5.8 NOISE

This section evaluates noise-related impacts associated with the Project. The evaluation of noise impacts is based, in part, on the information provided in a Sound Level Assessment prepared by 45 db Acoustics Consulting. The original assessment was peer reviewed by Dr. Bruce Walker, and in response to that review, an updated Sound Level Assessment report was prepared. The updated Sound Level Assessment and peer review comments on the original report are provided in EIR Appendix F.

5.8.1 Physical Setting

Noise and Vibration Characteristics

Noise Characteristics. Noise is generally defined as unwanted sound. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels to be consistent with that of human hearing response. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (Leq). The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time. Typically, Leq is summed over a one-hour period.

Because of the nature of the human ear, a sound must be about 10 dB greater than a reference sound to be judged as twice as loud. In general, a 3 dBA change in community noise levels is noticeable, while 1-2 dBA changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40 to 50 dBA, while those along arterial streets are in the 50 to 60+ dBA range. Normal conversational levels are in the 60-65 dBA range.

Noise levels typically attenuate (decrease) at a rate of 6 dBA per doubling of distance from point sources. Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dBA per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dBA per doubling of distance. Noise levels may also be reduced by intervening structures. For example, a single row of buildings between the receptor and the noise source can reduce the noise level by about 5 dBA, while a solid wall or berm can reduce noise levels by 5 to 10 dBA. The manner in which older homes in California were constructed (approximately 30 years old or older) generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units and office buildings is generally 30 dBA or more.

The time period in which noise occurs is also important since noise that occurs at night tends to be more disturbing than noise that occurs during the day. The Community Noise Equivalent Level (CNEL) is a measure of the cumulative noise exposure in a community, and consists of a weighted average of the hourly Leqs over a 24-hour period. The weighting includes

a 5 dB penalty added to evening (7 p.m. to 10 p.m.) and a 10 dB addition to nocturnal (10 p.m. to 7 a.m.) noise levels to account for the greater disturbance associated with noise during these periods. The Day-Night Average Sound Level, Ldn, is essentially the same as CNEL, with the exception that all occurrences during the 3-hour evening time period are grouped into the day-time period with no dB penalty.

Groundborne Vibration Characteristics. The operation of heavy equipment can generate vibration waves that propagate through the various soil and rock strata to nearby buildings. The vibration of floors and walls may be perceptible to building occupants and cause rattling of items such as windows or dishes on shelves, or a rumble noise. The rumble is the noise radiated from the motion of the room surfaces. The ground motion caused by vibration is measured as particle velocity in inches per second and in the U.S. is referenced as vibration decibels (VdB).

The background vibration velocity level in residential areas is usually 50 VdB or lower. This level is well below the threshold of perception by humans, which is around 65 VdB. Most perceptible indoor vibration is caused by sources within buildings such as operation of mechanical equipment, movement of people, or slamming doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. Rubber-tire vehicles rarely create ground-borne vibration problems unless there is a discontinuity or bump in the road that causes the vibration. Groundborne vibration is almost never annoying to people who are outdoors. In extreme cases, vibrations can cause damage to buildings. The vibration threshold that may result in minor damage to fragile buildings is approximately 100 VdB. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin (Federal Transit Administration, 2006). Table 5.8-1 provides a summary of typical human responses to different levels of groundborne vibration

Table 5.8-1
Human Response to Different Levels of Groundborne Vibration

Vibration Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception for many people.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find vibrations at this level to be annoying.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Source: Federal Transit Administration, 2006.

Existing Noise Sources

The project site is vacant and not a substantial source of noise creation. Noise sources in the project area include vehicle traffic on Calle Real and U.S. 101, and the Union Pacific Railroad (UPRR) tracks. The City's Noise Element of the General Plan indicates that the project site is approximately 4,000 feet northwest of the 65 dBA noise contour that results from existing (2003) aircraft operations at the Santa Barbara Municipal Airport. Therefore, the airport is not a substantial noise source at the project site. Other noise sources in the Project area consist of typical noises associated with the residential uses located to the north, east and west of the site.

Project Site Noise Measurements

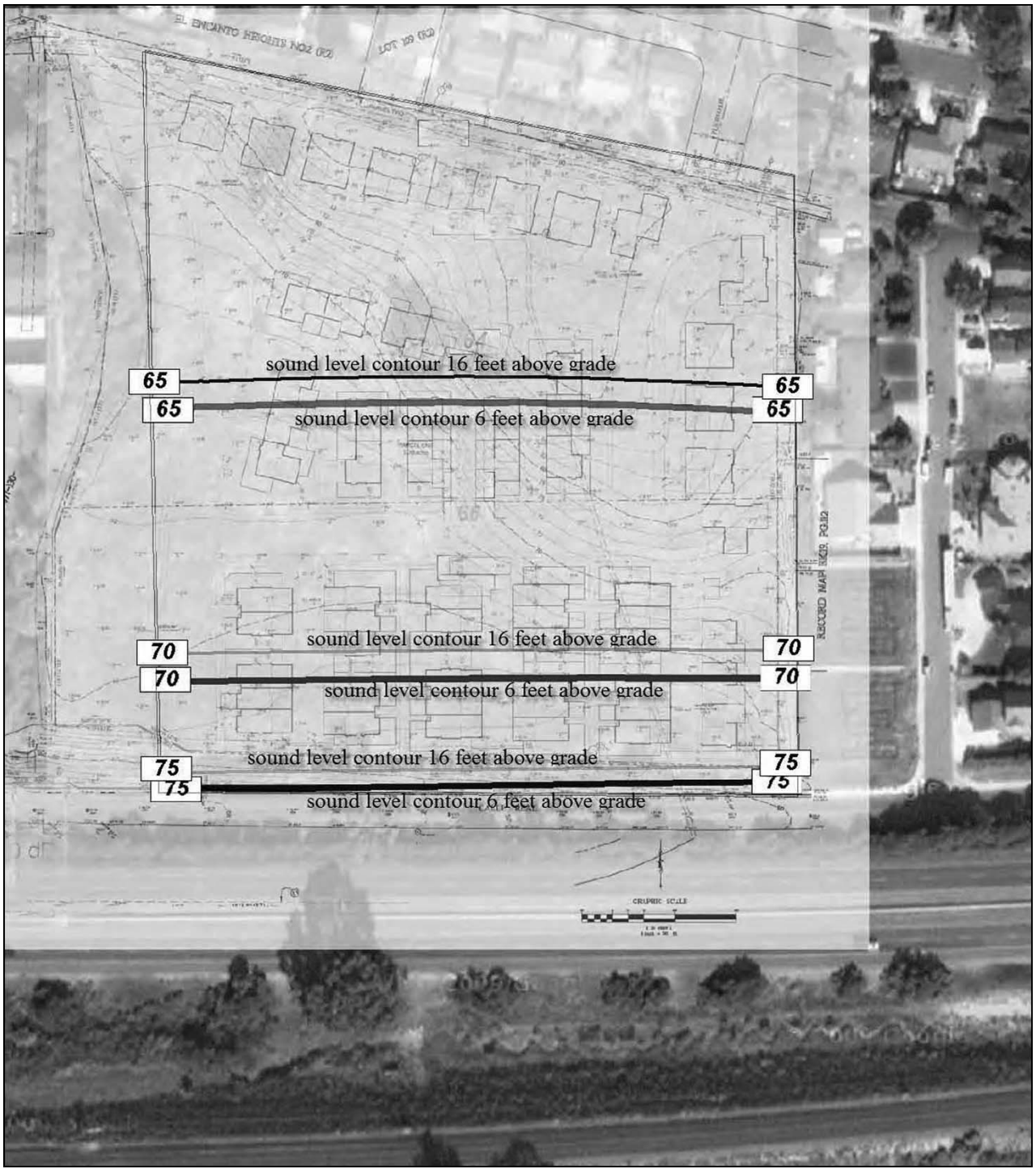
Continuous sound level measurements were made at a location near the southeast corner of the project site from Friday through Saturday, September 4-5, 2009. Peak measured noise levels at the project site of up to 94 dBA occurred when trains passed by. The Ldn noise level at the southern perimeter of the project site was calculated to be 75 dBA. The calculated 65 dBA Ldn noise contour is located near the center of the project site. Calculated Ldn noise contours on the project site at heights six feet above grade (the assumed height of a ground level receptor) and 16 feet above grade (the height of a second story receptor) are depicted on Figure 5.8-1.

Noise Sensitive Receptors

Sensitive noise receptors are defined by the City's Noise Element of the General Plan as "users or types of uses that are interrupted (rather than merely annoyed) by relatively low levels of noise." Sensitive noise receptors include residential neighborhoods, schools, libraries, hospitals and rest homes, auditoriums, certain open space areas, and public assembly places. Sensitive noise receptors near the project site include residences to the north, east and west of the site.

5.8.2 Regulatory Setting

The City's Noise Element of the General Plan establishes noise standards for various land use categories and indicates that 50-60 dBA (CNEL or Ldn) is the "normally acceptable" range and 60-65 dBA is the "conditionally acceptable" range for single- and multi-family residences. Noise levels between 65 and 75 dBA in single- and multi-family residential areas are considered to be "normally unacceptable." The Noise Element also indicates that new development exposed to "Conditionally Acceptable" noise levels should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design.



Source: 45 dB Acoustics Consulting

70 Existing Sound Level dBA Ldn

City of Goleta

Kenwood Village Project

Figure 5.8-1

Existing Project Site Noise Contours

Noise Element Policy NE 1.2 indicates that where sites, or portions of sites, designated for residential use exceed 60 dBA CNEL, the City requires measures to be incorporated into the design of projects that will mitigate interior noise levels and noise levels for exterior living and play areas to an acceptable level. Mitigation measures must reduce interior noise levels to 45 dBA CNEL or less, while noise levels at exterior living areas and play areas should in general not exceed 60 dBA CNEL and 65 dBA CNEL, respectively.

Noise Element Policy NE 4.1 requires the City to consider current and projected exposure to noise levels for any proposed development or use on land adjacent to the UPRR. The City should not approve any development that would result in unacceptable levels of noise exposure.

Noise Element Policy NE 6.4 restricts construction activities near or adjacent to residential buildings and other sensitive receptors to the hours of 8:00 AM to 5:00 PM Monday through Friday. Noise Element Policy NE 6.5 requires noise mitigation for construction equipment.

5.8.3 Thresholds of Significance

Appendix G of the CEQA Guidelines states that a project would have the potential to result in a significant noise impact if it would result in:

a. Exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies;

b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels without the project.

According to the City's *Environmental Thresholds and Guidelines Manual*, impacts would be significant if the Project would result in:

e. Noise levels in excess of 65 dBA CNEL that could affect sensitive receptors;

f. Exposure to outdoor noise levels in excess of 65 dBA CNEL and/or exposure to interior noise levels in excess of 45 dBA CNEL.

g. A substantial increase in ambient noise levels for noise-sensitive receptors generally presumed to be an increase to 65 dBA CNEL or more; or a substantial increase in ambient noise levels for noise-sensitive receptors that is less than 65 dBA CNEL, as determined on a case-by-case basis.

h. Noise from grading and construction activity proposed within 1,600 feet of sensitive receptors, including schools, residential development, commercial lodging facilities, hospitals, or care facilities.

The CEQA Guidelines do not define the level at which groundborne vibrations is considered "excessive." The analysis in this EIR uses the Federal Transit Administration's vibration impact general assessment impact criteria for "residences and buildings where people normally sleep." These criteria are 72 VdB for frequent events, 75 VdB for occasional events, and 80 VdB for infrequent events.[1] For vibration impacts to structures, the Federal Transit Administration indicates that vibration levels in excess of 100 VdB could damage fragile buildings.

5.8.4 Impact Evaluation

Short-Term Construction Noise and Vibration Impacts

On-Site Construction Equipment. Various construction activities would occur on the project site throughout the project's 12- to 18-month construction period, however, the highest potential for noise impacts is likely to occur during the project's grading phase when multiple pieces of equipment may be in operation simultaneously. Grading at the project site would result in approximately 41,000 cubic yards of excavation, 50,000 cubic yards of fill, and approximately 9,000 cubic yards of soil would be imported to the site. The proposed residences would not require the use of pile driving equipment to construct foundations, however, earthmoving equipment and other equipment that could be used during subsequent project construction phases are capable of producing noise levels in the range of 75 to 85 dBA at a distance of 50 feet from the source.

Noise-sensitive uses near the project site include residences to the north, east and west. Project-related grading would occur over most of the project site and most heavy equipment operation would occur within the interior of the site. However, grading would also occur around the perimeters of the site, which would result in earthmoving equipment operations a minimum of approximately 50 feet from residences to the north and east. Grading to construct the proposed storm water bio-detention basin in the southwestern portion of the project site would also occur within 50 feet of residential units to the west. Regardless of where grading operations occur on

[1] The Federal Transit Administration (2006) defines "Frequent" events as more than 70 vibration events of the same source per day. "Occasional" events are defined as between 30 and 70 vibration events of the same source per day. "Infrequent" events are defined as fewer than 30 vibration events of the same kind per day.

the project site at any particular time, proposed construction activities would occur within 1,600 feet of residential areas, therefore, project-related construction would result in **significant and mitigable (Class II)** short-term construction noise impacts.

Off-Site Truck Trips. The Project would require the importation of approximately 9,000 cubic yards of soil. At approximately eight (8) cubic yards of soil per truck, soil importation would require approximately 1,125 truck trips during the Project's grading phase. Noise from on-highway trucks can reach up to 88 dBA at 50 feet from the source, and the operation of soil-hauling trucks in residential neighborhoods or adjacent sensitive receptors could result in exterior noise levels that exceed 65 dBA. Residences adjacent to Calle Real between the project site and Storke Road would be the sensitive receptors most likely to be affected by this short-term impact. This construction-related noise impact is considered to be **significant and mitigable (Class II).** Other construction-related traffic (i.e., workers and material deliveries) would be limited in number, would occur intermittently throughout the day, and would not result in a significant short-term increase in traffic noise levels along project-area roadways.

Construction Vibrations. Equipment that would be used to construct the Project has the potential to generate low levels of groundborne vibration. Table 5.8-2 identifies estimated vibration levels for construction equipment likely to operate at the project site.

Table 5.8-2
Typical Vibration Levels for Construction Equipment

Equipment	Approximate VdB		
	25 Feet	50 Feet	100 Feet
Large Bulldozer	87	78	69
Loaded Truck	86	77	68
Jackhammer	79	70	61
Small Bulldozer	58	48	39

Source: Federal Transit Administration, 2006; Rincon Consultants, 2014

Sensitive residential receptors are within 50 feet of the project site to the north, east and west. Although some grading operations would occur around the perimeter of the project site, most grading and the operation of vibration-producing heavy equipment would occur in the interior of the project site, more than 100 feet from the adjacent receptors. As shown on Table 5.8-2, construction vibrations at nearby receptors resulting from equipment operation at a distance of 100 feet would generally be 69 Vdb or less. Therefore, on-site construction-related vibrations would generally be less than the 72 Vdb criteria recommended by the Federal Transit Administration for activities that result in vibrations on a frequent basis. The Project would also result in the use of loaded trucks to import soil to the project site, which could have the potential to result in vibration impacts to residences located adjacent to the haul route. However, the use of on-highway trucks with rubber tires on smooth (paved) roads to transport soil to the project site

is unlikely to result in excessive vibration impacts. Therefore, potential construction-related vibration impacts would be **less than significant (Class III).**

Long-Term Noise and Vibration Impacts

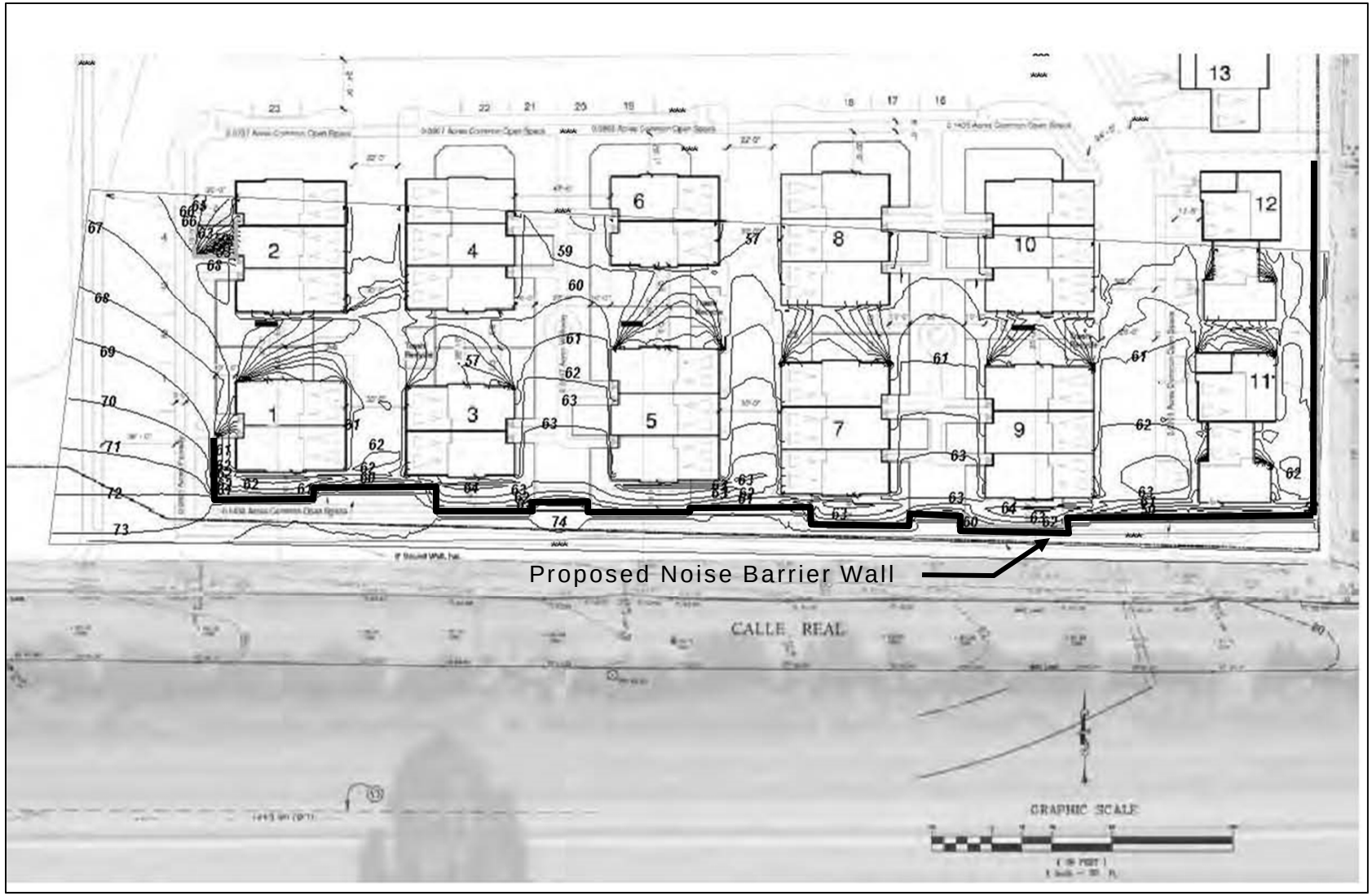
Project Site Noise Conditions. Existing noise conditions along the southern perimeter of the project site are calculated to be 75 dBA Ldn. The elevated noise levels result primarily from traffic on Calle Real and U.S. 101, and train operations on the UPRR tracks. Impacts of existing noise conditions on the Project are evaluated below.

Exterior Noise Impacts. Based on the results of sound level measurements, CNEL noise contours for post-development noise conditions at the project site were generated by an acoustical computer model. The noise model incorporates known sound level propagation patterns in relation to sources of sound; distance attenuation; and noise absorptivity and reflection by terrain, buildings, and noise barriers. The model also includes peak noise conditions resulting from passing trains, which are included in average (CNEL) noise conditions at the project site.

The computer modeling of post-development project site noise conditions included the location, volume, and mass of proposed residential buildings; the proposed on-site sound attenuation walls; topographic contours; building pad elevations and building heights; and the sound reflectivity of on-site noise barriers. The sound attenuation walls proposed by the Project and included in the post-project development noise modeling include an eight-foot high wall to be located along the site's southern perimeter, and an eight-foot high wall to be located on the west side of proposed building No. 2. The locations of the proposed sound attenuation walls are depicted on EIR Figure 3.5-9.

Figure 5.8-2 depicts calculated post-project development exterior noise conditions on the southern portion of the project site at an elevation six feet above the ground surface. As shown, exterior noise levels in outdoor living areas north of and adjacent to the proposed sound barrier walls would be 65 dBA CNEL or less. Due to noise attenuation provided by the proposed sound barrier walls and project site buildings, exterior noise conditions on the project site north of the first row of buildings would generally be less than 61 dBA CNEL. Therefore, outdoor living and play area noise levels on the project site would not exceed 65 dBA (threshold "f" in Section 5.8.3, above). Proposed mitigation measure N-2a specifies construction requirements for the proposed sound attenuation walls to ensure that outdoor living area noise levels are reduced to 65 dBA CNEL or below. With the implementation of this mitigation measure, exterior noise impacts would be potentially **significant and mitigable (Class II).**

As depicted on Figure 5.8-2, outdoor living areas on the southern portion of the project site adjacent to the proposed sound attenuation wall would generally range between 60 and 65



65 Noise Contour, dBA CNEL

City of Goleta

Kenwood Village Project

Figure 5.8-2

Post-Project Development Noise Contours – Six Feet Above Ground Level

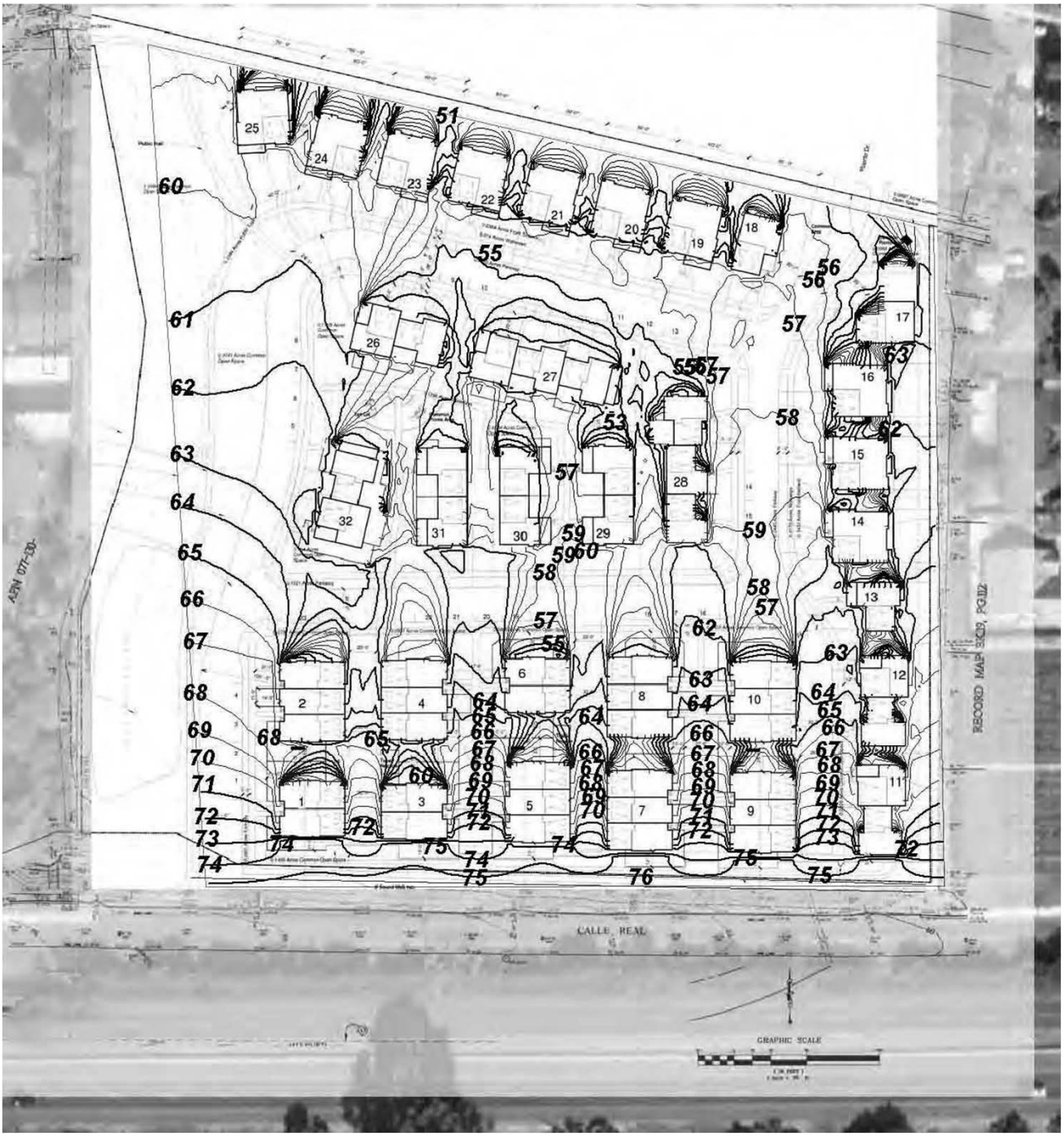
dBA CNEL, which would exceed guidance provided by Noise Element Policy NE 1.2, which states that exterior living areas *should in general* (emphasis added) not exceed 60 dBA CNEL. In regard to this policy, outdoor living areas are typically used during daytime hours (7:00 am to 7:00 pm) and evening hours (7:00 pm to 10:00 pm). CNEL noise levels add a five decibel penalty for noise during evening hours and a ten decibel penalty for noise during nighttime hours (10:00 pm to 7:00 am) when the use of outdoor living areas is less likely to occur. As a result of the methodology used to calculate CNEL noise levels, noise conditions in the outdoor living areas on the southern portion of the project site during daytime and evening hours would be somewhat lower than the calculated 60 to 65 dBA CNEL noise conditions.

Interior Noise Impacts. Interior noise levels are controlled by the noise reduction characteristics of the building shell. The interior noise level is a function of the sound transmission loss qualities of the construction material and surface area of each element (wall, window, door, etc.). Typical wood frame construction generally provides a reduction of exterior-to-interior noise levels of 20 dBA or greater.

As shown on Figure 5.8-2, exterior noise levels at a height of six feet above ground level would generally be between 60 and 65 dBA CNEL. Based on a noise reduction of 20 dBA provided by standard construction techniques, interior noise levels within first floor units located adjacent to the proposed noise barrier wall have the potential to be at 45 dBA CNEL. To ensure that the City's interior noise threshold is not exceeded in the first floor units on the southern portion of the project site, proposed mitigation measure N-3a requires that specified noise-reducing building materials and construction techniques be used in the construction of those units.

Figure 5.8-3 depicts calculated post-development noise conditions on the project site at an elevation of 16 feet above ground level, approximately the height of a receptor in a second story residence. As shown by Figure 5.8-3, calculated exterior noise levels at proposed second story units on the southern portion of the project site would generally range between 65 and 75 dBA CNEL. Based on a noise reduction of 20 dBA provided by standard construction techniques, interior noise levels in second floor units located on the southern portion of the project site would exceed 45 dBA CNEL.

Interior noise reduction mitigation will be required for the first- and second-story units located in proposed buildings 1, 2, 3, 5, 7, 9 and 11 on the southern portion of the project site. Building construction requirements capable of reducing interior noise levels to 45 dBA CNEL or below are specified by proposed mitigation measure N-3a. With the implementation of these or similar measures, interior noise impacts to residential units on the southern portion of the project site would be a **significant and mitigable (Class II) impact**.



Source: 45 dB Acoustics Consulting

65 Noise Contour, dBA CNEL

City of Goleta

Kenwood Village Project

Figure 5.8-3
Post-Project Development Noise Contours
16 Feet Above Ground Level

Traffic Noise on Local Streets. The Project would generate approximately 397 average daily vehicle trips, and those trips would be distributed onto local roadways in the Project area. As shown on Transportation and Traffic section Table 5.8-4, the Project would add approximately 377 average daily trips on Calle Real between the project site and Glen Annie Road, approximately 139 average daily trips on Storke Road north of Hollister Avenue, and approximately 20 average daily trips on Calle Real west of the project site. Existing traffic noise conditions along Calle Real east of the project site and along Storke Road north of Hollister Avenue, and traffic noise conditions that would result after the addition of Project-generated traffic are summarized on Table 5.8-3. The addition of 20 vehicle trips on Calle Real west of the project site would not result in a significant increase in existing traffic noise levels. All predicted traffic noise conditions are for a location 50 feet from the roadway centerline.

Table 5.8-3
Existing and Existing Plus Project Traffic Noise Levels

Roadway Segment	Existing Average Daily Trips	Existing Traffic Noise (dBA CNEL)	Existing Plus Project Average Daily Trips	Existing Plus Project Traffic Noise (dBA CNEL)	Change in Existing Traffic Noise Conditions (dBA CNEL)
Calle Real west of Glen Annie Road	9,800	64.9	10,177	65.1	0.2
Storke Road north of Hollister Avenue	34,100	70.3	34,239	70.4	0.1

Traffic Volume Source: ATE, 2015

As shown in Table 5.8-3, traffic generated by the Project would increase traffic noise along Calle Real between the project site and Glen Annie Road by 0.2 dBA CNEL, and would increase average daily traffic noise conditions on Storke Road by 0.1 dBA CNEL. The project-related increase in traffic noise conditions would not be substantial, and as described in EIR Section 5.8-1 (Noise Characteristics), an increase of less than one decibel is generally not a perceptible increase in noise conditions. Therefore, traffic generated by the Project would not result in a substantial permanent increase in ambient traffic noise conditions in the project vicinity, or result in a substantial increase in ambient noise levels for noise-sensitive receptors where existing noise conditions exceed 65 dBA CNEL. Project-generated traffic would result in a **less than significant (Class III)** noise impact to receptors located adjacent to roadways near the project site.

Project Generated Noise. The Project would result in the development of 60 single-family and multi-family residences on a vacant parcel. Occupancy of the proposed residences would result in an increase in existing noise conditions due the activities that would occur on the project site. Noise-producing activities that would result from the project would be typical of residential areas and would be similar to the types of activities and noise levels that occur in the residential areas near the project site. Occupancy of the Project would not result in a substantial

permanent increase in ambient noise levels in the project vicinity, and the Project's noise impacts to surrounding residential uses would be **less than significant (Class III).**

Train Operation Vibrations. Residences of the Kenwood Village Project would be a minimum of 370 feet north of the UPRR tracks with US 101 situation between the railroad tracks and the site. The Federal Transit Administration (2006) estimates that passenger and freight trains traveling at 50 miles per hour result in vibrations of approximately 67 VdB at a location 300 feet from the track centerline. Due to the separation distance between the railroad tracks and project site residences, it is expected that on-site vibrations would generally be at or below 65 Vdb, which is the approximate threshold of vibration perception for many people. Operation of trains on the UPRR tracks would not exposure project site residents to excessive groundborne vibrations and long-term vibration impacts to the Project would be **less than significant (Class III)**.

5.5.8 Cumulative Impacts

Short-Term Impacts. The construction of other development projects in the vicinity of the Project would result in temporary increases in ambient noise conditions. However, short-term increases in noise levels due to construction operations would be localized and limited in duration, and would not result in a substantial change in existing noise conditions. Therefore, cumulative short-term construction noise impacts would be **less than significant (Class III)**.

Long-Term Impacts. Future development that may occur in the Project area will likely consist of small residential infill projects. The future development and occupancy of small residential projects would not substantially increase long-term ambient noise levels in the project area.

Future development in the project area would result in additional vehicle traffic on local roadways. Future traffic noise along roadway segments near the project site, and future traffic noise conditions that would result after the addition of Project-generated traffic are summarized on Table 5.8-5. All predicted traffic noise conditions are for a location 50 feet from the roadway centerline.

Table 5.8-5
Cumulative and Cumulative Plus Project Traffic Noise Levels

Roadway Segment	Cumulative Average Daily Trips	Cumulative Traffic Noise (dBA CNEL)	Cumulative Plus Project Average Daily Trips	Cumulative Plus Project Traffic Noise (dBA CNEL)	Project-Related Change in Cumulative Traffic Noise (dBA CNEL)
Calle Real between the Project Site and Glen Annie Road	9,800	64.9	10,177	65.1	0.2
Storke Road north of Hollister Avenue	39,200	70.9	39,339	71.0	0.1

Traffic Volume Source: ATE, 2015

As shown in Table 5.8-5, the Project's contribution to future cumulative traffic noise would add 0.2 of a decibel to Calle Real, and would add 0.1 of a decibel to Storke Road. Therefore, the project's contribution to cumulative noise conditions in residential near the project site would not be cumulatively considerable and the project's cumulative impacts to local traffic noise conditions would be **less than significant (Class III)**.

5.8.6 Mitigation Measures

Impact N-1 Project-related construction activities would result in short-term increases in noise levels at sensitive receptors located near the project site, and along roadways used to haul fill soil to the project site.

N-1a. Construction Timing. Construction activity and equipment maintenance is limited to the hours between 8 AM and 5 PM, Monday through Friday. No construction can occur on Federal and State holidays (e.g., New Year's Day Presidents' Day Memorial Day Independence Day Labor Day Thanksgiving Day Christmas Day). Non-noise generating construction activities such as interior painting are not subject to these restrictions.

Plan Requirements and Timing: Construction timing requirements must be written on all grading and construction plans. At least one sign near the project site entrance on Calle Real stating these restrictions must be posted on the site. Signs must be a minimum size of 24" x 48." Signs must be in place before the beginning of and throughout grading and construction activities. Violations may result in suspension of permits.

Monitoring: The Planning and Environmental Review Director, or designee, will monitor compliance with restrictions on construction hours and must promptly investigate and respond to all complaints.

N-1b. Construction Vehicle Travel Route. Construction vehicles and haul trucks must utilize roadways that avoid residential neighborhoods and sensitive receptors where possible.

Plan Requirements and Timing: The permittee must submit a proposed construction vehicle and hauling route to the Planning and Environmental Review Director, or designee. This information must be reviewed and approved by Planning and Environmental Review Director, or designee, before the City issues a grading permit for the project. The approved route must be used for the duration of construction.

Monitoring: Planning and Environmental Review Director, or designee, must periodically inspect the site to ensure compliance.

N-1c Equipment Location and Shielding. Stationary noise sources such as generators or pumps must be located at least 200 feet away from noise-sensitive land uses as feasible. Electrical power must be used to run air compressors and similar power tools.

Plan Requirements and Timing: The equipment area must be designated on building and grading plans. In necessary, appropriate acoustic shielding may be required. Required shielding must remain in the designated location throughout construction activities.

Monitoring: The Planning and Environmental Review Director, or designee, will periodically inspect the site to ensure compliance with all noise attenuation requirements.

N-1d. Construction Noise Complaint Line. The permittee must provide a non-automated telephone number for local residents and employees to call to submit complaints associated with construction noise.

Plan Requirements and Timing: The telephone number must be included in the signage required by Measure N-1a. The permittee must inform the Planning and Environmental Review Director, or designee, of any complaints within one week of receipt of the complaint. Signs must be in place before beginning of and throughout grading and construction activities. Violations may result in suspension of permits.

Monitoring: The Planning and Environmental Review Director, or designee, may periodically inspect and respond to complaints.

N-1e. Equipment Noise. Trucks and other engine-powered equipment must include noise reduction features such as mufflers and engine shrouds that are as effective as originally installed by the manufacturer.

Plan Requirements and Timing: This requirement must be written on all grading and construction plans.

Monitoring: The Planning and Environmental Review Director, or designee, must review grading plans before the City issues a grading permit to ensure the required notation is provided.

N-1f Back-up beepers. Back-up beepers for all construction equipment and vehicles must be adjusted to the lowest sound levels feasible, consistent with safety, provided that OSHA and Cal/OSHA's safety requirements are not violated. These settings must be maintained throughout project construction.

Plan Requirements and Timing: This requirement must be written on all grading and construction plans.

Monitoring: The Planning and Environmental Review Director, or designee, must review to grading plans before the City issues a grading permit to ensure the required notation is provided.

N-1g. Material and Vehicle Storage. Material storage and construction vehicle staging areas must be located at least 200 feet away from noise-sensitive land uses if feasible.

Plan Requirements and Timing: This requirement must be written on all grading and construction plans.

Monitoring: The Planning and Environmental Review Director, or designee, may periodically inspect and respond to complaints.

N-1h. Acoustical Blankets. Construction fencing along the north, east and west project site property lines must be lined with acoustical blankets during grading/demolition and construction to minimize noise impacts to nearby sensitive receptors.

Plan Requirements and Timing: Acoustical blankets must be installed prior to commencement of any grading/demolition and maintained through to occupancy clearance. Violations may result in suspension of permits.

Monitoring: The Planning and Environmental Review Director, or designee, will periodically inspect the site to ensure compliance with use of acoustical blankets.

Residual Impact. Construction noise is an intermittent and temporary impact. The proposed mitigation measures will substantially reduce the effects of construction-related noise to residences near the project site and would reduce the short-term construction noise impacts of the Project to a less than significant level.

Impact N-2 Exterior noise levels at outdoor living areas on the southern portion of the project site have the potential to exceed the City's threshold standard of 65 dBA CNEL.

N-2a. Proposed Sound Barrier Walls. The Project proposes to construct noise barrier walls located along the project site's southern boundary, and on the west side of proposed building No. 2, as indicated on the Project's site plan. The proposed noise barrier walls must be of solid masonry construction with no gaps, and must be eight feet above nearby finished building pad elevations. Any gates in the sound barrier walls must be eight feet tall and constructed of wood that is at least 1.5 inches thick and overlapped sufficiently to prevent gaps due to shrinkage.

Plan Requirements and Timing: The required design and construction requirements for proposed noise barrier walls must be depicted on final building plans and specifications.

Monitoring: During construction, the Planning and Environmental Review Director, or designee, must confirm that required noise barrier walls were constructed consistent with approved building plans.

Residual Impact. Measure N-2a would achieve an acceptable exterior noise level of 65 dBA CNEL in outdoor living spaces located on the southern portion of the project site and reduce exterior noise impacts to a less than significant level.

Impact N-3 Interior noise levels in residential units on the southern portion of the project site have the potential to exceed the City's threshold standard of 45 dBA CNEL.

N-3a. Interior Noise Attenuation. Each of the following noise reduction design and construction measures are required for the south-facing walls of first

floor units, and the east-, south- and west-facing walls of second floor units included in buildings 1, 2, 3, 5, 7, 9 and 11. Additional information regarding the implementation of the specified building requirements is provided in the Sound Level Assessment included in Appendix F.

1. Walls that enclose habitable spaces must be constructed with a sound transmission class rating of 50 or better.

2. Windows must be double-glazed, installed in accordance with the recommendations of the manufacturer, fully gasketed, and have a sound transmission rating of 38 or better.

3. Doors must be solid core with sound dampening and fully gasketed, sealed jambs and grouted frames, with an overall sound transmission class rating of 36 or better.

4. Wall and roof penetrations must be located on the north, west or east building elevations wherever possible. If vents are required to be located facing south, a 90-degree bend must be incorporated into the design of the ductwork or vent opening to attenuate noise. Any fireplaces must be provided with a closable damper.

5. All construction openings and joints through walls, ceilings or roof insulation for items such as electrical outlets, pipes, vents, ducts, and flues must be insulated and sealed with putty pads, and a resilient, non-hardening acoustical sealant, as appropriate, to be air tight and maintain sound isolation.

6. Specified residential units shall be provided with an air conditioning or mechanical ventilation system so that windows and doors may remain closed.

Plan Requirements and Timing: The required building design and construction mitigation measures must be depicted on final building plans and specifications. The permittee must submit an acoustical analysis, prepared by a licensed engineer with expertise in environmental noise assessment and architectural acoustics, before the City issues any building permits for the Project. The noise assessment must demonstrate that proposed building construction will reduce interior noise levels to 45 dBA CNEL or lower.

Monitoring: During construction, the Planning and Environmental Review Director, or designee, will confirm that required noise attenuation measures were installed consistent with approved building plans.

Residual Impact. The design requirements of mitigation measure N-3a would provide interior noise conditions of 45 dBA CNEL or lower in residences located on the southern portion of the project site. With implementation of the specified measures, noise from traffic on Calle Real, U.S. 101 and the UPRR line would be reduced to a less than significant level.