Appendix G
Noise Analysis

MEMORANDUM

To: Ruben Salas, Kimley-Horn and Associates

From: Elena Ajdari, Kimley-Horn and Associates

Date: October 11, 2022

Subject: Fontana Plant F20 Reservoirs – Fontana, San Bernardino County, CA – Noise Analysis

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Purpose

The purpose of this memorandum is to identify noise and vibration impacts associated with construction and operations of the proposed Fontana Plant F20 Reservoirs Project (project) located in the City of Fontana, San Bernardino County, California.

Project Location

The project is generally located at the terminus of Long View Drive in the City of Fontana, San Bernardino County, California. The project site consists of an existing 0.8-acre site (Assessor's Parcel Number [APN]: 0237-411-17) and 1.0-acre site, which includes of a portion of the adjacent parcel (APN 0237-411-15). The project is situated on vacant land and located approximately 1.8 miles south of Interstate 10 (I-10), 1.5 miles north of State Route 60 (SR-60), and 4.5 miles east of Interstate 15 (I-15). The project site is surrounded by vacant land, with residential communities concentrated further to the north, east, and west.

Project Description

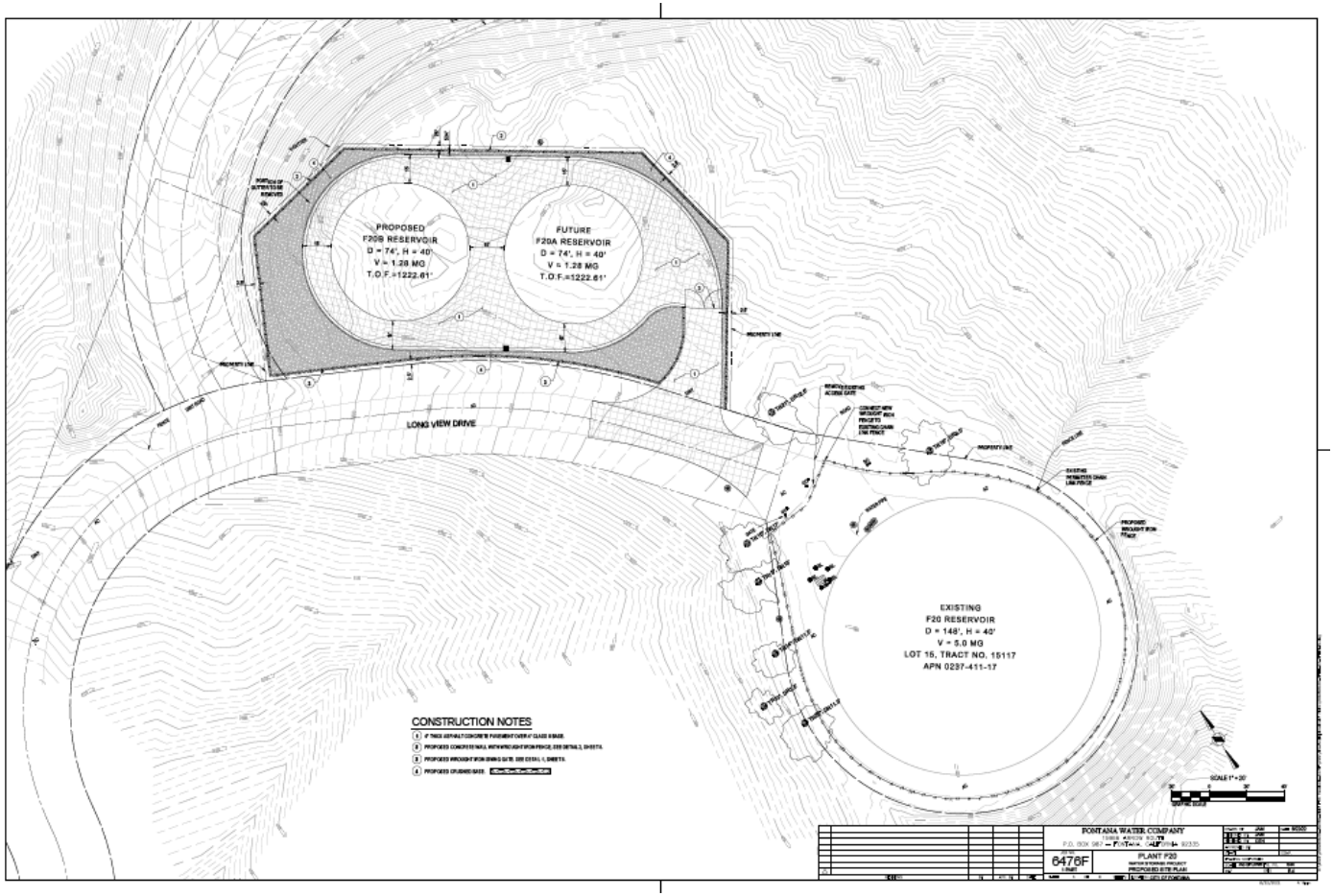
The project consists of the installation and operation of two new 1.28-million-gallon (MG) reservoir tanks [Plant F20 Reservoirs (East) and (West)] to be used for potable water services within Fontana Water Company's (FWC) service area. As shown in Exhibit 1: Site Plan, the proposed reservoir Plant F20 Reservoir (East) and Plant F20 Reservoir (West) would be located just northwest of the existing 5.0 MG Plant F20 Reservoir (South). The Plant F20 Reservoir (East) and Plant F20 Reservoir (West) would be constructed of welded steel, measuring 74 feet in diameter and 40 feet in height.

The proposed project includes the maintenance required by FWC at the existing Plant F20 Reservoir (South). This will be made possible after the construction and successful operation of the Plant F20 Reservoir (East) and Plant F20 Reservoir (West). The maintenance work includes the interior recoating and exterior patchwork and paint of the Plant F20 Reservoir (South). The maintenance work for the Plant F20 Reservoir (South) is necessary as the existing coating system has exceeded its 20- to-25-year

life expectancy. Regional access is provided via I-10 at the Cherry and Citrus Avenue Ramps. Local access is provided via Longview Drive. The project would allow for the FWC to meet the necessary water storage requirements for the community to meet existing water demands for domestic uses, fire suppression, and emergency needs.

Construction is anticipated to begin in 2024 and last for approximately one and half years. Development of the site will require grading for the reservoir foundations, related piping, pavement, light pole foundations, gravel paved surface, wrought iron fencing, and a concrete perimeter retaining wall. No construction activities would be associated with the maintenance of the existing Plant F20 Reservoir (South).

Exhibit 1: Site Plan



Noise Background

Sound is technically described in terms of amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude measurement is the decibel (dB). The decibel scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound. The pitch of the sound is related to the frequency of the pressure vibration. Since the human ear is not equally sensitive to a given sound level at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) provides this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Noise, on the other hand, is typically defined as unwanted sound. A typical noise environment consists of a base of steady ambient noise that is the sum of various distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These can vary from an occasional aircraft or train passing by to virtually continuous noise from traffic on a major highway.

Several rating scales have been developed to analyze the adverse effect of community noise on people. Since environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise as well as the time of day when the noise occurs. For example, the equivalent continuous sound level (L_{eq}) is the average acoustic energy content of noise for a stated period of time; thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. The Day-Night Sound level (L_{dn}) is a 24-hour average L_{eq} with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The Community Noise Equivalent Level (CNEL) is a 24-hour average L_{eq} with a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. and an additional 5 dBA weighting during the hours of 7:00 p.m. to 10:00 p.m. to account for noise sensitivity in the evening and nighttime.

Regulatory Setting

State

California Government Code

California Government Code Section 65302(f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of "normally acceptable", "conditionally acceptable", "normally unacceptable", and "clearly unacceptable" noise levels for various land use types. Single-family homes are "normally acceptable" in exterior noise environments up to 60 CNEL and "conditionally acceptable" up to 70 CNEL. Multiple-family residential uses are

"normally acceptable" up to 65 CNEL and "conditionally acceptable" up to 70 CNEL. Schools, libraries, and churches are "normally acceptable" up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

Title 24 – Building Code

The State's noise insulation standards are codified in the California Code of Regulations, Title 24: Part 1, Building Standards Administrative Code, and Part 2, California Building Code. These noise standards are applied to new construction in California for interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 65 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new multi-family residential buildings, the acceptable interior noise limit for new construction is 45 dBA CNEL.

Local

City of Fontana General Plan

The Noise and Safety Element of the *Fontana Forward General Plan Update 2015-2035* (Fontana General Plan), adopted on November 13, 2018, provides guidance for the control of noise to protect residents, workers, and visitors from potentially adverse noise impacts. Its primary goal is to regulate long-term noise impacts to preserve acceptable noise environments for all types of land uses. The Noise and Safety Element identifies noise standards that are used as guidelines to evaluate transportation noise level impacts. These standards are also used to assess the long-term traffic noise impacts on specific land uses. According to the Fontana General Plan, land uses such as residences have acceptable exterior noise levels of up to 65 dBA CNEL. Based on the guidelines in the Fontana General Plan, an exterior noise level of 65 dBA CNEL is generally considered the maximum exterior noise level for sensitive receptors. Additionally, the Noise and Safety Element identifies transportation noise policies designed to protect, create, and maintain an environment free of harmful noise that could impact the health and welfare of sensitive receptors. The following Fontana General Plan goals, policies, and actions are applicable to the project:

Goal 8: ***The City of Fontana protects sensitive land uses from excessive noise by diligent planning through 2035.***

Policy 8.2: Noise-tolerant land uses shall be guided into areas irrevocably committed to land uses that are noise-producing, such as transportation corridors.

Policy 8.4: Noise spillover or encroachment from commercial, industrial and educational land uses shall be minimized into adjoining residential neighborhoods or noise-sensitive uses.

Action C: The State of California Office of Planning and Research General Plan Guidelines shall be followed with respect to acoustical study requirements.

Goal 9: ***The City of Fontana provides a diverse and efficiently operated ground transportation system that generates the minimum feasible noise on its residents through 2035.***

Policy 9.1: All noise sections of the State Motor Vehicle Code shall be enforced.

Policy 9.2: Roads shall be maintained such that the paving is in good condition and free of cracks, bumps, and potholes.

Action A: On-road trucking activities shall continue to be regulated in the City to ensure noise impacts are minimized, including the implementation of truck-routes based on traffic studies.

Action B: Development that generates increased traffic and subsequent increases in the ambient noise level adjacent to noise-sensitive land uses shall provide appropriate mitigation measures.

Action C: Noise mitigation practices shall be employed when designing all future streets and highways and when improvements occur along existing highway segments.

Action D: Explore the use of "quiet pavement" materials for street improvements.

Goal 10: ***Fontana's residents are protected from the negative effects of "spillover" noise.***

Policy 10.1: Residential land uses and areas identified as noise-sensitive shall be protected from excessive noise from non-transportation sources including industrial, commercial, and residential activities and equipment.

Action A: Projects located in commercial areas shall not exceed stationary-source noise standards at the property line of proximate residential or commercial uses.

Action B: Industrial uses shall not exceed commercial or residential stationary source noise standards at the most proximate land uses.

Action C: Non-transportation noise shall be considered in land use planning decisions.

Action D: Construction shall be performed as quietly as feasible when performed in proximity to residential or other noise-sensitive land uses.

City of Fontana Municipal Code

Standards established under the Fontana Municipal Code are used to analyze noise impacts originating from the project. Operational noise impacts are typically governed by the Municipal Code Sections 18-61 through 18-67. Noise standards for non-transportation and stationary noise source impacts from operations at private properties are found in the Zoning and Development Code in Section 30-543 of the Municipal Code. Applicable guidelines indicate that no person shall create or cause any sound exceeding the City's stated noise performance standards measured at the property line of any residentially zoned property. The performance standards for exterior noise are 70 dBA between the hours of 7:00 a.m. and 10:00 p.m. and 65 dBA during the noise-sensitive hours of 10:00 p.m. to 7:00 a.m. at residential uses. For this analysis, a 65-dBA nighttime noise level standard is used to be consistent with residential nighttime exterior noise performance standards listed in Section 30-543 of the Municipal Code.

The City has also set restrictions to control noise impacts from construction activities. Section 18-63(b)(7) states that the erection (including excavation), demolition, alteration, or repair of any structure shall only occur between the hours of 7:00 a.m. and 6:00 p.m. on weekdays and between the hours of 8:00 a.m. and 5:00 p.m. on Saturdays, and prohibited on Sundays and Federal holidays, except in the case of urgent necessity or otherwise approved by the City of Fontana. Although the Municipal Code limits the hours of construction, it does not provide specific noise level performance standards for construction.

Existing Setting

The project site would be located on a vacant lot that is currently surrounded by open space. The project involves the installation and operation of two new water tank reservoirs combined with an existing water reservoir located to the south of the project site to enhance the service to existing local communities. Once the project is operational, there would be no full-time employees onsite and routine maintenance visits would be performed approximately once per month. The nearest sensitive receptors are single-family residences located at least 310 feet to the northeast.

Noise Measurements

To quantify existing ambient noise levels in the project area, Kimley-Horn conducted four short-term (10-minute) measurements on August 31, 2022; see Appendix A: Noise Data. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the project site. The 10-minute daytime measurements were taken between 9:04 a.m. and 10:07 a.m. Measurements of L_{eq} are considered representative of the noise levels throughout the day. The average noise levels and sources of noise measured at each location are listed in Table 1: Existing Noise Measurements and shown on Exhibit 2: Noise Measurement Locations.

Table 1: Existing Noise Measurements

Site	Location	Measurement Period	Duration	L_{eq} (dBA)
ST-1	Southern end of cul-de-sac on Teaberry Court	9:04 - 9:14 a.m.	10 Minutes	45.9
ST-2	Northern end of cul-de-sac on Daybreak Lane	9:21 – 9:31 a.m.	10 Minutes	54.5
ST-3	End of cul-de-sac along Elm Avenue	9:36 – 9:46 a.m.	10 Minutes	44.6
ST-4	End of cul-de-sac on Long View Drive, west of Fontana Reservoir	9:57 – 10:07 a.m.	10 Minutes	39.8

Source: Noise measurements taken by Kimley-Horn, August 31, 2022. See Appendix A for noise measurement results.

Sensitive Receptors

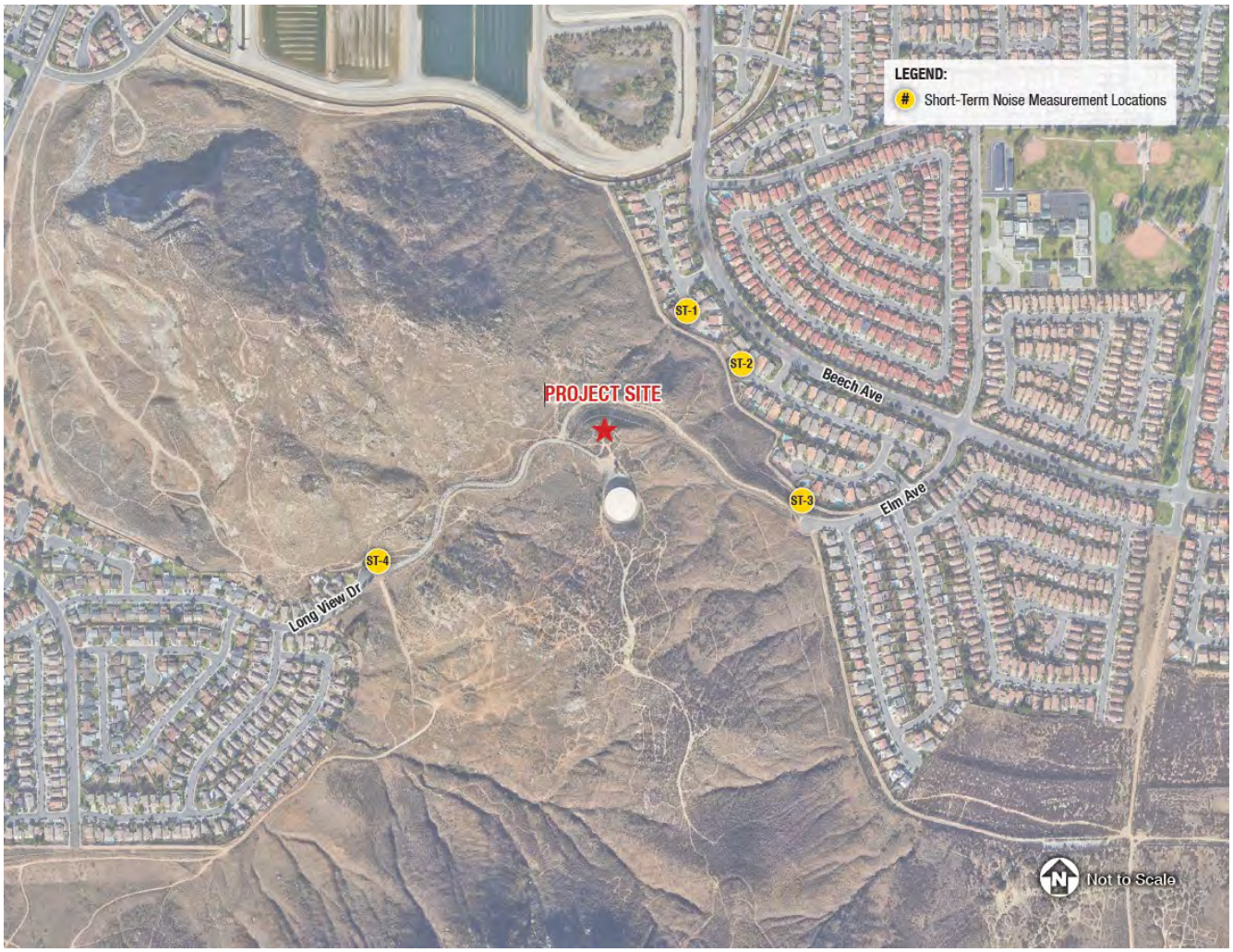
Noise exposure standards and guidelines for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Residences, hospitals, schools, guest lodging, libraries, and churches are treated as the most sensitive to noise intrusion and therefore have more stringent noise exposure targets than do other uses, such as manufacturing or agricultural uses that are not subject to impacts such as sleep disturbance. Sensitive receptors near the project site are shown in Table 2: Sensitive Receptors.

Table 2: Sensitive Receptors

Receptor Description	Distance and Direction from the Project
Single-Family Residential Dwellings	310 feet to the northeast
Single-Family Residential Dwellings	630 feet to the east
Single-Family Residential Dwellings	1,000 feet to the southwest
Southridge Park	3,050 ft to the west

Source: Google Earth, 2022.

Exhibit 2: Noise Measurement Locations



Noise Impacts

Construction Noise

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. During construction, exterior noise levels could affect sensitive receptors near the construction site.

Construction activities would include site preparation, grading, infrastructure and tank installation, paving, and architectural coating. Such activities may require concrete/industrial saws, dozers, and tractors/loaders/backhoes during demolition; graders, tractors/loaders/backhoes and dozers during site preparation; graders, dozers, and tractors/loaders/backhoes during grading; forklifts, generator sets, tractors/loaders/backhoes, and welders during building construction; pavers, rollers, mixers, tractors/loaders/backhoes, and paving equipment during paving; and air compressors during architectural coating. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. The site preparation and grading phases of project construction tend to be the shortest in duration and create the highest construction noise levels due to the operation of heavy equipment required to complete these activities. It should be noted that only a limited amount of equipment can operate near a given location at a particular time. Typical noise levels associated with individual construction equipment are listed in Table 3: Typical Construction Noise Levels.

As indicated in Table 3, construction noise levels can reach high levels at 50 feet from the source and due to the variability of construction activities and equipment, overall construction noise levels would be intermittent and would fluctuate over time. Construction-related noise would cease upon completion of the construction activities. The project site is currently surrounded by open space with an access road (Long View Drive). The nearest sensitive receptors are single-family residential uses located at least 310 feet to the northeast. Since sensitive receptors are far away from the project site, noise levels would be attenuated and reach lower levels at close proximity to sensitive receptors.

Table 3: Typical Construction Noise Levels		
Equipment	**Typical Noise Level (dBA) at 50 feet from Source**	**Typical Noise Level (dBA) at 310 feet from Source[1]**
Crane, Derrick	88	72.2
Crane, Mobile	83	67.2
Dozer	85	69.2
Generator	82	66.2
Grader	85	69.2
Impact Wrench	85	69.2
Jack Hammer	88	72.2
Loader	80	64.2
Paver	85	69.2
Pile-driver (Impact)	101	85.2
Pile-driver (Sonic)	95	79.2
Pneumatic Tool	85	69.2
Pump	77	61.2
Roller	85	69.2
Saw	76	60.2
Scraper	85	69.2
Shovel	82	66.2
Truck	84	68.2
Crane, Derrick	88	72.2
Crane, Mobile	83	67.2
Dozer	85	69.2
Generator	82	66.2
Grader	85	69.2
Impact Wrench	85	69.2

Note:
1. Calculated using the inverse square law formula for sound attenuation: $dBA_2 = dBA_1+20Log(d_1/d_2)$
Where: dBA_2 = estimated noise level at receptor; dBA_1 = reference noise level; d_1 = reference distance; d_2 = receptor location distance
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

Following FTA's methodology for quantitative construction noise assessments, the Federal Highway Administration's (FHWA's) Roadway Construction Noise Model (RCNM) was used to predict construction noise at the nearest noise-sensitive receptors (i.e., the residential uses 310 feet to the northeast of the project site) consistent with the methodologies in the FTA *Transit Noise and Vibration Impact Assessment Manual* (September 2018) (FTA Noise and Vibration Manual). Table 4: Project Construction Noise Levels shows the estimated exterior construction noise levels at the nearest receptors to the northeast and southwest of the project site. Following FTA methodology, when calculating construction noise, all equipment is assumed to operate at the center of the project site, as equipment would operate throughout the project site and not at a fixed location close to the sensitive receptors for extended periods of time. Therefore, the distances used in the RCNM model were 600 feet for the nearest residential uses located to the northeast of the project construction area.

Table 4: Project Construction Noise Levels						
Construction Phase	Receptor Location			Unmitigated Worst Case Modeled Exterior Noise Level (dBA L_{eq})	Noise Threshold (dBA L_{eq})[2]	Exceeded?
	Land Use	Direction	Distance (feet)[1]			
Site Preparation	Residential	Northeast	600	62.0	80	No
Grading	Residential	Northeast	600	63.0	80	No
Infrastructure and Tank Installation	Residential	Northeast	600	67.1	80	No
Paving	Residential	Northeast	600	67.3	80	No
Architectural Coating	Residential	Northeast	600	52.1	80	No
1. Per the methodology described in the FTA Noise and Vibration Manual (September 2018), distances are measured from the property line of the nearest receptors to the center of the project construction site. 2. Threshold from the Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018.						
Source: Federal Highway Administration, *Roadway Construction Noise Model,* 2006. Refer to Appendix A for noise modeling results.						

As indicated in Table 4, exterior noise levels during different phases of construction are between 52.1 dBA and 67.3 dBA which are below the FTA's 80 dBA noise threshold. Construction equipment would operate throughout the project site and the associated noise levels would not occur at a fixed location for extended periods of time. These sensitive uses may be exposed to elevated noise levels during project construction. However, construction noise would be acoustically dispersed throughout the project site and not concentrated in one area near surrounding sensitive uses.

The City of Fontana has set restrictions to control noise impacts from construction activities. Section 18-63(b)(7) states that the erection (including excavation), demolition, alteration, or repair of any structure shall only occur between the hours of 7:00 a.m. and 6:00 p.m. on weekdays and between the hours of 8:00 a.m. and 5:00 p.m. on Saturdays, except in the case of urgent necessity or otherwise approved by the City of Fontana. Although the Fontana Municipal Code limits the hours of construction, it does not provide specific noise level performance standards for construction. By following the City's standards, the impact from construction noise would be less than significant.

Operational Noise

Since the project would construct two reservoirs at a location containing an existing reservoir, the project would not cause any measurable permanent increase in ambient noise levels in the vicinity of the project above existing conditions. The proposed project would not generate new vehicle trips or introduce any new uses or stationary sources that would result in an increase in operational noise levels. After construction, operations would return to similar conditions as the current baseline. The required electricity for the new proposed water reservoirs would be provided by the existing generator onsite which feeds the existing water tank to the south of the proposed project site. Thus, the project would not introduce any new source of noise generation. Therefore, no long-term noise

impacts would result with implementation of the proposed project and the impact would be less than significant.

Vibration Impacts

Increases in ground-borne vibration levels attributable to the project would be primarily associated with short-term construction-related activities. Project construction would have the potential to result in varying degrees of temporary ground-borne vibration, depending on the specific construction equipment used and the operations involved.

The Federal Transit Administration (FTA) has published standard vibration velocities for construction equipment operations. In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.2 in/sec) appears to be conservative. The types of construction vibration impacts include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. For example, for a building that is constructed with reinforced concrete with no plaster, the FTA guidelines show that a vibration level of up to 0.50 in/sec is considered safe and would not result in any construction vibration damage. This evaluation uses the FTA architectural damage criterion for continuous vibrations at non-engineered timber and masonry buildings of 0.2 inch-per-second peak particle velocity (PPV) and human annoyance criterion of 0.4 inch-per-second PPV in accordance with Caltrans guidance.[1]

Table 4: Typical Construction Equipment Vibration Levels lists vibration levels at 25 feet for typical construction equipment. The ground-borne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. As indicated in Table 4, based on FTA data, vibration velocities from typical heavy construction equipment operations that would be used during project construction range from 0.003 to 0.089 inches per second peak particle velocity (in/sec PPV) at 25 feet from the source of activity.

[1] California Department of Transportation, *Transportation and Construction Vibration Guidance Manual, Table 20*, April 2020.

Table 4: Typical Construction Equipment Vibration Levels		
Equipment	**Peak Particle Velocity at 25 Feet (in/sec)**	**Peak Particle Velocity at 90 Feet (in/sec)[1]**
Large Bulldozer	0.089	0.0130
Caisson Drilling	0.089	0.0130
Loaded Trucks	0.076	0.0111
Jackhammer	0.035	0.0051
Small Bulldozer/Tractors	0.003	0.0004
1. The nearest structure is an existing water reservoir approximately 90 feet south of the project site. Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.		

The nearest structure to the proposed project is an existing water reservoir approximately 90 feet south of the project site. As shown in Table 4, at 90 feet, construction equipment vibration velocities could reach approximately 0.0130 in/sec PPV, which is below the FTA's 0.20 PPV threshold. It is also acknowledged that construction activities would occur throughout the project site and would not be concentrated at the point closest to the nearest off-site structure. Additionally, once operational, the project would not be a source of ground-borne vibration. Therefore, vibration impacts associated with the proposed project would be less than significant.

The nearest large airport to the project site is the Ontario International Airport located approximately 6.35 miles to the west and Flabob approximately 4.80 miles southeast. The project is not located within 2.0 miles of a public airport or within an airport land use plan. Additionally, there are no private airstrips located within the project vicinity. Therefore, the project would not expose people working in the project area to excessive airport- or airstrip-related noise levels and no mitigation is required.

Cumulative Impacts

Cumulative Construction Noise

The project's construction activities would not result in a substantial temporary increase in ambient noise levels. Construction noise would be periodic and temporary noise impacts would cease upon completion of construction activities. The project would contribute to other proximate construction project noise impacts if construction activities were conducted concurrently. However, based on the noise analysis above, the project's construction-related noise impacts would be less than significant following the City of Fontana Municipal Code.

Construction activities at other planned and approved projects near the project site would be required to comply with applicable City rules related to noise and would take place during daytime hours on the days permitted by the applicable Municipal Code, and projects requiring discretionary City approvals would be required to evaluate construction noise impacts, comply with the City's standard conditions of approval, and implement mitigation, if necessary, to minimize noise impacts. Construction noise impacts are by nature localized. Based on the fact that noise dissipates as it travels away from its source, noise impacts would be limited to the project site and vicinity. Therefore, project

construction would not result in a cumulatively considerable contribution to significant cumulative impacts, assuming such a cumulative impact existed, and impacts in this regard are not cumulatively considerable.

Cumulative Operational Noise

The proposed project would generate approximately one trip per month and would not generate any permanent noise sources that would affect ambient levels in the project vicinity. As the project would not result in a traffic-related noise increase or new stationary noise source, potential impacts associated with operational noise would not occur. Therefore, the proposed project would not generate incremental effects to noise that could be compounded or increased when considered together with similar effects from other past, present, and reasonably foreseeable future projects. Thus, no cumulative impacts related to noise would occur.

Conclusion

The project would result in less than significant short-term and long-term noise and vibration impacts. No mitigation measures would be required. Therefore, the proposed project would not result in significant effects.

Appendix A

Noise Data

Noise Measurement Field Data

Project:	Fontana Plant F20 Reservoirs	**Job Number:**	195426001
Site No.:	ST-1	**Date:**	8/31/2022
Analyst:	Shane McKenna and Steven Yu	**Time:**	9:04 - 9:14 AM
Location:	Southern end of cul-de-sac on Teaberry Court		
Noise Sources:	Dog howling, birds, distant traffic, airplanes, car doors shutting		
Comments:			

Results (dBA):

	Leq:	Lmin:	Lmax:	Peak:
Measurement 1:	45.9	40.0	58.2	88.4

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	84°
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	29.88 inHg
Humidity:	30%

Photo:

Kimley»Horn

Noise Measurement Field Data

Project:	Fontana Plant F20 Reservoirs	**Job Number:**	195426001
Site No.:	ST-2	**Date:**	8/31/2022
Analyst:	Shane McKenna and Steven Yu	**Time:**	9:21 - 9:31 AM
Location:	Northern end of cul-de-sac on Daybreak Lane		
Noise Sources:	Person using saw, birds, distant traffic, dogs barking, car doors shutting		
Comments:			

Results (dBA):

	Leq:	Lmin:	Lmax:	Peak:
Measurement 1:	54.5	36.8	70.4	93.1

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	84°
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	29.87
Humidity:	28%

Photo:

Kimley»Horn

Noise Measurement Field Data

Project:	Fontana Plant F20 Reservoirs	**Job Number:**	195426001
Site No.:	ST-3	**Date:**	8/31/2022
Analyst:	Shane McKenna and Steven Yu	**Time:**	9:36 - 9:46 AM
Location:	End of cul-de-sac along Elm Avenue		
Noise Sources:	Birds, dogs, cars, distant saws, airplane		
Comments:			

Results (dBA):

	Leq:	Lmin:	Lmax:	Peak:
Measurement 1:	44.6	38.8	55.0	83.0

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	86°
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	29.87
Humidity:	28%

Photo:

Kimley»Horn

Noise Measurement Field Data

Project:	Fontana Plant F20 Reservoirs	**Job Number:**	195426001
Site No.:	ST-4	**Date:**	8/31/2022
Analyst:	Shane McKenna and Steven Yu	**Time:**	9:57 - 10:07 AM
Location:	End of cul-de-sac on Long View Drive, west of Fontana Reservoir		
Noise Sources:	Birds, airplane, cars		
Comments:			

Results (dBA):

	Leq:	Lmin:	Lmax:	Peak:
Measurement 1:	39.8	33.6	54.0	76.2

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	89°
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	29.87
Humidity:	26%

Photo:

Kimley»Horn

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/7/2022
Case Description: 01 Site Prep

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
northeast	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40		84	600	0
Grader	No	40		85	600	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor	62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	63.4	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.4	62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Southwest	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40		84	1400	0
Grader	No	40		85	1400	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor	55.1	51.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	56.1	52.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	56.1	54.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40		84	470	0
Grader	No	40		85	470	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor	64.5	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	65.5	61.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.5	64.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/7/2022
Case Description: 02 Grading

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
northeast	Residential	55	50	45

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Dozer	No	40		81.7	600	0
Tractor	No	40	84		600	0
Grader	No	40	85		600	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	60.1	56.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	63.4	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.4	63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
southwest	Residential	55	50	45

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Dozer	No	40		81.7	1400	0
Tractor	No	40	84		1400	0
Grader	No	40	85		1400	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	52.7	48.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	55.1	51.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	56.1	52.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	56.1	55.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
	Residential	55	50	45

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Dozer	No	40		81.7	470	0
Tractor	No	40	84		470	0
Grader	No	40	85		470	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	61.2	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	61.2	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	65.5	61.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.5	68	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/7/2022
Case Description: 03 Building Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
northeast	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	600	0
Excavator	No	40		80.7	600	0
All Other Equipment > 5 HP	No	50	85		600	0
All Other Equipment > 5 HP	No	50	85		600	0
All Other Equipment > 5 HP	No	50	85		600	0
Tractor	No	40	84		600	0
Tractor	No	40	84		600	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	59	51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	59.1	55.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.4	60.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.4	60.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	63.4	60.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.4	67.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
southwest	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	1400	0
Excavator	No	40		80.7	1400	0
All Other Equipment > 5 HP	No	50	85		1400	0
All Other Equipment > 5 HP	No	50	85		1400	0
All Other Equipment > 5 HP	No	50	85		1400	0
Tractor	No	40	84		1400	0
Tractor	No	40	84		1400	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	51.6	43.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	51.8	47.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	56.1	53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	56.1	53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	56.1	53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	55.1	51.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	55.1	51.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	56.1	59.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	470	0
Excavator	No	40		80.7	470	0
All Other Equipment > 5 HP	No	50	85		470	0
All Other Equipment > 5 HP	No	50	85		470	0
All Other Equipment > 5 HP	No	50	85		470	0
Tractor	No	40	84		470	0

Tractor	No	40	84	470	0									

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	61.2	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	61.2	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	65.5	61.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	64.1	60.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	64.1	60.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.5	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.5	68	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/7/2022
Case Description: 04 Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
northeast	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
All Other Equipment > 5 HP	No	50	85		600	0
All Other Equipment > 5 HP	No	50	85		600	0
All Other Equipment > 5 HP	No	50	85		600	0
All Other Equipment > 5 HP	No	50	85		600	0
Paver	No	50		77.2	600	0
Roller	No	20		80	600	0
Tractor	No	40	84		600	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
All Other Equipment > 5 HP		63.4	60.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		63.4	60.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		63.4	60.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		63.4	60.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		55.6	52.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		58.4	51.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	63.4	67.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Southwest	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
All Other Equipment > 5 HP	No	50	85		1400	0
All Other Equipment > 5 HP	No	50	85		1400	0
All Other Equipment > 5 HP	No	50	85		1400	0
All Other Equipment > 5 HP	No	50	85		1400	0
Paver	No	50		77.2	1400	0
Roller	No	20		80	1400	0
Tractor	No	40	84		1400	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
All Other Equipment > 5 HP		56.1	53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		56.1	53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		56.1	53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		56.1	53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver		48.3	45.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		51.1	44.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		55.1	51.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	56.1	60	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
All Other Equipment > 5 HP	No	50	85		470	0
All Other Equipment > 5 HP	No	50	85		470	0
All Other Equipment > 5 HP	No	50	85		470	0
All Other Equipment > 5 HP	No	50	85		470	0
Paver	No	50		77.2	470	0
Roller	No	20		80	470	0

Tractor	No	40	84	470	0									

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
All Other Equipment > 5 HP	64.5	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	65.5	61.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	64.5	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP	64.5	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.5	64.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/7/2022
Case Description: 05 AC

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
northeast	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	600	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	56.1	52.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	56.1	52.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Southwest	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	1400	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	48.7	44.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	48.7	44.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	470	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	64.5	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.5	64.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.