

## 3.6 Noise and Vibration

This supplemental environmental impact report (SEIR) addresses proposed modifications to the B.F. Sisk Dam Safety of Dams Modification Project, which was previously evaluated in the B.F. Sisk Dam Safety of Dams Modification Project Environmental Impact Statement/Environmental Impact Report (2019 EIS/EIR). The project addressed in the 2019 EIS/EIR is referred to herein as the Approved Project; the Approved Project with proposed additions to the project identified since certification of the 2019 EIS/EIR is referred to herein as the Modified Project. Please refer to Chapter 2 Project Description and Figures 2-3, 2-4A, and 2-4B for a detailed description of the proposed modifications included in the Modified Project.

This section describes the existing noise conditions of the Modified Project site and vicinity, identifies associated regulatory requirements, evaluates potential impacts, and identifies any applicable mitigation measures related to implementation of the of the Modified Project. The analysis is based on noise modeling conducted for the Modified Project as part of the preparation of this SEIR; noise modeling is included as Appendix C of this SEIR.

The Modified Project would expand on the previously Approved Project at the current locations, with the addition of new contractor work areas, revised location of borrow areas, a new campground, and improvements to an existing day use area. The results of the noise modeling are summarized in this section, with additional information included in Appendix C.

### 3.6.1 Existing Conditions

#### 3.6.1.1 Existing Noise Environment

The Modified Project site is located in unincorporated Merced County, approximately 7 miles west of the City of Los Banos, California. The Modified Project elements are bisected north/south by State Route (SR) 152. The most dominant noise source in the general Modified Project area is transportation noise generated from vehicular traffic on the local and regional roadway network; minor recreational and commercial activities in the area contribute to lesser extent. The existing ambient noise environment was quantified through field surveys, sound level measurements, observations during site visits, and through the application of accepted reference data and noise prediction methodologies. Separate discussions of identified major noise sources and their respective effects are provided in the following sections.

#### 3.6.1.2 Existing Noise-Sensitive Land Uses

Certain land uses are particularly sensitive to noise, such as schools, hospitals, and rest homes. Residential areas are also considered noise sensitive, especially during the nighttime hours. Noise-sensitive receptors identified in the immediate vicinity of the Modified Project, and analyzed in this section of the SEIR, include the residential subdivision east of O'Neill Forebay (approximately 10,900 feet from the proposed new campground activity area), the residences south of SR-152 (approximately 11,630 and 10,700 feet to Borrow Areas 12 and 14), and the single-family residence south of the Basalt Hill Borrow Area on Harper Lane (approximately 10,700 feet to the nearest contractor work area added with the Modified Project). For the purpose of the SEIR's analysis of additional project components added since certification of the 2019 EIS/EIR, the nearest noise-sensitive receptors were identified by determining the receptor closest to the nearest proposed project addition included in the Modified

Project (i.e., changes to borrow areas, minor additions to contractor work areas, and campground construction and San Luis Creek Day Use Area improvements; see Figures 1-3, 2-3, and 2-4).

### 3.6.1.3 Existing Ambient Noise Survey

Dudek staff visited the Modified Project site on June 3, 2020, and again on October 29 and 30, 2020, to measure ambient sound levels in the Modified Project vicinity. Short-term measurements were conducted with a calibrated SoftdB Piccolo II ANSI Type II integrating sound-level meter, placed on a tripod with the microphone positioned approximately 5 feet above the ground. A total of four short-term noise measurements were performed; one along Gonzaga Road, north of the subdivision located south of SR-152; one along SR-33, east of residences on Anacapa Avenue and Luis Avenue; one at W. Santa Catalina Avenue, south of residences along Yerba Buena Avenue; and one at the new proposed campground area, on the western shore of O'Neill Forebay. A single long-term noise measurement was performed adjacent to residences along San Luis Drive at the subdivision located south of SR-152. The long-term noise measurement is conducted to capture typical noise levels for a full diurnal cycle in the surrounding Modified Project area and establishes baseline noise conditions for which to compare nightly construction activities. The sound-level meters were calibrated before and after the measurements using a Reed R8090 sound level calibrator to ensure the accuracy of the sound pressure level measurements.

Table 3.6-1 summarizes the dates and times for each noise level measurement, as well as the measured pertinent noise level metrics (e.g., Ldn [day-night noise level], Leq [average equivalent noise level], Lmax [maximum noise level]). The locations are also shown on Figure 3.6-1, Noise Monitoring Sites and Nearby Noise Sensitive Land Uses (NSLU). See Appendix C for field data sheets for each of the field measurement data sheets.

**Table 3.6-1. Existing Ambient Noise Monitoring Results**

Location	Date	Start Time	Stop Time	Leq (dBA)	Lmax (dBA)	Ldn (dBA) <sup>1</sup>
ST-1	06/03/2020	1:20 p.m.	1:50 p.m.	59.7	74.7	72
ST-2		2:15 p.m.	2:25 p.m.	74.4	85.1	84
ST-3		2:40 p.m.	3:10 p.m.	43.8	63.2	54
ST-4		3:35 p.m.	4:05 p.m.	39.4	50.3	43
LT-1 <sup>2</sup>	10/29/2020 to 10/30/2020	12:29 p.m.	12:29 p.m.	Daytime – 58.5 Nighttime – 56.8	Daytime – 79.0 Nighttime – 73.8	63.8

**Source:** Appendix C.

**Notes:** dBA = A-weighted decibels; Ldn = day-night noise level; Leq = average equivalent noise level; Lmax = maximum noise level; ST = short-term noise measurement monitoring location; LT = long-term noise measurement monitoring location.

<sup>1</sup> Ldn noise at short-term monitoring locations estimated based on hourly noise levels measured at the long-term monitoring location.

<sup>2</sup> Leq and Lmax values presented for LT-1 are average noise levels measured during the monitoring period.

As shown in Table 3.6-1, existing ambient noise levels cataloged during the measurement survey ranged from approximately 39 to 74 A-weighted decibels (dBA) average equivalent noise level (Leq) and 50 to 85 dBA maximum noise level (Lmax). The short-term measurement locations were influenced by traffic noise on SR-152 and SR-33. Elevated noise levels cataloged at short-term measurement location ST-2 were due to a large number of heavy trucks passing the location with several observed to use an engine-brake (i.e., jake-brake), resulting in the maximum noise level of 85 dBA Lmax.

Existing ambient noise levels at the long-term monitoring location ranged from approximately 52 to 62 dBA Leq, with average daytime noise levels of 58.5 dBA and nighttime levels of 56.8 dBA Leq. The quietest hourly period was found to occur during the 12:00 p.m. and 1:00 p.m. hours, which were approximately 12 decibels (dB) below the

measured 24-hour day-night noise level (Ldn) of 63.8 dBA Ldn. During the evening hours, the lowest ambient level was approximately 8.3 dB below the measured Ldn, with the lowest nighttime ambient approximately 8.8 dB below the Ldn. The 24-hour day-night noise level was calculated for each of the short-term measurement locations based on hourly noise levels cataloged during the long-term measurement.

#### 3.6.1.4 Existing Traffic Noise

Existing traffic noise levels were modeled for roadway segments in the Modified Project vicinity based on the Federal Highway Administration (FHWA) Highway Traffic Noise Model 2.5 prediction methodologies (FHWA 1998), and traffic data provided in the most current set of California Department of Transportation (Caltrans) annual traffic volume counts (Caltrans 2019). The FHWA Traffic Noise Model incorporates state-of-the-art sound emission and propagation algorithms, based on well-established theory and accepted international standards. The acoustical algorithms contained within the FHWA Traffic Noise Model have been validated with respect to carefully conducted noise measurement programs and show excellent agreement in most cases for sites with and without noise barriers. The noise modeling accounted for factors such as vehicle volume, speed, vehicle type, roadway configuration, distance to the receiver, and propagation over different types of ground (acoustically soft and hard ground).

Modeled existing traffic noise levels are summarized in Table 3.6-2, for the outdoor activity area of noise-sensitive receptor in closest proximity to the respective roadway segment in the vicinity of the Modified Project. The extent to which existing land uses in the vicinity of the Modified Project are affected by existing traffic noise depends on their respective proximity to the roadways, shielding provided by intervening objects and their individual sensitivity to noise. As shown in Table 3.6-2, traffic noise levels within outdoor activity areas of noise-sensitive land uses adjacent to major roadway segments in the Modified Project vicinity range from approximately 40 to 61 dBA Ldn. As vehicular traffic noise was the most dominant noise source contributing to the ambient noise environment, the evening and nighttime hourly average noise levels were calculated based on the diurnal pattern observed during the long-term monitoring. Evening ambient traffic noise levels ranged from approximately 32 to 52 dBA Leq, with nighttime ambient traffic noise levels ranging from approximately 31 to 51 dBA Leq. Refer to Appendix C modeling inputs and results.

**Table 3.6-2. Summary of Modeled Existing Traffic Noise Levels**

Noise-Sensitive Receptor		Distance from Roadway Centerline to Receiver (feet)	Noise Level, dBA		
ID	Description		Ldn	Evening Leq <sup>1</sup>	Nighttime Leq <sup>1</sup>
R-1	Residential Neighborhood North of SR-152 and west of SR-33	11,900	45.9	37	37
R-2	Residences South of SR-152 at SR-33	1,250	60.6	52	51
R-3	Residences South of SR-152 at SR-33	1,980	57.6	49	48
R-4	Residence on Harper Lane	27,900	40.3	32	31
R-5	Site of Proposed New Campground	9,375	47.4	39	38

**Source:** Appendix C.

**Notes:** dBA = A-weighted decibels; Ldn = average day-night noise level; Leq = equivalent hourly noise level; SR = State Route.

Average Daily Traffic Volumes (ADTs) for SR-152 are based on California Department of Transportation truck traffic counts for the most recent year (i.e., 2018).

Modeled existing noise levels do not accounting for shielding provided by natural or human-made intervening objects.

<sup>1</sup> Lowest ambient Leq traffic noise levels calculated based on diurnal pattern observed during the long-term noise measurement.

### 3.6.1.5 Existing Aircraft Operations

The Modified Project site is located approximately 8.3 miles west of Los Banos Municipal Airport. The Modified Project site is located more than 7.9 miles outside of the currently adopted 55 dB Community Noise Equivalent Level noise contours of the Airport Land Use Compatibility Plan for the Merced County Airport Land Use Commission (Merced County 2012). No aircraft over-flights were documented during either the short-term or long-term monitoring. Based on the location of the Modified Project in relation to the nearby airports, existing aircraft operations are not anticipated to have a substantial effect on noise levels within the Modified Project area.

### 3.6.1.6 Existing Vibration

The existing vibration environment, similar to that of the noise environment, is dominated by transportation-related vibration from roadways in close proximity or immediately adjacent to the Modified Project boundary. Heavy truck traffic can generate groundborne vibration, which varies considerably depending on vehicle type, weight, and pavement conditions. However, groundborne vibration levels generated from vehicular traffic are not typically perceptible outside of the roadway right-of-way (Caltrans 2020).

## 3.6.2 Relevant Plans, Policies, and Ordinances

### 3.6.2.1 Federal

#### **Federal Noise Control Act**

The U.S. Environmental Protection Agency's (EPA's) Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. After its inception, the EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at more local levels of government. Consequently, in 1982, responsibilities for regulating noise control policies were transferred to state and local governments. However, noise control guidelines and regulations contained in the EPA rulings in prior years are still adhered to by designated federal agencies where relevant. No federal noise regulations are applicable to the Modified Project.

### 3.6.2.2 State

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.

#### **California Department of Transportation Guideline Vibration Damage Potential Threshold Criteria**

There are no state standards for vibration; however, Caltrans compiled a synthesis of research on the effects of vibration with thresholds ranging from 0.08 inches per second (in/sec) peak particle velocity (PPV) to 4.0 in/sec PPV for "fragile historic buildings" and "structures of substantial construction," respectively. Based on the synthesis of research, Caltrans developed recommendations for guideline threshold criteria of 0.3 in/sec PPV for older residential structures and 0.25 in/sec PPV for historic buildings and some old buildings exposed to

continuous/frequent intermittent sources. For extremely fragile historic buildings, ruins, and ancient monuments, Caltrans recommends a threshold of 0.08 in/sec PPV (Caltrans 2020).

### 3.6.2.3 Local

#### Merced Vision 2030 General Plan

As required by state law, Merced County has adopted a general plan to guide land use decisions within the county. The general plan provides goals, policies, standards, and implementation programs to guide the physical development of a county. At a minimum, the general plan must address the topics of land use, transportation, housing, conservation, open space, noise, and safety. The Merced Vision 2030 General Plan (Merced County General Plan), adopted in 2013, has established the year 2030 as the plan's time horizon. The Health and Safety Element of the Merced County General Plan provides standards, goals, and policies regarding noise, including the following (Merced County 2013):

#### *Health and Safety Element*

**Goal HS-7:** Protect residents, employees, and visitors from the harmful and annoying effects of exposure to excessive noise.

- **Policy HS-7.5: Noise Generating Activities (RDR).** Limit noise generating activities, such as construction, to hours of normal business operation.
- **Policy HS-7.7: Noise or Vibration Impacted Residential Area Monitoring (RDR).** Consider any existing residential area “noise or vibration impacted” if the exposure to exterior noise exceeds the standards shown in Table HS-2 of the General Plan [Table 3.6-3 in this SEIR] or if groundborne vibration levels exceed 70 VdB. Identify and evaluate potential noise or groundborne vibration impacted areas and identify possible means to correct the identified noise/land use incompatibilities.
- **Policy HS-7.9: Transportation Project Construction/Improvements (RDR).** Require transportation project proponents to prepare all acoustical analysis for all roadway and railway construction projects in accordance with Policy HS-7.2. Consider noise mitigation measures to reduce traffic and/or rail noise levels to comply with Table HS-1 standards if pre-project noise levels already exceed the noise standards of Table HS-1 and the increase is significant. The County defines a significant increase as follows:

<u>Pre-Project Noise Environment (Ldn)</u>	<u>Significant Increase</u>
Less than 60 dB	5+ dB
60 - 65 dB	3+ dB
Greater than 65 dB	1.5+ dB

- **Policy HS-7.10: Aircraft Noise.** Prohibit new noise-sensitive development within the projected future 60 dB Ldn noise contours of any public or private airports.

**Table 3.6-3. Noise Standards for New Uses Affected by Traffic, Railroad, and Airport Noise**

New Land Use	Sensitive Outdoor Area <sup>1</sup> - Ldn	Sensitive Interior Area <sup>2</sup> - Ldn	Notes
All Residential	65	45	3
Transient Lodging	65	45	3,4
Hospitals and Nursing Homes	65	45	3,4,5

**Table 3.6-3. Noise Standards for New Uses Affected by Traffic, Railroad, and Airport Noise**

New Land Use	Sensitive Outdoor Area <sup>1</sup> - Ldn	Sensitive Interior Area <sup>2</sup> - Ldn	Notes
Theaters and Auditoriums	—	35	4
Churches, Meeting Halls, Schools, Libraries, etc.	65	40	4
	65	40	4
Office Buildings	65	45	4
Commercial Buildings	—	50	4
Playgrounds, Parks, etc.	70	—	
Industry	65	50	4

**Source:** Merced County 2013.

**Notes:**

- <sup>1</sup> Sensitive Outdoor Areas include primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied
- <sup>2</sup> Sensitive Interior Areas includes any interior area associated with any given land use at which noise sensitivity exists and the location at which the County's interior noise level standards are applied. Examples of sensitive interior spaces include, but are not limited to, all habitable rooms of residential and transient lodging facilities, hospital rooms, classrooms, library interiors, offices, worship spaces, theaters. Interior noise level standards are applied within noise-sensitive areas of the various land uses with windows and doors in the closed positions.
- <sup>3</sup> Railroad warning horn usage shall not be included in the computation of Ldn.
- <sup>4</sup> Only the interior noise level standard shall apply if there are no sensitive exterior spaces proposed for these uses.
- <sup>5</sup> Since hospitals are often noise-generating uses, the exterior noise level standards are applicable only to clearly identified areas designated for outdoor relaxation by either hospital staff or patients.

Table 3.6-4 shows the interior and exterior noise level standards for noise-sensitive areas affected by existing non-transportation noise sources in Merced County.

**Table 3.6-4. Non-Transportation Noise Standards Median (L50) / Maximum (Lmax)<sup>1</sup>**

Outdoor Area <sup>2</sup>			Interior <sup>3</sup>	
Receiving Land Use	Daytime	Nighttime	Day or Night	Notes
All Residential	55 / 75	50 / 70	35 / 55	
Transient Lodging	55 / 75	—	35 / 55	4
Hospitals and Nursing Homes	55 / 75	—	35 / 55	5, 6
Theaters and Auditoriums	—	—	30 / 50	6
Churches, Meeting Halls, Schools, Libraries, etc.	55 / 75	—	35 / 50	6
Office Buildings	60 / 75	—	45 / 65	6
Commercial Buildings	55 / 75	—	45 / 65	6
Playgrounds, Parks, etc.	65 / 75	—	—	6
Industry	60 / 80	—	50 / 70	6

**Source:** Merced County 2013.

**Notes:**

- <sup>1</sup> These standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards in this table, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.
- <sup>2</sup> Sensitive Outdoor Areas include primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied.
- <sup>3</sup> Sensitive Interior Areas includes any interior area associated with any given land use at which noise sensitivity exists and the location at which the County's interior noise level standards are applied. Examples of sensitive interior spaces include, but are not limited to, all habitable rooms of residential and transient lodging facilities, hospital rooms, classrooms, library interiors, offices, worship spaces, theaters. Interior noise level standards are applied within noise-sensitive areas of the various land uses with windows and doors in the closed positions.
- <sup>4</sup> Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.

- <sup>5</sup> Since hospitals are often noise-generating uses, the exterior noise level standards are applicable only to clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
- <sup>6</sup> The outdoor activity areas of these uses (if any) are not typically used during nighttime hours.
- <sup>7</sup> Where median (L50) noise level data is not available for a particular noise source, average (Leq) values may be substituted for the standards of this table provided the noise source operates for at least 30 minutes. If the source operates less than 30 minutes the maximum noise level standards shown shall apply.

### **Merced County Code**

General limitations state that no sound source should exceed the background sound level at the receiving property line by 10 dBA or more during the daytime hours (7:00 a.m. to 10:00 p.m.) and by 5 dBA or more during the nighttime hours (10:00 p.m. to 7:00 a.m.). The maximum permissible sound levels for residential property are 65 dBA Ldn or 75 dBA Lmax. The maximum permissible sound levels for property other than residential property are 70 dBA Ldn or 80 dBA Lmax.

Merced County's ordinance exempts construction activities, provided that all construction in or adjacent to urban areas shall be limited to the daytime hours between 7:00 a.m. and 6:00 p.m., and all construction equipment shall be properly muffled and maintained. Operation of construction equipment outside of these daytime hours or at any time on a weekend or legal holiday is prohibited (Merced County 2020).

### **Section 18.40.050 Noise**

- E Elevated Noise Level During Construction.** During construction, the noise level may be temporarily elevated. To minimize the impact, all construction in or adjacent to urban areas shall comply with the following procedures for noise control:
  - 1. Construction hours shall be limited to the daytime hours between 7:00 a.m. and 6:00 p.m. daily;
  - 2. Operating or permitting the operation of any tools or equipment used in construction, drilling, earthmoving, excavating, or demolition work between 6:00 p.m. and 7:00 a.m. on a weekday or at any time on a weekend day, or legal holiday, except for emergency work, or when the sound level exceeds any applicable relative or absolute limit specified in MCC Section 10.60.030 is prohibited; and
  - 3. All construction equipment shall be properly muffled and maintained.
- F Noise Barriers.** Refer to Section 18.34.060 (Noise Barrier) of this Zoning Code for design requirements if a noise barrier structure is required to meet the noise standards. (Ord. 1976 § 2, 2019).

### **Section 18.40.080 Vibration, Heat, Electrical Disturbances, and Glare**

No use shall create any disturbing ground vibration, heat, glare, and electrical disturbances based on typical human reaction beyond the boundaries of the subject parcel. No use shall cause electromagnetic interference with normal radio or television reception or with the function of other electronic equipment beyond the property line of the parcel on which they are located (Merced County 2020).

### 3.6.3 Thresholds of Significance

The following significance criteria from the 2019 EIS/EIR are used for the purposes of analysis in this SEIR. These criteria, which have not changed from the 2019 EIS/EIR, are identified in Chapter 11, Noise and Vibration, of the 2019 EIS/EIR. A significant impact related to noise would occur if the Modified Project would result in:

1. 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.
2. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
3. A substantial permanent increase in ambient noise levels in the Modified Project vicinity above levels existing without the Modified Project.
4. A substantial temporary or periodic increase in ambient noise levels in the Modified Project vicinity above levels existing without the Modified Project.
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Modified Project expose people residing or working in the Modified Project area to excessive noise levels.

In analyzing noise and vibration impacts associated with the Modified Project, pertinent noise standards identified by the Merced County General Plan and Merced County Code (see Section 3.6.2.3) have been considered in developing the quantified significance standards, below, by which to evaluate the significance of impacts evaluated in accordance with significance criteria from the 2019 EIS/EIR.

- Significance Standard 1. The Modified Project would result in a significant impact if construction or operational activities would generate noise levels exceeding 55 dBA L50 or 75 dBA Lmax between the hours of 6:00 p.m. and 10:00 a.m. or exceeding 50 dBA L50 or 70 dBA Lmax between the hours of 10:00 p.m. and 7:00 a.m.
- Significance Standard 2. The Modified Project would result in a significant impact if groundborne noise or vibration levels exceeding the Caltrans guidance of 0.3 in/sec PPV for older residential structures or the Federal Transit Administration guidance of 70 vibration decibel (VdB) RMS for human annoyance.
- Significance Standard 3. The Modified Project would result in a significant impact if the proposed new campground operations resulted in a 5 dBA Ldn increase in the ambient noise environment at the residences east of O'Neill Forebay, represented by receiver R-1.
- Significance Standard 4. The Modified Project would result in a significant impact if temporary construction noise activities would exceed the ambient noise environment by 10 dB Leq during the hours of 6:00 p.m. to 10:00 p.m., or by 5 dB Leq between the hours of 10:00 p.m. and 7:00 a.m. at the nearest residential receptors.
- Significance Standard 5. The Modified Project would result in a significant impact if the Modified Project would expose people to, or result in new noise-sensitive uses, within the projected future 60 dBA Ldn noise contour of any public or private airports.



### 3.6.4 Impacts Analysis

#### Threshold 1

***Would the Modified Project result 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?***

2019 EIS/EIR Impact Determination	Modified Project Impact Determination	New Significant Increase in Impact Severity?
Significant and Unavoidable	Significant and Unavoidable	No

#### On-Site Construction (Short-Term) Noise

Construction of the Modified Project would generate noise that could expose nearby receptors (i.e., residences and hotel guests) to elevated noise levels that may disrupt communication and routine activities. The magnitude of the impact would depend on the type of construction activity, equipment, duration of the construction phase, distance between the noise source and receiver, and intervening structures. Noise from construction equipment generally exhibits point source acoustical characteristics. Point source sounds typically attenuate (or reduce) at a rate of 6 decibels per doubling of distance from the source for “hard site” conditions and at 7.5 decibels per doubling of distance for “soft site” conditions. These rules apply to the propagation of sound waves with no obstacles between source and receivers, such as topography (ridges or berms) or structures. The range of maximum noise levels for various types of construction equipment is provided in Table 3.6-5.

**Table 3.6-5. Typical Construction Equipment Noise Emission Levels**

Equipment Description	Acoustical Use Factor (%)	Lmax at 50 feet (dBA, slow) <sup>1</sup>
Auger Drill Rig	20	85
Backhoe	40	80
Compactor (ground)	20	93
Compressor (air)	40	80
Concrete Mixer Truck	40	85
Concrete Pump Truck	20	82
Concrete Saw	20	90
Crane	16	85
Dozer	40	85
Dump Truck	40	80
Excavator	40	85
Flat Bed Truck	40	84
Front End Loader	40	80
Generator	50	82
Grader	40	85
Jackhammer <sup>2</sup>	20	85
Mounted Impact Hammer (hoe ram) <sup>2</sup>	20	90
Paver	50	85
Pneumatic Tools	50	85
Pumps	50	77

**Table 3.6-5. Typical Construction Equipment Noise Emission Levels**

Equipment Description	Acoustical Use Factor (%)	Lmax at 50 feet (dBA, slow) <sup>1</sup>
Rock Drill	20	85
Roller	20	85
Scraper	40	85
Tractor	40	84
Vacuum Excavator (Vac-truck)	40	85

**Sources:** FHWA 2006; FTA 2018.

**Notes:** Lmax = maximum noise level; dBA = A-weighted decibels.

<sup>1</sup> All equipment fitted with a properly maintained and operational noise control device, per manufacturer specifications.

<sup>2</sup> Impulsive/impact device.

The FHWA's Roadway Construction Noise Model (FHWA 2008) was used to estimate construction noise levels at these noise-sensitive land uses. Although the model was developed by the FHWA, the Roadway Construction Noise Model is often used for non-roadway projects, because the same types of construction equipment used for roadway projects are also used to construct other project types. Input variables for the Roadway Construction Noise Model consist of the receiver/land use types, the equipment type and number of each (e.g., two graders, a loader, a tractor), the duty cycle for each piece of equipment (e.g., percentage of each hour the equipment typically works per day), and the distance between the construction activity and noise-sensitive receivers. No topographical or structural shielding was assumed in the modeling of construction noise (i.e., the receivers are modelled with no obstacles to the travel of sound between the construction activity and receiver location, a worst-case assumption). The noise levels from the proposed construction activities are summarized in Table 3.6-6 through Table 3.6-9. The complete set of Roadway Construction Noise Model input and output data for construction noise is provided in Appendix C.

For construction noise, a concept called the acoustic center is useful in describing average noise levels across the entire construction period for adjacent receivers. The acoustic center is the idealized point from which the energy sum of all construction activity noise near and far would originate, and it is derived by taking the arithmetic mean (i.e., average) of the sum of the shortest distance and the furthest distance. The distance from the acoustic center of the construction activities to the nearest noise-sensitive receptor is used to calculate predicted hourly average noise levels. To calculate the maximum noise level exposure at the noise-sensitive receptors, distance between the nearest construction boundary and the receptor is used.

#### ***Campground Construction and Day Use Area Improvements***

The nearest noise-sensitive receptors are residential located approximately 11,560 feet away (represented by receiver R-1) from the acoustic center of construction activity; the closest construction activities would take place approximately 10,900 feet from the nearest receptors. As shown in Table 3.6-6, typical construction noise levels at the nearest residential receptors to the east of the campground construction activities would range from approximately 26 to 41 dBA Leq and maximum noise level ranging from approximately 29 to 35 dBA Lmax.

**Table 3.6-6. Campground Construction Noise Exposure by Phase at Nearest Receiver**

Construction Phase	Leq dBA	Lmax dBA
Site Preparation	37.7	32.3
Grading/Trenching	40.5	29.3
Building Construction	38.2	35.3
Paving	33.4	31.3

**Table 3.6-6. Campground Construction Noise Exposure by Phase at Nearest Receiver**

Construction Phase	Leq dBA	Lmax dBA
Architectural Coating	25.5	32.3

**Notes:** Leq = average equivalent noise level; dBA = A-weighted decibels; Lmax = maximum noise level.

Nearest construction activity - 10,900 feet; Acoustic center - 11,560 feet.

See Appendix C for additional construction modeling details.

The lowest existing ambient noise levels at the noise-sensitive receptors represented by R-1 (the residential neighborhood north of SR-152 and west of SR-33) were calculated to be 37 dBA Leq during the evening and nighttime quietest periods. With modeled construction noise levels calculated to reach 40.5 dBA Leq, activities associated with constructing the campground and day use area improvements would generate noise levels up to 3 dB above the existing ambient environment; which would comply with the Merced County increase above ambient criteria of 10 dB for daytime/evening timeframe and the 5 dB nighttime criteria. The modeled construction noise levels would also comply with the Merced County non-transportation thresholds of 55 dBA and 50 dBA Leq daytime and nighttime criteria, respectively. Therefore, impacts associated with campground construction and day use area improvements would be **less than significant**.

#### ***Changes in Borrow Area Location***

For Borrow Area 12, the nearest noise-sensitive residential receivers (represented by receiver R-2) are located approximately 12,240 feet away from the acoustic center of construction activity, with the distance to the nearest construction boundary approximately 11,630 feet. As shown in Table 3.6-1, typical construction noise levels at the residential receptors to the east of the Borrow Area 12 construction activities would range from approximately 27 to 43 dBA Leq and 38 to 47 dBA Lmax.

**Table 3.6-7. Borrow Area 12 Construction Noise Levels by Phase at Nearest Receiver**

Construction Phase	Leq dBA	Lmax dBA
Blasting	26.2	46.7
Site Preparation	42.3	37.7
Grading	40.4	42.7

**Notes:** Leq = average equivalent noise level; dBA = A-weighted decibels; Lmax = maximum noise level.

See Appendix C for additional construction modeling details.

The lowest existing ambient noise levels at the noise-sensitive receptors represented by R-2 (residences south of SR-152 and SR-33) were calculated to be 52 dBA Leq during the evening hours and 51 dBA Leq during nighttime quietest periods (Table 3.6-2, Summary of Modeled Existing Traffic Noise Levels). With modeled construction noise levels calculated to reach 42.3 dBA Leq, the Modified Project would generate noise levels below the existing ambient environment, which would comply with the Merced County increase above ambient criteria of 10 dB for daytime/evening timeframe and the 5 dB nighttime criteria.

For Borrow Area 14, the nearest noise-sensitive residential receivers (represented by receiver R-3) are located approximately 12,300 feet away from the acoustic center of construction activity, with the distance to the nearest construction boundary approximately 10,700 feet. As shown in Table 3.6-8, typical construction noise levels at the residential receptors to the east of the Borrow Area 14 construction activities would range from approximately 27 to 43 dBA Leq and 39 to 48 dBA Lmax.

**Table 3.6-8. Borrow Area 14 Construction Noise Levels by Phase at Nearest Receiver**

Construction Phase	Leq dBA	Lmax dBA
Blasting	26.2	47.7
Site Preparation	42.3	38.4
Grading	40.3	43.4

**Notes:** Leq = average equivalent noise level; dBA = A-weighted decibels; Lmax = maximum noise level.  
See Appendix C for additional construction modeling details.

The lowest existing ambient noise levels at the noise-sensitive receptors represented by R-3 (residences south of SR-152 and SR-33) were calculated to be 49 dBA Leq during the evening hours and 48 dBA Leq during nighttime quietest periods (Table 3.6-2). With modeled construction noise levels calculated to reach 42.3 dBA Leq, construction activities associated with work within Borrow Areas 12 and 14 would generate noise levels below the existing ambient environment, which would comply with the Merced County increase above ambient criteria of 10 dB for daytime/evening timeframe and the 5 dB nighttime criteria. The modeled construction noise levels would also comply with the Merced County non-transportation thresholds of 55 dBA and 50 dBA Leq daytime and nighttime criteria, respectively. Therefore, impacts associated with changes in borrow area location would be **less than significant**.

#### **Minor Additions to Contractor Work Area**

For the minor additions to existing contractor work areas, noise-sensitive receptors (represented by receiver R-4) would be approximately 14,900 feet away from the acoustic center of construction activity and 10,700 feet from the closest point for anticipated construction operations within the additional contractor work areas. As shown in Table 3.6-9, typical construction noise levels at the residential receptors to the south of the Minor Additions to the Existing Contractor Work Areas would range from approximately 36 to 38 dBA Leq and 36 to 39 dBA Lmax.

**Table 3.6-9. Noise Levels from Minor Additions to Contractor Work Area by Phase at Nearest Receiver**

Construction Phase	Leq dBA	Lmax dBA
Site Preparation	35.5	35.9
Grading	38.0	38.3

**Notes:** Leq = average equivalent noise level; dBA = A-weighted decibels; Lmax = maximum noise level.  
See Appendix C for additional construction modeling details.

The lowest existing ambient noise levels at the noise-sensitive receptors represented by R-4 (residences on Harper Lane) were calculated to be 32 dBA Leq during the evening hours and 31 dBA Leq during nighttime quietest periods. With modeled construction noise levels calculated to reach 38.0 dBA Leq, construction activities within the additional contractor work areas would generate noise levels up to 7 dB above the existing ambient environment; which would comply with the Merced County increase above ambient criteria of 10 dB for daytime/evening timeframe, but would exceed the 5 dB nighttime criteria. The modeled construction noise levels would also comply with the Merced County non-transportation thresholds of 55 dBA and 50 dBA Leq daytime and nighttime criteria, respectively. Therefore, impacts associated with minor additions to contractor work areas would be potentially significant unless if not mitigated. Mitigation measures to reduce construction noise impacts are identified and discussed below.

### **Construction Summary**

Merced County exempts noise generated from construction activity conducted in or adjacent to urban areas from standard exterior noise exposure limits, providing that the noise generating construction activities (e.g., grading, blasting, site preparation) are restricted to between the hours of 7:00 a.m. and 6:00 p.m. (Merced County 2020, Chapter 10.60.030). The proposed construction operations would not be located in, or adjacent to an urban area; therefore, the limitation on construction operational hours would not be applicable to construction activities associated with the Modified Project. Noise levels generated by construction activities associated with the project additions included in the Modified Project would not exceed Merced County's daytime or nighttime absolute noise level thresholds identified under Section 10.60.030 of the County Code. However, the construction activities associated with the Minor Additions to Contractor Work Areas could exceed the Merced County 5 dB relative increase threshold during nighttime hours. Therefore, construction noise levels associated with additional contractor work areas would result in a potentially significant impact.

Application of the noise control techniques affecting and controlling the construction noise at the source (i.e., heavy equipment, pumps) set forth in Mitigation Measure NOISE-1 identified in the 2019 EIS/EIR can achieve reductions of 3 to 6 dBA; noise control techniques implemented along the path of the noise (i.e., temporary noise barriers, enclosures, relocation of equipment) has been shown to reduce construction noise levels between 2 to 7 dBA (Wu and Keller 2007). The overall noise level reduction achieved through implementation of these mitigation measures is expected to range from 5 to 13 dBA. **Mitigation Measures NOISE-1 through NOISE-3** identified in the 2019 EIS/EIR require implementation of a noise control plan, a blasting plan, and a noise monitoring program that include limitations on construction activities that could generate substantial noise during evening and nighttime hours, use of noise-shielding measures, equipment maintenance requirements and noise planning, among other measures, that would ensure that noise generated from the additional contractor work areas would not increase noise levels over 5 dB above the existing nighttime ambient noise level and would thus comply with Merced County Code and remain below the thresholds of significance identified for this analysis in Section 3.6.3. Impacts from the project additions included in the Modified Project would be **less than significant with mitigation**.

### **Operational Noise**

Operational noise associated with the Modified Project would be limited to the long-term operations of the proposed new campground and the improvements at the San Luis Creek Day Use Area. Sound sources associated with the new campground and improvements to the existing facilities would include a limited number of recreational vehicles and watercraft activities. Based on the type of noise sources associated with the new campground, the proposed improvements and the geographic location of these components of the Modified Project, sound levels associated with the long-term operation would attenuate to levels at or below the existing ambient noise environment at sensitive receptors. Therefore, impacts from noise generated by operation of the proposed campground and additional day use facilities would be **less than significant**.

### **Cumulative Impacts**

Construction of the California High-Speed Rail Project, the San Luis Transmission Project and the San Luis Solar Project could potentially occur at the same time as construction activities near San Luis Reservoir for the Modified Project and would involve a substantial amount of construction equipment and vehicle traffic that could contribute to noise impacts. The proposed alignment of the California High-Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project would all be in the vicinity of SR-152. Even with incorporation of Mitigation Measures NOISE-1 through NOISE-3, in combination with other cumulative projects, the Modified Project's incremental increase in construction noise would result in a **significant and unavoidable** cumulative noise impact.

### Comparison to 2019 EIS/EIR

The additional project components analyzed above would result in less-than-significant impacts with mitigation incorporated and would not reduce or increase the severity of impacts as determined in the 2019 EIS/EIR (see Section 3.6.5). Impacts of the Modified Project would therefore remain significant and unavoidable as determined in the 2019 EIS/EIR.

### Threshold 2

***Would the Modified Project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?***

2019 EIS/EIR Impact Determination	Modified Project Impact Determination	New Significant Increase in Impact Severity?
Less than Significant (Project Level) Significant and Unavoidable (Cumulative)	Less than Significant (Project Level) Significant and Unavoidable (Cumulative)	No

### Construction (Short-Term) Vibration

For construction vibration, this analysis used Caltrans thresholds for structural damage (peak particle velocities greater than 0.3 in/sec) and the Merced County General Plan threshold within residences (70 VdB) at residences where people normally sleep).

During site preparation, grading, and construction activities for the Modified Project groundborne vibration would be produced by heavy-duty construction equipment. The most important equipment relative to generation of vibration, and the vibration levels produced by such equipment, is illustrated in Table 3.6-10.

**Table 3.6-10. Vibration Velocities for Typical Construction Equipment**

Equipment	PPV at 25 Feet (in/sec)	Caltrans 0.3 in/sec PPV Threshold Distance (feet) <sup>1</sup>
Blasting	4.0	112
Large Bulldozer	0.089	9
Loaded Trucks	0.076	8
Drill Rig/Auger	0.089	9
Jackhammer	0.035	5
Small Bulldozer	0.003	1

**Source:** Caltrans 2020.

**Notes:** PPV = peak particle velocity; in/sec = inches per second; Caltrans = California Department of Transportation.

<sup>1</sup> Threshold distances calculated based on Caltrans reference levels and propagation equations.

As shown in Table 3.6-10, use of heavy equipment (e.g., large bulldozer) generates vibration levels of 0.089 inches per second PPV at a distance of 25 feet. Additionally, the table shows the distance at which a sensitive receptor would have to be from the construction activity in order to experience sufficient vibration levels to cause structural damage to buildings (i.e., above the 0.3 in/sec PPV threshold). The nearest residences to the Modified Project (i.e., residences east of proposed new campground; across O'Neill Forebay) would be approximately 11,560 feet from

ground disturbance associated with construction activities to the nearest structures. Vibration levels at these receptors would remain well below the Caltrans building damage threshold of 0.3 inches per second PPV.

With respect to the Merced County vibration threshold, a large bulldozer has a vibration level of 87 VdB measured at 25 feet, at the nearest residences (approximately 11,560 feet) this level would be attenuated to an unperceivable level, while below the Merced County 70 VdB vibration threshold. As such, construction-related vibration associated with the Modified Project would not result in a potentially significant impact. Therefore, groundborne noise and vibration impacts from construction activity to the nearest receptors would be **less than significant**.

### Operation (Long-Term) Vibration

The Modified Project does not contain any components that would result in the generation of ongoing long-term groundborne noise or vibration. Therefore, operational groundborne noise and vibration impacts would be **less than significant**.

### Cumulative Impacts

Construction of the California High-Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could potentially occur at the same time as construction activities near San Luis Reservoir for the Modified Project and would involve a substantial amount of construction equipment and vehicle traffic that could contribute to impacts from groundborne noise or vibration. The proposed alignment of the California High-Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project would all be along SR-152. The 2019 EIS/EIR found that the Approved Project would result in a cumulatively considerable contribution to significant cumulative impacts from groundborne noise or vibration when considered with other cumulative projects in the area. The Modified Project includes several additions to the Approved Project and would result in no change in the impact determination made by the 2019 EIS/EIR with respect to cumulative impacts. The Modified Project would contribute to a cumulatively considerable impact associated with groundborne noise or vibration during construction; this impact is considered **significant and unavoidable**. **Mitigation Measures NOISE-1 through NOISE-3** would be implemented to reduce noise impacts from construction activities associated with the Modified Project, but the 2019 EIS/EIR found that impacts of the Approved Project would remain cumulatively considerable.

### Comparison to 2019 EIS/EIR

The additional project components analyzed above would result in less-than-significant project level impacts and significant and unavoidable cumulative impacts; therefore, impacts of the Modified Project would not result in a significant increase in the severity of impacts as determined in the 2019 EIS/EIR. Impacts of the Modified Project would remain less than significant (project level) and significant and unavoidable (cumulative).

### Threshold 3

***Would the Modified Project result in a substantial permanent increase in ambient noise levels in the Modified Project vicinity above levels existing without the Modified Project?***

2019 EIS/EIR Impact Determination	Modified Project Impact Determination	New Significant Increase in Impact Severity?
Less than Significant	Less than Significant	No

Construction impacts on ambient noise levels generated by the Modified Project (i.e., changes in borrow area location and minor additions to contractor work areas) would not result in permanent increases in ambient noise levels. Once these portions of the Modified Project are complete, no permanent noise sources would remain. Therefore, long-term operational noise impacts would be **less than significant**.

#### **Campground Construction and Day Use Area Improvements**

The primary purpose of the campground will be for outdoor recreation and leisure activities, including camping, boating, fishing, picnics, and campfires. Similar activities are already present at the existing Medeiros Use Area, San Luis Creek Day Use Area, San Luis Creek RV Campground, and on O'Neill Forebay. This Modified Project component would not result in the doubling of activity in the Modified Project vicinity, which would be necessary to generate a permanent increase of +3 dBA Ldn and exceed the Merced County significant increase thresholds. Additionally, based on the geographic location and distribution of the proposed noise generating activities, operational noise generated from the campground is anticipated to be below ambient levels as they reach the nearest noise-sensitive receptors to the east, across O'Neill Forebay. Therefore, long-term operational noise impacts would be **less than significant**.

#### **Cumulative Impacts**

Construction and operation of the California High-Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could potentially occur at the same time as construction and operational activities near San Luis Reservoir for the Modified Project. Construction of the Modified Project in conjunction with other cumulative projects would not result in a permanent increase in noise levels. The long-term operation of the California High-Speed Rail Project would not produce substantial permanent ambient noise level effects as the passing trains would be intermittent. Operation of the San Luis Transmission Project, the San Luis Reservoir Low Point Improvement Project, and the San Luis Solar Project would not produce permanent ambient noise level effects. Except for the proposed campground, no new additional sources of permanent noise would be introduced. Given the location and nature of the proposed campground, operation of the Modified Project would not cumulatively contribute to a permanent increase in noise levels; cumulative impacts would be **less than significant**.

#### **Comparison to 2019 EIS/EIR**

The additional project components analyzed above would result in less-than-significant impacts and therefore impacts of the Modified Project would not result in a significant increase in the severity of impacts as determined in the 2019 EIS/EIR, which found that impacts of the Approved Project from a permanent increase in ambient noise levels would be less than significant. Impacts of the Modified Project would remain less than significant.

#### **Threshold 4**

***Would the Modified Project result in substantial temporary or periodic increase in ambient noise levels in the Modified Project vicinity above levels existing without the Modified Project?***

2019 EIS/EIR Impact Determination	Modified Project Impact Determination	New Significant Increase in Impact Severity?
Significant and Unavoidable	Significant and Unavoidable	No



Please refer to the analysis of short-term construction noise provided for Threshold 1. The construction activities associated with the Modified Project would have the potential to generate temporary or periodic increases in the ambient noise environment in the Modified Project vicinity. Temporary increases in the ambient noise environment associated with the construction noise levels shown above in through , would have the potential to result in an increase in ambient noise levels approximately 7 dB above the existing ambient noise environment at the residence on Harper Lane. As such, the Modified Project construction activities would exceed the Merced County relative increase criteria of +5 dB for existing levels below 60 dB. Therefore, temporary or periodic increases in ambient noise levels would be considered a potentially significant impact. **Mitigation Measures NOISE-1 through NOISE-3** from the 2019 EIS/EIR, which require implementation of a noise control plan, a blasting plan, and noise monitoring program (see Section 3.6.5), would reduce noise impacts from the additional components of the Modified Project to **less than significant**.

#### Cumulative Impacts

For the same reasons discussed under Threshold 1, the Modified Project's incremental increase in construction noise could result in a **significant and unavoidable** cumulative noise impact, even with incorporation of Mitigation Measures NOISE-1 through NOISE-3.

#### Comparison to 2019 EIS/EIR

The additional project components analyzed above would result in less-than-significant impacts with mitigation incorporated and therefore impacts of the Modified Project would not result in a significant increase in the severity of impacts as determined in the 2019 EIS/EIR (see Section 3.6.5). Impacts of the Modified Project would remain significant and unavoidable.

#### Threshold 5

*For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Modified Project expose people residing or working in the Modified Project area to excessive noise levels?*

2019 EIS/EIR Impact Determination	Modified Project Impact Determination	New Significant Increase in Impact Severity?
Less than Significant	Less than Significant	No

The nearest airstrip to the Modified Project is the Los Banos Municipal Airport, which is approximately 8.1 miles east of the Modified Project site. As such, the Modified Project would result in no impact, as it pertains to the exposure of people to excessive aircraft noise levels. The Modified Project is not located within 2 miles of a public or private land-based airport. While the 2019 EIS/EIR stated that the San Luis Reservoir Seaplane Base was operational and allows water landings of planes on the reservoir, San Luis Reservoir was closed as an aquaport in 2015. Therefore, noise impacts associated with operation of the Modified Project within an airport land use plan would be **less than significant**.

### Cumulative Impacts

Given distance from Los Banos Municipal Airport and the closure of the San Luis Reservoir Seaplane Base, the Modified Project in combination with other cumulative projects in the San Luis Reservoir area, would not result in a cumulatively considerable impact related to an airport land use plan; cumulative impacts would be **less than significant**.

### Comparison to 2019 EIS/EIR

The additional project components analyzed above would result in less-than-significant impacts and therefore impacts of the Modified Project would not result in a significant increase in the severity of impacts as determined in the 2019 EIS/EIR. Impacts of the Modified Project would remain less than significant.

## 3.6.5 Mitigation Measures

Implementation of the following mitigation measure would reduce potentially significant impacts of the Modified Project-related to noise, as identified in Impact Threshold 1 and Threshold 4, to a less-than-significant level. Mitigation Measures NOISE-1 through NOISE-3 identified in the 2019 EIS/EIR apply to construction activities evaluated by this SEIR. The 2019 EIS/EIR does not narrow the applicability of this measure to specific activities or locations within the construction footprint of the Approved Project and the mitigation measure has not been modified.

**NOISE-1** (Same as NOISE-1 in 2019 EIS/EIR): A Noise Control Plan (NCP) will be developed by the construction contractor prior to the start of any construction activities to address increased noise levels as a result of the proposed project and alternatives. The NCP will identify the procedures for predicting construction noise levels at sensitive receptors and will describe the reduction measures required to minimize construction noise. The noise mitigation measures in the NCP will include, but are not limited to:

- Appropriate level of sound attenuation will be used or constructed to minimize noise levels by at least 3 dBA. Potential sound attenuation measures could include, but are not limited to stationary equipment and stockpiles, or otherwise placed between the source(s) of construction noise and noise-sensitive receptors, as appropriate. The feasible measures will be determined by the construction contractor based on an initial evaluation of each construction site.
- Contractor will be responsible for maintaining equipment in best possible working condition and outfitting construction equipment with the most effective locally available commercial mufflers or other noise attenuation devices;
- When feasible, the loudest construction activities will be conducted during Merced County construction noise exempt hours, between 7 a.m. and 6 p.m.;
- Operation of construction equipment between the hours between 6 p.m. and 10 p.m. will be prohibited within 9,100 feet of the subdivision off SR 152. During the hours between 10 p.m. and 6 a.m. the operation of construction equipment will be prohibited within 9,550 feet of the subdivision off SR 152.
- Shutting down equipment that are queued or not in use for 5 minutes or more;

- Pre-construction meeting with contractors and project managers to confirm that noise mitigation procedures are in place;
- Signs shall be posted at the construction sites that include permitted construction days and hours, a day and evening contact number for the job site, and a contact number in the event of problems;
- The public will be kept informed of the construction hours and days;
- List contact information for complaints and respond to noise complaints; and
- An on-site complaint and enforcement manager shall respond to and track complaints and questions related to noise.

#### **NOISE-2**

**(Same as NOISE-2 in 2019 EIS/EIR:** A Blasting Plan for construction shall be prepared and followed that includes the following:

- Identification of blast officer;
- Scaled drawings of blast locations, and neighboring buildings, streets, or other locations which could be inhabited;
- Blasting notification procedures, lead times, and list of those notified. Public notification to potentially affected vibration and nuisance noise receptors describing the expected extent and duration of the blasting;
- Description of means for transportation and on-site storage and security of explosives in accordance with local, State, and Federal regulations;
- Minimum acceptable weather conditions for blasting and safety provisions for potential stray current (if electric detonation);
- Traffic control standards and traffic safety measures (if applicable);
- Required personal protective equipment;
- Minimum standoff distances and description of blast impact zones and procedures for clearing and controlling access to blast danger;
- Procedures for handling, setting, wiring, and firing explosives; and procedures for handling misfires per Federal code;
- Type and quantity of explosives and description of detonation device;
- Methods of matting or covering of blast area to prevent flyrock and excessive air blast pressure;
- Description of blast vibration and air blast monitoring programs;
- Dust control measures in compliance with applicable air pollution control regulations (to interface with general construction dust control plan);
- Emergency Action Plan to provide emergency telephone numbers and directions to medical facilities;
- Procedures for action in the event of injury;
- Material Safety Data Sheets for each explosive or other hazardous materials to be used;
- Evidence of licensing, experience, qualifications of blasters, and description of insurance for the blasting work;
- A sound attenuation plan shall be prepared outlining the sound control measures that would include the use of blasting mats or sound walls;

- If vibration results in damage to any nearby structures or utilities, or scenic rock faces, blasting shall immediately cease. The stability of segmental retaining walls, existing slopes, creek canals, etc., shall be monitored and any evidence of instability due to blasting operations shall result in immediate termination of blasting;
- Explosive materials shall be delivered in specially built vehicles marked with United Nations (UN) hazardous materials placards. Explosives and detonators shall be delivered in separate vehicles or be separated in compartments meeting the Department of Transportation (DOT) rules within the same vehicle. Vehicles shall have at least two ten-pound Class-A fire extinguishers and all sides of the vehicles display placards displaying the UN Standard hazard code for the onboard explosive materials. Drivers shall have commercial driver licenses (CDL) with Hazmat endorsements, and drivers shall carry bill-of-landing papers detailing the exact quantities and code dates of transported explosives or detonators;
- The contractor must comply with U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) table-of-distance requirements (Code of Federal Regulations [CFR] 27, U.S. Department of Justice, Alcohol, Tobacco, Firearms and Explosives Division Part 555) that restrict explosive quantities based on distance from occupied buildings and public roadways. Employees must also comply with the security requirements of the Safe Explosives Act (Title XI, Subtitle C of Public Law 107-296, Interim Final Rule), implemented in March 2003. These requirements require background checks for all persons that use, handle or have access to explosive materials; and responsible persons on a now required Federal explosives license must submit photographs and fingerprints with the application to ATF.

**NOISE-3** (Same as NOISE-3 in 2019 EIS/EIR): A pre-construction noise survey will be completed during the daytime and nighttime periods at multiple locations across the project area, including identified sensitive receptors, to establish background noise levels at those times. During construction, noise will be periodically monitored at these locations to assess any increases in noise levels that exceed the local noise ordinances. If noise levels are recorded exceeding the background noise level by 10 dBA between 6 p.m. and 10 p.m. or by 5 dBA between 10 p.m. and 7 a.m. or if noise complaints are received, an investigation will be conducted to determine the source of the noise. After the investigation, noise will be reduced using all feasible measures, including mitigation at the receiver impacted by the noise. Potential mitigation at the receiver would include building envelope improvements and acoustical window treatments.

All mitigation requirements will be included in bid documents and construction contracts.

### 3.6.6 Level of Significance After Mitigation

The Modified Project would result in potentially significant impacts with respect exposure of persons to or generations of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Mitigation Measures NOISE-1 through NOISE-3, which require a noise control plan, a blasting plan, and noise surveys, would reduce impacts from the additional components of the Modified Project to a level below significance. However, the additional components included in the Modified Project do not change the impact determinations made by the 2019 EIS/EIR, which found that impacts would be significant and unavoidable. As such, impacts of the Modified Project with respect to exposure of persons to or generations of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, would remain significant and unavoidable.

The Modified Project would result in potentially significant impacts with respect to exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Mitigation Measures NOISE-1 through NOISE-3, which require a noise control plan, a blasting plan, and noise surveys, would reduce impacts of the Modified Project to a level below significance.

The Modified Project would result in less-than-significant impacts with respect to substantial permanent increase in ambient noise levels in the Modified Project vicinity above levels existing without the Modified Project. Mitigation measures are not required.

The Modified Project would result in potentially significant impacts with respect to substantial temporary or periodic increase in ambient noise levels in the Modified Project vicinity above levels existing without the Modified Project. Mitigation Measures NOISE-1 through NOISE-3, which require a noise control plan, a blasting plan, and noise surveys, would reduce impacts from the additional components of the Modified Project to a level below significance. However, the additional components included in the Modified Project do not change the impact determinations made by the 2019 EIS/EIR, which found that impacts would be significant and unavoidable. As such, impacts of the Modified Project with respect to exposure of persons substantial temporary or periodic increase in ambient noise levels, would remain significant and unavoidable.

The Modified Project would result in less-than-significant impacts with respect to projects located within an airport land use plan or within 2 miles of a public airport or public use airport and if the Modified Project would expose people residing or working in the Modified Project area to excessive noise levels. Mitigation measures are not required.

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