June 2, 2021

Mr. Kyle Mezrahi
THE ALTUM GROUP
6265 Greenwich Drive, Suite 215
San Diego, California 92122

RE: 2700 East Alejo Road Residential Project Focused Noise Analysis
Project No. 19384

Dear Mr. Mezrahi,

Ganddini Group, Inc. is pleased to provide this Focused Noise Analysis for the 2700 East Alejo Road Residential project. The project location map is shown on Figure 1.

This noise study summarizes our methodology, analysis, and findings. Although this is a technical report, effort has been made to write the report clearly and concisely. To assist the reader with technical terms related to noise analysis, a list of common acronyms is provided in Appendix A and a glossary is provided in Appendix B.

PROJECT DESCRIPTION

The 2.53-acre project site is located at the northeast corner of Alejo Road and Juanita Drive, addressed at 2700 East Alejo Road, in the City of Palm Springs, California (APNs: 507-380-019 and 507-380-020). The site is currently vacant. The proposed project involves construction of eight (8) single-family residential dwelling units. The project site plan is shown on Figure 2.

EXISTING SETTING

Existing Land Uses in the Project Vicinity

The project site is bordered by N Commercial Road to the east, Alejo Road to the south, Juanita Drive to the west, and commercial uses to the north to the north of the project site.

The State of California defines sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions. Schools, libraries, churches, hospitals, single and multiple-family residential, including transient lodging, motels and hotel uses make up the majority of these areas. Sensitive land uses that may be affected by project noise include the existing single-family residential dwelling units located approximately 50 feet to the west (across Juanita Drive) and 70 feet southwest (across the intersection of Alejo Road and Juanita Drive) of the project site.

Measured Ambient Noise Levels

An American National Standards Institute (ANSI Section SI.4 2014, Class 1) Larson Davis model LxT sound level meter was used to document existing ambient noise levels. In order to document existing ambient noise levels in the project area, three (3) 15-minute daytime noise measurements were taken between 1:06 PM and 3:01 PM on May 26, 2021. Field worksheets and noise measurement output data are included in Appendix C.

As shown on Figure 3, the noise measurements were taken near the residential uses to the west of the project site (across Juanita Drive) (STNM1), near the residential uses to the southwest of the project site (across the intersection of Juanita Drive and Alejo Road) (STNM2), and near the commercial medical facility use to the east of the project site (across Commercial Road) (STNM3). Error! Reference source not found. provides a summary of the short-term ambient noise data. Short-term ambient noise levels were measured between 54.2 and 58.9 dBA L_{eq}. The dominant noise sources were residential activity, bird song, and airplane noise.

APPLICABLE STANDARDS

City of Palm Springs General Plan[1]

Table 2 shows the City's noise level standards related to land use and acceptable noise levels. Applicable policies and standards governing environmental noise in the City are set forth in the General Plan Noise Element. Those applicable to the proposed project are presented below:

Goal NS1 Protect residential areas and other sensitive land uses from impacts generated by exposure to excessive noise.

Policy NS1.5 Protect noise-sensitive land uses such as schools, hospitals, and convalescent homes from unacceptable noise levels from both existing and future noise sources.

Policy N-1.6 Require mitigation where sensitive uses are to be placed along transportation routes to ensure compliance with state noise standards.

Policy N-1.7 Allow new developments in areas exposed to noise levels greater than 60 dB CNEL only if appropriate mitigation measures are included such that applicable noise standards are met.

Policy N-1.8 Include measures within project design that will assure that adequate interior noise levels are attained as required by the California Building Standards Code (Title 24), California Noise Insulation Standards (Title 25) and pertinent sections of the California Building Code and the City's Municipal Code.

Goal NS2 Minimize, to the greatest extent possible, the impact of transportation related noise on residential areas and other sensitive land uses.

Policy NS2.1 Require noise-attenuating project design or sound barriers to reduce the level of traffic-generated noise on residential and other noise sensitive land uses to acceptable levels.

Policy NS2.24 Maximum compatibility between aircraft operations at Palm Springs International Airport and noise-sensitive land uses within the environs of the airport shall be achieved through compliance with the Noise Compatibility Plan of the FAR Part 150 Noise Compatibility Study.

Goal NS3 Minimize, to the greatest extent possible, the impact of non-transportation-related stationary and temporary noise on residential areas and other sensitive land uses.

[1] City of Santa Ana General Plan Public Hearing Draft Noise Element, October 29, 2020.

Policy NS3.10 Require that construction activities that impact adjacent residential units comply with the hours of operation and noise levels identified in the City Noise Ordinance.

Policy NS3.11 Require that construction activities incorporate feasible and practical techniques which minimize the noise impacts on adjacent uses, such as the use of mufflers and intake silencers no less effective than originally equipped.

City of Palm Springs Municipal Code[2]

Section 11.74.042 Construction

It shall be unlawful for any person within the city to operate construction tools or equipment in the performance of any outside construction or repair work on buildings, structures, or projects except in accordance with Section 8.04.220, of the City's Municipal Code (below).

Section 8.04.220 Limitation of Hours of Construction

a) No person shall be engaged or employed nor shall any person cause any other person to be engaged or employed in any work of construction, erection, alteration, repair, addition to, or improvement of any realty, building or structure, except during the hours of 7:00 AM to 7:00 PM on weekdays and 8:00 AM to 5:00 PM on Saturdays, if the noise or other sound produced by such work is of such intensity or quality that it disturbs the peace and quiet of any other person of normal sensitivity. Construction work is not permitted on Sundays and holidays (incudes Thanksgiving Day, Christmas Day, New Years Day, July 4th, Labor Day and Memorial Day). For new construction, the permitted hours of construction shall be conspicuously posted on site.

b) Any person doing or causing work prohibited by subsection (a) of this section, after being informed orally or in writing that such work has caused noise or sounds which disturb any other person's peace and quiet, shall immediately cease such work and shall thereafter perform such work only within the times permitted in subsection (a) of this section.

Exceptions:

1) Emergency repair of existing installations, equipment, or appliances;
2) Construction work complying with the terms of a written early work permit which may be issued by the building official upon a showing of sufficient need due to circumstances of an unusual or compelling nature;
3) Work being conducted in the public right-of-way under the authority of the engineering department shall be allowed on a daily basis between seven a.m. and three-thirty p.m. except weekends and holidays unless otherwise approved by the city engineer;
4) Public servicerelated maintenance work including, but not limited to, street and sidewalk maintenance and cleaning, public golf course maintenance and public park maintenance;
5) Activities conducted as part of the implementation of an approved fugitive dust control program.

[2] City of Santa Ana Municipal Code. 2019.

ANALYTICAL METHODOLOGY AND MODEL PARAMETERS

Construction Noise Modeling

Construction noise associated with the proposed project was calculated at the sensitive receptor locations, utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site. Distances to receptors were based on the acoustical center of the project site. The equipment used to calculate the construction noise levels for each phase were based on the assumptions provided in the CalEEMod modeling in the Air Quality and Greenhouse Gas Technical Memorandum prepared for the proposed project (Ganddini Group, Inc., 2021). For construction noise purposes, the distance measured from the project site to sensitive receptors was assumed to be the acoustical center of the project site to the property line of residential properties with existing residential buildings. Construction noise worksheets are provided in Appendix D.

SoundPLAN Noise Model

Future roadway noise levels at the proposed project site were modeled utilizing the SoundPLAN noise model The SoundPLAN software utilizes algorithms (based on the inverse square law) to calculate noise level projections. The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations.

Roadway parameters utilized in the noise model include location, traffic volume, speed and vehicle mix (autos, medium trucks, and heavy trucks). It is important to evaluate potential impacts of the noisiest possible future conditions. These conditions occur when the maximum amount of vehicles pass at the greatest speed. This scenario usually corresponds to Level of Service C (LOS C) Conditions, or about 75% of buildout capacity. Roadways that may generate enough traffic noise under buildout conditions to affect the proposed project include Alejo Road. The City of Palm Springs General Plan Figure 4-1, Circulation Plan, identifies Alejo Road as a Secondary Thoroughfare (4-lane undivided) roadway. Per the County of Riverside Industrial Hygiene Guidelines for Determining and Mitigating Traffic Noise Impacts to Residential Structures and County of Riverside General Plan, Chapter 4, Figure C-3 "Link Volume Capacities/Level of Service for Riverside County Roadways" revised March 2001, future buildout noise levels associated with this roadway was modeled using average daily traffic volume Level of Service "C" design capacities (also known as future build-out daily traffic volumes). Alejo Road is expected to accommodate up to 20,700 vehicles per day at Level of Service C. The D/E/N splits for use in acoustical studies published by the Riverside County Department of Industrial Hygiene were utilized for noise modeling.[3] FHWA spreadsheets are included in Appendix E.

DISCUSSION AND RECOMMENDATIONS

Impacts Related to Construction Noise

The existing residential uses located to the west and southwest of the project site may be affected by short-term noise impacts associated with construction noise. Construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive

[3] Riverside, County Department of Public Health, Requirements for Determining and Mitigating Traffic Noise Impacts to Residential Structures, Steven Hinde, REHS, CIH, Senior Industrial Hygienist, November 23, 2009.

receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work.

The construction phases for the proposed project are anticipated to include: grading, building construction, paving and architectural coating. A summary of noise level data for a variety of construction equipment compiled by the U.S. Department of Transportation is presented in Table 3. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings.

Construction noise associated with the proposed project was calculated utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site. Distances to receptors were based on the acoustical center of the proposed construction activity. Construction noise levels were calculated for each phase. Anticipated noise levels during each construction phase are presented in Table 4. Worksheets for each phase are included as Appendix D.

A comparison of existing noise levels and existing plus project construction noise levels are presented in Table 7. STNM1 was chosen to represent noise levels at the property lines of the residential uses to the west, STNM2 was chosen to represent noise levels at the property lines of the residential uses to the southwest and commercial/industrial uses to the south, and STNM3 was chosen to represent noise levels at the property lines of the commercial uses to the north and commercial medical facility uses to the east of the project site.

Modeled unmitigated construction noise levels when combined with existing measured noise levels reached up to 75.3 dBA L_{eq} at the residential property lines to the west; 70.5 dBA L_{eq} at the nearest residential property lines to the southwest; 74.2 dBA L_{eq} at the nearest commercial property lines to the north; 75.4 dBA L_{eq} at the nearest commercial (medical facility) property lines to the east; and 71.5 dBA L_{eq} at the nearest commercial property lines to the south of the project site.

Construction noise sources are regulated within the City of Palm Springs under Section 8.04.220 of the City's Municipal Code which prohibits construction activities other than between the hours of 7:00 AM to 7:00 PM on weekdays and 8:00 AM to 5:00 PM on Saturdays. Construction activities are not permitted on Sundays or a legal holiday.

Per the FTA daytime construction noise levels should not exceed 80 dBA L_{eq} for an 8-hour period at residential uses and 85 dBA L_{eq} for an 8-hour period at commercial uses. Therefore, project construction would not be anticipated to exceed the FTA thresholds for residential or commercial uses. Further, with compliance with the City's Code, it is assumed that construction would not occur during the noise-sensitive nighttime hours.

Impacts related to construction noise will be further minimized with adherence to the above Municipal Ordinances and implementation of the recommended measures presented below.

In addition to adherence to the City of Palm Springs Municipal Code which limits the construction hours of operation, the following measures are recommended to reduce construction noise and vibrations, emanating from the proposed project:

1. During all project site excavation and grading on-site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.

2. The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.

3. Equipment shall be shut off and not left to idle when not in use.

4. The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.

5. Jackhammers, pneumatic equipment and all other portable stationary noise sources shall be shielded and noise shall be directed away from sensitive receptors.

6. The project proponent shall mandate that the construction contractor prohibit the use of music or sound amplification on the project site during construction.

7. The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment.

Noise Impacts to Off-Site Receptors Due to Project Generated Trips

The proposed project is the development of the approximately 2.53-acre project site with eight single-family residential dwelling units. The project is exempt from preparing either a Traffic Impact Analysis or Vehicle Miles Traveled Screening Analysis per Traffic Impact Analysis Guidelines. The Air Quality and Greenhouse Gas Technical Memorandum prepared for the proposed project (Ganddini Group, Inc., 2021) utilized the trip generation rates for single-family residential dwelling units provided in the Institute of Engineers (ITE) Trip Generation Manual 10th Edition (September 2017). As shown in the modeling conducted for Air Quality and Greenhouse Gas Technical Memorandum, through use of the ITE trip generation rates, the proposed project would be anticipated to generate approximately 76 vehicle trips per day on weekdays and Saturdays and approximately 68 vehicle trips per day on Sundays. Typically, a doubling of traffic volumes is required to result in an increase of 3 dBA, which is considered to be a barely audible change. Project generated trips will not result in a doubling of traffic volumes along any affected road segment. This impact would be less than significant. No mitigation is required.

Impacts to the Proposed Project from Future Traffic Noise Levels

The City of Palm Springs has identified noise levels of up to 60 dBA CNEL as "normally acceptable" and of up to 70 dBA CNEL as "conditionally acceptable" for single-family residential land uses (see Table 2). According to the footnotes in Table 2, proposed land uses that fall into the "conditionally acceptable" category should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

As shown on Figure 5, future noise levels are expected to reach 65 dBA CNEL at the closest portion of the proposed lot pads (Lots 4 and 8). Future traffic noise levels would not exceed the City's "conditionally acceptable" noise standard of 70 dBA CNEL for exterior use areas for residential land uses and no mitigation is required. Typical new residential construction provides approximately 20 dBA of exterior to interior noise reduction with a windows closed condition. With installation of windows and sliding glass doors that have an STC level of at least 23, and with provision of heating and ventilation (HVAC) units, interior noise levels of proposed residential buildings are not expected to exceed 45 dBA CNEL.

Impacts to the Proposed Project from Airport

The closest airport to the project site is the Palm Spring International Airport with portions of the runway located as close as approximately 0.18 miles to the northeast of the project site. Per the City of Palm Springs General Plan, (Figure 4) Airport Compatibility Plan, the project site is within Compatibility Zone C. Furthermore, the noise compatibility contours provided in the Riverside County Airport Land Use Compatibility Plan (RCALUCP) show that the project site is just outside the 60 dBA CNEL noise contour for the Palm Springs International Airport. The RCCALUCP requires that any new single-family residential developments proposed within any Compatibility Zone other than Zone E must include the following measures intended to ensure that prospective buyers or renters are informed of the presence of aircraft overflights:

- During initial sales of properties within newly created subdivisions, large airport-related informational signs shall be installed and maintained by the developer. These signs shall be installed in conspicuous locations and shall clearly depict the proximity of the property to the airport and aircraft traffic patterns.

- An informational brochure shall be provided to prospective buyers or renters showing the locations of aircraft flight patterns. The frequency of overflights, the typical altitudes of the aircraft, and the range of noise levels that can be expected from individual aircraft overflights shall be described.

Therefore, although the project is within two miles of a public airport, the project would not expose people residing or working in the project area to excessive noise levels associated with airports.

CONCLUSIONS

Noise impacts associated with the proposed 2700 East Alejo Road project are anticipated to be compliant with the City's noise ordinance and other applicable noise regulations.

It has been a pleasure to assist you with this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 975-3100.

Sincerely,
GANDDINI GROUP, INC.

Roma Stromberg, INCE, M.S.
Senior Noise Analyst

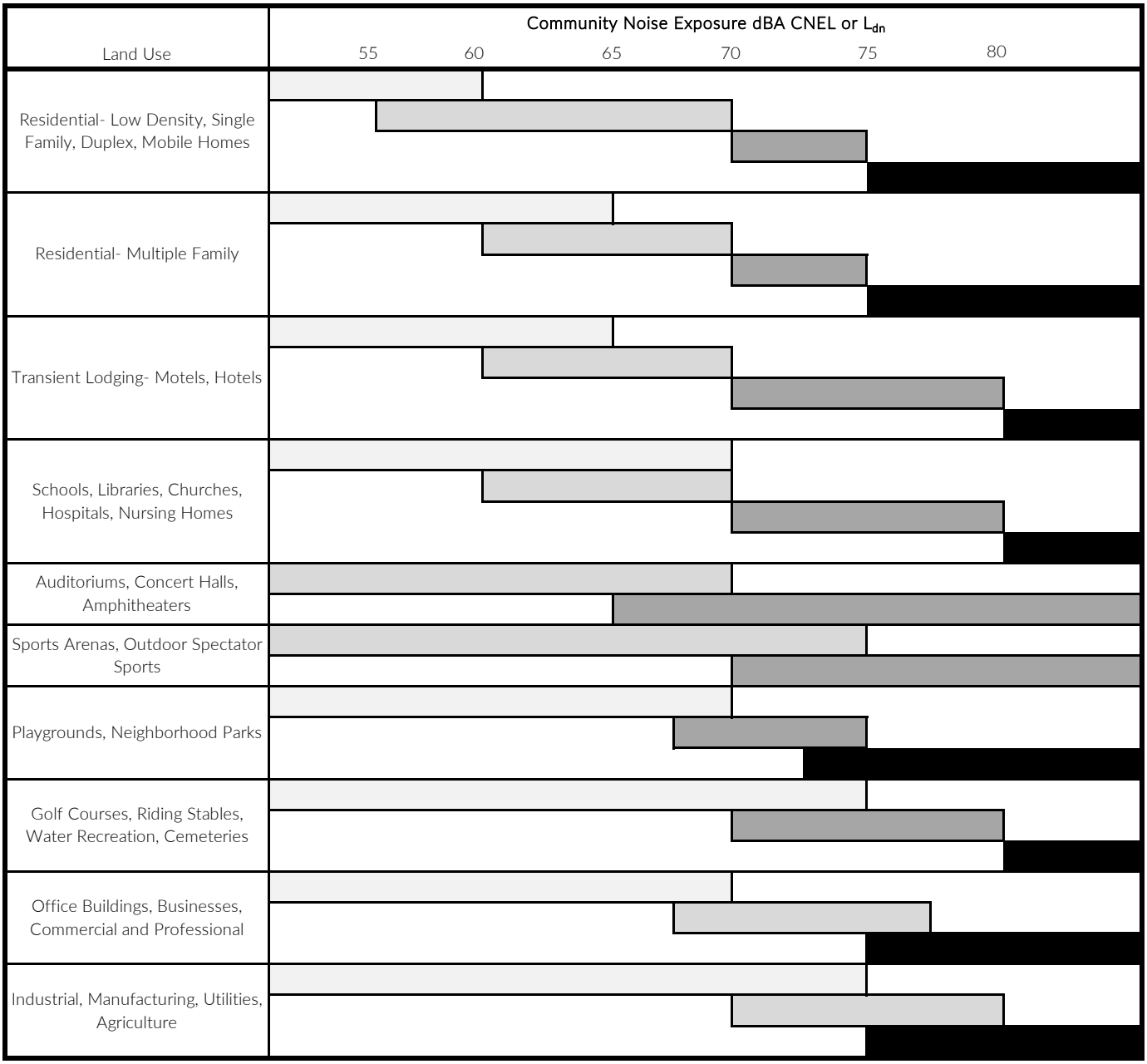
Table 1
Summary of Ambient Noise Measurements in Project Vicinity (dBA)

Daytime									
Site Location	Time Started	Time Ended	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
STNM1	1:06 PM	1:21 PM	58.9	78.4	42.8	67.9	56.3	51.1	49.5
STNM2	1:34 PM	1:49 PM	54.2	68.5	42.2	62.2	58.6	53.5	50.1
STNM3	2:46 PM	3:01 PM	57.1	74.6	42.6	68.3	59.2	51.1	48.4

Notes:
(1) See Figure 3 for noise measurement locations. Each noise measurement was performed over a 10-minute duration.

(2) Noise measurements performed on May 26, 2021.

Table 2
City of Palm Springs Community Noise Exposure Level Ldn or CNEL, dBA



Normally Acceptable:	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
Conditionally Acceptable:	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.
Normally Unacceptable:	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.
Clearly Unacceptable:	New construction or development should generally not be undertaken. Construction costs to make th eindoor environment acceptable would be prohibitve and the outdoor environment would not be usable.

Source: City of Palm Springs General Plan Noise Element Figure 8-2, 2007.

Table 3 (1 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
All Other Equipment > 5 HP	No	50	85	-N/A-	0
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Bar Bender	No	20	80	-N/A-	0
Blasting	Yes	-N/A-	94	-N/A-	0
Boring Jack Power Unit	No	50	80	83	1
Chain Saw	No	20	85	84	46
Clam Shovel (dropping)	Yes	20	93	87	4
Compactor (ground)	No	20	80	83	57
Compressor (air)	No	40	80	78	18
Concrete Batch Plant	No	15	83	-N/A-	0
Concrete Mixer Truck	No	40	85	79	40
Concrete Pump Truck	No	20	82	81	30
Concrete Saw	No	20	90	90	55
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Drill Rig Truck	No	20	84	79	22
Drum Mixer	No	50	80	80	1
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Forklift[2,3]	No	50	n/a	61	n/a
Front End Loader	No	40	80	79	96
Generator	No	50	82	81	19
Generator (<25KVA, VMS signs)	No	50	70	73	74
Gradall	No	40	85	83	70
Grader	No	40	85	-N/A-	0
Grapple (on backhoe)	No	40	85	87	1
Horizontal Boring Hydr. Jack	No	25	80	82	6
Hydra Break Ram	Yes	10	90	-N/A-	0
Impact Pile Driver	Yes	20	95	101	11
Jackhammer	Yes	20	85	89	133
Man Lift	No	20	85	75	23
Mounted Impact hammer (hoe ram)	Yes	20	90	90	212
Pavement Scarafier	No	20	85	90	2
Paver	No	50	85	77	9
Pickup Truck	No	50	85	77	9
Paving Equipment	No	50	85	77	9
Pneumatic Tools	No	50	85	85	90
Pumps	No	50	77	81	17

Table 3 (2 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
Refrigerator Unit	No	100	82	73	3
Rivit Buster/chipping gun	Yes	20	85	79	19
Rock Drill	No	20	85	81	3
Roller	No	20	85	80	16
Sand Blasting (Single Nozzle)	No	20	85	96	9
Scraper	No	40	85	84	12
Shears (on backhoe)	No	40	85	96	5
Slurry Plant	No	100	78	78	1
Slurry Trenching Machine	No	50	82	80	75
Soil Mix Drill Rig	No	50	80	-N/A-	0
Tractor	No	40	84	-N/A-	0
Vacuum Excavator (Vac-truck)	No	40	85	85	149
Vacuum Street Sweeper	No	10	80	82	19
Ventilation Fan	No	100	85	79	13
Vibrating Hopper	No	50	85	87	1
Vibratory Concrete Mixer	No	20	80	80	1
Vibratory Pile Driver	No	20	95	101	44
Warning Horn	No	5	85	83	12
Welder/Torch	No	40	73	74	5

Notes:

(1) Source: FHWA Roadway Construction Noise Model User's Guide January 2006.

(2) Warehouse & Forklift Noise Exposure - NoiseTesting.info Carl Stautins, November 4, 2014 http://www.noisetesting.info/blog/carl-strautins/page-3/

(3) Data provided Leq as measured at the operator. Sound Level at 50 feet is calculated using Inverse Square Law.

Table 4
Construction Noise Levels (L_{eq})

Phase	Receptor Location	Existing Ambient Noise Levels (dBA Leq)	Construction Noise Levels (dBA Leq)	Combined Noise Levels (dBA Leq)	Increase (dB)
Grading	West	58.9	75.2	75.3	16.4
	Southwest	54.2	70.4	70.5	16.3
	North	57.1	74.1	74.2	17.1
	East	57.1	75.3	75.4	18.3
	South	53.2	71.4	71.5	18.3
Building Construction	West	58.9	72.2	72.4	13.5
	Southwest	54.2	67.4	67.6	13.4
	North	57.1	71.0	71.2	14.1
	East	57.1	72.3	72.4	15.3
	South	53.2	68.4	68.5	15.3
Paving	West	58.9	74.1	74.2	15.3
	Southwest	54.2	69.4	69.5	15.3
	North	57.1	73.0	73.1	16.0
	East	57.1	74.2	74.3	17.2
	South	53.2	70.4	70.5	17.3
Architectural Coating	West	58.9	64.7	65.7	6.8
	Southwest	54.2	59.9	60.9	6.7
	North	57.1	63.5	64.4	7.3
	East	57.1	64.8	65.5	8.4
	South	53.2	60.9	61.6	8.4

Notes:

(1) Construction noise worksheets are provided in Appendix D.

(2) Per measured existing ambient noise levels. STNM1 was used for receptors to the west, STNM2 for receptors to the south and southwest, and STNM3 as used for receptors to the north and east.

Figure 1
Project Location Map

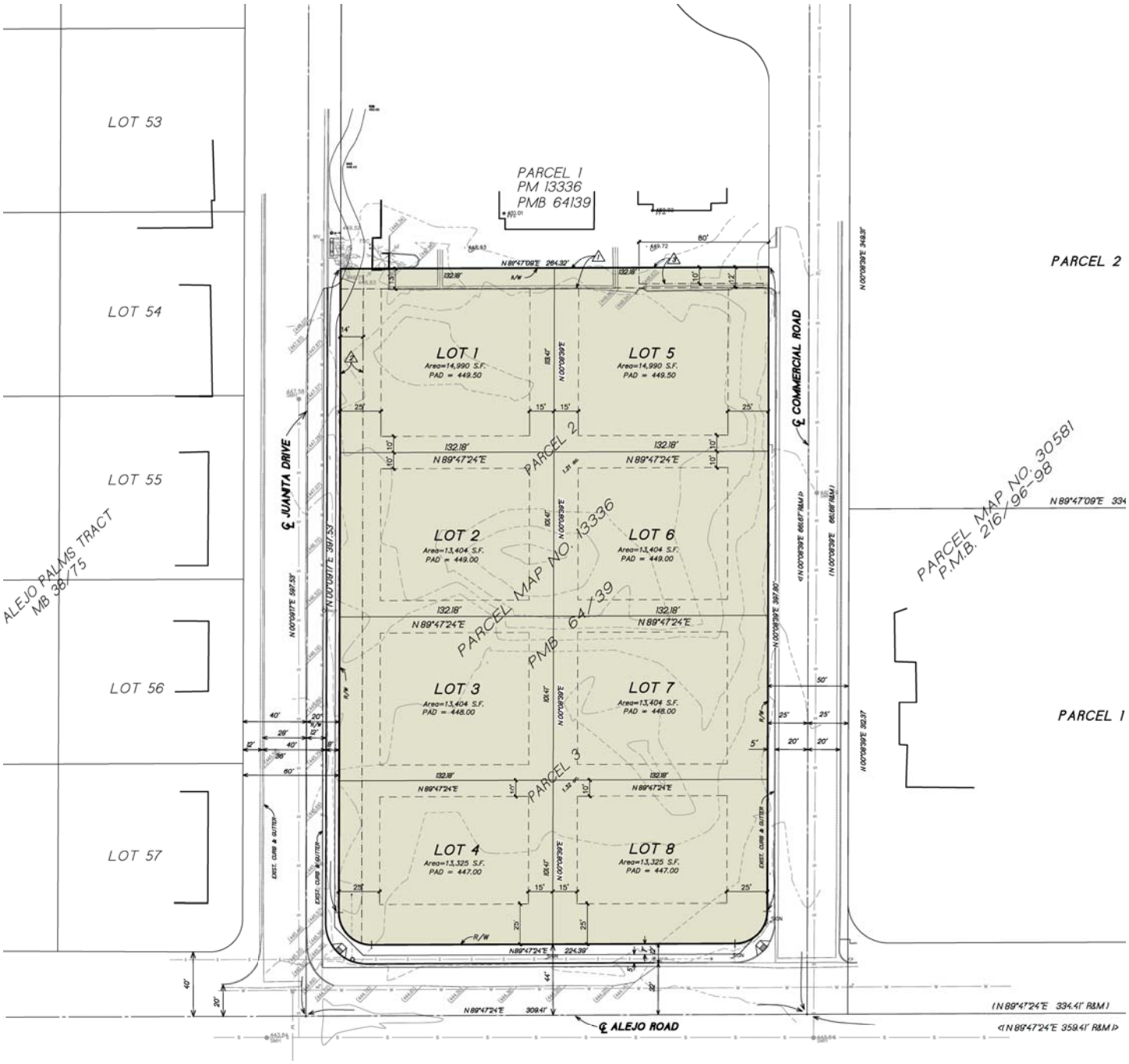


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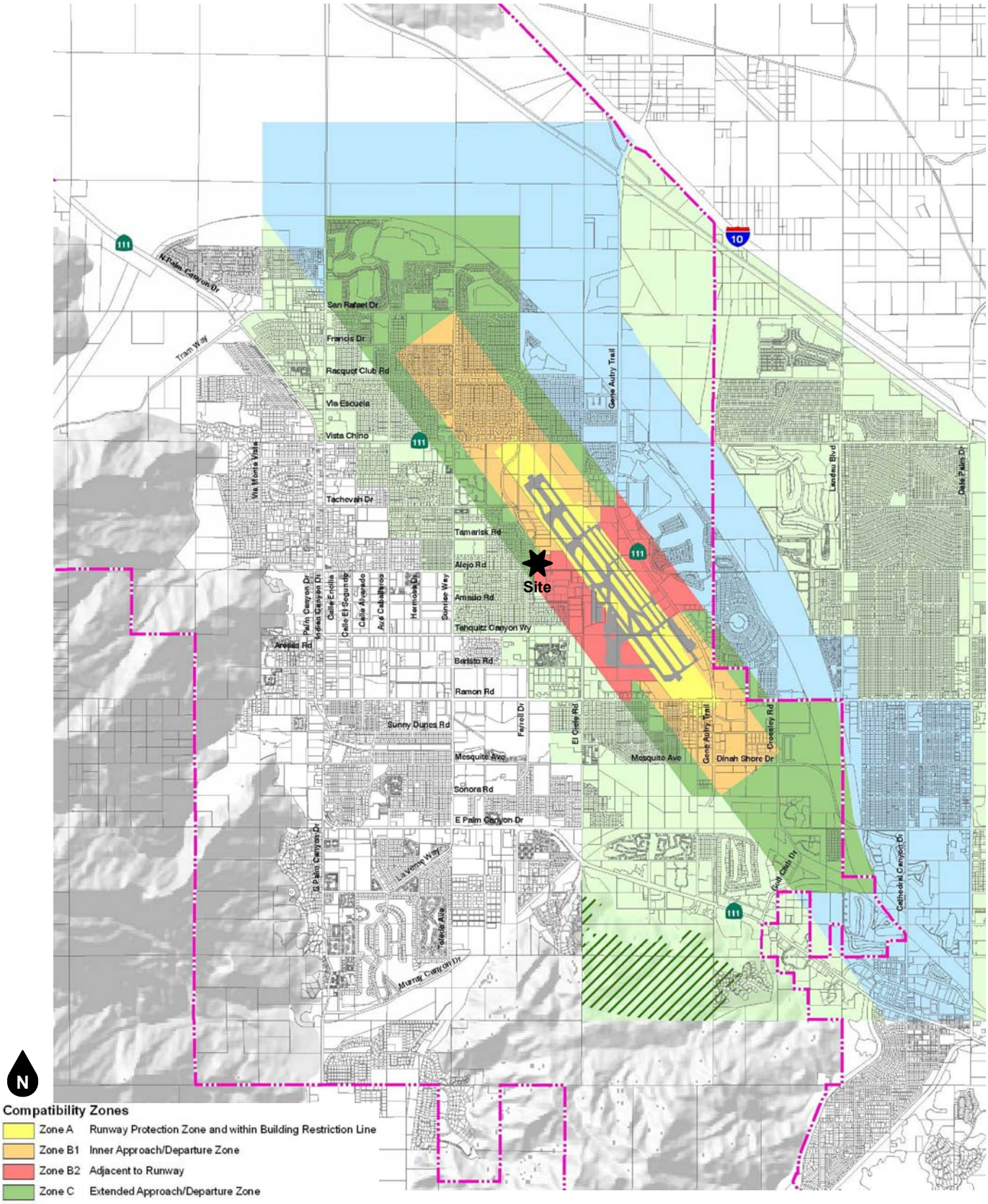
Figure 2
Site Plan

Legend

⊕ Noise Measurement Location

NM 1

Figure 3
Noise Measurement Location Map



Source: City of Palm Springs

Figure 4
City of Palm Springs General Plan Airport Compatibility Plan

Figure 5
Future Traffic Noise Levels dBA

APPENDIX A

LIST OF ACRONYMS

TERMS	DEFINITIONS
ADT	Average Daily Traffic volume
ANSI	American National Standard Institute
APN	Assessor's Parcel Number
Caltrans	California Department of Transportation
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
D/E/N	Day/Evening/Night
dB	Decibel
dBA or dB(A)	Decibel "A-Weighted"
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
INCE	Institute of Noise Control Engineering
L_{02},L_{08},L_{50},L_{90}	A-weighted Noise Levels at 2 percent, 8 percent, 50 percent, and 90 percent, Respectively, of the time period
DNL	Day-Night Average Noise Level
$L_{eq(x)}$	Equivalent Noise Level for "x" period of Time
L_{max}	Maximum Level of Noise (measured using a sound level meter)
L_{min}	Minimum Level of Noise (measured using a sound level meter)
LOS C	Level of Service C
MPH	Miles Per Hour
NEPA	National Environmental Policy Act
OPR	California Governor's Office of Planning and Research
Peak Hour L_{eq}	Peak Hour Equivalent Sound Level
PPV	Peak Particle Velocity
RCNM	Road Construction Noise Model
RMS	Root Mean Square
SEL	Single Event Level or Sound Exposure Level
SPL	Sound Pressure Level
STC	Sound Transmission Class
VdB	Vibration Velocity Decibels

APPENDIX B

GLOSSARY

Term	Definition
Ambient Noise Level	The all-encompassing noise environment associated with a given environment, at a specified time, usually a composite of sound from many sources, at many directions, near and far, in which usually no particular sound is dominant.
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear.
CNEL	Community Noise Equivalent Level. CNEL is a weighted 24-hour noise level that is obtained by adding five decibels to sound levels in the evening (7:00 PM to 10:00 PM), and by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the evening and nighttime hours.
Decibel, dB	A logarithmic unit of noise level measurement that relates the energy of a noise source to that of a constant reference level; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
DNL, Ldn	Day Night Level. The DNL, or Ldn is a weighted 24-hour noise level that is obtained by adding ten decibels to sound levels at night (10:00 PM to 7:00 AM). This weighting accounts for the increased human sensitivity to noise during the nighttime hours.
Equivalent Continuous Noise Level, L_{eq}	A level of steady state sound that in a stated time period, and a stated location, has the same A-weighted sound energy as the time-varying sound.
Fast/Slow Meter Response	The fast and slow meter responses are different settings on a sound level meter. The fast response setting takes a measurement every 100 milliseconds, while a slow setting takes one every second.
Frequency, Hertz	In a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., the number of cycles per second).
L_{02}, L_{08}, L_{50}, L_{90}	The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level, 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period, respectively.
L_{max}, L_{min}	L_{max} is the RMS (root mean squared) maximum level of a noise source or environment measured on a sound level meter, during a designated time interval, using fast meter response. L_{min} is the minimum level.
Offensive/ Offending/ Intrusive Noise	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of sound depends on its amplitude, duration, frequency, and time of occurrence, and tonal information content as well as the prevailing ambient noise level.
Root Mean Square (RMS)	A measure of the magnitude of a varying noise source quantity. The name derives from the calculation of the square root of the mean of the squares of the values. It can be calculated from either a series of lone values or a continuous varying function.

APPENDIX C

NOISE MEASUREMENT FIELD WORKSHEETS

Noise Measurement
Field Data

Project Name: 2700 East Alejo Road, City of Palm Springs. **Date:** May 26, 2021

Project #: 19384

Noise Measurement #: STNM1 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Gallagher

Nearest Address or Cross Street: 525 North Juanita Drive, Palm Springs, California

Site Description (Type of Existing Land Use and any other notable features): Project site: Vacant land w/ two concrete foundations. Surrouding is commercial to north, Alejo Rd to south, Juanita Dr to west w/ SF residential further west, Commercial Rd to east. Noise Measurement Site: Single-family residential to west & Juanita Drive to east with project site further east.

Weather: Clear skies, sunny. **Settings:** SLOW FAST

Temperature: 76 deg F **Wind:** 8 mph **Humidity:** 10% **Terrain:** Flat

Start Time: 1:06 PM **End Time:** 1:21 PM **Run Time:**

Leq: 58.9 dB

Lmax 78.4 dB

L2 67.9 dB

L8 56.3 dB

L25 51.1 dB

L50 49.5 dB

Primary Noise Source: Residential ambiance, bird song, two (one commercial and one private jet) planes taking off from nearby airport.

Secondary Noise Sources: Leaves rustling in gentle 8 mph breeze, two electric vehicles passing microphone during 15 minute noise measurement.

NOISE METER:	SoundTrack LXT Class 2	**CALIBRATOR:**	Larson Davis CAL200
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT2	**MODEL:**	Cal 200
SERIAL NUMBER:	1152	**SERIAL NUMBER:**	15741
FACTORY CALIBRATION DATE:	10/3/2021	**FACTORY CALIBRATION DATE:**	7/23/2020
FIELD CALIBRATION DATE:	5/26/2021		

Noise Measurement
Field Data

PHOTOS:

STNM1 looking S down N Juanita Drive towards E Alejo Road intersection.

STNM1 looking NW across front yard of residence, 525 North Janita Drive, Palm Springs.

Summary	
File Name on Meter	LxT_Data.048
File Name on PC	SLM_0001152_LxT_Data_048.00.ldbin
Serial Number	0001152
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM1 33°49'51.32"N 116°31'2.40"W
Job Description	15 minute noise measuremnt
Note	(1 x 15 minutes)
	19384 2700 East Alejo Road, Palm Springs

Measurement	
Start	2021-05-26 13:06:47
Stop	2021-05-26 13:21:47
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2021-05-26 13:04:07
Post Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	144.0 dB

Results			
LA_{eq}	58.9		
LAE	88.4		
EA	76.742	µPa²h	
EA8	2.456	mPa²h	
EA40	12.279	mPa²h	
$LZ_{peak\ (max)}$	2021-05-26 13:12:15	102.3	dB
LAS_{max}	2021-05-26 13:12:07	78.4	dB
LAS_{min}	2021-05-26 13:15:02	42.8	dB
SEA	-99.94	dB	

		Statistics	
LC_{eq}	71.3 dB	**LAI2.00**	67.9 dB
LA_{eq}	58.9 dB	**LAI8.00**	56.3 dB
LC_{eq} - LA_{eq}	12.5 dB	**LAI25.00**	51.1 dB
LAI_{eq}	61.7 dB	**LAI50.00**	49.5 dB
LA_{eq}	58.9 dB	**LAI66.60**	48.4 dB
LAI_{eq} - LA_{eq}	2.9 dB	**LAI90.00**	45.9 dB
# Overloads	0		

Noise Measurement
Field Data

Project Name: 2700 East Alejo Road, City of Palm Springs. **Date:** May 26, 2021

Project #: 19384

Noise Measurement #: STNM2 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Gallagher

Nearest Address or Cross Street: 491 North Juanita Drive, Palm Springs, California

Site Description (Type of Existing Land Use and any other notable features): Project site: Vacant land w/ two concrete foundations. Surrouding is commercial to north, Alejo Rd to south, Juanita Dr to west w/ SF residential further west, Commercial Rd to east. Noise Measurement Site: Single-family residential to west, Juanita Drive to east with commercial uses (with parking areas) further east, & intersection of Juanita Dr & Alejo Rd to north/northeast.

Weather: Clear skies, sunny. **Settings:** SLOW FAST

Temperature: 82 deg F **Wind:** 10 mph **Humidity:** 10% **Terrain:** Flat

Start Time: 1:34 PM **End Time:** 1:49 PM **Run Time:**

Leq: 54.2 dB

Lmax 68.5 dB

L2 62.2 dB

L8 58.6 dB

L25 53.5 dB

L50 50.1 dB

Primary Noise Source: Residential ambiance, bird song, two private planes (one jet the other propeller) takin off from nearby airport.

Secondary Noise Sources: Leaves rustling in gentle 10 mph breeze, three vehicles passing microphone during 15 minute noise measurement. Distant leaf blower in operation.

NOISE METER:	SoundTrack LXT Class 2	**CALIBRATOR:**	Larson Davis CAL200
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT2	**MODEL:**	Cal 200
SERIAL NUMBER:	1152	**SERIAL NUMBER:**	15741
FACTORY CALIBRATION DATE:	10/3/2021	**FACTORY CALIBRATION DATE:**	7/23/2020
FIELD CALIBRATION DATE:	5/26/2021		

Noise Measurement
Field Data

PHOTOS:

STNM2 looking N up N Juanita Drive towards E Alejo Road intersection.

STNM2 looking NW across front yard of residence, 491 N Juanita Drive, Palm Springs.

Summary	
File Name on Meter	LxT_Data.049
File Name on PC	SLM_0001152_LxT_Data_049.00.ldbin
Serial Number	0001152
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM2 33°49'48.37"N 116°31'2.48"W
Job Description	15 minute noise measurement
Note	(1 x 15 minutes)
	19384 2700 East Alejo Road, Palm Springs

Measurement	
Start	2021-05-26 13:34:58
Stop	2021-05-26 13:49:58
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2021-05-26 13:34:14
Post Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	144.0 dB

Results		
LA_{eq}	54.2	
LAE	83.8	
EA	26.441	µPa²h
EA8	846.116	µPa²h
EA40	4.231	mPa²h
$LZ_{peak\ (max)}$	2021-05-26 13:45:01	101.2 dB
LAS_{max}	2021-05-26 13:40:35	68.5 dB
LAS_{min}	2021-05-26 13:35:28	42.4 dB

		Statistics	
LC_{eq}	67.1 dB		
LA_{eq}	54.2 dB	**LAI2.00**	62.2 dB
LC_{eq} - LA_{eq}	12.8 dB	**LAI8.00**	58.6 dB
LAI_{eq}	56.2 dB	**LAI25.00**	53.5 dB
LA_{eq}	54.2 dB	**LAI50.00**	50.1 dB
LAI_{eq} - LA_{eq}	2.0 dB	**LAI66.60**	48.0 dB
# Overloads	0	**LAI90.00**	45.4 dB

Noise Measurement
Field Data

Project Name: 2700 East Alejo Road, City of Palm Springs. **Date:** May 26, 2021

Project #: 19384

Noise Measurement #: STNM3 Run Time: 15 minutes (1 x 15 minutes) **Technician:** Ian Gallagher

Nearest Address or Cross Street: 2800 East Alejo Road , Palm Springs, California

Site Description (Type of Existing Land Use and any other notable features): Project site: Vacant land w/ two concrete foundations. Surrouding is commercial to north, Alejo Rd to south, Juanita Dr to west w/ SF residential further west, Commercial Rd to east. Noise Measurement Site: Commercial Road to west w/ project site further west, commercial use to east, & vacant land to northeast.

Weather: Clear skies, sunny. **Settings:** SLOW FAST

Temperature: 90 deg F **Wind:** 10 mph **Humidity:** 10% **Terrain:** Flat

Start Time: 2:46 PM **End Time:** 3:01 PM **Run Time:**

Leq: 57.1 dB

Lmax 74.6 dB

L2 68.3 dB

L8 59.2 dB

L25 51.1 dB

L50 48.4 dB

Primary Noise Source: Residential ambiance, bird song, 3 commercial jet planes taking off from nearby airport.

Secondary Noise Sources: Leaves rustling in gentle 10 mph breeze, five vehicles passing microphone during 15 minute noise measurement.

NOISE METER:	SoundTrack LXT Class 2	**CALIBRATOR:**	Larson Davis CAL200
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT2	**MODEL:**	Cal 200
SERIAL NUMBER:	1152	**SERIAL NUMBER:**	15741
FACTORY CALIBRATION DATE:	10/3/2021	**FACTORY CALIBRATION DATE:**	7/23/2020
FIELD CALIBRATION DATE:	5/26/2021		

Noise Measurement
Field Data

PHOTOS:

STNM3 looking south down N Commercial Road towards E Alejo Road intersection. Building, 2800 E Alejo Road, Palm Springs on the left of photo.

STNM3 looking NW across N Commercial Road towards building, 555 N Commercial Road, Palm Springs.

Summary	
File Name on Meter	LxT_Data.051
File Name on PC	SLM_0001152_LxT_Data_051.00.ldbin
Serial Number	0001152
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	STNM3 33°49'52.64"N 116°30'58.15"W
Job Description	15 minute noise measurement
Note	(1 x 15 minutes)
	19384 2700 East Alejo Road, Palm Springs

Measurement	
Start	2021-05-26 14:46:56
Stop	2021-05-26 15:01:56
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2021-05-26 14:44:25
Post Calibration	None

Overall Settings	
RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	144.0 dB

Results			
LA_{eq}	57.1		
LAE	86.6		
EA	50.715	µPa²h	
EA8	1.623	mPa²h	
EA40	8.114	mPa²h	
$LZ_{peak\ (max)}$	2021-05-26 14:49:55	112.3	dB
LAS_{max}	2021-05-26 14:57:21	74.6	dB
LAS_{min}	2021-05-26 15:01:16	42.6	dB
SEA	-99.94	dB	

		Statistics	
LC_{eq}	73.0 dB	**LAI2.00**	68.3 dB
LA_{eq}	57.1 dB	**LAI8.00**	59.2 dB
LC_{eq} - LA_{eq}	16.0 dB	**LAI25.00**	51.1 dB
LAI_{eq}	60.0 dB	**LAI50.00**	48.4 dB
LA_{eq}	57.1 dB	**LAI66.60**	46.8 dB
LAI_{eq} - LA_{eq}	3.0 dB	**LAI90.00**	44.7 dB
# Overloads	0		

APPENDIX D

CONSTRUCTION NOISE MODELING

Receptor - Residential to West

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Grading							
Grader	1	85	185	40	0.40	73.6	69.7
Rubber Tired Dozers	1	85	185	40	0.40	73.6	69.7
Tractors/Loaders/Backhoes	2	84	185	40	0.80	72.6	71.7
						Log Sum	75.2
Building Construction							
Cranes	1	83	185	16	0.16	71.6	63.7
Forklifts [2]	2	48	185	40	0.80	36.6	35.7
Generator Set	1	81	185	50	0.50	69.6	66.6
Welders	3	74	185	40	1.20	62.6	63.4
Tractors/Loaders/Backhoes	1	84	185	40	0.40	72.6	68.7
						Log Sum	72.2
Paving							
Cement and Mortar Mixer	1	85	185	40	0.4	73.6	69.7
Pavers	1	77	185	50	0.50	65.6	62.6
Paving Equipment	1	85	185	20	0.20	73.6	66.6
Rollers	2	80	185	20	0.40	68.6	64.7
Tractors/Loaders/Backhoes	1	84	185	40	0.40	72.6	68.7
						Log Sum	74.1
Architectural Coating							
Air Compressors	1	80	185	40	0.40	68.6	64.7
						Log Sum	64.7

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (structure).

Receptor - Residential to Southwest

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Grading							
Grader	1	85	320	40	0.40	68.9	64.9
Rubber Tired Dozers	1	85	320	40	0.40	68.9	64.9
Tractors/Loaders/Backhoes	2	84	320	40	0.80	67.9	66.9
						Log Sum	70.4
Building Construction							
Cranes	1	83	320	16	0.16	66.9	58.9
Forklifts [2]	2	48	320	40	0.80	31.9	30.9
Generator Set	1	81	320	50	0.50	64.9	61.9
Welders	3	74	320	40	1.20	57.9	58.7
Tractors/Loaders/Backhoes	1	84	320	40	0.40	67.9	63.9
						Log Sum	67.4
Paving							
Cement and Mortar Mixer	1	85	320	40	0.4	68.9	64.9
Pavers	1	77	320	50	0.50	60.9	57.9
Paving Equipment	1	85	320	20	0.20	68.9	61.9
Rollers	2	80	320	20	0.40	63.9	59.9
Tractors/Loaders/Backhoes	1	84	320	40	0.40	67.9	63.9
						Log Sum	69.4
Architectural Coating							
Air Compressors	1	80	320	40	0.40	63.9	59.9
						Log Sum	59.9

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (structure).

Receptor - Commercial to North

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Grading							
Grader	1	85	211	40	0.40	72.5	68.5
Rubber Tired Dozers	1	85	211	40	0.40	72.5	68.5
Tractors/Loaders/Backhoes	2	84	211	40	0.80	71.5	70.5
						Log Sum	74.1
Building Construction							
Cranes	1	83	211	16	0.16	70.5	62.5
Forklifts [2]	2	48	211	40	0.80	35.5	34.5
Generator Set	1	81	211	50	0.50	68.5	65.5
Welders	3	74	211	40	1.20	61.5	62.3
Tractors/Loaders/Backhoes	1	84	211	40	0.40	71.5	67.5
						Log Sum	71.0
Paving							
Cement and Mortar Mixer	1	85	211	40	0.4	72.5	68.5
Pavers	1	77	211	50	0.50	64.5	61.5
Paving Equipment	1	85	211	20	0.20	72.5	65.5
Rollers	2	80	211	20	0.40	67.5	63.5
Tractors/Loaders/Backhoes	1	84	211	40	0.40	71.5	67.5
						Log Sum	73.0
Architectural Coating							
Air Compressors	1	80	211	40	0.40	67.5	63.5
						Log Sum	63.5

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (structure).

Receptor - Commercial (Medical Facility) to East

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Grading							
Grader	1	85	183	40	0.40	73.7	69.8
Rubber Tired Dozers	1	85	183	40	0.40	73.7	69.8
Tractors/Loaders/Backhoes	2	84	183	40	0.80	72.7	71.8
						Log Sum	75.3
Building Construction							
Cranes	1	83	183	16	0.16	71.7	63.8
Forklifts [2]	2	48	183	40	0.80	36.7	35.8
Generator Set	1	81	183	50	0.50	69.7	66.7
Welders	3	74	183	40	1.20	62.7	63.5
Tractors/Loaders/Backhoes	1	84	183	40	0.40	72.7	68.8
						Log Sum	72.3
Paving							
Cement and Mortar Mixer	1	85	183	40	0.4	73.7	69.8
Pavers	1	77	183	50	0.50	65.7	62.7
Paving Equipment	1	85	183	20	0.20	73.7	66.7
Rollers	2	80	183	20	0.40	68.7	64.8
Tractors/Loaders/Backhoes	1	84	183	40	0.40	72.7	68.8
						Log Sum	74.2
Architectural Coating							
Air Compressors	1	80	183	40	0.40	68.7	64.8
						Log Sum	64.8

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (structure).

Receptor - Commercial to South

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[3]	Item Usage Percent	Usage Factor	Receptor Item Lmax, dBA	Receptor Item Leq, dBA
Grading							
Grader	1	85	286	40	0.40	69.9	65.9
Rubber Tired Dozers	1	85	286	40	0.40	69.9	65.9
Tractors/Loaders/Backhoes	2	84	286	40	0.80	68.9	67.9
						Log Sum	71.4
Building Construction							
Cranes	1	83	286	16	0.16	67.9	59.9
Forklifts [2]	2	48	286	40	0.80	32.9	31.9
Generator Set	1	81	286	50	0.50	65.9	62.8
Welders	3	74	286	40	1.20	58.9	59.6
Tractors/Loaders/Backhoes	1	84	286	40	0.40	68.9	64.9
						Log Sum	68.4
Paving							
Cement and Mortar Mixer	1	85	286	40	0.4	69.9	65.9
Pavers	1	77	286	50	0.50	61.9	58.8
Paving Equipment	1	85	286	20	0.20	69.9	62.9
Rollers	2	80	286	20	0.40	64.9	60.9
Tractors/Loaders/Backhoes	1	84	286	40	0.40	68.9	64.9
						Log Sum	70.4
Architectural Coating							
Air Compressors	1	80	286	40	0.40	64.9	60.9
						Log Sum	60.9

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006)

(2) Source: SoundPLAN reference list.

(3) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (structure).

APPENDIX E

FHWA WORKSHEETS

Receiver list

No.	Receiver name	Building side	Floor	Limit				Level				Conflict			
				Day	Evening	Night	Lden	Day	Evening	Night	Lden	Day	Evening	Night	Lden
				dB(A)				dB(A)				dB			
1	1	-	GF	-	-	-	-	63.4	62.0	56.8	65.5	-	-	-	-

Contribution levels of the receivers

Source name	Traffic lane	Level Day	Evening	Night	Lden
		dB(A)			
1 GF		63.4	62.0	56.8	65.5
E Alejo Road	-	63.4	62.0	56.8	65.5

Noise emissions of road traffic

Statio km	ADT Veh/24	Vehicles type	Vehicle name	Traffic values day Veh/h	evening Veh/h	night Veh/h	Speed km/h	Contr devic	Cons Spee km/h	Affec veh. %	Road surface	Gradie Min / M %
E Alejo Road			Traffic direction: In entry direction									
0+00	18203	Total	-	1106	819	207	-	none	-	-	Average (of DGAC a	-0.6
		Automobiles	-	1103	819	203	72					
		Medium trucks	-	1	0	1	72					
		Heavy trucks	-	2	0	3	72					
		Buses	-	-	-	-	-					
		Motorcycles	-	-	-	-	-					
		Auxiliary vehicle	-	-	-	-	-					