

REVISED
NOISE ASSESSMENT TECHNICAL REPORT
for the

Camp Ramah Project
Ventura County, California

Prepared for:

Camp Ramah

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FEBRUARY 2020

<p>County of Ventura Planning Commission Hearing Case No. PL18-0052 Exhibit 4(MND), Attachment 13 - Dudek Noise Assessment Technical Reports, dated February 2020 and October 2019</p>
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ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulation
CNEL	community noise equivalent level
dB	decibel
dBA	A-weighted decibel
DOT	U.S. Department of Transportation
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
Hz	hertz
Ldn	day-night sound level
Leq	equivalent sound level
Lmin	minimum sound level
Lmax	maximum sound level
Lxx	percentile exceeded sound level
RMS	root mean square
SR	State Route
VdB	vibration decibels

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1.0 INTRODUCTION

1.1 Purpose

This technical noise report evaluates noise effects of the proposed project which entails a requested minor modification to the Conditional Use Permit for Camp Ramah, Ojai. The requested modification would introduce a limited number of new structures to accommodate an additional grade level of campers, and also proposes installation and use of an outdoor sound amplification system. While structures would be added in order to accommodate another grade level (age group) of campers, Camp Ramah proposes to hold the overall attendance level consistent with current and historic levels. Fewer campers would be accepted within the currently accommodated age levels in order to balance the addition of the new age group.

Noise generation sources from future implementation of the project include mechanical equipment operation associated with the new structures and operation of the outdoor sound amplification system. Neither traffic-related noise levels nor general activity noise levels would be anticipated to increase, given the maintenance of the current and historic attendance or participation population under the proposed modification.

1.2 Project Location and Description

1.2.1 Location

The Camp Ramah Ojai property is located within an unincorporated portion of Ventura County, northwest of the City of Ojai. The property address is 385 Fairview Road, and access is provided from a private driveway connecting to Fairview Road. Fairview Road generally forms the southern property boundary, across which are located rural residential lots. The Camp Ramah property is bordered on the east by a residential neighborhood with 5-acre lots, on the north by open space and rural residential parcels, and on the west by the Camp Ramah Retreat center.

Camp Ramah has historically consisted of three parcels of land (Assessor Parcel Numbers [APNs] 010-011-012, 010-011-013, and 010-012-004). The Camp Ramah Retreat occupies an additional parcel (010-017-002), bordering Camp Ramah on the west. Camp Ramah recently purchased the parcel immediately north of the central camp (010-007-031) and the parcel immediately to the north and northwest of the retreat parcel (010-006-007). APN 010-006-007 contains more area than the existing Camp Ramah property, and there are no sensitive noise receptors located in this direction from the main camp (northwest). Therefore, to keep the graphic scale manageable for reference in this report, Figure 1 includes the boundaries for the historic Camp Ramah (APNs - 012, 013 and 004), along with the one new parcel directly to the north of the central camp (010-007-031); Figure 1 does not include the new parcel north of the retreat center (010-006-007). Figure 1 also illustrates adjacent land uses described above.

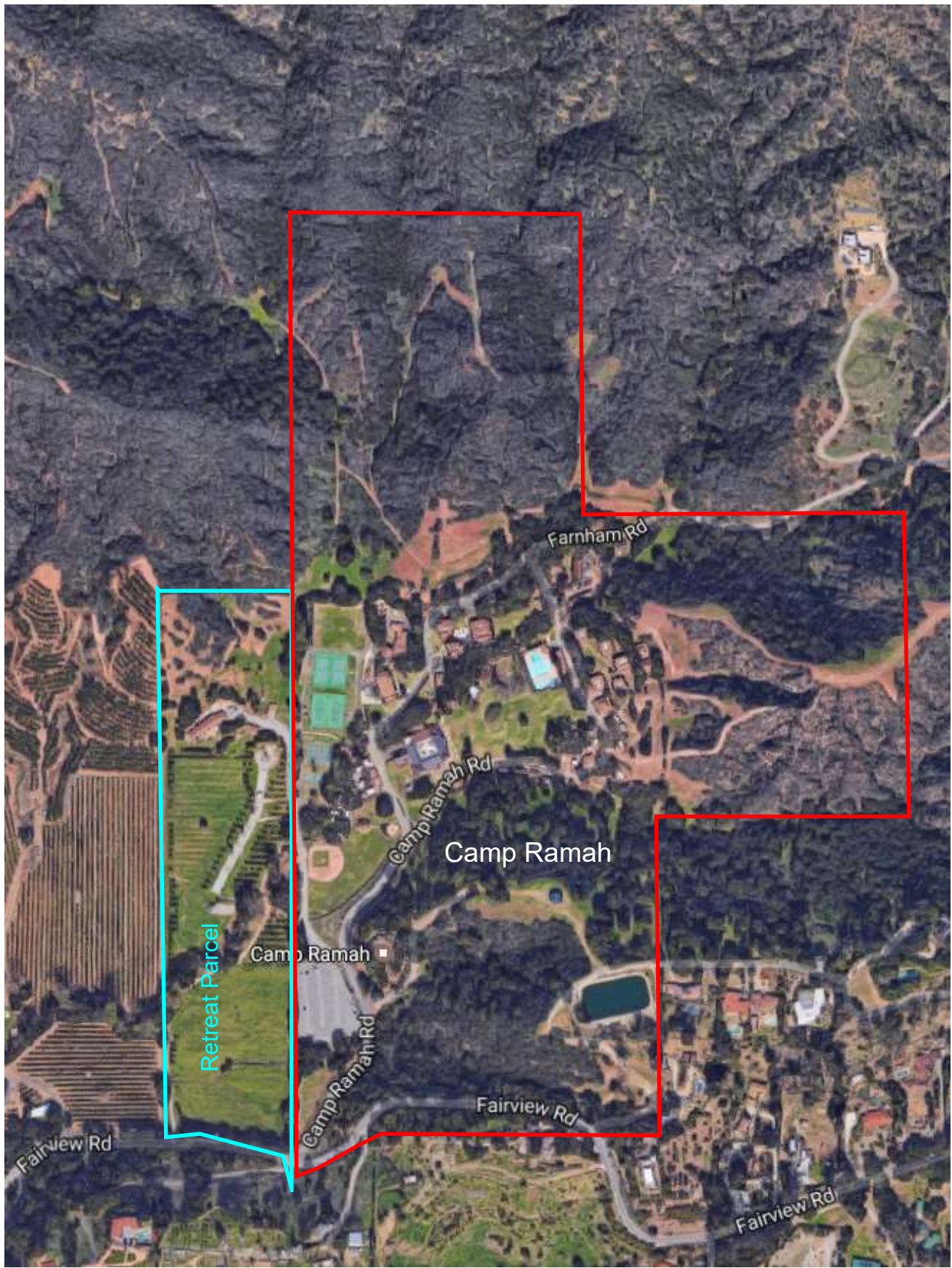


FIGURE 1
CAMP RAMAH & LOCATIONS OF CLOSEST OFF-SITE NOISE SENSITIVE STRUCTURES
CAMP RAMAH OJAI - NOISE TECHNICAL REPORT

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The Camp property is zoned residential (RE-20: Rural Exclusive, 20 acre minimum parcel size); parcels to the south and east carry a designation of rural agriculture (RA-5, RA-2), but are generally developed with low density single family residences; parcels to the north are zoned open space (OS-20 and OS-80) or residential (RE-5); the parcel to the west is zoned open space (OS-40). The zoning map for the project area is included in *Appendix A*.

1.2.2 Project Description

The proposed project involves the construction of a new Machon and six new cabin structures (with integrated bathrooms) on the property where there is currently an undeveloped grassy area. Refer to *Figure 2* for the overall site plan, including the area proposed for the location of the new Machon and cabins. These buildings would allow the Camp to add a grade level to the camp experience; however, overall on-site population would not increase due to offsetting decreases proposed in other grade levels already served by the camp.

More detailed schematics for the proposed new Machon and cabins are provided in *Appendix B*. The seven individual structures would include the Machon (with staff sleeping quarters, kitchen, dining common/meeting hall), three cabins for girls, and three cabins for boys. Outdoor mechanical equipment includes one compressor for mini-split HVAC units for each of the six cabins, two compressors for mini-split HVAC units for the Machon, and an exhaust blower for the kitchen.

Summer Camp activities run from early June through mid-August with occasional special private events hosted throughout the calendar year. Noise-generating activities occur in various locations throughout the site, but are primarily concentrated in the center of the property. Within the center portion of the property, the Camp proposes to install and operate an exterior sound amplification system. Operational hours for exterior amplified sound use are proposed to be from 9AM – 10PM, but a limited number of exceptions to this schedule are proposed in order to accommodate specific traditional activities (described in more detail below). *Appendix C* provides a schematic indicating the proposed location of speakers to be included in the system. A brief description of the locations is provided below.

1. Main dining room lawn (facing northeast) as well as one speaker on the northern, eastern, and southern corners of the dining building
2. Fire pit at the boys tent area (portable or temporary speaker), oriented southwest
3. Basketball courts (portable or temporary speaker), oriented north

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4. Amphitheater (anticipated to include a pair of speakers at the stage corners, and a pair of speakers at the half-way point on either side of the seating area, facing northeast and northwest)
5. Girls gazebo (inside, oriented downward from the ceiling)
6. An emergency alarm, with individual speakers facing north, west, south, and east, located immediately south of the central dining facility

Camp Ramah proposes to allow the use of amplified sound in outdoor areas which either extends later than the general 10:00 PM limit, and/or involves the participation by a large portion of the Camp population for the following traditional activities or events.

Café Ezra One night per week during summer camp season, in the patio and lawn area on the northwest side of the dining hall (amplified sound location #1), low level amplified music, 9:00 – 11:00 PM

Israeli Dance One night per week during summer camp season, in the basketball courts area (amplified sound location #3), moderate level amplified music, 9:00 – 10:00 PM

Performance Night Once per camp session, in the amphitheater (amplified sound location #4), amplified speech and low level music, 7:30 – 9:30 PM

The potential for sound generation from the proposal would include operation of exterior mechanical equipment and new amplified sound system usage.

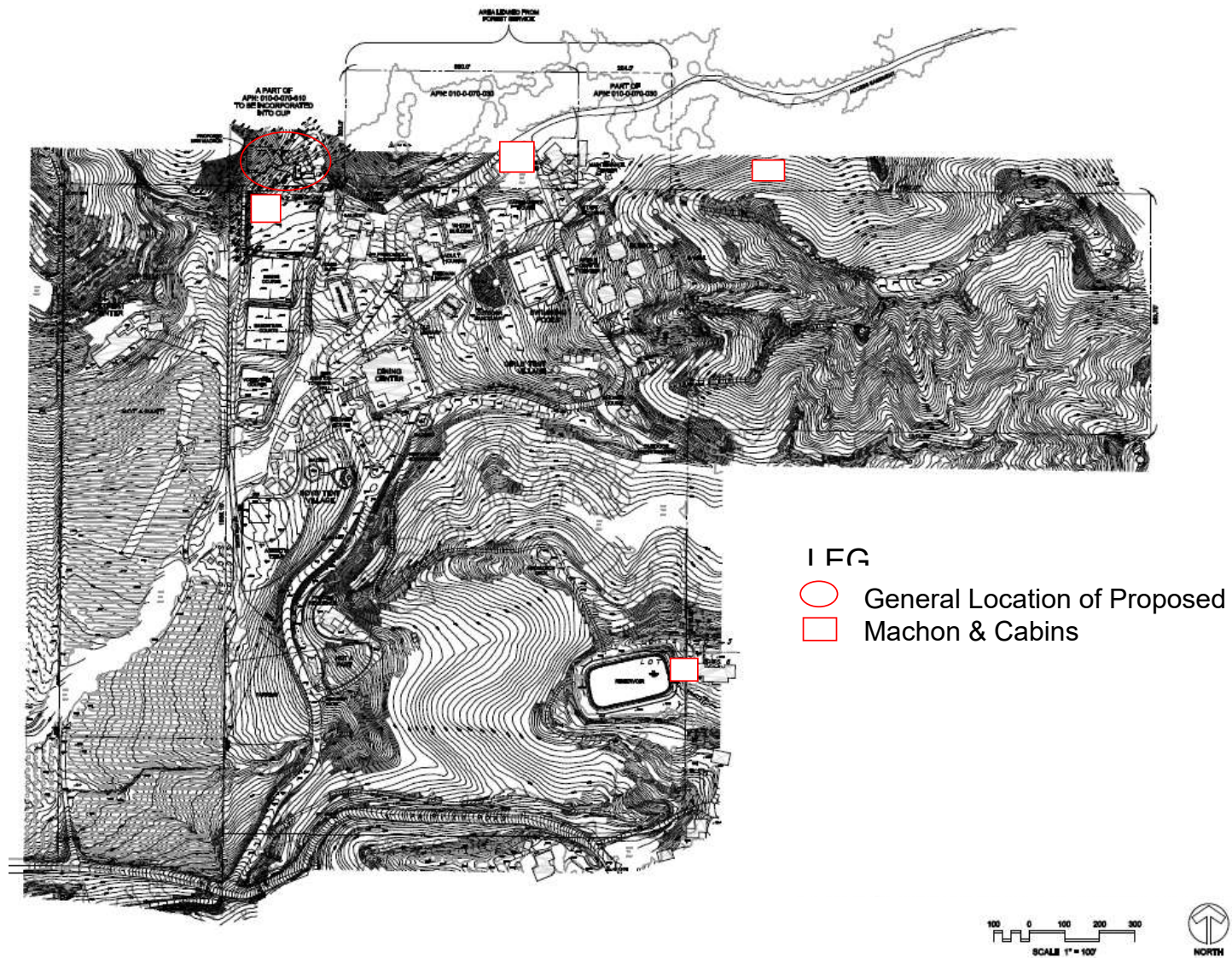


FIGURE 2
CAMP RAMAH SITE PLAN & NOISE MEASUREMENT LOCATIONS
CAMP RAMAH OJAI - NOISE TECHNICAL REPORT

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1.3 Noise Background and Terminology

Fundamentals of Environmental Noise

Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear as sound. Sound pressure level (referred to as sound level) is measured on a logarithmic scale in decibels (dB) that represent the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 20,000 Hz. The human ear is more sensitive to middle and high frequencies, especially when the noise levels are quieter. As noise levels get louder, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system to evaluate how loud a noise level is to a human was developed. The frequency weighting called “A” weighting is typically used for quieter noise levels which de-emphasizes the low frequency components of the sound in a manner similar to the response of a human ear. This A-weighted sound level is called the “noise level” and is referenced in units of dBA.

Since sound is measured on a logarithmic scale, a doubling of sound energy results in a 3 dBA increase in the noise level. Changes in a community noise level of less than 3 dBA are not typically noticed by the human ear (U.S. DOT 1980). Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5 dBA increase is readily noticeable (EPA 1973). The human ear perceives a 10 dBA increase in sound level as a doubling of the sound level (i.e., 65 dBA sounds twice as loud as 55 dBA to a human ear).

An individual’s noise exposure occurs over a period of time; however, noise level is a measure of noise at a given instant in time. Community noise sources vary continuously, being the product of many noise sources at various distances, all of which constitute a relatively stable background or ambient noise environment. The background, or ambient, noise level gradually changes throughout a typical day, corresponding to distant noise sources, such as traffic volume, as well as changes in atmospheric conditions.

Noise levels are generally higher during the daytime and early evening when traffic (including airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the receiver. In order to evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed “community noise equivalent level” (CNEL) was developed, wherein noise measurements are weighted, added, and averaged over a 24-hour period to reflect magnitude, duration, frequency, and time of occurrence. A complete definition of CNEL is provided below.

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Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}), the day–night sound level (L_{dn}), and the CNEL. Below are brief definitions of these measurements and other terminology used in this report.

- *Decibel* (dB) is a unitless measure of sound on a logarithmic scale which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- *A-weighted decibel* (dBA) is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- *Equivalent sound level* (L_{eq}) is the constant level that, over a given time period, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for both the day–night average sound levels (L_{dn}) and community noise equivalent level (CNEL) scales. “ L_{eq} 1H” refers to a 1-hour averaging period.
- *Maximum sound level* (L_{max}) is the maximum sound level measured during the measurement period.
- *Minimum sound level* (L_{min}) is the minimum sound level measured during the measurement period.
- *Day–night average sound level* (L_{dn}) The City of Santa Barbara has historically described community noise levels in terms of the L_{dn} . The L_{dn} is a 24-hour average A-weighted sound level with a 10 dB penalty added to the nighttime hours from 10:00 p.m. to 7:00 a.m. The 10 dB penalty is applied to account for increased noise sensitivity during the nighttime hours. Resulting values from application of L_{dn} versus CNEL rarely differ by more than 1 dB, and therefore these two methods of describing average noise levels are often considered interchangeable.
- *Community noise equivalent level* (CNEL) The County of Santa Barbara describes community noise levels in terms of the CNEL. The CNEL is the average equivalent A-weighted sound level during a 24-hour day. CNEL accounts for the increased noise sensitivity during the evening hours (7 p.m. to 10 p.m.) and nighttime hours (10 p.m. to 7 a.m.) by adding 5 dB to the sound levels in the evening and 10 dB to the sound levels at night. CNEL and L_{dn} are often considered equivalent descriptors.

Exterior Noise Distance Attenuation

Noise sources are classified in two forms: (1) point sources, such as stationary equipment or a group of construction vehicles and equipment working within a spatially limited area at a given time, and (2) line sources, such as a roadway with a large number of pass-by sources (motor

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vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6.0 dBA for each doubling of distance from the source to the receptor at acoustically “hard” sites and at a rate of 7.5 dBA for each doubling of distance from source to receptor at acoustically “soft” sites. Sound generated by a line source (i.e., a roadway) typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling distance, for hard and soft sites, respectively. Sound levels can also be attenuated by man-made or natural barriers. For the purpose of sound attenuation discussion, a “hard” or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt or concrete ground surfaces, as well as very hard-packed soils. An acoustically “soft” or absorptive site is characteristic of unpaved loose soil or vegetated ground.

Structural Noise Attenuation

Sound levels can also be attenuated by man-made or natural barriers. Solid walls or slopes associated with elevation differences typically reduce noise levels by 5 to 10 dBA (U.S. DOT 1980). Structures can also provide noise reduction by insulating interior spaces from outdoor noise. The outside-to-inside noise attenuation provided by typical residential structures in California is approximately 25 dBA (Caltrans 1980).

1.4 Noise Regulation and Management

1.4.1 State

California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, declares that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also identifies a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

California Noise Insulation Standards (CCR Title 24)

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for hotels, motels, dormitories, and multi-family residential buildings (CCR Title 24, Part 2). Title 24 establishes standards for interior room noise (attributable to outside noise sources). The regulations also specify that acoustical studies must be prepared whenever a multi-family residential building or structure is proposed to be located in an area with CNEL (or Ldn) of

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60 dBA or greater. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or Ldn) of at least 45 dBA (California's Title 24 Noise Standards, Chap. 2-35). With respect to the project, the proposed new Macron cabins would generally be considered to comprise lodging facilities, for which a maximum exterior noise exposure of 60 dBA CNEL would be recommended.

1.4.2 County of Ventura

Noise effects of the proposed project on adjacent properties located within the County would be subject to compliance with adopted noise policies and ordinances of the County of Ventura. County noise policies, and their application to project noise analysis, are described below.

County of Ventura General Plan – Noise Element

2.16.2 Policies

1. All discretionary development shall be reviewed for noise compatibility with surrounding uses. Noise compatibility shall be determined from a consistent set of criteria based on the standards listed below. An acoustical analysis by a qualified acoustical engineer shall be required of discretionary developments involving noise exposure or noise generation in excess of the established standards. The analysis shall provide documentation of existing and projected noise levels at on-site and off-site receptors, and shall recommend noise control measures for mitigating adverse impacts.

(1) Noise sensitive uses proposed to be located near highways, truck routes, heavy industrial activities and other relatively continuous noise sources shall incorporate noise control measures so that:

- a. Indoor noise levels in habitable rooms do not exceed CNEL 45.
- b. Outdoor noise levels do not exceed CNEL 60 or Leq1H of 65 dB(A) during any hour.

[...]

(4) Noise generators, proposed to be located near any noise sensitive use, shall incorporate noise control measures so that ongoing outdoor noise levels received by the noise sensitive receptor, measured at the exterior wall of the building, does not exceed any of the following standards:

- a. Leq1H of 55dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 6:00 a.m. to 7:00 p.m.
- b. Leq1H of 50dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 7:00 p.m. to 10:00 p.m.

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c. Leq1H of 45dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 10:00 p.m. to 6:00 a.m.

Section 2.16.2(4) is not applicable to increased traffic noise along any of the roads identified within the 2020 Regional Roadway Network (Figure 4.2.3) Public Facilities Appendix of the Ventura County General Plan (see 2.16.2-1(1)). In addition, State and Federal highways, all railroad line operations, aircraft in flight, and public utility facilities are noise generators having Federal and State regulations that preempt local regulations.

The primary goal of the above policies is to maintain exterior noise exposure levels not exceeding 60 dBA CNEL for residential land uses. For new noise generation sources not related to transportation, the allowances are slightly more restrictive where existing residences could be exposed to the generated noise.

County of Ventura Noise Ordinance

Noise impacts from stationary sources are regulated through the County's Noise Ordinance. The County's Noise Ordinance, No. 4124 states:

Sec. 6299-1 - Loud or Raucous Noise Prohibition

No person shall create within any residential zone of the County of Ventura any loud or raucous noise which is audible to the human ear during the hours of 9 p.m. to 7 a.m. of the following day, at a distance of 50 feet from the property line of the noise source or 50 feet from any such noise source if the noise source is in a public right-of-way.

Sec. 6299-2 – Definitions

For purposes of this Article, the following definitions shall apply:

- a. "Person" mean any individual, association, firm, organization, partnership, corporation or other entity, but does not include any government entity or public utility.
- b. "Residential Zone" means any areas with the unincorporated portion of Ventura County that are zoned:
 - 1. Single-Family Residential (R-1)
 - 2. Two-Family Residential (R-2)
 - 3. Residential Planned Development (R-P-D)
 - 4. Single Family Estate (R-O)

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5. Rural Exclusive (R-E)

6. Coastal Single-Family Residential (C-R-1)

7. Coastal Two-Family Residential (C-R-2)

8. Coastal Residential Planned Development (C-R-P-D), or

9. Coastal Rural Exclusive (C-R-E),

(as provided in Chapter 1 and Chapter 1.1 of Division 8 of this Code).

- c. "Loud or raucous noise" means sounds from: 1) the use or operation of any radio, musical instrument, phonograph, television receiver, video cassette recorder, or any machine or device for the production, reproduction or amplification of the human voice or any other sound or 2) the use or operation of any lawn mower, backpack blower, blower, lawn edger, riding tractor or other mechanical or electrical device or hand tool.

"Audible to the human ear" is not defined within the Noise Ordinance. Generally, noise must be at least 3 dBA greater than background or ambient noise levels in order for it to be "noticeable" to an observer. In a carefully controlled lab environment, some subjects may be able to detect as little as a 1 dBA increase in sound level, but these small changes are easily masked by the number of different noise sources present in an outdoor environment. For the purpose of interpreting the noise ordinance, a noise level at least 2 dBA over the ambient noise level would be considered the threshold for "audible".

County of Ventura Outdoor Events Ordinance

The County of Ventura in July 2018 adopted an ordinance governing the occurrence of outdoor events involving large attendance (generally an event with more than 75 attendees). The County's Outdoor Events Ordinance, No. 4526 states:

Sec. 8111-1.2.1.lb. -Permit Approval Standards for Outdoor Events and Assembly Uses

Conditional Use Permits authorizing outdoor events and assembly uses shall be granted if all billed fees and charges for processing the application that are due for payment have been paid and if all of the following standards are met. An application for a Conditional Use Permit shall not be denied on the basis of the content of protected expression associated with the proposed use. The applicant shall have the burden of proving to the satisfaction of the appropriate decision-making authority that the following standards can be met. Specific factual findings shall be made by the decision-making authority to support the conclusion that each of these standards, if applicable, can be satisfied.

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b. The proposed use can coexist in relative proximity, and is not expected to unduly interfere with, the existing land uses of the surrounding area as determined based on the following land use factors:

(1) Whether the proposed use would generate offsite noise louder than ambient noise levels by considering: (i) the volume and times of day such noise would be generated; (ii) the proximity of the proposed use to the nearest offsite noise sensitive receptors such as dwellings, schools, hospitals, nursing homes and libraries; (iii) the topography of the surrounding area likely to affect how noise travels; and (iv) the existence of other nearby uses likely to generate offsite noise at similar times;

“Louder than ambient noise levels” is not defined within the Outdoor Events Ordinance. For the purpose of interpreting the outdoor event ordinance, a noise level at least 2 dBA over the ambient noise level would be considered the threshold for “louder than ambient”.

2.0 EXISTING NOISE CONDITIONS

The existing Camp Ramah operations are a noise generation source which contributes to the ambient noise environment of the surrounding rural environment. In order to characterize existing noise levels associated with Camp Ramah operations, four 96-hour noise measurements were performed. Soft dB Piccolo 3 (American National Standards Institute) Type 2 Integrating Sound Level Meters calibrated with a Larson Davis Model CAL150 calibrator were used to record ambient sound levels at various points along the Camp Ramah property boundary where changes in noise levels could result from project implementation. Please refer to *Figure 2* for measurement locations discussed in this section.

The measurements included an approximately 24-hour period before a Memorial Day Weekend session at the Camp; two 24-hour measurements while the Camp was in session; and a final 24-hour period following the Memorial Day Weekend Session.

Please refer to *Figure 2* for the noise measurement locations. Briefly they are: 1) at the eastern property boundary, adjacent to the on-site reservoir and adjacent off-site residence; 2) at a bench near the northern property boundary, in the eastern portion of the site, between the main campus and closest off-site residence to the northeast; 3) at the northern limit of the developed central portion of the Camp Ramah property, adjacent to the Camp Ramah manager residence; and 4) adjacent to the existing tennis courts and soccer field (the soccer field being adjacent to the south side of the proposed location for the new Macron complex). The noise measurement results are presented below in *Table 1* as CNEL values for the four days of measurements, at the four locations. The hourly LEQ values and CNEL calculations are provided in *Appendix D*.

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Table 1				
Existing Ambient Noise Measurement Results				
Location	5/27-5/28/16 dBA CNEL	5/28-5/29/16 dBA CNEL	5/29-5/30/16 dBA CNEL	5/30-5/31/16 dBA CNEL
1 (Reservoir)	47	45	47	46
2 (Bench)	51	46	48	47
3 (Mngr. House)	49	47	48	47
4 (Soccer)	53	51	52	46

Weed and dry vegetation clearing activities and seasonal preparation operations were observed on May 27 (Friday) during placement of the sound level meters. Heavy equipment and chain saws were employed for some of these activities, which resulted in the highest recorded sound levels over the 4-day period. The peak Camp activity levels occurred on Sunday, which had the second highest CNEL value for the 4-day period. The 24-hour measurement period following the gathering (from 11 AM Monday 5/30 to 11 AM Tuesday 5/31) is considered a reasonable characterization of ambient noise levels while Camp Ramah is not in session. The difference between the highest and lowest CNEL value for a given location generally only varied by 2-4 dBA over the 4-day measurement period, except adjacent to the soccer field, which varied by 6 dBA CNEL. All of the CNEL values from the measured locations comply with the 60 dBA CNEL exterior noise level criterion for residential land uses.

3.0 SIGNIFICANCE CRITERIA

3.1 County of Ventura Noise Significance Criteria

Based upon the Ventura County General Plan Noise Element, Noise Ordinance, and Outdoor Events Ordinance, the project would result in a significant impact if:

- (1) The proposed development would generate noise levels in excess of 60 dB(A) CNEL at existing residential properties in the project vicinity.
- (2) The proposed development would generate noise levels at the exterior wall of an existing vicinity residence which exceed:
 - a. Leq1H of 55dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 6:00 a.m. to 7:00 p.m.
 - b. Leq1H of 50dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 7:00 p.m. to 10:00 p.m.

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- c. Leq1H of 45dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 10:00 p.m. to 6:00 a.m.
- (3) The proposed development would create any loud or raucous noise which is audible to the human ear during the hours of 9 p.m. to 7 a.m. of the following day, at a distance of 50 feet from the property line of the noise source.
- (4) Outdoor events would generate noise levels above ambient levels at vicinity dwellings (residences).

4.0 IMPACTS AND MITIGATION

4.1 Operations Noise Generation

4.1.1 Impact Analysis

The implementation of the project would result in changes to existing noise levels on the project site by developing new stationary sources of noise including mechanical equipment and an outdoor sound amplification system. These sources may affect noise-sensitive vicinity land uses off the project site. The following analysis evaluates noise from proposed new exterior mechanical equipment as well as the proposed sound amplification system.

Although the proposed new Machon and cabins would provide accommodations for a grade level of attendees over and above the grade levels historically served by the Camp, attendance levels for the other grades are proposed to be adjusted downward, such that maximum enrollment or attendance for the Camp would be no greater than existing levels. Because of this, the noise from general activities and vehicular traffic associated with the Camp would not be anticipated to be affected. Consequently, traffic noise and noise from general Camp activities is not evaluated in this report.

4.1.1.1 Outdoor Mechanical Equipment

The proposed location for the new Machon complex is adjacent to the north side of the existing soccer fields, north and somewhat close to the historic northern boundary for the Camp Ramah parcel. However, given the purchase by Camp Ramah of the parcel immediately north of this portion of the Camp, the boundary for the adjacent neighboring property to the north is now located approximately 1,150 feet away from the proposed new Macron location. Also, while the proposed new Macron complex would be located within approximately 60 feet of the western boundary of the Camp Ramah property, the Camp Ramah retreat abuts the Camp to the west, which is under the same ownership as Camp Ramah. Given the common ownership of the Retreat and Camp, the

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distance to the closest neighboring property boundary becomes the determinant for analyzing noise levels that could affect neighbors. The distance to the closest neighboring property boundary to the west would be approximately 300 feet from the proposed Macron location.

The proposed Macron complex would consist of seven individual structures, arranged in two groupings. The Macron would be located on the western portion of the site, approximately 300 feet from the closest neighboring property line to the west; approximately 1,200 to the closest property line to the north; and, approximately 2,000 feet from the southern property boundary. The six cabins would be grouped together on the eastern portion of the site clearing, approximately 365 feet from the closest neighboring property line to the west; approximately 1,200 feet from the northern property boundary; approximately 140 feet from the eastern property boundary; and, approximately 2,050 feet from the southern property boundary. Refer to *Appendix B* for the proposed configuration of the Macron and cabins. Outdoor mechanical equipment for the proposed Macron and cabins includes the following.

- a. Eight compressors for mini-split HVAC units for the Machon and cabins (anticipated to be 2-ton units, LG model no. ARUN036GS2 or equivalent). Please refer to Appendix B for a schematic indicating the approximate locations for these compressors. The compressors would be mounted on the ground, adjacent to the structure they would serve. It is anticipated that compressor units 4 and 7 would be installed on the east side of the cabins they serve, thus shielding noise transmission to the west. However, obstructions would not prevent noise from compressor units 1, 2, 3, 5, 6 and 8 from reaching the closest western property boundary. Noise from compressor units 1, 2, 3, 5, 6 and 8 was therefore modelled at the closest western property boundary to the Machon location. It is anticipated that the cluster of cabins themselves would shield sound transmission eastward from the anticipated locations of Compressors 1, 2, 3, and 5. However, obstructions would not prevent noise from compressor units 4, 6, 7 and 8 from reaching the closest eastern property boundary. Noise from compressor units 4, 6, 7 and 8 was therefore modelled at the closest eastern property boundary to the Machon location. Sound levels from each of the compressors could be of potential concern at the southern and northern property boundaries. However, these compressors would be located approximately 1,200 feet from the closest neighboring property line to the north, and 2,050 feet from the southern property boundary; noise from the compressor operation would not be audible at these distances. Thus compressor noise was not modelled at the northern or southern property boundaries.
- b. An exhaust blower would be provided for the kitchen, mounted on the roof of the structure (anticipated to be up to a 40 horsepower turbine exhaust, Vacstar model T4 or equivalent). The peak of the roof would shield sound transmission to the north; the cluster of cabins would shield the blower noise for points along the eastern property boundary; no obstacles

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exist between the exhaust blower and west or south property lines. Sound levels would therefore be of potential concern at the western and southern property boundary. However, this exhaust blower would be located approximately 2,050 feet from the southern property line; noise from exhaust blower operations would not be audible at this distance. Therefore, the exhaust blower noise level from the kitchen is only assessed at the closest neighboring property line to the west.

Sound level specifications supplied by the manufacturer are provided in *Table 2* below for the anticipated mechanical equipment described above. For the compressor, note the referenced sound level is the maximum or peak sound level produced by the compressor, operating under full power and maximum load. The average sound level when the units are operating in efficiency mode is approximately 10 dBA less than the peak or maximum level. However, to address the worst-case sound levels for compressor operations, the peak noise rating is used in this analysis. The peak sound level for the exhaust blower operating at the highest speed is also indicated in *Table 2* and is used for the analysis.

Table 2 Anticipated Mechanical Equipment – Sound Level Rating	
Equipment	Peak Sound Level (dBA)
HVAC Compressor Unit (LG model no. ARUN036GS2 or equivalent)	52 (at 3.3 feet)
Exhaust Blower (40 h.p max, Vacstar model T4 or equivalent)	56 (at 10 feet)

In order to assess noise levels from mechanical equipment operations along the common property boundary of the Camp and neighboring properties, distance measurements were completed from the mechanical equipment locations to the nearest property line. Standard acoustic calculations were then performed to determine the distance attenuated noise level at the property line location for each of the mechanical noise sources.

Noise levels at the closest adjacent property boundary are reported separately for the west property line and the east property line, according to the considerations described above. At the western property boundary, contributions were modelled for compressor units 1, 2, 3, 5, 6 and 8 and the kitchen exhaust fan. For the eastern property boundary, contributions were modelled for compressor units 4, 6, 7 and 8. However, in order to demonstrate that combined noise from all mechanical equipment sources with direct exposure at the two property lines would be within

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

allowable parameters, the sum of the noise levels from all mechanical equipment is also provided at each of the two property boundaries.

The noise levels (L_{eq}) from the individual equipment, and the combined noise levels of all of the equipment, are indicated in *Table 3*. Refer to *Appendix E* for the calculation worksheet.

Table 3 Mechanical Equipment Operation Noise Summary of Results		
Equipment	Noise Level at Property Boundary	
	West Property Line Average Noise Level (dBA L_{eq})	East Property Line Average Noise Level (dBA L_{eq})
Comp #1	13	N/A
Comp #2	13	N/A
Comp #3	12	N/A
Comp #4	N/A	19
Comp #5	13	N/A
Comp #6	11	22
Comp #7	N/A	23
Comp #8	12	22
Kitchen Exhaust	29	N/A
Combined Noise Level	30	28

The results of the mechanical equipment operations noise analysis indicate that operation of the exterior mechanical equipment would easily comply with the Ventura County Noise Element Policy Criteria and Noise Ordinance restrictions. Mechanical equipment operations noise levels would not exceed 30 dBA L_{eq} at the adjacent western property line closest to the equipment locations, or 28 dBA L_{eq} at the adjacent eastern property line closest to the equipment locations, which is well below the most restrictive level of $L_{eq}1H$ 45dB(A) during any hour from 10:00 p.m. to 6:00 a.m. It would therefore not be necessary to restrict the hours for mechanical equipment operation associated with the proposed new Machon complex.

The distance from these noise sources to the remaining adjacent property boundaries in each case are more than double the distance used in these calculations, and therefore noise levels from

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

mechanical equipment operation at the adjacent property boundaries to the north and south are not expected to be audible.

4.1.1.2 Outdoor Speaker System

Camp Ramah proposes to install and operate an outdoor sound amplification system as part of the minor modification to their existing CUP. Operational hours for exterior amplified sound use are proposed to be from 9AM – 10PM, but a limited number of exceptions to this schedule are proposed in order to accommodate specific traditional activities (described in more detail below). *Appendix C* provides a schematic indicating the proposed location of speakers to be included in the system; the numbering below corresponds to the locations identified in the schematic exhibit in *Appendix C*. A brief description of the locations is provided below.

1. Main dining room lawn (facing northeast) one speaker apiece on the northern, eastern, and southern corners of the dining building
2. Fire pit at the boys tent area (portable or temporary speaker), oriented southwest
3. Basketball courts (portable or temporary speaker), oriented north
4. Amphitheater (anticipated to include a pair of speakers at the stage corners, and a pair of speakers at the half-way point on either side of the seating area, facing northeast and northwest)
5. Girls gazebo (inside, oriented downward from the ceiling)
6. An emergency alarm, with individual speakers facing north, west, south, and east, located immediately south of the central dining facility

Camp Ramah proposes to allow the use of amplified sound in outdoor areas which extends later than the general 10:00 PM limit, and/or which includes a substantial portion of the Camp population, for the following traditional activities or events.

Café Ezra	One night per week during summer camp season, in the patio and lawn area on the northwest side of the dining hall (amplified sound location #1), low level amplified music, 9:00 – 11:00 PM
Israeli Dance	One night per week during summer camp season, in the basketball courts area (amplified sound location #3), moderate level amplified music, 9:00 – 10:00 PM

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

Performance Night Once per camp session, in the amphitheater (amplified sound location #4), amplified speech and low level music, 7:30 – 9:30 PM

Normal Speaker System Operations (Announcements)

An average sound level for exterior speakers used in an institutional setting (i.e., standard speech announcements) is approximately 65 dBA L_{eq} measured at 21 feet from the speaker (Sound System Design Reference Manual, JBL, 1999). This level would be applicable to each of the proposed speaker locations for normal operation, which would involve routine announcements (i.e., speech).

The concept of directionality is very important in regard to sound levels produced by loudspeakers. The direction the speaker is pointed, specifically the center of the speaker cone, receives the greatest sound levels from speaker operation. At an angle 60 degrees from the center of the speaker cone, sound levels from speaker operation are 9 dBA less than those in-line with the center of the speaker. At an angle of 90 degrees from the center of the speaker (perpendicular to the speaker direction) sound levels from speaker operation are negligible (Sound System Design Reference Manual, JBL, 1999).

In order to evaluate sound levels at Camp Ramah property boundaries shared with adjacent noise-sensitive land uses, speakers oriented toward each property line were identified. If a property line has an exposure less than 60 degrees from the speaker center line of a given speaker, the speaker was assessed using the measured full sound level of the speaker, with appropriate formula for distance attenuation. If a property line has an exposure between 60 degrees and 89 degrees, the speaker source sound level was decreased by 9 dBA, again with appropriate formula for distance attenuation. For a property line at 90 degrees or greater exposure from a given speaker, the speaker was not included in the quantification of noise levels (since the contribution would be negligible). For the amphitheater installation, it is assumed that a speaker would be provided at each of the two corners of the “stage” and a speaker would also be provided on either side of the seating area, at the midpoint of the seating area.

For the northern Camp Ramah property boundary, there are a number of existing structures located between proposed speaker locations and the property boundary that would provide shielding and attenuation of speaker noise at the property boundary; the analysis does not take into account this structural shielding, and is therefore a conservative evaluation. There are no structures between the amphitheater location and the northern property boundary, and the speakers for the amphitheater would be oriented generally toward the north (northeast and northwest).

The results of the analysis of average noise levels during speaker operation for the closest adjacent property boundary to the north, west, south, and east are presented in *Table 4*. The analysis

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

assumes all of the proposed speakers are operating simultaneously. Refer to *Appendix F* for a spreadsheet of the calculations for the speaker analysis.

Table 4 Average Noise Level During Normal Announcements Speaker Operation		
Location	L _{eq} dBA	Ambient ¹ L _{EQ HOUR}
Eastern Property Boundary	41	38
Eastern Property Boundary (West Facing Amphitheater Speakers Only)	29	
Southerly Property Boundary	27	NA
Western Property Boundary	31	40
Northern Property Boundary	34	39

Table Note: ¹ Average hourly sound level from 9-10 PM from four day measurement data.

Noise Element Policy Analysis – Normal Speaker System Operations

Referring to *Table 4* above and Noise Element Policy 2.16.2 (4), the calculated noise level at each property boundary for normal operation of the proposed outdoor speaker system (i.e., announcements) would comply with the most restrictive noise limit (45 dBA L_{eq} applicable in the period from 10 PM to 6 AM). Consequently, normal operation of the sound amplification system as proposed would comply with the Noise Element.

Noise Ordinance Policy Analysis – Normal Speaker System Operations

The noise ordinance (Ventura County Municipal Code Sec. 6299-1 - Loud or Raucous Noise Prohibition) prohibits the generation of noise from amplified sound systems which is audible to the human ear during the hours of 9 PM to 7 AM of the following day, at a distance of 50 feet from the property line of the noise source. The amplified sound system, for normal announcements operation, is proposed to be limited to the period from 9 AM to 10 PM. In the period from 9 PM to 10 PM, the amplification system cannot produce sound which is audible at 50 feet from the Camp property lines.

Data from the four day sound level measurements was used to compile the hourly average noise level during the hour of concern, from 9 PM to 10 PM. Measurements were performed at the western, northern, northeastern, and eastern property boundaries. The measurement data for the period from 9-10 PM on four consecutive days was averaged for each of the property boundary

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locations; this average is presented Table 4 as the “Ambient $L_{EQ\text{ HOUR}}$ ” for reference in this policy analysis. Note that the sound levels for normal speaker system operation at the north and west property lines would fall below the recorded average ambient levels. For the south property line, measurements were not taken, but the predicted speaker noise levels would fall below the lowest ambient levels recorded at any of the property boundaries.

For the eastern property boundary, the sound level from all speakers in announcement mode would equal 41 dBA L_{EQ} compared to the recorded average of 38 dBA $L_{EQ\text{ HOUR}}$ from 9-10 PM at this property line. Since this represents up to a 3 dBA increase over ambient, the sound would be considered audible 50 feet from the eastern property boundary, which would constitute a potential conflict with the noise ordinance. However, placing the speakers for the amphitheater along the east side of the stage and seating areas, and orienting these speakers to the northwest (pointing into the audience, and away from the eastern property boundary), would reduce the normal speaker operational levels to 29 dBA L_{EQ} along the eastern property boundary. This level would fall below ambient, and would therefore comply with the noise ordinance. Refer to the mitigation discussion below regarding the amphitheater speaker placement and orientation.

Traditional Events /Activities Speaker Noise Levels

For Café Ezra, it is assumed that sound levels could reach up to 70 dBA L_{eq} at 21 feet from the speakers (reasonable as a background music level to accompany conversation). It is assumed that speakers at the northeast, east, and southeast of the dining hall would be employed, facing generally eastward. Structures exist between the dining hall and the closest off-site residence to the east, north, northeast, and east; the analysis does not take into account this structural shielding, and is therefore a conservative evaluation.

For the Israeli Dance event, it is assumed that sound levels could reach up to 85 dBA L_{eq} at 21 feet from the speakers (which would address reasonable amplification for a general dance function, excluding those which would be associated with a live rock concert type of event). It is assumed that three portable speakers would be employed, facing northward along the southern basketball court boundary. Structures exist between the basketball court and the closest off-site residence to the northeast and to the west; the analysis does not take into account this structural shielding, and is therefore a conservative evaluation. There are also structures between the basketball court location and the southern and eastern property boundaries, but the speakers would be oriented away from these directions anyway.

For musical performances in the amphitheater, it is assumed that sound levels could again reach up to 85 dBA L_{eq} at 21 feet from the speakers (which is considered reasonable for vocal ensemble performances, small musical combos, orchestral performances, and light “rock” music

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performances, excluding heavy metal or hard rock bands). Structures exist directly to the north and west of the amphitheater, but the analysis does not take into account any structural shielding. There are no structures between the amphitheater and the closest residences east or northeast.

The results of the analysis of average noise levels during the described traditional activities/events for the closest adjacent property boundary to the north, west, and east are presented in *Table 5*. Refer to *Appendix F* for a spreadsheet of the calculations for the speaker analysis.

Table 5			
Average Noise Level During Traditional Events/Activities			
Event	West Property Line dBA CNEL	North Property Line dBA CNEL	East Property Line dBA CNEL
Café Ezra	27	17	35
Israeli Dance	46	43	39
Performance Night	32	43	61
Ambient ¹ (L _{EQ HOUR})	37	35	35

Table Note: ¹ Average hourly sound level from 10-11 PM from four day measurement data.

Noise Element Policy Analysis – Traditional Events/Activities

Referring to *Table 5* data, and in accordance with Noise Element Policy 2.16.2 (4), the calculated noise level for the Café Ezra event at each property boundary would comply with the most restrictive noise limit of 45 dBA L_{eq}, which is applicable in the period from 10 PM to 6 AM. The Café Ezra event would therefore comply with noise element policies, as proposed. Refer to *Appendix F* for the calculation results.

Again with reference to *Table 5*, the calculated noise levels for the Israeli Dance event at each property boundary would comply with the noise restrictions for the periods 6 AM to 7 PM, and from 7 PM to 10 PM; however, it would exceed the 45 dBA L_{eq} applicable in the period from 10 PM to 6 AM. Consequently, sound mitigation would be required in order for the dance event to extend beyond 10 PM; sound mitigation would also be required in order for the Israeli Dance event to comply with the noise ordinance, which is discussed in greater detail below.

Finally, referring to *Table 5*, the calculated noise levels for the Performance Night event would exceed even the most lenient noise restrictions for the periods 6 AM to 7 PM (55 dBA L_{eq}) at the east property boundary, with more substantial exceedance of the evening (55 dBA L_{eq}) and night-time (45 dBA L_{eq}) restrictions. Consequently, sound mitigation would be required in order for the

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

Performance Night event to take place at any time; sound mitigation would also be required in order for the Performance Night event to comply with the noise ordinance, which is discussed in greater detail below.

Noise Ordinance Policy Analysis - Traditional Events/Activities

The noise ordinance (Ventura County Municipal Code Sec. 6299-1 - Loud or Raucous Noise Prohibition) prohibits the generation of noise from amplified sound systems which is audible to the human ear during the hours of 9 PM to 7 AM of the following day, at a distance of 50 feet from the property line of the noise source. We have defined “audible” sound level as being at least 2 dBA greater than the ambient noise level. Data from the four day sound level measurements was used to compile the hourly average noise level during the hour of concern, from 10 PM to 11 PM. The noise ordinance restriction has a start time of 9 PM, however, noise levels were found to be somewhat greater from 9 PM to 10 PM as compared to those in the period 10 PM to 11 PM, so to capture the lowest ambient levels across the proposed event durations, we used the slightly lower ambient noise levels for the 10 PM to 11 PM hour as ambient. The measurement data for the period from 10-11 PM on four consecutive days was averaged for each of the property boundary locations; this average is presented Table 5 as the “Ambient $L_{EQ\ HOUR}$ ” for reference in this policy analysis.

Referring to *Table 5* data, and in accordance with VCMC Sec. 6299-1, the calculated noise level for the Café’ Ezra event at each property boundary would be less than or equal to the existing average ambient noise level, and therefore would be inaudible compared to ambient noise. Consequently, the Café Ezra event would comply with noise ordinance, as proposed. Refer to *Appendix F* for the calculation results.

Again with reference to *Table 5*, the calculated noise levels for the Israeli Dance event at each property boundary would exceed the existing average ambient noise level by 4 dBA or more; this sound level would be considered audible 50 feet from the eastern property boundary, which would constitute a potential conflict with the noise ordinance. Consequently, sound mitigation would be required in order for the Israeli Dance event to comply with the noise ordinance; refer to the mitigation section below for additional detail.

Finally, referring to *Table 5*, the calculated noise levels for the Performance Night event at the east and north property boundary would exceed the existing average ambient noise level by 8 dBA or more; this sound level would be considered audible 50 feet from the eastern property boundary, which would constitute a potential conflict with the noise ordinance. Consequently, sound mitigation would be required in order for the Performance Night event to comply with the noise ordinance; refer to the mitigation section below for additional detail.

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4.1.1.3 Outdoor Events

Camp Ramah is requesting approval for up to thirty-five (35) events per calendar year pursuant to Section 8107-46.4 of the Outdoor Events Ordinance (ODO) where these events are defined as follows:

Events held primarily outdoors that (a) exceed 100 attendees and (b) are not already permitted under the Camp Ramah CUP (i.e., external events). All outdoor activities subject to the OEO will conclude by 10:00 p.m. and will not commence before 8:00 a.m.

Outdoor events as described above are envisioned to include groups hosting daytime retreats featuring access to the sports courts, pool, and hiking trails, possibly with meals served in the dining hall. These type of group functions that do not include a central gathering event would not be anticipated to generate elevated noise levels that would be audible off-site. However, outdoor events could also involve functions that employ the patio and lawn area on the northwest side of the dining hall and including music via the outdoor speaker system (amplified sound location #1). Outdoor events might also take advantage of the amphitheater equipped with sound amplification system, for group presentations, music performances, or similar activities. Noise levels associated with events using these areas is discussed below.

Because the basketball courts and tennis courts are not configured on a full-time basis with speaker systems, these court areas are not likely to be used for outdoor events similar to the Israeli Dance function hosted as part of the Camp Ramah program (and described under 4.1.1.2 above). Therefore, use of the courts to host dances or activities with amplified music is not anticipated, and is not evaluated as part of outdoor events noise levels.

Use of the patio and lawn area on the northwest side of the dining hall as part of an outdoor event would generate the same sound levels evaluated for the Ezra Café activity (section 4.1.1.2). A gathering at the amphitheater facility included as a part of an outdoor event would result in the same sound levels as evaluated for Performance Night (section 4.1.1.2). However, under the OEO, the sound level from the event must be compared against ambient noise levels for any hour in which such an event could occur. Camp Ramah has restricted outdoor events to the hours between 8 a.m. and 10 p.m.

Using the data from the four day sound level measurement program, a composite average sound level for each hour from 8 a.m. to 10 p.m. was calculated for the west, north, and east property boundary of Camp Ramah (correlating to these measurement locations). The lowest average hourly sound level was then identified for each property line, to use as the conservative limit in applying the OEO.

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The results of the analysis of average noise levels during use of the outdoor patio/lawn area adjacent to the dining hall, and for use of the amphitheater, during potential outdoor events are presented in *Table 6*. The reported results are for predicted noise levels at the closest adjacent property boundary to the north, west, and east. Refer to *Appendix F* for a spreadsheet of the calculations for the analysis. The results are compared against the lowest hourly average noise level at the three property boundaries, for determination of compliance with the ODO.

Table 6			
Average Noise Levels Associated With Gathering Areas - Outdoor Events			
Event	West Property Line dBA CNEL	North Property Line dBA CNEL	East Property Line dBA CNEL
Dining Hall Northwest Patio/Lawn	27	17	35
Amphitheater	32	43	61
Ambient ¹ (LEQ HOUR)	41	38	37

Table Note: ¹ Lowest ambient average hourly sound level between 8 am and 10 pm from four day measurement data.

Referring to *Table 6* data, and in accordance with the OEO, the calculated noise level for the use of the patio and lawn area at the northwest of the dining hall at each property boundary would be less than the lowest existing average ambient noise level within the period from 8 a.m. to 10 p.m., and therefore would be inaudible compared to ambient noise. Consequently, use of the dining hall patio/lawn area during outdoor events would comply with the OEO, as proposed. Refer to *Appendix F* for the calculation results.

Also referring to *Table 6*, the calculated noise levels for use of the amphitheater at the east and north property boundary would exceed the existing average ambient noise level by 5 dBA or more; this sound level would exceed ambient noise levels by greater than 2 dB, which would constitute a potential conflict with the OEO. Consequently, sound mitigation would be required in order for use of the amphitheater during outdoor events to comply with the noise ordinance; refer to the mitigation section below for additional detail.

4.1.2 Mitigation Measures

In order to avoid a significant nuisance noise impact associated with potentially violating the Noise Ordinance or the Outdoor Event Ordinance, the following mitigation measures are required.

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

MM-1 Routine Speaker Operations / Performance Night Event – Amphitheater Speakers

The speakers for the amphitheater shall be installed at the eastern end of the stage area, and along the eastern side of the seating area, and shall be oriented northwest. No amphitheater speakers shall be oriented toward the eastern property boundary.

MM-2 Israeli Dance Event

Acoustic blankets 8 feet in height shall be installed on the southern fence of the tennis courts (which are adjacent to the north side of the basketball courts) and along the existing fence at the south and east sides of the basketball courts before Israeli Dance events are held there with a planned schedule which goes any later than 9 PM. The blankets must be installed with no gaps, and should extend from the ground to a height of 8 feet above the ground. The sound blankets shall have an STC rating of a minimum of 25.

MM-3 Non-Exempt Outdoor Events

Camp Ramah shall purchase and employ sound monitoring equipment for the amplifiers to ensure that project generated noise for events subject to the OEO do not exceed the maximum noise levels for sensitive receptors, pursuant to the Ventura County General Plan Noise Policy 2.16.2-1(4). The equipment will have an automatic capability of lowering the sound when noise levels would exceed the prescribed noise threshold of 50dBA Leq1H later than 7:00 p.m., as determined at the closest off-site residences.

Significance After Mitigation

Potentially significant nuisance noise impacts would be reduced to less than significant with incorporation of the above mitigation measure. *Table 7* illustrates noise levels with incorporation of the required mitigation measures. Noise levels at property lines would fall below ambient levels, and as such would comply with the noise ordinance and OEO.

Table 7			
Average Noise Levels With Mitigation			
Event	West Property Line dBA CNEL	North Property Line dBA CNEL	East Property Line dBA CNEL
Israeli Dance	36	33	29
Performance Night	35	34	29
Ambient ¹ (LEQ HOUR)	37	35	35

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

5.0 REFERENCES

Caltrans (California Department of Transportation). 1980. *Fundamentals and Abatement of Highway Traffic Noise*. September 1980.

Ventura County General Plan, Noise Element, 2015

Ventura County, Noise Ordinance, 1996

Ventura County Outdoor Event Ordinance, 2018

APPENDIX A
Zoning Map

APPENDIX B

Schematic Plans for Proposed Macron Complex



Revisions		
No.	Description	Date

JANE CARROLL DESIGN
206 N. SIGNAL, SUITE R., OJAI, CALIFORNIA 93023
TEL: (805) 646-6450 FAX: (805) 646-6459
www.janecarrolldesign-ojai.com janecarroll@vnet.com

First Floor Plan

Camp Ramah of California
385 Fairview Road
Ojai, California
APN:

OWNER NIP
DATE 04-11-2018
SCALE 1/8" = 1'-0"
SHEET A1



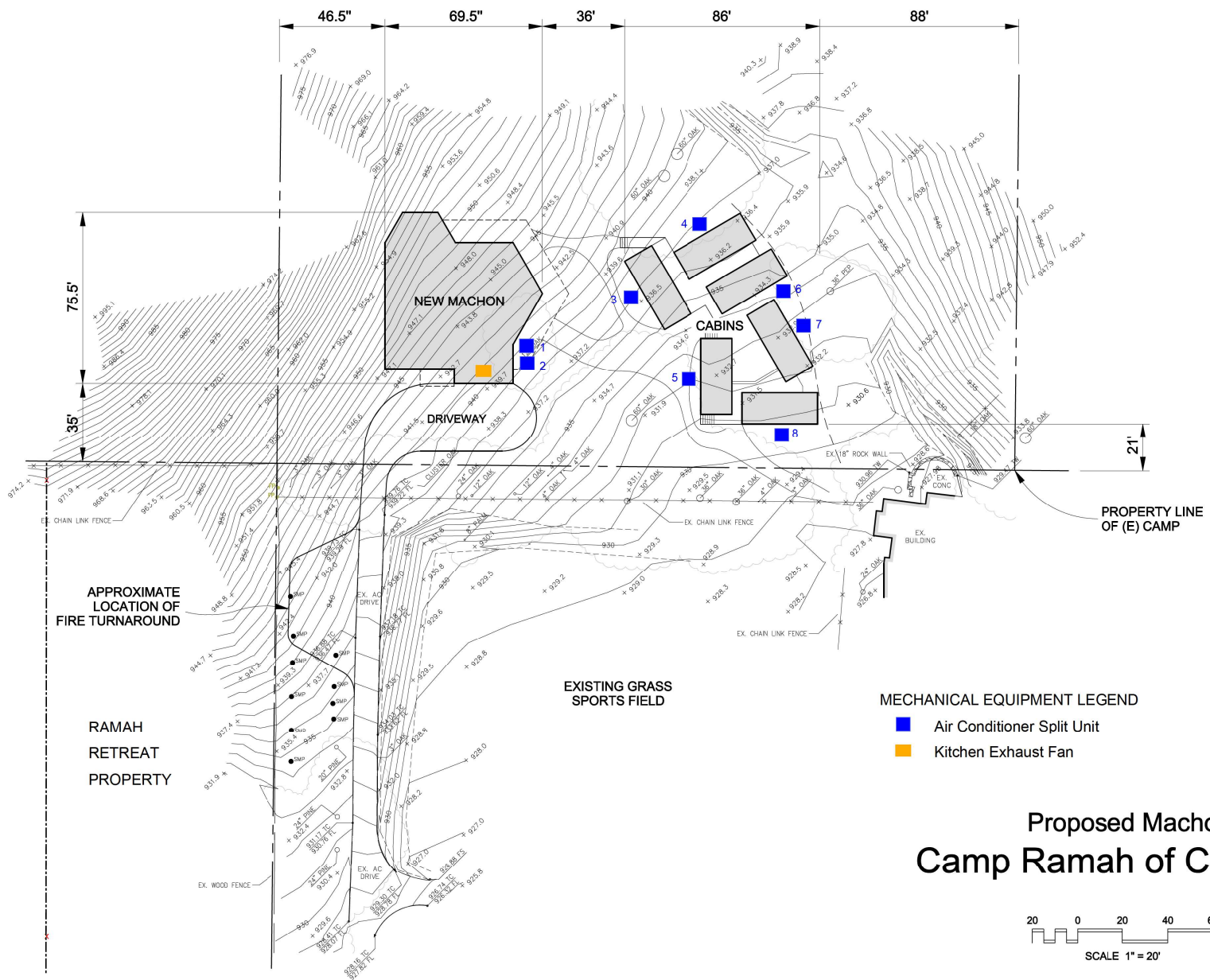
Revisions		
No.	Description	Date

JANE CARROLL DESIGN
206 N. SIGNAL, SUITE R., OJAI, CALIFORNIA 93023
TEL: (805) 646-6450 FAX: (805) 646-6459
www.janecarrolldesign-ojai.com janecarroll@vnet.com

Second Floor Plan

Camp Ramah of California
385 Fairview Road
Ojai, California
APN:

OWNER	NP
DATE	04-11-2018
SCALE	1/8" = 1'-0"
SHEET	A2



Site Plan Proposed Machon Location Camp Ramah of California

Revisions		
No.	Description	Date

JANE CARROLL DESIGN
 206 N. SIGNAL, SUITE R., OJAI, CALIFORNIA 93023
 TEL: (805) 646-6420 FAX: (805) 646-6429
 www.janecarrolldesign-ojai.com janecarroll@vnet.com

Machon Site Plan

Camp Ramah of California
 385 Fairview Road
 Ojai, California
 APN:

APPENDIX C

Proposed Speaker Layout Diagram



AMPLIFIED SOUND

1. DINING ROOM LAWN
FACING N.E. + @ E.A. CORNER
2. FIRE PIT @ BOY'S TENT
AREA (TEMP)
FACING S.W.

BASKETBALL COURTS

3. FACING N. (TEMP)
4. AMPHITHEATER
5. GIRLS' GAZEBO (INSIDE)
6. EMERGENCY ALARM
CALL DIRECTIONS

EXISTING CONDITIONS CAMP RAMAH OF CALIFORNIA

APPENDIX D

*Ambient Noise
Measurement Data*

Rec 2 to 97

Date hh:mm	Manager PL	EDAH PL	Reservoir PL	Bench PL	
5/27/2016 11:00 1.0 hour	50.4		49.5	45.6	46.6
5/27/2016 12:00 1.0 hour	50.5		46.1	43.3	44.5
5/27/2016 13:00 1.0 hour	44.3		50	43.6	47.1
5/27/2016 14:00 1.0 hour	43.7		47.6	43.7	47.4
5/27/2016 15:00 1.0 hour	47.5		46.2	45.3	46.3
5/27/2016 16:00 1.0 hour	46.7		42.5	41	42.2
5/27/2016 17:00 1.0 hour	45.7		43.3	39.2	42.7
5/27/2016 18:00 1.0 hour	48.2		44.6	39	43.5
5/27/2016 19:00 1.0 hour	44.4		43.4	39.6	40.6
5/27/2016 20:00 1.0 hour	45.3		44.6	38.1	39.3
5/27/2016 21:00 1.0 hour	44.3		49.5	43.6	47.1
5/27/2016 22:00 1.0 hour	36.4		43.1	36.4	40.9
5/27/2016 23:00 1.0 hour	34.4		42.2	32.2	33.2
5/28/2016 0:00 1.0 hour	33.2		42.6	32.1	33.3
5/28/2016 1:00 1.0 hour	33.2		43.6	32	35.5
5/28/2016 2:00 1.0 hour	37		44.2	32	36.5
5/28/2016 3:00 1.0 hour	32.9		44.2	32	33
5/28/2016 4:00 1.0 hour	36.2		45.1	32	33.2
5/28/2016 5:00 1.0 hour	45.9		48.7	45.2	47
5/28/2016 6:00 1.0 hour	43.9		52.2	46.5	51
5/28/2016 7:00 1.0 hour	46.6		51.2	44.4	45.4
5/28/2016 8:00 1.0 hour	42.6		54.6	41.5	42.7
5/28/2016 9:00 1.0 hour	47.7		48.3	46.5	48.1
5/28/2016 10:00 1.0 hour	50.7		46	45.7	49.1
5/28/2016 11:00 1.0 hour	47.1		41.1	46.2	47.2
5/28/2016 12:00 1.0 hour	44.8		54.7	42	43.2
5/28/2016 13:00 1.0 hour	46		61.1	45.3	46.9
5/28/2016 14:00 1.0 hour	47.4		50.1	42.6	46
5/28/2016 15:00 1.0 hour	43.4		50.9	36.2	37.2
5/28/2016 16:00 1.0 hour	42.4		49.4	41.7	42.9
5/28/2016 17:00 1.0 hour	45.5		48	46.6	48.2
5/28/2016 18:00 1.0 hour	42.3		56	40.1	42
5/28/2016 19:00 1.0 hour	42.3		49.6	38.9	40.8
5/28/2016 20:00 1.0 hour	41.7		42.4	36.8	38
5/28/2016 21:00 1.0 hour	40.3		35.1	37.1	38.7
5/28/2016 22:00 1.0 hour	37.7		32	36.6	37.5
5/28/2016 23:00 1.0 hour	34.2		32	32	33.9
5/29/2016 0:00 1.0 hour	33		32	32.3	33.5
5/29/2016 1:00 1.0 hour	33.8		32	33.8	35.4
5/29/2016 2:00 1.0 hour	33.2		32	32	32.9
5/29/2016 3:00 1.0 hour	32.8		32	32	33.9
5/29/2016 4:00 1.0 hour	35		32	33.8	34
5/29/2016 5:00 1.0 hour	44.2		41.4	39.2	40
5/29/2016 6:00 1.0 hour	41.3		33	40.4	41.3
5/29/2016 7:00 1.0 hour	45.7		41.1	41.5	43.4

5/29/2016 8:00 1.0 hour	42	30	41.3	41.5
5/29/2016 9:00 1.0 hour	44	43.4	42.6	43.4
5/29/2016 10:00 1.0 hour	44	48.7	46.5	47.4
5/29/2016 11:00 1.0 hour	49.6	55.6	48.5	50.4
5/29/2016 12:00 1.0 hour	44.2	41.7	43	43.2
5/29/2016 13:00 1.0 hour	45.6	47	42.5	43.3
5/29/2016 14:00 1.0 hour	45.8	43.1	44.9	45.8
5/29/2016 15:00 1.0 hour	45.6	48.1	42.8	44.7
5/29/2016 16:00 1.0 hour	50.6	43.6	49.9	50.1
5/29/2016 17:00 1.0 hour	45	42.5	41.1	41.9
5/29/2016 18:00 1.0 hour	45.9	41.9	39.9	40.8
5/29/2016 19:00 1.0 hour	39.4	41.6	38.7	40.6
5/29/2016 20:00 1.0 hour	40.4	39.7	41.5	41.7
5/29/2016 21:00 1.0 hour	39.7	44.9	37.5	38.3
5/29/2016 22:00 1.0 hour	34.4	40.1	33.6	34.5
5/29/2016 23:00 1.0 hour	34.4	36.6	32	33.9
5/30/2016 0:00 1.0 hour	33.5	34.5	32	32.2
5/30/2016 1:00 1.0 hour	33	34.8	32	32.8
5/30/2016 2:00 1.0 hour	32.7	33.9	32	32.9
5/30/2016 3:00 1.0 hour	32.5	33.3	32	33.9
5/30/2016 4:00 1.0 hour	35.2	38.2	34.7	34.9
5/30/2016 5:00 1.0 hour	45.7	48.5	44.5	45.3
5/30/2016 6:00 1.0 hour	46.1	50.7	45.3	46.2
5/30/2016 7:00 1.0 hour	46.8	51.4	45.6	47.5
5/30/2016 8:00 1.0 hour	46.2	58.2	44.6	44.8
5/30/2016 9:00 1.0 hour	44.9	45.5	44	44.8
5/30/2016 10:00 1.0 hour	44.8	40.1	40.6	41.5
5/30/2016 11:00 1.0 hour	45.7	39.7	45	46.9
5/30/2016 12:00 1.0 hour	43.4	45.9	44.1	44.3
5/30/2016 13:00 1.0 hour	44.1	42.7	43	43.8
5/30/2016 14:00 1.0 hour	47.3	50	46.2	47.1
5/30/2016 15:00 1.0 hour	52.7	50.2	51.5	53.4
5/30/2016 16:00 1.0 hour	44	51	40.9	41.1
5/30/2016 17:00 1.0 hour	41	43.5	40.1	40.9
5/30/2016 18:00 1.0 hour	39.1	43.1	36.3	37.2
5/30/2016 19:00 1.0 hour	39.1	36.9	38.4	40.3
5/30/2016 20:00 1.0 hour	35.7	36.4	32	32.2
5/30/2016 21:00 1.0 hour	34.6	32	32	32.8
5/30/2016 22:00 1.0 hour	32.9	32	32	32.9
5/30/2016 23:00 1.0 hour	32.7	32	33.8	35.7
5/31/2016 0:00 1.0 hour	33.1	32.1	32	32.2
5/31/2016 1:00 1.0 hour	33	32	32.2	33
5/31/2016 2:00 1.0 hour	32.7	32	32	32.9
5/31/2016 3:00 1.0 hour	32.5	32	32	33.9
5/31/2016 4:00 1.0 hour	36.8	33.8	35.8	36
5/31/2016 5:00 1.0 hour	43.5	40.7	42.8	43.6
5/31/2016 6:00 1.0 hour	42.6	38	42.1	43

5/31/2016 7:00 1.0 hour	43	38.4	42.5	44.4
5/31/2016 8:00 1.0 hour	46	34	44.8	45
5/31/2016 9:00 1.0 hour	43.5	42.9	42.7	43.5
5/31/2016 10:00 1.0 hour	47.8	52.5	46.6	47.5

Date hh:mm	Leq			
	Fri	Sat	Sun	Mon
5/27/2016 11:00	50.4	47.1	49.6	45.7
5/27/2016 12:00	50.5	44.8	44.2	43.4
5/27/2016 13:00	44.3	46	45.6	44.1
5/27/2016 14:00	43.7	47.4	45.8	47.3
5/27/2016 15:00	47.5	43.4	45.6	52.7
5/27/2016 16:00	46.7	42.4	50.6	44
5/27/2016 17:00	45.7	45.5	45	41
5/27/2016 18:00	48.2	42.3	45.9	39.1
5/27/2016 19:00	44.4	42.3	39.4	39.1
5/27/2016 20:00	45.3	41.7	40.4	35.7
5/27/2016 21:00	44.3	40.3	39.7	34.6
5/27/2016 22:00	36.4	37.7	34.4	32.9
5/27/2016 23:00	34.4	34.2	34.4	32.7
5/28/2016 0:00	33.2	33	33.5	33.1
5/28/2016 1:00	33.2	33.8	33	33
5/28/2016 2:00	37	33.2	32.7	32.7
5/28/2016 3:00	32.9	32.8	32.5	32.5
5/28/2016 4:00	36.2	35	35.2	36.8
5/28/2016 5:00	45.9	44.2	45.7	43.5
5/28/2016 6:00	43.9	41.3	46.1	42.6
5/28/2016 7:00	46.6	45.7	46.8	43
5/28/2016 8:00	42.6	42	46.2	46
5/28/2016 9:00	47.7	44	44.9	43.5
5/28/2016 10:00	50.7	44	44.8	47.8
CNEL	48.9	46.6	48.2	46.7
LDN	48.4	46.3	48.1	46.6

Manager House Property Line

Date hh:mm	Leq			
	Fri	Sat	Sun	Mon
5/27/2016 11:00	49.5	41.1	55.6	39.7
5/27/2016 12:00	46.1	54.7	41.7	45.9
5/27/2016 13:00	50	61.1	47	42.7
5/27/2016 14:00	47.6	50.1	43.1	50
5/27/2016 15:00	46.2	50.9	48.1	50.2
5/27/2016 16:00	42.5	49.4	43.6	51
5/27/2016 17:00	43.3	48	42.5	43.5
5/27/2016 18:00	44.6	56	41.9	43.1
5/27/2016 19:00	43.4	49.6	41.6	36.9
5/27/2016 20:00	44.6	42.4	39.7	36.4
5/27/2016 21:00	49.5	35.1	44.9	32
5/27/2016 22:00	43.1	32	40.1	32
5/27/2016 23:00	42.2	32	36.6	32
5/28/2016 0:00	42.6	32	34.5	32.1
5/28/2016 1:00	43.6	32	34.8	32
5/28/2016 2:00	44.2	32	33.9	32
5/28/2016 3:00	44.2	32	33.3	32
5/28/2016 4:00	45.1	32	38.2	33.8
5/28/2016 5:00	48.7	41.4	48.5	40.7
5/28/2016 6:00	52.2	33	50.7	38
5/28/2016 7:00	51.2	41.1	51.4	38.4
5/28/2016 8:00	54.6	30	58.2	34
5/28/2016 9:00	48.3	43.4	45.5	42.9
5/28/2016 10:00	46	48.7	40.1	52.5
CNEL	53.5	51.1	52	46.1
LDN	53.3	50.8	51.8	46

EDAH PL

	Leq				
Date hh:mm	Fri	Sat	Sun	Mon	
5/27/2016 11:00		45.6	46.2	48.5	45
5/27/2016 12:00		43.3	42	43	44.1
5/27/2016 13:00		43.6	45.3	42.5	43
5/27/2016 14:00		43.7	42.6	44.9	46.2
5/27/2016 15:00		45.3	36.2	42.8	51.5
5/27/2016 16:00		41	41.7	49.9	40.9
5/27/2016 17:00		39.2	46.6	41.1	40.1
5/27/2016 18:00		39	40.1	39.9	36.3
5/27/2016 19:00		39.6	38.9	38.7	38.4
5/27/2016 20:00		38.1	36.8	41.5	32
5/27/2016 21:00		43.6	37.1	37.5	32
5/27/2016 22:00		36.4	36.6	33.6	32
5/27/2016 23:00		32.2	32	32	33.8
5/28/2016 0:00		32.1	32.3	32	32
5/28/2016 1:00		32	33.8	32	32.2
5/28/2016 2:00		32	32	32	32
5/28/2016 3:00		32	32	32	32
5/28/2016 4:00		32	33.8	34.7	35.8
5/28/2016 5:00		45.2	39.2	44.5	42.8
5/28/2016 6:00		46.5	40.4	45.3	42.1
5/28/2016 7:00		44.4	41.5	45.6	42.5
5/28/2016 8:00		41.5	41.3	44.6	44.8
5/28/2016 9:00		46.5	42.6	44	42.7
5/28/2016 10:00		45.7	46.5	40.6	46.6
	CNEL	47.4	44.5	47.1	45.9
	LDN	47.2	44.3	46.8	45.8

Reservoir PL

Date hh:mm	Leq				
	Fri	Sat	Sun	Mon	
5/27/2016 11:00		46.6	47.2	50.4	46.9
5/27/2016 12:00		44.5	43.2	43.2	44.3
5/27/2016 13:00		47.1	46.9	43.3	43.8
5/27/2016 14:00		47.4	46	45.8	47.1
5/27/2016 15:00		46.3	37.2	44.7	53.4
5/27/2016 16:00		42.2	42.9	50.1	41.1
5/27/2016 17:00		42.7	48.2	41.9	40.9
5/27/2016 18:00		43.5	42	40.8	37.2
5/27/2016 19:00		40.6	40.8	40.6	40.3
5/27/2016 20:00		39.3	38	41.7	32.2
5/27/2016 21:00		47.1	38.7	38.3	32.8
5/27/2016 22:00		40.9	37.5	34.5	32.9
5/27/2016 23:00		33.2	33.9	33.9	35.7
5/28/2016 0:00		33.3	33.5	32.2	32.2
5/28/2016 1:00		35.5	35.4	32.8	33
5/28/2016 2:00		36.5	32.9	32.9	32.9
5/28/2016 3:00		33	33.9	33.9	33.9
5/28/2016 4:00		33.2	34	34.9	36
5/28/2016 5:00		47	40	45.3	43.6
5/28/2016 6:00		51	41.3	46.2	43
5/28/2016 7:00		45.4	43.4	47.5	44.4
5/28/2016 8:00		42.7	41.5	44.8	45
5/28/2016 9:00		48.1	43.4	44.8	43.5
5/28/2016 10:00		49.1	47.4	41.5	47.5
	CNEL	50.6	45.8	48	46.9
	LDN	50.3	45.5	47.8	46.8

Bench PL

APPENDIX E

Noise Calculation Worksheets for Proposed Mechanical Equipment

Scenario: Western Adjacent PL in Line (west side of retreat)

Source	Source Noise Level	Source Reference Distance	Number of Units	Distance to Nearest Receiver / PL	Distance Attenuation	Noise Level at Receiver
Compressor 1 (ARUN036GS2)	52	3.3	1	300	39.2	12.8
Compressor 2 (ARUN036GS2)	52	3.3	1	300	39.2	12.8
Compressor 3 (ARUN036GS2)	52	3.3	1	325	39.9	12.1
Compressor 5 (ARUN036GS2)	52	3.3	1	285	38.7	13.3
Compressor 6 (ARUN036GS2)	52	3.3	1	365	40.9	11.1
Compressor 8 (ARUN036GS2)	52	3.3	1	325	39.9	12.1
Kitchen Exhaust	56	10	1	220	26.8	29.2
				Cumulative		29.7

Scenario: Easter Adjacent PL

Source	Source Noise Level	Source Reference Distance	Number of Units	Distance to Nearest Receiver / PL	Distance Attenuation	Noise Level at Receiver
Compressor 4 (ARUN036GS2)	52	3.3	1	140	32.6	19.4
Compressor 6 (ARUN036GS2)	52	3.3	1	100	29.6	22.4
Compressor 7 (ARUN036GS2)	52	3.3	1	92	28.9	23.1
Compressor 8 (ARUN036GS2)	52	3.3	1	100	29.6	22.4
				Cumulative		28.0

APPENDIX F

Outdoor Amplified Sound System Noise Level Calculation Worksheets

Scenario: Eastern Property Line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Emergency East	65	21	1	865	40.4	24.6
Dining East	65	21	1	755	38.9	26.1
Dining NE	54	13	1	755	44.1	9.9
Dining South	54	13	1	755	44.1	9.9
Amphiteater W1	56	21	1	115	18.5	37.5
Amphiteater W2	56	21	1	115	18.5	37.5

Cumulative LEQ 40.8

Cumulative LEQ Without Amphitheater East-Facing Speakers: 28.6

Scenario: Southern Property Line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Emergency South	65	21	1	1045	42.4	22.6
Boys Tent Village	65	21	1	1035	42.3	22.7
Dining South	65	21	1	1250	44.4	20.6

Cumulative LEQ 26.8

Scenario: Western Property Line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Emergency West	65	21	1	670	37.6	27.4
Dining South	65	21	1	650	37.3	27.7
Boys Tent Village	54	13	1	660	42.6	11.4

Cumulative LEQ 30.6

Scenario: Northern Property Line All Speaker Sources

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Emergency North	65	21	1	1020	42.2	22.8
Dining North	65	21	1	735	38.6	26.4
Dining NE	56	21	1	735	38.6	17.4
Tennis	56	21	1	925	41.1	14.9
Amphiteater W.	65	21	1	745	38.7	26.3
Amphiteater E.	65	21	1	745	38.7	26.3
Amphiteater W.	65	21	1	730	38.5	26.5
Amphiteater E.	65	21	1	730	38.5	26.5

Cumulative LEQ 33.9

Scenario: Israeli Dance - North Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
TC Speaker 1	85	21	1	1760	48.1	36.9
TC Speaker 2	85	21	1	1760	48.1	36.9
TC Speaker 3	85	21	1	1760	48.1	36.9
TC Speaker 4	85	21	1	1760	48.1	36.9
Cumulative LEQ						42.9

Scenario: Israeli Dance - East Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
TC Speaker 1	76	21	1	1140	43.4	32.6
TC Speaker 2	76	21	1	1120	43.2	32.8
TC Speaker 3	76	21	1	1080	42.8	33.2
TC Speaker 4	76	21	1	1060	42.6	33.4
Cumulative LEQ						39.1

Scenario: Israeli Dance - West Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
TC Speaker 1	76	21	1	520	34.8	41.2
TC Speaker 2	76	21	1	540	35.3	40.7
TC Speaker 3	76	21	1	580	36.0	40.0
TC Speaker 4	76	21	1	600	36.4	39.6
Cumulative LEQ						46.4

Scenario: Café Ezra - North Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
DH Speaker 1	61	21	1	1750	48.0	13.0
DH Speaker 2	61	21	1	1810	48.4	12.6
DH Speaker 3	61	21	1	1870	48.7	12.3
Cumulative LEQ						17.4

Scenario: Café Ezra - East Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
DH Speaker 1	70	21	1	780	39.2	30.8
DH Speaker 2	70	21	1	860	40.3	29.7
DH Speaker 3	70	21	1	940	41.3	28.7
Cumulative LEQ						34.6

Scenario: Café Ezra - West Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
DH Speaker 1	61	21	1	810	39.7	21.3
DH Speaker 2	61	21	1	785	39.3	21.7
DH Speaker 3	61	21	1	760	39.0	22.0
Cumulative LEQ						26.5

Scenario: Amphitheater Performance - North Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
West Speaker 1	76	21	1	745	38.7	37.3
West Speaker 2	76	21	1	770	39.1	36.9
East Speaker 1	76	21	1	745	38.7	37.3
East Speaker 2	76	21	1	770	39.1	36.9

Cumulative LEQ 43.1

Scenario: Amphitheater Performance - East Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
West Speaker 1	76	21	1	115	18.5	57.5
West Speaker 2	76	21	1	115	18.5	57.5

Cumulative LEQ 60.5

Westerly Facing Speakers Only: Ambient

Scenario: Amphitheater Performance - West Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
West Speaker 1	76	21	1	1625	47.2	28.8
West Speaker 2	76	21	1	1625	47.2	28.8

Cumulative LEQ 31.8

Scenario: Amphitheater Performance - West PL, West Facing Speakers (4)

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
West Speaker 1	76	21	1	1625	47.2	28.8
West Speaker 2	76	21	1	1625	47.2	28.8
West Speaker 3	76	21	1	1625	47.2	28.8
West Speaker 4	76	21	1	1625	47.2	28.8

Cumulative LEQ 34.8

Scenario: Amphitheater Performance - Northwest Property Line Closest Point

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
West Speaker 1	76	21	1	1825	48.5	27.5
West Speaker 2	76	21	1	1825	48.5	27.5
West Speaker 3	76	21	1	1825	48.5	27.5
West Speaker 4	76	21	1	1825	48.5	27.5

Cumulative LEQ 33.5

APPENDIX G

Acoustic Blanket Manufacturer Data



NOISE CONTROL HELP LINE: 1-800-854-2948 M - F 7A.M. - 6P.M. (CENTRAL TIME)

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BBC-EXT-R-2 Noise Barrier/Sound Absorber Sound Blankets

BBC-EXT-R-2 offers the benefits of both a noise barrier and a sound absorber composite in one product. This BBC product consists of an exterior grade, UV resistant

bonded to a one-pound per sq. ft. reinforced loaded vinyl barrier. The heavy-duty facing is a 10 oz per sq yd vinyl-coated-polyester (VCP) quilted to the sound absorber rather than the standard 4.5 oz facing. Curtain panels are constructed with grommets across the top and bottom and exterior grade Velcro seals along the vertical edges.

STC = 33

NRC = .75

Facing Colors on Quilt:

Gray, Tan, Black or White

Barrier Colors:

Gray, Tan, Olive or Blue

Product Testing & Information

Product Specs
(<http://www.acoustical>)

Product Line

Acousti-Board

Acousti-Gasket™ Tape
(<http://www.acousticals-surfaces.com>)

Acoustical Ceiling Tiles

Acoustical Fabric Selection
(<http://www.acousticals-surfaces.com>)

Testimonial:

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Acoustimetal™ Perforated Metal Panels
(<http://www.acousticalsurfaces.com>)

Acoustic Enclosures

Acoustic Quilted Curtain

Absorptive Quilted Curtains
(<http://www.acousticalsurfaces.com>)

Curtain Hardware
(<http://www.acousticalsurfaces.com>)

Echo Barrier
(<http://www.acousticalsurfaces.com/barrier/echo-barrier.html>)

Enclosures
(<http://www.acousticalsurfaces.com>)

Exterior Sound Blanket – Reinforced
(<http://www.acousticalsurfaces.com>)

Insul-Quilt Blankets
(<http://www.acousticalsurfaces.com/quilt.html>)

Portable Acoustical Enclosures & Screens
(<http://www.acousticalsurfaces.com>)

QFA Absorptive Exterior Grade Curtain
(<http://www.acousticalsurfaces.com/absorbtive-curtain.html>)

QFA – Absorptive Quilted Curtain
(<http://www.acousticalsurfaces.com>)

Silicone Curtains

Acoustic/Soundproof Doors
(<http://www.acousticalsurfaces.com>)

Acoustic Windows – Inserts

Adjustable Cutters – Sprinkler Cutter
(<http://www.acousticalsurfaces.com/cutters/index.html>)

Adjustable Door Seals

CFAB™ Cellulose Panels
(<http://www.acousticalsurfaces.com/panel/cellulose-panels.html>)

dBa Panels
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Decorative Fabric Wrapped Panels

Designer Acoustical Curtains
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Electronics – Sound Level Meters

Flooring Underlays

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(<http://www.acousticalsurfaces.com/micro-perforated-acoustical-panels/>)

Noise Barrier-Noise Blockers

RSIC Sound Isolation Clips

School Noise Management

Sealants – Adhesives – Paints & Compounds

Softwall – Wallmate

Sonex™ Foam Products

Sound Absorbing Foam

1. Exterior Chiller Enclosure Helps Homeowner Maintain Sanity!
(http://www.acousticalsurfaces.com/curtan_stop/pdf/Enclosure.pdf)
2. Acoustical Blanket Saves the Day by Reducing High Pitch Whiny Sound
(http://www.acousticalsurfaces.com/curtan_stop/pdf/testa/Sound-Blanket-High-Pitch-Reduction-Testimonial.pdf)

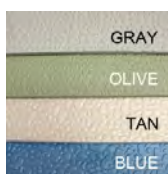
Product Specs

MATERIAL	Vinyl coated polyester facing on 2" quilted fiberglass & 1 lb/sf reinforced mass loaded vinyl barrier
FEATURES	Effective and durable absorber with mass loaded vinyl barrier option.
APPLICATIONS	Typically used as modular curtain panels in outdoor applications where high abuse resistance or excellent durability as well as maximum longevity and noise reduction is required. Also used as sliding acoustical doors, durable acoustical jacket on fans or valves, as well as a temporary noise barrier on outdoor construction projects.
WEIGHT	1.45 lb/sf
THICKNESS	Nominal 2"
SIZES	Standard Width: 54"; Roll Length 25'
COLORS	Facing Colors on Quilt – Gray, Tan, Black or White Barrier Colors – Gray, Tan, Olive, or Blue
TEMPERATURE RANGE	-20°F to +180°F

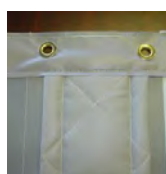
Click on Images to Enlarge



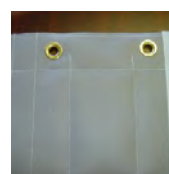
[Facing Color Options](#)



[Barrier Color Options](#)



[Front](#)



[Back](#)

[Front.jpg](#)

[Back.jpg](#)

Sound Blanket – Sound Transmission Loss – ASTM E90 & E 413

Frequency	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	STC
BBC-EXT-R-2	14	20	32	41	42	41	33

Sound Blanket – Sound Absorption Performance – ASTM C423

Frequency	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	NRC
BBC-EXT-R-2	.45	.96	.87	.66	.47	.28	.75

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(<http://www.acousticalsurfaces.co>)

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Wall System
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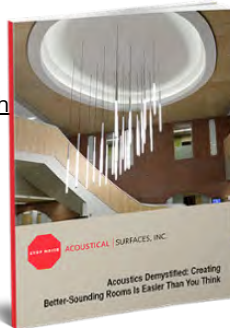
(http://www.acousticalsurfaces.com/curtan_stop/pdf/ext_steel_install.pdf)

Fence Installation Guide

(http://www.acousticalsurfaces.com/curtan_stop/pdf/ext_fence_install.pdf)

Additional Resource

Creating Better- Sounding Rooms



Download eBook

(<http://soundproofing.acousticalsurfaces.com/download-our-ebook-creating-better-sounding-rooms-is-easier-than-you-think>)

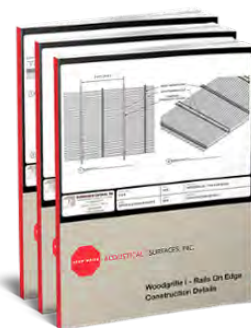
Solutions to Common Noise Problems



Download eBook

(<http://soundproofing.acousticalsurfaces.com/common-noise-problems-ebook>)

CAD, CSI, & Revit Library

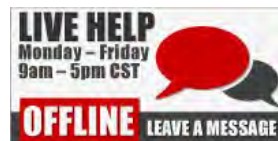


Access Product Cad Files

(<http://soundproofing.acousticalsurfaces.com/common-cad-csi-revit-library>)

Statement of Warranty

(<http://www.acousticalsurfaces.com/ech>) a/1yr W



(<http://www.usgbc.org/>)



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REVISED
NOISE ASSESSMENT TECHNICAL REPORT
for the

Camp Ramah Project
Ventura County, California

Prepared for:

Camp Ramah

Prepared by:

DUDEK

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OCTOBER 2019

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Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

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ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulation
CNEL	community noise equivalent level
dB	decibel
dBA	A-weighted decibel
DOT	U.S. Department of Transportation
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
Hz	hertz
Ldn	day-night sound level
Leq	equivalent sound level
Lmin	minimum sound level
Lmax	maximum sound level
Lxx	percentile exceeded sound level
RMS	root mean square
SR	State Route
VdB	vibration decibels

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

1.0 INTRODUCTION

1.1 Purpose

This technical noise report evaluates noise effects of the proposed project which entails a requested minor modification to the Conditional Use Permit for Camp Ramah, Ojai. The requested modification would introduce a limited number of new structures to accommodate an additional grade level of campers, and also proposes installation and use of an outdoor sound amplification system. While structures would be added in order to accommodate another grade level (age group) of campers, Camp Ramah proposes to hold the overall attendance level consistent with current and historic levels. Fewer campers would be accepted within the currently accommodated age levels in order to balance the addition of the new age group.

Noise generation sources from future implementation of the project include mechanical equipment operation associated with the new structures and operation of the outdoor sound amplification system. Neither traffic-related noise levels nor general activity noise levels would be anticipated to increase, given the maintenance of the current and historic attendance or participation population under the proposed modification.

1.2 Project Location and Description

1.2.1 Location

The Camp Ramah Ojai property is located within an unincorporated portion of Ventura County, northwest of the City of Ojai. The property address is 385 Fairview Road, and access is provided from a private driveway connecting to Fairview Road. Fairview Road generally forms the southern property boundary, across which are located rural residential lots. The Camp Ramah property is bordered on the east by a residential neighborhood with 5-acre lots, on the north by open space and rural residential parcels, and on the west by the Camp Ramah Retreat center.

Camp Ramah has historically consisted of three parcels of land (Assessor Parcel Numbers [APNs] 010-011-012, 010-011-013, and 010-012-004). The Camp Ramah Retreat occupies an additional parcel (010-017-002), bordering Camp Ramah on the west. Camp Ramah recently purchased the parcel immediately north of the central camp (010-007-031) and the parcel immediately to the north and northwest of the retreat parcel (010-006-007). APN 010-006-007 contains more area than the existing Camp Ramah property, and there are no sensitive noise receptors located in this direction from the main camp (northwest). Therefore, to keep the graphic scale manageable for reference in this report, Figure 1 includes the boundaries for the historic Camp Ramah (APNs - 012, 013 and 004), along with the one new parcel directly to the north of the central camp (010-007-031); Figure 1 does not include the new parcel north of the retreat center (010-006-007). Figure 1 also illustrates adjacent land uses described above.



FIGURE 1
CAMP RAMAH & LOCATIONS OF CLOSEST OFF-SITE NOISE SENSITIVE STRUCTURES
CAMP RAMAH OJAI - NOISE TECHNICAL REPORT

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

The Camp property is zoned residential (RE-20: Rural Exclusive, 20 acre minimum parcel size); parcels to the south and east carry a designation of rural agriculture (RA-5, RA-2), but are generally developed with low density single family residences; parcels to the north are zoned open space (OS-20 and OS-80) or residential (RE-5); the parcel to the west is zoned open space (OS-40). The zoning map for the project area is included in *Appendix A*.

1.2.2 Project Description

The proposed project involves the construction of a new Machon and six new cabin structures (with integrated bathrooms) on the property where there is currently an undeveloped grassy area. Refer to *Figure 2* for the overall site plan, including the area proposed for the location of the new Machon and cabins. These buildings would allow the Camp to add a grade level to the camp experience; however, overall on-site population would not increase due to offsetting decreases proposed in other grade levels already served by the camp.

More detailed schematics for the proposed new Machon and cabins are provided in *Appendix B*. The seven individual structures would include the Machon (with staff sleeping quarters, kitchen, dining common/meeting hall), three cabins for girls, and three cabins for boys. Outdoor mechanical equipment includes one compressor for mini-split HVAC units for each of the six cabins, two compressors for mini-split HVAC units for the Machon, and an exhaust blower for the kitchen.

Summer Camp activities run from early June through mid-August with occasional special private events hosted throughout the calendar year. Noise-generating activities occur in various locations throughout the site, but are primarily concentrated in the center of the property. Within the center portion of the property, the Camp proposes to install and operate an exterior sound amplification system. Operational hours for exterior amplified sound use are proposed to be from 9AM – 10PM, but a limited number of exceptions to this schedule are proposed in order to accommodate specific traditional activities (described in more detail below). *Appendix C* provides a schematic indicating the proposed location of speakers to be included in the system. A brief description of the locations is provided below.

1. Main dining room lawn (facing northeast) as well as one speaker on the northern, eastern, and southern corners of the dining building
2. Fire pit at the boys tent area (portable or temporary speaker), oriented southwest
3. Tennis courts (portable or temporary speaker), oriented north

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4. Amphitheater (anticipated to include a pair of speakers at the stage corners, and a pair of speakers at the half-way point on either side of the seating area, facing northeast and northwest)
5. Girls gazebo (inside, oriented downward from the ceiling)
6. An emergency alarm, with individual speakers facing north, west, south, and east, located immediately south of the central dining facility

Camp Ramah proposes to allow the use of amplified sound in outdoor areas which either extends later than the general 10:00 PM limit, and/or involves the participation by a large portion of the Camp population for the following traditional activities or events.

Café Ezra	One night per week during summer camp season, in the patio and lawn area on the northwest side of the dining hall (amplified sound location #1), low level amplified music, 9:00 – 11:00 PM
Israeli Dance	One night per week during summer camp season, in the tennis courts area (amplified sound location #3), moderate level amplified music, 9:00 – 10:00 PM
Performance Night	Once per camp session, in the amphitheater (amplified sound location #4), amplified speech and low level music, 7:30 – 9:30 PM

The potential for sound generation from the proposal would include operation of exterior mechanical equipment and new amplified sound system usage.

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1.3 Noise Background and Terminology

Fundamentals of Environmental Noise

Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear as sound. Sound pressure level (referred to as sound level) is measured on a logarithmic scale in decibels (dB) that represent the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 20,000 Hz. The human ear is more sensitive to middle and high frequencies, especially when the noise levels are quieter. As noise levels get louder, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system to evaluate how loud a noise level is to a human was developed. The frequency weighting called “A” weighting is typically used for quieter noise levels which de-emphasizes the low frequency components of the sound in a manner similar to the response of a human ear. This A-weighted sound level is called the “noise level” and is referenced in units of dBA.

Since sound is measured on a logarithmic scale, a doubling of sound energy results in a 3 dBA increase in the noise level. Changes in a community noise level of less than 3 dBA are not typically noticed by the human ear (U.S. DOT 1980). Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5 dBA increase is readily noticeable (EPA 1973). The human ear perceives a 10 dBA increase in sound level as a doubling of the sound level (i.e., 65 dBA sounds twice as loud as 55 dBA to a human ear).

An individual’s noise exposure occurs over a period of time; however, noise level is a measure of noise at a given instant in time. Community noise sources vary continuously, being the product of many noise sources at various distances, all of which constitute a relatively stable background or ambient noise environment. The background, or ambient, noise level gradually changes throughout a typical day, corresponding to distant noise sources, such as traffic volume, as well as changes in atmospheric conditions.

Noise levels are generally higher during the daytime and early evening when traffic (including airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the receiver. In order to evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed “community noise equivalent level” (CNEL) was developed, wherein noise measurements are weighted, added, and averaged over a 24-hour period to reflect magnitude, duration, frequency, and time of occurrence. A complete definition of CNEL is provided below.

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Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}), the day–night sound level (L_{dn}), and the CNEL. Below are brief definitions of these measurements and other terminology used in this report.

- *Decibel* (dB) is a unitless measure of sound on a logarithmic scale which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- *A-weighted decibel* (dBA) is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- *Equivalent sound level* (L_{eq}) is the constant level that, over a given time period, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for both the day–night average sound levels (L_{dn}) and community noise equivalent level (CNEL) scales. “ L_{eq} 1H” refers to a 1-hour averaging period.
- *Maximum sound level* (L_{max}) is the maximum sound level measured during the measurement period.
- *Minimum sound level* (L_{min}) is the minimum sound level measured during the measurement period.
- *Day–night average sound level* (L_{dn}) The City of Santa Barbara has historically described community noise levels in terms of the L_{dn} . The L_{dn} is a 24-hour average A-weighted sound level with a 10 dB penalty added to the nighttime hours from 10:00 p.m. to 7:00 a.m. The 10 dB penalty is applied to account for increased noise sensitivity during the nighttime hours. Resulting values from application of L_{dn} versus CNEL rarely differ by more than 1 dB, and therefore these two methods of describing average noise levels are often considered interchangeable.
- *Community noise equivalent level* (CNEL) The County of Santa Barbara describes community noise levels in terms of the CNEL. The CNEL is the average equivalent A-weighted sound level during a 24-hour day. CNEL accounts for the increased noise sensitivity during the evening hours (7 p.m. to 10 p.m.) and nighttime hours (10 p.m. to 7 a.m.) by adding 5 dB to the sound levels in the evening and 10 dB to the sound levels at night. CNEL and L_{dn} are often considered equivalent descriptors.

Exterior Noise Distance Attenuation

Noise sources are classified in two forms: (1) point sources, such as stationary equipment or a group of construction vehicles and equipment working within a spatially limited area at a given time, and (2) line sources, such as a roadway with a large number of pass-by sources (motor

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6.0 dBA for each doubling of distance from the source to the receptor at acoustically “hard” sites and at a rate of 7.5 dBA for each doubling of distance from source to receptor at acoustically “soft” sites. Sound generated by a line source (i.e., a roadway) typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling distance, for hard and soft sites, respectively. Sound levels can also be attenuated by man-made or natural barriers. For the purpose of sound attenuation discussion, a “hard” or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt or concrete ground surfaces, as well as very hard-packed soils. An acoustically “soft” or absorptive site is characteristic of unpaved loose soil or vegetated ground.

Structural Noise Attenuation

Sound levels can also be attenuated by man-made or natural barriers. Solid walls or slopes associated with elevation differences typically reduce noise levels by 5 to 10 dBA (U.S. DOT 1980). Structures can also provide noise reduction by insulating interior spaces from outdoor noise. The outside-to-inside noise attenuation provided by typical residential structures in California is approximately 25 dBA (Caltrans 1980).

1.4 Noise Regulation and Management

1.4.1 State

California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, declares that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also identifies a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

California Noise Insulation Standards (CCR Title 24)

In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for hotels, motels, dormitories, and multi-family residential buildings (CCR Title 24, Part 2). Title 24 establishes standards for interior room noise (attributable to outside noise sources). The regulations also specify that acoustical studies must be prepared whenever a multi-family residential building or structure is proposed to be located in an area with CNEL (or Ldn) of

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

60 dBA or greater. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or Ldn) of at least 45 dBA (California's Title 24 Noise Standards, Chap. 2-35). With respect to the project, the proposed new Macron cabins would generally be considered to comprise lodging facilities, for which a maximum exterior noise exposure of 60 dBA CNEL would be recommended.

1.4.2 County of Ventura

Noise effects of the proposed project on adjacent properties located within the County would be subject to compliance with adopted noise policies and ordinances of the County of Ventura. County noise policies, and their application to project noise analysis, are described below.

County of Ventura General Plan – Noise Element

2.16.2 Policies

1. All discretionary development shall be reviewed for noise compatibility with surrounding uses. Noise compatibility shall be determined from a consistent set of criteria based on the standards listed below. An acoustical analysis by a qualified acoustical engineer shall be required of discretionary developments involving noise exposure or noise generation in excess of the established standards. The analysis shall provide documentation of existing and projected noise levels at on-site and off-site receptors, and shall recommend noise control measures for mitigating adverse impacts.

(1) Noise sensitive uses proposed to be located near highways, truck routes, heavy industrial activities and other relatively continuous noise sources shall incorporate noise control measures so that:

- a. Indoor noise levels in habitable rooms do not exceed CNEL 45.
- b. Outdoor noise levels do not exceed CNEL 60 or Leq1H of 65 dB(A) during any hour.

[...]

(4) Noise generators, proposed to be located near any noise sensitive use, shall incorporate noise control measures so that ongoing outdoor noise levels received by the noise sensitive receptor, measured at the exterior wall of the building, does not exceed any of the following standards:

- a. Leq1H of 55dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 6:00 a.m. to 7:00 p.m.
- b. Leq1H of 50dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 7:00 p.m. to 10:00 p.m.

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

c. Leq1H of 45dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 10:00 p.m. to 6:00 a.m.

Section 2.16.2(4) is not applicable to increased traffic noise along any of the roads identified within the 2020 Regional Roadway Network (Figure 4.2.3) Public Facilities Appendix of the Ventura County General Plan (see 2.16.2-1(1)). In addition, State and Federal highways, all railroad line operations, aircraft in flight, and public utility facilities are noise generators having Federal and State regulations that preempt local regulations.

The primary goal of the above policies is to maintain exterior noise exposure levels not exceeding 60 dBA CNEL for residential land uses. For new noise generation sources not related to transportation, the allowances are slightly more restrictive where existing residences could be exposed to the generated noise.

County of Ventura Noise Ordinance

Noise impacts from stationary sources are regulated through the County's Noise Ordinance. The County's Noise Ordinance, No. 4124 states:

Sec. 6299-1 - Loud or Raucous Noise Prohibition

No person shall create within any residential zone of the County of Ventura any loud or raucous noise which is audible to the human ear during the hours of 9 p.m. to 7 a.m. of the following day, at a distance of 50 feet from the property line of the noise source or 50 feet from any such noise source if the noise source is in a public right-of-way.

Sec. 6299-2 – Definitions

For purposes of this Article, the following definitions shall apply:

- a. "Person" mean any individual, association, firm, organization, partnership, corporation or other entity, but does not include any government entity or public utility.
- b. "Residential Zone" means any areas with the unincorporated portion of Ventura County that are zoned:
 - 1. Single-Family Residential (R-1)
 - 2. Two-Family Residential (R-2)
 - 3. Residential Planned Development (R-P-D)
 - 4. Single Family Estate (R-O)

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5. Rural Exclusive (R-E)
6. Coastal Single-Family Residential (C-R-1)
7. Coastal Two-Family Residential (C-R-2)
8. Coastal Residential Planned Development (C-R-P-D), or
9. Coastal Rural Exclusive (C-R-E),
(as provided in Chapter 1 and Chapter 1.1 of Division 8 of this Code).

- c. "Loud or raucous noise" means sounds from: 1) the use or operation of any radio, musical instrument, phonograph, television receiver, video cassette recorder, or any machine or device for the production, reproduction or amplification of the human voice or any other sound or 2) the use or operation of any lawn mower, backpack blower, blower, lawn edger, riding tractor or other mechanical or electrical device or hand tool.

"Audible to the human ear" is not defined within the Noise Ordinance. Generally, noise must be at least 3 dBA greater than background or ambient noise levels in order for it to be "noticeable" to an observer. In a carefully controlled lab environment, some subjects may be able to detect as little as a 1 dBA increase in sound level, but these small changes are easily masked by the number of different noise sources present in an outdoor environment. For the purpose of interpreting the noise ordinance, a noise level at least 2 dBA over the ambient noise level would be considered the threshold for "audible".

2.0 EXISTING NOISE CONDITIONS

The existing Camp Ramah operations are a noise generation source which contributes to the ambient noise environment of the surrounding rural environment. In order to characterize existing noise levels associated with Camp Ramah operations, four 96-hour noise measurements were performed. Soft dB Piccolo 3 (American National Standards Institute) Type 2 Integrating Sound Level Meters calibrated with a Larson Davis Model CAL150 calibrator were used to record ambient sound levels at various points along the Camp Ramah property boundary where changes in noise levels could result from project implementation. Please refer to *Figure 2* for measurement locations discussed in this section.

The measurements included an approximately 24-hour period before a Memorial Day Weekend session at the Camp; two 24-hour measurements while the Camp was in session; and a final 24-hour period following the Memorial Day Weekend Session.

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Please refer to *Figure 2* for the noise measurement locations. Briefly they are: 1) at the eastern property boundary, adjacent to the on-site reservoir and adjacent off-site residence; 2) at a bench near the northern property boundary, in the eastern portion of the site, between the main campus and closest off-site residence to the northeast; 3) at the northern limit of the developed central portion of the Camp Ramah property, adjacent to the Camp Ramah manager residence; and 4) adjacent to the existing tennis courts and soccer field (the soccer field being adjacent to the south side of the proposed location for the new Macron complex). The noise measurement results are presented below in *Table 1* as CNEL values for the four days of measurements, at the four locations. The hourly LEQ values and CNEL calculations are provided in *Appendix D*.

Table 1				
Existing Ambient Noise Measurement Results				
Location	5/27-5/28/16 dBA CNEL	5/28-5/29/16 dBA CNEL	5/29-5/30/16 dBA CNEL	5/30-5/31/16 dBA CNEL
1 (Reservoir)	47	45	47	46
2 (Bench)	51	46	48	47
3 (Mngr. House)	49	47	48	47
4 (Soccer)	53	51	52	46

Weed and dry vegetation clearing activities and seasonal preparation operations were observed on May 27 (Friday) during placement of the sound level meters. Heavy equipment and chain saws were employed for some of these activities, which resulted in the highest recorded sound levels over the 4-day period. The peak Camp activity levels occurred on Sunday, which had the second highest CNEL value for the 4-day period. The 24-hour measurement period following the gathering (from 11 AM Monday 5/30 to 11 AM Tuesday 5/31) is considered a reasonable characterization of ambient noise levels while Camp Ramah is not in session. The difference between the highest and lowest CNEL value for a given location generally only varied by 2-4 dBA over the 4-day measurement period, except adjacent to the soccer field, which varied by 6 dBA CNEL. All of the CNEL values from the measured locations comply with the 60 dBA CNEL exterior noise level criterion for residential land uses.

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3.0 SIGNIFICANCE CRITERIA

3.1 County of Ventura Noise Significance Criteria

Based upon the Ventura County General Plan Noise Element and Noise Ordinance, the project would result in a significant impact if:

- (1) The proposed development would generate noise levels in excess of 60 dB(A) CNEL at existing residential properties in the project vicinity.
- (2) The proposed development would generate noise levels at the exterior wall of an existing vicinity residence which exceed:
 - a. Leq1H of 55dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 6:00 a.m. to 7:00 p.m.
 - b. Leq1H of 50dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 7:00 p.m. to 10:00 p.m.
 - c. Leq1H of 45dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 10:00 p.m. to 6:00 a.m.
- (3) The proposed development would create any loud or raucous noise which is audible to the human ear during the hours of 9 p.m. to 7 a.m. of the following day, at a distance of 50 feet from the property line of the noise source.

4.0 IMPACTS AND MITIGATION

4.1 Operations Noise Generation

4.1.1 Impact Analysis

The implementation of the project would result in changes to existing noise levels on the project site by developing new stationary sources of noise including mechanical equipment and an outdoor sound amplification system. These sources may affect noise-sensitive vicinity land uses off the project site. The following analysis evaluates noise from proposed new exterior mechanical equipment as well as the proposed sound amplification system.

Although the proposed new Machon and cabins would provide accommodations for a grade level of attendees over and above the grade levels historically served by the Camp, attendance levels for the other grades are proposed to be adjusted downward, such that maximum enrollment or attendance for the Camp would be no greater than existing levels. Because of this, the noise from general activities and vehicular traffic associated with the Camp would not be anticipated to be

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

affected. Consequently, traffic noise and noise from general Camp activities is not evaluated in this report.

4.1.1.1 Outdoor Mechanical Equipment

The proposed location for the new Machon complex is adjacent to the north side of the existing soccer fields, north and somewhat close to the historic northern boundary for the Camp Ramah parcel. However, given the purchase by Camp Ramah of the parcel immediately north of this portion of the Camp, the boundary for the adjacent neighboring property to the north is now located approximately 1,150 feet away from the proposed new Macron location. Also, while the proposed new Macron complex would be located within approximately 60 feet of the western boundary of the Camp Ramah property, the Camp Ramah retreat abuts the Camp to the west, which is under the same ownership as Camp Ramah. Given the common ownership of the Retreat and Camp, the distance to the closest neighboring property boundary becomes the determinant for analyzing noise levels that could affect neighbors. The distance to the closest neighboring property boundary to the west would be approximately 300 feet from the proposed Macron location.

The proposed Macron complex would consist of seven individual structures, arranged in two groupings. The Macron would be located on the western portion of the site, approximately 300 feet from the closest neighboring property line to the west; approximately 1,200 to the closest property line to the north; and, approximately 2,000 feet from the southern property boundary. The six cabins would be grouped together on the eastern portion of the site clearing, approximately approximately 365 feet from the closest neighboring property line to the west; approximately 1,200 feet from the northern property boundary; approximately 140 feet from the eastern property boundary; and, approximately 2,050 feet from the southern property boundary. Refer to *Appendix B* for the proposed configuration of the Macron and cabins. Outdoor mechanical equipment for the proposed Macron and cabins includes the following.

- a. Eight compressors for mini-split HVAC units for the Machon and cabins (anticipated to be 2-ton units, LG model no. ARUN036GS2 or equivalent). Please refer to Appendix B for a schematic indicating the approximate locations for these compressors. The compressors would be mounted on the ground, adjacent to the structure they would serve. It is anticipated that compressor units 4 and 7 would be installed on the east side of the cabins they serve, thus shielding noise transmission to the west. However, obstructions would not prevent noise from compressor units 1, 2, 3, 5, 6 and 8 from reaching the closest western property boundary. Noise from compressor units 1, 2, 3, 5, 6 and 8 was therefore modelled at the closest western property boundary to the Machon location. It is anticipated that the cluster of cabins themselves would shield sound transmission eastward from the anticipated

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locations of Compressors 1, 2, 3, and 5. However, obstructions would not prevent noise from compressor units 4, 6, 7 and 8 from reaching the closest eastern property boundary. Noise from compressor units 4, 6, 7 and 8 was therefore modelled at the closest eastern property boundary to the Machon location. Sound levels from each of the compressors could be of potential concern at the southern and northern property boundaries. However, these compressors would be located approximately 1,200 feet from the closest neighboring property line to the north, and 2,050 feet from the southern property boundary; noise from the compressor operation would not be audible at these distances. Thus compressor noise was not modelled at the northern or southern property boundaries.

- b. An exhaust blower would be provided for the kitchen, mounted on the roof of the structure (anticipated to be up to a 40 horsepower turbine exhaust, Vacstar model T4 or equivalent). The peak of the roof would shield sound transmission to the north; the cluster of cabins would shield the blower noise for points along the eastern property boundary; no obstacles exist between the exhaust blower and west or south property lines. Sound levels would therefore be of potential concern at the western and southern property boundary. However, this exhaust blower would be located approximately 2,050 feet from the southern property line; noise from exhaust blower operations would not be audible at this distance. Therefore, the exhaust blower noise level from the kitchen is only assessed at the closest neighboring property line to the west.

Sound level specifications supplied by the manufacturer are provided in *Table 2* below for the anticipated mechanical equipment described above. For the compressor, note the referenced sound level is the maximum or peak sound level produced by the compressor, operating under full power and maximum load. The average sound level when the units are operating in efficiency mode is approximately 10 dBA less than the peak or maximum level. However, to address the worst-case sound levels for compressor operations, the peak noise rating is used in this analysis. The peak sound level for the exhaust blower operating at the highest speed is also indicated in *Table 2* and is used for the analysis.

Table 2 Anticipated Mechanical Equipment – Sound Level Rating	
Equipment	Peak Sound Level (dBA)
HVAC Compressor Unit (LG model no. ARUN036GS2 or equivalent)	52 (at 3.3 feet)
Exhaust Blower (40 h.p max, Vacstar model T4 or equivalent)	56 (at 10 feet)

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In order to assess noise levels from mechanical equipment operations along the common property boundary of the Camp and neighboring properties, distance measurements were completed from the mechanical equipment locations to the nearest property line. Standard acoustic calculations were then performed to determine the distance attenuated noise level at the property line location for each of the mechanical noise sources.

Noise levels at the closest adjacent property boundary are reported separately for the west property line and the east property line, according to the considerations described above. At the western property boundary, contributions were modelled for compressor units 1, 2, 3, 5, 6 and 8 and the kitchen exhaust fan. For the eastern property boundary, contributions were modelled for compressor units 4, 6, 7 and 8. However, in order to demonstrate that combined noise from all mechanical equipment sources with direct exposure at the two property lines would be within allowable parameters, the sum of the noise levels from all mechanical equipment is also provided at each of the two property boundaries.

The noise levels (Leq) from the individual equipment, and the combined noise levels of all of the equipment, are indicated in *Table 3*. Refer to *Appendix E* for the calculation worksheet.

Table 3 Mechanical Equipment Operation Noise Summary of Results		
Equipment	Noise Level at Property Boundary	
	West Property Line Average Noise Level (dBA Leq)	East Property Line Average Noise Level (dBA Leq)
Comp #1	13	N/A
Comp #2	13	N/A
Comp #3	12	N/A
Comp #4	N/A	19
Comp #5	13	N/A
Comp #6	11	22
Comp #7	N/A	23
Comp #8	12	22
Kitchen Exhaust	29	N/A
Combined Noise Level	30	28

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The results of the mechanical equipment operations noise analysis indicate that operation of the exterior mechanical equipment would easily comply with the Ventura County Noise Element Policy Criteria and Noise Ordinance restrictions. Mechanical equipment operations noise levels would not exceed 30 dBA L_{eq} at the adjacent western property line closest to the equipment locations, or 28 dBA L_{eq} at the adjacent eastern property line closest to the equipment locations, which is well below the most restrictive level of $L_{eq}1H$ 45dB(A) during any hour from 10:00 p.m. to 6:00 a.m. It would therefore not be necessary to restrict the hours for mechanical equipment operation associated with the proposed new Machon complex.

The distance from these noise sources to the remaining adjacent property boundaries in each case are more than double the distance used in these calculations, and therefore noise levels from mechanical equipment operation at the adjacent property boundaries to the north and south are not expected to be audible.

4.1.1.2 Outdoor Speaker System

Camp Ramah proposes to install and operate an outdoor sound amplification system as part of the minor modification to their existing CUP. Operational hours for exterior amplified sound use are proposed to be from 9AM – 10PM, but a limited number of exceptions to this schedule are proposed in order to accommodate specific traditional activities (described in more detail below). *Appendix C* provides a schematic indicating the proposed location of speakers to be included in the system; the numbering below corresponds to the locations identified in the schematic exhibit in *Appendix C*. A brief description of the locations is provided below.

1. Main dining room lawn (facing northeast) one speaker apiece on the northern, eastern, and southern corners of the dining building
2. Fire pit at the boys tent area (portable or temporary speaker), oriented southwest
3. Tennis courts (portable or temporary speaker), oriented north
4. Amphitheater (anticipated to include a pair of speakers at the stage corners, and a pair of speakers at the half-way point on either side of the seating area, facing northeast and northwest)
5. Girls gazebo (inside, oriented downward from the ceiling)
6. An emergency alarm, with individual speakers facing north, west, south, and east, located immediately south of the central dining facility

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Camp Ramah proposes to allow the use of amplified sound in outdoor areas which extends later than the general 10:00 PM limit, and/or which includes a substantial portion of the Camp population, for the following traditional activities or events.

Café Ezra One night per week during summer camp season, in the patio and lawn area on the northwest side of the dining hall (amplified sound location #1), low level amplified music, 9:00 – 11:00 PM

Israeli Dance One night per week during summer camp season, in the tennis courts area (amplified sound location #3), moderate level amplified music, 9:00 – 10:00 PM

Performance Night Once per camp session, in the amphitheater (amplified sound location #4), amplified speech and low level music, 7:30 – 9:30 PM

Normal Speaker System Operations (Announcements)

An average sound level for exterior speakers used in an institutional setting (i.e., standard speech announcements) is approximately 65 dBA L_{eq} measured at 21 feet from the speaker (Sound System Design Reference Manual, JBL, 1999). This level would be applicable to each of the proposed speaker locations for normal operation, which would involve routine announcements (i.e., speech).

The concept of directionality is very important in regard to sound levels produced by loudspeakers. The direction the speaker is pointed, specifically the center of the speaker cone, receives the greatest sound levels from speaker operation. At an angle 60 degrees from the center of the speaker cone, sound levels from speaker operation are 9 dBA less than those in-line with the center of the speaker. At an angle of 90 degrees from the center of the speaker (perpendicular to the speaker direction) sound levels from speaker operation are negligible (Sound System Design Reference Manual, JBL, 1999).

In order to evaluate sound levels at Camp Ramah property boundaries shared with adjacent noise-sensitive land uses, speakers oriented toward each property line were identified. If a property line has an exposure less than 60 degrees from the speaker center line of a given speaker, the speaker was assessed using the measured full sound level of the speaker, with appropriate formula for distance attenuation. If a property line has an exposure between 60 degrees and 89 degrees, the speaker source sound level was decreased by 9 dBA, again with appropriate formula for distance attenuation. For a property line at 90 degrees or greater exposure from a given speaker, the speaker was not included in the quantification of noise levels (since the contribution would be negligible). For the amphitheater installation, it is assumed that a speaker would be provided at each of the two

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the corners of the “stage” and a speaker would also be provided on either side of the seating area, at the midpoint of the seating area.

For the northern Camp Ramah property boundary, there are a number of existing structures located between proposed speaker locations and the property boundary that would provide shielding and attenuation of speaker noise at the property boundary; the analysis does not take into account this structural shielding, and is therefore a conservative evaluation. There are no structures between the amphitheater location and the northern property boundary, and the speakers for the amphitheater would be oriented generally toward the north (northeast and northwest).

The results of the analysis of average noise levels during speaker operation for the closest adjacent property boundary to the north, west, south, and east are presented in *Table 4*. The analysis assumes all of the proposed speakers are operating simultaneously. Refer to *Appendix F* for a spreadsheet of the calculations for the speaker analysis.

Table 4		
Average Noise Level During Normal Announcements Speaker Operation		
Location	L _{eq} dBA	Ambient ¹ L _{EQ} HOUR
Eastern Property Boundary	41	38
Eastern Property Boundary (West Facing Amphitheater Speakers Only)	29	
Southerly Property Boundary	27	NA
Western Property Boundary	31	40
Northern Property Boundary	34	39

Table Note: ¹ Average hourly sound level from 9-10 PM from four day measurement data.

Noise Element Policy Analysis – Normal Speaker System Operations

Referring to *Table 4* above and Noise Element Policy 2.16.2 (4), the calculated noise level at each property boundary for normal operation of the proposed outdoor speaker system (i.e., announcements) would comply with the most restrictive noise limit (45 dBA L_{eq} applicable in the period from 10 PM to 6 AM). Consequently, normal operation of the sound amplification system as proposed would comply with the Noise Element.

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Noise Ordinance Policy Analysis – Normal Speaker System Operations

The noise ordinance (Ventura County Municipal Code Sec. 6299-1 - Loud or Raucous Noise Prohibition) prohibits the generation of noise from amplified sound systems which is audible to the human ear during the hours of 9 PM to 7 AM of the following day, at a distance of 50 feet from the property line of the noise source. The amplified sound system, for normal announcements operation, is proposed to be limited to the period from 9 AM to 10 PM. In the period from 9 PM to 10 PM, the amplification system cannot produce sound which is audible at 50 feet from the Camp property lines.

Data from the four day sound level measurements was used to compile the hourly average noise level during the hour of concern, from 9 PM to 10 PM. Measurements were performed at the western, northern, northeastern, and eastern property boundaries. The measurement data for the period from 9-10 PM on four consecutive days was averaged for each of the property boundary locations; this average is presented Table 4 as the “Ambient $L_{EQ\ HOUR}$ ” for reference in this policy analysis. Note that the sound levels for normal speaker system operation at the north and west property lines would fall below the recorded average ambient levels. For the south property line, measurements were not taken, but the predicted speaker noise levels would fall below the lowest ambient levels recorded at any of the property boundaries.

For the eastern property boundary, the sound level from all speakers in announcement mode would equal 41 dBA L_{EQ} compared to the recorded average of 38 dBA $L_{EQ\ HOUR}$ from 9-10 PM at this property line. Since this represents up to a 3 dBA increase over ambient, the sound would be considered audible 50 feet from the eastern property boundary, which would constitute a potential conflict with the noise ordinance. However, placing the speakers for the amphitheater along the east side of the stage and seating areas, and orienting these speakers to the northwest (pointing into the audience, and away from the eastern property boundary), would reduce the normal speaker operational levels to 29 dBA L_{EQ} along the eastern property boundary. This level would fall below ambient, and would therefore comply with the noise ordinance. Refer to the mitigation discussion below regarding the amphitheater speaker placement and orientation.

Traditional Events /Activities Speaker Noise Levels

For Café Ezra, it is assumed that sound levels could reach up to 70 dBA L_{eq} at 21 feet from the speakers (reasonable as a background music level to accompany conversation). It is assumed that speakers at the northeast, east, and southeast of the dining hall would be employed, facing generally eastward. Structures exist between the dining hall and the closest off-site residence to

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the east, north, northeast, and east; the analysis does not take into account this structural shielding, and is therefore a conservative evaluation.

For the Israeli Dance event, it is assumed that sound levels could reach up to 85 dBA L_{eq} at 21 feet from the speakers (which would address reasonable amplification for a general dance function, excluding those which would be associated with a live rock concert type of event). It is assumed that three portable speakers would be employed, facing northward along the southern tennis court boundary. Structures exist between the tennis court and the closest off-site residence to the northeast and to the west; the analysis does not take into account this structural shielding, and is therefore a conservative evaluation. There are no structures between the amphitheater location and the northern property boundary.

For musical performances in the amphitheater, it is assumed that sound levels could again reach up to 85 dBA L_{eq} at 21 feet from the speakers (which is considered reasonable for vocal ensemble performances, small musical combos, orchestral performances, and light “rock” music performances, excluding heavy metal or hard rock bands). Structures exist directly to the north and west of the amphitheater, but the analysis does not take into account any structural shielding. There are no structures between the amphitheater and the closest residences east or northeast.

The results of the analysis of average noise levels during the described traditional activities/events for the closest adjacent property boundary to the north, west, and east are presented in *Table 5*. Refer to *Appendix F* for a spreadsheet of the calculations for the speaker analysis.

Table 5			
Average Noise Level During Traditional Events/Activities			
Event	West Property Line dBA CNEL	North Property Line dBA CNEL	East Property Line dBA CNEL
Café Ezra	27	17	35
Israeli Dance	46	43	39
Performance Night	32	43	61
Ambient ¹ (L_{EQ} HOUR)	37	35	35

Table Note: ¹ Average hourly sound level from 10-11 PM from four day measurement data.

Noise Element Policy Analysis – Traditional Events/Activities

Referring to *Table 5* data, and in accordance with Noise Element Policy 2.16.2 (4), the calculated noise level for the Café’ Ezra event at each property boundary would comply with the most

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restrictive noise limit of 45 dBA L_{eq} , which is applicable in the period from 10 PM to 6 AM. The Café Ezra event would therefore comply with noise element policies, as proposed. Refer to *Appendix F* for the calculation results.

Again with reference to *Table 5*, the calculated noise levels for the Israeli Dance event at each property boundary would comply with the noise restrictions for the periods 6 AM to 7 PM, and from 7 PM to 10 PM; however, it would exceed the 45 dBA L_{eq} applicable in the period from 10 PM to 6 AM. Consequently, sound mitigation would be required in order for the dance event to extend beyond 10 PM; sound mitigation would also be required in order for the Israeli Dance event to comply with the noise ordinance, which is discussed in greater detail below.

Finally, referring to *Table 5*, the calculated noise levels for the Performance Night event would exceed even the most lenient noise restrictions for the periods 6 AM to 7 PM (55 dBA L_{eq}) at the east property boundary, with more substantial exceedance of the evening (55 dBA L_{eq}) and nighttime (45 dBA L_{eq}) restrictions. Consequently, sound mitigation would be required in order for the Performance Night event to take place at any time; sound mitigation would also be required in order for the Performance Night event to comply with the noise ordinance, which is discussed in greater detail below.

Noise Ordinance Policy Analysis - Traditional Events/Activities

The noise ordinance (Ventura County Municipal Code Sec. 6299-1 - Loud or Raucous Noise Prohibition) prohibits the generation of noise from amplified sound systems which is audible to the human ear during the hours of 9 PM to 7 AM of the following day, at a distance of 50 feet from the property line of the noise source. We have defined “audible” sound level as being at least 2 dBA greater than the ambient noise level. Data from the four day sound level measurements was used to compile the hourly average noise level during the hour of concern, from 10 PM to 11 PM. The noise ordinance restriction has a start time of 9 PM, however, noise levels were found to be somewhat greater from 9 PM to 10 PM as compared to those in the period 10 PM to 11 PM, so to capture the lowest ambient levels across the proposed event durations, we used the slightly lower ambient noise levels for the 10 PM to 11 PM hour as ambient. The measurement data for the period from 10-11 PM on four consecutive days was averaged for each of the property boundary locations; this average is presented Table 5 as the “Ambient $L_{EQ\ HOUR}$ ” for reference in this policy analysis.

Referring to *Table 5* data, and in accordance with VCMC Sec. 6299-1, the calculated noise level for the Café Ezra event at each property boundary would be less than or equal to the existing average ambient noise level, and therefore would be inaudible compared to ambient noise.

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Consequently, the Café Ezra event would comply with noise ordinance, as proposed. Refer to *Appendix F* for the calculation results.

Again with reference to *Table 5*, the calculated noise levels for the Israeli Dance event at each property boundary would exceed the existing average ambient noise level by 4 dBA or more; this sound level would be considered audible 50 feet from the eastern property boundary, which would constitute a potential conflict with the noise ordinance. Consequently, sound mitigation would be required in order for the Israeli Dance event to comply with the noise ordinance; refer to the mitigation section below for additional detail.

Finally, referring to *Table 5*, the calculated noise levels for the Performance Night event at the east and north property boundary would exceed the existing average ambient noise level by 8 dBA or more; this sound level would be considered audible 50 feet from the eastern property boundary, which would constitute a potential conflict with the noise ordinance. Consequently, sound mitigation would be required in order for the Performance Night event to comply with the noise ordinance; refer to the mitigation section below for additional detail.

4.1.2 Mitigation Measures

In order to avoid a significant nuisance noise impact associated with potentially violating the Noise Ordinance, the following mitigation measures are required.

MM-1 Routine Speaker Operations / Performance Night Event – Amphitheater Speakers

The speakers for the amphitheater shall be installed at the eastern end of the stage area, and along the eastern side of the seating area, and shall be oriented northwest. No amphitheater speakers shall be oriented toward the eastern property boundary.

MM-2 Israeli Dance Event

Acoustic blankets shall be installed on the fencing along the west, north, and east side of the tennis courts before Israeli Dance events are held there with a planned schedule which goes any later than 9 PM. The blankets must be installed with no gaps, and should extend from the ground to a height of 8 feet above the ground. The sound blankets shall have an STC rating of a minimum of 25.

Significance After Mitigation

Potentially significant nuisance noise impacts would be reduced to less than significant with incorporation of the above mitigation measure. *Table 6* illustrates noise levels with incorporation

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

of the required mitigation measures. Noise levels at property lines would fall below ambient levels, and as such would comply with the noise ordinance.

Table 6 Average Noise Level During Traditional Events/Activities With Mitigation			
Event	West Property Line dBA CNEL	North Property Line dBA CNEL	East Property Line dBA CNEL
Israeli Dance	36	33	29
Performance Night	35	34	29
Ambient ¹ (L _{EQ} HOUR)	37	35	35

Noise Assessment Technical Report for the Camp Rama CUP Amendment Project

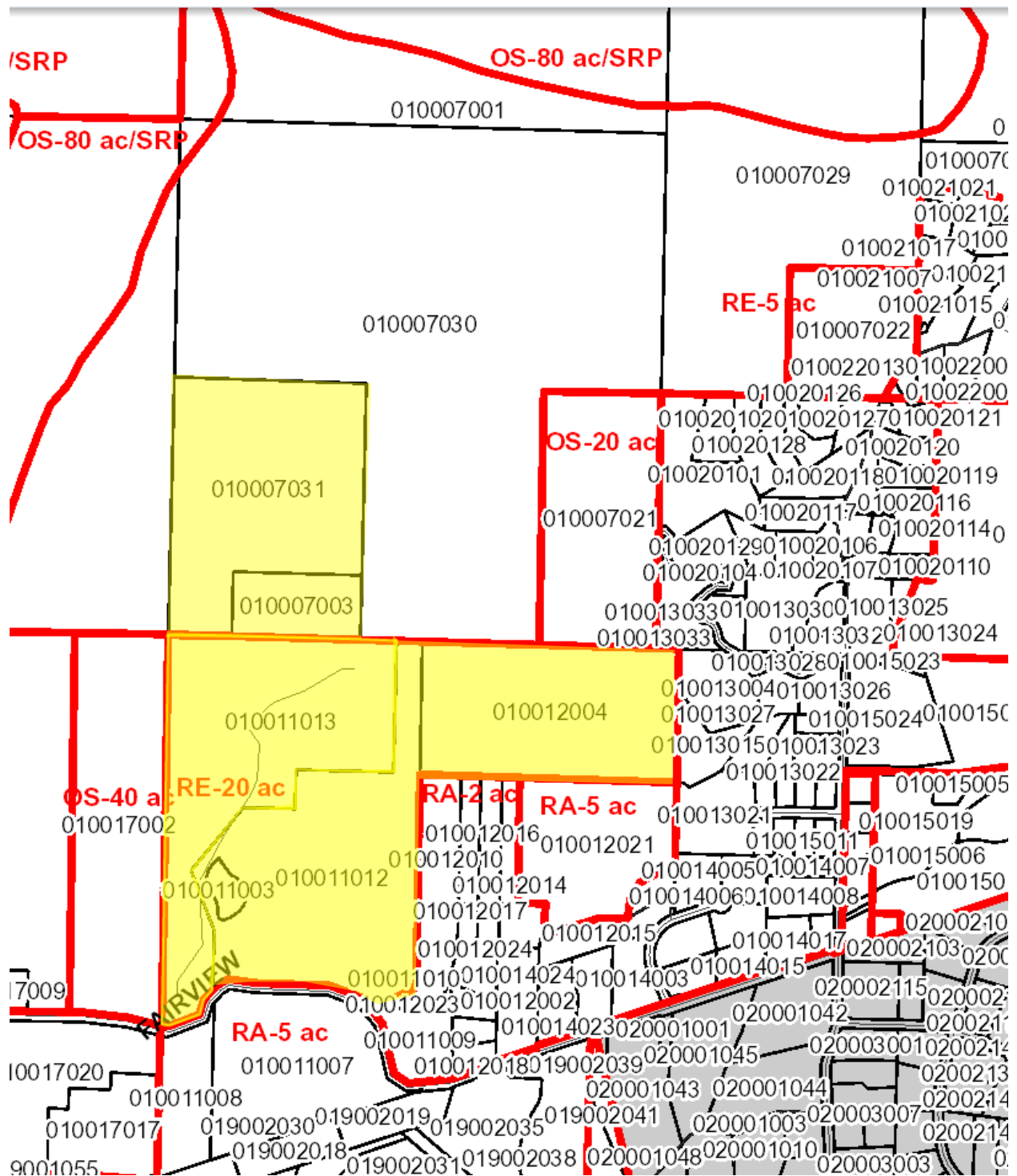
5.0 REFERENCES

Caltrans (California Department of Transportation). 1980. *Fundamentals and Abatement of Highway Traffic Noise*. September 1980.

Ventura County General Plan, Noise Element, 2015

Ventura County, Noise Ordinance, 1996

APPENDIX A
Zoning Map



ZONING DESIGNATIONS

Camp Ramah & Surrounding Properties

APPENDIX B

Schematic Plans for Proposed Macron Complex



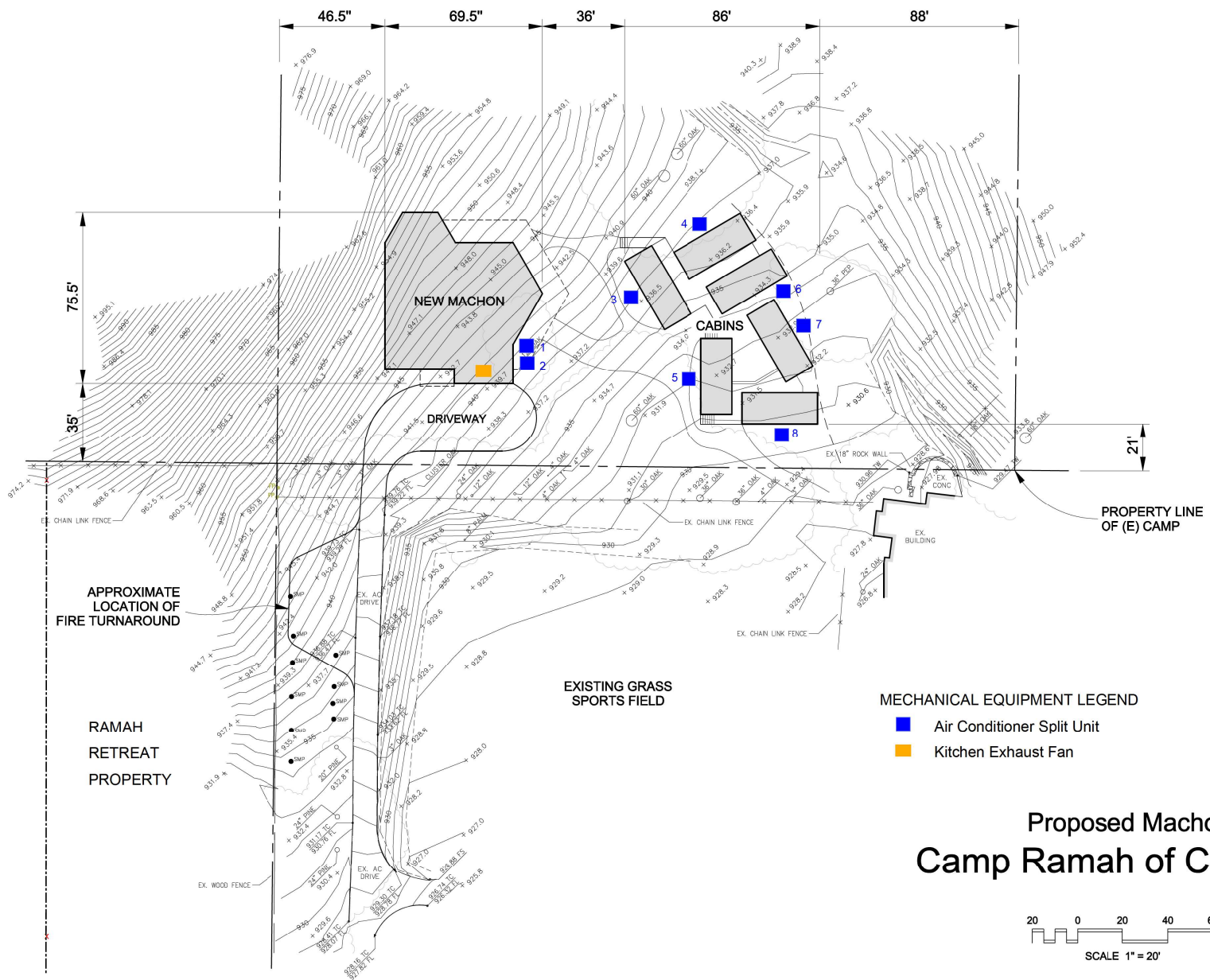
Revisions		
No.	Description	Date

JANE CARROLL DESIGN
206 N. SIGNAL, SUITE R, OJAI, CALIFORNIA 93023
TEL: (805) 646-6450 FAX: (805) 646-6459
www.janecarrolldesign-ojai.com janecarroll@vnet.com

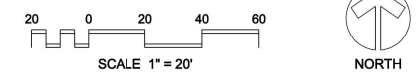
Second Floor Plan

Camp Ramah of California
385 Fairview Road
Ojai, California
APN:

OWNER	NP
DATE	04-11-2018
SCALE	1/8" = 1'-0"
SHEET	A2



Site Plan Proposed Machon Location Camp Ramah of California



Revisions		
No.	Description	Date

JANE CARROLL DESIGN
 206 N. SIGNAL, SUITE R., OJAI, CALIFORNIA 93023
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 www.janecarrolldesign-ojai.com janecarroll@vnet.com

Machon Site Plan

Camp Ramah of California
 385 Fairview Road
 Ojai, California
 APN:

APPENDIX C

Proposed Speaker Layout Diagram



AMPLIFIED SOUND

1. DINING ROOM LAWN
FACING N.E. + @ E.A. CORNER
2. FIRE PIT @ BOY'S TENT
AREA (TEMP)
FACING S.W.
3. TENNIS COURTS
FACING N. (TEMP)
4. AMPHITHEATER
5. GIRLS' GAZEBO (INSIDE)
6. EMERGENCY ALARM
CALL DIRECTIONS

EXISTING CONDITIONS CAMP RAMAH OF CALIFORNIA

APPENDIX D

*Ambient Noise
Measurement Data*

Rec 2 to 97

Date hh:mm	Manager PL	EDAH PL	Reservoir PL	Bench PL	
5/27/2016 11:00 1.0 hour	50.4		49.5	45.6	46.6
5/27/2016 12:00 1.0 hour	50.5		46.1	43.3	44.5
5/27/2016 13:00 1.0 hour	44.3		50	43.6	47.1
5/27/2016 14:00 1.0 hour	43.7		47.6	43.7	47.4
5/27/2016 15:00 1.0 hour	47.5		46.2	45.3	46.3
5/27/2016 16:00 1.0 hour	46.7		42.5	41	42.2
5/27/2016 17:00 1.0 hour	45.7		43.3	39.2	42.7
5/27/2016 18:00 1.0 hour	48.2		44.6	39	43.5
5/27/2016 19:00 1.0 hour	44.4		43.4	39.6	40.6
5/27/2016 20:00 1.0 hour	45.3		44.6	38.1	39.3
5/27/2016 21:00 1.0 hour	44.3		49.5	43.6	47.1
5/27/2016 22:00 1.0 hour	36.4		43.1	36.4	40.9
5/27/2016 23:00 1.0 hour	34.4		42.2	32.2	33.2
5/28/2016 0:00 1.0 hour	33.2		42.6	32.1	33.3
5/28/2016 1:00 1.0 hour	33.2		43.6	32	35.5
5/28/2016 2:00 1.0 hour	37		44.2	32	36.5
5/28/2016 3:00 1.0 hour	32.9		44.2	32	33
5/28/2016 4:00 1.0 hour	36.2		45.1	32	33.2
5/28/2016 5:00 1.0 hour	45.9		48.7	45.2	47
5/28/2016 6:00 1.0 hour	43.9		52.2	46.5	51
5/28/2016 7:00 1.0 hour	46.6		51.2	44.4	45.4
5/28/2016 8:00 1.0 hour	42.6		54.6	41.5	42.7
5/28/2016 9:00 1.0 hour	47.7		48.3	46.5	48.1
5/28/2016 10:00 1.0 hour	50.7		46	45.7	49.1
5/28/2016 11:00 1.0 hour	47.1		41.1	46.2	47.2
5/28/2016 12:00 1.0 hour	44.8		54.7	42	43.2
5/28/2016 13:00 1.0 hour	46		61.1	45.3	46.9
5/28/2016 14:00 1.0 hour	47.4		50.1	42.6	46
5/28/2016 15:00 1.0 hour	43.4		50.9	36.2	37.2
5/28/2016 16:00 1.0 hour	42.4		49.4	41.7	42.9
5/28/2016 17:00 1.0 hour	45.5		48	46.6	48.2
5/28/2016 18:00 1.0 hour	42.3		56	40.1	42
5/28/2016 19:00 1.0 hour	42.3		49.6	38.9	40.8
5/28/2016 20:00 1.0 hour	41.7		42.4	36.8	38
5/28/2016 21:00 1.0 hour	40.3		35.1	37.1	38.7
5/28/2016 22:00 1.0 hour	37.7		32	36.6	37.5
5/28/2016 23:00 1.0 hour	34.2		32	32	33.9
5/29/2016 0:00 1.0 hour	33		32	32.3	33.5
5/29/2016 1:00 1.0 hour	33.8		32	33.8	35.4
5/29/2016 2:00 1.0 hour	33.2		32	32	32.9
5/29/2016 3:00 1.0 hour	32.8		32	32	33.9
5/29/2016 4:00 1.0 hour	35		32	33.8	34
5/29/2016 5:00 1.0 hour	44.2		41.4	39.2	40
5/29/2016 6:00 1.0 hour	41.3		33	40.4	41.3
5/29/2016 7:00 1.0 hour	45.7		41.1	41.5	43.4

5/29/2016 8:00 1.0 hour	42	30	41.3	41.5
5/29/2016 9:00 1.0 hour	44	43.4	42.6	43.4
5/29/2016 10:00 1.0 hour	44	48.7	46.5	47.4
5/29/2016 11:00 1.0 hour	49.6	55.6	48.5	50.4
5/29/2016 12:00 1.0 hour	44.2	41.7	43	43.2
5/29/2016 13:00 1.0 hour	45.6	47	42.5	43.3
5/29/2016 14:00 1.0 hour	45.8	43.1	44.9	45.8
5/29/2016 15:00 1.0 hour	45.6	48.1	42.8	44.7
5/29/2016 16:00 1.0 hour	50.6	43.6	49.9	50.1
5/29/2016 17:00 1.0 hour	45	42.5	41.1	41.9
5/29/2016 18:00 1.0 hour	45.9	41.9	39.9	40.8
5/29/2016 19:00 1.0 hour	39.4	41.6	38.7	40.6
5/29/2016 20:00 1.0 hour	40.4	39.7	41.5	41.7
5/29/2016 21:00 1.0 hour	39.7	44.9	37.5	38.3
5/29/2016 22:00 1.0 hour	34.4	40.1	33.6	34.5
5/29/2016 23:00 1.0 hour	34.4	36.6	32	33.9
5/30/2016 0:00 1.0 hour	33.5	34.5	32	32.2
5/30/2016 1:00 1.0 hour	33	34.8	32	32.8
5/30/2016 2:00 1.0 hour	32.7	33.9	32	32.9
5/30/2016 3:00 1.0 hour	32.5	33.3	32	33.9
5/30/2016 4:00 1.0 hour	35.2	38.2	34.7	34.9
5/30/2016 5:00 1.0 hour	45.7	48.5	44.5	45.3
5/30/2016 6:00 1.0 hour	46.1	50.7	45.3	46.2
5/30/2016 7:00 1.0 hour	46.8	51.4	45.6	47.5
5/30/2016 8:00 1.0 hour	46.2	58.2	44.6	44.8
5/30/2016 9:00 1.0 hour	44.9	45.5	44	44.8
5/30/2016 10:00 1.0 hour	44.8	40.1	40.6	41.5
5/30/2016 11:00 1.0 hour	45.7	39.7	45	46.9
5/30/2016 12:00 1.0 hour	43.4	45.9	44.1	44.3
5/30/2016 13:00 1.0 hour	44.1	42.7	43	43.8
5/30/2016 14:00 1.0 hour	47.3	50	46.2	47.1
5/30/2016 15:00 1.0 hour	52.7	50.2	51.5	53.4
5/30/2016 16:00 1.0 hour	44	51	40.9	41.1
5/30/2016 17:00 1.0 hour	41	43.5	40.1	40.9
5/30/2016 18:00 1.0 hour	39.1	43.1	36.3	37.2
5/30/2016 19:00 1.0 hour	39.1	36.9	38.4	40.3
5/30/2016 20:00 1.0 hour	35.7	36.4	32	32.2
5/30/2016 21:00 1.0 hour	34.6	32	32	32.8
5/30/2016 22:00 1.0 hour	32.9	32	32	32.9
5/30/2016 23:00 1.0 hour	32.7	32	33.8	35.7
5/31/2016 0:00 1.0 hour	33.1	32.1	32	32.2
5/31/2016 1:00 1.0 hour	33	32	32.2	33
5/31/2016 2:00 1.0 hour	32.7	32	32	32.9
5/31/2016 3:00 1.0 hour	32.5	32	32	33.9
5/31/2016 4:00 1.0 hour	36.8	33.8	35.8	36
5/31/2016 5:00 1.0 hour	43.5	40.7	42.8	43.6
5/31/2016 6:00 1.0 hour	42.6	38	42.1	43

5/31/2016 7:00 1.0 hour	43	38.4	42.5	44.4
5/31/2016 8:00 1.0 hour	46	34	44.8	45
5/31/2016 9:00 1.0 hour	43.5	42.9	42.7	43.5
5/31/2016 10:00 1.0 hour	47.8	52.5	46.6	47.5

Date hh:mm	Leq			
	Fri	Sat	Sun	Mon
5/27/2016 11:00	50.4	47.1	49.6	45.7
5/27/2016 12:00	50.5	44.8	44.2	43.4
5/27/2016 13:00	44.3	46	45.6	44.1
5/27/2016 14:00	43.7	47.4	45.8	47.3
5/27/2016 15:00	47.5	43.4	45.6	52.7
5/27/2016 16:00	46.7	42.4	50.6	44
5/27/2016 17:00	45.7	45.5	45	41
5/27/2016 18:00	48.2	42.3	45.9	39.1
5/27/2016 19:00	44.4	42.3	39.4	39.1
5/27/2016 20:00	45.3	41.7	40.4	35.7
5/27/2016 21:00	44.3	40.3	39.7	34.6
5/27/2016 22:00	36.4	37.7	34.4	32.9
5/27/2016 23:00	34.4	34.2	34.4	32.7
5/28/2016 0:00	33.2	33	33.5	33.1
5/28/2016 1:00	33.2	33.8	33	33
5/28/2016 2:00	37	33.2	32.7	32.7
5/28/2016 3:00	32.9	32.8	32.5	32.5
5/28/2016 4:00	36.2	35	35.2	36.8
5/28/2016 5:00	45.9	44.2	45.7	43.5
5/28/2016 6:00	43.9	41.3	46.1	42.6
5/28/2016 7:00	46.6	45.7	46.8	43
5/28/2016 8:00	42.6	42	46.2	46
5/28/2016 9:00	47.7	44	44.9	43.5
5/28/2016 10:00	50.7	44	44.8	47.8
CNEL	48.9	46.6	48.2	46.7
LDN	48.4	46.3	48.1	46.6

Manager House Property Line

Date hh:mm	Leq			
	Fri	Sat	Sun	Mon
5/27/2016 11:00	49.5	41.1	55.6	39.7
5/27/2016 12:00	46.1	54.7	41.7	45.9
5/27/2016 13:00	50	61.1	47	42.7
5/27/2016 14:00	47.6	50.1	43.1	50
5/27/2016 15:00	46.2	50.9	48.1	50.2
5/27/2016 16:00	42.5	49.4	43.6	51
5/27/2016 17:00	43.3	48	42.5	43.5
5/27/2016 18:00	44.6	56	41.9	43.1
5/27/2016 19:00	43.4	49.6	41.6	36.9
5/27/2016 20:00	44.6	42.4	39.7	36.4
5/27/2016 21:00	49.5	35.1	44.9	32
5/27/2016 22:00	43.1	32	40.1	32
5/27/2016 23:00	42.2	32	36.6	32
5/28/2016 0:00	42.6	32	34.5	32.1
5/28/2016 1:00	43.6	32	34.8	32
5/28/2016 2:00	44.2	32	33.9	32
5/28/2016 3:00	44.2	32	33.3	32
5/28/2016 4:00	45.1	32	38.2	33.8
5/28/2016 5:00	48.7	41.4	48.5	40.7
5/28/2016 6:00	52.2	33	50.7	38
5/28/2016 7:00	51.2	41.1	51.4	38.4
5/28/2016 8:00	54.6	30	58.2	34
5/28/2016 9:00	48.3	43.4	45.5	42.9
5/28/2016 10:00	46	48.7	40.1	52.5
CNEL	53.5	51.1	52	46.1
LDN	53.3	50.8	51.8	46

EDAH PL

	Leq				
Date hh:mm	Fri	Sat	Sun	Mon	
5/27/2016 11:00		45.6	46.2	48.5	45
5/27/2016 12:00		43.3	42	43	44.1
5/27/2016 13:00		43.6	45.3	42.5	43
5/27/2016 14:00		43.7	42.6	44.9	46.2
5/27/2016 15:00		45.3	36.2	42.8	51.5
5/27/2016 16:00		41	41.7	49.9	40.9
5/27/2016 17:00		39.2	46.6	41.1	40.1
5/27/2016 18:00		39	40.1	39.9	36.3
5/27/2016 19:00		39.6	38.9	38.7	38.4
5/27/2016 20:00		38.1	36.8	41.5	32
5/27/2016 21:00		43.6	37.1	37.5	32
5/27/2016 22:00		36.4	36.6	33.6	32
5/27/2016 23:00		32.2	32	32	33.8
5/28/2016 0:00		32.1	32.3	32	32
5/28/2016 1:00		32	33.8	32	32.2
5/28/2016 2:00		32	32	32	32
5/28/2016 3:00		32	32	32	32
5/28/2016 4:00		32	33.8	34.7	35.8
5/28/2016 5:00		45.2	39.2	44.5	42.8
5/28/2016 6:00		46.5	40.4	45.3	42.1
5/28/2016 7:00		44.4	41.5	45.6	42.5
5/28/2016 8:00		41.5	41.3	44.6	44.8
5/28/2016 9:00		46.5	42.6	44	42.7
5/28/2016 10:00		45.7	46.5	40.6	46.6
	CNEL	47.4	44.5	47.1	45.9
	LDN	47.2	44.3	46.8	45.8

Reservoir PL

Date hh:mm	Leq				
	Fri	Sat	Sun	Mon	
5/27/2016 11:00		46.6	47.2	50.4	46.9
5/27/2016 12:00		44.5	43.2	43.2	44.3
5/27/2016 13:00		47.1	46.9	43.3	43.8
5/27/2016 14:00		47.4	46	45.8	47.1
5/27/2016 15:00		46.3	37.2	44.7	53.4
5/27/2016 16:00		42.2	42.9	50.1	41.1
5/27/2016 17:00		42.7	48.2	41.9	40.9
5/27/2016 18:00		43.5	42	40.8	37.2
5/27/2016 19:00		40.6	40.8	40.6	40.3
5/27/2016 20:00		39.3	38	41.7	32.2
5/27/2016 21:00		47.1	38.7	38.3	32.8
5/27/2016 22:00		40.9	37.5	34.5	32.9
5/27/2016 23:00		33.2	33.9	33.9	35.7
5/28/2016 0:00		33.3	33.5	32.2	32.2
5/28/2016 1:00		35.5	35.4	32.8	33
5/28/2016 2:00		36.5	32.9	32.9	32.9
5/28/2016 3:00		33	33.9	33.9	33.9
5/28/2016 4:00		33.2	34	34.9	36
5/28/2016 5:00		47	40	45.3	43.6
5/28/2016 6:00		51	41.3	46.2	43
5/28/2016 7:00		45.4	43.4	47.5	44.4
5/28/2016 8:00		42.7	41.5	44.8	45
5/28/2016 9:00		48.1	43.4	44.8	43.5
5/28/2016 10:00		49.1	47.4	41.5	47.5
	CNEL	50.6	45.8	48	46.9
	LDN	50.3	45.5	47.8	46.8

Bench PL

APPENDIX E

Noise Calculation Worksheets for Proposed Mechanical Equipment

Scenario: Western Adjacent PL in Line (west side of retreat)

Source	Source Noise Level	Source Reference Distance	Number of Units	Distance to Nearest Receiver / PL	Distance Attenuation	Noise Level at Receiver
Compressor 1 (ARUN036GS2)	52	3.3	1	300	39.2	12.8
Compressor 2 (ARUN036GS2)	52	3.3	1	300	39.2	12.8
Compressor 3 (ARUN036GS2)	52	3.3	1	325	39.9	12.1
Compressor 5 (ARUN036GS2)	52	3.3	1	285	38.7	13.3
Compressor 6 (ARUN036GS2)	52	3.3	1	365	40.9	11.1
Compressor 8 (ARUN036GS2)	52	3.3	1	325	39.9	12.1
Kitchen Exhaust	56	10	1	220	26.8	29.2
				Cumulative		29.7

Scenario: Easter Adjacent PL

Source	Source Noise Level	Source Reference Distance	Number of Units	Distance to Nearest Receiver / PL	Distance Attenuation	Noise Level at Receiver
Compressor 4 (ARUN036GS2)	52	3.3	1	140	32.6	19.4
Compressor 6 (ARUN036GS2)	52	3.3	1	100	29.6	22.4
Compressor 7 (ARUN036GS2)	52	3.3	1	92	28.9	23.1
Compressor 8 (ARUN036GS2)	52	3.3	1	100	29.6	22.4
				Cumulative		28.0

APPENDIX F

Outdoor Amplified Sound System Noise Level Calculation Worksheets

Scenario: Eastern Property Line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Emergency East	65	21	1	865	40.4	24.6
Dining East	65	21	1	755	38.9	26.1
Dining NE	54	13	1	755	44.1	9.9
Dining South	54	13	1	755	44.1	9.9
Amphiteater W1	56	21	1	115	18.5	37.5
Amphiteater W2	56	21	1	115	18.5	37.5

Cumulative LEQ 40.8

Cumulative LEQ Without Amphitheater East-Facing Speakers: 28.6

Scenario: Southern Property Line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Emergency South	65	21	1	1045	42.4	22.6
Boys Tent Village	65	21	1	1035	42.3	22.7
Dining South	65	21	1	1250	44.4	20.6

Cumulative LEQ 26.8

Scenario: Western Property Line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Emergency West	65	21	1	670	37.6	27.4
Dining South	65	21	1	650	37.3	27.7
Boys Tent Village	54	13	1	660	42.6	11.4

Cumulative LEQ 30.6

Scenario: Northern Property Line All Speaker Sources

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
Emergency North	65	21	1	1020	42.2	22.8
Dining North	65	21	1	735	38.6	26.4
Dining NE	56	21	1	735	38.6	17.4
Tennis	56	21	1	925	41.1	14.9
Amphiteater W.	65	21	1	745	38.7	26.3
Amphiteater E.	65	21	1	745	38.7	26.3
Amphiteater W.	65	21	1	730	38.5	26.5
Amphiteater E.	65	21	1	730	38.5	26.5

Cumulative LEQ 33.9

Scenario: Israeli Dance - North Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
TC Speaker 1	85	21	1	1760	48.1	36.9
TC Speaker 2	85	21	1	1760	48.1	36.9
TC Speaker 3	85	21	1	1760	48.1	36.9
TC Speaker 4	85	21	1	1760	48.1	36.9
Cumulative LEQ						42.9

Scenario: Israeli Dance - East Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
TC Speaker 1	76	21	1	1140	43.4	32.6
TC Speaker 2	76	21	1	1120	43.2	32.8
TC Speaker 3	76	21	1	1080	42.8	33.2
TC Speaker 4	76	21	1	1060	42.6	33.4
Cumulative LEQ						39.1

Scenario: Israeli Dance - West Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
TC Speaker 1	76	21	1	520	34.8	41.2
TC Speaker 2	76	21	1	540	35.3	40.7
TC Speaker 3	76	21	1	580	36.0	40.0
TC Speaker 4	76	21	1	600	36.4	39.6
Cumulative LEQ						46.4

Scenario: Café Ezra - North Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
DH Speaker 1	61	21	1	1750	48.0	13.0
DH Speaker 2	61	21	1	1810	48.4	12.6
DH Speaker 3	61	21	1	1870	48.7	12.3
Cumulative LEQ						17.4

Scenario: Café Ezra - East Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
DH Speaker 1	70	21	1	780	39.2	30.8
DH Speaker 2	70	21	1	860	40.3	29.7
DH Speaker 3	70	21	1	940	41.3	28.7
Cumulative LEQ						34.6

Scenario: Café Ezra - West Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
DH Speaker 1	61	21	1	810	39.7	21.3
DH Speaker 2	61	21	1	785	39.3	21.7
DH Speaker 3	61	21	1	760	39.0	22.0
Cumulative LEQ						26.5

Scenario: Amphitheater Performance - North Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
West Speaker 1	76	21	1	745	38.7	37.3
West Speaker 2	76	21	1	770	39.1	36.9
East Speaker 1	76	21	1	745	38.7	37.3
East Speaker 2	76	21	1	770	39.1	36.9

Cumulative LEQ 43.1

Scenario: Amphitheater Performance - East Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
West Speaker 1	76	21	1	115	18.5	57.5
West Speaker 2	76	21	1	115	18.5	57.5

Cumulative LEQ 60.5

Westerly Facing Speakers Only: Ambient

Scenario: Amphitheater Performance - West Property line

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
West Speaker 1	76	21	1	1625	47.2	28.8
West Speaker 2	76	21	1	1625	47.2	28.8

Cumulative LEQ 31.8

Scenario: Amphitheater Performance - West PL, West Facing Speakers (4)

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
West Speaker 1	76	21	1	1625	47.2	28.8
West Speaker 2	76	21	1	1625	47.2	28.8
West Speaker 3	76	21	1	1625	47.2	28.8
West Speaker 4	76	21	1	1625	47.2	28.8

Cumulative LEQ 34.8

Scenario: Amphitheater Performance - Northwest Property Line Closest Point

Source	Source Noise Level	Source Reference Distance	Number of Loudspeakers	Distance to Nearest Property Line	Distance Attenuation	Noise Level at Property Line (LEQ dBA)
West Speaker 1	76	21	1	1825	48.5	27.5
West Speaker 2	76	21	1	1825	48.5	27.5
West Speaker 3	76	21	1	1825	48.5	27.5
West Speaker 4	76	21	1	1825	48.5	27.5

Cumulative LEQ 33.5

APPENDIX G

Acoustic Blanket Manufacturer Data



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Acoustical Ceiling Tiles

Acoustical Fabric Selection
(<http://www.acousticals-surfaces.com>)



BBC-EXT-R-2 Noise Barrier/Sound Absorber Sound Blankets

BBC-EXT-R-2 offers the benefits of both a noise barrier and a sound absorber composite in one product. This BBC product consists of an exterior grade, UV resistant

bonded to a one-pound per sq. ft. reinforced loaded vinyl barrier. The heavy-duty facing is a 10 oz per sq yd vinyl-coated-polyester (VCP) quilted to the sound absorber rather than the standard 4.5 oz facing. Curtain panels are constructed with grommets across the top and bottom and exterior grade Velcro seals along the vertical edges.

STC = 33

NRC = .75

Facing Colors on Quilt:
Gray, Tan, Black or White

Barrier Colors:
Gray, Tan, Olive or Blue

Product Testing & Information

Product Specs
(<http://www.acoustical>)

Testimonial:

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Acoustimetal™ Perforated Metal Panels
(<http://www.acousticalsurfaces.com>)

Acoustic Enclosures

Acoustic Quilted Curtain

Absorptive Quilted Curtains
(<http://www.acousticalsurfaces.com>)

Curtain Hardware
(<http://www.acousticalsurfaces.com>)

Echo Barrier
(<http://www.acousticalsurfaces.com/barrier/echo-barrier.html>)

Enclosures
(<http://www.acousticalsurfaces.com>)

Exterior Sound Blanket – Reinforced
(<http://www.acousticalsurfaces.com>)

Insul-Quilt Blankets
(<http://www.acousticalsurfaces.com/quilt.html>)

Portable Acoustical Enclosures & Screens
(<http://www.acousticalsurfaces.com>)

QFA Absorptive Exterior Grade Curtain
(<http://www.acousticalsurfaces.com/absorbtive-curtain.html>)

QFA – Absorptive Quilted Curtain
(<http://www.acousticalsurfaces.com>)

Silicone Curtains

Acoustic/Soundproof Doors
(<http://www.acousticalsurfaces.com>)

Acoustic Windows – Inserts

Adjustable Cutters – Sprinkler Cutter
(<http://www.acousticalsurfaces.com/cutters/index.html>)

Adjustable Door Seals

CFAB™ Cellulose Panels
(<http://www.acousticalsurfaces.com/panel/cellulose-panels.html>)

dBa Panels
(<http://www.acousticalsurfaces.com>)

Decorative Fabric Wrapped Panels

Designer Acoustical Curtains
(<http://www.acousticalsurfaces.com>)

Echo Eliminator™

Electronics – Sound Level Meters

Flooring Underlays

Hanging Acoustical Baffles

Hvac Products / Silencers

Micro-perforated Ceiling & Wall Panels
(<http://www.acousticalsurfaces.com/micro-perforated-acoustical-panels/>)

Noise Barrier-Noise Blockers

RSIC Sound Isolation Clips

School Noise Management

Sealants – Adhesives – Paints & Compounds

Softwall – Wallmate

Sonex™ Foam Products

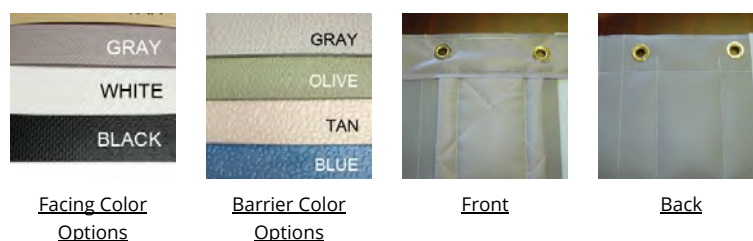
Sound Absorbing Foam

1. Exterior Chiller Enclosure Helps Homeowner Maintain Sanity!
(http://www.acousticalsurfaces.com/curtan_stop/pdf/Enclosure.pdf)
2. Acoustical Blanket Saves the Day by Reducing High Pitch Whiny Sound
(http://www.acousticalsurfaces.com/curtan_stop/pdf/testa/Sound-Blanket-High-Pitch-Reduction-Testimonial.pdf)

Product Specs

MATERIAL	Vinyl coated polyester facing on 2" quilted fiberglass & 1 lb/sf reinforced mass loaded vinyl barrier
FEATURES	Effective and durable absorber with mass loaded vinyl barrier option.
APPLICATIONS	Typically used as modular curtain panels in outdoor applications where high abuse resistance or excellent durability as well as maximum longevity and noise reduction is required. Also used as sliding acoustical doors, durable acoustical jacket on fans or valves, as well as a temporary noise barrier on outdoor construction projects.
WEIGHT	1.45 lb/sf
THICKNESS	Nominal 2"
SIZES	Standard Width: 54"; Roll Length 25'
COLORS	Facing Colors on Quilt – Gray, Tan, Black or White Barrier Colors – Gray, Tan, Olive, or Blue
TEMPERATURE RANGE	-20°F to +180°F

Click on Images to Enlarge



[Front.jpg](#)

[Back.jpg](#)

Sound Blanket – Sound Transmission Loss – ASTM E90 & E 413

Frequency	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	STC
BBC-EXT-R-2	14	20	32	41	42	41	33

Sound Blanket – Sound Absorption Performance – ASTM C423

Frequency	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	NRC
BBC-EXT-R-2	.45	.96	.87	.66	.47	.28	.75

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SoundBreak XP
(<http://www.acousticalsurfaces.co>)

Sound Fighter® Outdoor Barrier
Wall System
(<http://www.acousticalsurfaces.co>)

Sound Masking System

Sound Silencer™

Sound Testing & Acoustical
Analysis Services
(<http://www.acousticalsurfaces.co>)

Soundscreen™ White Noise
Machine
(<http://www.acousticalsurfaces.co>)

Vibration Mounts – Hangers &
Pads

Wall Insulation

Buy Now Pay Later
(<http://www.acousticalsurfaces.co>)

Downloads:

Steel Installation Guide

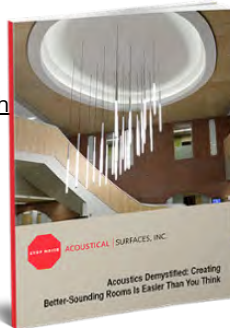
(http://www.acousticalsurfaces.com/curtan_stop/pdf/ext_steel_install.pdf)

Fence Installation Guide

(http://www.acousticalsurfaces.com/curtan_stop/pdf/ext_fence_install.pdf)

Additional Resource

Creating Better- Sounding Rooms



Download eBook

(<http://soundproofing.acousticalsurfaces.com/download-our-ebook-creating-better-sounding-rooms-is-easier-than-you-think>)

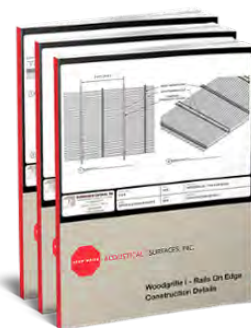
Solutions to Common Noise Problems



Download eBook

(<http://soundproofing.acousticalsurfaces.com/common-noise-problems-ebook>)

CAD, CSI, & Revit Library

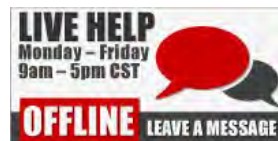


Access Product Cad Files

(<http://soundproofing.acousticalsurfaces.com/common-cad-csi-revit-library>)

Statement of Warranty

(<http://www.acousticalsurfaces.com/ech>) a/1yr W



(<http://www.usgbc.org/>)



(<http://www.nationalsaveenergycoalition.org/>)

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Noise Control Help Line: 1-800-854-2948

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| Sitemap (<http://www.acousticalsurfaces.com/sitemap>)

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