

**PRELIMINARY NOISE STUDY  
DAI DANG MEDITATION CENTER  
MUP 04-016, Log No: 04-02-011**

**Prepared For:**

**County of San Diego  
Department of Planning and Land Use  
Contact: Emmet Aquino  
5201 Ruffin Road, Suite B  
San Diego, CA 92123  
858-694-8845**

**Prepared by:**

**Jeremy Loudon  
*Ldn Consulting, Inc.*  
446 Crestcourt Lane  
Fallbrook, CA 92028  
760-473-1253**

**Project Proponent:**

**Mr. Frank Hoang  
Dai Dang Meditation Center  
5058 E. Crescent Drive  
Anaheim Hills, CA 92087**

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**Project: 1038-04 Dai Dang Noise Report**

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## **GLOSSARY OF TERMS**

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

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

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

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

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

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

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

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

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

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

## **EXECUTIVE SUMMARY**

This noise study has been completed to determine the noise impacts associated with the development of the proposed residential project. The project known as "Dai Dang Meditation Center" consists of a Major Use Permit (MUP 04-016). The project design consists of facilities to support a Buddhist meditation center, totaling approximately 22,796 SF. The project will involve the demolition of one existing building to be replaced with a parking lot, the retention of four existing on-site structures and will include the construction of a meditation hall, residence quarters/library/kitchen, and a main worship hall. The project site is located along Camino Del Rey in the Bonsall Planning Area in the unincorporated portion of northern San Diego County.

It was determined from the analysis that the NSLU's adjacent to the roadways will comply with the County of San Diego 60 dBA CNEL due to the distance separation, intervening topography and the low traffic volumes.

The project does not create a direct impact of more than 3.0 dBA CNEL on any roadway segment and no cumulative noise increase of 3 dBA CNEL or more were found. Therefore, the proposed project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

It was determined, based on the proposed project that the on-site activities will be located indoors and no mechanical equipment (i.e., HVAC units) are being proposed that noise levels are anticipated to be below the County's most restrictive 45 dBA threshold and no noise impacts will occur. Therefore the project related operations are anticipated to comply with the County's Noise Ordinance without any mitigation. If special events are desired or requested they will be applied for under special use permit for approval prior to any event.

The grading activities will consist of the preparation of the proposed internal roadways and the finished pads. The grading equipment will be spread out over the project site from distances near the occupied property to distances of 330 feet or more away. Based upon the proposed site plan the majority of the grading operations will occur more than 100-feet from the northern and eastern property lines and ever further from the western and southern property lines with the exception of the minor grading needed for the proposed on-site roadway and parking. This means that most of the time the average distance from the equipment to the occupied property is 100 to 165-feet and in that situation no impacts are anticipated. At distances of more than 70-feet the grading activities are anticipated not to exceed the County's 75-dBA standard and no mitigation measures are required.

## **1.0 INTRODUCTION**

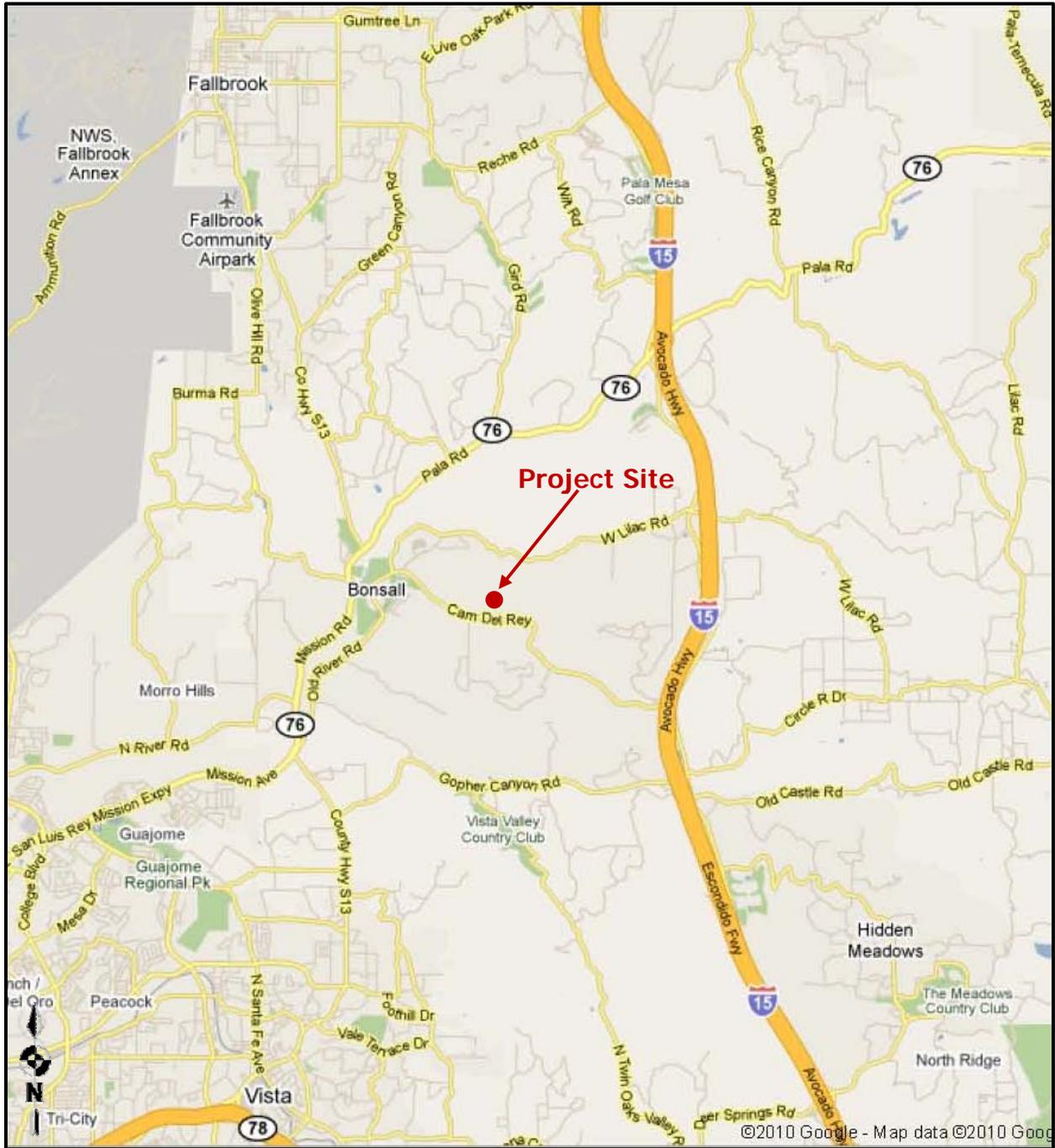
### **1.1 Project Description**

This noise study was completed to determine the noise impacts associated with the development of the proposed Dai Dang Meditation Center Project. The project is located at 33° 17' 21" N and 117° 13' 03" W, west of Interstate 15, north of Gopher Canyon Road, and east of the San Luis Rey Golf Resort. The project site is located at 6326 Camino Del Rey in the northern portion of the unincorporated area or San Diego County CA in the community of Bonsall. The general location of the project is shown on the Vicinity Map, Figure 1-A.

The proposed project is an application for a Major Use Permit to allow for construction of facilities to support a Buddhist meditation center, totaling approximately 22,796 SF. The project will involve the demolition of one existing building to be replaced with a parking lot, the retention of four existing on-site structures and will include the construction of a meditation hall, residence quarters/library/kitchen, and a main worship hall. Accommodations will be provided for approximately 30 guests at any one time. At ultimate build-out, the proposed facilities will consist of three new main buildings, landscaped outdoor areas, and 81 on-site parking spaces. The major components of the proposed project are the following:

- **Meditation Hall** – The meditation hall is proposed as a partial two-story building (7,664 SF) with architectural features having a maximum height of 29 feet. This building will have a large main room with an altar at the east end for congregational assembly and meditation. The building will include approximately 1,725 SF of space designated as a multi-use room. This area will serve as a weekend food warming kitchen and a weekend dining hall. This portion of the building will also contain separate men’s and women’s restrooms. The second floor will contain approximately 2,430 SF of conference room area for scripture translation and study area for the Second Vice Abbot, in addition to a restroom.
- **Main Worship Hall** - The main worship hall is proposed for use by the monks and other visitors to the center. This building will be approximately 6,196 SF and will be 35 feet in height. With addition of a steeple that is proposed over the altar area, the building height is extended to 40 feet, which will extend five feet above the zoned height limitation of 35 feet. This will require an exception as allowed by Section 4620g of the Zoning Ordinance as part of approval of the Major Use Permit. The building will house a large room for congregational assemblies, a centrally-located altar, daily administrative use office space, and one restroom. The second story will contain approximately 1,440 SF of study area and private meditation area for the Abbot and First Vice Abbot, plus one restroom.

Figure 1-A: Project Vicinity Map



Source: Google Maps, 1/10

- Residents' Quarters – The residence quarters will total approximately 8,936 SF. The first story will house six double-occupancy bedrooms (approximately 220 SF each), three multi-purpose rooms totaling approximately 900 SF, a laundry room, locker room and communal bathroom. The second story will support a library, six double-occupancy bedrooms (approximately 900 SF), a communal bathroom, and an isolation bedroom with a private bathroom (150 SF total). The east end of the building will contain a 450 SF office and reception area, and a 325 SF kitchen connected to a 1,055 SF dining area. The kitchen will have additional areas such as smaller rooms to be used for storage, pantries and refrigeration.

With the project, the existing monks' quarters and administrative operation in the main house will be relocated to the new facility. The main house will be converted into a guest room/library and study rooms for the monks. These various facilities are necessary for the meditation, study, and other religious exercise of those residing at the Center, as well as visitors.

## 1.2 Environmental Settings & Existing Conditions

### a) Settings & Locations

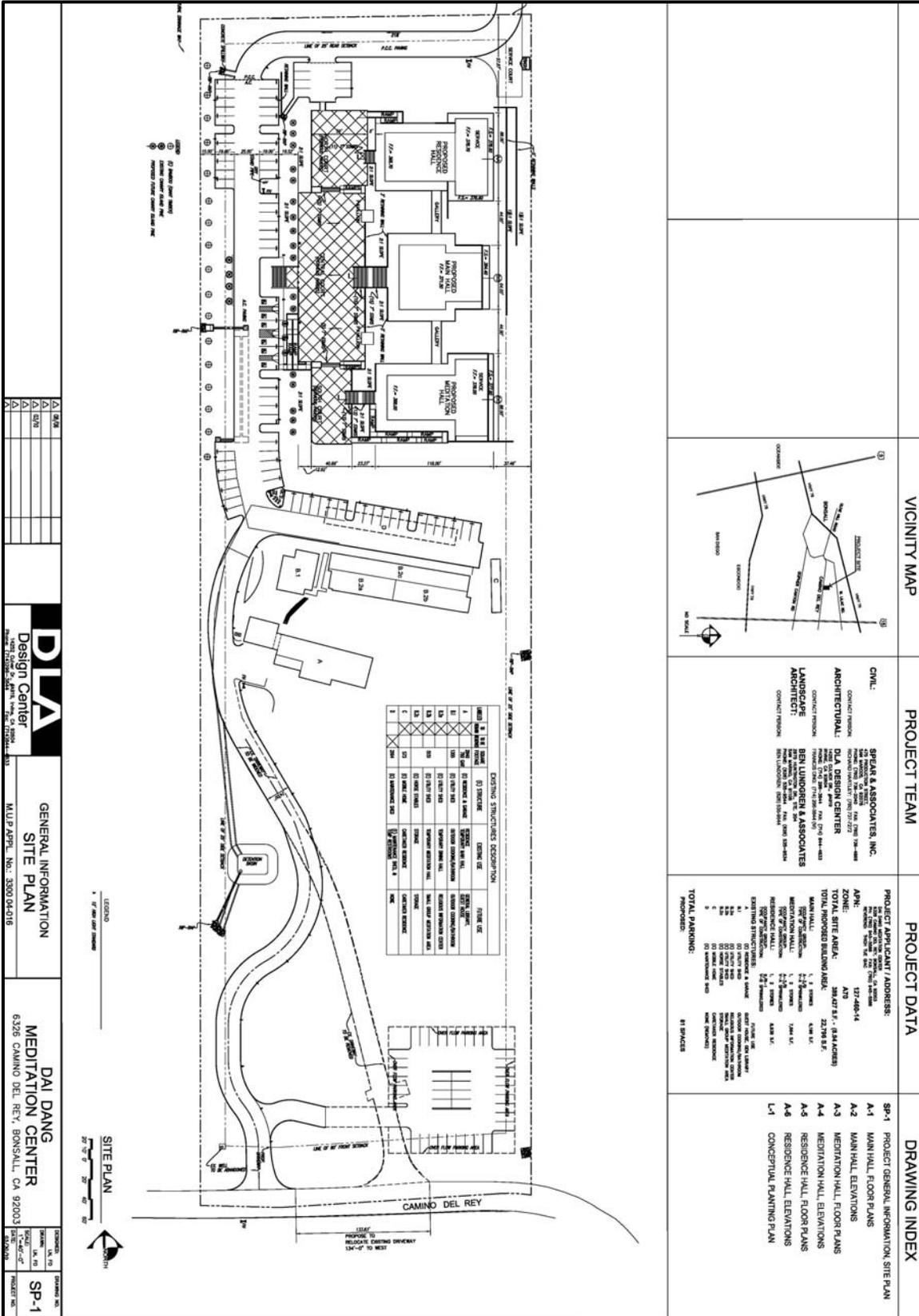
The proposed project site is currently designated intensive agricultural by the General Plan as shown on the Bonsall Community Plan Map. The existing and proposed site is zoned A-70 limited agricultural dwelling units per acre. The proposed on-site noise sensitive land uses (NSLU) located on the project site is the meditation hall, residence quarters/library/kitchen, and a main worship hall. The site plan used for this analysis is shown on Figure 1-B.

Befitting the overall rural setting, the community is served by one major roadway to the north, SR-76 connecting Interstates 5 & 15. Adjacent to the subject property boundaries is a residential dwelling unit, an elementary school, golf course and a church.

### b) Existing Noise Conditions

The project is located adjacent to Camino Del Rey, described as a light collector (2.2B) roadway in the County of San Diego's Circulation Element with a posted speed limit of 50 MPH west of the site and 45 MPH east of the site. Existing noise at the proposed site occurs mainly from traffic traveling on Camino Del Rey and background agricultural activities.

Figure 1-B: Project Site Plan



### 1.3 Methodology and Equipment

#### a) Noise Measuring Methodology and Procedures

To determine the existing noise environment and to assess potential noise impacts, measurements were taken on the project having a direct line of site to Camino Del Rey. This was done to determine the future worst-case conditions at the proposed NSLU. The noise measurements were recorded on May 25, 2010 by Ldn Consulting, Inc. between approximately 11:10 a.m. and 11:30 a.m.

Noise measurements were taken using a Larson-Davis Model LxT Type 1 precision sound level meter, programmed, in "slow" mode, to record noise levels in "A" weighted form. The sound level meter and microphone were mounted on a tripod, five feet above the ground and equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 150.

The noise measurement location was determined based on site access and noise impact potential to the proposed uses. Monitoring location 1 (M1) was located roughly 105-feet from Camino Del Rey along the project driveway with direct line of site to Camino Del Rey. The noise monitoring locations are provided graphically in Figure 1-C on the following page.

The results of the noise level measurements are presented in Table 1-1. The noise measurements were monitored for a time period of 20 minutes. The ambient Leq noise levels measured in the area of the project during the late morning hour were found to be roughly 56 dBA Leq. The existing noise levels in the project area consisted primarily of traffic along Camino Del Rey and to a lesser extent the background noise from agricultural operations.

**Table 1-1: Existing Noise Levels**

Location	Time	One Hour Noise Levels (dBA)					
		Leq	Lmin	Lmax	L10	L50	L90
M1	11:10–11:30 a.m.	55.7	32.8	69.5	60.5	48.2	38.7

Source: Ldn Consulting, Inc. May 25, 2010



## b) Noise Modeling Software

The expected roadway noise impact from Camino Del Rey was projected using Caltrans Sound32 Traffic Noise Prediction Model. Sound32 is a peak hour based traffic noise prediction model. The results of this analysis are based on the California Vehicle Noise Emission Levels (CALVENO). The Sound 32 model was calibrated in accordance with the FHWA Highway Traffic Noise Prediction Manual (Report RD-77-108) and in accordance with Caltrans Technical Noise Supplement (TeNS) section N-5400. The critical model input parameters, which determine the projected vehicular traffic noise levels, include vehicle travel speeds, the percentages of automobiles, medium trucks and heavy trucks in the roadway volume, the site conditions ("hard" or "soft") and the peak hour traffic volume.

The peak hour traffic volumes range between 6-12% of the average daily traffic (ADT) and 10% is generally acceptable for noise modeling purposes. The required coordinate information necessary for the Sound32 traffic noise prediction model input was taken from the preliminary site plans provided by Design Center dated March 30, 2010. To predict the future noise levels the preliminary site plans were used to identify the pad elevations, the roadway elevations, and the relationship between the noise source(s) and the NSLU areas. Traffic was consolidated into a single lane located along the centerline of each roadway. Longer roadway segments were subdivided into a series of adjoining segments for analysis. For this analysis, the roadway segments were extended a minimum of 300 feet beyond the observer locations. No grade correction or calibration factor (according to Caltrans Policy TAN-02-01 dated January 17, 2002) was included as part of the Sound32 traffic noise prediction model analysis.

To evaluate the potential noise impacts on the proposed development, outdoor observers were located in NSLU areas and placed five feet above the pad elevation and near the center of the rear yard a minimum of ten feet from the top/bottom of slope. All second floor observers located fifteen feet above the proposed pad elevation at the anticipated building facades.

## c) Noise Calculations and Factors

Noise is defined as unwanted or annoying sound which interferes with or disrupts normal activities. Exposure to high noise levels has been demonstrated to cause hearing loss. The individual human response to environmental noise is based on the sensitivity of that individual, the type of noise that occurs and when the noise occurs.

Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel (dB). The sounds heard by humans typically do not consist of a single frequency but of a broadband of frequencies having different sound pressure levels. The method for evaluating all the frequencies of the sound is to apply an A-weighting to reflect how the

human ear responds to the different sound levels at different frequencies. The A-weighted sound level adequately describes the instantaneous noise whereas the equivalent sound level depicted as Leq represents a steady sound level containing the same total acoustical energy as the actual fluctuating sound level over a given time interval.

The Community Noise Equivalent Level (CNEL) is the 24 hour A-weighted average for sound, with corrections for evening and nighttime hours. The corrections require an addition of 5 decibels to sound levels in the evening hours between 7 p.m. and 10 p.m. and an addition of 10 decibels to sound levels at nighttime hours between 10 p.m. and 7 a.m. These additions are made to account for the increased sensitivity during the evening and nighttime hours when sound appears louder.

A vehicle's noise level is from a combination of the noise produced by the engine, exhaust and tires. The cumulative traffic noise levels along a roadway segment are based on three primary factors: the amount of traffic, the travel speed of the traffic, and the vehicle mix ratio or number of medium and heavy trucks. The intensity of traffic noise is increased by higher traffic volumes, greater speeds and increased number of trucks.

Because mobile/traffic noise levels are calculated on a logarithmic scale, a doubling of the traffic noise or acoustical energy results in a noise level increase of 3 dBA. Therefore the doubling of the traffic volume, without changing the vehicle speeds or mix ratio, results in a noise increase of 3 dBA. Mobile noise levels radiate in an almost oblique fashion from the source and drop off at a rate of 3 dBA for each doubling of distance under hard site conditions and at a rate of 4.5 dBA for soft site conditions. Hard site conditions consist of concrete, asphalt and hard pack dirt while soft site conditions exist in areas having slight grade changes, landscaped areas and vegetation. On the other hand, fixed/point sources radiate outward uniformly as sound travels away from the source. Their sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance.

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

## **2.0 NOISE SENSITIVE LAND USES (NSLU)**

### 2.1 Guidelines for the Determination of Significance

Project implementation will result in the exposure of any on-or off-site, existing or reasonably foreseeable future NSLU to exterior or interior noise (including noise generated from the project, together with noise from the roads [existing and planned], railroads, airports, heliports and all other noise sources) in excess of any of the following:

- a) Exterior Locations:
  - i. 60 dBA (CNEL); or
  - ii. An increase of 10 dBA (CNEL) over pre-existing noise.

In the case of single-family residential detached NSLUs, exterior noise shall be measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum area:

(1) Net lot area up to 4,000 square feet:	400 square feet
(2) Net lot area 4,000 square feet to 10 acres:	10% of net lot area
(3) Net lot area over 10 acres:	1 acre

For all other projects, exterior noise shall be measured at all exterior areas provided for group or private usable open space.

#### b) Interior Locations:

45 dBA (CNEL) except for the following cases:

- i. Rooms which are usually occupied only a part of the day (schools, libraries, or similar facilities); the interior one-hour average sound level due to noise outside should not exceed 50 decibels (A).
- ii. Corridors, hallways, stairwells, closets, bathrooms, or any room with a volume less than 490 cubic feet.

### 2.2 Potential Noise Impacts

It is expected that the primary source of noise impacts to the project site will occur from traffic noise along Camino Del Rey. To determine the future noise environment and impact potentials the Sound32 model first needs to be calibrated using the ambient noise measurements results. The existing conditions were modeled to compare against the noise

measurements described in Section 1.3.a of this report. Section N-5440 of the Caltrans Technical Noise Supplement provides detailed procedures for calibrating the Sound32 traffic noise prediction model. The comparison is made to ensure that predicted traffic noise levels accurately reflect the actual measured noise levels. Section N-5460 suggests that model calibration should not be performed when calculated and measured noise levels are within 1 dBA. Differences of 3.0 to 4.0 dBA are routinely calibrated to adjust for site conditions the Sound32 model did not account for including topographic features, soft site conditions and existing structures or barriers.

During the aforementioned ambient noise measurements, traffic counts were taken to determine the existing vehicle mix for the model calibration. Based on the results, the existing traffic noise model utilizes an hourly vehicle mix of 95.6% Autos, 2.2% Medium Trucks and 2.2% Heavy Trucks for Camino Del Rey. Table 2-1 presents the roadway parameters used in the analysis including the calculated hourly traffic volumes, vehicle speeds and the hourly traffic flow distribution (vehicle mix) for the existing conditions. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the Sound32 Model.

**Table 2-1: Existing Traffic Parameters**

Roadway <sup>1</sup>	Observed Traffic Volume	Observed Speeds (MPH)	Vehicle Mix %		
			Auto	Medium Trucks	Heavy Trucks
Camino Del Rey	138	40	95.6	2.2	2.2

<sup>1</sup>All roadway parameters were observed during the ambient noise measurement period.

The ambient measurement location was modeled in Sound32 to compare with the noise monitoring locations presented previously in Table 1-1. The modeled existing noise level comparison is provided in Table 2-2. The model is predicting the noise levels within 0.1 dBA using hard-site conditions. Therefore, the roadways were modeled as hard site conditions for the future noise environment and no calibration factor was applied to predict the first/ground floor areas. Second floor areas were modeled using hard site conditions based upon Caltrans Protocol. The existing model input parameters for calibration and output file are provided as Attachment A to this report.

**Table 2-2: Model Calibration**

Receptor	Location	Calibration Results (dBA)		
		Measured Noise Levels	Modeled Noise Levels	Difference
M1	~1050-Feet from Camino Del Rey	55.7	55.7	0.0 <sup>1</sup>
<sup>1</sup> Model is within 1 dBA and no calibration is needed.				

a) Potential Build Out Noise Conditions

The future traffic along Camino Del Rey is estimated to be 9,000 ADT accord to the SANDAG Series 11 Traffic Prediction Model and only 7,200 ADT according to the County’s General Plan Update for 2030. The Buildout scenario includes the worst-case future year 2030 traffic volume forecasts provided by SANDAG of 9,000 ADT. The future roadway parameters and inputs utilized in this analysis are provided in Table 2-3. To assess the peak hour traffic noise conditions for Camino Del Rey, 10% of the ADT was utilized.

**Table 2-3: Buildout 2030 Traffic Parameters**

Roadway	Average Daily Traffic (ADT)	Peak Hour Volume <sup>1</sup>	Modeled Speeds (MPH)	Vehicle Mix %		
				Auto	Medium Trucks	Heavy Trucks
Camino Del Rey	9,000	900	50	95.0	3.0	2.0
<sup>1</sup> 10% of the ADT.						
<sup>2</sup> A conservative vehicle mixed was used to account for potential heavy trucks.						

Camino Del Rey is currently considered a Light Collector with a posted speed of 50 MPH west of the site and a posted speed limit of 45 MPH east do the site based on the project’s traffic study. To determine the worst-case noise levels the existing speed limit of 50 MPH was utilized. The future traffic noise model also utilizes a more conservative and typical County vehicle mix with more heavy trucks than observed for both roadways.

b) Potential Noise Impact Identification

Noise contours are lines that when drawn from a noise source indicate a continuous or equivalent level of noise exposure. Noise contour lines are generally used as a planning tool to

assess potential impacts and the need for additional analysis. The noise contour lines that may affect the project site were developed for the unshielded future Buildout conditions. No barriers or structures were included as part of the noise contour analysis. The Sound32 traffic noise prediction model was used to calculate the noise contours perpendicular to the roadways. Only the natural topography and road edges, which are elevated above the travel lanes, were incorporated in the contour model to determine the worst-case future noise levels. The model input parameters and results for the first and second noise contours are provided in Attachment B. Figure 2-A provides the location of the future first and second floor 75 and 60 dBA CNEL noise contours.

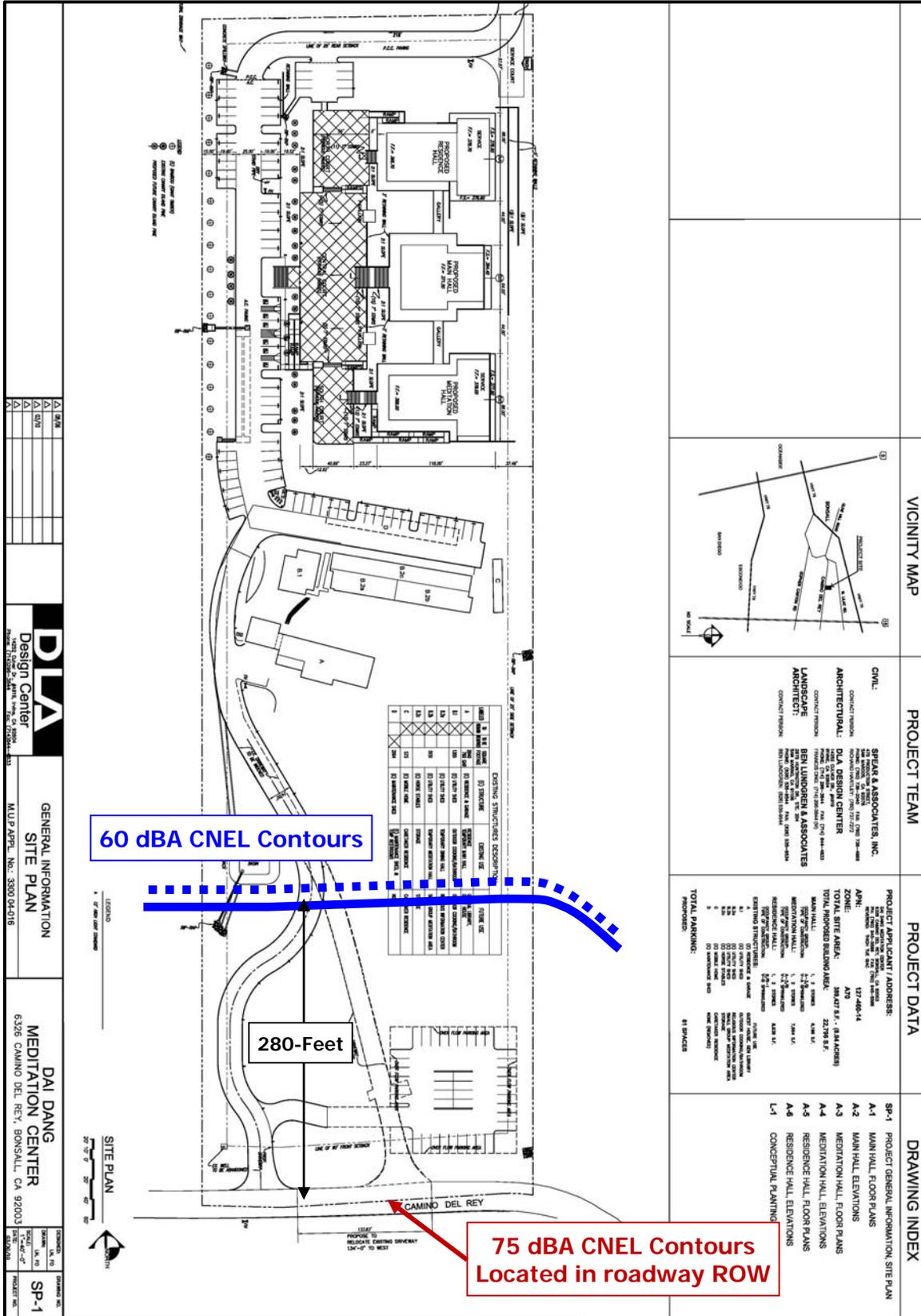
The noise contours provided in Figure 2-A show that the 75 dBA CNEL contours are all located within the right-of-way (ROW) along the road edges. The worst-case first floor 60 dBA CNEL contour extends approximately 275-feet Camino Del Rey. The second floor unshielded 60 dBA CNEL contour extends 280-feet from Camino Del Rey. The contours show that noise sensitive land use (NSLU) areas will not exceed the County of San Diego 60 dBA CNEL exterior noise standard. Based on this finding, no additional detailed exterior noise analysis is required and no design or mitigation measures are required.

### 2.3 Off-site Noise Impacts

The off-site project related roadway segment noise levels projected in this report were calculated using the methods in the Highway Noise Model published by the Federal Highway Administration (FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108, December, 1978). The FHWA Model uses the traffic volume, vehicle mix, speed, and roadway geometry to compute the equivalent noise level. A spreadsheet calculation was used which computes equivalent noise levels for each of the time periods used in the calculation of CNEL. Weighting these equivalent noise levels and summing them gives the CNEL for the traffic projections. The noise contours are then established by iterating the equivalent noise level over many distances until the distance to the desired noise contour(s) are found. For this project the 60 dBA CNEL contour was calculated based upon the County of San Diego thresholds.

Hard site conditions, consistent with the ambient monitoring, were used to develop the noise contours and analyze noise impacts along all roadway segments. The future traffic noise model utilizes a typical, conservative vehicle mix of 95% Autos, 3% Medium Trucks and 2% Heavy Trucks for all analyzed roadway segments. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model.

Figure 2-A: Future Noise Contour Locations



VICINITY MAP	PROJECT TEAM	PROJECT DATA	DRAWING INDEX
	<p><b>CIVIL:</b> SPEAR &amp; ASSOCIATES, INC. CONTACT PERSON: [Name] PHONE: [Number]</p> <p><b>ARCHITECTURAL:</b> DLA DESIGN CENTER CONTACT PERSON: [Name] PHONE: [Number]</p> <p><b>LANDSCAPE ARCHITECT:</b> BEN LUNDGREN &amp; ASSOCIATES CONTACT PERSON: [Name] PHONE: [Number]</p>	<p><b>PROJECT APPLICANT / ADDRESS:</b> DAI DANG MEDITATION CENTER 6326 CAMINO DEL REY, BONSALE, CA 92003</p> <p><b>APRIL 2014</b></p> <p><b>ZONE:</b> A7B</p> <p><b>TOTAL SITE AREA:</b> 38,427 S.F. (0.88 ACRES)</p> <p><b>TOTAL IMPROVED BELTWAY AREA:</b> 22,795 S.F.</p> <p><b>MAIN HALL:</b> 10,000 S.F.</p> <p><b>MEDITATION HALL:</b> 10,000 S.F.</p> <p><b>RESIDENCE HALL:</b> 10,000 S.F.</p> <p><b>CONCEPTUAL PLANNING:</b> L-1</p> <p><b>TOTAL PARKING:</b> 81 SPACES</p>	<p>SP-1 PROJECT GENERAL INFORMATION SITE PLAN</p> <p>A-1 MAIN HALL FLOOR PLANS</p> <p>A-2 MEDITATION HALL FLOOR PLANS</p> <p>A-3 MEDITATION HALL FLOOR PLANS</p> <p>A-4 RESIDENCE HALL FLOOR PLANS</p> <p>A-5 CONCEPTUAL PLANNING</p>

Direct and cumulative roadway noise impacts would be considered significant if the project increases noise levels for a noise sensitive land use by 3 dBA CNEL and if: (1) the existing noise levels already exceed the 60 dBA CNEL residential standard, or (2) the project increases noise levels from below the 60 dBA CNEL standard to above 60 dBA CNEL in the area adjacent to the roadway segment.

The County of San Diego requires that the Cumulative without Project scenario and the cumulative with project scenario be compared to determine if significant impacts occur. Project generated cumulative roadway noise impacts would be considered significant if the project raises the Cumulative without Project noise level by 1 dBA or greater.

#### a) Direct Noise Impacts

To determine if direct off-site noise level increases associated with the development of the proposed project will create noise impacts. The noise levels for the existing conditions were compared with the noise level increase of existing plus the proposed project. Utilizing the project's traffic assessment (Source: Darnell and Associates, 3/12/10) noise contours were developed for the following traffic scenarios:

Existing: Current day noise conditions without construction of the proposed project.

Existing Plus Project: Current day noise conditions plus the completion of the proposed project.

Existing vs. Existing Plus Project: Comparison of the direct project related noise level increases in the vicinity of the proposed project site.

The noise levels and the distances to the 60 dBA CNEL contours for the roadways in the vicinity of the Project site are given in Table 2-5 for the Existing Scenario and in Table 2-6 for the Existing plus Project Scenario. Note that the values given do not take into account the effect of any noise barriers or topography that may affect ambient noise levels. Table 2-7 presents the comparison of the Existing Year with and without project related noise levels. The roadway segment noise levels will increase from 0.0 dBA CNEL to 0.3 dBA CNEL with the development of the proposed project.

The project does not create a direct impact of more than 3.0 dBA CNEL on any roadway segment. Therefore, the proposed project's direct contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

**Table 2-5: Existing Noise Levels**

Roadway	Segment	ADT <sup>1</sup>	Vehicle Speeds (MPH) <sup>1</sup>	Noise Level @ 50-Feet (dBA CNEL)	60 dBA CNEL Contour Distance (Feet)
State Route 76	North of Mission Rd	23,226	55	75.1	1,603
	South Mission Rd to Olive Hill Rd	41,618	55	77.6	2,872
	South of Olive Hill Rd	30,864	55	76.3	2,130
Camino Del Rey	SR-76 to Old River Rd	6,760	50	68.7	374
	Old River Rd to Bonsall HS	6,760	50	68.7	374
	Bonsall HS to West Lilac Rd	6,760	50	68.7	374
	West Lilac Rd to Villas Dr	5,077	50	67.5	281
	Villas Dr to Project Access	5,077	50	67.5	281
	Project Access to Aqueduct Rd	2,497	50	64.4	138
	Aqueduct Rd to Old Highway 395	2,497	50	64.4	138
Old Highway 395	Nelson Way to Camino Del Rey	1,923	55	64.2	133
	Camino Del Rey to Old Highway 395	3,883	55	67.3	268

<sup>1</sup> Source: Project Traffic study prepared by Darnell and Associates, 3/12/10

**Table 2-6: Existing + Project Noise Levels**

Roadway	Segment	ADT <sup>1</sup>	Vehicle Speeds (MPH) <sup>1</sup>	Noise Level @ 50-Feet (dBA CNEL)	60 dBA CNEL Contour Distance (Feet)
State Route 76	North of Mission Rd	23,256	55	75.1	1,605
	South Mission Rd to Olive Hill Rd	41,663	55	77.6	2,875
	South of Olive Hill Rd	30,909	55	76.3	2,133
Camino Del Rey	SR-76 to Old River Rd	6,865	50	68.8	379
	Old River Rd to Bonsall HS	6,880	50	68.8	380
	Bonsall HS to West Lilac Rd	6,880	50	68.8	380
	West Lilac Rd to Villas Dr	5,197	50	67.6	287
	Villas Dr to Project Access	5,197	50	67.6	287
	Project Access to Aqueduct Rd	2,677	50	64.7	148
	Aqueduct Rd to Old Highway 395	2,671	50	64.7	148
Old Highway 395	Nelson Way to Camino Del Rey	1,977	55	64.4	136
	Camino Del Rey to Old Highway 395	4,003	55	67.4	276

<sup>1</sup> Source: Project Traffic study prepared by Darnell and Associates, 3/12/10

**Table 2-7: Existing vs. Existing + Project Noise Levels**

Roadway	Segment	Existing Noise Level @ 50-Feet	Existing Plus Project Noise Level @ 50-Feet (dBA CNEL)	Project Related Direct Noise Level Increase (dBA CNEL)
State Route 76	North of Mission Rd	75.1	75.1	0.0
	South Mission Rd to Olive Hill Rd	77.6	77.6	0.0
	South of Olive Hill Rd	76.3	76.3	0.0
Camino Del Rey	SR-76 to Old River Rd	68.7	68.8	0.1
	Old River Rd to Bonsall HS	68.7	68.8	0.1
	Bonsall HS to West Lilac Rd	68.7	68.8	0.1
	West Lilac Rd to Villas Dr	67.5	67.6	0.1
	Villas Dr to Project Access	67.5	67.6	0.1
	Project Access to Aqueduct Rd	64.4	64.7	0.3
	Aqueduct Rd to Old Highway 395	64.4	64.7	0.3
Old Highway 395	Nelson Way to Camino Del Rey	64.2	64.4	0.1
	Camino Del Rey to Old Highway 395	67.3	67.4	0.1

Source: Ldn Consulting, Inc, 5/24/10

b) Cumulative Noise Impacts

To determine if cumulative off-site noise level increases associated with the development of the proposed project would create noise impacts. No cumulative analysis was required in the project traffic study so the traffic volumes for the existing conditions were compared with the traffic volume increase of the proposed project. The project’s traffic assessment states that the project site only generates 300 daily trips on a typical Sunday with a worst-case peak hour volume of 78 trips (Source: Dai Dang Meditation Center Traffic Study, Darnell and Associates, 3/12/10). The existing average daily traffic (ADT) volumes are between 1,923 along Old Highway 395 to as much as 41,618 along SR-76. Typically it requires a project to double (or add 100%) the traffic volumes to have a direct impact of 3 dBA CNEL or be a major contributor to the cumulative traffic volumes. The project will add less than a 10% increase to the exiting roadway volumes and no direct or cumulative impacts are anticipated. This is consistent with the direct impact assessment and findings provided above in Section 2.3

2.4 Conclusions

It was determined from the analysis that the NSLU’s adjacent to the roadways will comply with the County of San Diego 60 dBA CNEL due to the distance separation, intervening topography and the low traffic volumes.

The future first and second level 60 dBA CNEL contours will be approximately 275-feet from the roadway centerline. The proposed noise sensitive land uses (NSLU's) are located 400-feet or more from the roadway centerline of Camino Del Rey. Therefore no impacts are anticipated and mitigation measures are not necessary to meet the County of San Diego exterior or interior standards.

The project does not create a direct impact of more than 3.0 dBA CNEL on any roadway segment and no cumulative noise increase of 3 dBA CNEL or more were found. Therefore, the proposed project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

### **3.0 CONSTRUCTION ACTIVITIES**

#### **3.1 Guidelines for the Determination of Significance**

Construction Noise: Noise generated by construction activities related to the project will exceed the standards listed in San Diego County Code Section 36.410, Construction Equipment.

Section 36.410 states:

Except for emergency work,

- a) It shall be unlawful for any person to operate construction equipment between the hours of 7 p.m. of any day and 7 a.m. of the following day.
- b) It shall also be unlawful for any person to operate construction equipment on Sundays, and days appointed by the President, Governor, or the Board of Supervisors for a public fast, Thanksgiving, or holiday, but a person may operate construction equipment on the above-specified days between the hours of 10 a.m. and 5 p.m. at his residence or for the purpose of constructing a residence for himself, provided that the average sound level does not exceed 75 decibels during the period of operation and that the operation of construction equipment is not carried out for profit or livelihood.
- c) It shall also be unlawful to operate any construction equipment so as to cause at or beyond the property line of any property upon which a legal dwelling unit is located an average sound level greater than 75 decibels between the hours of 7 a.m. and 7 p.m.

For temporary activities, the County considers the 75 decibel (A) average to be based on a period of eight hours.

#### **3.2 Potential Property Line Noise Impacts**

##### **a) Potential Build Out Noise Conditions**

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

The U.S. Environmental Protection Agency (U.S. EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from 60 dBA to in excess of 100 dBA when

measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet from the source to the receptor, and reduced to 63 dBA at 200 feet from the source.

b) Potential Noise Impact Identification

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

According to the project applicant, the grading operation will utilize a total of one loader, one dozer, a single backhoe and a water truck during grading activities. Based on the EPA noise emissions, empirical data and the amount of equipment needed, worst case noise impacts from this construction equipment for roadway operations would occur during the base operations (grading). The noise levels utilized in this analysis based upon the anticipated list of equipment are shown in Table 3-1. In order to determine the worst case scenario for the grading activities all the equipment was placed in a common location, which is not physically possible. As can be seen in Table 3-1, even if all the equipment were placed together the cumulative grading activities noise levels would be 77.9 dBA and would attenuate 2.9 dBA at a distance of 70-feet from the point source noise and would be at or below the 75 dBA threshold.

**Table 3-1: Construction Noise Levels**

Construction Equipment	Quantity	Source Level @ 50-Feet (dBA) <sup>1</sup>	Duty Cycle (Hours/Day)	Cumulative Noise Level @ 50-Feet (dBA)
Dozer - D8	1	8	74	74.0
Water Truck	1	8	70	70.0
Backhoe	1	8	70	70.0
Loader	2	8	72	72.0
Cumulative Levels @ 50 Feet				77.9
Distance To Property Line (Feet)				70
Noise Reduction Due To Distance				-2.9
<b>NEAREST PROPERTY LINE NOISE LEVEL</b>				<b>75.0</b>
<sup>1</sup> Source: U.S. Environmental Protection Agency (U.S. EPA), 1971 and Empirical Data				

The project site is rectangular shaped having dimensions of 330-feet by 1180-feet. The grading equipment will be spread out over the project site from distances near the occupied property to distances of 330 feet away. Based upon the proposed site plan the majority of the grading operations will occur more than 100-feet from the northern and eastern property lines and ever further from the western and southern property lines with the exception of the minor grading needed for the proposed on-site roadway and parking.

At average distances over 70-feet the grading activities are anticipated not to exceed the County's 75-dBA standard and would not require any mitigation measures. This means that most of the time the average distance from the equipment to the occupied property is 100 to 165-feet and in that situation no impacts are anticipated.

### 3.3 Conclusions

The grading activities will consist of the preparation of the proposed internal roadways and the finished pads. The grading equipment will be spread out over the project site from distances near the occupied property to distances of 330 feet or more away. Based upon the proposed site plan the majority of the grading operations will occur more than 100-feet from the northern and eastern property lines and ever further from the western and southern property lines with the exception of the minor grading needed for the proposed on-site roadway and parking. This means that most of the time the average distance from the equipment to the occupied property is 100 to 165-feet and in that situation no impacts are anticipated. At distances of more than 70-feet the grading activities are anticipated not to exceed the County's 75-dBA standard and no mitigation measures are required.

## 4.0 OPERATIONAL ACTIVITIES

### 4.1 Guidelines for the Determination of Significance

According to Section 36.404 of the County Noise Ordinance, it shall be unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level, at any point on or beyond the boundaries of the property exceeds the applicable limits on Table 4-1. An impact would occur and mitigation would be needed if the project will generate airborne noise which, together with noise from all sources, will be in excess of either of the following:

**Table 4-1 San Diego County Code Section 36.404**

**SOUND LEVEL LIMITS IN DECIBELS (dBA)**

ZONE		APPLICABLE LIMIT ONE-HOUR AVERAGE SOUND LEVEL (DECIBELS)
R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-88, S-90, S-92, R-V, and R-U Use Regulations with a density of less than 11 dwelling units per acre.	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
R-RO, R-C, R-M, C-30, S-86, R-V, R-U and V5. Use Regulations with a density of 11 or more dwelling units per acre.	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
S-94, V4, and all other commercial zones.	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
V1, V2	7 a.m. to 7 p.m.	60
V1, V2	7 p.m. to 10 p.m.	55
V1	10 p.m. to 7 a.m.	55
V2	10 p.m. to 7 a.m.	50
V3	7 a.m. to 10 p.m.	70
	10 p.m. to 7 a.m.	65
M-50, M-52, M-54	Anytime	70
S-82, M-58, and all other industrial zones.	Anytime	75

(a) If the measured ambient level exceeds the applicable limit noted above, the allowable one hour average sound level shall be the ambient noise level, plus three decibels. The ambient noise level shall be measured when the alleged noise violation source is not operating.

(b) The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones; provided however, that the one-hour average sound level limit applicable to extractive industries, including but not limited to borrow pits and mines, shall be 75 decibels at the property line regardless of the zone which the extractive industry is actually located.

The applicant's property and all surrounding properties are zoned A-70 and A-72. According to Section 36.404 of the County of San Diego Noise Ordinance, all areas zoned A-70 and A-72 have a most restrictive property line standard of 50 dBA Leq for the daytime hours of 7 a.m. to 10 p.m. and 45 dBA Leq for the nighttime hours of 10 p.m. to 7 a.m.

There are no choirs or children's activities that will take place during the week or after normal business hours. Visitors generally arrive at the facility on weekends and holidays for a one-hour meditation period, a silent communal lunch, and a question and answer period with the headmaster. The center will operate from 9:00 a.m. to 6:00 p.m. on weekends and holidays. There is no retail component (e.g., gift shop or other sales program) proposed with the project. During the week, the Meditation Center is an instructional facility for the resident monks onsite and no visitors are allowed after 5:00 p.m. For these reasons, the proposed meditation center and monastery does not function in the same way as a typical church or temple.

On the typical weekend (Sunday) service the facility will be open to visitors who come to the facility for worship, meditation, a silent communal lunch, and a question and answer period with the headmaster. The normal weekend meditation activity generally attracts up to 300 people. These typical Sunday services will occur approximately 52 times per year. Typical Sunday services would follow the following program:

8:00am-9:00am	Gathering together
9:00am-9:45am	Ceremony
10:00am-11:15am	Discourse
11:30am-12:30pm	Silent lunch
1:00pm- 1:30pm	Rest period
1:30pm-3:00pm	Meditation or Dharma discussion
5:00pm-5:30pm	Ceremony

If special events are desired or requested they will be applied for under special use permit for approval prior to any event. Additionally no mechanical equipment (i.e., HVAC) is being proposed as part of this project. Therefore no noise impacts are anticipated and no additional analysis is required.

## 4.2 Conclusions

It was determined, based on the proposed project that the on-site activities will be located indoors and no mechanical equipment (i.e., HVAC units) are being proposed that noise levels are anticipated to be below the County's most restrictive 45 dBA threshold and no noise impacts will occur. Therefore the project related operations are anticipated to comply with the County's Noise Ordinance without any mitigation. If special events are desired or requested they will be applied for under special use permit for approval prior to any event.

## **5.0 SUMMARY OF PROJECT IMPACTS, MITIGATION & CONCLUSIONS**

- On-Site Noise Analysis

It was determined from the analysis that the NSLU's adjacent to the roadways will comply with the County of San Diego 60 dBA CNEL due to the distance separation, intervening topography and the low traffic volumes.

- Off-Site Noise Analysis

The project does not create a direct impact of more than 3.0 dBA CNEL on any roadway segment and no cumulative noise increase of 3 dBA CNEL or more were found. Therefore, the proposed project's direct and cumulative contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

- Operational Noise Analysis

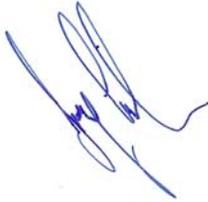
It was determined, based on the proposed project that the on-site activities will be located indoors and no mechanical equipment (i.e., HVAC units) are being proposed that noise levels are anticipated to be below the County's most restrictive 45 dBA threshold and no noise impacts will occur. Therefore the project related operations are anticipated to comply with the County's Noise Ordinance without any mitigation. If special events are desired or requested they will be applied for under special use permit for approval prior to any event.

- Construction Noise Analysis

The grading activities will consist of the preparation of the proposed internal roadways and the finished pads. The grading equipment will be spread out over the project site from distances near the occupied property to distances of 330 feet or more away. Based upon the proposed site plan the majority of the grading operations will occur more than 100-feet from the northern and eastern property lines and ever further from the western and southern property lines with the exception of the minor grading needed for the proposed on-site roadway and parking. This means that most of the time the average distance from the equipment to the occupied property is 100 to 165-feet and in that situation no impacts are anticipated. At distances of more than 70-feet the grading activities are anticipated not to exceed the County's 75-dBA standard and no mitigation measures are required.

## 6.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the future acoustical environment and impacts within and surrounding the Dai Dang Meditation Center (MUP 04-016) development. The report was prepared by Jeremy Loudon; a County approved CEQA Consultant for Acoustics.



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

Date May 26, 2010

**ATTACHMENT A**

MODEL CALIBRATION INPUT AND OUTPUT FILES

Dai Dang - Existing Conditions

T-Peak Hour, 1

132 , 40 , 3 , 40 , 3 , 40

L-Camino Del Rey, 1

N,0.,-5,215,

N,500.,0,225,

N,1000.,5,235,

R, 1 , 67 ,500

500,105,243.,ML1 Hard

R, 2 , 67 ,500

500,105,243.,ML1 Soft

D, 4.5

1 ,2

C,C

SOUND32 - RELEASE 07/30/91

TITLE:

Dai Dang - Existing Conditions

BASED ON FHWA-RD-108 AND  
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER LEQ

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ML1 Hard 55.7

ML1 Soft 53.3

**ATTACHMENT B**

FUTURE NOISE CONTOUR MODEL INPUT AND OUTPUT FILES

Dai Dang - Future Ground Level Contours

T-Peak Hour, 1

855 , 50 , 27 , 50 , 18 , 50

L-Camino Del Rey, 1

N,0.,-5,215,

N,500.,0,225,

N,1000.,5,235,

R, 1 , 67 ,500

400,125,255.,

R, 2 , 67 ,500

500,125,255.,

R, 3 , 67 ,500

600,125,255.,

R, 4 , 67 ,500

400,250,275.,

R, 5 , 67 ,500

500,250,275.,

R, 6 , 67 ,500

600,250,275.,

R, 7 , 67 ,500

400,375,300.,

R, 8 , 67 ,500

500,375,300.,

R, 9 , 67 ,500

600,375,300.,

R, 10 , 67 ,500

400,500,320.,

R, 11 , 67 ,500

500,500,320.,

R, 12 , 67 ,500

600,500,320.,

C,C

SOUND32 - RELEASE 07/30/91

TITLE:

Dai Dang - Future Ground Level Contours

BASED ON FHWA-RD-108 AND  
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
R-1	65.0
R-2	65.1
R-3	65.1
R-4	61.2
R-5	61.3
R-6	61.3
R-7	58.6
R-8	58.7
R-9	58.6
R-10	56.6
R-11	56.6
R-12	56.6

Dai Dang - Future Second Level Contours

T-Peak Hour, 1

855 , 50 , 27 , 50 , 18 , 50

L-Camino Del Rey, 1

N,0.,-5,215,

N,500.,0,225,

N,1000.,5,235,

R, 1 , 67 ,500

400,125,265.,

R, 2 , 67 ,500

500,125,265.,

R, 3 , 67 ,500

600,125,265.,

R, 4 , 67 ,500

400,250,285.,

R, 5 , 67 ,500

500,250,285.,

R, 6 , 67 ,500

600,250,285.,

R, 7 , 67 ,500

400,375,310.,

R, 8 , 67 ,500

500,375,310.,

R, 9 , 67 ,500

600,375,310.,

R, 10 , 67 ,500

400,500,330.,

R, 11 , 67 ,500

500,500,330.,

R, 12 , 67 ,500

600,500,330.,

C,C

SOUND32 - RELEASE 07/30/91

TITLE:

Dai Dang - Future Second Level Contours

BASED ON FHWA-RD-108 AND  
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER LEQ

RECEIVER	LEQ
R-1	64.9
R-2	65.0
R-3	65.0
R-4	61.1
R-5	61.2
R-6	61.2
R-7	58.5
R-8	58.6
R-9	58.6
R-10	56.5
R-11	56.6
R-12	56.6

