

NOISE ASSESSMENT

Monserate Winery and Events Fallbrook, CA

Lead Agency:

**County of San Diego
Planning & Development Services
Contact: Souphie Sakdarak
5510 Overland Avenue #110
San Diego, CA 92123
858-495-5214**

Prepared by:

**Jeremy Loudon
Ldn Consulting, Inc.
42428 Chisolm Trail
Murrieta, CA 92562
760-473-1253**

Prepared For:

**Michael Baker International
9755 Clairemont Mesa Boulevard
San Diego, CA**

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COMMON TERMS

Sound Pressure Level (SPL): a ratio of one sound pressure to a reference pressure (L_{ref}) of 20 μ Pa. Because of the dynamic range of the human ear, the ratio is calculated logarithmically by $20 \log (L/L_{ref})$.

A-weighted Sound Pressure Level (dBA): Some frequencies of noise are more noticeable than others. To compensate for this fact, different sound frequencies are weighted more.

Minimum Sound Level (L_{min}): Minimum SPL or the lowest SPL measured over the time interval using the A-weighted network and slow time weighting.

Maximum Sound Level (L_{max}): Maximum SPL or the highest SPL measured over the time interval the A-weighted network and slow time weighting.

Equivalent sound level (L_{eq}): the true equivalent sound level measured over the run time. L_{eq} is the A-weighted steady sound level that contains the same total acoustical energy as the actual fluctuating sound level.

Day Night Sound Level (LDN): Representing the Day/Night sound level, this measurement is a 24 –hour average sound level where 10 dB is added to all the readings that occur between 10 pm and 7 am. This is primarily used in community noise regulations where there is a 10 dB “Penalty” for night time noise. Typically, LDN’s are measured using A weighting.

Community Noise Exposure Level (CNEL): The accumulated exposure to sound measured in a 24-hour sampling interval and artificially boosted during certain hours. For CNEL, samples taken between 7 pm and 10 pm are boosted by 5 dB; samples taken between 10 pm and 7 am are boosted by 10 dB.

Octave Band: An octave band is defined as a frequency band whose upper band-edge frequency is twice the lower band frequency.

Third-Octave Band: A third-octave band is defined as a frequency band whose upper band-edge frequency is 1.26 times the lower band frequency.

Response Time (F,S,I): The response time is a standardized exponential time weighting of the input signal according to fast (F), slow (S) or impulse (I) time response relationships. Time response can be described with a time constant. The time constants for fast, slow and impulse responses are 1.0 seconds, 0.125 seconds and 0.35 milliseconds, respectively.

EXECUTIVE SUMMARY

This noise study has been completed to determine the noise impacts associated with the development of the proposed project. Monserate Winery project located at 2757 Gird Road in Fallbrook. The Monserate Winery project is a Major Use Permit Modification to authorize a winery/passive open space with event/venues or similar gathering and/or spa facilities on the existing site. The project site is located at 2757 Gird Road in the County of San Diego within the Community of Fallbrook, California.

Operational Analysis

Based upon the determined property line noise levels, the proposed noise sources will not directly or cumulatively exceed the property line standards at the property lines. The amplified music from the events will be limited to inside the proposed Venues and would promptly stop by 10 pm and would comply with the daytime standards. The noise levels associated with the roof-top mechanical ventilation system would be limited with the proposed parapet walls on each building that will vary in height but will be roughly 1-foot higher than the HVAC units to shield them both visually and acoustically. Therefore, the proposed development related operational noise levels are anticipated to comply with noise standards at the property lines. No impacts are anticipated and no mitigation is required.

Construction Analysis

The grading activities will consist of the preparation of the proposed internal roadways, the finished pads, and the water quality detention basins. The grading equipment will be spread out over the project site from distances near the occupied property to distances of 400-feet or more away. Based upon the proposed site plan the majority of the grading operations will occur more than 200-feet from the property lines. At average distances over 100-feet the grading activities are anticipated not to exceed the County's 75-dBA standard and would not require any mitigation measures.

No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project will comply with Section 36.410 of the County Noise Ordinance.

1.0 INTRODUCTION

1.1 Project Description

This noise study was completed to determine the noise impacts associated with the development of the proposed winery project. The proposed development site is located at 2757 Gird Road in the County of San Diego within the Community of Fallbrook, California. The Project is located approximately 1.5 miles north of State Route 76 (SR 76) and approximately 1.5 miles west of Interstate 15 (I-15). Access to the Project site is provided along Gird Road via Highway 76 to the south. A general project vicinity map is shown in Figure 1–A on the following page.

The existing site (APN: 107-240-16, -17, and -51; 124-182-01 and -02; 124-330-04, -14, -15, and -20) is approximately 116-acres in the Fallbrook Community Plan Area in unincorporated San Diego County. The project is a Major Use Permit Modification to authorize a winery/passive open space with event/venues or similar gathering and/or spa facilities on the existing site. The project site plan is shown in Figure 1-B.

The proposed structures would total approximately 56,040 square feet (s.f.). This includes the main tasting room and restaurant as well as three additional event/venue areas with supporting facilities, administrative, and 282 s.f. pump house; refer to Figure 1-B, Major Use Permit Plot Plan. The project applicant also plans to place the entire site into dedicated open space easement to preserve the valley forever upon MUP approval.

The main facility would include a large tasting room and several outdoor patios for use in serving wine tasting guests and members and to support accessory events held at the property. This building would also offer a restaurant for public dining. A commercial catering kitchen, staff lounge, meat curing room, and dish washing room are proposed in support of the wine tasting activities and restaurant. Several offices, restrooms, janitor storage, and storage areas would also be accommodated within this structure.

Venue 1 would be located just to the southwest of the tasting room/restaurant building and would consist of the indoor production area (approximately 3,600 s.f.) with wine making facilities, bottle storage room, barrel room, crushing rooms, and a covered outdoor patio for ingress/egress and initial processing activities, as well as several offices, a break room, a laboratory, storage areas, and restroom. Separate bridal/groom suites (approximately 3,200 s.f.), each with lockers, restrooms, grooming areas, and patios for the bride and groom and their guests are also proposed. A central courtyard would separate the bridal/groom suites from the wine making facilities. A pavilion is also proposed adjacent to the courtyard for hosting of weddings or other events. Several additional offices, including two sales offices, and a lobby/reception area would also be accommodated within this structure. Venue 1

contains a total of 22,673 s.f. of structure.

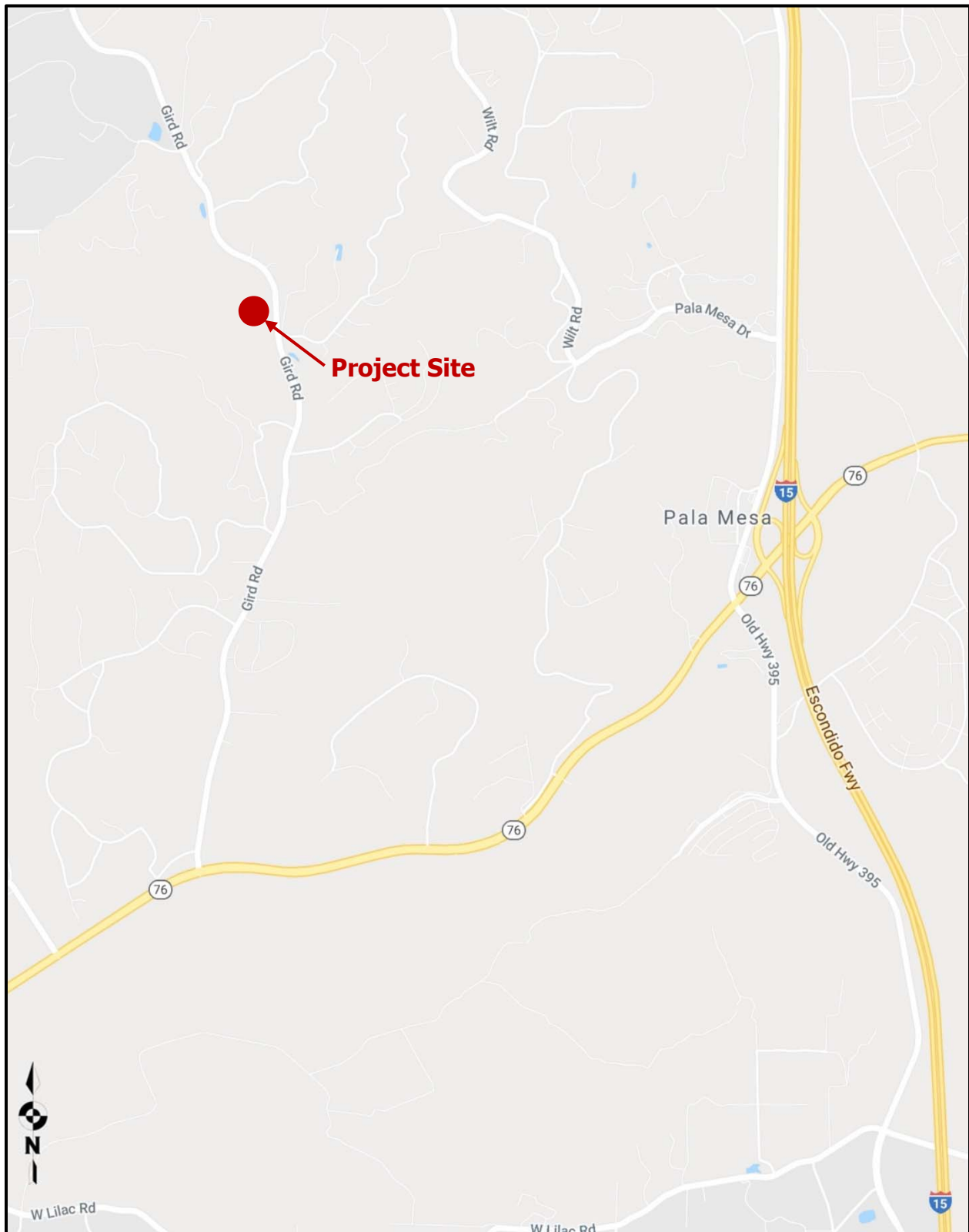
Venue 2 would be located to the west side of the onsite drainage, west of the main facilities, and would consist of an approximately 3,400-square foot sprinklered barn for holding events. A separate building is proposed just to the west of the barn that would offer restrooms, storage and other supporting uses. An open grassy area is proposed to the north of Venue 2 that could potentially be used for hosting periodic special events such as an art show or car show (e.g., combined with wine tasting events). Venue 2 contains a total of 7,349 s.f. of structure.

Venue 3 would be located to the northwest of the tasting room building and would offer bride/groom suits similar to those proposed for Venue 1. Separate bride and groom suites, each with a changing/grooming area, lockers, restrooms, janitor storage, and a patio are proposed for this venue. Additional men's/women's restrooms would serve event guests. A central courtyard would separate the bride/groom facilities and would serve to host scheduled events. A second building would adjoin the bride/groom suites to the south, along with men's and women's restrooms, for the hosting of events. Venue 3 contains a total of 8,374 s.f. of structure.

Events and Weddings

According to the information provided by the Project Proponent, accessory weddings and events could average three times per week. Any event would accommodate a maximum of 200 guests. Most events would take place on Fridays, Saturdays and Sundays. The events would be scheduled to occur when the tasting room is closed so there will not be an overlap with the arrival and departure of guests and parking. Outdoor sound for weddings would be limited to light ceremony music and officiants. The ceremony areas will face towards the sloping hill or the winery building to ensure noise attenuation. Any events with amplified music will be in the barrel room and barns, which will attenuate the sound from inside. Accessory events will otherwise be in the tasting room or on the covered patio. All events amplified music will end promptly by 10 pm. As can be seen in Figure 1-B, the three event venues are separated by 500 feet or more.

Figure 1-A: Project Vicinity Map



Source: (Google, 2018)

Site plan of the proposed development showing three venues. Venue 3 is located near the top left, Venue 2 is in the center, and Venue 1 is at the bottom right. A red line connects the three venues, with a distance of ±1200' between Venue 3 and Venue 2, and ±500' between Venue 2 and Venue 1. The plan includes various site features such as roads, parking areas, and landscaping. A north arrow is located in the bottom left corner.

1.2 Environmental Settings & Existing Conditions

a) Settings & Locations

The site formerly supported the 18-hole Fallbrook Country Club and Golf Course. The golf course was originally constructed in the 1960's under Major use Permit P61-098 and was subsequently modified to allow expansion of the course under P72-567. The subject property is currently governed by the most recent Major Use Permit (P74-165), approved January 24, 1975. All greens and fairways, along with supporting buildings, have since been removed (or demolished). Therefore, all of the vegetation onsite is highly disturbed, Bermuda grass. A large surface parking lot is located just west of Gird Road in the central portion of the property (in support of former onsite operations).

The southerly portion of the site to the east side of Grid Road (previously a portion of the approved golf course) has been planted as a vineyard since 2017. This area is not part of the current Major Use Permit Modification authorizing a winery and event center. However, this area is being removed from the previous golf course major use permit authority.

Surrounding land uses generally include scattered semi-rural and rural residential uses with both active and fallow agricultural lands intervening. A number of single-family residential uses are located to the north, east, and southeast of the property. Several higher-density residential neighborhoods are present to the south and southeast, with densities increasing to the northwest closer to the community of Fallbrook. Additionally, the West Fallbrook Conservancy is located to the west of the project site. Refer to Figure 2-A.

b) Existing Noise Conditions

Existing noise occurs from vehicle traffic along Gird Road. Gird Road is classified as a Light Collector with a speed limit of 50 MPH.

1.3 Methodology

Noise is generally unwanted or annoying sound which interferes with or disrupts normal activities. Exposure to high noise levels has been demonstrated to cause hearing loss. The individual human response to environmental noise is based on the sensitivity of that individual, the type of noise that occurs and when the noise occurs. Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel (dB). The sounds heard by humans typically do not consist of a single frequency but of a broadband of frequencies having different sound pressure levels. The method for evaluating all the frequencies of the sound is to apply an A-weighting to reflect how the human ear responds to the different sound levels at different frequencies. This is commonly referred to as dBA. The A-weighted sound level

adequately describes the instantaneous noise whereas the equivalent sound level depicted as L_{eq} represents a steady sound level containing the same total acoustical energy as the actual fluctuating sound level over a given time interval.

The U.S. Environmental Protection Agency (U.S. EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from 60 dBA to in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet from the source to the receptor and reduced to 63 dBA at 200 feet from the source.

The most effective noise reduction methods consist of controlling the noise at the source, blocking the noise transmission with barriers or relocating the receiver. Any or all of these methods may be required to reduce noise levels to an acceptable level.

2.0 OPERATIONAL ACTIVITIES

2.1 Guidelines for the Determination of Significance

Section 36.404 of the County of San Diego noise ordinance provides performance standards and noise control guidelines for determining and mitigating non-transportation, or stationary, noise source impacts to adjacent properties. The purpose of the noise ordinance is to protect, create and maintain an environment free from noise and vibration that may jeopardize the health or welfare, or degrade the quality of life. The sound level limits in Table 36.404 of the County's Noise Ordinance are provided below in Table 2-1.

Table 2-1: Property Line Sound Level Limits in Decibels (dBA)

Zone	Time	One-Hour Average Sound Level Limits (dBA)
(1) RS, RD, RR, RMH, A70, A72, S80, S81, S87, S90, S92, RV, and RU with a density of less than 11 dwelling units per acre.	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
(2) RRO, RC, RM, S86, V5, RV and RU with a density of 11 or more dwelling units per acre.	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
(3) S94, V4, and all commercial zones.	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
(4) V1, V2	7 a.m. to 7 p.m.	60
V1, V2	7 p.m. to 10 p.m.	55
V1	10 p.m. to 7 a.m.	55
V2	10 p.m. to 7 a.m.	50
V3	7 a.m. to 10 p.m.	70
	10 p.m. to 7 a.m.	65
(5) M50, M52, and M54	Anytime	70
(6) S82, M56, and M58.	Anytime	75
(7) S88 (see subsection (c) below)		

Source: County of San Diego Noise Ordinance Section 36.404

- Except as provided in section 36.409 of this chapter, it shall be unlawful for any person to cause or allow the creation of any noise, which exceeds the one-hour average sound level limits in Table 36.404, when the one-hour average sound level is measured at the property line of the property on which the noise is produced or at any location on a property that is receiving the noise.
- Where a noise study has been conducted and the noise mitigation measures recommended by that study have been made conditions of approval of a Major Use Permit, which authorizes the noise-generating use or activity and the decision making body approving the Major Use Permit determined that those mitigation measures reduce potential noise impacts to a level below significance, implementation and compliance with those noise mitigation measures shall constitute compliance with subsection (a) above.
- S88 zones are Specific Planning Areas which allow different uses. The sound level limits in Table 36.404 above

that apply in an S88 zone depend on the use being made of the property. The limits in Table 36.404, subsection (1) apply to property with a residential, agricultural or civic use. The limits in subsection (3) apply to property with a commercial use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M50, M52 or M54 zone. The limits in subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M56 or M58 zone.

- d) If the measured ambient noise level exceeds the applicable limit in Table 36.404, the allowable one-hour average sound level shall be the one-hour average ambient noise level, plus three decibels. The ambient noise level shall be measured when the alleged noise violation source is not operating.
- e) The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones. The one-hour average sound level limit applicable to extractive industries, however, including but not limited to borrow pits and mines, shall be 75 decibels at the property line regardless of the zone in which the extractive industry is located.
- f) A fixed-location public utility distribution or transmission facility located on or adjacent to a property line shall be subject to the sound level limits of this section measured at or beyond six feet from the boundary of the easement upon which the facility is located.

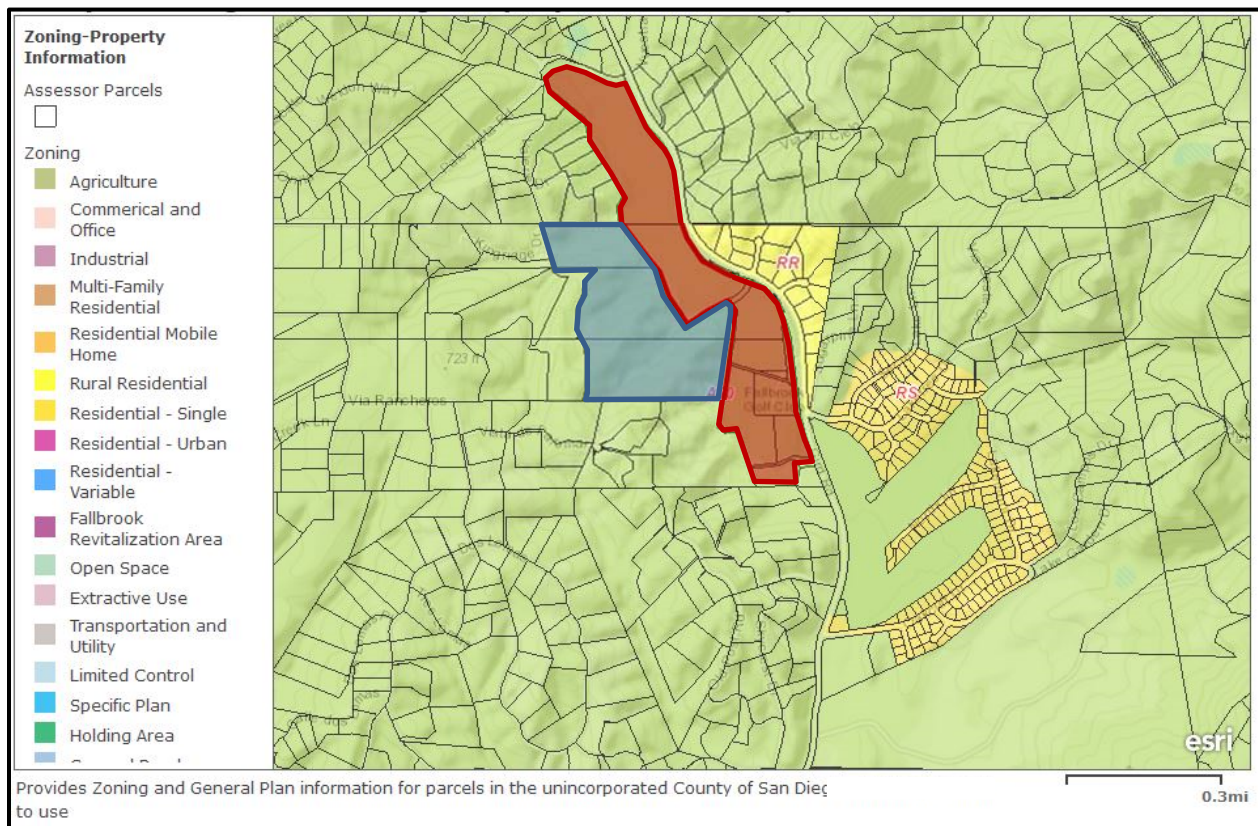
According to the stationary source exterior noise standards, no person shall operate any source of sound at any location within the County or allow the creation of any noise on a property which causes the noise levels to exceed the exterior noise limits at the property boundary. Additionally, Section 36.404(e) states that the sound level limits at a location on a boundary between two zones are the arithmetic mean of the respective limits for the two zones.

2.2 Potential Noise Impacts

This section examines the potential stationary noise source impacts associated with the development and operation of the proposed project. The Project site as well as all adjacent land uses are zoned A-70. The residential properties located to the east across Gird Road is zoned R-R. The Project site zoning and adjacent zoning is provided in Figure 2-A. It should be noted: the identified three parcels consisting of 47 acres are owned by the Fallbrook Conservancy with an open space and biological open space preserves easement to only allow for irrevocable conservational use.

Section 36.404 sets an operational exterior noise limit of 50 decibels (dBA) from 7 a.m. to 10 p.m. and 45 decibels (dBA) from 10 p.m. to 7 a.m. for the project and the surrounding residential properties (A-70 and RR). The adjacent biological open space has an hourly standard of 60 dBA Leq both day and night. The primary Project operations would only occur during the daytime hours. The only noise source that may occur during the nighttime hours would be the HVAC units.

Figure 2-A: Project Site Area Zoning



2.3 Reference Noise Levels

Fixed or point sources radiate outward uniformly as sound travels away from the source. Their sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance. Using a point-source noise prediction model, calculations of the expected operational noise impacts were completed. The essential model input data for these performance equations include the source levels of each type of equipment and relative source to receiver horizontal and vertical separations.

Events and Weddings

According to the information provided by the Project Proponent, accessory weddings and events could occur the same day at each venue. Most events would take place on Fridays, Saturdays and Sundays. The events would be scheduled to occur when the tasting room is closed so there will not be an overlap with the arrival and departure of guests and parking. Outdoor sound for weddings would be limited to light ceremony music and officiants. The ceremony areas will face towards the sloping hill or the winery building to ensure noise attenuation. Any events with amplified music will be in the barrel room and barns, which will

attenuate the sound from inside. Accessory events will otherwise be in the tasting room or on the covered patio. All events amplified music will end promptly by 10 pm.

This section provides a detailed description of the reference noise level measurement results. To determine the noise environment and to assess potential noise impacts, reference noise levels were taken at an indoor event center located at 7520 El Cajon Boulevard in the City of La Mesa, CA. The noise measurements were taken on Tuesday, December 6, 2017 to capture the planned indoor events. The operational noise levels consisted of a DJ system located inside the event center facing the towards the front door and direction of the measurement locations. The noise levels inside the facility was 81.3 dBA near the front door and 61.3 just outside the front door. Additionally, at a distance of 70 feet directly in front of the facility, the noise levels were found to be 54.1 dBA and the noise levels on the side of the building that had no public access was found to be roughly 7 decibels lower. The reference noise level is provided in Table 2-2. The noise measurement data is provided in **Attachment A**.

HVAC Noise

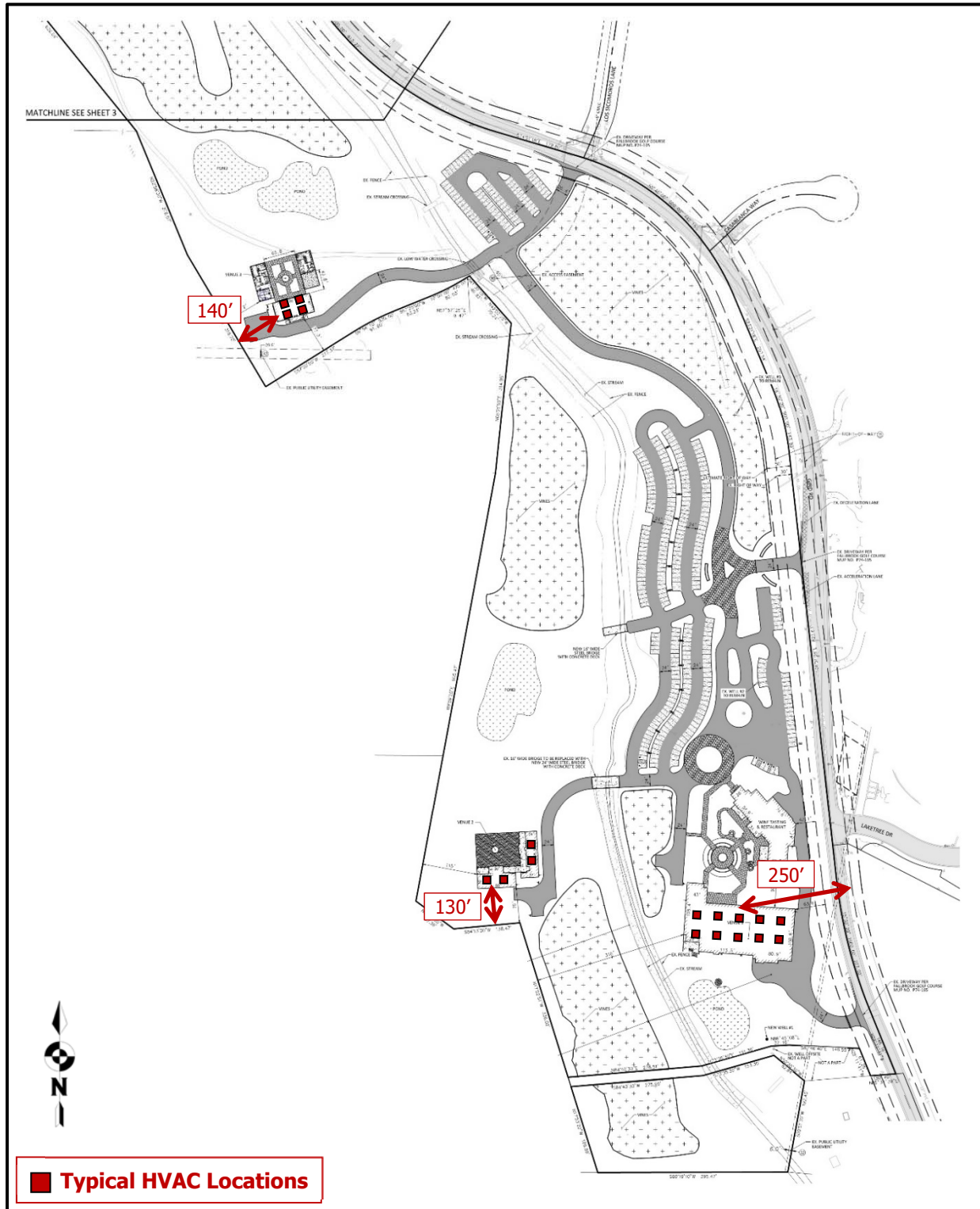
The project plans to utilize 3 to 5 ton A.C. units. To assess the mechanical ventilation system (HVAC) noise impacts, typical outdoor sound power levels were provided by Carrier Performance Series Air Conditioner units. The noise ratings provided by Carrier indicated a reference noise level of 73 dBA at 3-feet as shown in Table 2-2. The manufacturer's specifications and noise levels are provided in **Attachment B**.

The condenser units are proposed on the roof of the proposed buildings. To predict the worst-case future noise environment, a continuous reference noise level of 73 dBA at 3-feet was used to represent the roof-top mechanical ventilation system. Even though the mechanical ventilation system will cycle on and off throughout the day, this approach presents the worst-case noise condition. The locations of the mechanical equipment for each building can be seen in Figure 2-B. It was determined based on the site configuration and equipment locations that the most direct noise exposure would occur at the separate property lines as shown in Figure 2-B for each Venue.

Table 2-2: Project Related Operational Noise Sources

Equipment Description	Source	Sound Level Distance (feet)	Noise Level (dBA)
Indoor Event Center	Ldn*	70	54.1
3 to 5-ton rooftop HVAC unit	Carrier	3	73.0
* Indoor event center located at 7520 El Cajon Boulevard, La Mesa CA			

Figure 2-B: Typical Roof Mounted HVAC Configuration



The noise levels associated with the roof-top mechanical ventilation system will be limited with the proposed parapet walls on each building that will vary in height but will be roughly 1-foot higher than the HVAC units to shield them both visually and acoustically. Hence, the parapet wall will block the line-of-sight from the adjacent residential units. The parapet walls, breaking line of sight to the HVAC units will reduce noise levels at least 5 decibels. The reduction from the parapet walls was incorporated into the reference noise levels for the HVAC units and a reference noise level of 68 dBA at 3-feet was used for the HVAC units.

The noise levels for each source along with the calculated hourly noise levels based upon each venue are shown below in Tables 2-3 through 2-5 for the nearest property line. Also, included in the Tables is the relative property line standard for clarity. The combined noise levels, from all operations, at the adjacent property lines based upon distance separation were projected to be below the County's Noise Ordinance Section 36.404 daytime standards with no barriers or shielding of the equipment. Therefore, no impacts are anticipated and no mitigation is required for the continued operations. The only nighttime operational noise would be from the HVAC units. As can be seen in Tables 2-3 through 2-5, the HVAC noise levels are below 45 dBA and would comply with the nighttime standards at each Venue.

Table 2-3: Venue 1 Operational Noise Levels (Eastern Property Line)

Source	Reference Noise Level (dBA)	Reference Distance (Feet)	Quantity	Cumulative Noise Level (dBA)	Distance (Feet)	Reduction due to Distance (dBA Leq)	Noise Level at Property Line (dBA Leq)
Live Music	54.1	70	1	54.1	240	-10.7	43
HVAC	68	3	10	78.0	250	-38.4	40
CUMULATIVE NOISE LEVEL @ PROPERTY LINE (dBA)							46
Daytime Property Line Standard							50
Complies with Section 36.404							Yes

Table 2-4: Venue 2 Operational Noise Levels (Western Property Line)

Source	Reference Noise Level (dBA)	Reference Distance (Feet)	Quantity	Cumulative Noise Level (dBA)	Distance (Feet)	Reduction due to Distance (dBA Leq)	Noise Level at Property Line (dBA Leq)
Live Music	54.1	70	1	54.1	120	-4.7	49
HVAC	68	3	4	74.0	130	-32.7	41
CUMULATIVE NOISE LEVEL @ PROPERTY LINE (dBA)							49
Daytime Property Line Standard							50
Complies with Section 36.404							Yes

Table 2-5: Venue 3 Operational Noise Levels (Western Property Line)

Source	Reference Noise Level (dBA)	Reference Distance (Feet)	Quantity	Cumulative Noise Level (dBA)	Distance (Feet)	Reduction due to Distance (dBA Leq)	Noise Level at Property Line (dBA Leq)
Live Music	54.1	70	1	54.1	130	-5.4	49
HVAC	68	3	4	74.0	140	-33.4	41
CUMULATIVE NOISE LEVEL @ PROPERTY LINE (dBA)							49
Daytime Property Line Standard							50
Complies with Section 36.404							Yes

2.4 Conclusions

According to the information provided by the Project Proponent, accessory weddings and events could occur the same day at each venue. As can be seen in Figure 2-B, Venues 2 and 3 are located a minimum of 1,200-feet and would not cumulatively add to the noise levels at the property lines. Venues 1 and 2 are located a minimum of 500-feet and could potentially cumulatively add to the noise levels at the southwest property lines.

The noise levels for each source along with the calculated hourly noise levels for Venues 1 and 2 is shown below in Table 2-6 along with the cumulative noise level at the common property line. The cumulative noise levels, from those operations, at the property lines was projected to be below the County's Noise Ordinance Section 36.404 daytime standards. Additionally, the HVAC cumulative noise level was determined to be 42 dBA and would comply with the nighttime standards. Therefore, based upon the property line noise levels determined, none of the proposed noise sources directly or cumulatively exceeds the property line standards. Therefore, no impacts are anticipated and no mitigation is required.

Table 2-6: Venue 1 and 2 Cumulative Noise Levels (Southwest Property Line)

Venue	Source	Cumulative Noise Level (dBA) *	Reference Distance (Feet)	Minimum Distance to Property Line (Feet)	Reduction due to Distance (dBA Leq)	Resultant Noise Level at Property Line (dBA Leq)
1	Live Music	54.1	70	440	-16.0	38
	HVAC	78.0	3	450	-43.5	34
2	Live Music	54.1	70	130	-5.4	49
	HVAC	74.0	3	140	-33.4	41
CUMULATIVE NOISE LEVEL @ PROPERTY LINE (dBA)						50
Daytime Property Line Standard						50
Complies with Section 36.404						Yes
*Cumulative noise levels from Venues 1 and 2 determined in Tables 2-3 and 2-4						

3.0 CONSTRUCTION ACTIVITIES

3.1 Guidelines for the Determination of Significance

Construction Noise: Noise generated by construction activities related to the project will exceed the standards listed in San Diego County Code Sections as follows.

SEC. 36.408: HOURS OF OPERATION OF CONSTRUCTION EQUIPMENT

Except for emergency work, it shall be unlawful for any person to operate or cause to be operated, construction equipment:

- a. Between 7 p.m. and 7 a.m.
- b. On a Sunday or a holiday. For purposes of this section, a holiday means January 1st, the last Monday in May, July 4th, the first Monday in September, December 25th and any day appointed by the President as a special national holiday or the Governor of the State as a special State holiday. A person may, however, operate construction equipment on a Sunday or holiday between the hours of 10 a.m. and 5 p.m. at the person's residence or for the purpose of constructing a residence for himself or herself, provided that the operation of construction equipment is not carried out for financial consideration or other consideration of any kind and does not violate the limitations in sections 36.409 and 36.410.

SEC. 36.409: SOUND LEVEL LIMITATIONS ON CONSTRUCTION EQUIPMENT

Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 decibels for an eight-hour period, between 7 a.m. and 7 p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

SEC. 36.410: SOUND LEVEL LIMITATIONS ON IMPULSIVE NOISE

In addition to the general limitations on sound levels in section 36.404 and the limitations on construction equipment in section 36.409, the following additional sound level limitations shall apply:

- (a) Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 36.410A (provided below), when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property. The uses in Table 36.410A are as described in the County Zoning Ordinance.

TABLE 36.410A: MAXIMUM SOUND LEVEL (IMPULSIVE) MEASURED AT OCCUPIED PROPERTY IN DECIBELS (dBA)

OCCUPIED PROPERTY USE	DECIBELS (dBA)
Residential, village zoning or civic use	82
Agricultural, commercial or industrial use	85

- (b) Except for emergency work, no person working on a public road project shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 36.410B, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property. The uses in Table 36.410B are as described in the County Zoning Ordinance.

TABLE 36.410B: MAXIMUM SOUND LEVEL (IMPULSIVE) MEASURED AT OCCUPIED PROPERTY IN DECIBELS (dBA) FOR PUBLIC ROAD PROJECTS

OCCUPIED PROPERTY USE	dB(A)
Residential, village zoning or civic use	85
Agricultural, commercial or industrial use	90

- (c) The minimum measurement period for any measurements conducted under this section shall be one hour. During the measurement period a measurement shall be conducted every minute from a fixed location on an occupied property. The measurements shall measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will be deemed that the maximum sound level was exceeded during that minute.

3.2 Potential Property Line Noise Impacts

a) Potential Build Out Noise Conditions

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment includes haul trucks, water trucks, graders, dozers, loaders and scrapers can reach relatively high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours.

The U.S. Environmental Protection Agency (U.S. EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from 60 dBA to in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet from the source to the receptor, and reduced to 63 dBA at 200 feet from the source.

b) Potential Noise Impact Identification

Using a point-source noise prediction model, calculations of the expected construction noise impacts were completed. The essential model input data for these performance equations include the source levels of each type of equipment, relative source to receiver horizontal and vertical separations, the amount of time the equipment is operating in a given day, also referred to as the duty-cycle and any transmission loss from topography or barriers.

Based empirical data and the amount of equipment needed, potential noise impacts from this construction equipment would occur during the grading operations. Conservatively, to determine the noise levels for the grading activities, all the equipment was placed in a common location, which is not physically possible. As can be seen in Table 3-1, even if all the equipment were placed together the cumulative grading activities noise levels would be 78.8 dBA and would attenuate 6 dBA at a distance of 10-feet from the point source noise and would be at or below the 75 dBA threshold.

Table 3-1: Construction Noise Levels

Construction Equipment	Quantity	Source Level @ 50-Feet (dBA) ¹	Duty Cycle (Hours/Day)	Cumulative Noise Level @ 50-Feet (dBA)
Dozer - D8	1	72	8	72.0
Tractor/Backhoe	1	74	8	74.0
Water Trucks	1	70	8	70.0
Excavator	1	74	8	74.0
Cumulative Levels @ 50 Feet				78.8
Distance to Property Line (Feet)				100
Noise Reduction Due to Distance				-6.0
NEAREST PROPERTY LINE NOISE LEVEL				72.8
¹ Source: U.S. Environmental Protection Agency (U.S. EPA) and Empirical Data				

The grading equipment will be spread out over the project site from distances near the occupied

property to distances of over 400-feet away. Based upon the proposed site plan the majority of the grading operations will occur more than 200-feet from the property lines. At average distances over 100-feet the grading activities are anticipated not to exceed the County's 75-dBA standard and would not require any mitigation measures. This means that most of the time the average distance from the equipment to the occupied properties is more than 135-feet and in that situation no impacts are anticipated.

No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project is anticipated to comply with Section 36.410 of the County Noise Ordinance and no further analysis is required.

3.3 Conclusions

The grading activities will consist of the preparation of the proposed internal roadways, the finished pads, and the water quality detention basins. The grading equipment will be spread out over the project site from distances near the occupied property to distances of 400-feet or more away. Based upon the proposed site plan the majority of the grading operations will occur more than 200-feet from the property lines. At average distances over 100-feet the grading activities are anticipated not to exceed the County's 75-dBA standard and would not require any mitigation measures.

No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project will comply with Section 36.410 of the County Noise Ordinance.

4.0 SUMMARY OF PROJECT IMPACTS, MITIGATION & CONCLUSIONS

- Operational Analysis

Based upon the property line noise levels determined above none of the proposed noise sources directly or cumulatively exceeds the property line standards at the property lines. The amplified music from the events will be limited to inside the proposed Venues and would promptly stop by 10 pm and would comply with the daytime standards. The noise levels associated with the roof-top mechanical ventilation system would be limited with the proposed parapet walls on each building that will vary in height but will be roughly 1-foot higher than the HVAC units to shield them both visually and acoustically. Therefore, the proposed development related operational noise levels are anticipated to comply with noise standards at the property lines. No impacts are anticipated and no mitigation is required.

- Construction Analysis

The grading activities will consist of the preparation of the proposed internal roadways, the finished pads, and the water quality detention basins. The grading equipment will be spread out over the project site from distances near the occupied property to distances of 400-feet or more away. Based upon the proposed site plan the majority of the grading operations will occur more than 200-feet from the property lines. At average distances over 100-feet the grading activities are anticipated not to exceed the County's 75-dBA standard and would not require any mitigation measures.

No blasting or rock crushing is anticipated during the grading operations. Therefore, no impulsive noise sources are expected and the Project will comply with Section 36.410 of the County Noise Ordinance.

4.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the future acoustical environment and impacts within and surrounding the Monserate Winery and Event development. The report was prepared by Jeremy Loudon; a County approved CEQA Consultant for Acoustics.

DRAFT

Jeremy Loudon
Principal
Ldn Consulting, Inc.
760-473-1253

Date March 25, 2019

ATTACHMENT A

Noise Data from Indoor Event Center

General Information				
Serial Number				02412
Model				LxT1
User				
Job Description				
Location				
File Name				LxT_Data.133
Start Time			Wednesday, 2017 December 6 17:21:24	
Stop Time			Wednesday, 2017 December 6 17:22:24	
Run Time				00:01:00
Pre Calibration				
Post Calibration				
Calibration Deviation				
Note				

Overall Data				
Leq			81.3	dBA
Lmax	(6 Dec 2017 17:22:09)		83.2	dBA
Lpeak (max)	(6 Dec 2017 17:21:59)		100.0	dBA
Lmin	(6 Dec 2017 17:21:24)		72.9	dBA
LE			99.1	dBA
SE			903.0	µPa²hr
SE(8)			429.9	mPa²hr
SE(40)			2.1	Pa²hr
Overload?				No

General Information				
Serial Number				02412
Model				LxT1
User				
Job Description				
Location				
File Name				LxT_Data.135
Start Time			Wednesday, 2017 December 6 17:24:30	
Stop Time			Wednesday, 2017 December 6 17:25:31	
Run Time				00:01:00
Pre Calibration				
Post Calibration				
Calibration Deviation				
Note				

Overall Data				
Leq			61.3	dBA
Lmax	(6 Dec 2017 17:25:20)		71.8	dBA
Lpeak (max)	(6 Dec 2017 17:25:20)		88.1	dBA
Lmin	(6 Dec 2017 17:24:32)		57.7	dBA
LE			79.1	dBA
SE			9.1	µPa²hr
SE(8)			4.3	mPa²hr
SE(40)			21.5	mPa²hr
Overload?				No

General Information	
Serial Number	02412
Model	LxT1
User	
Job Description	
Location	
File Name	LxT_Data.137

Start Time	Wednesday, 2017 December 6 17:27:43
Stop Time	Wednesday, 2017 December 6 17:28:44
Run Time	00:01:00
Pre Calibration	
Post Calibration	
Calibration Deviation	

Note

Overall Data			
Leq		54.1	dBa
Lmax	(6 Dec 2017 17:28:11)	59.1	dBa
Lpeak (max)	(6 Dec 2017 17:28:10)	77.4	dBa
Lmin	(6 Dec 2017 17:27:43)	51.8	dBa
LE		71.9	dBa
SE		1.7	$\mu\text{Pa}^2\text{hr}$
SE(8)		826.5	$\mu\text{Pa}^2\text{hr}$
SE(40)		4.1	mPa^2hr
Overload?			No

General Information			
Serial Number			02412
Model			LxT1
User			
Job Description			
Location			
File Name			LxT_Data.136

Start Time	Wednesday, 2017 December 6 17:26:12
Stop Time	Wednesday, 2017 December 6 17:27:12
Run Time	00:01:00
Pre Calibration	
Post Calibration	
Calibration Deviation	

Note

Overall Data			
Leq		54.6	dBa
Lmax	(6 Dec 2017 17:26:21)	60.1	dBa
Lpeak (max)	(6 Dec 2017 17:26:12)	76.4	dBa
Lmin	(6 Dec 2017 17:26:59)	52.1	dBa
LE		72.4	dBa
SE		1.9	$\mu\text{Pa}^2\text{hr}$
SE(8)		923.1	$\mu\text{Pa}^2\text{hr}$
SE(40)		4.6	mPa^2hr
Overload?			No

ATTACHMENT B

HVAC Noise Levels and Specifications

24AHA4
Performance™ Series Air Conditioner
with Puron® Refrigerant
1—1/2 to 5 Nominal Tons



Product Data



Performance
SERIES

Carrier air conditioners with Puron® refrigerant provide a collection of features unmatched by any other family of equipment. The 24AHA4 has been designed utilizing Carrier's Puron refrigerant. This environmentally sound refrigerant allows you to make a responsible decision in the protection of the earth's ozone layer.

NOTE: Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory (www.ahridirectory.org) for the most up-to-date ratings information.

INDUSTRY LEADING FEATURES / BENEFITS

Energy Efficiency

- 14 SEER/11.7 – 12.2 EER
(Based on tested combinations)

Sound

- Levels as low as 66 dBA

Design Features

- Small footprint
- WeatherArmor™ cabinet
 - All steel cabinet construction
 - Mesh coil guard

Reliability, Quality and Toughness

- Scroll compressor
- Factory-supplied filter drier
- High pressure switch
- Line lengths up to 250' (76.2 m)
- Low ambient operation
(down to -20°F/-28.9°C with low ambient accessories)

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12	13
N	N	A	A	A/N	N	N	N	A/N	A/N	A/N	N	N
2	4	A	H	A	4	1	8	A	0	0	3	0
Product Series	Product Family	Product Type	Major Series	SEER	Cooling Capacity	Variations	Open	Open	Voltage	Minor Series		
24=AC	A = AC	H = Horizontal Discharge		4 = 14 SEER		A=Standard	0=Not Defined	0=Not Defined	3=208/230-1 5=208/230-3 6=460/3	0, 1, 2...		



Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.



PHYSICAL DATA

UNIT SIZE – SERIES	18–30	24–30	30–30	36–30, 50, 60	48–30, 50, 60	60–30, 50, 60
COMPRESSOR TYPE	Scroll					
REFRIGERANT	Puron® (R-410A)					
Charge lb (kg)	6.40 (2.90)	6.50 (2.95)	8.60 (3.90)	8.90 (4.04)	9.00 (4.08)	10.60 (4.81)
COND FAN	Propeller Type, Direct Drive					
Air Discharge	Horizontal					
Air Qty (CFM)	1285	1285	1900	2615	2615	2785
Motor HP	1/12	1/12	1/10	1/4	1/4	1/4
Motor RPM	800	800	800	800	800	800
COND COIL						
Face Area (Sq ft)	7.3	7.3	12.1	12.1	12.1	14.1
Fins per In.	20	20	20	20	20	20
Rows	2	2	2	2	2	2
Circuits	3	3	3	3	3	4
VALVE CONNECT. (In. ID)						
Vapor	5/8	3/4	3/4	7/8	7/8	7/8
Liquid	3/8					
REFRIGERANT TUBES* (In. OD)						
Rated Vapor*	5/8	3/4	3/4	7/8	7/8	1 1/8
Max Liquid Line†	3/8					

* Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.

Note: See unit Installation Instruction for proper installation.

† See *Liquid Line Sizing For Cooling Only Systems with Puron Refrigerant* tables.

REFRIGERANT PIPING LENGTH LIMITATIONS

Liquid Line Sizing and Maximum Total Equivalent Lengths† for Cooling Only Systems with Puron® Refrigerant:

The maximum allowable length of a residential split system depends on the liquid line diameter and vertical separation between indoor and outdoor units.

See Table below for liquid line sizing and maximum lengths :

Maximum Total Equivalent Length Outdoor Unit BELOW Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/ TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit BELOW Indoor Vertical Separation ft (m)								
			0–5 (0–1.5)	6–10 (1.8–3.0)	11–20 (3.4–6.1)	21–30 (6.4–9.1)	31–40 (9.4–12.2)	41–50 (12.5–15.2)	51–60 (15.5–18.3)	61–70 (18.6–21.3)	71–80 (21.6–24.4)
018 AC with Puron	3/8	1/4	150	150	125	100	100	75	—	—	—
		5/16	250*	250*	250*	250*	250*	250*	250*	225*	150
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
024 AC with Puron	3/8	1/4	75	75	75	50	50	—	—	—	—
		5/16	250*	250*	250*	250*	250*	225*	175	125	100
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
030 AC with Puron	3/8	1/4	30	—	—	—	—	—	—	—	—
		5/16	175	225*	200	175	125	100	75	—	—
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
036 AC with Puron	3/8	5/16	175	150	150	100	100	100	75	—	—
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
048 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	230	160	—
060 AC with Puron	3/8	3/8	250*	250*	250*	225*	190	150	110	—	—

* Maximum actual length not to exceed 200 ft (61 m)

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

— = outside acceptable range

Maximum Total Equivalent Length Outdoor Unit ABOVE Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/ TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit ABOVE Indoor Vertical Separation ft (m)							
			25 (7.6)	26–50 (7.9–15.2)	51–75 (15.5–22.9)	76–100 (23.2–30.5)	101–125 (30.8–38.1)	126–150 (38.4–45.7)	151–175 (46.0–53.3)	176–200 (53.6–61.0)
018 AC with Puron	3/8	1/4	175	250*	250*	250*	250*	250*	250*	250*
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
024 AC with Puron	3/8	1/4	100	125	175	200	225*	250*	250*	250*
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
030 AC with Puron	3/8	1/4	30	—	—	—	—	—	—	—
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
036 AC with Puron	3/8	5/16	225*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
048 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*
060 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*

* Maximum actual length not to exceed 200 ft (61 m)

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

— = outside acceptable range

REFRIGERANT CHARGE ADJUSTMENTS

Liquid Line Size	Puron Charge oz/ft (g/m)
3/8	0.60 (17.74) (Factory charge for lineset = 9 oz / 266.16 g)
5/16	0.40 (11.83)
1/4	0.27 (7.98)

Units are factory charged for 15 ft (4.6 m) of 3/8" liquid line. The factory charge for 3/8" lineset 9 oz (266.16 g). When using other length or diameter liquid lines, charge adjustments are required per the chart above.

Charging Formula:

[(Lineset oz/ft x total length) – (factory charge for lineset)] = charge adjustment

Example 1: System has 15 ft of line set using existing 1/4" liquid line. What charge adjustment is required?

Formula: (.27 oz/ft x 15ft) – (9 oz) = (-4.95) oz.

Net result is to remove 4.95 oz of refrigerant from the system

Example 2: System has 45 ft of existing 5/16" liquid line. What is the charge adjustment?

Formula: (.40 oz/ft. x 45ft) – (9 oz.) = 9 oz.

Net result is to add 9 oz of refrigerant to the system

LONG LINE APPLICATIONS

An application is considered Long Line, when the refrigerant level in the system requires the use of accessories to maintain acceptable refrigerant management for systems reliability. See Accessory Usage Guideline table for required accessories. Defining a system as long line depends on the liquid line diameter, actual length of the tubing, and vertical separation between the indoor and outdoor units.

For Air Conditioner systems, the chart below shows when an application is considered Long Line.

AC WITH PURON® REFRIGERANT LONG LINE DESCRIPTION ft (m) Beyond these lengths, long line accessories are required

Liquid Line Size	Units On Same Level	Outdoor Below Indoor	Outdoor Above Indoor
1/4	No accessories needed within allowed lengths	No accessories needed within allowed lengths	175 (53.3)
5/16	120 (36.6)	50 (15.2) vertical or 120 (36.6) total	120 (36.6)
3/8	80 (24.4)	35 (10.7) vertical or 80 (24.4) total	80 (24.4)

Note: See Long Line Guideline for details

VAPOR LINE SIZING AND COOLING CAPACITY LOSS

LONG LINE APPLICATION: An application is considered "Long line" when the total equivalent tubing length exceeds 80 ft. (24.38 m) or when there is more than 20 ft. (6.09 m) vertical separation between indoor and outdoor units. These applications require additional accessories and system modifications for reliable system operation. The maximum allowable total equivalent length is up to 250 ft. (76.2 m). The maximum

vertical separation is 200 ft. (60.96 m) when outdoor unit is above indoor unit, and up to 80 ft. (24.38 m) when the outdoor unit is below the indoor unit. Refer to Accessory Usage Guideline below for required accessories. See Longline Application Guideline for required piping and system modifications. Also, refer to the table below for the vapor tube diameters based on the total length to minimize the cooling capacity loss.

Vapor Line Sizing and Cooling Capacity Losses — Puron® Refrigerant 1-Stage Air Conditioner Applications

Unit Nominal Size (Btuh)	Maximum Liquid Line Diameters (In. OD)	Vapor Line Diameters (In. OD)	Cooling Capacity Loss (%) Total Equivalent Line Length ft. (m)								
			26–50 (7.9–15.2)	51–80 (15.5–24.4)	81–100 (24.7–30.5)	101–125 (30.8–38.1)	126–150 (38.4–45.7)	151–175 (46.0–53.3)	176–200 (53.6–61.0)	201–225 (61.3–68.6)	226–250 (68.9–76.2)
018 1 Stage AC with Puron	3/8	1/2	1	2	3	5	6	7	8	9	11
		5/8	0	1	1	1	2	2	2	3	3
		3/4	0	0	0	0	1	1	1	1	1
024 1 Stage AC with Puron	3/8	5/8	0	1	2	2	3	3	4	5	5
		3/4	0	0	1	1	1	1	1	2	2
		7/8	0	0	0	0	0	1	1	1	1
030 1 Stage AC with Puron	3/8	5/8	1	2	3	3	4	5	6	7	8
		3/4	0	0	1	1	1	2	2	2	3
		7/8	0	0	0	0	1	1	1	1	1
036 1 Stage AC with Puron	3/8	5/8	1	2	4	5	6	8	9	10	12
		3/4	0	1	1	2	2	3	3	4	4
		7/8	0	0	0	1	1	1	1	2	2
048 1 Stage AC with Puron	3/8	3/4	0	1	2	3	4	5	5	6	7
		7/8	0	0	1	1	2	2	2	3	3
		1 1/8	0	0	0	0	0	0	0	1	1
060 1 Stage AC with Puron	3/8	3/4	1	2	4	5	6	7	9	10	11
		7/8	0	1	2	2	3	4	4	5	5
		1 1/8	0	0	0	1	1	1	1	1	1

Applications in this area may be long line and may have height restrictions. See the *Residential Piping and Long Line Guideline*.

ACCESSORIES

KIT NUMBER	KIT NAME	Unit Size (Voltage/Series)											
		018 (30)	024 (30)	030 (30)	036 (30)	036 (50)	036 (60)	048 (30)	048 (50)	048 (60)	060 (30)	060 (50)	060 (60)
KAACH1401AAA	Crankcase Heater	X	X	X	X	X							
KAACH1201AAA	Crankcase Heater							X	X		X	X	
KAACH1501AAA	Crankcase Heater						X						
KAACH1901AAA	Crankcase Heater									X			X
KSAFT0101AAA	Evaporator Freeze Stat	X	X	X	X	X	X	X	X	X	X	X	X
KAATD0101TDR	Time Delay Relay	X	X	X	X	X	X	X	X	X	X	X	X
KAAWS0101AAA	Winter Start Kit	X	X	X	X	X	X	X	X	X	X	X	X
KSALA0801AAA	MotorMaster® 230v	X	X	X	X	X		X	X		X	X	
KSALA0901AAA	MotorMaster® 460v						X			X			X
53DS-900----087	Wind Baffle	X	X										
53DS-900----071	Wind Baffle			X	X	X	X	X	X	X			
53DS-900----088	Wind Baffle										X	X	X
53DS-900----075	Stacking Kit	X	X										
53DS-900----076	Stacking Kit			X	X	X	X	X	X	X	X	X	X
53DS-900----077	Wall Mounting Kit	X	X										
53DS-900----078	Wall Mounting Kit			X	X	X	X	X	X	X	X	X	X
KAALP0401PUR	Pressure Switch Kit	X	X	X	X	X	X	X	X	X	X	X	X
KSASH2301COP	Sound Blanket Kit	X	X	X	X	X	X						
KSASH2401COP	Sound Blanket Kit							X	X	X	X	X	X
KAALS0201LLS	Solenoid Valve Kit	X	X	X	X	X	X	X	X	X	X	X	X
KSAS1501AAA	Capacitor Relay Start Assist	X	X	X	X			X			X		

X = Accessory

ACCESSORY THERMOSTATS

PART NUMBER	DESCRIPTION	
TP-WEM01	Côr™ Thermostat	
TP-PRH01-A	edge™ Programmable Relative Humidity Thermostat	
TP-PAC01	edge™ Programmable Thermostat	
TP-NRH01	edge™ Non-Programmable Relative Humidity Thermostat	
TP-NAC01	edge™ Non-Programmable Thermostat	
TC-WHS01	Wi-Fi® Thermostat	
TC-PAC01	Programmable Thermostat	
TC-NAC01	Non-Programmable Thermostat	
TCSNAC01	Non-Programmable Standard Screen Thermostat	
THERMOSTAT ACCESSORIES		
TP-EXP	edge™ EXP® Card	Programmable edge™ thermostats
TSTATCCSEN01-B	Outdoor Air Temperature Sensor	TP-Pxx, TP-Nxx
TSTATXXCNV10	Thermostat Conversion Kit (4 to 5 wire) - 10 pack	All Carrier® branded thermostats
TX-MBP01	Medium Decorative Backplate	TC-Nxx
TX-LBP01	Large Decorative Backplate	TP-Pxx, TP-Nxx, TC-Pxx

ACCESSORY USAGE GUIDELINE

Accessory	REQUIRED FOR LOW-AMBIENT COOLING APPLICATIONS (Below 55°F / 12.8°C)	REQUIRED FOR LONG LINE APPLICATIONS* (Over 80 ft. / 24.38 m)	REQUIRED FOR SEA COAST APPLICATIONS (Within 2 miles / 3.22 km)
Ball Bearing Fan Motor	Standard	Standard	Standard
Compressor Start Assist Capacitor and Relay	Yes	Yes	No
Crankcase Heater	Yes	Yes	No
Evaporator Freeze Thermostat	Yes	No	No
Liquid Line Solenoid Valve	No	See Long-Line Application Guideline	No
Low Ambient Pressure Switch or MotorMaster® Controller	Yes	No	No

* For tubing line sets between 80 and 200 ft. (24.38 and 60.96 m) and/or 20 ft. (6.09 m) vertical differential, refer to Residential Split-System Longline Application Guideline.

Accessory Description and Usage (Listed Alphabetically)

1. Ball-Bearing Fan Motor

A fan motor with ball bearings which permits speed reduction while maintaining bearing lubrication.

Usage Guideline:

Required on all units when using MotorMaster®

2. Compressor Start Assist – Capacitor and Relay

Start capacitor and relay gives a "hard" boost to compressor motor at each start up.

Usage Guideline:

Required for reciprocating compressors in the following applications:

Long line

Low ambient cooling

Hard shut off expansion valve on indoor coil

Liquid line solenoid on indoor coil

Required for single-phase scroll compressors in the following applications:

Long line

Low ambient cooling

Suggested for all compressors in areas with a history of low voltage problems.

3. Crankcase Heater

An electric resistance heater which mounts to the base of the compressor to keep the lubricant warm during off cycles. Improves compressor lubrication on restart and minimizes the chance of liquid slugging.

Usage Guideline:

Required in low ambient cooling applications.

Required in long line applications.

Suggested in all commercial applications.

4. Evaporator Freeze Thermostat

An SPST temperature-actuated switch that stops unit operation when evaporator reaches freeze-up conditions.

Usage Guideline:

Required when low ambient kit has been added.

5. Low-Ambient Pressure Switch Kit

A long life pressure switch which is mounted to outdoor unit service valve. It is designed to cycle the outdoor fan motor in order to maintain head pressure within normal operating limits. The control will maintain working head pressure at low-ambient temperatures down to 0°F (-18°C) when properly installed.

Usage Guideline:

A Low-Ambient Pressure Switch or MotorMaster® Low-Ambient Controller must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).

Suggested for all commercial applications.

6. MotorMaster Low-Ambient Controller

A fan-speed control device activated by a temperature sensor, designed to control condenser fan motor speed in response to the saturated condensing temperatures down to -20°F (-28.9°C), it maintains condensing temperature at 100°F +/- 10°F (37.8°C +/- 6°C)

Usage Guideline:

A MotorMaster Low-Ambient Controller or Low-Ambient Pressure Switch must be used when cooling operation is used at outdoor temperatures below 55°F (12.8°C).

Suggested for all commercial applications.

ELECTRICAL DATA

UNIT SIZE — voltage, series	V/PH	OPER VOLTS*		COMPR		FAN	MCA	MAX FUSE** or CKT BRK AMPS
		MAX	MIN	LRA	RLA	FLA		
18–30	208/230/1	253	197	56.3	9.0	0.50	11.8	20
24–30				62.9	10.9	0.50	14.1	25
30–30				73.0	14.1	0.70	18.3	30
36–30				77.0	14.1	1.20	18.8	30
48–30				124.0	18.5	1.20	24.3	40
60–30				152.5	23.7	1.45	31.1	50
36–50	208/230/3	253	197	71.0	9.0	1.20	12.5	20
48–50				83.1	13.7	1.20	18.3	30
60–50				110.0	15.9	1.45	21.4	35
36–60	460/3	506	414	38.0	5.6	0.60	7.6	15
48–60				41.0	6.2	0.60	8.4	15
60–60				52.0	7.1	0.80	9.7	15

LEGEND:

FLA — Full Load Amps

HACR — Heating, Air Conditioning, Refrigeration

LRA — Locked Rotor Amps

NEC — National Electrical Code

RLA — Rated Load Amps (compressor)

* Permissible limits of the voltage range at which the unit will operate satisfactorily

** Time—Delay fuse.

Complies with 2007 requirements of ASHRAE Standards 90.1

A-WEIGHTED SOUND POWER (dBA)

Unit Size	Standard Rating (dBA)	Typical Octave Band Spectrum (dBA, without tone adjustment)						
		125	250	500	1000	2000	4000	8000
18	69	50.5	57.0	59.5	64.5	60.5	53.5	43.0
24	66	50.5	58.5	60.5	59.5	56.5	51.0	41.5
30	68	55.5	59.5	61.5	63.5	60.0	58.0	49.5
36	71	59.5	59.5	62.0	65.5	63.5	62.0	55.0
48	70	57.5	59.5	64.0	66.0	63.0	60.5	54.5
60	73	60.0	61.5	64.5	67.0	66.0	65.5	58.0

NOTE: Tested in accordance with AHRI Standard 270–08 (not listed in AHRI).

A-WEIGHTED SOUND POWER (dBA) WITH ACCESSORY SOUND SHIELD

Unit Size	Standard Rating (dBA)	Typical Octave Band Spectrum (dBA, without tone adjustment)						
		125	250	500	1000	2000	4000	8000
18	68	52.5	58.0	58.5	64.5	59.5	52.5	42.5
24	65	54.5	57.5	59.5	59.0	56.0	50.5	40.5
30	68	55.0	60.0	61.5	62.5	60.0	58.0	49.5
36	71	59.5	59.5	62.5	65.0	63.0	61.5	55.0
48	70	57.5	59.5	63.0	65.0	62.5	60.0	54.0
60	73	61.0	62.0	64.0	67.0	65.5	65.5	57.5

NOTES:

Tested in accordance with AHRI Standard 270–08 (not listed in AHRI).

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

UNIT SIZE—SERIES	REQUIRED SUBCOOLING °F (°C)
18	12 (6.7)
24	12 (6.7)
30	12 (6.7)
36	8 (4.4)
48	12 (6.7)
60	10 (5.6)