Appendix I

Noise Technical Report

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Noise Technical Report

Imperial County Lithium Valley Specific Plan

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Prepared for:

COUNTY OF IMPERIAL

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
ANSI	American National Standards Institute
CDP	census designated place
CEQA	California Environmental Quality Act
CNEL	community noise equivalent level
County	Imperial County, California
dB	decibel
dBA	A-weighted decibel
e.g.	for example
FEIS	final environmental impact study
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HVAC	heating, ventilating, and air-conditioning
Hz	Hertz (unit of cycles per second)
i.e.	that is
ISO	International Organization of Standardization
kHz	kilohertz
L90	sound level exceeded 90% of the time
Ldn	day-night sound level
Leq	energy-equivalent sound level
Leq[1h]	hourly energy-equivalent sound level
Lmax	maximum sound level during a period
Lmin	minimum sound level during a period
LT	long-term
mPa	micro-Pascals (unit of pressure)
NAVFAC	Naval Facilities & Engineering Command
OPR	office of planning and research
Project	Lithium Valley Specific Plan
SPL	sound pressure level

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1 Introduction

1.1 Executive Summary

This Noise Technical Report was prepared for the Lithium Valley Specific Plan (Specific Plan), a Specific Plan to support existing and expansion of renewable energy (i.e., geothermal and solar) development, lithium extraction, and associated infrastructure and industrial uses. The Specific Plan is located in the northern portion of the Imperial Valley along the southeastern portion of the Salton Sea.

The purpose of this Noise Technical Report is to assess the potential noise and vibration impacts associated with implementation of the proposed Specific Plan. This assessment uses the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), as well as standards established in the Imperial County and City of Calipatria general plan and noise ordinances, in determining the significance of Specific Plan impacts related to noise.

This Noise Technical Report evaluated the potential for Project-generated construction and operational sound emissions that could result in adverse impacts to sensitive receptors (i.e., humans). This Noise Technical Report also includes an assessment of ground-borne vibration impacts to sensitive receptors (i.e., structures and humans) based on vibration significance guidelines for Project construction and operation. As described below, this Noise Technical Report concludes that construction and operational noise and vibration levels would not exceed CEQA thresholds with implementation of mitigation.

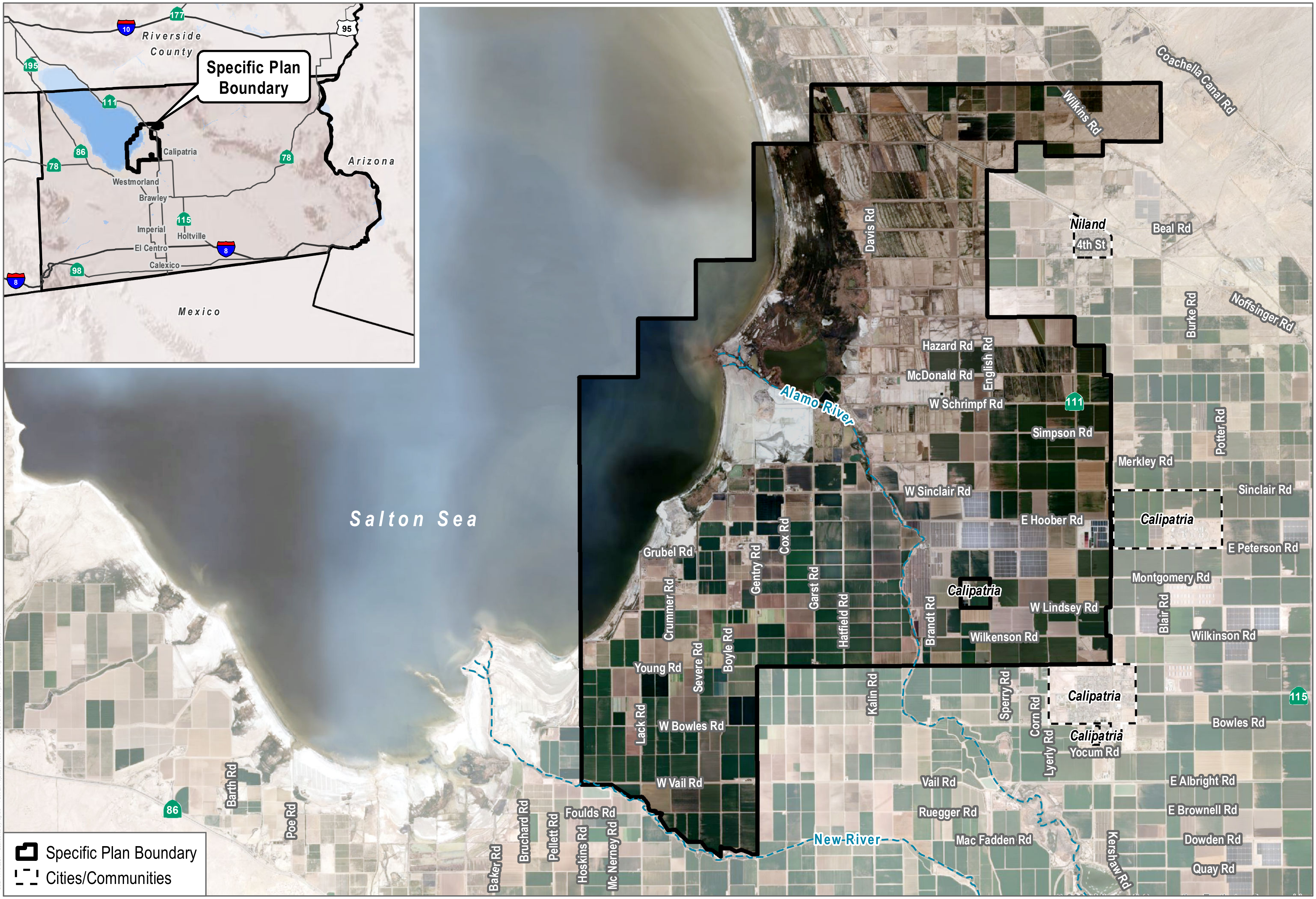
1.2 Background

The County is developing the Specific Plan to support existing and expansion of renewable energy (i.e., geothermal and solar) development, lithium extraction, and associated infrastructure and industrial uses. Federal and state renewable energy and greenhouse gas reduction goals are driving the need to find additional utility-scale renewable energy sources as well as the raw materials for battery-powered vehicles, and this area of Imperial County is poised to provide these resources provided that sufficient facilities and infrastructure are developed. The Specific Plan and associated environmental document are being developed to frame and guide this development.

A Draft Baseline Report for the Specific Plan was prepared for Imperial County on May 2023 and included Chapter 9.11 that provided information to establish the existing conditions for noise resources in the vicinity of the Specific Plan. This information may be referenced or updated herein to help frame the Specific Plan noise and vibration assessment.

1.3 Planning Area

The 51,786-acre planning area for the Specific Plan is located in the northern portion of the Imperial Valley along the southeastern portion of the Salton Sea (Figure 1, Planning Area). The irregularly shaped planning area spans from the Imperial Wildlife Area Wister Unit northwest of Niland, California (a census designated place [CDP] within the County) in the north to Calipatria, California in the south. On the southwest, the planning area is bounded by the New River and includes the shoreline and open water portions of the Salton Sea from Vail Seven Drain north past the mouth of the Alamo River to Beach Road. The planning area is located in a portion of the following USGS quadrangles: Iris Wash, Niland, Obsidian Butte, Westmorland West, Westmorland East, and Wister.



SOURCE: Open Street Map; Bing Maps (2022-12-06)

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FIGURE 1

Planning Area

Lithium Valley Specific Plan

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1.4 Acoustical Fundamentals

Sound, Noise, and Acoustics

Sound is a process that consists of three components: the sound source, the sound path, and the sound receiver. All three components must be present for sound to exist. Without a source to produce sound, there is no sound. Similarly, without a medium to transmit sound pressure waves, there is no sound. Finally, sound must be received; a hearing organ, sensor, or object must be present to perceive, register, or be affected by sound or noise. In most situations, there are many different sound sources, paths, and receptors rather than just one of each. Acoustics is the field of science that deals with the production, propagation, reception, effects, and control of sound. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired.

Sound Pressure Levels and Decibels

The amplitude of a sound determines its loudness. Loudness of sound increases with increasing amplitude. Sound pressure amplitude is measured in units of micronewton per square meter, also called micropascal. One micropascal is approximately one-hundred billionth (0.00000000001) of normal atmospheric pressure. The pressure of a very loud sound may be 200 million micropascals, or 10 million times the pressure of the weakest audible sound. Because expressing sound levels in terms of micropascal would be very cumbersome, sound pressure level in logarithmic units is used instead to describe the ratio of actual sound pressure to a reference pressure squared. These units are called bels. To provide a finer resolution, a bel is subdivided into 10 decibels (dB).

A-Weighted Sound Level

Sound pressure level alone is not a reliable indicator of loudness. The frequency, or pitch, of a sound also has a substantial effect on how humans will respond. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness, or human response, is determined by the characteristics of the human ear.

Human hearing is limited not only in the range of audible frequencies, but also in the way it perceives the sound in that range. In general, the healthy human ear is most sensitive to sounds between 1,000 and 5,000 hertz, and it perceives a sound within that range as more intense than a sound of higher or lower frequency with the same magnitude. To approximate the frequency response of the human ear, a series of sound level adjustments is usually applied to the sound measured by a sound level meter. The adjustments (referred to as a weighting network) are frequency dependent.

The A-scale weighting network approximates the frequency response of the average young ear when listening to ordinary sounds. When people make judgments about the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special situations (e.g., C-scale), but these scales are rarely used in conjunction with most environmental noise. Noise levels are typically reported in terms of A-weighted sound levels. All sound levels discussed in this report are A-weighted decibels (dBA). Examples of typical noise levels for common indoor and outdoor activities are depicted in Table 1.

Table 1. Typical Noise Levels Associated with Common Activities

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Flyover at 1,000 feet	105	
	100	
Gas Lawn Mower at three feet	95	
	90	
Diesel Truck at 50 feet, 50 miles per hour	85	Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime	75	
	70	Vacuum Cleaner at 10 feet
Commercial Area	65	Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
	55	Large Business Office
Quiet Urban Daytime	50	Dishwasher (in next room)
	45	
Quiet Urban Nighttime	40	Theater, Conference Room (background)
Quiet Suburban Nighttime	35	
	30	Library
Quiet Rural Nighttime	25	Bedroom at Night, Concert Hall (background)
	20	
	15	Broadcast/Recording Studio
	10	
	5	
Lowest Threshold of Human Hearing (Healthy)	0	Lowest Threshold of Human Hearing (Healthy)

Source: Caltrans 2020a. **Notes:** dBA = A-weighted decibel.

Human Response to Changes in Noise Levels

Under controlled conditions in an acoustics laboratory, the trained, healthy human ear can discern changes in sound levels of 1 dBA when exposed to steady, single-frequency signals in the mid-frequency range. It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dBA. A change of 5 dBA is readily perceptible, and a change of 10 dBA is perceived as twice or half as loud. A doubling of sound energy results in a 3 dBA increase in sound, which means that a doubling of sound energy (e.g., doubling the volume of traffic on a road) would result in a barely perceptible change in sound level).

Noise Descriptors

Units of measure have been developed to evaluate the long-term characteristics of sound. The equivalent sound level (L_{eq}) is also referred to as the time-averaged or energy-averaged sound level. It is the equivalent steady-state sound level that in a stated period of time would contain the same acoustical energy as the time-varying sound level during the same time period. For instance, the 1-hour A-weighted equivalent sound level, $L_{eq(1h)}$, is the energy average of the A-weighted sound levels occurring during a 1-hour period and is often the basis for a jurisdiction's criteria to define exterior noise thresholds per its regulations.

Sound Propagation

Sound propagation (i.e., the passage of sound from a noise source to a receiver) is influenced by geometric spreading, ground absorption, atmospheric effects, and shielding by natural and/or built features. Sound levels attenuate (or diminish) at a rate of approximately 6 dBA per doubling of distance from an outdoor point source due to the geometric divergence or "spreading" of the sound waves. Atmospheric conditions such as humidity, temperature, and wind gradients introduce further effects that may temporarily increase or decrease sound levels at a receptor position. In general, the greater the distance the receiver is from the source, the greater the potential for variation in sound levels due to these atmospheric effects. Additional sound attenuation can result from built features such as intervening walls and buildings, and by natural features such as path-occluding hills and wide, dense expanses of forested ground cover.

Ground-borne Vibration

Ground-borne vibration is fluctuating or oscillatory motion transmitted through the ground mass (i.e., soils, clays, and rock strata). The strength of ground-borne vibration attenuates rapidly over distance. Some soil types transmit vibration quite efficiently; other types (primarily sandy soils) do not. Several basic measurement units are commonly used to describe the intensity of ground vibration. The descriptors used by the Federal Transit Administration (FTA) are peak particle velocity (PPV), in units of inches per second (ips), and velocity decibel (VdB) that is based on a root-mean square (RMS) of the vibration signal magnitude. Per the California Department of Transportation (Caltrans) Transportation and Construction Vibration Guidance Manual (Caltrans 2020b), the calculation to determine PPV at a given vibration source to receptor distance is as follows:

$$PPV_{distance} = PPV_{ref}*(25/D)^{1.1}$$

Where:

$PPV_{distance}$ = the peak particle velocity in inches per second of the equipment adjusted for distance

PPV_{ref} = the reference vibration velocity in inches per second at 25 feet

D = the distance from the equipment to the receptor

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2 Regulatory Setting

2.1 Federal

Noise Control Act

The Noise Control Act of 1972 and its subsequent amendments in the Quiet Communities Act of 1978 (42 United States Code [U.S.C.] 4901 et seq.) delegate authority to the states to regulate environmental noise and direct government agencies to ensure compliance with local community noise statutes and regulations.

Federal Transit Administration

In its Transit Noise and Vibration Impact Assessment guidance manual, the FTA recommends a daytime construction noise level threshold of 80 dBA L_{eq} over an eight-hour period when detailed construction noise assessments are performed to evaluate potential impacts to community residences surrounding a Project (FTA 2018). The FTA also recommends using a construction noise threshold of 75 dBA L_{dn} averaged over 30 days for residences exposed to construction noise lasting 30 days or longer. Although this FTA guidance is not a regulation, it can serve as a quantified standard in the absence of such limits at the state and local jurisdictional levels.

2.2 State

California Code of Regulations Title 24

The State of California has adopted noise standards in areas of regulation not preempted by the federal government. State standards regulate noise levels of motor vehicles, sound transmission through buildings, occupational noise control, and noise insulation. State regulations governing noise levels generated by individual motor vehicles and occupational noise control typically preempt local regulation. State noise regulations and policies applicable to the Project include Title 24 requirements and noise exposure limits for various land use categories.

The 2019 California Building Code (CBC, Part 2, Title 24, Section 1204.4, California Code of Regulations) stipulates "interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be either the day-night average sound level (L_{dn}) or the community noise equivalent level (CNEL)" (ICC 2019). These noise levels are accomplished through various noise attenuation features, including insulation, required by the California Building Code (see CBC Section 1206.2 and 1206.3). The California Building Code is applicable to all development in California (Health and Safety Code Section 17950).

California Department of Transportation Vibration Standards

The California Department of Transportation (Caltrans) conducted extensive research on human annoyance and damage to structures caused by vibration from short term construction activities and from long term highway operations and has published criteria for vibration management (Transportation and Construction Vibration Guidance Manual 2020). These criteria established by Caltrans are commonly used to assess vibration impacts from all types of Projects and activities. Caltrans uses a threshold of 0.2 in/sec PPV for annoyance to persons, where a continuous vibration source is involved; for transient sources (represented by construction activities), Caltrans uses a threshold of 0.24 in/sec PPV (which equates to a distinctly perceptible level). For ground-borne noise, Caltrans uses a daytime threshold of 78 VdB for residential occupants. For commercial buildings constructed of concrete and steel, Caltrans identifies a damage threshold of 0.5 in/sec PPV. For residential structures employing concrete foundation and wood frame construction, Caltrans identifies a conservative damage threshold vibration level standard of 0.3 in/sec PPV (Caltrans 2020b).

2.3 Local

Imperial County General Plan Noise Element

The Imperial County General Plan Noise Element (Imperial County 2015) sets goals and policies for ensuring compatibility between outdoor ambient noise environments and existing and proposed land uses. These goals include land use compatibility noise standards are presented in Figure 2, Noise Compatibility Guidelines for Imperial County.

The goals and objectives that would relate to the Project are reproduced as follows.

Goal 1 – Noise Environment: Provide an acceptable noise environment for existing and future residents in Imperial County.

Objective 1.1: Adopt noise standards which protect sensitive noise receptors from adverse impact.

Objective 1.2: Ensure that noise standards and policies are compatible with the standards and policies of other General Plan Elements and other County agencies.

Objective 1.3: Control noise levels at the source where feasible.

Objective 1.4: Coordinate with airport operators to ensure operations are in conformance with approved Airport Land Use Plans.

Objective 1.5: Identify sensitive receptors with noise environments which are less than acceptable and evaluate measures to improve the noise environment.

Objective 1.6: Collect data for existing noise sources in the County in order to improve the data base and enhance the ability to evaluate proposed projects and land uses.

Goal 2 – Project/Land Use Planning: Review proposed projects for noise impacts and require design which will provide acceptable indoor and outdoor noise environments.

Objective 2.1: Adopt criteria delineating projects which should be analyzed for noise impact to sensitive receptors.

Objective 2.2: Provide acoustical analysis guidelines which minimize the burden on project proponents and project reviewers.

Objective 2.3: Work with project proponents to utilize site planning, architectural design, construction, and noise barriers to reduce noise impacts as projects are proposed.

Goal 3 – Long Range Planning: Provide for environmental noise analysis inclusion in long range planning activities which affect the County.

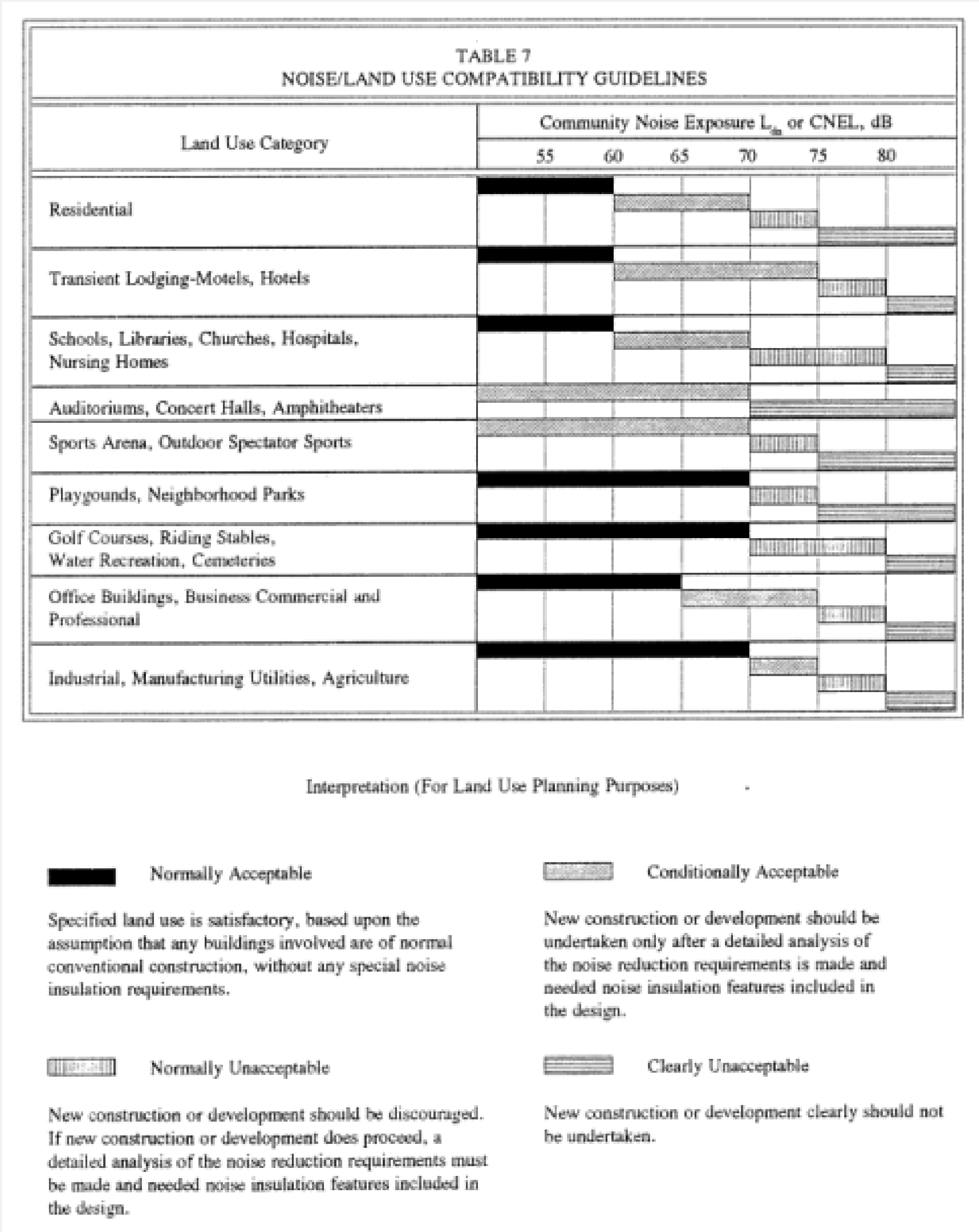
Objective 3.1: Adopt procedures for the preparation of Specific Plans which include the requirement for a noise impact analysis.

Objective 3.2: Coordinate regularly with Caltrans to obtain information on trends and plans for roadway changes and improvements which would affect the noise environment.

With respect to construction noise standards, Section IV.C.3 of the Noise Element states the following:

"Construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB L_{eq}, when averaged over an eight (8) hour period, and measured at the nearest sensitive receptor. This standard assumes a construction period, relative to an individual sensitive receptor of days or weeks. In cases of extended length construction times, the standard may be tightened so as not to exceed 75 dB L_{eq} when averaged over a one (1) hour period. Construction equipment operation shall be limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m. Saturday. No commercial construction operations are permitted on Sunday or holidays. In cases of a person constructing or modifying a residence for himself/herself, and if the work is not being performed as a business, construction equipment operations may be performed on Sundays and holidays between the hours of 9 a.m. and 5 p.m. Such non-commercial construction activities may be further restricted where disturbing, excessive, or offensive noise causes discomfort or annoyance to reasonable persons of normal sensitivity residing in an area."

Figure 2. Noise Compatibility Guidelines for Imperial County



Source: Imperial County 2015

Imperial County Noise Ordinance

Imperial County establishes its noise regulations in Title 9, Division 7 of its municipal code. Exterior noise limits are based on what is measured at or beyond the property line of the source and depend on the time of day as reproduced in Table 2 from Section 90702.00.A (Sound Level Limits).

Table 2. Imperial County Exterior Noise Limits

Land Use Type(s)	Exterior Noise Limits (L_{eq1hr}, dBA)	
	Daytime[1]	Nighttime[1]
Residential (all zoned R-1)	50	45
Residential (all zoned R-2)	55	50
Residential (R-3, R-4, and all other residential)	55	50
Commercial	60	55
Manufacturing, all other industrial, including agricultural and extraction industry	70	70
General industrial	75	75

Source: Imperial County
Notes: L_{eq1hr} = one-hour energy-equivalent sound level
1 Daytime is defined as 7:00 a.m. to 10:00 p.m.
2 Nighttime is defined as 10:00 p.m. to 7:00 a.m.

Per Section 90702.00.B, where two differing land use types adjoin, the sound level limit shall be measured at the property line between the properties. However, these noise limits are not applicable to air traffic, agricultural operations, to Cities or the County, nor to emergency vehicles. (Section 90702.00(E), (F), and (G).) Vehicular noise levels are controlled by California Vehicle Code Section 23130. (Section 90702.01.) Applicants can also request a noise variance pursuant to the procedures under Imperial County Code Section 90202.05.

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3 Existing Conditions

The existing conditions described in this report were developed from a combination of empirical data, industry reference information, and predictive methods as summarized in the following subsections.

3.1 Noise Emission Sources

Surface Transportation Routes

Major existing surface transportation routes within the Specific Plan area include California State Highway 111 (SR-111) and a freight rail line, both of which generally parallel the eastern edge of the Plan Area. Table 3 from the Imperial County General Plan Noise Element (Imperial County 2015) provides estimated noise levels in the vicinity of many roadway segments within the County, including SR-111, and presents horizontal distances from the studied roadway segments at which a 60 CNEL can be expected. For example, north of SR-115, the distance to 60 CNEL from the SR-111 is predicted to be 865 feet, and south of SR-111 is 910 feet. Both of these are considered within the Calipatria community southeast of the Plan Area.

Aviation

In addition to occasional civilian aviation traffic and commercial aviation traffic, the latter of which occurs at high elevation that results in intermittent and relatively low-magnitude noise exposure levels near the ground, the Plan Area is surrounded by several portions of the Bob Stump Training Range, which includes restricted areas identified as “R-2507N” and “R-2507S” within the Chocolate Mountain Artillery Range (CMAGR) to the northeast, “R-2512” to the southeast, and “R2510A” and “R-2510B” to the southwest as appearing in Figure 6.2.14-1 of the West Coast Basing of the MV-22 FEIS (NAVFAC 2009). Flight operations in the Project vicinity would thus occlude occasional overflights by fixed-wing and rotary-wing aircraft, such as AH-1W Huey Super Cobra helicopters that were observed and measured as discussed in Section 3.2 herein.

Industrial, Commercial, Agricultural, and Institutional

Table 3 lists existing operating industrial, commercial, agricultural, and institutional facilities that were input as locations in the sound propagation model described in Section 3.2 and from which several representative major noise-producing equipment types are known (or assumed, based on facility function) to emit noise to the outdoor ambient sound environment.

Table 3. Modeled Existing Operating Industrial Facilities and Major Sound Sources

Facility Name (and tag used in sound propagation model)	Estimated major sound emission sources at each named Facility site (and estimated sound pressure level [SPL] at indicated distance)
Earthrise Nutritionals (EriseN) and Viridos (Viridos)	pumps (74 dBA at 50 feet); refrigeration compressors and air-cooled condensers (82 dBA at 50 feet); “Sonic Sentinel” bird-deterrent sound cannon (60 dBA hourly L_{eq} at 50 feet)
Calipatria State Prison (CSP)	pumps (74 dBA at 50 feet); ventilation fans (79 dBA at 50 feet); generator (69 dBA at 50 feet); air compressor (74 dBA at 50 feet)

Table 3. Modeled Existing Operating Industrial Facilities and Major Sound Sources

Facility Name (and tag used in sound propagation model)	Estimated major sound emission sources at each named Facility site (and estimated sound pressure level [SPL] at indicated distance)
Hudson Ranch (HR1), Elmore Geothermal Facility (EGF), CalEnergy 1 (CalE1a, CalE1b), CalEnergy 2 (CalE2), CalEnergy 3 (CalE3), CalEnergy 4 (CalE4a, CalE4b, CalE4c), Orni Power Plant Site (Orni21 west and east sites), ATLiS (south and west sites)	pumps (74 dBA at 50 feet); cooling towers (88 dBA at 50 feet); organic vapor turbines (83 dBA at 50 feet); substation transformers (60 dBA at 50 feet)
Brandt Cattle (BrandtC)	pumps (74 dBA at 50 feet); ventilation fans (79 dBA at 50 feet); generator (69 dBA at 50 feet); air compressor (74 dBA at 50 feet)
PV solar electrical generation facility on E. Hoober Road (PVI01 through PVI47)	PV solar inverter (84 dBA at 10 feet)

Sources: FHWA 2006; Dudek 2022; U.S. Department of Energy 2011; Beranek & Ver 1992; Bies & Hansen 1996

3.2 Predictive Modeling Methods

The existing outdoor ambient sound environment of the Plan Area and its surroundings that can be measured or perceived at any listener (a.k.a., receiver) position is an amalgam of natural and artificial noise sources. These noise sources may be mobile or stationary, near or distant from a receiver position, vary in spectral character (i.e., broadband or tonal), and be either continuous, intermittent, or impulsive. For purposes of this analysis, the existing outdoor noise levels for the Plan Area are estimated as a logarithmic summation of three major component types:

1. Surface transportation routes (highways and railroads);
2. Stationary sources attributed to residential, office, and retail commercial activities and their typical noise-producing systems (e.g., heating, ventilating, and air-conditioning systems [HVAC]); and
3. Stationary sources attributed to manufacturing and industrial activities, which would include power generation (both geothermal and solar) and mineral extraction projects that are characteristic of existing development in the Plan Area.

Aviation noise is also a common acoustical contributor to the outdoor sound environment in the Plan Area, as sampled empirically and discussed below; however, because its occurrence is not as frequent as the three above-listed types, it is not modeled herein and is qualitatively considered as an additional source of noise at a receptor. However, aircraft noise is included in the measured noise levels included in Table 4 below. The magnitude of such aviation noise also depends on horizontal distance and flight altitude; hence, references such as the West Coast Basing of the MV-22 Final Environmental Impact Statement (FEIS) (NAVFAC 2009) discussed in Section 4.1 offer insight on such potential acoustic contribution to a receiver within the Plan Area.

FTA Guidance

The Federal Transit Administration (FTA) provides a technique to estimate existing outdoor noise levels proximate to roadways or railroad routes, which can be found in its Transit Noise and Vibration Impact Assessment Manual

(FTA 2018). The same FTA guidance document also offers an outdoor ambient sound level estimation technique based on population density, which can be interpreted as intensity of potential sound generation due to building HVAC and outdoor activities that vary proportionally with population. With the first of these techniques providing an estimate of noise contribution from nearby road and rail, and the second representing a method to quantify noise from generally stationary sources of residential, retail, and light commercial activities, Table 5 below combines the two logarithmically in a matrix.

Table 4. FTA Estimated Outdoor Ambient Sound Level (dBA, daytime L_{eq} or CNEL)

Major Surface Transportation Route Type and Distance Range to Studied Receptor	Population Density (people per square mile) in Vicinity of Studied Receptor Location			
	300–1,000	1,000–3,000	3,000–10,000	10,000–30,000
Interstate Highway [1,2]				
= 10–50 feet	75	75	75	75
50–100 feet	70	70	70	70
100–200 feet	65	65	65	65
200–400 feet	60	60	60	60
400–800 feet	55	55	55	60
800 or more feet	50	50	55	60
Parkway (55 mph) or City Streets (30 mph) [1,3]				
= 10–50 feet	70	70	70	70
50–100 feet	65	65	65	65
100–200 feet	60	60	60	60
200–400 feet	55	55	55	60
400 or more feet	50	50	55	60
Railway [1,4]				
= 10–30 feet	75	75	75	75
30–60 feet	70	70	70	70
60–120 feet	65	65	65	65
120–240 feet	60	60	60	60
240–500 feet	55	55	55	55
500–800 feet	50	50	50	50
800 or more	45	45	45	45

Source: FTA 2018.
Notes: CNEL = Community Noise Equivalent Level; L_{eq} = energy-equivalent sound level; dBA = A-weighted decibel
1 Distances do not include shielding from intervening rows of buildings.
2 Roadways with four or more lanes that permit trucks, with traffic at 60 mph.
3 Parkways with traffic at 55 mph, but without trucks, and city streets with the equivalent of 75 or more heavy trucks per hour and 300 or more medium trucks per hour at 30 mph.
4 Main line railroad corridors typically carrying 5–10 trains per day at speeds of 30–40 mph.

By way of example, online resources indicate that the 2020 population for the City of Calipatria was 6,515 persons (https://en.wikipedia.org/wiki/Calipatria,_California), including 2,543 occupants at Calipatria State Prison as of July 2022 (https://en.wikipedia.org/wiki/Calipatria_State_Prison). For a receptor location within the developed non-prison community to the south, where the population density would likely fall within the 1,000 to 3,000 category shown in Table 4, if located 200 feet from an existing railway, the estimated outdoor ambient noise level would be 60 dBA L_{eq} during the daytime or 60 dBA CNEL over a typical 24-hour period.

Industrial Stationary-Source Model Description

With FTA-based guidance providing a method to estimate the first two of the three major outdoor ambient sound contributors, the third is quantified with a sound propagation model based upon relevant International Organization of Standardization (ISO) 9163-2 algorithms and reference data (ISO 1996), along with reference data from a variety of industry-adopted sources of information. This industry stationary-source prediction model emulates commercially available software tools, but has been prepared with Microsoft Excel and features the following parameters and assumptions:

- Consistent with the Project vicinity topography, flat terrain assumed (i.e., no naturally occurring features to occlude noise paths).
- Model area represented with a 388 by 284 (over 110,000) grid of square-sided cells, spanning the Plan Area and its geographic surroundings.
- Up to 1,000 cells in the array can each define an aggregate point source of sound emission comprising a unique set of up to ten (10) distinct types of acoustical contributors.

Using this prediction model and based on a study of available aerial photography imaging, review of previously prepared environmental documentation, and Plan Area reconnaissance by a Dudek investigator, a variety of existing operating manufacturing and industrial facilities have been input at their geographic locations within or relative to the Project.

Logarithmic Summation

Given the aforementioned FTA-based technique to estimate acoustic contribution from surface transportation and community development, and the industrial noise propagation model, the overall estimated existing outdoor ambient sound level at a receptor position within or surrounding the Plan Area can be calculated by a logarithmic summation of the appropriate matrix value from Table 4 and the apparent value gleaned from the industrial noise emission model output at the same receptor position. By way of illustration, if the preceding sample receptor position within the developed non-prison community portion of Calipatria featured an estimated outdoor ambient noise level of 60 dBA L_{eq} during the daytime due to surface transportation sources and community building HVAC and activities, and the aggregate sound from modeled major industrial, commercial, agricultural, and institutional facility stationary sources was also 60 dBA, then the logarithmic sum of these sources would be 63 dBA L_{eq} per acoustic principles as introduced in Section 1.4.

3.3 Measured Outdoor Background Sound

Existing outdoor ambient sound level across the Project and its immediate surroundings were measured with investigator-attended portable American National Standards Institute (ANSI) Type 2 sound level meters (SLM) at locations near Highway 111 and rural communities. These attended sound pressure level (SPL) measurements ranged in duration from 5 to 10 minutes each with acoustical metrics saved to on-board SLM memory at successive 10-second intervals. Additionally, a twenty-four (24) hour unattended SLM was deployed at a location to collect SPL data over a complete diurnal period, with metrics and statistical values saved at regular five-minute intervals. These measurements are considered representative of existing sound levels within and adjacent to the Plan Area.

Daytime Samples

Sound pressure level (SPL) measurements were conducted proximate to the Plan Area on October 27, 2022, to quantify and characterize the existing outdoor ambient noise levels of the vicinity. Table 5 provides the location, date, and time the noise measurements were taken at four (4) “short-term” (ST) investigator-attended locations as illustrated in Figure 3, Baseline Outdoor Ambient Sound Measurement Locations. The attending Dudek investigator used a SoftdB “Piccolo” Integrating Sound Level Meter (SLM, serial number [SN] last four digits: 0201) equipped with a 0.5-inch, pre-polarized condenser microphone with pre-amplifier. The SLM meets the current American National Standards Institute (ANSI) standard for a “Type 2” precision sound level meter and had its calibration status checked with a portable calibrator (i.e., a reference signal generator) before and after the field measurement survey.

Table 5. October 27, 2022 Samples of Existing Outdoor Ambient Sound Level

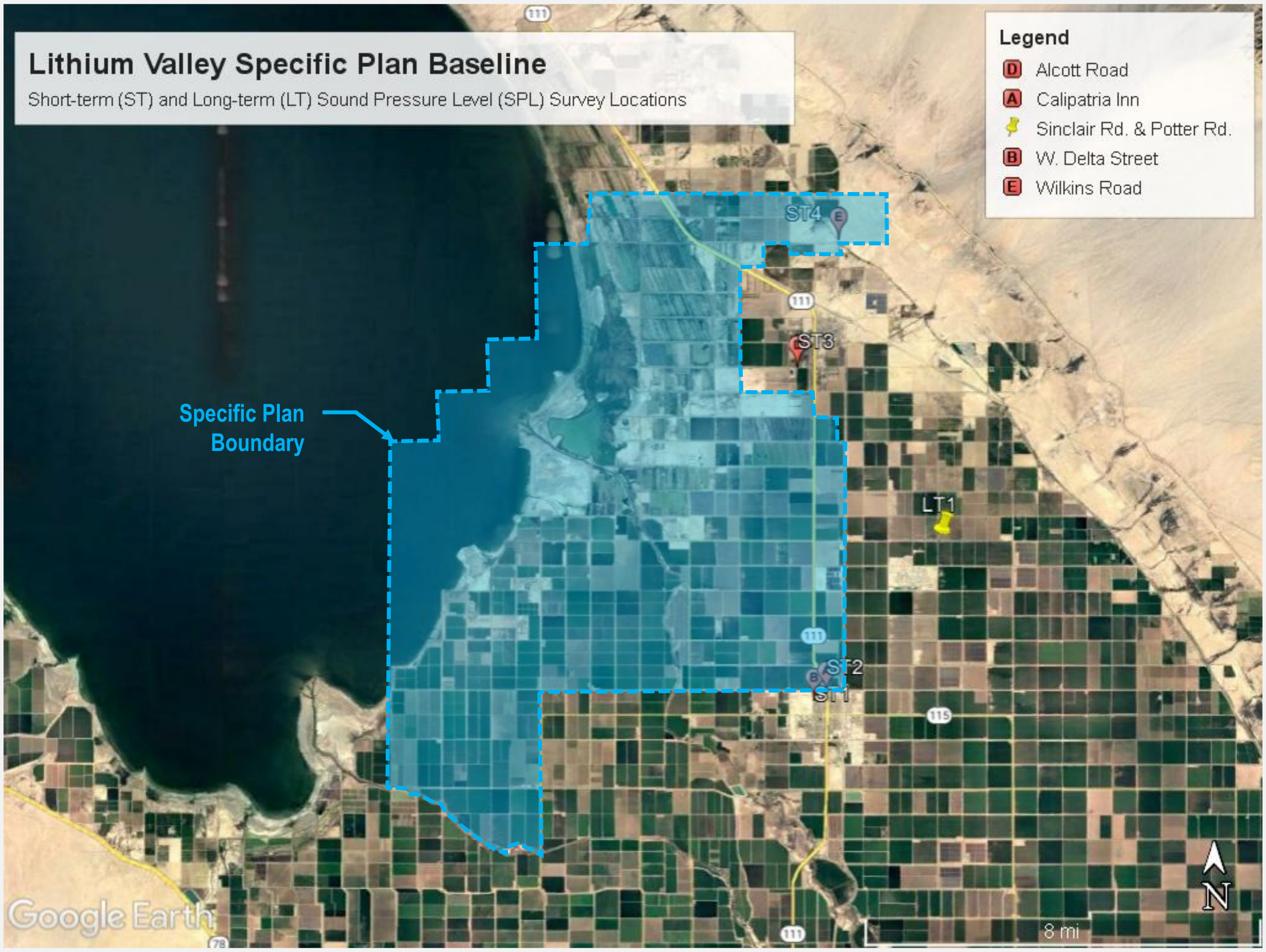
Exhibit A Location Tag	Location Description	Date (mm/dd/yy), Time (hh:mm)	L_{eq}	L_{max}	L_{min}	L_{90}
ST1	West Delta Road	10/27/22, 15:27 to 15:38	52	69	36	42
ST2	Calipatria Inn	10/27/22, 15:47 to 15:58	53	68	37	45
ST3	Alcott Road	10/27/22, 16:11 to 16:22	62	80	31	37
ST4	Wilkins Road	10/27/22, 16:37 to 16:48	60	79	31	43

Source: Dudek 2022.

Investigator field data sheets, along with field photographs of the ST1 through ST4 positions, can be found in Appendix A. These notes provide important clues on what was actually measured, such as the fly-over of three Huey Cobra helicopters at 4:17 p.m. during the measurement period at ST3 on Alcott Road. The fly-over event not only produced a relatively high L_{max} value, but it correspondingly raised the L_{eq} value of the approximate ten-minute duration measurement to over 60 dBA, when the L_{min} of 31 dBA and L_{90} value of 37 dBA indicate the sound environment without the fly-over was much quieter.

The Calipatria Inn measurement location (ST2) is very comparable to the outdoor ambient noise survey position #1, shown in Figure 4, which was performed for the City of Calipatria 2035 General Plan Noise Element. The measured L_{eq} value of 67 dBA and L_{max} of 85 dBA from that earlier field survey (City of Calipatria 2013) are comparable to the ST2 metrics presented in Table 5 from the October 27, 2022, field survey, with the approximate 6 dB differences attributed to horizontal distance of the measurement location from the SR-111 roadway and traffic flows.

Figure 3. Baseline Outdoor Ambient Sound Measurement Locations



Source: Dudek 2022

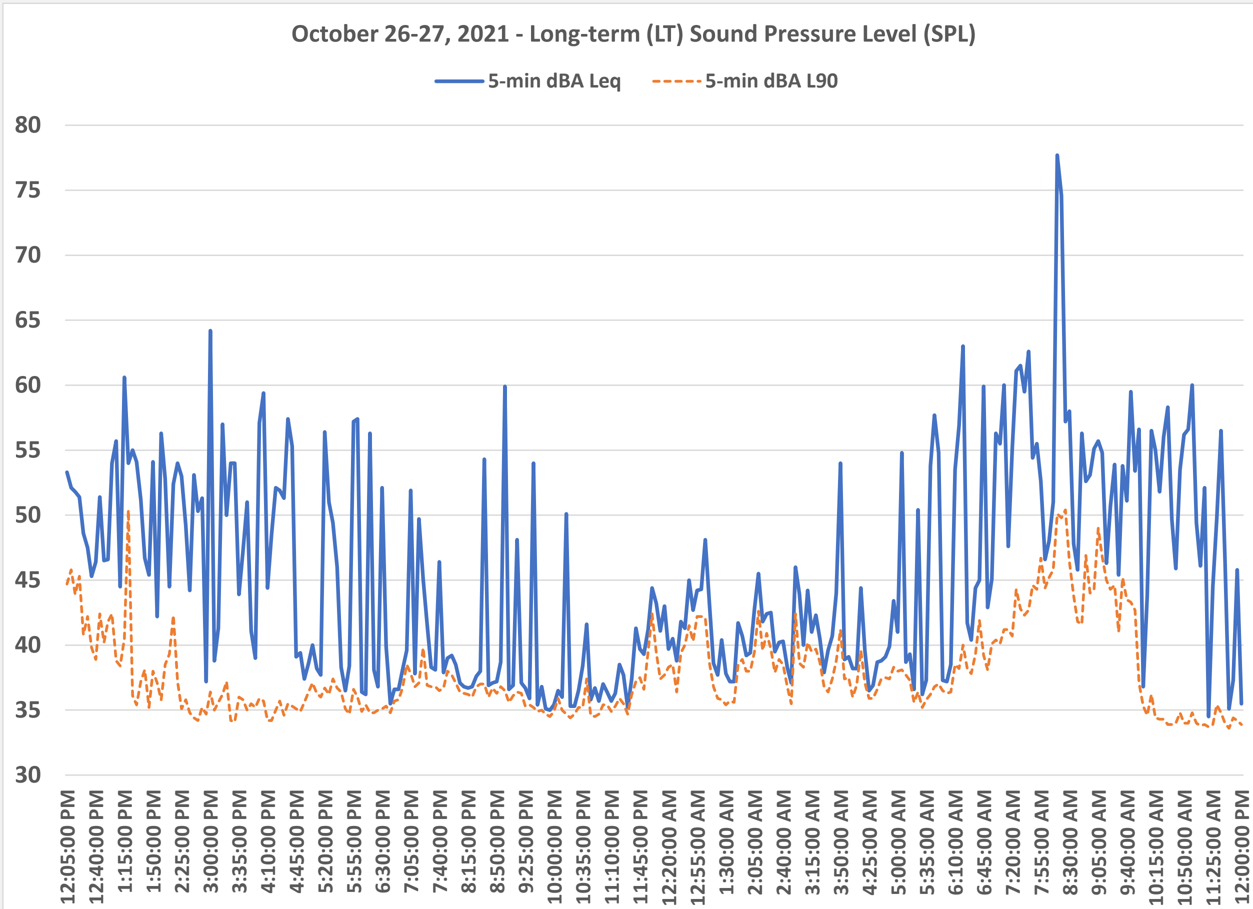
Figure 4. 2012 Outdoor Ambient Sound Level Survey Positions

Source: City of Calipatria 2013

24-hour Sampling

A year prior to the field-collected SPL data presented in Table 5, Dudek had opportunity to deploy an unattended 24-hour noise level monitor at a location on the southeastern corner of Sinclair Road and Potter Road, which appears in Figure 5 as "LT1" and is 2.5 miles east of Highway 111 and a half-mile north of Calipatria State Prison. Figure 2 displays the measured L_{eq} and L_{90} values over the 24-hour period beginning on 12:05 p.m. October 26, 2021 and concluding at 12:05 p.m. on October 27, 2021. Comparable to the October 2022 field survey of short-duration measurements on the afternoon of October 27, 2022, the Dudek investigator used a SoftdB Piccolo SLM.

Figure 5. Baseline Outdoor Ambient Sound Levels – LT1 (southeast corner of Sinclair Road and Potter Road)



Source: Dudek 2021

3.4 Sensitive Receptors

As mentioned in Section II.C of the County General Plan Noise Element, "sensitive noise receptors are, in general, areas of habitation where the intrusion of noise has the potential to impact adversely the occupancy, use or enjoyment of the environment. Sensitive receptors include, but are not limited to, residences, schools, hospitals, parks and office buildings. Sensitive receptors may also be non-human species. Many riparian bird species are sensitive to excessive noise." (Imperial County 2015).

The nearest noise-sensitive receptors to the Plan Area include residences in the City of Calipatria and rural residences scattered throughout the Plan Area. Fremont Primary School, Bill E. Young Middle School, and Calipatria High School are located within the City of Calipatria, Calipatria Adult School is located east of the Plan Area and Grace Smith Elementary School is located north of the plan area in Niland. The cities of Calipatria and Niland also have religious institutions, parks, and other sensitive areas.

4 Thresholds of Significance

Section XIII of Appendix G of the State CEQA Guidelines addresses typical adverse effects due to noise and includes the following threshold questions to evaluate a Project's impacts due to noise. Would the Project:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
b) Generation of excessive groundborne vibration or groundborne noise levels.
c) For a project located within the vicinity of a private airstrip or 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, a project may have a significant impact if it would expose people residing or working in the Plan Area to excessive noise levels.

In light of these above significance criteria, this analysis uses the following standards to evaluate potential noise and vibration impacts.

- **Construction noise** – The Imperial County General Plan Noise Element quantifies standards for noise generated by temporary construction activity. Therefore, this analysis compares Project construction-generated sound levels to a threshold of 75 dBA L_{eq} over an 8-hour period.
- **Transportation noise** – There are no local regulations that are applicable to noise generated by surface transportation routes. For purposes of this analysis, a noise impact due to transportation noise would be considered significant if Project-generated traffic causes the existing levels to increase by more than 3 dB (a barely perceptible change in audibility).
- **Stationary operations noise** – Imperial County Municipal Code limits operational sound levels to the limits specified in Table 2 at the property line of the receiving use. For low density residential areas, the limit is 50 dBA $L_{eq\text{-}1hr}$ during daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dBA $L_{eq\text{-}1hr}$ during nighttime hours (10:00 p.m. to 7:00 a.m.).
- **Construction vibration** – There are no local regulations that are applicable to vibration generated by temporary construction activity. Caltrans Guidance recommends that a vibration level of 0.3 ips PPV be used as the threshold for building damage risk to residential structures and 0.5 ips PPV be used as the damage threshold for non-residential structures. These thresholds are used in this analysis to determine vibration impacts.

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5 Impact Discussion

Potential noise and vibration impacts attributed to Project construction and operation are studied in the following subsections that are categorized by the CEQA Guidelines Appendix G significance for noise.

a) ***Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?***

Short-Term Construction Noise

Construction activities include temporary noise sources with emission levels varying from hour to hour and day to day, depending on the equipment in use, the operations performed, and the distance between the source and receptor. Construction noise modeling was performed using a Microsoft Excel–based noise prediction tool. Input variables include the equipment type (backhoe, crane, truck, etc.), the number of equipment pieces, the duty cycle for each piece of equipment (i.e., percentage of each hour the equipment typically works), and the distance from the sensitive receptor. Sound source information was obtained from the Noise Source Database developed under National Cooperative Highway Research Program 25-49 (NCHRP 25-49), Development of a Highway Construction Noise Prediction Model (NASEM 2022).

Table 6 provides a list of the hourly average and maximum sound levels generated by various powered equipment that could be associated with construction of the Project, measured at a distance of 50 feet using a “slow” response time constant (1 second). Usually, construction equipment operates in alternating cycles of full power and low power, producing average noise levels over time that are less than the maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of construction activities during that time.

Table 6. Sound Levels of Typical Construction Equipment

Equipment	Maximum Sound Level (dBA L_{max}) – 50 feet from Source
Air Compressor	67
Aerial Lift (Man Lift)	73
Backhoe	84
Compactor (Plate)	75
Compactor (Roller)	83
Concrete Mixer	82
Concrete Saw	88
Crane, Mobile	76
Dozer	86
Forklift	88
Generator	68
Grader	79
Horizontal Bore Drill	88
Loader	81
Paving - Asphalt	83

Table 6. Sound Levels of Typical Construction Equipment

Equipment	Maximum Sound Level (dBA L_{max}) – 50 feet from Source
Paving - Concrete	88
Pump	74
Scraper	92
Flatbed Truck	74
Welding Machine	72

Notes: dBA = A-weighted decibel; L_{max} = maximum instantaneous noise level.
Source: NASEM 2022

Although most project construction would occur at large distances from noise sensitive land uses, some construction would be located as close as 50 feet from residences. Noise emissions from Project construction were calculated at representative distances using construction information provided by the Project applicant. The anticipated equipment to be used for construction of the Project is shown in Appendix B for each construction activity of the Project construction. Aggregate sound emissions from Project construction activities, broken down by sequential phase of construction, were predicted for the worst-case construction activity occurring at distances representative of the closest construction boundary to this closest sound sensitive locations. All equipment planned to be used for each construction activity was included in the modeling. This is a conservative analysis since, given the expanse of the site, equipment located further from the boundary would have limited contribution to the overall levels at a particular location. The results are summarized in Table 7.

Table 7. Construction Noise Levels, Worst-Case

Task/Activity	Sound Level at Representative Distance to Nearest Construction Activities				
	50 feet	100 feet	200 feet	500 feet	1000 feet
All Phases	$L_{eq\ 8hr}$ (dBA)	$L_{eq\ 8hr}$ (dBA)	$L_{eq\ 8hr}$ (dBA)	$L_{eq\ 8hr}$ (dBA)	$L_{eq\ 8hr}$ (dBA)
Demolition	88	79	72	63	56
Site Preparation	86	78	71	62	55
Grading	93	86	77	68	62
Building Construction	93	85	77	68	62
Paving	89	81	73	65	58
Architectural Coating	63	54	47	38	31

Note: $L_{eq\ 8hr}$ = average noise level equivalent over an 8-hour period; dBA = A-weighted decibel.
Source: Dudek 2024.

As indicated in Table 7, worst-case construction sound levels could exceed 75 dBA L_{eq} at distances of less than 150 feet when demolition and site preparation activities occur. Paving and grading activities could exceed 75 dBA L_{eq} at distances as far as 250 feet. Building construction activities could exceed 75 dBA L_{eq} at distances up to 350 feet.

A temporary sound barrier located along the construction boundary adjacent to residences would reduce sound levels from construction activities. The temporary sound barrier should be a height of 8 feet or higher for demolition and site preparation within 150 feet of residences, paving and grading within 250 feet of residences, and building construction located within 350 feet of residences. All other activities would comply with the County's construction noise limit of 75 dBA $L_{eq\ 8hr}$ with best management construction practices only.

Sound levels inside homes would be anticipated to be about 15 dB lower with windows open and 25 dB lower with windows closed. With implementation of **mitigation measures NOI-1 through NOI-3**, on-site construction noise levels would result in a **less- than-significant** temporary noise impact.

Off-Site Construction Traffic Noise

The Project would result in local, short-term increases in roadway noise as a result of construction traffic. Based on information developed as part of the Project's transportation analysis, Project-related traffic would include workers commuting to and from the Project site as well as vendor and haul trucks bringing or removing materials. Table 8 shows the scaled number of construction trips by day for each construction activity.

Table 8. Scaled Construction Trips per Day (One-Way)

Task/Activity	Scaled Vehicle Trips per Day		
	Worker	Vendor	Hauler
Demolition	90	—	—
Site Preparation	108	—	—
Grading	120	—	48
Building Construction	36,984	14,496	—
Paving	90	—	—
Architectural Coating	7,398	—	—

Notes: Source: Dudek 2024

Sound sensitive locations (residences) are located within the City of Calipatria, along West Young Road, and along Gentry Road. Existing traffic volumes provided for Main Street / Eddins Road in Calipatria indicate that this section of roadway has between 1,097 and 2,537 vehicle trips per day. Existing traffic volumes along West Young Road, and along Gentry Road were not provided within the traffic study but can be assumed to be below 1,000 vehicle trips per day. A high percentage of construction trips traveling along these roadways would result in traffic noise increases well above 3 dB. Routing construction traffic away from residential areas (**mitigation measure NOI-4,** construction traffic noise levels) would result in a **less- than-significant** temporary noise impact.

Long-Term Operational Noise

Project Operations

Long-term operational Project sound levels were assessed based upon anticipated land use plans indicating locations for each of the major sound-generating development types (and their likely features or components) within each of three distinct Phases of the Project, the sound level identified for each assumed piece of major noise-producing equipment, and the location of the closest noise-sensitive receptors (i.e., residences) relative to the Project site. The primary sound-producing equipment associated with the proposed Project include building rooftop mechanical equipment (air handling units [AHU] and air-cooled condensers), cooling towers, Ormat “organic vapor turbines” (OVT), substation transformers, emergency generators, idling trucks, pumps, air compressors, and mobile commercial facility equipment.

Sound modeling of Project operations was conducted in accordance with ISO Standard 9613-2, Acoustics – Attenuation of Sound During Propagation Outdoors, Part 2: General Method of Calculation, implemented using Dudek’s internal NoisePro software application. Four scenarios were modeling, including 1) Existing Conditions, 2) Existing plus Phase 1 Conditions, 3) Existing plus Phases 1 & 2 Condition, and 4) Existing plus Phases 1, 2, & 3 Conditions (Full Buildout). Modeled sound sources are shown in Table 9.

Table 9. Sound Sources Modeled for Project Operations

Source Type	Location
Phase 1	
Community Opportunity Area	SR111 and north of Young Rd
Community Opportunity Area	SR111 and Wilkenson Rd
Community Opportunity Area	SR111 and between Wilkenson Rd and W. Lindsey Rd
Community Opportunity Area	SR111 and W. Lindsey Rd
Community Opportunity Area	SR111 and McDonald Rd
Community Opportunity Area	SR111 and Hazard Rd
Playas Renewables	Pound Rd and Gentry Rd
Playas Renewables	Beach Rd and Garst Rd
Playas Renewables	Beal Rd and Garst Rd
General Industrial	Davis Rd and Noffsinger Rd
General Industrial	Davis Rd and Alcott Rd
General Industrial	Davis Rd and Pound Rd
General Industrial	Davis Rd and Hazard Rd
General Industrial	Davis Rd and McDonald Rd
General Industrial	Davis Rd and Schrimpf Rd
General Industrial	Brandt Rd and Simpson Rd
General Industrial	Brandt Rd and Merkley Rd
General Industrial	Brand Rd and E. Hoober Rd
General Industrial	Sinclair Rd and Garst Rd
General Industrial	Sinclair Rd and Cox Rd
General Industrial	Sinclair Rd and Gentry Rd
General Industrial	Gentry Rd and McKendry Rd
General Industrial	Boyle Rd and Kuns Rd
General Industrial	Severe Rd and Kuns Rd
General Industrial	Merkley Rd and Kalin Rd
General Industrial	West of Davis Rd and Alcott Rd
Manufacturing	English Rd and Sinclair Rd
Logistics	SR111 and Merkley Rd
Logistics	SR111 and Simpson Rd
Solar	northeast of Wilkins Rd, north of Beach Rd
Solar	northeast of Wilkins Rd, north of Beach Rd

Table 9. Sound Sources Modeled for Project Operations

Source Type	Location
Phase 2	
Community Opportunity Area	English Rd and Lindsey Rd
Community Opportunity Area	Riley Rd and Lindsey Rd
Community Opportunity Area	English Rd and Wilkenson Rd
Community Opportunity Area	Riley Rd and Wilkenson Rd
Community Opportunity Area	Lyerly Rd and Wilkenson Rd
Community Opportunity Area	Lyerly Rd and Wilkenson Rd
Community Opportunity Area	Riley Rd and Wilkenson Rd
Community Opportunity Area	Riley Rd and Wilkenson Rd
Community Opportunity Area	SR111 and McDonald Rd
Community Opportunity Area	SR111 and Schrimpf Rd
Community Opportunity Area	SR111 and between McDonald Rd and Schrimpf Rd
Playas Renewables	Lack Rd and Peterson Rd
Playas Renewables	Boyle Rd and Merkley Rd
Playas Renewables	McDonald Rd and Garst Rd
Playas Renewables	Hazard Rd and Garst Rd
Playas Renewables	Simpson Rd and Cox Rd
General Industrial	Peterson Rd and Hatfield Rd
General Industrial	Pound Rd and Brandt Rd
Manufacturing	SR111 and Montgomery Rd
Logistics	English Rd and Pound Rd
Logistics	English Rd and Beach Rd
Phase 3	
General Industrial	Eddins Rd and Gentry Rd
General Industrial	Wilkenson Rd and Gentry Rd
General Industrial	Kalin Rd and Wilkinson Rd
General Industrial	Eddins Rd and Lack Rd
Manufacturing	Lindsey Rd and English Rd
Logistics	northeast of Wilkins Rd, north of Beach Rd
Playas Restoration	Pound Rd and Severe Rd

Source: Dudek 2024

Sound sources were modeled based on the following assumptions:

- Community opportunity area: each "building" is assumed to be 100,000 ft^2 with rooftop HVAC (AHU return fans and air-cooled condenser fans);
- General industrial: each building sized per Project descriptions with rooftop HVAC;
- Playas renewables: each sized per Project descriptions with rooftop HVAC plus pumps, a cooling tower, an Ormat "organic vapor turbine", and an onsite substation transformer;
- Playas restoration: each sized per Project descriptions with building HVAC;
- Manufacturing: each sized per Project descriptions with building HVAC plus an emergency generator;

- Logistics: each sized per Project descriptions with building HVAC plus an emergency generator and ten idling trucks at loading docks; and
- Solar: each sized per Project descriptions with building HVAC.

Additionally, the following sound sources were included:

- Two existing water treatment plants and three proposed new ones. Each is assumed to have pumps, a substation transformer (XFMR), and an air compressor.
- Three “Commercial Node” and two “Public Transportation Hub” locations consistent with the updated Specific Plan land use map, each of which has building HVAC sound sources, an operating forklift, emergency generator, and “warning horns” (e.g., audible safety alerts, etc.).
- Three new electrical substations, each assumed to have a quantity of 50 megavolt-ampere (MVA) transformers equal to the megawatt-hour (MWH) quantities (divided by 50) and located at the following intersections;
  - Boyle Rd and Lindsey Road
  - English Rd and E. Hoober Road
  - Sinclair Rd and Brandt Road

Sound-sensitive uses in the general vicinity of the Project site include residences in the City of Calipatria and rural residences scattered throughout the Plan Area. For purposes of this assessment, and due to their proximity to the Specific Plan boundary and anticipated new noise sources within, sound modeling included twelve discrete receivers. Existing residences and other potential noise-sensitive receptors within the Niland Community and within Calipatria State Prison are considerably more distant from the Specific Plan than these specific studied locations and would thus, on the basis of noise attenuation with distance and other factors, not be potentially affected. In addition, and to help support this assertion with respect to such distant sensitive receptors, a grid of in-model receivers was set at a height of 1.5 meters (5 feet) aboveground, spanning the Plan Area and its immediate surroundings.

Model inputs are given in Appendix C. Discrete receiver positions are shown in Figure 6. The model results are presented graphically in Figures 7, 8, 9, and 10, and numerically in Table 10.

Table 10. Modeled Project Operation Sound Levels Compared to Code Limits, L_{eq}

Project Operational Sound Level, dBA L_{eq}						
Model Receiver	Land Use	Existing	Existing + Phase 1	Existing + Phase 1 & 2	Existing + Full Buildout	Nighttime Municipal Code Limit, dBA L_{eq}
R1	Residence	14	14	14	24	45
R2	Residence	28	29	29	33	45
R3	Residence	27	27	27	30	45
R4	Residence	26	27	29	31	45
R5	Residence	23	26	27	28	45
R6	Residence	23	30	31	32	45
R7	Residence	22	34	34	34	45
R8	Residence	19	43	43	43	45

Table 10. Modeled Project Operation Sound Levels Compared to Code Limits, L_{eq}

Project Operational Sound Level, dBA L_{eq}						
Model Receiver	Land Use	Existing	Existing + Phase 1	Existing + Phase 1 & 2	Existing + Full Buildout	Nighttime Municipal Code Limit, dBA L_{eq}
R9	Residence	19	**47**	**47**	**47**	45
R10	Residence	18	45	45	45	45
R11	Residence	20	**51**	**51**	**51**	45
R12	Residence	18	42	41	42	45

Notes: dBA = A-weighted decibel; L_{eq} = average sound level equivalent.

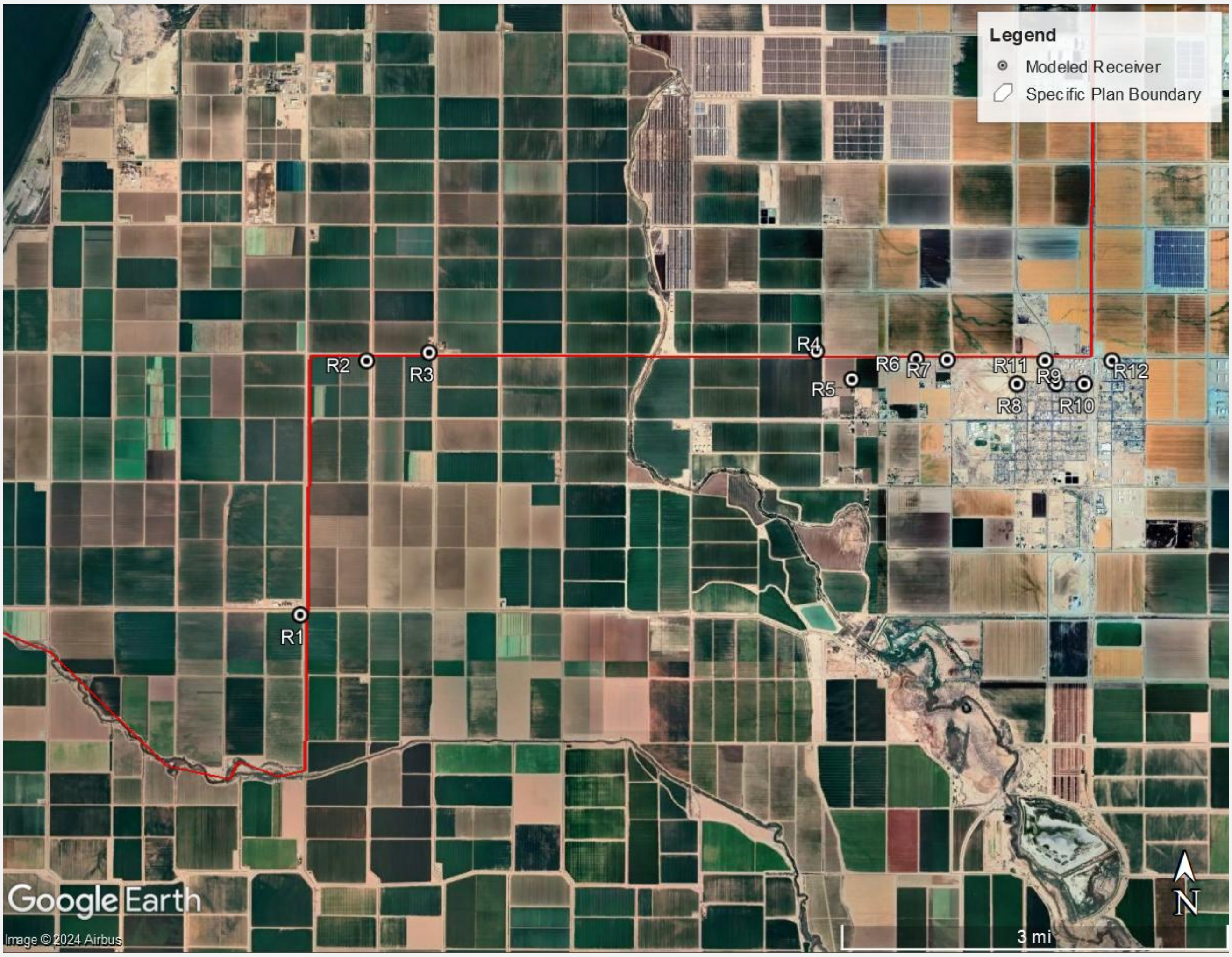
Operational sound levels would be the below the 50 dBA L_{eq} daytime and 45 dBA L_{eq} nighttime Imperial County noise limits in most sound sensitive locations. However, Project operational sounds may exceed the limits (see the bold and gray cells in Table 10) within the City of Calipatria.

The presence of the City of Calipatria and residences adjoining the southeastern boundary of the Plan Area suggests that development of new industrial, manufacturing, energy production, mineral extraction, and other projects comparable to existing facilities studied herein would need to carefully consider the Imperial County and City of Calipatria Land Use Noise Compatibility guidelines and ensure that such projects implemented under the Project would be considered “acceptable” or “conditionally acceptable”. Figures 8, 9, and 10 illustrate where estimated noise from operating facilities produce—in aggregate—a noise exposure level ranging from 45 to 50 dBA and thus (depending on time of day) exceed exterior noise limits for residentially zoned property.

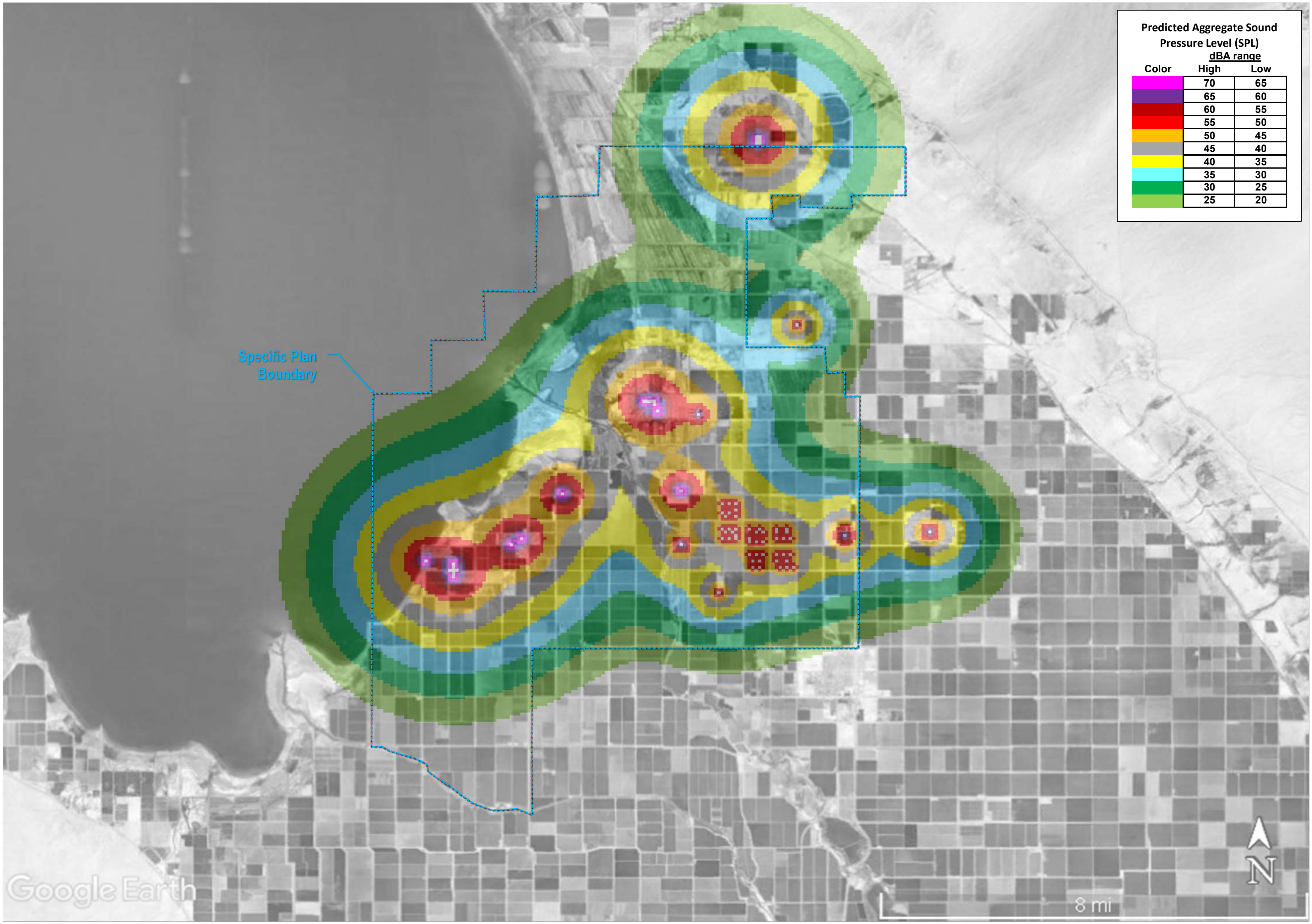
Similarly, new noise-sensitive development proposed for implementation under the Project would need to respect existing surface transportation noise exposure levels from highways (e.g., SR-111 and SR-115) and operating freight railroads. Adherence to applicable Airport Land Use Compatibility Plan (ALUCP) content or other requirements associated with Clifford Hatfield Memorial Airport operations would be an additional consideration.

With implementation of **mitigation measure NOI-5**, operational noise levels would result in a **less- than-significant** noise impact.

Figure 6. Discrete Receiver Locations for Operational Sound Modeling



Source: Dudek 2024



SOURCE: Dudek 2024

DUDEK

0 3379 6758 Feet

FIGURE 7

Estimated Noise from Existing Major Operating Stationary Facilities and *no* Lithium Valley Specific Plan Buildout

Salton Sea Renewable Specific Plan Project PEIR (Dudek Project No. 14678)

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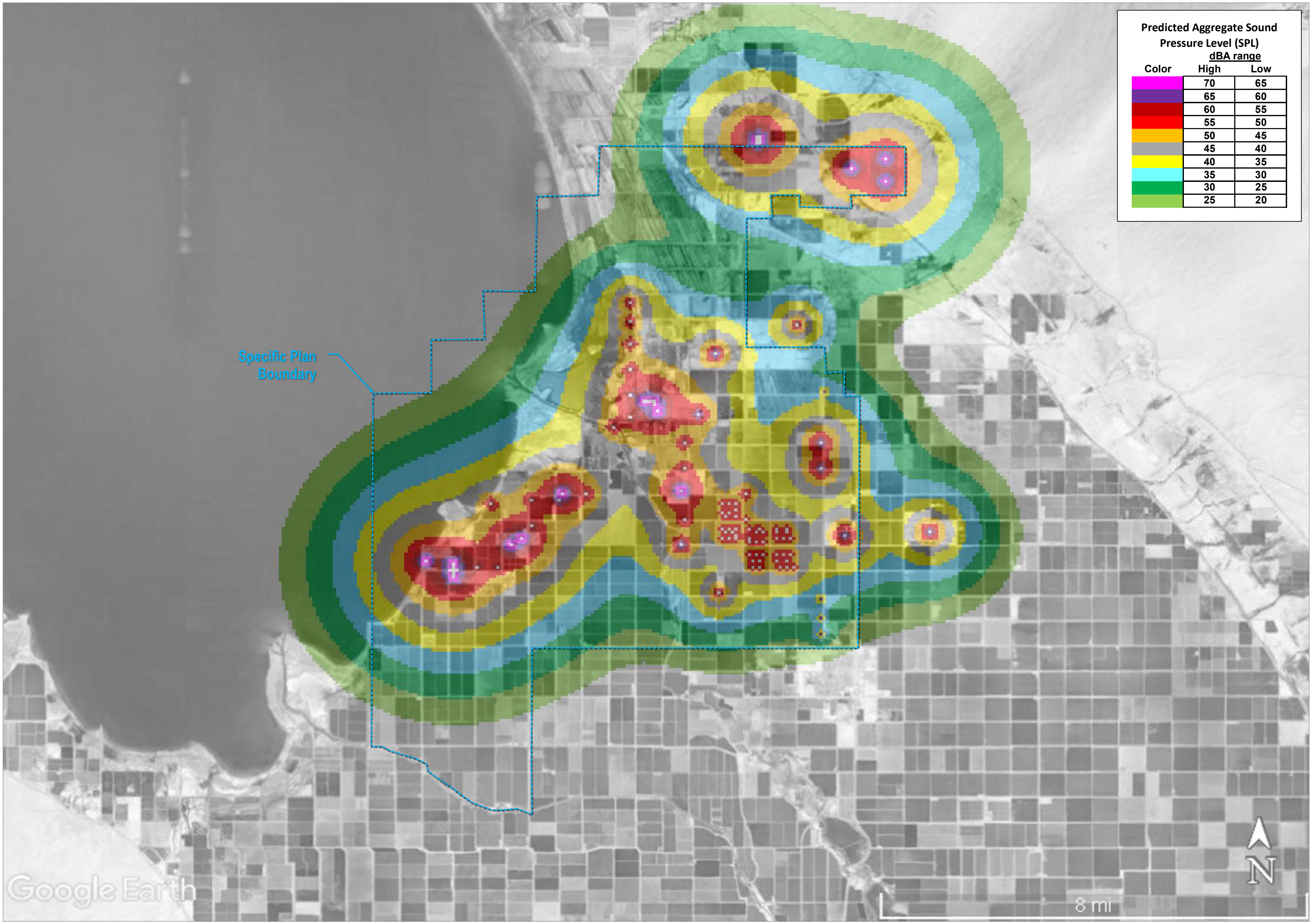

SOURCE: Dudek 2024

DUDEK

0 3379 6758 Feet

FIGURE 8

Estimated Noise from Existing Major Operating Stationary Facilities and Lithium Valley Specific Plan Phase 1 Buildout Facilities

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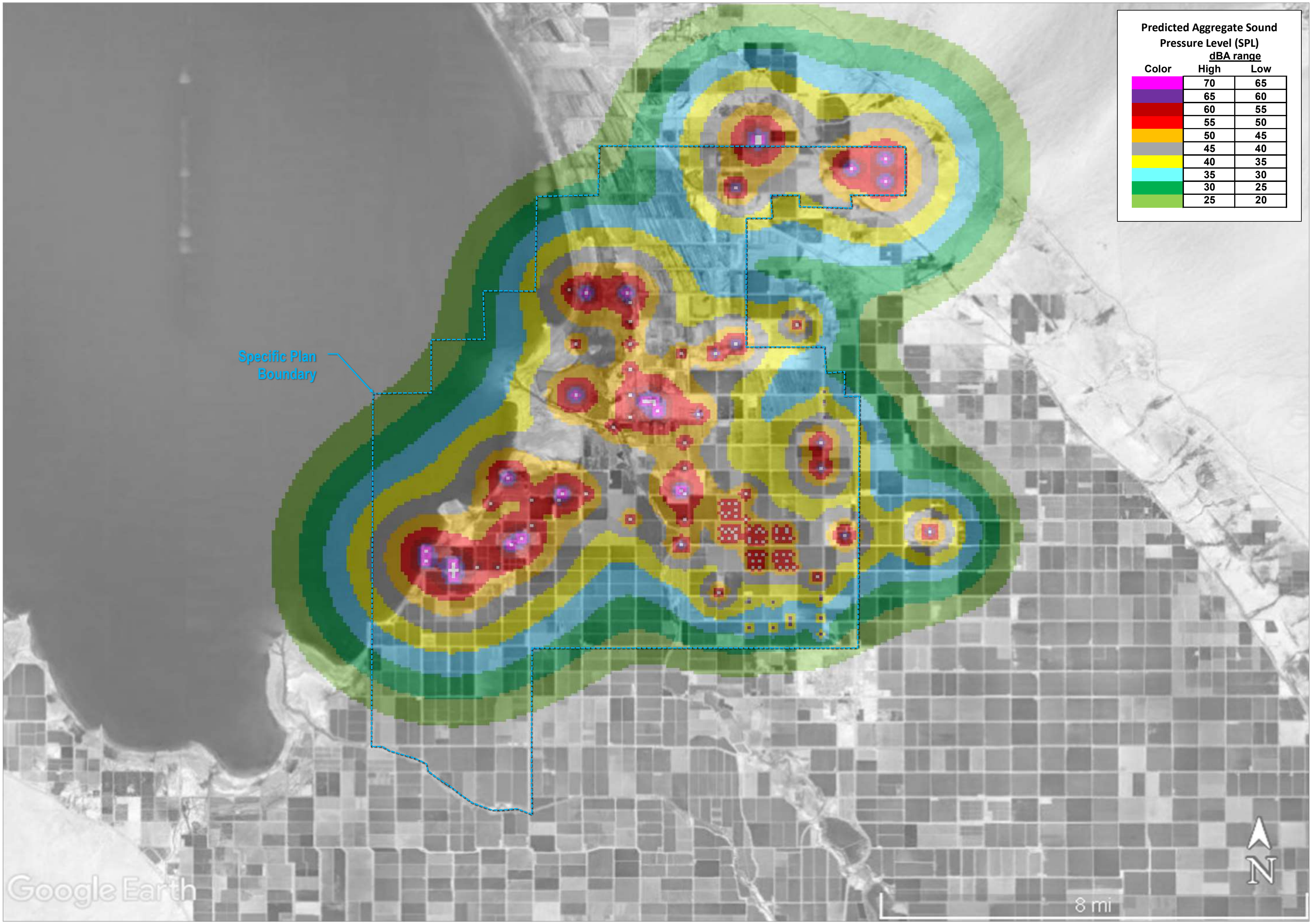

SOURCE: Dudek 2024

DUDEK

0 3379 6758 Feet

FIGURE 9

Estimated Noise from Existing Major Operating Stationary Facilities and Lithium Valley Specific Plan Phase 1 and 2 Buildout Facilities

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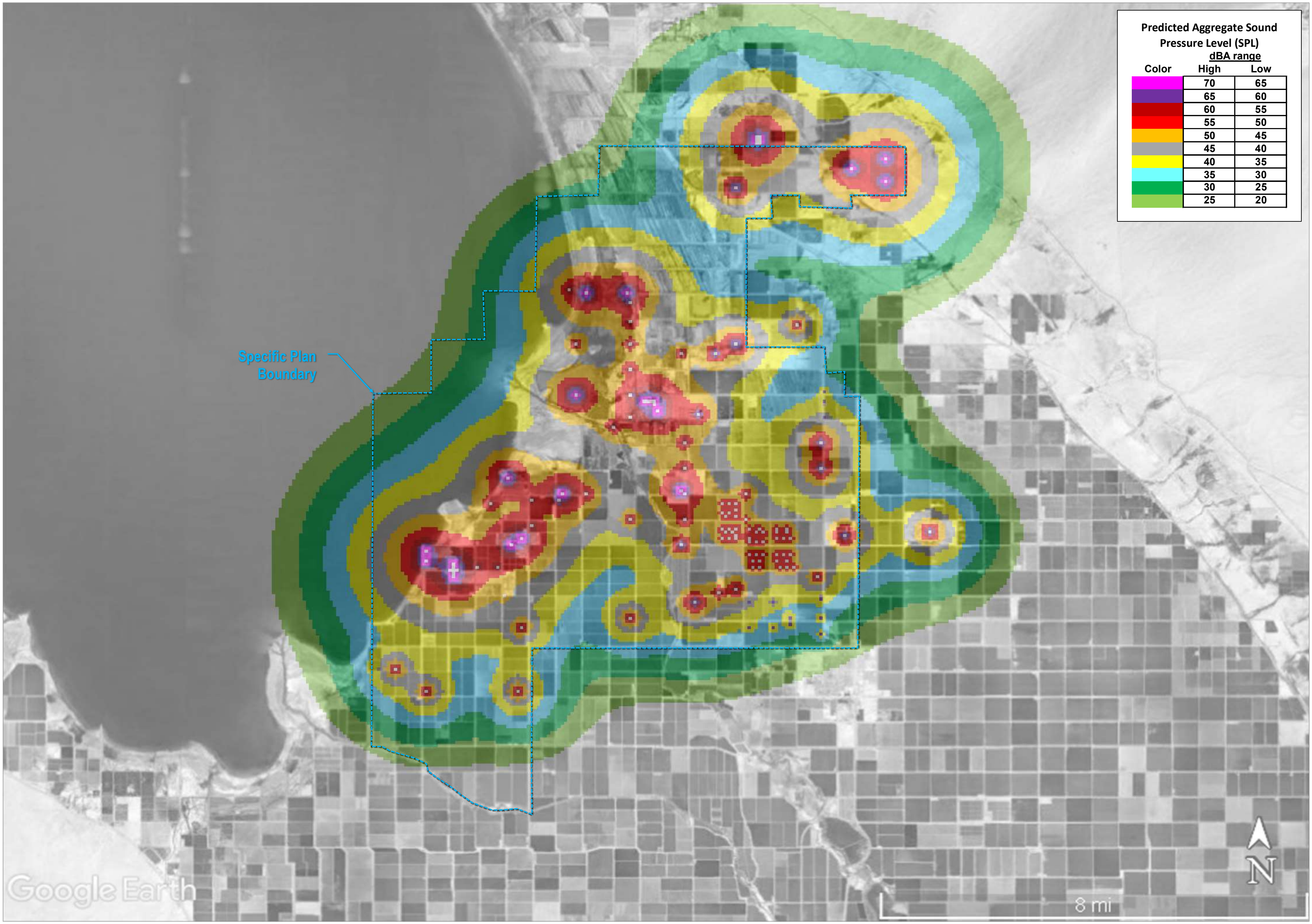

SOURCE: Dudek 2024

DUDEK

0 3379 6758 Feet

FIGURE 10

Estimated Noise from Existing Major Operating Stationary Facilities and Lithium Valley Specific Plan Phase 1, 2 and 3 Buildout Facilities

Salton Sea Renewable Specific Plan Project PEIR (Dudek Project No. 14678)

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Project Operational Traffic

The Project would result in increases in roadway noise as a result of Project traffic. Sound sensitive locations (residences) are located within the City of Calipatria, along West Young Road, and along Gentry Road. Traffic volumes were provided along Main Street / Eddins Road in Calipatria and along Forrester Road north of Highway 78, which can be used to represent Gentry Road, for Existing, 2035 Phase 1, 2050 Phase 2, 2050 Phase 3, and 2050 Phase 3 Reduced traffic scenarios. Based on a comparison between Existing and projected traffic volumes, traffic noise levels are calculated to increase by 3 to 10 dB along these segments of road, which would be above the 3 dB significance threshold. Use of quieter pavement, noise barriers, traffic speed reduction, truck routing, or other measures, as given in **mitigation measure NOI-6** would reduce the traffic noise increases; however, these improvements are unlikely to result in reductions below the noise increase threshold of 3 dB in all locations. As a result, this would be considered a **significant and unavoidable** impact.

b) Would the Project result in generation of excessive ground-borne vibration or ground-borne noise levels?

Construction activity can result in varying degrees of ground vibration and ground-borne noise at local receptors, depending on the equipment and methods used, distance to the affected structures, and soil type. Caltrans has been assembling data for vibration and ground-borne noise levels generated by heavy construction equipment operation during the building of transportation Projects for many years. The vibration and ground-borne noise levels from use of such equipment are representative for other types of construction efforts, not just transportation Projects, and are therefore widely employed to assess vibration and ground-borne noise levels from heavy equipment use for any effort. According to Caltrans (2020b), the most important equipment relative to generation of vibration and ground-borne noise, and the vibration and ground-borne noise levels produced by such equipment, is illustrated in Table 11.

Table 11. Vibration Velocities and Ground-borne Noise Levels for Typical Construction Equipment

Equipment	PPV at 25 Feet (Inches Per Second)
Impact Pile Driver (Typical)	0.644
Vibratory Roller	0.210
Large Bulldozer	0.089
Loaded Trucks	0.076
Small Bulldozer	0.003

Source: Caltrans 2020b.
Note: PPV = peak particle velocity.

Ground-borne vibration attenuates rapidly, even over short distances. The attenuation of ground-borne vibration as it propagates from source to receptor through intervening soils and rock strata can be estimated with expressions found in Caltrans guidance (Caltrans 2020b). The following equation is used to calculate PPV at any distance of interest from the operating construction equipment.

$$PPV_{rcvr} = PPV_{ref} * (25/D)^{1.1}$$

In the above equation, PPV_{rcvr} is the predicted vibration velocity at the receiver position, PPV_{ref} is the reference value at 25 feet from the vibration source (as listed in Table 8), and D is the actual horizontal distance to the receiver.

No applicable threshold for Project-attributed construction vibration is given; therefore, it is appropriate to employ a numeric standard adopted by another agency. The California Department of Transportation (Caltrans 2020b) establishes a construction limit of 0.3 in/sec PPV for older residential structures and 0.5 in/sec PPV for new residential and modern commercial/industrial structures. The applicable threshold for Project-attributed construction vibration would be 0.3 in/sec PPV at the closest residences and 0.5 in/sec PPV at the closest industrial/commercial building.

Structures could be located as close as 50 feet from Specific Plan construction activities. Using the vibration source level of construction equipment provided in Table 8 and the equation supplied in the Caltrans (2020b) construction ground-borne noise assessment methodology (above), Dudek calculated the Project construction-related vibration levels at representative distances, as shown in Table 12.

Table 12. Construction Vibration Levels at Nearest Structures, inches per second

Equipment	PPV at 50 feet	PPV at 100 feet	PPV at 200 feet	PPV at 500 feet
Impact Pile Driver (typical)	0.300	0.140	0.065	0.024
Vibratory Roller	0.098	0.046	0.021	0.008
Large Bulldozer	0.042	0.0.19	0.009	0.003
Loaded Trucks	0.035	0.017	0.008	0.003
Small Bulldozer	0.001	0.001	0.000	0.000

Source: Caltrans 2020b.
Note: PPV = peak particle velocity.

The applicable damage threshold for Project-attributed construction vibration would be 0.3 in/sec PPV at residences and 0.5 in/sec PPV at commercial and industrial structures. As shown in Table 12, Project construction would result in vibration levels that are below these thresholds at distances of 50 feet or more. Construction vibration would exceed the 0.3 in/sec PPV residential threshold within about 50 feet during impact pile driving and 20 feet for other construction activities. Construction vibration would exceed the commercial/ industrial threshold within about 30 feet during impact pile driving and 12 feet for other construction activities. Construction activities are not anticipated to occur within these distances. Construction would be anticipated to be below the Caltrans annoyance level for construction of 0.24 in/sec PPV at a distance of 65 feet from pile driving and 25 feet from other construction activities. Vibration impacts of the Project would therefore be **less than significant.**

c) ***For a Project located within the vicinity of a private airstrip or 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 Plan Area to excessive noise levels?***

The Cliff Hatfield Memorial Airport is located just south of the Project site. It is a public-use airport with one runway. Based on the Airport Master Record (FAA 2024) for Cliff Hatfield Memorial Airport, the airport had no based aircraft or operations during 2024. An article in the local newspaper (IVP 2024) indicated that the airport was authorized by Council Resolution 23-08 on January 24, 2023 to be deemed “not necessary” and is considered as surplus property by the City. As such, sound levels generated by the airport are anticipated to be minimal. The Plan Area is also surrounded by several portions of the Bob Stump Training Range, which includes occasional overflights by fixed-wing and rotary-wing aircraft as described in Section 3.1. Based on sound monitoring (Section 3.2), helicopter flights generate maximum sound levels of about 80 dBA L_{max} but are occasional and would not result in CNEL levels above 55 dBA CNEL. There are no other private or public airports within 2 miles of the site. The Project would not expose people residing or working in the Plan Area to excessive noise levels. This would be a **less than significant** impact.

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6 Mitigation Measures

MM NOI-1 Stationary noise sources (e.g., air compressors, generators) used during construction activities shall be located as far as feasible from existing sensitive receptors. If stationary sources must be located near existing sensitive receptors, they shall be adequately muffled and enclosed within temporary sheds or portable sound blankets shall be used.

MM NOI-2 During project construction located within 350 feet of residences, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise-sensitive receptors located to the south.

MM NOI-3 A temporary sound barrier shall be located along the construction boundary during demolition and site preparation located within 150 feet of residences, paving and grading within 250 feet of residences, and building construction located within 350 feet of residences. The temporary sound barrier shall be a height of 8 feet or higher. To be effective, the barrier must be solid, with no gaps at the base or face of the barrier and have a minimum surface density of 4 lbs./sq ft.

MM NOI-4 Prohibit construction traffic from traveling along roadways adjacent to residences, including the residential areas within City of Calipatria and along Gentry Road and West Young Road.

MM NOI-5 A site specific sound study shall be conducted by a qualified acoustical professional for all proposed sound generating land uses located within 2,000 feet of residences or other sound sensitive land uses. The study shall include a description of existing background sound levels, an analysis of project generated sound levels, a comparison of operational levels to City and County limits, and recommendations to reduce operations to meet appropriate limits.

MM NOI-6 Consider the use of quieter pavement surfaces, noise barriers, traffic speed reduction, truck routing, and other measures to reduce traffic noise increases at noise-sensitive locations (e.g., residences, schools), which include those located in the City of Calipatria and along West Young Road and Gentry Road.

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7 Summary of Findings

The results of the noise and vibration technical analysis indicate that potential impacts during construction would **be less than significant** with mitigation measures **NOI-1, NOI-2, NOI-3, and NOI-4.** Offsite exterior noise impacts due to operation of the proposed Project would be **less than significant** with implementation of mitigation measure **NOI-5.** Off-site exterior impacts due to project traffic would be **significant and unavoidable**, even with the implementation of mitigation measure **NOI-6.**

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Appendix A

October 27, 2022 - Baseline SPL Survey Fieldnotes
Photographs of Baseline Measurement
Survey Locations

FIELD NOISE MEASUREMENT DATA

DUDEK

PROJECT: LITHIUM VALLEY (BASELINE SPL SURVEY)
PROJECT #: 14628
SITE ID: "B"
SITE ADDRESS: W. DELTA ST. & INTERNATIONAL
OBSERVER(S): M. STORM
START DATE: 10/27/22
END DATE: 10/27/22
START TIME:
END TIME:
GPS COORDS OF SLM: 33°7'48.32"N ~~PA~~ 115°31'8.83"W

METEOROLOGICAL CONDITIONS

TEMP: 80° F
HUMIDITY: 12 % R.H.
WIND: CALM LIGHT MODERATE VARIABLE STEADY GUSTY
WINDSPD: ~5 MPH
DIR.: N NE S SE S SW W NW
SKY: SUNNY CLEAR OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT: ACCOUS II
TYPE: 1 2
SERIAL #: '0201
CALIBRATOR: NC-74
SERIAL #: 17529
CALIBRATION CHECK: PRE-MEASUREMENT 94 dBA SPL; POST-MEASUREMENT — dBA SPL
WINDSCRN: ✓
SETTINGS: A-WTD SLOW FAST FRONTAL RANDOM ANSI
OTHER: 10-SEC INTV

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
1-70	3:27 PM								

COMMENTS:

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE:
DIST. TO RDWY C/L OR EOP:
TRAFFIC COUNT DURATION: MIN SPEED
MIN SPEED

COUNT 1 (OR RDWY 1)

DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB
AUTOS				
MED TRKS				
HVY TRKS				
BUSES				
MOTRCLS				

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE

COUNT 2 (OR RDWY 2)

DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB
AUTOS				
MED TRKS				
HVY TRKS				
BUSES				
MOTRCLS				

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY: 25 MPH

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
OTHER: HWY 111 NOISE BARELY AUDIBLE; AIRCRAFT JET (DISTANT) OVERFLIGHTS COMMON SLIGHTLY AUDIBLE FACILITY/SHED NOISE

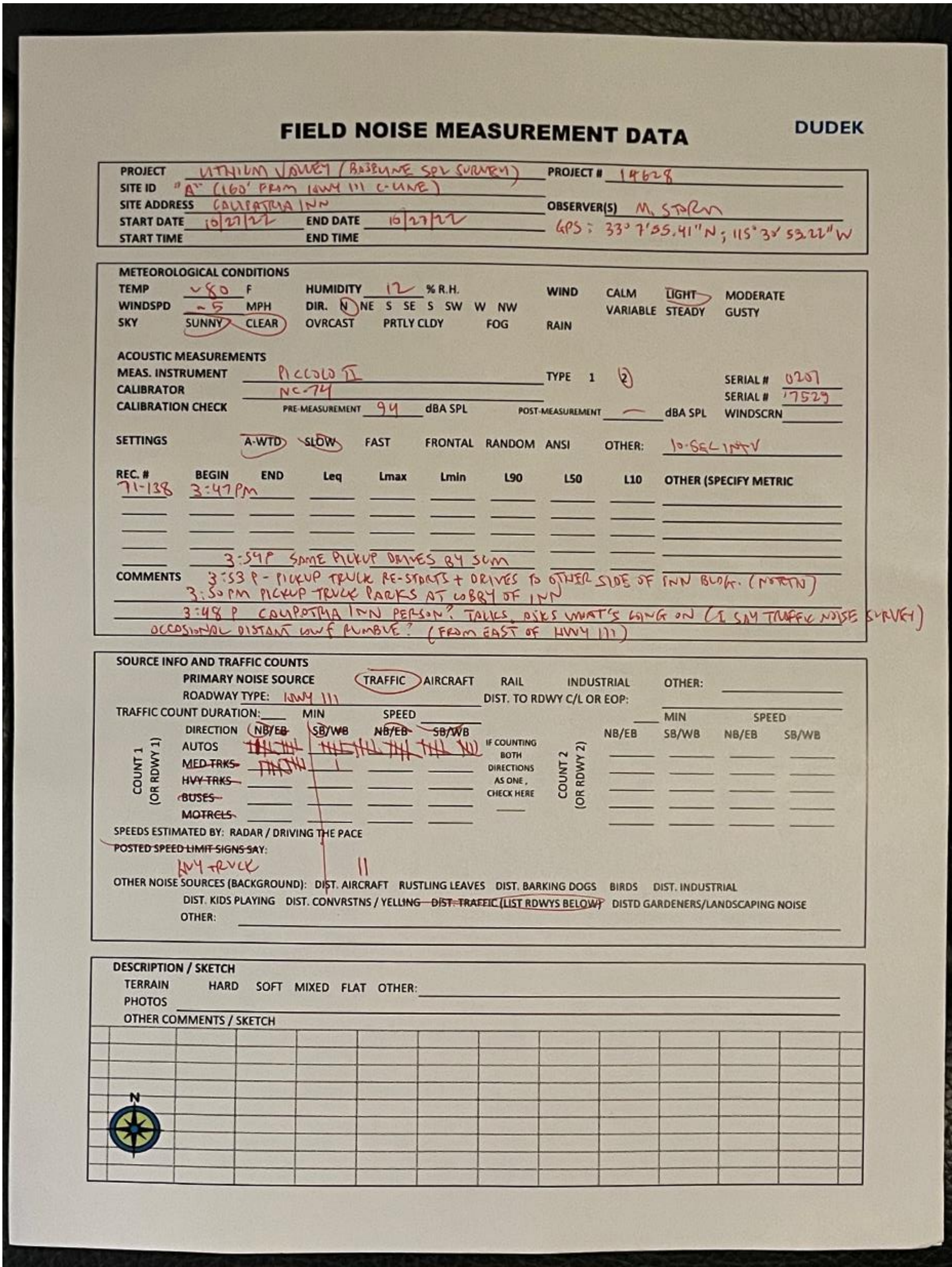
DESCRIPTION / SKETCH

TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS:
OTHER COMMENTS / SKETCH:

3:28 PM CAR PASS-BY ×2
3:31 PM " " ×2
3:32 PMS AIRCRAFT OVERFLIGHT; NOISE FROM TRAILER ON CORNER LOT
[CAR PASSBY; CAR HONK
3:35 P CAR PASSBY
3:36 P CAR NEAR (10N12)

N

10/27/22 – Fieldnotes at Survey Position **ST1** (West Delta Road)



FIELD NOISE MEASUREMENT DATA

DUDEK

PROJECT LITHIUM VALLEY (BASELINE SPL SURVEY) PROJECT # 14628
SITE ID "A" (160' FROM HWY 111 C-LINE)
SITE ADDRESS CALIPATRIA INN OBSERVER(S) M. STARM
START DATE 10/27/22 END DATE 10/27/22
START TIME END TIME GPS: 33° 7'55.41"N; 115° 30' 53.22"W

METEOROLOGICAL CONDITIONS
TEMP ~80 F HUMIDITY 12 % R.H. WIND CALM LIGHT MODERATE
WINDSPD ~5 MPH DIR. N NE S SE S SW W NW VARIABLE STEADY GUSTY
SKY SUNNY CLEAR OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT PICCOLO II TYPE 1 2 SERIAL # 0207
CALIBRATOR NC-74 SERIAL # 17529
CALIBRATION CHECK PRE-MEASUREMENT 94 dBA SPL POST-MEASUREMENT — dBA SPL WINDSCRN

SETTINGS A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER: 10-SEC INTV

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
71-138	3:47PM								

COMMENTS
3:54P SAME PICKUP DRIVES BY SLOW
3:53 P - PICKUP TRUCK RE-STARTS + DRIVES TO OTHER SIDE OF INN BLDG. (NORTH)
3:50 PM PICKUP TRUCK PARKS AT LOBBY OF INN
3:48 P CALIPATRIA INN PERSON? TALKS, ASKS WHAT'S GOING ON (I SAY TRAFFIC NOISE SURVEY)
OCCASIONAL DISTANT LOW F RUMBLE? (FROM EAST OF HWY 111)

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE TRAFFIC AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: HWY 111 DIST. TO RDWY C/L OR EOP:
TRAFFIC COUNT DURATION: MIN SPEED MIN SPEED

COUNT 1 (OR RDWY 1)	NB/EB	SB/WB	~~NB/EB~~	SB/WB
AUTOS				
~~MED TRKS~~				
~~HVY TRKS~~				
~~BUSES~~				
~~MOTRCLS~~				

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE

COUNT 2 (OR RDWY 2)	NB/EB	SB/WB	NB/EB	SB/WB

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
~~POSTED SPEED LIMIT SIGNS SAY:~~
HVY TRUCK ||

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING ~~DIST. TRAFFIC~~ (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
OTHER:

DESCRIPTION / SKETCH
TERRAIN HARD SOFT MIXED FLAT OTHER:
PHOTOS
OTHER COMMENTS / SKETCH

N

10/27/22 – Fieldnotes at Survey Position **ST2** (Calipatria Inn)

FIELD NOISE MEASUREMENT DATA

DUDEK

PROJECT: LITHIUM VALLEY (BASELINE SPL SURVEY) PROJECT #: 14628
SITE ID: "D" (NEAR 1,800' W. OF HWY 111)
SITE ADDRESS: ALCOTT ROAD; NEAR IID NILAND ANW PLANT OBSERVER(S): M. STORM
START DATE: 10/27/22 END DATE: 10/27/22
START TIME: END TIME: GPS: 33° 13' 38.06" N; 115° 31' 29.84" W

METEOROLOGICAL CONDITIONS
TEMP: 80 F HUMIDITY: 17 % R.H. WIND: CALM LIGHT MODERATE
WINDSPD: ~5 MPH DIR. N NE S SE S SW W NW VARIABLE STEADY GUSTY
SKY: SUNNY CLEAR OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT: PICCOLO II TYPE 1 2 SERIAL #: '0201
CALIBRATOR: NC-74 SERIAL #: 7529
CALIBRATION CHECK: PRE-MEASUREMENT 94 dBA SPL POST-MEASUREMENT – dBA SPL WINDSCRN:

SETTINGS: A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
139-202	4:11 PM								

COMMENTS
VERY QUIET - WASTEWATER PLANT INAUDIBLE - DISTANT HWY 111 TRAFFIC
4:17 PM: 3 HUEY COBRA HELICOPTERS PASS OVERHEAD
4:18 PM: CAR PASS BY ON ALCOTT ROAD

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: DIST. TO RDWY C/L OR EOP:
TRAFFIC COUNT DURATION: MIN SPEED MIN SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2) NB/EB	SB/WB	NB/EB	SB/WB
AUTOS									
MED TRKS									
HVY TRKS									
BUSES									
MOTRCLS									

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT INSECTS RUSTLING LEAVES HWY 111 DIST. BARKING DOGS BIRDS DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
OTHER:

DESCRIPTION / SKETCH
TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS:
OTHER COMMENTS / SKETCH

N

10/27/22 – Fieldnotes at Survey Position **ST3** (Alcott Road)

FIELD NOISE MEASUREMENT DATA

DUDEK

PROJECT: LITHIUM VALLEY (BASELINE SPL SURVEY) PROJECT #: 14628
SITE ID: "E"
SITE ADDRESS: WILKINS ROAD (NORTH OF BEAL RD.) OBSERVER(S): M. STORM
START DATE: 10/27/22 END DATE: 10/27/22 GPS: 33° 15' 52.62" N; 115° 30' 38.24" W
START TIME: END TIME:

METEOROLOGICAL CONDITIONS
TEMP: 80 F HUMIDITY: 17 % R.H. WIND: CALM LIGHT MODERATE
WINDSPD: ≈5-10 MPH DIR. N NE S SE S SW W NW VARIABLE STEADY GUSTY
SKY: SUNNY CLEAR OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS
MEAS. INSTRUMENT: PICCOLO II TYPE 1 2 SERIAL #: 0207
CALIBRATOR: NC-74 SERIAL #: 7529
CALIBRATION CHECK: PRE-MEASUREMENT 94 dBA SPL POST-MEASUREMENT 93.0 dBA SPL (RECAL'D TO 94.0) WINDSCRN: ✓

SETTINGS: A-WTD SLOW FAST FRONTAL RANDOM ANSI OTHER:

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
203-270	4:37 PM	4:47 PM							

COMMENTS
4:39 PM CAR PASSBY; IID TRUCK PASS-BY
4:40 P " "
4:41 P LONG DRIVE AWAY; 2 CAR PASS-BYS
4:41-42 P CAR PASSBY
4:42 P CLIPBOARD COVER PLASTIC RATTLE
4:43.4 P CAR PASSBY; IID TRUCK PASSBY
4:45 P LONG RETURN TO SLM
4:46 P " LONG

SOURCE INFO AND TRAFFIC COUNTS
PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: DIST. TO RDWY C/L OR EOP:
TRAFFIC COUNT DURATION: ___ MIN SPEED ___ MIN SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB	IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE	COUNT 2 (OR RDWY 2) NB/EB	SB/WB	NB/EB	SB/WB
AUTOS									
MED TRKS									
HVY TRKS									
BUSES									
MOTRCLS									

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY:

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES ~~DIST. BARKING DOGS~~ BIRDS DIST. INDUSTRIAL DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
OTHER:

DESCRIPTION / SKETCH
TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS:
OTHER COMMENTS / SKETCH

N

10/27/22 – Fieldnotes at Survey Position **ST4** (Wilkins Road)

2333 - Looking north

2335 - Looking south

10/27/22 – Sound Level Meter (SLM) at Position **ST1** (West Delta Road)
(photo file ID# and view direction noted above; SLM encircled in yellow dashes)

2337 - Looking east

2338 - Looking south

10/27/22 – Sound Level Meter (SLM) at Position **ST2** (Calipatria Inn)
(photo file ID# and view direction noted above; SLM encircled in yellow dashes)

2341 - Looking east

2343 - Looking southwest

10/27/22 – Sound Level Meter (SLM) at Position **ST3** (Alcott Road)
(photo file ID# and view direction noted above; SLM encircled in yellow dashes)

2346 - Looking east

2345 - Looking northwest

10/27/22 – Sound Level Meter (SLM) at Position **ST4** (Wilkins Road)
(photo file ID# and view direction noted above; SLM encircled in yellow dashes)