not generally be operated continuously, nor would the equipment always operate simultaneously. Typical usage factors for this type of construction equipment were applied to the above sound levels in order to arrive at the average sound level that may occur during a typical workday. Table 4.10-9, Underground Line Construction Sound Levels Adjusted for Workday, provides representative construction sound levels, adjusted to reflect a typical workday expected at various distances from any pole site, from 50 feet out to 1,000 feet.

Table 4.10-9: Underground Line Construction Sound Levels Adjusted for Workday

Equipment	Adjusted Noise Level for Workday (dBA)				
	50 feet	100 feet	200 feet	500 feet	1,000 feet
Backhoe	74	68	62	54	47
Concrete Saw	83	77	71	63	56
Crane	73	67	61	53	46
Excavator	77	71	65	57	50
Jackhammer	78	72	66	58	51
Loader	75	69	63	55	48
Paver	74	68	62	54	47
Truck (Dump Truck, Flatbed Truck)	76	70	64	56	49
Vacuum Truck	81	75	69	61	54
Wire Pulling Machine	74	68	62	54	47

Analysis

The cities of San Diego and Poway noise codes exempt construction noise from the limits in Tables 4.10-3 and 4.10-4, provided that construction occurs between the hours of 7 a.m. to 7 p.m. (7 a.m. to 5 p.m. for the City of Poway), and, when measured over a workday, to less than 75 dBA at an adjoining property line. Although daily construction activities cannot be predicted and would vary depending on conditions in the field, the data in Tables 4.10-7 and 4.10-9 above reveals that it is possible that construction sound levels may exceed the 75 dBA limit at the few noise sensitive area (NSA) locations where construction would occur less than 100 feet of a residential property line. NSAs along a majority of the route are much further away from where construction would occur, and construction noise levels in these areas would be much lower as shown in Tables 4.10-7 and 4.10-9 above. Nonetheless, in the event construction noise is anticipated to exceed 75 dBA at adjacent properties with NSAs located within less than 100 feet of construction activities, SDG&E would meet and confer with the City (San Diego and/or Poway) to discuss temporarily deviating from the requirements of the Noise Code, as described in the construction noise variance process [Code Sections 59.5.0404(a) and 8.08.230 for the City of San Diego and the City of Poway, respectively]. This meet and confer process is an ordinary construction restriction. If requested by the City (San Diego and/or Poway), SDG&E would evaluate the potential re-location of residents and/or the use of portable noise barriers. As an additional ordinary construction restriction, functional mufflers will be maintained on all equipment to minimize noise levels during construction.

The noise levels presented in Tables 4.10-6 through 4.10-9 are those that would be experienced by people outdoors. A building will provide significant attenuation of associated construction noise impacts. For instance, sound levels can be expected to be up to 27 dBA lower indoors with windows closed. Even in homes with the windows open, indoor sound levels can be reduced by up to 17 dBA.

It is unanticipated, but hydraulic rock drilling or rock blasting may be used to minimize the drilling time. If used, rock blasting would substantially reduce construction time at any one location as extensive digging in hard rock would not be required. Blasting would therefore have the effect of reducing potential noise impacts. Noise associated with these activities would occur intermittently, over short periods of time. In addition, should blasting be required, a noise and vibration calculation would be prepared and submitted to SDG&E Environmental Programs for review before blasting at each site. The construction contractor would be required to comply with all relevant local, state, and federal regulations relating to blasting activities.

Work in the proximity of any single general location of the Proposed Project would likely last no more than a few days to one week at a time, as construction activities move along the corridor. Therefore, no single receptor would be exposed to significant noise levels for an extended period of time. Impacts are anticipated to be less than significant.

Operation & Maintenance – No Impact

Above Ground Lines (Segments A, C and D)

Segments A, C and D have a combination of existing 69 kV and 138 kV power lines as well as 230 kV transmission lines. These existing lines would be consolidated and/or relocated onto the

new steel poles, and a new 230 kV line would be added in all Segments. Provided below is a summary of the existing lines within each Proposed Project Segment.

- Segment A: 12 kV, 69 kV, 138 kV and 230 kV
- Segment C: 138 kV and 230 kV
- Segment D: 69 kV and 138 kV

Modern transmission and power lines have been designed, and are constructed and maintained, to generate a minimum of corona-related noise. 230 kV and smaller lines are usually not a design issue for corona noise due to the low noise levels generated (Burns & McDonnell, Inc., 2010). Typical corona noise levels from 230 kV lines are in the range of only 15 dBA at a distance of 100 feet during dry weather (DMD & Associates Ltd., 2005). During periods of high humidity and rain, this noise level would increase, typically in the range of 5 dBA to 20 dBA depending on weather conditions, with the larger increases occurring during rain. These somewhat higher levels are then masked by the sound of falling rain. Also, in most cases, people are indoors where the sound would be inaudible during these times. Corona noise associated with relocation/consolidation of existing lines and addition of the new 230 kV line would be below the noise level limits of local jurisdictions, and no impact would occur.

Short-term operational noise may be generated when regular or emergency maintenance is needed. However, this is consistent with the existing conditions, as periodic maintenance is currently conducted for the existing power line.

Underground Lines (Segment B)

No audible corona noise would be generated from operation or maintenance of the underground line. Operation and maintenance of the underground transmission lines (Segment B) would require occasional access to approximately ten splice vaults that would only occur at very infrequent intervals (approximately once every three years), and would not generate any additionally noise above existing baseline levels. Additional maintenance would be limited to normal landscaping activity (i.e., periodic grass cutting), consistent with the existing condition. Therefore, no impacts due to operation or maintenance would occur.

4.10.4.3 Question 10b – Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

Construction – Less than Significant Impact

Construction activities have the potential to generate groundborne vibration and groundborne noise, depending on the type of construction equipment in use and the distance to the receiver.

The human response thresholds for vibration (refer to Table 4.10-2), indicate that vibration is barely perceptible with a PPV of 0.035. Table 4.10-10, Vibration Source Levels for Construction Equipment at 50 feet, provides vibration source levels for some construction equipment expected (or representative of the equipment) to be utilized for the Proposed Project, which have been normalized to a reference distance of 50 feet, which is approximately the closest any one single residence would be to any pole or trenching site.

Table 4.10-10: Vibration Source Levels for Construction Equipment at 50 Feet

Equipment[1]	PPV at 50 Feet
Caisson Drill (drilling rig)	0.031
Loaded Truck (flatbed)	0.027
Bulldozer (small)	0.001

Notes:
[1] Vibration levels listed are for typical equipment used during construction, and not all potential equipment used for the Proposed Project is listed herein. The equipment used is considered to be representative of the equipment that will be used during construction of the Proposed Project.

Source: *FTA, 2006*

Referring to the data in Table 4.10-10, vibration levels would be below the barely perceptible response level. Because the closest residences are 50 feet or more away from where any construction would occur, no impacts are anticipated.

Vibration levels associated with rock blasting, if conducted, would be site-specific and depend on soil/rock conditions at the site, the amount of explosive used, and the depth that the blasting occurs. In the unlikely event that rock blasting is used during construction, SDG&E would implement ordinary construction restrictions to ensure that any blasting activities comply with applicable laws, regulations, and ordinances; and that potential adverse effects from blasting activities located near NSAs would be less than significant.

Operation & Maintenance – No Impact

SDG&E currently maintains and operates extensive existing electric transmission, power, distribution and substation facilities throughout the Proposed Project site, and the Proposed Project is the reconstruction of existing electric facilities within existing SDG&E ROW property and the addition of a new 230 kV transmission line. SDG&E's existing facilities and operations and maintenance activities are included in the baseline for evaluating the impacts of the Proposed Project. Operations and maintenance activities for the Proposed Project would decrease slightly compared to baseline conditions due to the increased reliability of the new transmission and power line components, the installation of fewer poles along the alignment, and the relocation of poles outside of jurisdictional features as-needed. Any future potential maintenance-related construction projects would be evaluated under General Order 131-D and CEQA for purposes of assessing whether further CPUC approval is required. None of the Proposed Project facilities generate vibration during operation; therefore, no impacts due to vibration would occur during operation. Maintenance of the new underground line would be limited to inspections of the vaults that occur once every three years. The maintenance activities are not anticipated to include any vibration generating sources. As such, no vibration impacts would occur during operation and maintenance.

4.10.4.4 Question 10c – A substantial permanent increase in ambient noise levels in the project vicinity above levels without the project.

Construction – No Impact

Construction activities would be a temporary feature, performed over approximately eleven months. Therefore, no permanent increase in ambient noise levels would occur, and there would be no impact.

Operation & Maintenance – Less Than Significant Impact

Relocation and consolidation of the existing transmission power lines would not be expected to significantly alter the level of corona noise present at any given time, as the distances the lines would be moved is minimal. The addition of the new 230 kV line similarly would result in minimal increases in corona noise levels. As an example, Segment areas A, C, and D already experience a minimal level of corona noise at close proximity to the lines. The addition of another 230 kV line in these Segments with multiple lines, including an existing 230 kV line, would result in an increase in corona only noise levels of less than 3 dBA (adding a new source to an existing source with the same sound level results in an increase of 3 dBA). An increase in noise of less than 3 dBA is considered to be a barely perceptible increase in noise (FHWA, 1995).

SDG&E currently maintains and operates extensive existing electric transmission, power, distribution and substation facilities throughout the Proposed Project area. The Proposed Project involves the construction of new transmission line facilities and the replacement or relocation of existing power line and transmission line facilities as-needed in order to accommodate the new 230 kV transmission line. All proposed overhead facilities would be located within existing SDG&E ROW and utility corridors and proposed underground facilities would be located within an existing franchise position. SDG&E's existing facilities and operations and maintenance activities are included in the baseline for evaluating the impacts of the Proposed Project. Operations and maintenance activities for the Proposed Project would decrease slightly compared to baseline conditions due to the increased reliability of the new transmission and power line components, the installation of fewer poles along the alignment, and the relocation of poles outside of jurisdictional features as-needed. Any future potential maintenance-related construction projects would be intermittent, and would be evaluated under General Order 131-D and CEQA for purposes of assessing whether further CPUC approval is required. Less than significant impacts due to noise from operation and maintenance would occur.

4.10.4.5 Question 10d – A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Construction – Less Than Significant Impacts

Impacts during construction have been outlined in the response to Question 10a. Construction activities along the Proposed Project route would result in short-term noise impacts. However, such impacts would be temporary, localized, and intermittent. Ordinary construction restrictions (refer to Section 3.8) will be utilized in order to minimize noise impacts that occur during construction. Therefore, construction impacts from the Proposed Project would be less than significant.

Operation & Maintenance – Less Than Significant Impacts

Impacts during operation and maintenance of the Proposed Project have been outlined in the responses to Questions 10a and 10c. No substantial temporary or periodic increases in ambient noise levels are expected. A slight increase in corona noise would occur, although increases in corona noise would be minimal. Further, the ambient noise monitoring program revealed that corona noise is a minor part of the overall noise environment, and therefore increases in total ambient noise levels would accordingly be even lower. Therefore, impacts would be less than significant.

4.10.4.6 Question 10e – For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

Construction, Operation & Maintenance – No Impact

The Proposed Project is not located within two miles of a public airport. The Proposed Project is located within the *MCAS Miramar ALUCP* and associated AIA. As required by the *MCAS Miramar ALUCP*, any proposed development within applicable communities in the AIA would be reviewed for compatibility with the Noise Compatibility Criteria Table. However, the Proposed Project does not include development that would expose people to excessive noise levels. The Proposed Project is located over 5 miles from the Miramar Airport runways. Furthermore, construction workers would only be present during construction, and operation and maintenance crews are already present within all portions of the Proposed Project alignment that fall within the *MCAS Miramar ALUCP* and also are only present for short periods of time. No impacts are anticipated.

The nearest public airports are Montgomery Field and Gillespie Field; both located over 8 miles from the Proposed Project. Helicopter operations during construction of the Proposed Project could utilize these airports (as well as other local airports) for staging (e.g., fueling and parking). No impacts would occur due to the distance from the Proposed Project to these airports. No impacts are anticipated.

4.10.4.7 Question 10f – For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

Construction, Operation & Maintenance – No Impact

The Proposed Project area is not located within the vicinity of any private airstrips. It is not currently anticipated that the Proposed Project would utilize private airstrips for construction, operation or maintenance. If the Proposed Project were to utilize a private airstrip, such utilization would not expose people residing or working in the Proposed Project area to excessive noise levels. Therefore, no impacts would occur.

4.10.5 Project Design Features and Ordinary Construction/Operating Restrictions

With implementation of the ordinary construction restrictions (as outlined within Section 3.8) potential impacts relating to construction-generated noise would remain less than significant and the Proposed Project would comply with local noise ordinances for the vast majority of the route. For the few locations where the Proposed Project would exceed the noise ordinances, as discussed previously, SDG&E would meet and confer with the appropriate City to discuss temporarily deviating from the requirements of the Noise Code, as described in the construction noise variance process (see Section 4.10.3.1).

4.10.6 Applicant Proposed Measures

The Proposed Project has no significant impacts relating to noise; therefore, no APMs are proposed.

4.10.7 Detailed Discussion of Significant Impacts

Based upon the preceding analysis, no significant impacts relating to noise are anticipated from the Proposed Project.

4.10.8 References

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