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June 26, 2018

Pooja Nagrath  
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1871 The Alameda, Suite 200  
San José, CA 95126

**VIA E-Mail:** [pnagrath@davidjpowers.com](mailto:pnagrath@davidjpowers.com)

**SUBJECT: 3035 El Camino Real, Santa Clara, CA --  
Environmental Noise and Land Use Compatibility Study**

Dear Pooja:

This letter presents the results of the environmental noise and land use compatibility assessment completed for the 3035 El Camino Real project proposed in Santa Clara, California. The proposed project would demolish the existing one-story commercial building and associated parking lot and construct a mixed-use development including up to six live/work condominium units and up to 42 residential condominium units and private office space. This study evaluates the compatibility of the proposed residential and live/work uses with the noise environment at the project site. Included in the report are the fundamentals of environmental noise, a summary of the applicable standards established by the California Building Code and objectives and policies contained in the City of Santa Clara's General Plan, and a description of existing noise levels at the project site. The report then summarizes future noise levels expected at the project site and describes measures necessary to reduce noise levels to acceptable levels.

### **Fundamentals of Environmental Noise**

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its *loudness*. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A *decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level (dBA)*. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This *energy-equivalent sound/noise descriptor* is called  $L_{eq}$ . The most common averaging period is hourly, but  $L_{eq}$  can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level (CNEL)* is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The *Day/Night Average Sound Level ( $L_{dn}$  or DNL)* is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

**TABLE 1 Definition of Acoustical Terms Used in this Report**

<b>Term</b>	<b>Definition</b>
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 micro Pascals.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e. g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. 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 and correlates well with subjective reactions to noise.
Equivalent Noise Level, $L_{eq}$	The average A-weighted noise level during the measurement period.
$L_{max}$ , $L_{min}$	The maximum and minimum A-weighted noise level during the measurement period.
$L_{01}$ , $L_{10}$ , $L_{50}$ , $L_{90}$	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, $L_{dn}$ or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 p.m. and 7:00 a.m.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 p.m.to 10:00 p.m. and after addition of 10 decibels to sound levels measured in the night between 10:00 p.m. and 7:00 a.m.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

**TABLE 2 Typical Noise Levels in the Environment**

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet fly-over at 1,000 feet	110 dBA	Rock band
Gas lawn mower at 3 feet	100 dBA	
Diesel truck at 50 feet at 50 mph	90 dBA	Food blender at 3 feet
Noisy urban area, daytime	80 dBA	Garbage disposal at 3 feet
Gas lawn mower, 100 feet Commercial area	70 dBA	Vacuum cleaner at 10 feet Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	Large business office Dishwasher in next room
Quiet urban daytime	50 dBA	Theater, large conference room
Quiet urban nighttime Quiet suburban nighttime	40 dBA	Library Bedroom at night, concert hall (background)
Quiet rural nighttime	30 dBA	Broadcast/recording studio
	20 dBA	
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), California Department of Transportation, September 2013.

## Effects of Noise

***Sleep and Speech Interference.*** The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noises of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA  $L_{dn}/CNEL$ . Typically, the highest steady traffic noise level during the daytime is about equal to the  $L_{dn}/CNEL$  and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA  $L_{dn}/CNEL$  with open windows and 65-70 dBA  $L_{dn}/CNEL$  if the windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed; those facing major roadways and freeways typically need special glass windows.

***Annoyance.*** Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The  $L_{dn}/CNEL$  as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 50 dBA  $L_{dn}/CNEL$ . At a  $L_{dn}/CNEL$  of about 60 dBA, approximately 12 percent of the population is highly annoyed. When the  $L_{dn}/CNEL$  increases to 70 dBA, the percentage of the population highly annoyed increases to about 25-30 percent of the population. There is, therefore, an increase of about 2 percent per dBA between a  $L_{dn}/CNEL$  of 60-70 dBA. Between a  $L_{dn}/CNEL$  of 70-80 dBA, each decibel increase increases by about 3 percent the percentage of the population highly annoyed. People appear to respond more adversely to aircraft noise. When the  $L_{dn}/CNEL$  is 60 dBA, approximately 30-35 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 3 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase results in about a 4 percent increase in the percentage of the population highly annoyed.

## Regulatory Background

***2016 California Building Code, Title 24, Part 2.*** The current version of the California Building Code (CBC) requires interior noise levels attributable to exterior environmental noise sources to be limited to a level not exceeding 45 dBA  $L_{dn}/CNEL$  in any habitable room.

**2016 California Green Building Standards Code (Cal Green Code).** The State of California established exterior sound transmission control standards for new non-residential buildings as set forth in the 2016 California Green Building Standards Code (Section 5.507.4.1 and 5.507.4.2). Section 5.507 states that either the prescriptive (Section 5.507.4.1) or the performance method (Section 5.507.4.2) shall be used to determine environmental control at indoor areas. The prescriptive method is very conservative and not practical in most cases; however, the performance method can be quantitatively verified using exterior-to-interior calculations. For the purposes of this report, the performance method is utilized to determine consistency with the Cal Green Code. The sections that pertain to this project are as follows:

**5.507.4.1 Exterior noise transmission, prescriptive method.** Wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 when the building falls within the 65 dBA  $L_{dn}$  noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway noise source, as determined by the local general plan noise element.

**5.507.4.2 Performance method.** For buildings located, as defined by Section 5.507.4.1, wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level ( $L_{eq(1-hr)}$ ) of 50 dBA in occupied areas during any hour of operation.

The performance method, which establishes the acceptable interior noise level, is the method typically used when applying these standards.

**City of Santa Clara General Plan.** The City of Santa Clara's General Plan identifies noise and land use compatibility standards for various land uses and establishes policies to control noise within the community. Table 5.10-2 from the General Plan shows acceptable noise levels for various land uses. Residential land uses are considered compatible in noise environments of 55 dBA  $L_{dn}$ /CNEL or less. The guidelines state that where the exterior noise levels are greater than 55 dBA  $L_{dn}$ /CNEL and less than 70 dBA  $L_{dn}$ /CNEL, the design of the project should include measures to reduce noise levels to acceptable levels. Noise levels exceeding 70 dBA  $L_{dn}$ /CNEL at residential land uses are considered incompatible. Residential land uses proposed in noise environments exceeding 70 dBA  $L_{dn}$ /CNEL should generally be avoided, except when the residential use is entirely indoors and where interior noise levels can be maintained at 45 dBA  $L_{dn}$ /CNEL or less.

**TABLE 5.10-2: GENERAL PLAN NOISE STANDARDS**

Noise and Land Use Compatibility (Ldn & CNEL)										
Land Use	50	55	60	65	70	75	80	85		
Residential	Compatible		Require Design and insulation to reduce noise levels			Incompatible. Avoid land use except when entirely indoors and an interior noise level of 45 Ldn can be maintained				
Educational	Compatible		Require Design and insulation to reduce noise levels			Incompatible. Avoid land use except when entirely indoors and an interior noise level of 45 Ldn can be maintained				
Recreational	Compatible		Require Design and insulation to reduce noise levels			Incompatible. Avoid land use except when entirely indoors and an interior noise level of 45 Ldn can be maintained				
Commercial	Compatible		Require Design and insulation to reduce noise levels			Incompatible. Avoid land use except when entirely indoors and an interior noise level of 45 Ldn can be maintained				
Industrial	Compatible		Require Design and insulation to reduce noise levels			Incompatible. Avoid land use except when entirely indoors and an interior noise level of 45 Ldn can be maintained				
Open Space	Compatible									
	Require Design and insulation to reduce noise levels									
	Incompatible. Avoid land use except when entirely indoors and an interior noise level of 45 Ldn can be maintained									

Applicable goals and policies presented in the General Plan are as follows:

- 5.10.6-G1 Noise sources restricted to minimize impacts in the community.
- 5.10.6-G2 Sensitive uses protected from noise intrusion.
- 5.10.6-G3 Land use, development and design approvals that take noise levels into consideration.
- 5.10.6-P1 Review all land use and development proposals for consistency with the General Plan compatibility standards and acceptable noise exposure levels defined on Table 5.10-1.
- 5.10.6-P2 Incorporate noise attenuation measures for all projects that have noise exposure levels greater than General Plan “normally acceptable” levels, as defined on Table 5.10-1.
- 5.10.6-P3 New development should include noise control techniques to reduce noise to acceptable levels, including site layout (setbacks, separation and shielding), building treatments (mechanical ventilation system, sound-rated windows, solid core doors and baffling) and structural measures (earthen berms and sound walls).
- 5.10.6-P4 Encourage the control of noise at the source through site design, building design, landscaping, hours of operation and other techniques.
- 5.10.6-P5 Require noise-generating uses near residential neighborhoods to include solid walls and heavy landscaping along common property lines, and to place compressors and mechanical equipment in sound-proof enclosures.

- 5.10.6-P6 Discourage noise sensitive uses, such as residences, hospitals, schools, libraries, and rest homes, from areas with high noise levels, and discourage high noise generating uses from areas adjacent to sensitive uses.
- 5.10.6-P7 Implement measures to reduce interior noise levels and restrict outdoor activities in areas subject to aircraft noise in order to make Office/Research and Development uses compatible with the Norman Y. Mineta International Airport land use restrictions.

### **Existing Noise Environment**

The project site is located at 3035 El Camino Real, between Calabazas Boulevard and Alpine Avenue, in the City of Santa Clara. The site is currently developed with a used car lot and is bordered by a service and tire center to the east and restaurants to the west. Single-family residential land uses are located north of the site, and restaurant and retail land uses are located south of the site, opposite El Camino Real. The noise environment at the site and in the surrounding areas results primarily from vehicular traffic along El Camino Real. Occasional overhead aircraft associated with the Mineta San José International Airport are also audible at times at the project site.

The existing noise environment in the project area was quantified by Illingworth & Rodkin, Inc. in September 2016 and March 2018. The first noise monitoring survey was conducted at a location east of the site, between Los Padres Boulevard and McCormick Drive, from Monday, March 26, 2018 and Thursday, March 29, 2018. Long-term noise measurement LT-1 was made approximately 60 feet from the centerline of El Camino Real. Hourly average noise levels at LT-1 typically ranged from 66 to 71 dBA  $L_{eq}$  during daytime hours (7:00 a.m. to 10:00 p.m.) and from 58 to 67 dBA  $L_{eq}$  during nighttime hours (10:00 p.m. to 7:00 a.m.). The community noise equivalent level during the monitoring period ranged from 71 to 72 dBA CNEL. The daily trend in noise levels at LT-1 is shown in Appendix A.

The second noise monitoring survey was also conducted east of the site, between Buchanan Drive and Las Palmas Drive, from Thursday, September 1, 2016 and Tuesday, September 6, 2016. Long-term noise measurement LT-2 was made approximately 100 feet from the centerline of El Camino Real. Hourly average noise levels at LT-2 typically ranged from 63 to 71 dBA  $L_{eq}$  during the day and from 54 to 66 dBA  $L_{eq}$  at night. The community noise equivalent level during the monitoring period ranged from 69 to 70 dBA CNEL, consistent with the levels measured at LT-1 accounting for the difference in distance from the noise source. The daily trend in noise levels at LT-2 is shown in Appendix A.

### **Noise and Land Use Compatibility Assessment**

As established in Table 5.10-2 of the City's General Plan, noise levels at residential outdoor use areas should be maintained at or below 55 dBA CNEL to be considered "normally acceptable" by the City of Santa Clara. A multi-use lawn area with picnic benches, a BBQ area, a shade canopy, and a variety of seating is proposed in the center of the site, well shielded from the surrounding land uses by project buildings. The City's exterior noise standard would apply to common outdoor

use areas, but would not be applied at small private decks or balconies proposed by the project. A noise standard of 45 dBA CNEL would apply to residential interiors proposed by the project.

The future noise environment at the project site would continue to result primarily from traffic along El Camino Real. Adjacent land uses, including restaurants and a service center and tire shop, also produce noise during operations. Based on the conceptual site plan, Building A would be setback 70 feet from the center of El Camino Real, the two Building B buildings would be setback 180 feet from the center of El Camino Real, and Building C would be setback by 160 feet. The multi-use lawn area would be setback about 230 feet from the center of El Camino Real. Buildings B, C, and the multi-use lawn area would be well shielded from El Camino Real traffic by Building A.

A traffic study was not required for the proposed project. Future traffic noise increases along El Camino Real were estimated assuming a 1% to 2% increase in traffic volumes per year over the next 20 years, resulting in a future noise increase of 1 dBA CNEL above existing conditions. Therefore, future exterior noise levels are calculated to be approximately 72 dBA CNEL at the south facing façade of Building A. At the south facing façade of both Building B locations, future exterior noise levels are calculated to be approximately 60 dBA CNEL, taking into account the shielding provided by Building A. At the south facing façade of Building C, future exterior noise levels are calculated to be approximately 55 to 57 dBA CNEL, taking into account the shielding provided by Buildings A and B. Exterior noise levels in the multi-use lawn area are calculated to be below 55 dBA CNEL, given the well shielded location within the center of the site.

Noise sources at adjacent restaurant uses to the west include rooftop mechanical equipment and outdoor seating. Rooftop equipment associated with the adjacent restaurants would be anticipated to generate noise levels of 50 to 55 dBA  $L_{eq}$  at a distance of 50 feet. Project Buildings A and B are located about 75 feet from rooftop equipment, resulting in mechanical equipment generated noise levels of 46 to 51 dBA. Both adjacent restaurants structures have rooftop parapet walls, which would provide considerable shielding to ground level land uses, but not to upper stories. Assuming continuous operation of the rooftop equipment, this would result in community noise equivalent levels of 53 to 58 dBA CNEL. At ground level, mechanical equipment noise would be lower due to shielding by the rooftop itself and the parapet walls. Conversations occurring in the outdoor seating area, located along El Camino Real, would not be anticipated to be distinguishable in level from traffic noise, but may at times be audible during lulls in traffic.

The service center and tire shop located to the east of the site has bays that open to the east of the service building, away from the project site. The façade of the service facility that adjoins the site is of solid masonry block construction with no opening or doors/windows facing the site. Based on data from other facilities in the Bay Area, tire shop and service center activities typically generate maximum noise levels of 60 to 80 dBA at a distance of 25 feet from the opening of a service bay. Such noise levels would be expected with the operation of impact wrenches, dropping of metal plates, air-release, radio playing, and miscellaneous tools. The average noise level generated during continuous service center and tire shop operations at a distance of 25 feet from an open bay was 66 dBA  $L_{eq}$ . Given the significant shielding provided by the tire shop and service center building, noise levels would be anticipated to be about 25 dBA lower at the project site, resulting in an average noise level of 41 dBA  $L_{eq}$ . Tire shop and service center activities would not

be anticipated to be distinguishable in level from traffic noise generated by vehicles on El Camino Real, but may be audible at times.

#### *Future Exterior Noise Environment*

The proposed multi-use lawn area would be shielded from traffic noise by the project buildings. Future exterior noise levels at the outdoor use area would be below 55 dBA CNEL, and the outdoor use area would be compatible with the noise environment at the project site.

#### *Future Interior Noise Environment*

Standard residential construction provides approximately 15 dBA of exterior-to-interior noise reduction, assuming the windows are partially open for ventilation. Standard construction with the windows closed provides approximately 20 to 25 dBA of noise reduction in interior spaces. Where exterior noise levels range from 60 to 65 dBA CNEL, the inclusion of adequate forced-air mechanical ventilation is often the method selected to reduce interior noise levels to acceptable levels by closing the windows to control noise. Where noise levels exceed 65 dBA CNEL, forced-air mechanical ventilation systems and sound-rated construction methods are normally required. Such methods or materials may include a combination of smaller window and door sizes as a percentage of the total building façade facing the noise source, sound-rated windows and doors, sound-rated exterior wall assemblies, and mechanical ventilation so windows may be kept closed at the occupant's discretion.

As described above, the south facing façade of Building A would be exposed to exterior noise levels of 72 dBA CNEL. East and west facing façades of Building A would be exposed to exterior noise levels of about 69 dBA CNEL. South and ground level west facing façades of the western Building B would be exposed to a combined exterior noise level as high as 61 dBA CNEL from traffic and rooftop equipment noise. North and ground level east facing façades of the western Building B, northern façades of Building A, and all façades of the eastern Building B and Building C would be exposed to exterior noise levels of 60 dBA CNEL or less. Single story structures are located to the north and south of the site; therefore, upper stories of west facing façades of the western Building B and east facing façades of the eastern Building B would not benefit from the shielding provided to lower levels. These upper story façades would be exposed to exterior noise levels of about 63 dBA CNEL.

Based on preliminary calculations, Building A units with south, east and/or west facing façades would be anticipated to achieve the 45 dBA CNEL interior standard with the inclusion of forced-air mechanical ventilation and windows and doors with STC ratings of 28 to 30<sup>1</sup>. Inclusion of forced-air mechanical ventilation and windows and doors with STC ratings of 28 to 30 would also be sufficient to comply with the Cal Green Code standard of 50 dBA  $L_{eq}(1-hr)$  in occupied areas during any hour of operation. Units with south and west facing façades of the western Building B

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<sup>1</sup> Sound Transmission Class (STC): A single figure rating designed to give an estimate of the sound insulation properties of a partition. Numerically, STC represents the number of decibels of speech sound reduction from one side of the partition to the other. The STC is intended for use when speech and office noise constitute the principal noise problem.

and south and upper story east facing façades of the eastern Building B would achieve the interior standard with standard construction and the inclusion of forced-air mechanical ventilation. The remaining residential units would achieve the interior standard with standard construction and windows in the open or closed position.

*Noise Insulation Features to Reduce Future Interior Noise Levels*

The following noise insulation features shall be incorporated into the proposed project to reduce interior noise levels to 45 dBA CNEL or less (shown graphically in Figure 1):

- Provide a suitable form of forced-air mechanical ventilation, as determined by the local building official, for all Building A units with south, east, or west facing façades and all Building B units with façades facing south or adjacent to the western and eastern property line, so that windows can be kept closed at the occupant's discretion to control interior noise and achieve the interior noise standards.
- Preliminary calculations indicate that the residential units along the eastern, southern, and western building façades of Building A would require windows and doors with a minimum STC ratings of 28 to 30 and an adequate form of forced-air mechanical ventilation to meet the interior noise threshold of 45 dBA CNEL.
- A qualified acoustical specialist shall prepare a detailed analysis of interior noise levels resulting from all exterior noise sources during the design phase pursuant to requirements set forth in the State Building Code and the California CalGreen Code. The study will review the final site plan, building elevations, and floor plans prior to construction and recommend building treatments to reduce residential interior noise levels to 45 dBA CNEL or lower. Treatments would include, but are not limited to, sound-rated windows and doors, sound-rated wall and window constructions, acoustical caulking, protected ventilation openings, etc. The specific determination of what noise insulation treatments are necessary shall be conducted on a unit-by-unit basis during final design of the project. Results of the analysis, including the description of the necessary noise control treatments, shall be submitted to the City, along with the building plans and approved design, prior to issuance of a building permit.

The implementation of these noise insulation features would reduce interior noise levels to 45 dBA CNEL or less.



Pooja Nagrath  
June 26, 2018  
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This concludes our environmental noise and land use compatibility assessment for the 3035 El Camino Real project in Santa Clara, California. If you have any questions or comments regarding this analysis, please do not hesitate to call.

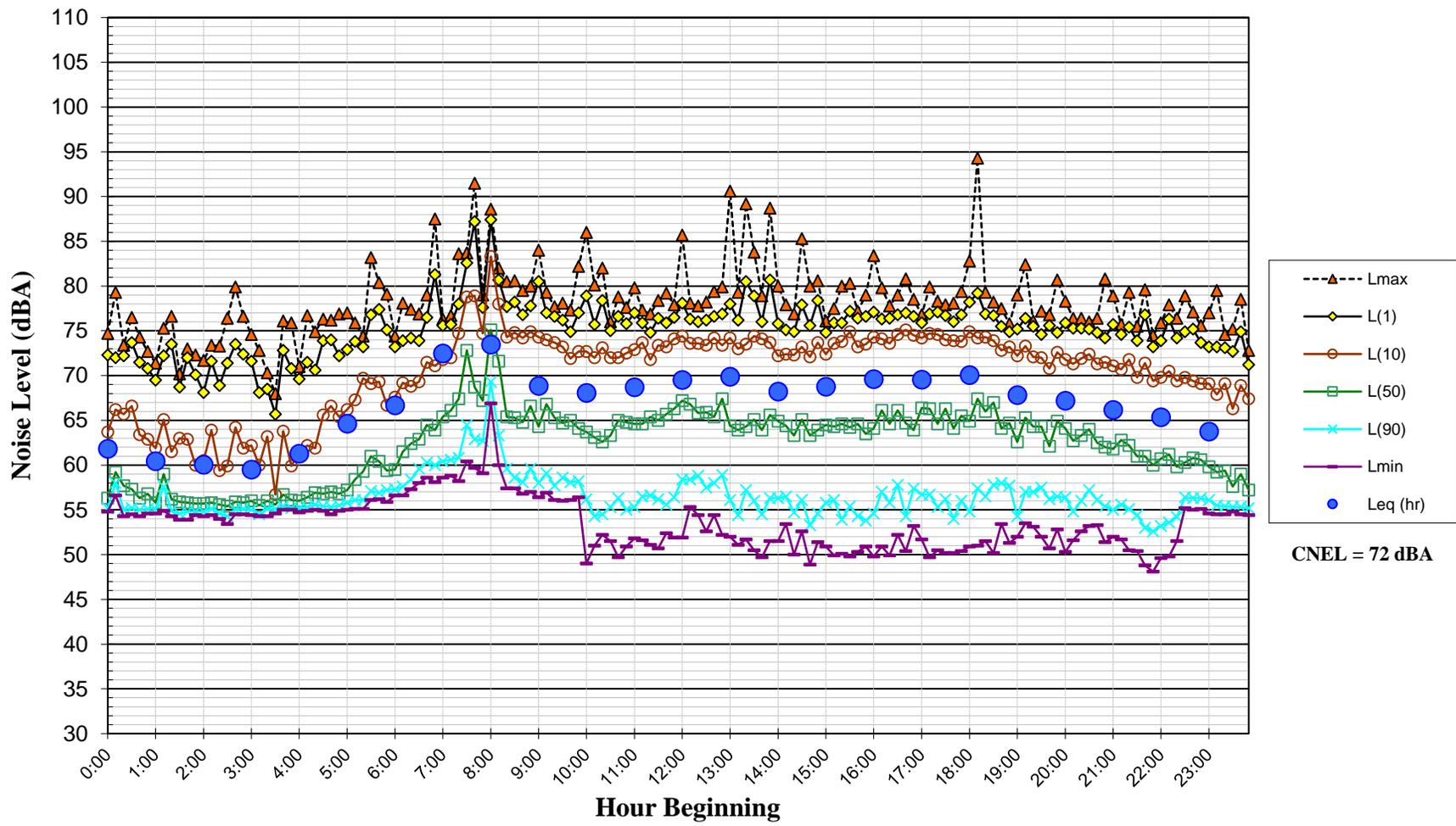
Sincerely yours,

A handwritten signature in black ink, appearing to read 'Dana M. Lodico', with a long horizontal flourish extending to the right.

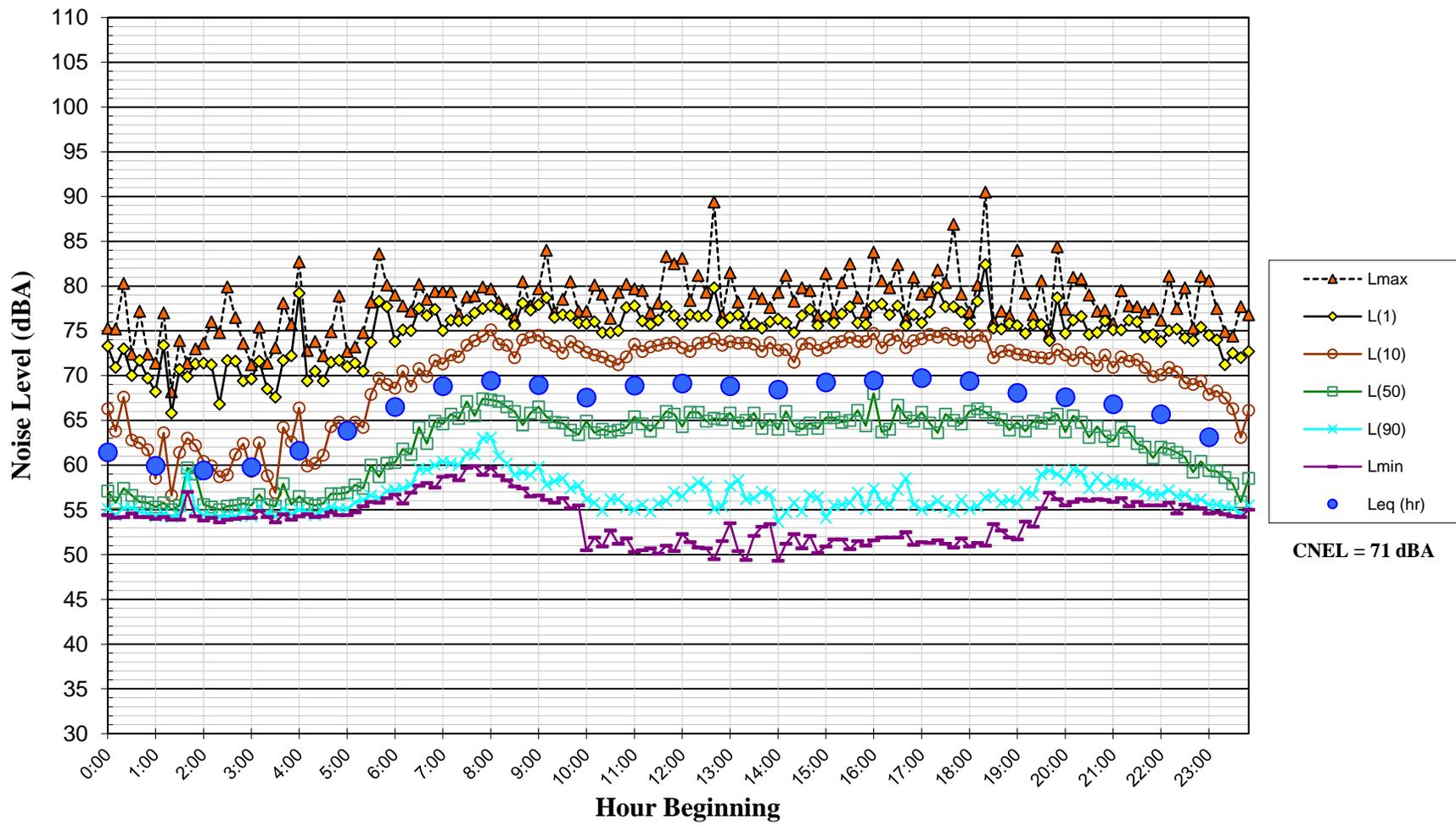
Dana M. Lodico, PE, INCE Bd. Cert.  
Senior Consultant  
***ILLINGWORTH & RODKIN, INC.***  
(18-096)

## Appendix A

**Noise Levels at Noise Measurement Site LT-1  
~60 feet south of the centerline of El Camino Real  
Tuesday, March 27, 2018**

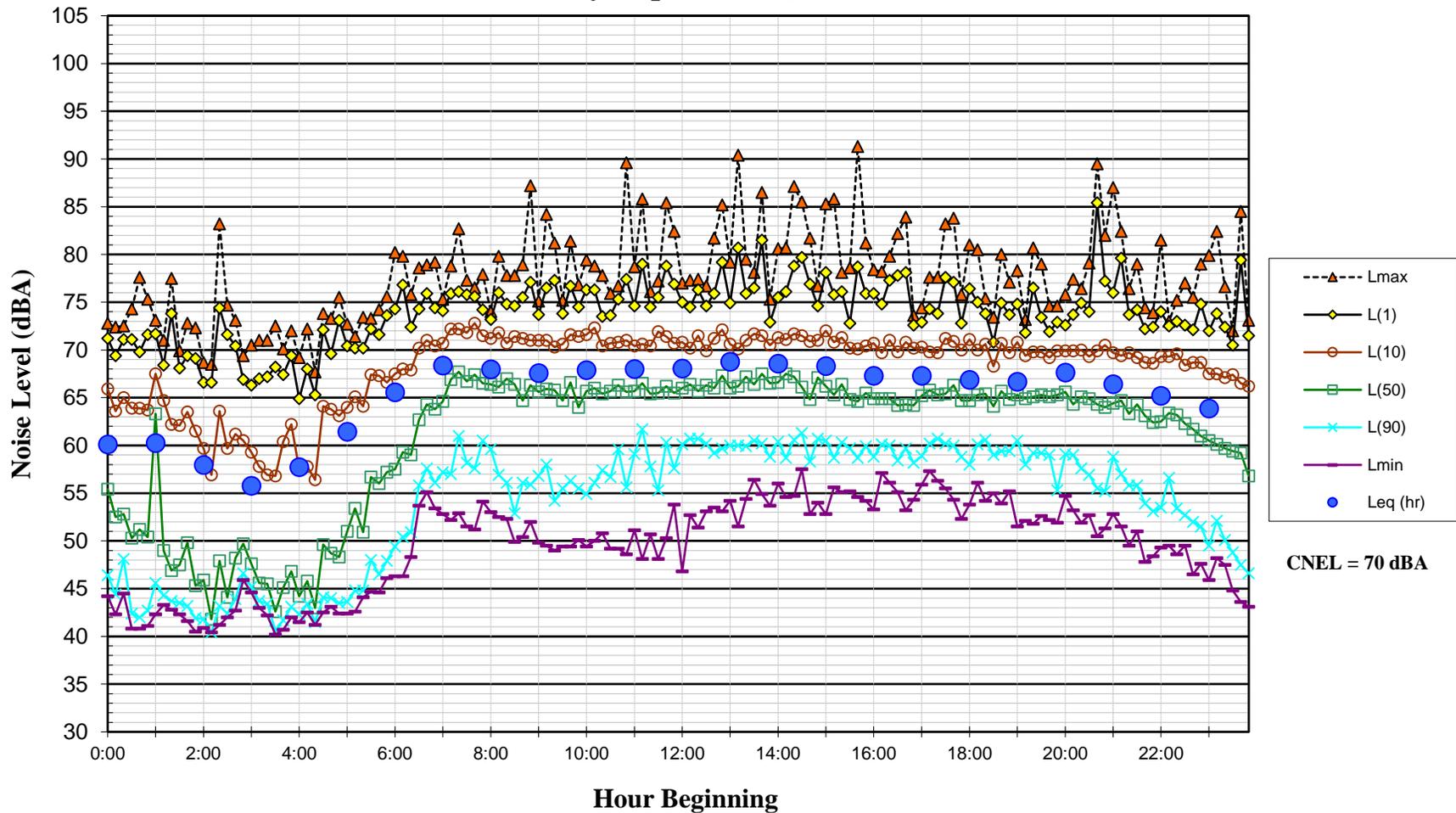


**Noise Levels at Noise Measurement Site LT-1  
~60 feet south of the centerline of El Camino Real  
Wednesday, March 28, 2018**

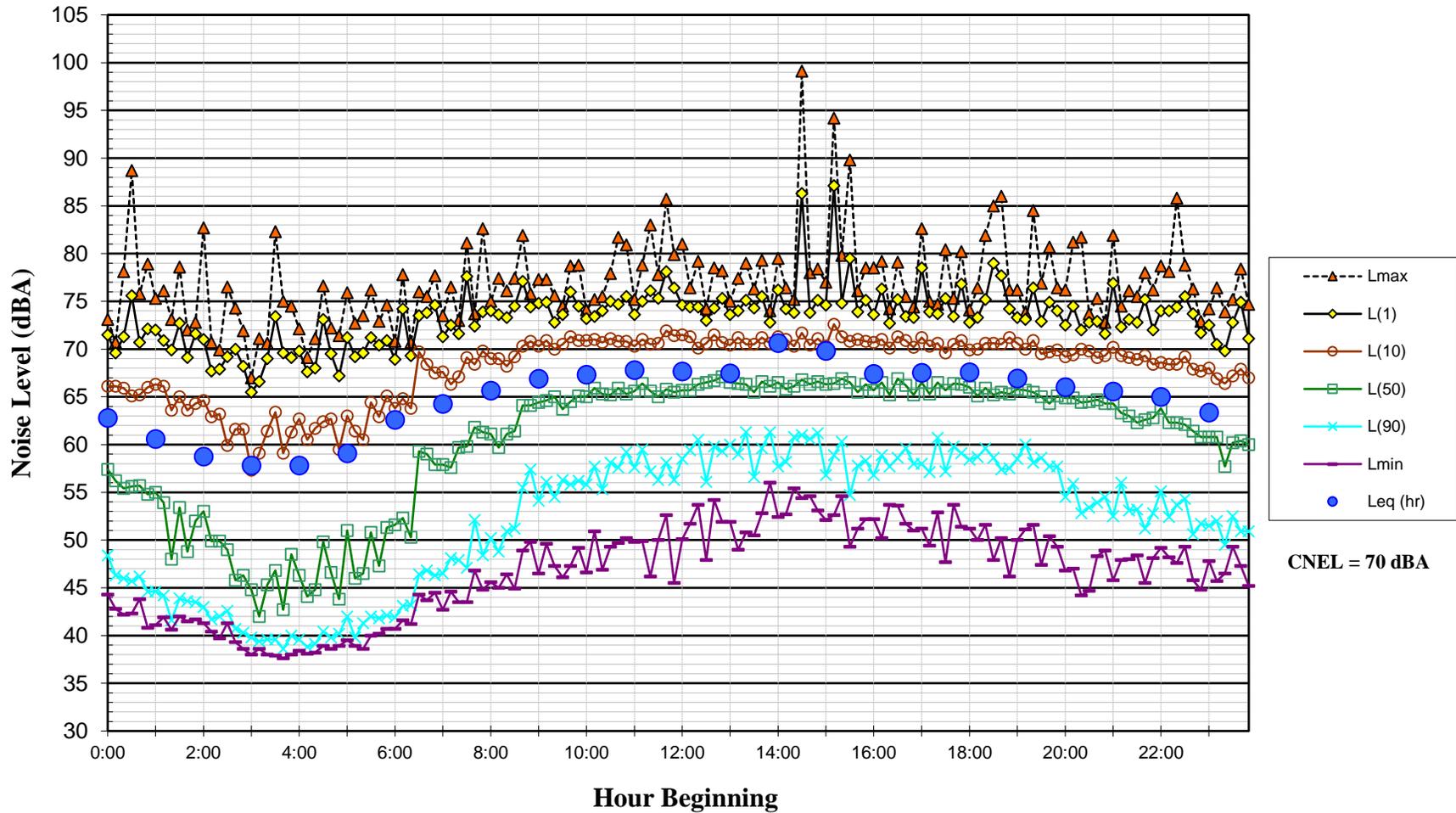


CNEL = 71 dBA

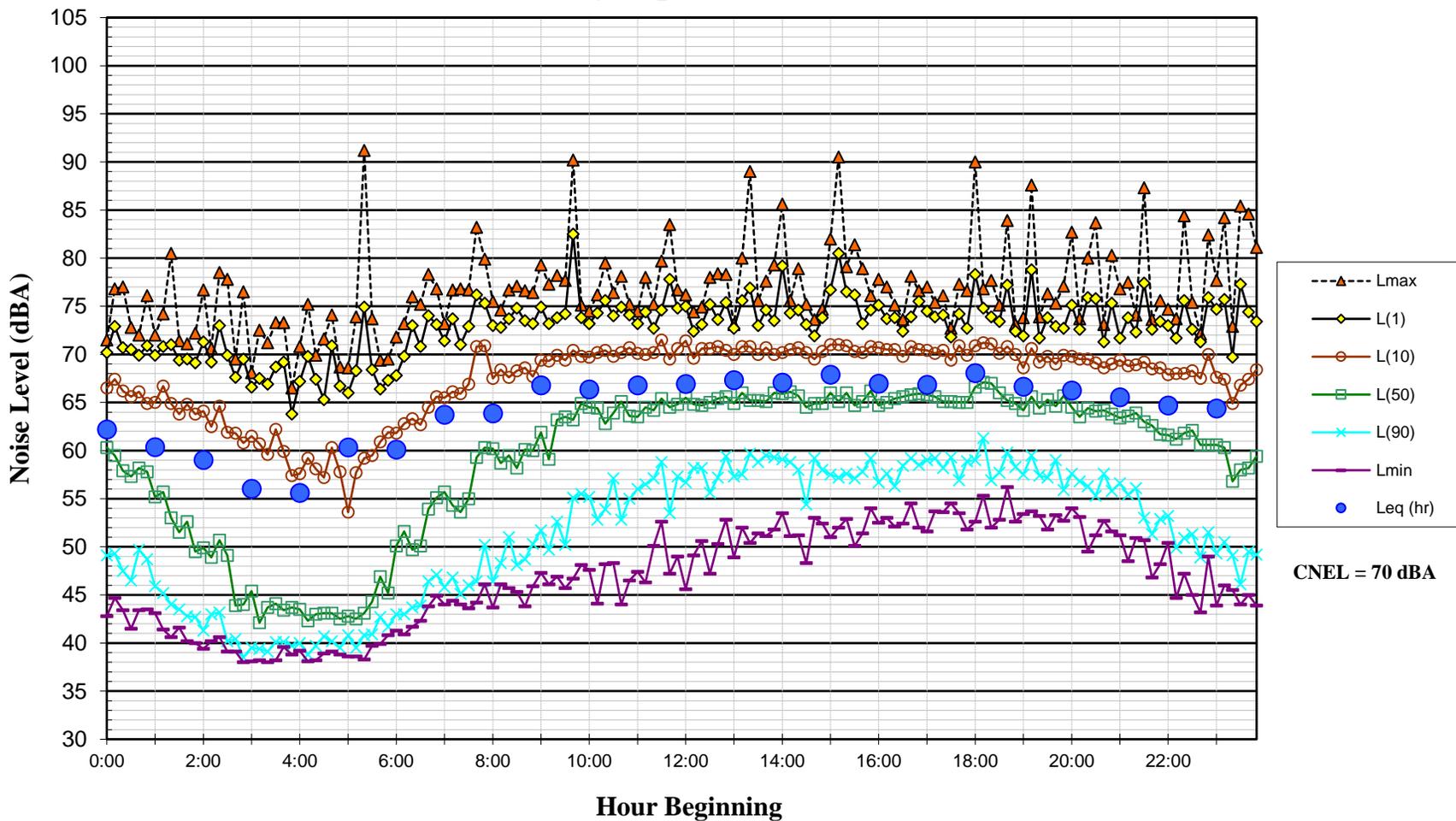
**Noise Levels at Noise Measurement Site LT-2**  
**Northern Border of East Block, ~100 Feet South of El Camino Real Centerline**  
**Friday, September 2, 2016**



**Noise Levels at Noise Measurement Site LT-2**  
**Northern Border of East Block, ~100 Feet South of El Camino Real Centerline**  
**Saturday, September 3, 2016**



**Noise Levels at Noise Measurement Site LT-2**  
**Northern Border of East Block, ~100 Feet South of El Camino Real Centerline**  
**Sunday, September 4, 2016**



**Noise Levels at Noise Measurement Site LT-2**  
**Northern Border of East Block, ~100 Feet South of El Camino Real Centerline**  
**Monday, September 5, 2016**

