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4.12 NOISE

Would the Proposed Project result in:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation 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) If located within an airport land use plan or within two miles of a public airport or public use airport for which such a plan has not been adopted, would the project result in exposure of persons residing or working in the project area to excessive noise levels?			✓	
f) If located within the vicinity of a private airstrip, would the project result in exposure of persons residing or working in the project area to excessive noise levels?				✓

4.12.0 Introduction

This section assesses the potential noise and vibration impacts associated with the construction, operation, and maintenance of the proposed San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company—hereinafter referred to as "the Applicants"—Pipeline Safety & Reliability Project (Proposed Project). The Proposed Project involves construction, operation, and maintenance of an approximately 47-mile-long, 36-inch-diameter natural gas transmission pipeline that will carry natural gas from SDG&E's existing Rainbow Metering Station to the pipeline's terminus on Marine Corps Air Station (MCAS) Miramar. Noise will be generated during the construction of various Proposed Project components, as well as during operation and

maintenance of some of the aboveground components. The Applicants will implement Applicants-Proposed Measures (APMs) to reduce construction noise, but even with implementation of these measures, construction activities have the potential to adversely impact noise-sensitive receptors[1] in the area. Operational noise from the pressure-limiting equipment also has the potential to adversely impact noise-sensitive receptors in the area; however, these impacts will be reduced to a less-than-significant level with the implementation of APMs.

4.12.1 Methodology

Information regarding existing noise and vibration sources and standards was obtained from federal, state, regional, and local literature reviews to establish the noise standards for the Proposed Project location. The evaluation of potential noise impacts from the Proposed Project included the following:

- evaluating existing noise contours and available data for the Proposed Project route,
- conducting reconnaissance-level surveys and characterizing the existing noise environment,
- conducting noise monitoring at two locations to determine existing ambient noise levels,
- calculating noise generation from the anticipated construction equipment based on noise levels from established literature and regulatory guidance, and
- examining typical noise levels resulting from construction and operation activities.

This noise analysis focuses on the construction of the natural gas transmission pipeline, installation of aboveground facilities, pipeline testing prior to being placed into service, grading of various portions of the Proposed Project site where the use of heavy equipment will occur, operation of pressure-limiting and metering stations, and maintenance of all Proposed Project facilities.

It is widely accepted that the average healthy ear can barely perceive noise level changes of three dB (decibels). A five dB increase is readily noticeable, while the human ear perceives a 10 dB increase as a doubling of sound. For the purposes of this analysis, a temporary noise increase of five A-weighted decibels[2] (dBA) will be considered a significant increase.

4.12.2 Existing Conditions

Regulatory Background

Federal

No federal noise standards directly regulate noise from the construction or operation of natural gas transmission lines. However, in 1974, the United States (U.S.) Environmental Protection Agency (EPA) established guidelines for noise levels, below which no reason exists to suspect

[1] For the purposes of this analysis, "noise-sensitive receptors" include facilities or areas (e.g., residences, hospitals, parks, and schools) where excessive noise levels will be considered an annoyance. Some jurisdictions define noise-sensitive receptors by ordinance.

[2] The human ear is not uniformly sensitive to all sound frequencies; therefore, the A-weighting scale has been devised to correspond to the human ear's sensitivity. The A-weighting scale uses the specific weighting of sound pressure levels from 31.5 hertz to 16 kilohertz for determining the human response to sound.

that the general population will be at risk from any of the identified effects of noise. The EPA guidelines include the following:

- equivalent sound level (L_{eq})(24) ≤ 70 dBA to protect against hearing loss;
- a day-night equivalent noise level (L_{dn}) ≤ 55 dBA to protect against activity interference and annoyance in residential areas, farms, and other outdoor areas where quiet is a basis for use;
- L_{eq}(24) ≤ 55 dBA to protect against outdoor activity interference where limited time is spent, such as schoolyards and playgrounds;
- L_{dn} ≤ 45 dBA to protect against indoor activity interference and annoyance in residences; and
- L_{eq}(24) ≤ 45 dBA to protect against indoor activity interference in schoolyards.

These levels are not standards, criteria, regulations, or goals, but are defined to protect public health and welfare with an adequate margin of safety, and to provide guidelines for implementing noise standards locally.

The federal government has passed various general laws to regulate and limit noise levels, which are described in the following subsections. In addition, one federal plan relating to noise on MCAS Miramar applies to the Proposed Project.

Federal Aviation Administration

The Federal Aviation Administration (FAA) establishes 65 dB Community Noise Equivalent Level[3] (CNEL) as the noise standard associated with aircraft noise measured at exterior locations in noise-sensitive land uses[4] (NSLU). This standard is also generally applied to railroad noise.

Marine Corps Air Station Miramar Integrated Natural Resources Management Plan

The MCAS Miramar Integrated Natural Resources Management Plan (INRMP) guides the implementation of the natural resources program on MCAS Miramar through 2015, integrating current and future land use activities at MCAS Miramar with natural resources management and conservation. The INRMP identifies and implements land use controls for lands underlying flight paths to prevent certain types of land uses that would be incompatible because of noise levels and safety considerations associated with aircraft operations.

Noise Control Act of 1972

The Noise Control Act of 1972 was the first comprehensive statement of national noise policy. It declares, "It is the policy of the U.S. to promote an environment for all Americans free from noise that jeopardizes their health or welfare."

[3] CNEL measurements are weighted averages of sound levels gathered over a 24-hour period, and essentially measure ambient noise. Measurements taken during day, evening, and nighttime periods are weighted separately, recognizing that humans are most sensitive to noise in late-night hours and are more sensitive during evening hours than in daytime hours.

[4] NSLU is defined as any residence, hospital, school, hotel, resort, library, or any other facility where quiet is an important attribute of the environment.

Occupational Health and Safety Act of 1970

This act covers all employers and their employees in the 50 states, the District of Columbia, Puerto Rico, and other U.S. territories. Administered by the Occupational Health and Safety Administration (OSHA), the act assigns OSHA two regulatory functions—setting standards and conducting inspections to ensure that employers are providing safe and healthful workplaces. OSHA standards may require that employers adopt certain practices, means, methods, or processes that are reasonably necessary and appropriate to protect workers on the job. Employers must become familiar with the standards applicable to their establishments and eliminate hazards. Included in this act is a regulation for worker noise exposure at 90 dBA over an eight-hour work shift. Areas where exposure exceeds 85 dBA must be designated and labeled as high-noise-level areas, and hearing protection is required.

Quiet Communities Act of 1978

The Noise Control Act was amended by the Quiet Communities Act of 1978 to promote the development of effective state and local noise control programs, to provide funds for noise research, and to produce and disseminate educational materials to the public on the harmful effects of noise and ways to effectively control it. By 2002, federal agencies—including the Department of Transportation, Department of Labor, Federal Railroad Administration, and FAA—developed their own noise control programs, with each agency setting its own criteria.

Federal Transit Administration Transit Noise and Vibration Guidelines

Originally published in 1995 and updated in 2006, the Federal Transit Administration (FTA) has issued guidelines entitled *Transit Noise and Vibration Impact Assessment.* The document provides guidance for the methods and procedures to be used to assess noise and vibration caused by construction equipment and other sources. The guidelines regarding vibration serve as the basis for maximum vibration standards utilized by several state agencies, including the California Department of Transportation (Caltrans).

State

California Noise Control Act

The California Noise Control Act states that excessive noise is a serious hazard to public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also recognizes that continuous and increasing bombardment of noise exists in urban, suburban, and rural areas. This act declares that the State of California has the responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise.

California Noise Insulation Standards

The California Noise Insulation Standards were adopted in 1974 by the California Commission on Housing and Community Development, which was meant to establish noise insulation standards for multi-family residential buildings. This document establishes standards for interior room noise that is attributable to outside noise sources. The regulations also specify that acoustical studies must be prepared whenever a residential building or structure is proposed to be located near an existing or adopted freeway route, expressway, parkway, major street,

thoroughfare, rail line, rapid transit line, or industrial noise source; and where such noise source or sources create an exterior CNEL (or L_{dn}) of 60 dB or greater. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or L_{dn}) of at least 45 dB. Although the California Noise Insulation Standards do not apply to the Proposed Project, it sets an interior noise standard for multi-family residential buildings.

California Department of Transportation's Transportation- and Construction-Induced Vibration Guidance Manual

This document provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. Human reaction to ground-borne vibration is virtually always characterized in terms of the root-mean-square (RMS) vibration velocity. The RMS is considered the best available measure of potential human annoyance from ground-borne vibration, and measurements are usually reported in terms of the maximum RMS vibration velocity level for analysis of human perception and impact. The vibration perception threshold for humans is 0.004 inch per second (in/sec) RMS. When the daytime ground-borne vibration levels exceed 0.0055 in/sec RMS in residences, ground-borne noise can be considered annoying or unacceptable to some people. Continuous or frequent intermittent vibration sources (e.g., impact pile drivers) are significant when their peak particle velocity (PPV) exceeds 0.1 in/sec. Construction equipment will typically produce a PPV of four times the RMS value. Although damage is related to the integrity and type of structure, 0.1 in/sec PPV (0.025 in/sec RMS) and below has virtually no risk of "architectural" damage to normal buildings.

More specific criteria for human annoyance have been developed by Caltrans and were used to evaluate potential Proposed Project vibration sources. Table 4.12-1: Human Response to Transient Vibration lists the Caltrans thresholds of perception.

Table 4.12-1: Human Response to Transient Vibration

Human Response	PPV (in/sec)
Severe	2.0
Strongly Perceptible	0.9
Distinctly Perceptible	0.24
Barely Perceptible	0.035

Source: Caltrans 2004

Local

Pursuant to Article XII, Section 8 of the California Constitution, the California Public Utilities Commission (CPUC) has exclusive jurisdiction in relation to local government to regulate the design, siting, installation, operation, maintenance, and repair of natural gas pipeline transmission facilities. Other state agencies have concurrent jurisdiction with the CPUC. Although local governments do not have the power to regulate such activities, the CPUC encourages, and the Applicants participate in, cooperative discussions with affected local

governments to address their concerns where feasible. As part of the environmental review process, the Applicants have considered relevant regional and county policies and issues, and have prepared this evaluation of the Proposed Project's potential impacts related to noise.

Each local government outlines requirements for noise abatement and control in its general plan and municipal code. The general plans typically set overall goals and objectives, while the municipal codes set specific sound limits.

County of San Diego General Plan

The County of San Diego (County) General Plan includes a Noise Element, the purpose of which is to provide for the control and abatement of environmental noise to protect citizens from excessive exposure. Goals and policies within the Noise Element support the Guiding Principles specified in Chapter 2 of the General Plan, which seek to protect the County's unique natural environment and unique characteristics. The county is characterized as a predominantly rural environment, and the Noise Element strives to preserve the quality of life by protecting residents from the obtrusive impacts of noise and noise-generating uses (e.g., traffic, construction, airplanes, and certain industrial uses).

The Noise Element contains Noise Compatibility Guidelines to determine the compatibility of land uses when evaluating proposed development projects. According to these guidelines, new land uses exceeding 75 dB during construction or operation would be considered unacceptable, unless a detailed noise analysis is conducted and noise reduction measures are undertaken to achieve acceptable levels according to the land use categories described in the Noise Element (e.g., below 60 dB in single-family residential areas). The Noise Element also includes Noise Standards that define maximum exterior and interior noise levels.

Two policies contained within the Noise Element apply to construction of the Proposed Project:

- N-6.4 Hours of Construction: Require development to limit the hours of operation as appropriate for non-emergency construction and maintenance, trash collection, and parking lot sweeper activity near noise sensitive land uses.

- N-1.4 Adjacent Jurisdiction Noise Standards: Incorporate the noise standards of an adjacent jurisdiction into the evaluation of a proposed project when it has the potential to impact the noise environment of that jurisdiction.

Three policies contained within the Noise Element apply to operation and maintenance of the Proposed Project, including the following:

- N-1.1 Noise Compatibility Guidelines: Use the Noise Compatibility Guidelines (Table N-1) and the Noise Standards (Table N-2) as a guide in determining the acceptability of exterior and interior noise for proposed land uses.

- N-1.4 Adjacent Jurisdiction Noise Standards: Incorporate the noise standards of an adjacent jurisdiction into the evaluation of a proposed project when it has the potential to impact the noise environment of that jurisdiction.

- N-2.1 Development Impacts to Noise Sensitive Land Uses: Require an acoustical study to identify inappropriate noise level where development may directly result in any existing or future noise sensitive land uses being subject to noise levels equal to or greater than 60 CNEL and require mitigation for sensitive uses in compliance with the noise standards listed in Table N-2.

One policy relating to vibration also applies to the Proposed Project as follows:

- N-3.1 Groundborne Vibration: Use the FTA and Federal Railroad Administration guidelines, where appropriate, to limit the extent of exposure that sensitive uses may have to groundborne vibration from trains, construction equipment, and other sources.

San Diego County Code of Regulatory Ordinances

Sections 36.401 through 36.435 of the San Diego County Code of Regulatory Ordinances (County Code) define the County's noise abatement and control standards to regulate noise in the unincorporated areas of the County. As shown in Table 4.12-2: County of San Diego Sound Level Limits, Section 36.404 of the County Code specifies one-hour sound level limits by General Plan land use designation. Section 36.408 limits the hours of construction, which can only take place between 7 a.m. and 7 p.m., Monday through Saturday. Section 36.409 of the County Code limits noise levels of construction equipment, which cannot exceed an average sound level of 75 dBA for an eight-hour period between 7 a.m. and 7 p.m. 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. Additionally, Section 36.410 places limits on impulsive noise, restricting such noises to a maximum sound level of 82 dBA in residential areas and 85 dBA in agricultural, commercial, or industrial areas. Section 36.423 of the County Code allows for variances to the ordinance when a project can be demonstrated to have a benefit to the general public and requires only a temporary deviation from the requirements of the County Code. The County Code does not contain any regulations pertaining to vibration.

City of San Diego General Plan

The City of San Diego General Plan includes a Noise Element—the purpose of which is to protect people living and working in the City of San Diego from excessive noise. The Noise Element provides goals and policies to guide compatible land uses and the incorporation of noise attenuation measures for new uses to protect people living and working in the City of San Diego from an excessive noise environment.

Similar to the County's Noise Element, the City of San Diego Noise Element contains land use noise compatibility guidelines to inform decision-making for new land uses and the potential impacts of noise generation on existing land uses in the surrounding area. The City of San Diego's noise compatibility guidelines consider new uses generating noise in excess of 65 dBA to be unacceptable near community and neighborhood parks, single-family residential uses, and hospitals and other institutional uses.

Table 4.12-2: County of San Diego Sound Level Limits

Zone	Time	One-Hour Average Sound Level Limit (dBA)
(1) RS, RD, RR, RMH, A70, A72, S80, S81, S90, S92, RV, and RU with a General Plan land use designation density of less than 10.9 dwelling units per acre	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
(2) RRO, RC, RM, S86, V5, RV and RU with a General Plan land use designation density of 10.9 or more dwelling units per acre	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
(3) S94, V4, and all commercial zones.	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
(4)		
V1, V2	7 a.m. to 7 p.m.	60
V1, V2	7 p.m. to 7 a.m.	55
V1	10 p.m. to 7 a.m.	55
V2	10 p.m. to 7 a.m.	55
V3	7 a.m. to 10 p.m.	70
	10 p.m. to 7 a.m.	65
(5) M50, M52, and M54	Anytime	70
(6) S82, M56, and M58	Anytime	75
(7) S88[5]	Varies	Varies

Source: County of San Diego 2000

[5] S88 zones are Specific Planning Areas that allow different uses. The sound level limits that apply in an S88 zone depend on the property use. The limits in subsection (1) apply to property with a residential, agricultural, or civic use. The limits in subsection (3) apply to property with a commercial use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M50, M52, or M54 zone. The limits in subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M56 or M58 zone.

Several policies contained within the Noise Element apply to the Proposed Project, including the following:

- NE-G.1: Implement limits on the hours of operation for non-emergency construction and refuse vehicle and parking lot sweeper activity in residential areas and areas abutting residential areas.

- NE-G.2: Implement limits on excessive public noises that a person could reasonably consider disturbing and/or annoying in residential areas and areas abutting residential areas.

- NE-I.1: Require noise attenuation measures to reduce the noise to an acceptable noise level for proposed developments to ensure an acceptable interior noise level, as appropriate, in accordance with California's noise insulation standards (Title 24 of the California Code of Regulations) and Airport Land Use Compatibly Plans.

The City of San Diego General Plan does not contain any guidelines or policies relating to vibration.

City of San Diego Municipal Code Noise Abatement and Control Ordinance

The City of San Diego Noise Abatement and Control Ordinance is contained within Sections 59.5.0401 through 59.5.0406 of the City of San Diego's Municipal Code. These sections define noise and regulate it by type, land use zone, and time of day. The ordinance prohibits the creation of any noise that exceeds the applicable limits of the ordinance at any point on or beyond the boundaries of the property on which the sound is produced unless a variance is granted. The ordinance allows the city to grant variances from the noise limitations for temporary on-site noise sources, subject to terms and conditions intended to achieve compliance. Table 4.12-3: City of San Diego Sound Level Limits displays the sound level limits for land uses within the city's jurisdiction, as provided in Section 59.5.0401 of the Municipal Code. Fixed-location public utility distribution or transmission facilities located on or adjacent to a property line are subject to these noise level limits, measured at or beyond six feet from the boundary of the easement where the equipment is located.

Section 59.5.0404 of the Municipal Code specifies that construction activities cannot exceed an average sound level greater than 75 dB between 7 a.m. to 7 p.m. at or beyond the property lines of any property zoned Residential. This section also establishes an exemption from the noise levels presented in Section 59.5.0401 for construction activities occurring between 7 p.m. and 7 a.m., provided that the project proponent has applied for and has been granted a permit beforehand by the Noise Abatement and Control Administrator. The ordinance does not contain any regulations pertaining to vibration.

City of Escondido General Plan

The City of Escondido General Plan's Community Protection Element includes a definition of noise, as well as policies relating to noise within the city's limits. The General Plan also identifies several types of sensitive noise receptors within the city's limits, including hospitals, libraries, schools, and parks. According to the General Plan, City of Escondido's existing noise environment is dominated

by traffic-related noise along the city's roadway network and existing commuter rail service. Similar to the general plans described for the County and City of San Diego, the City of Escondido's General Plan defines land uses generating noise in excess of 75 dBA as unacceptable near residential uses, parks, and playgrounds. However, in the vicinity of commercial and industrial areas, noise in excess of 75 dBA is considered normally acceptable. In the vicinity of major existing transportation corridors, including Interstate (I-) 15 and Centre City Parkway, the City of Escondido has defined noise contours generally as being between 65 and 70 dBA.

Table 4.12-3: City of San Diego Sound Level Limits

Land Use	Time	One-Hour Average Sound Level Limits (dB)
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 (Up to a maximum density of 1/2000)	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 or Agricultural	Anytime	75

Source: City of San Diego 2010

The General Plan includes two policies relating to noise that are relevant to the Proposed Project as follows:

- Noise Policy 5.7: Encourage use of site and building design, noise barriers, and construction methods as outlined in Figure VI-15 to minimize impacts on and from new development.

- Noise Policy 5.12: Limit "through truck traffic" to designated routes to minimize noise impacts to residential neighborhoods and other noise-sensitive uses (see Mobility and Infrastructure Element).

In addition, the City of Escondido General Plan includes one policy pertaining to vibration that applies to the Proposed Project as follows:

- Noise Policy 5.5: Require construction projects and new development to ensure acceptable vibration levels at nearby noise-sensitive uses based on Federal Transit Administrator criteria.

City of Escondido Municipal Code

Article 12, Sections 17.226 through 17.259 of the City of Escondido Municipal Code define and regulate noise within the city limits of Escondido. Table 4.12-4: City of Escondido Sound Level Limits displays the permissible sound level limits by land use zone and time according to Section 17.229 of the Municipal Code. Residential zones are limited to 50 dB between the hours of 7 a.m. and 10 p.m.; by comparison, a maximum of 75 dB is permissible at any time in general industrial zones.

Table 4.12-4: City of Escondido Sound Level Limits

Zone	Time	One-Hour Average Sound Level Limits (dB)
Residential Zones	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
Multi-Residential Zones	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
Commercial Zones	7 a.m. to 7 p.m.	60
	10 p.m. to 7 a.m.	55
Light Industrial/Industrial Park Zones	Anytime	70[6]
General Industrial Zones	Anytime	75[6]

Source: City of Escondido 2014

Section 17.234 of the Municipal Code further restricts the operation of construction equipment and limits the hours of construction equipment use to between 7 a.m. and 6 p.m. from Monday through Friday (except on public holidays when any operation is forbidden, other than for emergency work) and 9 a.m. and 5 p.m. on Saturdays. Construction equipment operation at a maximum of 75 dB is permissible under this section, and may exceed this level if a variance has been granted by the city manager, according to the procedures defined in Section 17.249. Exemptions are provided for emergency work, federal or state preempted activities, and other activities in Section 17.242 of the Municipal Code.

[6] The average one-hour sound level limits for light industrial/industrial park zones and general industrial zones are subject to provisions of Section 17.229 (c)(5).

City of Poway General Plan

The Public Safety Element of the City of Poway's General Plan includes a description of noise hazards, sensitive receptors, major generators of noise, and abatement methods and policies to be applied within the city's limits. According to the General Plan, motor vehicles contribute the major source of noise within the city, particularly along Espola, Poway, and Pomerado roads, State Route (SR-) 67, and Scripps Poway Parkway. The General Plan also identifies noise sources in excess of 70 dBA as generally unacceptable in residential and outdoor recreational areas; near schools, libraries, churches, and other institutional uses; and near tenant lodging. The General Plan also includes identified noise contours along major roadway corridors, and notes that noise levels of 70 dBA are typically found within 50 to 150 feet of major roadway centerlines.

One policy relating to noise applies to the Proposed Project as follows:

- Policy H – Noise: Ensure a safe and pleasant acoustical environment for the residents of Poway.

In addition, three accompanying strategies from the General Plan apply to the Proposed Project as follows:

- Strategy 3 – Require mitigation measures for all proposed projects which are found according to an Acoustical Analysis Report to be subject to incompatible CNEL values.
- Strategy 4 – Proposed land uses which generate noise should be subject to an Acoustical Noise Report with mitigation measures to be specified.
- Strategy 9 – Mitigation walls will be at least four feet high even if mitigation calculations call for a shorter wall.

There are no policies, strategies, or guidelines pertaining to vibration included in the City of Poway General Plan.

City of Poway Municipal Code

Chapter 8.08 of the City of Poway Municipal Code defines and regulates noise within the city limits. Section 8.08.040 identifies sound level limits according to land use zone or General Plan designation and time of day; this information is displayed in Table 4.12-5: City of Poway Sound Level Limits. The most restrictive limits include open space and residential uses, which have a maximum sound level of 50 dB between 7 a.m. and 10 p.m. Industrial zones, by comparison, have a maximum sound level of 70 dBA at any time. The sound level limit at a location along a boundary between two zoning districts is the mean of the respective limits for the two districts.

Section 8.08.100 of the Municipal Code defines sound level limits and hours of operation for construction equipment; the operation of construction equipment is limited to 75 dB over an eight-hour period between 7 a.m. and 5 p.m. on Mondays through Saturdays (except on public holidays or for emergency work). Construction equipment may be operated for up to 15 minutes over a 24-hour period at 90 dB, but the corollary sound level limit must be adjusted accordingly for the eight-hour period to accommodate the temporary increase in noise. Variances may be

provided by the city's noise control officer, according to the procedures set forth in Sections 8.08.220 and 8.08.230 of the Municipal Code.

Table 4.12-5: City of Poway Sound Level Limits

Zone or Land Use Designation	Time	One-Hour Average Sound Level Limits (dB)
OS-RM, OS, OS/1du, RR-A, RR-B, RR-C, RS-2, RS-3, RS-4, RS-7, and Specific Plan, PRD and PC regulations with a density of 11 dwelling units or less per acre	10 p.m. to 7 a.m.	40
	7 a.m. to 10 p.m.	50
PF, RA, RC, MHP, and Specific Plan, PRD and PC regulations with a density of 11 dwelling units or more 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
SPC, MU, CO, CN, CB, CG, TC, A/GC and HC	7 a.m. to 7 p.m.	60
	7 p.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	55
MRE, SC, LI, LI/S and IP	Anytime	70*

Source: City of Poway 2014

Existing Noise Levels

The sound levels in most communities fluctuate, depending on the activity of nearby and distant noise sources, the time of the day, or the season of the year. Within an hour, the sound level can fluctuate between the lowest level (L_{min}) and the highest level (L_{max}). Along the Proposed Project route, existing noise levels vary depending on the surrounding land uses. However, the majority of the Proposed Project route travels along major transportation corridors in the area, and all but approximately three miles of the Proposed Project route are within 0.5 mile of a major road or collector street. As a result, vehicular traffic on roadways is the most substantial source of noise within the Proposed Project area. There are several key factors associated with roadway or traffic noise, including traffic volumes, the speed of the traffic, the type or mix of vehicles using a particular roadway, and pavement conditions. Some roadways are heavily traveled by commuters during the morning and late afternoon peak hours, but have substantially less traffic during non-peak commuting hours. A detailed discussion of traffic volumes is provided in Section 4.16 Transportation and Traffic.

Because the Proposed Project route is located in close proximity to existing major roads and collector streets, the existing noise levels are anticipated to be similar to those identified for the established noise contours for these areas. Several local jurisdictions have modeled noise contours for their respective general plans; for the purposes of this analysis, these noise contours are used as the existing condition when evaluating potential noise impacts. Noise contour maps are included in Attachment 4.12-A: Noise Contour Maps. Table 4.12-6: Modeled Noise

Contours in the Vicinity of the Proposed Project displays noise contours modeled by the relevant jurisdictions in the vicinity of the Proposed Project as presented in their General Plans.

Table 4.12-6: Modeled Noise Contours in the Vicinity of the Proposed Project

Jurisdiction	Roadway	Segment	Approximate Distance from Pipeline Alignment	Noise Level (dBA CNEL)
County of San Diego	I-15	Within unincorporated areas of the county	0.5 to 0.75 mile	65-75
City of Escondido	I-15	Within city limits	Up to 0.5 mile	60-70
City of Escondido	Centre City Parkway	At the nearest sensitive receptor	25 to 45 feet	70-76
City of Escondido	Escondido Boulevard	At the nearest sensitive receptor	25 to 45 feet	65-70
City of Poway	Pomerado Road	Within city limits	50 feet	65-70

Sources: County of San Diego 2011; City of Escondido 2012; City of Poway 1991
Note: Escondido Boulevard is runs parallel and approximately 0.2 mile to the east of the Proposed Project between Milepost (MP) 22.8 and MP 25.6.

Existing ambient noise levels were monitored at locations near the two proposed pressure-limiting stations for 37 hours between June 2, 2015 and June 4, 2015. Noise measurements at the proposed Rainbow Pressure-Limiting Station were taken at the property line of the closest sensitive receptor; noise measurements near the Line 1600 Cross-Tie at a location close to the facility, which approximates the ambient noise at nearby Mule Hill Trail. Table 4.12-7: Noise Monitoring Summary presents the average and lowest noise levels at the Rainbow Pressure-Limiting Station and the Line 1600 Cross-Tie. Attachment 4.12-B: Noise Monitoring Results contains the noise measurements collected at the two pressure-limiting station locations.

Table 4.12-7: Noise Monitoring Summary

Monitoring Location	Jurisdiction	Lowest L_{eq} (1 hour) (dBA)	
		Nighttime	Daytime
Rainbow Pressure-Limiting Station	County of San Diego	48.6	58.4
Line 1600 Cross-Tie	City of San Diego	38.6	49.8

Existing Noise Sources

The dominant ambient noise sources in the Proposed Project area are transportation-related. Heavy on-road traffic from I-15, SR-52, and the existing adjacent road network—including Old Highway 395, Centre City Parkway, and Pomerado Road—account for a majority of the existing ambient noise. Aircraft traffic from commercial and military airplanes and helicopters—as well as the operation of existing utility facilities, including SDG&E's Rainbow Metering Station—are additional contributors to existing ambient noise in the Proposed Project area.

Noise-Sensitive Receptors

The Proposed Project area is dominated by residential and commercial land uses typical of rural and suburban development patterns. The Rainbow Metering Station property (i.e., MP 0) is bordered to the south by residential uses, to the west and east by commercial uses, and to the north by a mixture of commercial and residential uses. The next approximately 21 miles of the Proposed Project traverse lightly populated rural lands. Beginning near MP 21 until near MP 43.2, the Proposed Project traverse more urbanized settings along major roadways that pass through residential and commercial areas in close proximity to the Proposed Project route. The southernmost approximately three miles of the route cross predominantly open space and military uses where few, if any, sensitive receptors are located.

The nearest noise-sensitive receptors along the Proposed Project route are residences, schools, places of worship, one hospital, and several recreation areas, which are adjacent to the Proposed Project's right-of-way (ROW). Table 4.12-8: Sensitive Noise Receptors within 300 Feet of the Proposed Project provides a summary of the types of noise-sensitive receptors located within 300 feet of the Proposed Project. A distance of 300 feet from the Proposed Project was chosen in order to adequately capture those nearby sensitive receptors that could be exposed to construction noise from the Proposed Project and to correspond to the typical distance used for noticing property owners in the event of an expected exceedance of the noise standards adopted by the applicable jurisdiction. Section 4.14 Public Services and 4.15 Recreation provide additional detail on locations and distances of facilities from the Proposed Project.

Table 4.12-8: Sensitive Noise Receptors within 300 Feet of the Proposed Project

Receptor Type	Approximate Number of Sensitive Receptors[7]	Distance of Nearest Receptor to Proposed Project Route (feet)
Residential	8,200	Adjacent
Schools	13	Adjacent
Hospitals	1	Adjacent
Places of Worship	8	Adjacent
Parks/Outdoor Recreation Areas	9	Adjacent or crossed

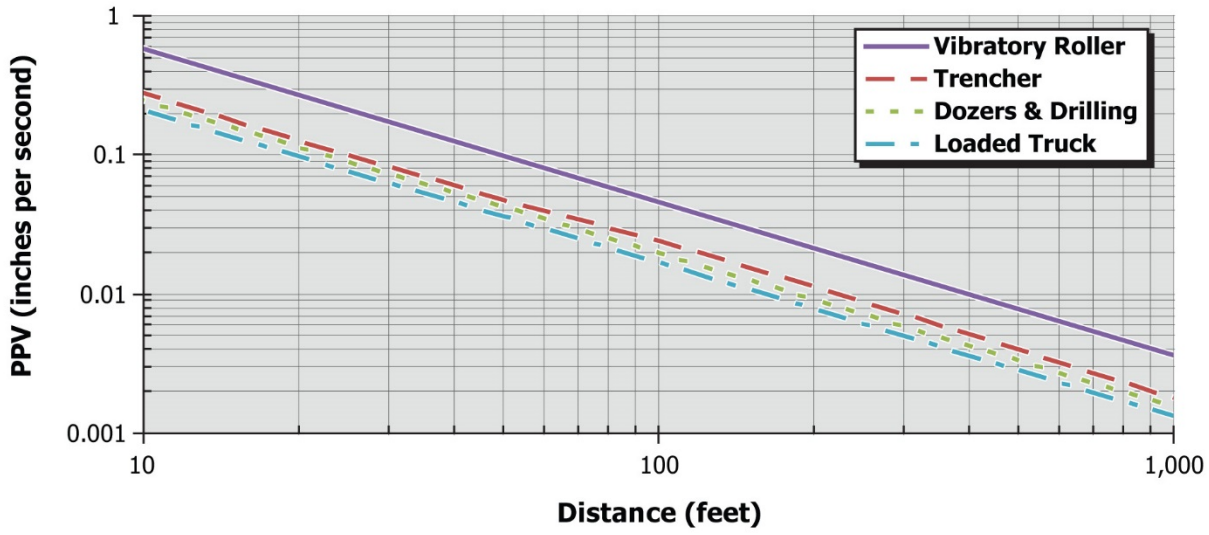
Sources: San Diego Geographic Information Source (SanGIS) 2012; Google 2014

[7] The approximate number of residential sensitive receptors is based the number of parcels zoned for each land use type within 300 feet of the Proposed Project's temporary ROW.

Vibration

Vibration amplitude decreases with distance from the source, as presented in Figure 4.12-1: Construction Vibration Amplitudes. Perceptibility of vibrations from construction equipment can be estimated by comparing the vibration thresholds provided in Table 4.12-1: Human Response to Transient Vibration to Figure 4.12-1: Construction Vibration Amplitudes. Vibration amplitudes with a PPV above 0.035 in/sec are perceptible to humans and will be considered potentially significant. This amplitude corresponds with a distance of 50 to 150 feet from construction activities.

Figure 4.12-1: Construction Vibration Amplitudes



Sources: Caltrans 2004; Acentech 2015

4.12.3 Impacts

Significance Criteria

Standards of significance were derived from Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Impacts to noise will be considered significant if the Proposed Project:

- Results in 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
- Results in exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels
- Results in a substantial permanent increase in ambient noise levels in the Proposed Project vicinity above levels existing without the project
- Results in a substantial temporary or periodic increase in ambient noise levels in the Proposed Project vicinity above levels existing without the project

- Lies 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 and, as a result, exposes people residing or working in the Proposed Project area to excessive noise levels

- Lies in the vicinity of a private airstrip and, as a result, exposes people residing or working in the Proposed Project area to excessive noise levels

The construction and operational noise thresholds of significance for the Proposed Project components have been derived from the applicable regulatory documents, as discussed previously in Section 4.12.2 Existing Conditions. A temporary increase of five dB is also used for significance criteria.

Question 4.12a – Noise in Excess of Standards

Construction – Potentially Significant Impact

Construction of all Proposed Project components will require the temporary use of various types of noise-generating equipment, including loaders, backhoes, excavators, dump trucks, compressors, and jackhammers, as listed in Attachment 3-B: Typical Construction Equipment List in Chapter 3 – Project Description. Typical noise levels from construction equipment are provided in Table 4.12-9: Noise Levels Generated by Typical Construction Equipment.

As demonstrated by this table, noise levels from equipment used during construction will typically range from 74 dBA to 89 dBA when measured at a distance of 50 feet; noise levels could be greater when more than one piece of equipment is used simultaneously. In addition, blasting may be required where bedrock is encountered near the surface and if conventional trenching techniques are not feasible or practical. In some areas, the bedrock may be weathered or fractured enough to allow trenching with an excavator, but the extent and specific locations will not be known until further geotechnical investigations are conducted. Blasting could result in noise at levels of 94 dBA or greater, and horizontal directional drill (HDD) activities could result in noise up to 85 dBA. The maximum noise levels adopted by each jurisdiction allow construction noise up to 75 dBA, or up to 75 dBA when averaged over an eight-hour period as measured at the property line. Due to the nature of linear construction, which requires usage of consecutive pieces of equipment along the route, maximum and average noise levels are anticipated to exceed adopted noise standards. However, whenever possible, construction of the Proposed Project will adhere to adopted times when construction is allowed. To address potential noise impacts, the Applicants will implement APM-NOI-01 and APM-NOI-02. APM-NOI-01 requires that the Applicants meet and confer with the relevant local jurisdiction(s)—if it is anticipated that construction noise levels will exceed adopted standards—and apply for deviations from the standards if necessary. APM-NOI-02 requires the development of a blasting plan, which will address conformance to state and local law related to blasting, including noticing of potentially affected residents and other sensitive receptors. Because the adopted standards will be exceeded, however, impacts will be potentially significant.

Table 4.12-9: Noise Levels Generated by Typical Construction Equipment

Equipment	Noise Level Range at Approximately 50 Feet (dBA)
Earth-Moving	
Front loader	79 – 80
Backhoe	78 – 80
Tractor, dozer	82 – 85
Scraper, grader	84 – 85
Paver	77 – 85
Truck	74 – 84
Street sweeper	80 – 82
Materials-Handling	
Concrete mixer truck	79 – 85
Concrete pump	81 – 82
Crane (movable)	81 – 85
Stationary	
Pump	77 – 81
Generator	70 – 82
Compressor	78 – 80
Impact	
Jackhammers and rock drills	81 – 89
Compactors	80 – 83
HDD	80 – 85

Source: Federal Highway Administration (FHWA) 2006a

Operation and Maintenance – Potentially Significant Impact

The only Proposed Project components that generate noise during operation are the above-ground facilities—specifically, pressure-limiting stations and metering stations.

A new pressure-limiting station will be constructed adjacent to (i.e., south of) the existing Rainbow Metering Station, which is located in an unincorporated area of San Diego County. As discussed in Section 4.12.2 Existing Conditions, the County Code restricts the creation of any noise that exceeds the one-hour average sound level limits listed in Table 4.12-2: County of San Diego Sound Level Limits when the sound level is measured at the property line where the noise is produced or at any location on a property that is receiving the noise.

The property to the south of the proposed location for the Rainbow Pressure-Limiting Station is located on a parcel zoned A70 according to the County of San Diego Zoning Map. Monitoring of ambient noise at the property line of this facility indicates that the lowest one-hour L_{eq} at this location is 48.6 dBA. Pressure-limiting stations typically produce 75 dBA to 95 dBA when measured three feet from the equipment, depending on flow rates and operating pressures. The anticipated operational noise level at the closest sensitive receptor's property line, which is located approximately 101 feet from the pressure-limiting equipment, is anticipated to be 44.5 dBA to 64.5 dBA. The County of San Diego noise ordinance limits one-hour average sound levels at this parcel to 45 dBA between 10:00 p.m. and 7:00 a.m.; this is the most restrictive time period in terms of sound level limits for this zone.

The second facility with pressure-limiting equipment is proposed at the Line 1600 Cross-Tie, which is situated within the City of San Diego. This property, as well as the Mule Hill Trail, are zoned AG-1-1. Monitoring of ambient noise in this area indicates that the lowest one-hour L_{eq} at this location is 38.6 dBA. The anticipated operational noise level at Mule Hill Trail, which is approximately 18 feet from the pressure-limiting equipment, is anticipated to be 66.5 dBA to 86.5 dBA. The City of San Diego's Noise Abatement and Control Ordinance prohibits the creation of noise that exceeds 75 dBA over a one-hour period on lands zoned for agriculture.

Because the pressure-limiting equipment will operate continuously throughout the day, the Applicants will implement APM-NOI-03, which will require that these components are designed with available and feasible technologies to reduce potential noise to below the maximum dBA established in the relevant jurisdiction's noise ordinance. Design features may include—but are not limited to—increasing wall heights, adding noise reduction materials into the design, and/or placing valves at a greater depth below the ground surface. With the implementation of APM-NOI-03, any potential impacts from operational noise at these facilities will be reduced to a less-than-significant level.

Maintenance activities required for the pipeline, mainline valves, pressure-limiting station, and metering station will require periodic testing and inspection, as well as periodic servicing or repair of facilities. These activities will be conducted in the same manner as the activities that are currently conducted for existing pipelines in the vicinity. During rare operational and/or emergency circumstances, a blowdown at a mainline valve may be required. Blowdowns involve a temporary release of natural gas at high pressures. Noise associated with blowdowns can reach estimated levels of approximately 140 dB and will typically will last 10 to 20 minutes.

Depending on site conditions and time of day, noise silencers can be used during these activities to minimize noise levels related to blowdowns. Noise level increases from these activities will be infrequent and short-term in nature. However, it is possible that temporary noise associated with the blowdowns will exceed the noise standards established by each jurisdiction. As a result, impacts could be potentially significant.

Question 4.12b – Groundborne Vibration and Noise

Construction – Less-than-Significant Impact

Construction activities can generate varying degrees of ground-borne vibration, depending on the construction procedure and the construction equipment used. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiving buildings. Table 4.12-1: Human Response to Transient Vibration shows that vibration becomes perceptible by humans at an amplitude of approximately 0.035 in/sec. When compared to Figure 4.12-1: Construction Vibration Amplitudes, a PPV of 0.035 in/sec is generated at a distance of approximately 50 feet by a loaded truck. Although the closest receptors will be located closer than 50 feet from the Proposed Project ROW, any perceivable levels of ground-borne vibration will be momentary as loaded trucks pass in the vicinity of sensitive receptors and then move on.

Vibration will also occur during trenching, horizontal boring, and HDD. As shown in Figure 4.12-1: Construction Vibration Amplitudes, trenching activities will generate PPVs of 0.035 and greater at distances up to 70 feet. However, these activities will be short-term and temporary and will move down the alignment as construction progresses. If areas of bedrock are encountered and blasting is required, the Applicants will develop a blasting plan as required by APM-NOI-02. Because impacts related to blasting are short-term and impacts will be minimized by the implementation of APM-NOI-02, any potential impacts from ground-borne vibration will be reduced to less-than-significant levels.

Operation and Maintenance – Less-than-Significant Impact

Increases in vibration from normal operation and maintenance are not anticipated. Vibration generated by any Proposed Project components as a result of required operation or maintenance activities, if any, will be negligible. Operation and maintenance activities will be conducted in the same manner as they are for other existing pipeline facilities in the vicinity of the Proposed Project. As a result, no impact due to vibration from operation and maintenance will occur.

Question 4.12c – Permanent Ambient Noise Increases

Construction – No Impact

Construction activities will occur within a finite timeframe; therefore, no permanent increase in noise will occur. As a result, there will be no impact.

Operation and Maintenance – Less-than-Significant Impact

As described in the response to Question 4.12a – Noise in Excess of Standards, the primary sources of operational noise for the Proposed Project will occur as a result of operating the pressure-limiting equipment at the Rainbow Pressure-Limiting Station and at the Line 1600 Cross-Tie. The Rainbow Pressure-Limiting Station is estimated to operate at noise levels of 44.5 dBA to 65.5 dBA when measured at the property line of the nearest sensitive receptors. The Line 1600 Cross-Tie, where another pressure-limiting station will be located, is expected to operate at noise levels of 66.5 dBA to 86.5 dBA, when measured at the property line of the nearest sensitive receptor. However, in order to comply with applicable noise ordinances, the Applicants will implement APM-NOI-03 to design these facilities by using existing technologies to limit operational noise to conform to the noise ordinance of the applicable jurisdiction. Design features may include—but are not limited to—increasing wall heights, adding noise reduction materials into the design, and/or placing valves at a greater depth below the ground surface. As a result, impacts related to permanent ambient noise levels will be less than significant.

Question 4.12d – Temporary or Periodic Ambient Noise Level Increases

Construction – Potentially Significant Impact

Construction of the Proposed Project will result in temporary impacts, as described in the response to Question 4.12a – Noise in Excess of Standards, and noise generated by construction equipment is anticipated to reach 74 dBA to 89 dBA when measured at a distance of 50 feet from construction activities. Noise generated during construction could be greater than these levels when two or more pieces of equipment are used simultaneously. Sensitive receptors closest to the construction will experience temporary increases in noise levels. While construction of the Proposed Project is anticipated to take 12 to 18 months to complete, construction activities are anticipated to occur at each location only for a short period of time, as construction activities along the Proposed Project route are expected to progress at a rate of approximately 200 to 300 feet per day.

Construction of the Proposed Project will involve the use of HDD. Two of the HDD entry/exit locations will be within 350 feet and 700 feet of two residences, located at MP 11.9 and MP 29.8, respectively. The HDD equipment will operate at noise levels of approximately 85 dBA. At the residential property lines, the noise levels will be approximately 68 dBA and 62 dBA, respectively, and therefore, will operate at levels below the 75 dBA construction maximums allowed by the jurisdictions.

Construction of the Proposed Project may also require blasting if bedrock is encountered, and blasting could result in temporary noise reaching 94 dBA or greater at 50 feet. As previously noted, the Applicants will implement APM-NOI-02, which requires the development of a blasting plan, which will reduce impacts related to blasting.

In order to further reduce potential construction noise impacts, the Applicants will implement APM-NOI-04, which provides for noticing of potentially affected noise-sensitive receptors. Although the implementation of this APM, as well as APM-NOI-01and APM-NOI-02, will help

to reduce the severity of temporary noise impacts related to construction, noise impacts of the Proposed Project will remain potentially significant.

Operation and Maintenance – Less-than-Significant Impact

Regular maintenance of the Proposed Project facilities will occur in the same manner as required by existing pipelines and facilities in the vicinity of the Proposed Project; these activities will include operation of testing and maintenance equipment, as well as the use of vehicles to transport workers and equipment. As discussed previously, a blowdown at one of the mainline valves may be required infrequently during maintenance and/or emergency circumstances. Noise associated with blowdowns can reach noise levels of approximately 140 dBA. Depending on site conditions and time of day, noise silencers can be used during these activities to reduce noise levels related to blowdowns. Noise level increases from these activities will be infrequent and short-term in nature. Regardless, the Applicants will coordinate with nearby residents and businesses to ensure that noise from blowdowns does not adversely affect them. Because these activities will occur infrequently, and any equipment use will be short-term in nature, potential impacts are anticipated to be less than significant.

Question 4.12e – Air Traffic Noise from Airports – *Less-than-Significant Impact*

The Proposed Project is not located within an airport land use plan area, nor is it within two miles of a public use airport. Approximately 2.6 miles of the Proposed Project will be located on MCAS Miramar in areas identified as having elevated noise levels due to the military's aircraft operations. According to the noise contours modeled for MCAS Miramar's Air Installations Compatible Use Zones Update, noise levels in this area are projected to range from 60 dBA to 75 dBA CNEL. Construction activities in this area will be temporary, and elevated noise levels will not be sustained during the entirety of construction activities. People working on the Proposed Project or on MCAS Miramar will be exposed to temporary increases in ambient noise due to construction. The Proposed Project, however, will not result in the construction of new housing or residents in this area, and the pipeline is an unmanned facility. Therefore, additional exposure associated with the Proposed Project will be limited, and impacts during construction will be less than significant. Similarly, operation and maintenance activities for the Proposed Project will occur in the same manner and with similar frequency as those currently conducted for existing pipelines in the vicinity; therefore, no impact will occur during operation and maintenance of the Proposed Project.

Question 4.10f – Air Traffic Noise from Private Airstrips – *No Impact*

There are no private airstrips located within three miles of the Proposed Project. As a result, no impacts related to additional noise from airstrips will occur.

4.12.4 Applicants-Proposed Measures

The Applicants will implement the following APMs to minimize potential noise impacts from the Proposed Project:

- **APM-NOI-01:** If it is anticipated that construction noise will exceed locally adopted noise limits, the Applicants will meet and confer with the relevant jurisdiction(s). If required by the local ordinance, the Applicants will apply for deviations from the adopted

noise standards. Construction activities will occur during the times established by the local ordinances (generally between 7 a.m. and 7 p.m., Monday through Saturday), with the exception of certain activities that require nighttime and weekend construction activities, such as activities that require continuous operation or that must be conducted during off-peak hours per agency requirements. If construction activities are required outside of hours approved by the applicable jurisdiction, the Applicants will meet and confer with the agency and provide a five-day notice to the agency, the California Public Utilities Commission, and sensitive receptors within 300 feet of the proposed construction activity.

- **APM-NOI-02:** If blasting is deemed necessary for the construction of project components, the Applicants shall conduct a pre-blast survey and prepare a blasting plan. The blasting plan will be site specific, based on the locations of required blasting and the results of a Proposed Project-specific geotechnical investigation. The blasting plan will include a description of the planned blasting methods, an inventory of receptors potentially affected by the planned blasting, and a schedule for the blasting activities. The blasting plan will include requirements for noticing, as well as measures to minimize noise related to blasting to the extent feasible.

- **APM-NOI-03:** The Applicants will incorporate noise attenuation measures into the final design to the extent feasible to reduce operational noise levels from pressure-limiting equipment and to achieve one-hour average sound levels at or below the existing limits provided in the current applicable noise ordinances for the locations of these facilities.

- **APM-NOI-04:** The Applicants or their construction contractor will provide advance notice (i.e., no less than two weeks prior to construction) by mail to all identified sensitive receptors and residences within 300 feet of construction sites, staging areas, and access roads. The announcement will state specifically where and when construction will occur in the area. If construction is delayed by more than 30 days, an additional notice will be made, either in person or by mail. Notices will provide tips on reducing noise intrusion (e.g., closing windows facing the planned construction). The notice will also advise the recipient on how to inform the Applicants if other specific noise- or vibration-sensitive activities are scheduled at the same time; if necessary, the Applicants may reschedule construction to avoid a conflict. The Applicants will also publish a notice of impending construction in local newspapers, stating when and where construction will occur.

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ATTACHMENT 4.12-A: NOISE CONTOUR MAPS

ATTACHMENT 4.12-B: NOISE MONITORING RESULTS