IV. ENVIRONMENTAL IMPACT ANALYSIS
E. NOISE

A Noise Impact Study for the proposed project was prepared by Arup Acoustics in April 2003 to analyze the potential noise impacts associated with the proposed project. A summary of the Noise Impact Study with respect to potential noise impacts is set forth below. The Noise Impact Study, which is incorporated herein by this reference, is included in its entirety as Appendix H to this Draft EIR.

ENVIRONMENTAL SETTING

Noise Descriptors

Noise is usually defined as sound that is undesirable because it interferes with speech/communication and hearing, or is otherwise annoying (unwanted sound). A more detailed description of the acoustical terminology can be found in Appendix H.

The decibel (dB) is a conventional unit for measuring the amplitude of sound; it accounts for the large variations in sound pressure amplitude and closely reflects the way people perceive changes in sound environment.

When describing sound and its affect on a human population, A-weighted (dBA) sound levels are typically used to account for the response of the human ear. The A-weighted noise level has been found to correlate well with people's judgments of the noisiness of different sounds and has been used as a measure of community noise.

The equivalent sound level (L_{eq}) is normally used to describe community noise impacts with respect to general environmental sources such as auto traffic, air traffic, etc. To account for environmental noise fluctuation with respect to the time of the day, the Community Noise Equivalent Level (CNEL) is used in assessing noise impact on residential communities. CNEL is the adopted noise descriptor for evaluating project noise impacts pursuant to the Draft L.A. CEQA Thresholds Guide.[1]

Existing Noise Environment

The existing sound environments at the project site and at the neighboring residential communities are described through measurements of the existing ambient noise levels.

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[1] *City of Los Angeles Draft L.A. CEQA Thresholds Guide, May 14, 1998, pages I.2-3 and I.2-4.*

Receptor Locations

On Wednesday, September 12, 2002 and Thursday, September 13, 2002, between the hours of 1:00 pm and 2:30 pm, short-term (15-minute) ambient noise measurements were conducted on five selected locations along the borders of the project site (Locations A, B, C, D and E, as shown in Figure IV.E-1). These measurements were not collected during holidays and reflect typical existing noise levels during the daytime hours.

In addition, long-term measurements (minimum of 24 hours) were recorded from Thursday, September 13, 2002 through Tuesday, September 17, 2002, at one offsite location representing existing Residential Area 3 (Location E) and one onsite location near Interstate 210 (Location F). These long-term measurements provide a quantitative presentation of the variation of existing ambient noise levels during normal daytime, nighttime, weekday and weekend hours and were used to calculate the existing CNEL noise measurements.

In addition to the six measurement locations (A, B, C, D, E and F), a seventh noise-receptor was also used. This receptor, B1, represents La Tuna Canyon Park (see Figure IV.E-1). The ambient sound level at Location B1 was estimated based on the ambient sound levels at Location B and the distance (500 feet) between Location B1 and the centerline of La Tuna Canyon Road. Location B1 was conservatively assumed to have a direct line-of-sight to Interstate 210 and La Tuna Canyon Road (i.e., sound attenuation due to topography was not included in the ambient sound level calculations).

Table IV.E-1 sets forth specific information regarding the noise monitoring locations. Locations A, B1, D and E represent the noise-sensitive uses located within 500 feet of the project site. For example, measurements were taken at Locations A, D and E in order to determine the existing ambient noise levels in Residential Areas 1, 2 and 3, respectively. Location B1 was chosen to represent the ambient noise levels in the permanent open space south of La Tuna Canyon Road.

The noise measurements at Locations C and F were used to calibrate the traffic noise model that was used to determine the noise impact of Interstate 210 on the future project residents. These two receptors were used for the calibration because they represent two extremes with regards to noise due to Interstate 210. Location C is located approximately 2,000 feet from the centerline of Interstate 210 and is slightly impacted by Interstate 210 traffic noise, while the sound environment at Location F is dominated by Interstate 210 because it is only 120 feet from the centerline of Interstate 210.

Figure IV.E-1 Noise Monitoring Locations

Table IV.E-1
Description of Receptor Locations
Canyon Hills Project

Receptor Location	Description of Receptor Location	Area Represented by this Receptor	Direct Line of Sight to Interstate (Yes or No)[a]	Approximate Distance to Centerline of Interstate 210 (feet)	Measurement Duration
A	North side of La Tuna Canyon Road	Existing Residential Area 1	No	2400	15 minute
B	Non-residential area on the north side of La Tuna Canyon Road	B1	Yes	800	15 minute
B1[b]	Inside the park area, 500 feet south of La Tuna Canyon Road centerline	Permanent Open Space South of La Tuna Canyon Road	Yes	2100	N/A
C	Onsite near existing transmission lines	Future Homes in Development Area A	Yes	2000	15 minute
D	Near an existing home at 938 Tranquil Drive	Existing Residential Area 2	Yes	2000	15 minute
E	Near an existing home at 2900 Verdugo Crestline Drive	Existing Residential Area 3	No	3600	4 days
F	Onsite close to Interstate 210	Traffic Noise from Interstate 210	Yes	120	4 days

[a] *A Location is described as having a direct line of sight to Interstate 210 if Interstate 210 is visible from that Location. No direct line of sight to Interstate 210 means that intervening structures and landscape block the sight of Interstate 210 and therefore reduce the level of noise from Interstate 210 that is heard at that Location.*

[b] *Ambient conditions at Location B1 were calculated based on measurements performed at Location B.*

Measurement Procedures

The noise survey was performed using precision noise meters: Larson-Davis models 824 and 870. These noise meters meet and exceed the minimum industry standard performance requirements for "Type 1" standard instruments as defined in the American National Standard Institute (ANSI) S1.4. Furthermore, these instruments meet and exceed the minimum requirements specified in Section 111.01(l) of the LAMC,[2] in particular, that the instruments be "Type S2A" standard instruments or better. All instruments were calibrated and operated according to the manufacturer's written specifications. At all measurement sites, the microphone was placed at a height of five feet above the local grade.

At each short-term noise measurement location, the sound level meter was programmed to record the average sound level (L_{eq}) over a cumulative period of a minimum of 15 minutes. Similarly, for long-term measurements, the noise meter was configured to record and store the hourly L_{eq} and CNEL over a cumulative period of four days, which included a weekend. Both these measurement durations satisfy the requirements of LAMC Section 111.01(a)[3] that the ambient noise measurements should be continuous for a period of at least 15 minutes.

Measurement Results

Table IV.E-2 presents the results of the short-term (15 minute L_{eq}) and long-term (CNEL) noise measurements at the selected locations. It should be noted that with the exception of Locations E and F (where the CNEL was actually measured), the CNEL values are calculated based on the long-term noise data obtained at Locations E and F. Based on field observations and measured sound data, the existing noise environment at and in the vicinity of the project site is primarily controlled by vehicular traffic on Interstate 210 and, to a lesser degree, by vehicular traffic on La Tuna Canyon Road.

As indicated in Table IV.E-2, the existing ambient noise levels in terms of the CNEL metric at the measurement locations varied from 47 dBA (CNEL) at Location E (representing existing Residential Area 3) to 81 dBA (CNEL) at Location F (representing traffic noise from Interstate 210). With respect to the L_{eq} noise descriptor, the existing ambient noise level varied from 80 dBA (L_{eq}) measured at Location F near Interstate 210 to 46 dBA (L_{eq}) recorded at Location E. The measurement at Location F is approximately 120 feet from the center of Interstate 210.

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2 *City of Los Angeles Municipal Code, Chapter XI Noise Regulation, Article 1 General Provisions, Section 111.01(l), Rev. No. 63 – 1996.*

3 *City of Los Angeles Municipal Code, Chapter XI Noise Regulation, Article 1 General Provisions, Section 111.01(a), Rev. No. 63 – 1996.*

Table IV.E-2
Sound Level Measurements
Canyon Hills Project

Receptor Location	Measurement Date and Time	Existing Ambient Noise Levels (dBA)	
		L_{eq} (15 minute)	CNEL (24 hour)
A	9/12/02, 1:21 pm -1:36 pm	66	68[c]
B	9/12/02, 12:56 pm - 1:11 pm	67	69[c]
B1	N/A	56[a]	58[a]
C	9/12/02, 2:16 pm - 2:31 pm	53	55[c]
D	9/12/02, 1:08 pm - 1:23 pm	54	56[c]
E	9/13/02 1:45 pm to 9/17/02 10:00 am	46[b]	47[d]
F	9/13/02 12:24 pm to 9/17/02 10:00 am	80[b]	81[d]

[a] *Ambient conditions at Location B1 were calculated based on measurements performed at Location B.*
[b] *Hourly L_{eq} measured during peak traffic volume (am and pm).*
[c] *CNEL level was estimated based on long-term noise data obtained at Locations E and F.*
[d] *Lowest measured CNEL over the 4-day period.*

ENVIRONMENTAL IMPACTS

Thresholds of Significance

Operational Noise

The Draft L.A. CEQA Thresholds Guide[4] states:

> *A project would normally have a significant impact on noise levels from project operations if the project causes the ambient noise level measured at the property line of affected uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" of "clearly unacceptable" category, or any 5 dBA or greater noise increase (see the chart below).*

Table IV.E-3 below is an excerpt from the chart on pages I.2-3 and I.2-4 of the Draft L.A. CEQA Thresholds Guide for single family, duplex and mobile homes and playgrounds and neighborhood parks.

Construction Noise

With respect to construction noise, the Draft L.A. CEQA Thresholds Guide[5] states:

> *A project would normally have a significant impact on noise levels from construction if:*
>
> - *Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive use;*
> - *Construction activities lasting more than 10 days in a three month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise sensitive use; or*
> - *Construction activities would exceed the ambient noise level by 5 dBA at a noise sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or anytime on Sunday.*

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[4] *City of Los Angeles Draft L.A. CEQA Thresholds Guide, May 14, 1998, pages I.2-3 and I.2-4.*
[5] *City of Los Angeles, Draft L.A. CEQA Thresholds Guide, May 14, 1998, page I.1-3.*

Table IV.E-3
City Noise Thresholds
Canyon Hills Project

Land Use	Community Noise Exposure CNEL, dB			
	Normally Acceptable	**Conditionally Acceptable**	**Normally Unacceptable**	**Clearly Unacceptable**
Single Family, Duplex, Mobile Homes	50-60	55-70	70-75	Above 70[a]
Playgrounds, Neighborhood Parks	50-70	--	67-75	Above 72

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. Convention construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
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 and needed noise insulation features included in the design.
Clearly Unacceptable: New construction or development should generally not be undertaken.

[a] *This 70 dB figure is quoted directly from the Draft L.A. CEQA Thresholds Guide. However, other sources quote this number as 75 dB (i.e., State of California General Plan Guidelines, Preliminary Draft, Governor's Office of Planning and Research, October 2002, p. 258, and Noise Element of the City of Los Angeles General Plan, Department of City Planning Los Angeles, California, February 1999, p. I-1). The noise consultant suggests this may be a typographical error in the Draft L.A. CEQA Thresholds Guide. Note that this potential error does not affect the determination of significant impacts for this report.*

In the Draft L.A. CEQA Thresholds Guide,[6] CNEL is mentioned as a noise descriptor for quantifying the noise impact from construction activities. However, construction typically occurs during the daytime hours, while CNEL describes the overall ambient sound levels over a 24-hour period, including nighttime hours. In the noise consultant's 's experience, and as supported by the LAMC Section 112.05,[7] the L_{eq} metric is more applicable when describing the potential noise impact from construction activities, and is likely to be a more conservative criteria than CNEL. In this study, the three significant thresholds outlined above will be described in terms of L_{eq}.

6 *Ibid.*

7 *City of Los Angeles Municipal Code, Chapter XI Noise Regulation, Article 1 General Provisions, Section 112.05, Rev. No. 63 – 1996.*

Project Impacts

Construction Impacts on Noise

Construction noise has the potential to cause a temporary noise impact on the existing residential areas and La Tuna Canyon Park. These potential noise impacts from project-related construction activities are a function of the noise generated by construction equipment, the location and sensitivity of nearby land uses and the timing and duration of the noise-generating activities. Noise levels within and adjacent to the project construction areas would increase during the construction period. However, construction activities would not cause long-term impacts since they would be temporary and usually limited to daytime hours.

Phases of Construction

Noise from the construction activities would be generated by vehicles and equipment involved in various stages of construction operations. It is anticipated that the total construction periods for the project would last approximately 60 months (beginning in 2004 and ending in 2009). This 60-month construction period can be divided into three major phases of construction: grading, foundation preparation/road building, and home building. Of these three phases, grading is expected to be the noisiest construction phase because more equipment is typically used during grading than in the other phases. Foundation preparation/road building is also expected to produce high noise levels because of the road preparation and paving process.

Of the 60-month total construction period, it is estimated that the grading process would last for approximately 19 months in Development Area A and nine months in Development Area B. During this process, the construction equipment described below would be spread out over 25 to 30 percent of the project site at any given time.

It is anticipated that the grading process in Development Area A would require the following construction equipment:[8]

8 Cat 657 twin-diesels (scrapers)
4 Off-highway trucks
2 Cat loaders (front loader)
6 D-8/9/10s (tractors)
2 Water trucks
2 Water pulls

[8] *Memo from Crosby, Mead, Benton and Associates, February 5, 2003.*

3 Rubber-tired dozers
1 Blade vehicle
1 Excavator (backhoe)
2 Finish tractors

It is anticipated that the grading process in Development Area B would require the following construction equipment:[8]

6 Cat 657 twin-diesels (scrapers)
4 Off-highway trucks
2 Cat loaders (front loader)
4 D-9/10s (tractors)
2 Water trucks
1 Water pull
2 Rubber-tired dozers
2 Finish tractors

Since the above-listed equipment would be spread out over at least 25 percent of the grading area at any given time, it would not all be used simultaneously in a single area (in this discussion, a localized construction area refers to approximately six lots that are grouped together around a cul-de-sac, with each lot having similar elevations). In addition, the grading process is progressive. That is, some equipment cannot be used in a construction area at the same time as other equipment. In order to accurately represent the maximum noise levels due to grading, the grading process was divided into four phases based on the recommendation of Crosby, Mead, Benton and Associates, the project engineer.

The first phase of grading would require the use of Cat 657 twin-diesels, off-highway trucks, Cat loaders, D-8/9/10s and water trucks.[9] This first phase of grading is expected to last for seven and five months in Development Areas A and B, respectively. The second phase of grading is expected to consist of operation of the rubber-tired dozers. After the dozers, a blade vehicle would be used in Development Area A, comprising the third phase of grading. The fourth and final phase of grading is expected to consist of finish tractor operation.

It was conservatively assumed that 50 percent of the equipment used for each phase of grading equipment could operate simultaneously in one area during that grading phase. For example, four Cat 657 twin diesels, two off-highway trucks, one Cat loader, three D-8/9/10s and one water truck could

[9] *Telephone conversation with Ray Maciag of Crosby, Mead, Benton and Associates, March 4, 2003.*

operate simultaneously in one area in Development Area A during the first phase of grading. For the foundation preparation/road building and home building phases of construction, the equipment was conservatively assumed to all run simultaneously. For all phases of construction, it was assumed that each piece of equipment would operate at its maximum noise level for 15 minutes out of one hour.

The first phase of grading is expected to be the loudest because it is expected to contain the highest number of simultaneously operating vehicles. Therefore, the noise levels for the grading process were assumed to remain constant at the maximum noise level produced during the first phase of grading. Because the grading is expected to consist of four phases, three of which are quieter than the first, this is a worst-case scenario that would not occur on a daily basis over the entire grading phase.

In addition, the construction equipment is estimated[10] to operate periodically in one localized area for about four to seven days at a time followed by little or no construction activities in that area for about three weeks at a time. This study's assumptions conservatively represent the worst-case scenario, but general information regarding construction habits indicates that this worst-case scenario would happen infrequently and for short periods of time.

The noise levels created by construction equipment would vary depending upon factors such as the type of equipment, the specific model, the operation being performed and the condition of the equipment.

Table IV.E-4 sets forth the anticipated sound levels for the construction equipment provided by Crosby, Mead, Benton & Associates. These represent the lower levels from the range of construction-related sound levels provided in the Draft L.A. CEQA Thresholds Guide.[11] The lower levels are used because the construction sound levels in the Draft L.A. CEQA Thresholds Guide are based on sound levels published by the Environmental Protection Agency in 1971.[12] However, over the past 32 years, the noise generation from construction machinery has been reduced, so that it is appropriate to use sound levels at the lower end of the spectrum of sound levels that were measured in 1971.

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[10] *Telephone conversation with Ray Maciag of Crosby, Mead, Benton and Associates, April 8, 2003.*

[11] *City of Los Angeles Draft L.A. CEQA Thresholds Guide, May 14, 1998, page I.1-8.*

[12] *Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, PB 206717, 1971.*

Table IV.E-4
Construction Equipment Noise Emission Levels
Canyon Hills Project

Equipment[a]	Noise Level at 50 Feet from Source (dBA)[b]	Equipment [a]	Noise Level at 50 Feet from Source (dBA)[b]
Scraper	80	Water Pull	82
Off-Highway Truck	82	Dozer	75
Front Loader	73	Blade Vehicle	82
Tractor	77	Backhoe	73
Water Truck	82	Finish Tractor	77

[a] *The equipment list was provided Crosby, Mead, Benton and Associates.*
[b] *Equipment noise levels above are the lower of a range of values in the Draft L.A. CEQA Thresholds Guide, Exhibit I.1-1.*

Construction Noise Level Calculations

The construction noise impacts on the existing Residential Areas and La Tuna Canyon Park were determined by estimating the noise levels at Locations A, B1, D and E using the methodology described in the Draft L.A. CEQA Thresholds Guide.[13] The sound levels at 50 feet (see Table IV.E-4) for each of the construction vehicles that would operate simultaneously were combined to produce an overall sound level at 50 feet for each of the three construction phases. The construction-related sound level at 50 feet was then used to determine the sound level due to construction at Locations A, B1, D and E based on the relative distances between each location and the construction area closest to that location. These distances are approximately 600 feet, 1600 feet, 500 feet and 250 feet for Locations A, B1, D and E, respectively. This analysis conservatively does not account for existing natural barriers (i.e., hills) between construction areas and the noise-sensitive areas.

The sound levels due to construction at Locations A, B1, D and E were then combined with the ambient sound levels measured in the field noise survey (Table IV.E-2). The result represents the cumulative noise (the ambient sound levels plus construction noise) at Locations A, B1, D and E during the proposed project's construction. The increase in ambient sound level with construction noise is the ambient sound level with construction minus the ambient sound level without construction.

[13] *City of Los Angeles Draft L.A. CEQA Thresholds Guide, May 14, 1998, page I.1-4.*

Construction Equipment Noise Impact

Total noise levels at Locations A, B1, D and E (representing Residential Areas 1, 2 and 3 and La Tuna Canyon Park) associated with all construction equipment operations, including onsite truck traffic, are shown in Table IV.E-5. As with operation-related noise, construction noise levels at receptor Locations B, C and F are not applicable because these receptors do not represent any Residential Areas near the project site.

Since Location A is 600 feet from the closest project construction, the noise levels during construction are estimated to be 62 dBA, 61 dBA and 58 dBA for grading, foundation preparation/road building and home building, respectively. Although, these sound levels are less than the existing daytime ambient noise level of 66 dBA, the cumulative (ambient plus construction noise) increase in ambient sound level is only 1 dBA for each of the construction phases. The high ambient noise levels at Location A are due to its location adjacent to La Tuna Canyon Road. Construction noise levels at Location A are attenuated by distance from the construction area and intervening topography. As discussed above, a significant impact with respect to construction activities requires a minimum of 5 dBA increase in ambient sound levels, so there is not a significant noise impact on Location A due to construction activities.

Table IV.E-5
Projected Maximum Total Noise Level Produced by Construction-Related Activities Including Onsite Peak Hour Truck Traffic
Canyon Hills Project

Sound Receiver Locations	Existing Daytime Ambient Noise Level (Average Leq, dBA)	Maximum Noise Levels, L_{eq} dBA			Ambient Sound Levels with Construction Noise Levels, L_{eq} dBA			Increase in Noise Levels Relative to Existing Background Noise Levels, dBA		
		Site Grading	Foundation Preparation / Road Building	Home Building	Site Grading	Foundation Preparation / Road Building	Home Building	Site Grading	Foundation Preparation / Road Building	Home Building
A	66	62	61	58	67	67	67	1	1	1
B[a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B1	56	53	53	49	58	58	57	2	2	1
C[a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D	54	**64**[b]	**63**	**59**	**65**	**63**	**60**	**11**	**9**	**6**
E	46	**70**	**69**	**65**	**70**	**69**	**65**	**24**	**23**	**19**
F[a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[a] *Construction noise levels at Locations B, C and F are irrelevant as Locations B, C and F do not represent noise-sensitive land uses (see Figure IV.E-1).*
[b] *Noise levels show in **bold** are significant impacts*

Location B1, which represents La Tuna Canyon Park, is 1,600 feet from the closest project construction. The noise levels during construction are estimated to be 53 dBA for grading and foundation preparation/road building and 49 dBA for the home building phase. These sound levels are less than the estimated existing daytime ambient noise level of 56 dBA, so the maximum increase in ambient sound level due to construction is only 2 dBA. This increase in ambient levels is less than the 5 dBA minimum increase in ambient sound levels that constitutes a significant impact. Therefore, a significant noise impact is not anticipated at Location B1 due to construction activities.

At Location D, the construction-related noise levels are estimated to be 64 dBA, 63 dBA and 59 dBA during the three construction phases. These levels are higher than those of Location A and B1 because Location D is only 500 feet from the closest construction area. In addition, the ambient noise level at Location D is 54 dBA, lower than Locations A and B1 because it is further removed from Interstate 210. As a result, Location D is estimated to experience temporary ambient sound level increases of 11, 9 and 6 dBA during site grading, foundation preparation/road building and home building, respectively. These sound level increases are expected to continue for more than 10 days in a three month period, so a significance threshold of 5 dBA is appropriate. Therefore, Location D is expected to experience a significant, albeit temporary, noise impact for the time periods during each of the three construction phases when construction activities are occurring in areas near Location D.

Location E is expected to experience the most significant construction-related noise impact because it is both closer to construction and further from Interstate 210. At 250 feet from construction, construction-related noise levels at Location E are estimated at 70 dBA, 69 dBA and 65 dBA, respectively, for site grading, foundation preparation/road building and home building. Since the existing ambient noise level is 46 dBA Leq, construction is expected to increase the ambient noise level by 24 dBA, 23 dBA and 19 dBA for the time periods during each of the three construction phases when construction activities are occurring in areas near Location E. This is a significant, albeit temporary, noise impact to Location E. These noise level increases are higher than those for Location D because of the low ambient noise levels at this location.

These estimated noise levels would not occur during the entire construction period. Instead, these are the maximum noise levels that are anticipated at these noise-sensitive locations when the busiest construction activities are occurring at the construction areas nearest these locations. As stated in above, general information regarding construction habits indicates that this worst-case scenario would happen infrequently (about once a month) and for short periods of time (a few days at a time).

Other Potential Construction Noise Impacts

As indicated in the geotechnical evaluation for the proposed project,[14] the majority of the site grading can be excavated without the use of blasting techniques (i.e., using normal construction machinery). However, due to the potential variability of the onsite bedrock conditions, the use of explosive materials may be required for grading purposes in small, localized areas. The purpose of the blasting technique is to split rocks for ease of excavation. Based on measured blast noise levels from the Bureau of Mines,[15] noise generated by blasting can range from 115 dB to 136 dB (linear peak sound levels measured at approximately 200 feet from the operation) and typically lasts a fraction of a second. Based on very preliminary and limited data provided by the proposed project's geotechnical consultant, Zeiser Kling Consultants (fax dated 3/7/03 and included in Appendix H), blasting may occur in a few localized areas, the closest of which are about 1600 feet from Locations A, D and E and 2200 feet from Location B1. If blasting were to occur, the noise level due to blasting would range from approximately 93 dB to 114 dB (linear peak sound level) at Locations A, D and E and from 89 dB to 110 dB (linear peak sound level) at Location B1. This blast noise level can be compared with reference to the Bureau of Mines' recommended noise standard, which is 128 dB (linear-peak) and the California Occupational Safety and Health Regulations permissible occupational noise exposure, which is 140 dB (linear-peak).[16,17] The estimated blasting sound levels are expected to be well below these published maximum allowable exposure limits.

In summary:

- The noise due to blasting would last for a very short duration (a fraction of a second).
- The closest home is 1,600 feet from the nearest expected blast location, resulting in greater than 20 dBA reduction due to distance alone.
- If blasting were to occur, it would occur infrequently.
- Estimated blast noise levels would be below published exposure limits.

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[14] *"Geotechnical Evaluation, Canyon Hills Project, City of Los Angeles, California," Zeiser Kling Consultants, Inc., March 24, 2003.*

[15] *U.S. Department of the Interior, Bureau of Mines Environmental Research Program, Technical Progress Report 78, Blast Noise Standards and Instrumentation, May 1974*

[16] *Siskind, David E. and Charles R. Summers, "Blast Noise Standards and Instrumentation," Bureau of Mines Environmental Research Program, Technical Progress Report 78, U.S. Department of the Interior, May 1974.*

[17] *California Code of Regulations, Title 8, Section 5096. Exposure Limits for Noise.*

Based on the above information and based on the experience of the noise consultant, the potential blasting that may occur in small, localized areas does not constitute a significant impact.

Construction haul trucks and other large trucks are anticipated to access the site via La Tuna Canyon Road. As the traffic data (provided by Linscott Law & Greenspan and contained in Appendix J) indicates, the existing peak hour a.m. traffic volume on La Tuna Canyon Road is about 1,180 vehicles per hour. If two times the number of all expected construction vehicles were to access the site simultaneously in one hour (increasing the existing volume of 1,180 vehicles per hour to 1,280 vehicles per hour), this traffic would result in a noise increase of less than 1 dBA. Since 1 dBA is less than the 5-dBA significant threshold for construction noise, construction-related traffic would not have a significant impact on the existing traffic-generated noise environment.

Summary of Construction-Related Noise Impacts

Construction activities are expected to have a temporary significant impact on Locations D and E. It is likely that there would be no significant construction noise impact on Locations A and B1. In addition, blasting is unlikely to occur and, if it does occur, it is expected to generate noise levels within OSHA limits at the nearby noise-sensitive areas. The construction-related traffic volume increase on La Tuna Canyon Road is not estimated to have a significant noise impact on any noise-sensitive areas.

Operational Impacts on Existing Noise-Sensitive Areas

There are two potential noise sources related to the proposed project's operation that could have noise impact on existing noise-sensitive areas near the project site. These noise sources are traffic noise and mechanical equipment noise. Vehicular traffic due to the proposed project could have sound impact on existing Residential Areas 1, 2 and 3, La Tuna Canyon Park and on other areas that project-related traffic could pass through. Mechanical equipment, primarily equipment related to residential air conditioning systems, could also have a sound impact on the existing residential areas and La Tuna Canyon Park. The following subsections describe the noise consultant's analysis to determine whether there is a significant noise impact on these areas due to the proposed project's operation.

Traffic Noise Impact at Existing Residential and Park Areas (Onsite and Offsite Roads)

Since project-related traffic may travel along proposed project roads as well as existing nearby roads, there is a potential noise impact on residential areas, La Tuna Canyon Park and on other areas intersected by these nearby roads. To analyze the impact of project-related traffic noise, the impact on nearby areas will be discussed first, and the analysis of other areas intersected by offsite roads will be discussed later.

In order to determine the potential noise impact of future automobile traffic on the existing residential areas and La Tuna Canyon Park, the noise consultant used traffic data provided by Linscott Law &

Greenspan.[18] The traffic data includes projected traffic volumes for proposed roads on the project site and for project-related traffic volumes on existing nearby roads. This traffic data was incorporated into the Caltrans computer traffic program LEQV2, a program that is recommended in the Draft L.A. CEQA Thresholds Guide[19] for traffic noise assessments. This traffic program estimates the traffic noise level at a given Location based on traffic flow information and the relative distance between the given Location and the given road segment.

While the LEQV2 traffic program is mainly applicable to freeway traffic conditions, it is also used for non-freeway traffic, with some precautions. The program has higher accuracy for freeway traffic than for street traffic. To account for this, the Caltrans program limits the traffic velocity to a minimum of 30 miles per hour (mph). In the case of the proposed project, where the onsite maximum traffic speed is estimated at 25 mph, the program uses the lowest allowed speed of 30 mph. This results in a conservative noise prediction since traffic noise levels increase directly with increase in traffic speed. With respect to offsite roads (e.g., La Tuna Canyon Road), on which traffic speeds are higher than 30 mph, the program is accurate and was not adjusted.

It is also important to take into account the grade of the onsite roads, which is assumed to be steeper than a typical freeway. It was assumed that this steeper grade would cause some increase in noise for automobile traffic, although the LEQV2 assumes that road grade would only affect noise due to truck traffic. In order to account for the increase in automobile noise due to the steeper grade, the predicted noise levels from LEQV2 were increased by 4 dBA. This 4-dBA adjustment is based on P.M. Nelson's Transportation Noise Reference Book,[20] which states that under normal conditions the increase in noise levels due to grading would be a maximum of 4 dBA for heavy trucks. Using 4 dBA is a conservative figure because grading is expected to increase the sound in heavy trucks more so than for automobile traffic and the onsite roads are expected to be primarily used by automobiles. Therefore, the noise prediction model was modified for onsite traffic as follows:

- The traffic speed was increased to 30 mph; and
- The predicted noise levels were increased by 4 dBA to account for grading.

These adjustments apply only to the onsite roads and not to the offsite roads, since the speed and grading of the offsite roads are consistent with the program's inherent assumptions.

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18 *Fax dated February 7, 2003 from Sarah Drobis, Linscott Law and Greenspan.*

19 *City of Los Angeles Draft L.A. CEQA Thresholds Guide, May 14, 1998, page I.2-6.*

20 *Nelson, P. M., "Transportation Noise Reference Book", Butterworths, Boston: 1987, p. 10/12, section 10.4.4.*

The output files from LEQV2 and the traffic data provided by Linscott Law & Greenspan are listed in Appendix J. Traffic noise levels were projected for the four sound receptor locations that represent existing residential and park areas (Locations A, B1, D and E in Figure IV.E-1). Locations B, C and F are not near any existing noise-sensitive areas, so operational noise impacts are not applicable at these locations.

Mechanical Equipment Noise Impact at Existing Residential and Park Areas

A second potential noise source is mechanical equipment. Similar to traffic noise impacts, the noise that would be generated by outdoor mechanical equipment in future homes on the project site (i.e., heat pumps, air conditioning units) was estimated at Locations A, B1, D and E. Typically, specific data regarding the proposed mechanical systems and equipment are not available until the actual building design progresses. However, typical single-family homes, such as future homes proposed on the project site, would likely use a "split system" that includes an outdoor heat pump in the range of 5–7.5 tons. The sound generated from a typical residential heat pump is estimated to be 72 dBA at a distance of about three feet from the unit. To estimate the combined noise impact of mechanical equipment operating at multiple homes in the proposed project, the sound from six heat pumps (representing the nearest future homes to each of the existing residential areas) was combined to determine the noise impact on the existing homes. The sound levels were adjusted according to the distances between the applicable proposed and existing homes.

Summary of Operation-Related Noise at Residential and Park Areas

The proposed project's operation-related noise impacts on Locations A, B1, D and E are summarized in Table IV.E-6. These operation-related noise levels include noise due to vehicular traffic (at both proposed onsite roads and existing offsite roads) and mechanical equipment. The project's operation-related noise levels are estimated to be less than the ambient noise levels and to increase the ambient sound level by a maximum of 1 dBA at all locations. As discussed above, the proposed project would not have a significant noise impact with respect to proposed project operations unless the ambient noise level increases by at least 3 dBA in CNEL. Since the maximum increase in ambient noise levels measured at Locations A, B1, D and E is only 1 dBA, the operations relating to the proposed project would not cause a significant noise impact on the existing communities.

Traffic Noise at Areas Intersected by Offsite Roads

Offsite vehicular traffic relating to the proposed project's operation would also increase traffic noise on offsite roads. Since an increase in traffic volume is directly related to an increase in traffic noise, the increase in ambient sound levels can be calculated based on future traffic volumes with and without the project-related traffic. The future traffic volume without the proposed project includes the existing traffic and the future traffic from other projects in the area. This traffic volume data at nearby offsite roads was provided by Linscott Law & Greenspan and is included in Appendix J.

Table IV.E-6
Project's Operational Noise Impacts on Existing Sensitive Uses
Canyon Hills Project

Location	Noise Levels in CNEL					
	Existing Ambient Noise Levels (A)	Project-Related Noise			Future Ambient Noise Levels with Project (A + B + C)	Increase in Ambient Levels with Project
		Traffic Noise Levels (B)	Mechanical Noise Levels (C)	Cumulative Operational Noise Levels (B + C)		
A	68	60	16	60	69	1
B[a]	N/A	N/A	N/A	N/A	N/A	N/A
B1	58	44	16	44	58	0
C[a]	N/A	N/A	N/A	N/A	N/A	N/A
D	56	48	26	48	57	1
E	47	42	34	43	48	1
F[a]	N/A	N/A	N/A	N/A	N/A	N/A

[a] *Operational noise levels are irrelevant at Locations B, C and F because they are not near any noise-sensitive areas (see Figure IV.E-1).*

Table IV.E-7 shows the change in traffic noise levels that would be expected due to the project-related increase in traffic volume at traffic intersections in the vicinity of the project site. Note that the highest change in noise due to project traffic is 1 dBA and is due to an increase in the existing p.m. peak volume at the intersection of Development Area A Access/Interstate 210 Westbound Ramps and La Tuna Canyon Road. Since this is less than a 3-dBA increase, the minimum threshold for a significant noise impact, there would not be a significant noise impact from the additional traffic along roads in the vicinity of the project site.

Traffic Noise at Equestrian Park

Table IV.E-6 shows that future noise levels in the vicinity of the equestrian park (represented by Location A) would increase 1 dBA, to 69 CNEL. As discussed above, a CNEL of 50-70 is normally acceptable for recreational facilities such as playgrounds and parks. Future noise levels at the equestrian park would fall within these parameters. Furthermore, since the future noise level increase is less than 3 dBA, the minimum threshold for a significant noise impact, the noise impact to the equestrian park would be less than significant.

Conversely, use of the equestrian park would not be expected to create significant noise. Foremost, horseback riding is not an inherently noise activity. Furthermore, with only two parking spaces provided at the equestrian park, very few people would use the facility at any given time. In addition,

Table IV.E-7
Summary of Offsite Traffic Noise Impacts
Canyon Hills Project

Traffic Intersection	Traffic Volume,[a] (Vehicles/Hour): AM Peak Hour / PM Peak Hour				Change in Noise Levels (dBA)	
	Existing	Future (2009) Without Project	Future (2009) With Project	Additional Traffic Volume Due to Project	Existing to Future Without Project	Future Without Project to Future With Project
I-210 Eastbound Ramps and Sunland Boulevard	3066 / 2856	3550 / 3583	3561 / 3597	11 / 14	< 1	< 1
I-210 Westbound Ramps and Sunland Boulevard	4196 / 4140	4849 / 4835	4876 / 4854	27 / 19	< 1	< 1
I-210 Eastbound Off-Ramp and La Tuna Canyon Road	1224 / 1203	1398 / 1374	1466 / 1499	68 / 125	< 1	< 1
Development Area A Access/ I-210 Westbound Ramps and La Tuna Canyon Road	1017 / 785	1167 / 906	1356 / 1151	189 / 245	< 1	1
Tujunga Canyon Boulevard and Foothill Boulevard	3005 / 3435	3667 / 4086	3700 / 4228	43 / 142	< 1	< 1
Tujunga Canyon Boulevard and La Tuna Canyon Road/Honolulu Avenue	2096 / 2265	2454 / 2656	2497 / 2712	43 / 56	< 1	< 1
Development Area B Access (West) and La Tuna Canyon Road	1168 / 1122	1332 / 1280	1365 / 1322	33 / 42	< 1	< 1
Development Area B Access (East) and La Tuna Canyon Road	1168 / 1122	1332 / 1280	1386 / 1350	54 / 70	< 1	< 1
I-210 Eastbound On-Ramp and La Tuna Canyon Road	1215 / 1189	1389 / 1360	1493 / 1493	104 / 133	< 1	< 1

[a] *Source: Project traffic consultant, Linscott Law & Greenspan, March 2003*

there would be no night use of the facility and no loudspeakers. Finally, there is only one home near the proposed equestrian park site, and the owner of that home has already constructed equestrian improvements on the equestrian park site. Consequently, the two uses would be compatible.

Existing Environment's Impacts on Proposed Homes

In addition to considering the operational and construction noise impacts on existing noise-sensitive land uses, the impact of the existing noise environment on the proposed homes was also analyzed. This existing environment is dominated by traffic noise generated by Interstate 210.

Noise Standard

Caltrans defines the Noise Abatement Criteria (NAC) for residential land use to be an exterior noise level of 67 dBA hourly L_{eq}.[21] This noise standard is used by Caltrans to determine when to build sound walls to acoustically protect sensitive land uses from traffic noise. For example, Caltrans would build a sound wall between a highway and a residential area when the residential land use is estimated to experience an exterior noise level of 67 dBA L_{eq} or more.

Interstate 210 Noise Impact on Proposed Homes

A calibrated noise prediction model was employed to determine whether the proposed homes closest to Interstate 210 required mitigation with respect to vehicular noise on Interstate 210 and, if so, to develop that noise mitigation.

Noise Prediction Computer Model

The "Sound 2000"[22] Caltrans noise prediction computer model (another Caltrans traffic noise computer model in addition to LEQV2, which was used to determine traffic noise levels affecting existing noise-sensitive areas) was utilized to predict Interstate 210 traffic-generated noise levels at several onsite sound receptors, each representing future residential homes within the proposed project. These computations were based on the following information:

- Traffic volume, speed and fleet mix (i.e., percentage of autos, medium trucks and heavy trucks).

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[21] *Caltrans Project Development Procedures Manual, Chapter 30 - Highway Traffic Noise Abatement, 7/1/99, p. 30-13.*

[22] *Sound 2000 is an interface improvement over Sound32 traffic noise model. Calculation procedures are based on Sound32 traffic noise model, which is one of the recommended traffic noise models per City CEQA Thresholds Guide.*

- Roadway, barrier and sound receptor geometry.
- Number of traffic lanes.

The input and output files for Sound 2000 are included in Appendix H.

The traffic lane segments, natural topographical barriers (ridges and hills), receptor locations and recommended sound wall locations are introduced through longitudinal distances and grade elevations obtained through review of the project AutoCAD drawings for "280 Lots Conceptual Grading Plan of Canyon Hills" prepared by Templeton Planning Group and dated on December 19, 2002. The selected noise receptors, proposed sound walls locations and existing natural sound barriers that were input into the traffic model are shown in Figure IV.E-2.

The computer traffic noise model was calibrated based on noise measurements recorded at noise monitoring Locations C and F, which were chosen because Location C is relatively far from Interstate 210 and Location F is the closest measurement location to Interstate 210. In both locations, the noise environment is dominated by Interstate 210 traffic noise. As indicated in Table IV.E-1, both measurement Locations C and F have direct line of sight to Interstate 210. The computer model's predicted sound levels due to the existing traffic conditions were consistent with that measured at Locations C and F to within 1 dBA. The sound prediction model is considered accurate when the calibration level is within $\pm$3 dBA. Less than 3-dBA variation is expected due to anticipated percentage of error associated with the input data, such as road geometries, traffic volume and fleet mix, etc.

Interstate 210 Traffic Noise Levels

As shown in Figure IV.E-2, 14 noise receptors were inputted into the Caltrans noise model "Sound 2000." These 14 noise receptors were designated as sound receptors R1 through R14 and range between 150 feet and 700 feet from the centerline of Interstate 210. These receptors were positioned over the most noise-sensitive lots in each group of potential homes that are within 700 feet of the centerline of Interstate 210. Each noise receptor represents several homes in its general vicinity.

Figure IV.E-2 Receptors and Barriers Used in Traffic Model

Of these 14 receptors, the 5 receptors (R1, R2, R4, R7 and R8) that were distanced from the centerline of Interstate 210 by at least 500 feet were all estimated to experience sound levels below the Caltrans criteria[23,24] of 67 dBA L_{eq}. Based on this data, a 67-dBA contour (Figure IV.E-2) was estimated to exist at a distance of 500 feet from the centerline of Interstate 210. Any proposed homes outside this contour would meet the Caltrans noise criteria without additional noise mitigation measures. The 20 proposed homes (out of 280 proposed homes) inside this 67-dBA noise contour are represented by the nine receptors R3, R5, R6 and R9 through R14.

Table IV.E-8 shows the predicted Interstate 210 traffic noise levels at R1 through R14. Without noise mitigation (i.e., sound walls), receptors R3, R5, R6 and R9 through R14 would all experience sound levels higher than 67 dBA. With the recommended sound walls shown on Figure IV.E-2, all receptors except R10 through R12 would meet the Caltrans sound criterion of 67 dBA. The recommended 16-foot high sound walls (B8 and B9) shown on Figure IV.E-2 would not be sufficient to meet the Caltrans standard at R10 through R12 due to the existing topography and because it is infeasible to construct the significantly higher sound walls that would be required to meet the Caltrans sound criterion.

If the recommended sound walls were placed directly adjacent to receptors R10 through R12 (as with receptors R13 and R14), the required sound reduction could be achieved. However, this is not possible under the current site plan because sound walls in that location would prevent vehicular access to those proposed homes. In order to meet Caltrans sound criterion at receptors R10 through R12, the proposed site plan would have to be modified. Potential solutions include re-designing the access road so that a sound wall can be placed directly adjacent to R10 through R12, moving the proposed homes on lots R10 through R12 further from Interstate 210 or eliminating the proposed homes at those three locations.

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[23] *C.S. Klein, Captain of Altedena Area Department of California Highway Patrol, letter to Maya Zaitzevsky, dated October 4, 2002*

[24] *Caltrans Project Development Procedures Manual, Chapter 30 - Highway Traffic Noise Abatement, 7/1/99, p. 30-13.*

Table IV.E-8
Sound Wall Analysis Based on Interstate 210 Traffic Noise
Canyon Hills Project

Sound Receptor	Recommended Sound Wall[a]	Interstate 210 Traffic Noise Level at Selected Residential Lots Nearest to Interstate 210, L_{eq} in dBA		Interstate 210 Traffic Noise Levels with Respect to Caltrans Criteria of 67 dBA	
		Without Sound Walls	With Sound Walls	Without Sound Walls	With Sound Walls
R1	NB	61	61	Meets Criteria	Meets Criteria
R2	NB	63	63	Meets Criteria	Meets Criteria
R3	B1 & B2	70	64	Exceeds Criteria by 3 dBA	Meets Criteria
R4	NB	66	66	Meets Criteria	Meets Criteria
R5	B3 & B4	71	67	Exceeds Criteria by 4 dBA	Meets Criteria
R6	B5 & B6	69	67	Exceeds Criteria by 2 dBA	Meets Criteria
R7	NB	62	63	Meets Criteria	Meets Criteria
R8	NB	65	64	Meets Criteria	Meets Criteria
R9	B7	67	67	Meets Criteria	Meets Criteria
R10	B7 & B8	69	68	Exceeds Criteria by 2 dBA	Exceeds Criteria by 1 dBA
R11	B8 & B9	71	69	Exceeds Criteria by 4 dBA	Exceeds Criteria by 2 dBA
R12	B9	75	70	Exceeds Criteria by 8 dBA	Exceeds Criteria by 3 dBA
R13	B9 & B10	79	65	Exceeds Criteria by 12 dBA	Meets Criteria
R14	B10	75	64	Exceeds Criteria by 8 dBA	Meets Criteria

[a] *NB denotes Natural Barrier (existing landscape).*

MITIGATION MEASURES

Construction-Related Impacts

Measures to Protect Existing Noise-Sensitive Areas

There would be significant, short-term noise impacts at Locations D and E (representing existing Residential Areas 2 and 3) during each of the construction phases during the time when construction equipment is operating in areas near these locations. There would not be a significant noise impact expected due to construction truck traffic of on existing roads in the areas surrounding the project site. Also, blasting-related sound levels (if blasting does occur) are expected to be infrequent and within safe limits, and therefore not significant.

The following noise control measures are recommended for implementation in order to minimize the significant impact at the Residential Areas 2 and 3 during the construction of the proposed project. Due to the quiet ambient conditions in these residential areas, the following mitigation measures are unlikely to reduce construction noise to a level of insignificance at these sensitive noise receptors. The goal of this noise mitigation plan is to provide the most effective and practical techniques for controlling construction noise emissions.

E-1 Construction activities, including job-site deliveries, shall be limited to the hours of 7:00 a.m. to 9:00 p.m., provided that such construction activities shall be limited to the hours of 7:00 a.m. to 6:00 p.m. to the extent such construction activities are conducted within 500 feet of any existing residential buildings.

E-2 In accordance with LAMC Section 41.40(c),[25] construction activities, including job-site deliveries, shall not be conducted within 500 feet of any existing residential buildings before 8:00 a.m. or after 6:00 p.m. on Saturday or any national holiday or at any time on Sunday.

E-3 Prohibit use of adjoining residential streets by construction personnel and construction-related vehicles for parking.

E-4 An area should be designated as far from residential areas as feasible for the delivery of materials and equipment to site.

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[25] *City of Los Angeles Municipal Code, Chapter XI Noise Regulation, Article 1 General Provisions, Section 41.40, Rev. No. 63 – 1996.*

E-5 Stage deliveries to occur from mid-morning to mid-afternoon, where feasible, to take advantage of times when residential zones are less susceptible to annoyance from outside noise.

E-6 Coordinate deliveries to reduce the potential of trucks waiting to unload for protracted periods of time.

E-7 All construction equipment shall be equipped with the manufacturers' recommended noise muffling devices, such as mufflers and engine covers. These devices should be kept in good working condition throughout the construction process.

E-8 To the extent feasible, hydraulic equipment instead of pneumatic impact tools and electric powered equipment instead of diesel powered equipment shall be used for exterior construction work.

E-9 Maintaining equipment in an idling mode shall be minimized. All equipment not in use shall be turned off.

E-10 For smaller equipment (such as, air-compressors and small pumps), line-powered equipment shall be used to the extent feasible.

E-11 The project developer shall appoint a construction coordinator to interface with the general contractor and neighboring communities. The construction coordinator shall be accessible to resolve problems related to the effects of project construction on the surrounding community, to the extent feasible. The construction coordinator shall also provide information to the surrounding community regarding scheduling of specific construction activities (e.g., grading and blasting) and construction phasing.

Operational Impacts

Measures to Protect Proposed Homes

E-12 In order to meet the Caltrans standard regarding freeway noise, one of the following two options shall be implemented:

- Sound walls shall be constructed at the locations and heights shown in Figure IV.E-2.

- The elevations or locations of the homes shall be altered and/or intervening berms or landform features shall be integrated into the project design.

E-13 If the first option in Mitigation Measure E-12 is implemented, then sound walls (as shown in Figure IV.E-2) at 277 of the 280 homes will meet the Caltrans standard. Sound levels at the remaining three homes (R10 through R12 in Figure IV.E-2) close to Interstate 210 cannot be sufficiently lowered with sound walls to satisfy Caltrans standards because the proposed site plan does not allow for sound wall placement directly adjacent to R10 through R12. As such, it is recommended that the proposed homes on R10 through R12 be eliminated from the site plan unless the site plan is modified so that compliance with the Caltrans sound criterion is possible if the first option in Mitigation Measure E-12 is implemented. Potential modifications include the following:

- Moving the proposed lots on R10, R11 and R12 further from Interstate 210.
- Re-designing the access road so that sound walls can be placed closer to R10, R11 and R12.

E-14 The project design and construction will incorporate all applicable building codes that relate to building sound insulation, including appropriate use of double-glazed windows, etc.

CUMULATIVE IMPACTS

There are 13 related projects (see Figure II-1 in Section II.C (Related Projects)) in the general vicinity of the project site. It is possible that the construction of one or more of those related projects could overlap with the construction of the proposed project. If overlapping construction did occur, it is possible that the construction noise associated with those overlapping construction activities could be simultaneously audible at one or more of the noise-sensitive Locations described above. In that event, a cumulative construction noise analysis would be required.

Of the 13 related projects, only one of them – the potential Duke Project – is located close enough to the project site to potentially cause cumulative construction noise impacts. The other 12 related projects are at least 2,500 feet from the proposed project and are further shielded by natural topography. Based on distance alone, construction noise from these projects, were they to occur simultaneously, would not have a cumulative impact at any of the noise-sensitive locations.

The Duke Property is located north and east of Development Area A (see Figure IV.E-1). According to the Los Angeles Department of City Planning, the vesting tentative tract map (VTTM 48754) for the

Duke Project was approved by the City on December 10, 2001 and permits 10 homes.[26] The only noise-sensitive location in proximity to the Duke Property is Location D. All other noise-sensitive Locations (A, B1, and E) are at least 3,500 feet from the proposed Duke Project.

Location D is approximately 500 feet from the nearest construction area in the project site and approximately 2,000 feet away from the anticipated location of construction activities on the Duke Property. Assuming conservatively that the construction noise levels in the Duke Project are similar to those of the proposed project, the noise increase at Location D due to the additional construction noise associated with the Duke Project would be less than 1 dBA. In addition, the proposed homes in the Duke Project are planned to be built 50 feet downhill from the top of a ridgeline that runs between the Duke Project and Residential Area 2. This topographical barrier would provide additional sound attenuation between the potential Duke Project construction and Residential Area 2.

For all of the foregoing reasons, it is not anticipated that any cumulative construction noise impacts would occur with respect to the proposed project.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Operational noise impacts would be less than significant. With implementation of the mitigation measures above, construction noise impacts with respect to Residential Areas 2 and 3 would remain significant.

[26] *Telephone conversation with Los Angeles Department of City Planning, Subdivision Section, April 16, 2003.*