Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Acoustical Analysis Report for Los Coches TPM No. 21331

County of San Diego Record ID: _____

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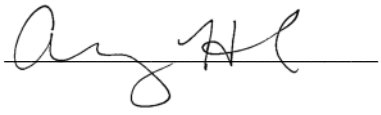

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Job # S231201

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Glossary of Terms and Acronyms

Ambient Sound: The combination of all near and far sounds in a given environment, none of which is particularly dominant.

Attenuation: The reduction in sound pressure level as sound is transmitted from one point to another.

Average Sound Level (L_{EQ}): Also known as equivalent sound level and expressed in dBA. The A-weighted sound level of a steady state sound which has the same sound energy as that contained in the actual time-varying sound being measured over a specific time period.

A-weighted Sound Level (dBA): Designed to approximate the response of the human ear to sound. A sound pressure level which has been filtered or weighted to quantitatively reduce the effect of low frequency noise.

Community Noise Equivalent Level (CNEL): The 24-hour weighted average noise level calculated as A-weighted sound pressure levels with different weighting factors for the noise levels occurring during the evening and nighttime periods. This weighting is applied to account for an individual's increased sensitivity to noise during these times. Sound levels during evening hours of 7 p.m. to 10 p.m. have an added 5 dB weighting, and sound levels during nighttime hours of 10 p.m. to 7 a.m. have an added 10 dB weighting.

Day-Night Average Sound Level (L_{DN}): A-weighted equivalent continuous sound exposure level for a 24-hour period with a 10 dB adjustment added to the sound levels occurring during nighttime hours (10 p.m. to 7 a.m.).

Decibel (dB): The primary unit of sound measurement; used to quantify both sound pressure level and sound power level. In acoustics, equal to ten times the logarithm of the ratio of one sound and a lower-intensity reference sound.

Frequency: The number of oscillations per second; generally expressed in hertz (Hz) or cycles per second (cps).

Insertion Loss: The sound level reduction at a receiver that occurs when a sound-attenuating device, such as a silencer or barrier, is inserted in the path between source and receiver. Expressed in decibels at a specific frequency octave band.

Sound Level Meter: An instrument, usually handheld, that is used to measure sound pressure levels with averaging capabilities and standard frequency-weighting.

Sound Pressure Level (L_P or SPL): The level of sound energy, measured in dB, at a specific location. In order to be meaningful, a sound pressure level measurement must be accompanied by a reference distance at which the sound source was measured.

Executive Summary

The proposed project, Los Coches TPM (TPM No. 21331), consists of the conversion of an existing workshop building into a single-family residential unit. The project site is located at 9009 and 9011 Los Coches Road in the Lakeside Community Planning Area, County of San Diego, California.

The primary noise source in the vicinity of the project site is automobile and truck traffic noise from Los Coches Road, Via Diego, and Ha Hana Road. According to the County of San Diego Noise Element to the General Plan, noise levels at outdoor use areas of single family residential sites should not exceed 60 CNEL. Calculations show that, as designed, worst-case noise levels are not expected to exceed 60 CNEL at outdoor use areas; therefore, exterior noise levels at outdoor use areas are expected to meet County of San Diego requirements without mitigation.

In addition, due to high noise impacts at some facades, the proposed habitable spaces were analyzed for interior noise impacts. With the existing exterior wall and exterior glazing in place, interior noise levels are expected to remain below 45 CNEL in all habitable spaces with windows and exterior doors closed. As exterior noise levels are expected to exceed limits with windows and doors open in all bedrooms, mechanical ventilation will be required for each bedroom. With these project design features in place, all interior residential space will comply with County of San Diego and California Building Code noise requirements.

The proposed project will not incorporate any large HVAC equipment and will not have any exterior construction activity. Therefore, no significant noise impacts are expected to be generated by the project site. No additional analysis is deemed necessary.

1.0 Introduction

This acoustical analysis report is submitted to satisfy the acoustical requirements of the County of San Diego for permit approval. Its purpose is to assess noise impacts from nearby roadway traffic and to identify project features or requirements necessary to achieve exterior noise levels of 60 CNEL or less at outdoor usable areas, in compliance with the County of San Diego noise regulations. Interior noise mitigation was also addressed to ensure that interior noise levels in residential space meet the County of San Diego interior noise limit of 45 CNEL.

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting, abbreviated "dBA," to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol "L_{EQ}." Unless a different time period is specified, "L_{EQ}" implies a period of one hour. The Community Noise Equivalent Level (CNEL) is a calculated 24-hour weighted average, where sound levels during evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dB weighting, and sound levels during nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dB weighting. This is similar to the Day-Night sound level, L_{DN}, which is a 24-hour average with an added 10 dB weighting on the same nighttime hours but no added weighting on the evening hours. Sound levels expressed in CNEL are always based on A-weighted decibels. These metrics are used to express noise levels for both measurement and municipal regulations, for land use guidelines, and for enforcement of noise ordinances.

1.1 Project Description

The proposed project, Los Coches TPM (TPM No. 21331), consists of the conversion of an existing workshop building into a residential unit. There is no earthwork associated with the proposed project, and construction will be limited to the interior of the existing building, which will remain and be converted to residential use. The net lot area for the project site is 34,669 square feet. The subject site is currently zoned RS (Residential – Single) and has a Community Plan Designation of VR-4.3 (Village Residential). All surrounding properties are also zoned RS and have the same Community Plan designation. Additional information is provided in the project plans, included as Appendix A.

1.2 Environmental Settings and Existing Conditions

1.2.1 Project Location

The project site is located at 9009 and 9011 Los Coches Road in the Lakeside Community Planning Area, County of San Diego, California. The Assessor's Parcel Number (APN) for the property is 397-060-79-00, where the project site is part of a larger parcel. The project location is shown on the Vicinity Map, Assessor's Parcel Map, and Satellite Aerial Photograph, provided as Figures 1 through 3, respectively.

1.2.2 Existing Traffic Volumes

The primary noise source in the vicinity of the project site is automobile and truck traffic noise from Los Coches Road, Via Diego, and Ha Hana Road. No other noise source is considered significant. Current and future (see Section 2.2.1) traffic volumes for all roadways were provided by the SANDAG Transportation Forecast Information Center (TFIC) ABM2+/2021 RP (activity-based regional transportation model) (see reference).

Los Coches Road is a two-lane, two-way roadway, classified as a Community Collector (2.1D) in the County Mobility Element, running generally east-west along the southern boundary of the project site. The posted speed limit is 45 mph. According to the SANDAG TFIC volumes for 2016, Los Coches Road currently carries a traffic volume of approximately 10,200 Average Daily Trips (ADT) east of Via Diego and 11,000 ADT west of Via Diego.

Via Diego is a four-lane, two-way roadway, running generally northeast-southwest to the southwest of the project site. Via Diego is not classified in the County Mobility Element; however, it is classified as a Local (non-circulation element) roadway by SANDAG. The posted speed limit is 25 mph. According to the SANDAG TFIC volumes for 2016, Via Diego currently carries a traffic volume of approximately 800 ADT in the vicinity of the project site.

Ha Hana Road is a two-lane, two-way roadway, running generally east-west to the north of the project site. Ha Hana Road is not classified in the County Mobility Element; however, it is classified as a Local (non-circulation element) roadway by SANDAG. The posted speed limit is 35 mph. According to the SANDAG TFIC volumes for 2016, Ha Hana Road currently carries a traffic volume of approximately 900 ADT in the vicinity of the project site.

Truck mix percentages were not available for any roadways in the vicinity of the project site; however, based on neighboring and surrounding land use, roadway classification, professional experience and on-site observations, a truck percentage mix of 2.0% medium and 1.0% heavy trucks was used for Los Coches Road, and a truck percentage mix of 0.5% medium and 0.5% heavy trucks was used for Via Diego and Ha Hana Road.

Current and future traffic volumes for the roadway sections near the project site are shown below in Table 1. For further roadway details, please refer to Appendix B.

Table 1. Overall Roadway Traffic Information

Roadway	Speed Limit (mph)	Vehicle Mix (%)		Current ADT (2016)	Future ADT (2050)
		Medium Trucks	Heavy Trucks		
Los Coches Road	45	2.0	1.0	10,200 / 11,000[1]	10,200
Via Diego	25	0.5	0.5	800	2,600
Ha Hana Road	35	0.5	0.5	900	1,100

[1]Roadway traffic volumes for Los Coches Road are given for roadway sections east and west of Via Diego, respectively.

Without mitigation or existing project structures, the project site is currently exposed to noise levels of approximately 56 CNEL to 71 CNEL at ground level. For a graphical representation of these contours, please refer to Figure 4.

1.2.3 Measured Noise Level

An on-site inspection and traffic noise measurement were conducted on the afternoon of Friday, December 8, 2023. A noise measurement was made along the southern edge of the project site at approximately 40 feet north of the Los Coches Road centerline and approximately 165 feet east of the Via Diego centerline. The primary source of noise during the measurement was traffic noise, with some minor impacts from aircraft flyover and distant landscaping equipment. The sound level measurement was performed with a sound level meter using A-weighting and a "slow" response time, with the microphone placed at approximately five feet above the existing grade. After a 15-minute continuous sound level measurement, no changes in the L_{EQ} were observable and results were recorded. The measured noise level and related weather conditions are shown in Table 2, and the noise measurement location is shown graphically in Figures 3 through 5.

Table 2. On-Site Ambient Noise Measurement Conditions and Results

Date	December 8, 2023
Ti1.me	12:00 p.m. – 12:15 p.m.
Conditions	Sunny skies, winds at 4-6 mph, temperature in the mid 60s, and moderate humidity
Measured Noise Level	72.7 dBA L_{EQ}

1.3 Methodology and Equipment

1.3.1 Methodology

1.3.1.1 Field Measurement

Typically, a "one-hour" equivalent sound level measurement (L_{EQ}, A-Weighted) is recorded for at least one noise-sensitive location on the site. During the on-site noise measurement, start and end times are recorded and vehicle counts are made for cars, medium trucks (double-tires/two axles), and heavy trucks (three or more axles) for the corresponding road segment(s). Supplemental sound measurements of one hour or less in duration are often made to further describe the noise environment of the site.

For measurements of less than one hour in duration, the measurement time is long enough for a representative traffic volume to occur and the noise level (L_{EQ}) to stabilize. The vehicle counts are then converted to one-hour equivalent volumes by applying an appropriate factor. Other field data gathered include measuring or estimating distances, angles-of-view, slopes, elevations, roadway grades, and vehicle speeds. This information is subsequently verified using available maps and records.

1.3.1.2 Roadway Noise Calculation

The Traffic Noise Model (TNM) calculation protocol in CadnaA Version 2023 (based on the methodology used in TNM Version 2.5, released in February 2004 by the U.S. Department of Transportation) was used for all traffic modeling in the preparation of this report. Using the TNM protocol, the CNEL is calculated as 9.2% of the ADT for surrounding roadways, based on the studies made by Wyle Laboratories (see reference). This percentage was also applied to project-generated trips to determine project-generated noise impacts. Future CNEL is calculated for desired receptor locations using future road alignment, elevations, lane configurations, projected traffic volumes, estimated truck mixes, and vehicle speeds. Noise attenuation methods may be analyzed, tested, and planned with TNM, as required.

In order to determine the estimated traffic volumes of roadways during the traffic noise measurement made on site for model calibration, the approximate percentage of the Average Daily Trips (ADT) value for the time period in which the measurement is made is incorporated into the traffic model. These percentages have been established in a study performed by Katz-Okitsu and Associates, Traffic Engineers (see reference). For purposes of calibrating the CadnaA TNM, 6.9% of the ADT values for the current environment were used in calculations (for roadways that were not manually counted) to account for traffic between the hours of 12 p.m. and 1 p.m. in the vicinity of the project site.

Noise levels were calculated for the site using the methodology described above for the location, conditions, and traffic volumes assumed to be present during the noise measurement. The calculated noise levels (L_{EQ}) were compared with the measured on-site noise level to determine if adjustments or corrections (calibration) should be applied to the traffic noise prediction model. Adjustments are intended to account for site-specific differences, such as reflection and absorption, which may be greater or lesser than accounted for in the model.

The measured noise level of 72.7 dBA (L_{EQ}) was compared to the calculated (modeled) noise level of 71.7 dBA, for the same conditions and assumed traffic flow. According to the Federal Highway Administration's Highway Traffic Noise: Analysis and Abatement Guide (see reference), a traffic noise model is considered validated if the measured and calculated noise impacts differ by three decibels or less. No adjustment was deemed necessary to model future noise levels for this location as the difference between the measured and calculated levels was found to be less than three decibels. The Traffic Noise Model is assumed to be representative of actual traffic noise that is experienced on site. This information is presented in Table 3.

Table 3. Calculated versus Measured Traffic Noise Data				
Location	**Calculated**	**Measured**	**Difference**	**Correction**
40' north of Los Coches Road C.L. and 165' east of the Via Diego C.L.	71.7 dBA	72.7 dBA	1.0 dB	None Applied

1.3.2 Measurement Equipment

The following equipment was used at the site to measure existing noise levels:

- Larson Davis Model 831 Type 1 Integrating Sound Level Meter, Serial # 2874
- Larson Davis Model CAL200 Type 1 Calibrator, Serial # 16454

The sound level meters were field-calibrated immediately prior to the noise measurement and checked afterward to ensure accuracy. All sound level measurements presented in this report, in accordance with the regulations, were conducted using a sound level meter that conforms to the American National Standards Institute specifications for sound level meters (ANSI S1.4). All instruments are maintained with National Institute of Standards and Technology (NIST) traceable calibration, per the manufacturers' standards.

2.0 Noise Sensitive Land Uses Affected By Airborne Noise

2.1 Guidelines for the Determination of Significance

The County of San Diego Noise Element to the General Plan states that exterior noise levels at outdoor use areas of single family residential properties should not exceed 60 CNEL. In the event that noise levels exceed 60 CNEL, mitigation must be proposed to bring noise levels into compliance. For lots with net areas ranging from 4,000 square feet to 10 acres, as is the case for this project site, at least 10% of the net lot area must be noise-protected. In addition, the interior noise levels of all on-site residences must not exceed 45 CNEL, as per the County of San Diego Noise Element as well as the State of California Building Code. Pertinent sections of the County of San Diego Noise Element to the General Plan are provided in Appendix C.

2.2 Potential Noise Impacts

2.2.1 Potential Build-Out Noise Conditions and Impacts

The future noise environment on site is expected to primarily consist of the same roadway noise sources. Future traffic volumes for all roadways were provided by the SANDAG TFIC ABM2+/2021 RP (activity-based regional transportation model).

According to SANDAG TFIC, in the future (year 2050) environment, the traffic volumes of Los Coches Road are expected to remain at 10,200 ADT east of Via Diego and decrease to 10,200 ADT west of Via Diego. The traffic volumes of Via Diego and Ha Hana Road are expected to increase to 2,600 ADT and 1,100 ADT, respectively, by the year 2050. The same speed limits and truck percentages from the current traffic information were used for future traffic modeling. For further details, please refer to Appendix B.

2.2.1.1 Exterior

Without mitigation or existing project structures, the future (year 2050) noise levels at the project site are expected to range from approximately 57 CNEL to 71 CNEL at ground level. For a graphical representation of these contours, please refer to Figure 5. Please refer to Appendix B for additional information.

As future traffic volumes on Los Coches Road west of Via Diego are expected to decrease in the future noise environment, the highest traffic volumes for each roadway section were used for a worst-case analysis of traffic noise at the project site.

Noise levels at ground level receivers must be 60 CNEL or less (for at least 10% of the net lot area) in order to comply with the regulations of the County of San Diego for outdoor use areas. In order to confirm that 10% of the lot area is noise-protected, four outdoor use receivers were placed at each corner of a shape equaling 10% of the lot area. Calculations consider the existing on-site and off-site structures, including the 6-foot fence to remain along the southern boundary of the project site. Calculated noise levels are shown in Table 4, and receiver locations are shown in Figure 6.

Table 4. Worst-Case Traffic Noise Levels at Outdoor Use Areas

Receiver	Distance to Roadway Centerline (feet)	Noise Limit (CNEL)	Calculated Traffic Noise Level (CNEL)
OU1	140	60	59.9
OU2	160	60	55.5
OU3	225	60	55.6
OU4	140	60	57.5

As shown above, worst-case noise impacts at ground level outdoor use areas of the lot are expected to be at or below 60 CNEL, and therefore no mitigation is required.

In addition to calculating noise levels at outdoor use receivers, noise levels were also calculated using CadnaA at building facades, considering the shielding that would be provided by the existing on-site and off-site structures, including the 6-foot fence to remain along the southern boundary of the project site. The existing building and fence structures were input as objects in the CadnaA traffic noise model, and the CadnaA calculation considers any shielding provided by these structures. Results are shown in Table 5, and additional information is provided in Appendix B. Receiver locations are shown in Figure 7.

Table 5. Worst-Case Traffic Noise Levels at Building Facades

Receiver	Location	Distance to Roadway Centerline (feet)	Calculated Traffic Noise Level (CNEL)
F1	South	89	62.6
F2	West	117	59.7
F3	North	140	49.4
F4	East	115	60.6

As shown above in Table 5, worst-case traffic noise levels at building facades are expected to range from approximately 49 CNEL at the north facade to approximately 63 CNEL at the south facade.

2.2.1.2 Interior

The County of San Diego General Plan requires buildings to be designed in order to attenuate, control, and maintain average interior noise levels not greater than 45 dBA in residential space, as formulated in County of San Diego Noise Element to the General Plan. Contemporary exterior building construction is expected to achieve at least 15 decibels of exterior-to-interior noise attenuation with windows opened, according to the U.S. Environmental Protection Agency Office of Noise Abatement and Control (see reference). As a result, exterior noise levels of more than 60 CNEL often result in interior conditions that fail to meet the 45 CNEL noise limit for residential habitable space. As exterior noise levels at residential facades will exceed 60 CNEL at the southern building facade, an exterior-to-interior analysis was performed for habitable spaces to determine design considerations required to maintain compliant interior noise levels.

The existing exterior wall assembly (to remain) is expected to be constructed as a wood-framed assembly with plank siding over plywood sheathing on the exterior, insulation in the cavity, and one layer of 5/8-inch-thick Type X gypsum board on the interior. The proposed exterior wall assembly was evaluated using INSUL and was shown to achieve an STC rating of 35. The existing glazing (to remain) was evaluated as being STC 25 dual-glazed windows and STC 20 single-pane glass doors; this is expected to be a conservative estimate of the existing glazing conditions on site. Please refer to Appendix D for additional information.

The results of the exterior-to-interior noise analysis for interior habitable spaces are shown in Table 6, with acoustical recommendations made therein. For more information, please refer to Appendix E: Exterior-to-Interior Noise Analysis.

Table 6. Interior Noise Levels of Habitable Spaces

Room Type	Maximum Exterior Facade Impact (CNEL)	Interior Noise Level (CNEL)		Mechanical Ventilation Requirements
		Windows Open	Windows Closed	
Living/Kitchen/Dining	62.6	43.1	29.1	Recommended
Main Bedroom	62.6	**47.5**	33.0	Required
All Other Bedrooms	62.6	**50.9**	35.6	Required

As shown above, with the existing exterior wall assembly and existing exterior glazing, interior noise levels are expected to remain below 45 CNEL in all habitable spaces with windows and exterior doors closed. In instances where interior habitable space is exposed to noise levels greater than 45 CNEL with windows in the open position (such as in the bedrooms), appropriate means of air circulation and provision of fresh air must be present to allow windows to remain closed for extended intervals of time so that acceptable levels of noise can be maintained on the interior. As exterior noise levels are expected to exceed limits with windows and doors open in all bedrooms, mechanical ventilation will be required for each bedroom. The proposed mechanical ventilation system shall meet the criteria of the California Mechanical Code, including the capability to provide appropriate ventilation rates. The ventilation system shall not be dependent on ventilation through windows.

The proposed habitable spaces were analyzed for interior noise impacts. With the existing exterior wall and exterior glazing in place, interior noise levels are expected to remain below 45 CNEL in all habitable spaces with windows and exterior doors closed. As exterior noise levels are expected to exceed limits with windows and doors open in all bedrooms, mechanical ventilation will be required for each bedroom. With these project design features in place, all interior residential space will comply with County of San Diego and California Building Code noise requirements.

2.2.2 Design Considerations and Mitigation Measures

2.2.2.1 Exterior

As detailed above in Section 2.2.1.1, the project is expected to comply with the exterior noise limit as designed. No mitigation is necessary.

2.2.2.2 Interior

As shown in Section 2.2.1.2, with the existing exterior wall assembly and existing exterior glazing, interior noise levels are expected to remain below 45 CNEL in all habitable spaces with windows and exterior doors closed. In instances where interior habitable space is exposed to noise levels greater than 45 CNEL with windows in the open position (such as in the bedrooms), appropriate means of air circulation and provision of fresh air must be present to allow windows to remain closed for extended intervals of time so that acceptable levels of noise can be maintained on the interior. As exterior noise levels are expected to exceed limits with windows and doors open in all bedrooms, mechanical ventilation will be required for each bedroom. The proposed mechanical ventilation system shall meet the criteria of the California Mechanical Code, including the capability to provide appropriate ventilation rates. The ventilation system shall not be dependent on ventilation through windows.

3.0 Project-Generated Airborne Noise

The proposed project will not incorporate any large HVAC equipment and will not have any exterior construction activity, as the project is limited to the modification of an existing structure with only interior construction required. Interior construction activity will consist of the construction of interior walls and the addition of a bathroom. Construction activity will utilize hand tools and a saw, which are not expected to produce significant noise levels. Therefore, no significant noise impacts are expected to be generated by the project site. No additional analysis is deemed necessary.

4.0 Conclusion

The primary noise source in the vicinity of the project site is automobile and truck traffic noise from Los Coches Road, Via Diego, and Ha Hana Road. According to the County of San Diego Noise Element to the General Plan, noise levels at outdoor use areas of single family residential sites should not exceed 60 CNEL. Calculations show that, as designed, worst-case noise levels are not expected to exceed 60 CNEL at outdoor use areas; therefore, exterior noise levels at outdoor use areas are expected to meet County of San Diego requirements without mitigation.

In addition, due to high noise impacts at some facades, the proposed habitable spaces were analyzed for interior noise impacts. With the existing exterior wall and exterior glazing in place, interior noise levels are expected to remain below 45 CNEL in all habitable spaces with windows and exterior doors closed. As exterior noise levels are expected to exceed limits with windows and doors open in all bedrooms, mechanical ventilation will be required for each bedroom. With these project design features in place, all interior residential space will comply with County of San Diego and California Building Code noise requirements.

The proposed project will not incorporate any large HVAC equipment and will not have any exterior construction activity. Therefore, no significant noise impacts are expected to be generated by the project site. No additional analysis is deemed necessary.

5.0 Certification

The findings and recommendations of this acoustical analysis report are based on the information available and are a true and factual analysis of the potential acoustical issues associated with the proposed Los Coches TPM (TPM No. 21331) project, located at 9009 and 9011 Los Coches Road in the Lakeside Community Planning Area, County of San Diego, California. This report was prepared by Mo Ouwenga and Amy Hool.

Mo Ouwenga, INCE
Acoustical Consultant

Amy Hool, INCE
President/CEO

6.0 References

San Diego Association of Governments (SANDAG) Traffic Forecast Information Center, Activity Based Regional Transportation Model, 2021 Regional Plan Forecasts (ABM2+/2021), http://tfic.sandag.org.

San Diego County General Plan, Lakeside Mobility Element Network, April 2019.

Federal Highway Administration, Traffic Noise Model Version 2.5.

DataKustik, CadnaA (Computer Aided Noise Abatement), Version 2023.

Wyle Laboratories, Development of Ground Transportation Systems Noise Contours for the San Diego Region, December 1973.

Traffic Distribution Study, by Katz-Okitsu and Associates Traffic Engineers, 1986.

County of San Diego Noise Element to the General Plan, August 2011.

U.S. Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety, March 1974.

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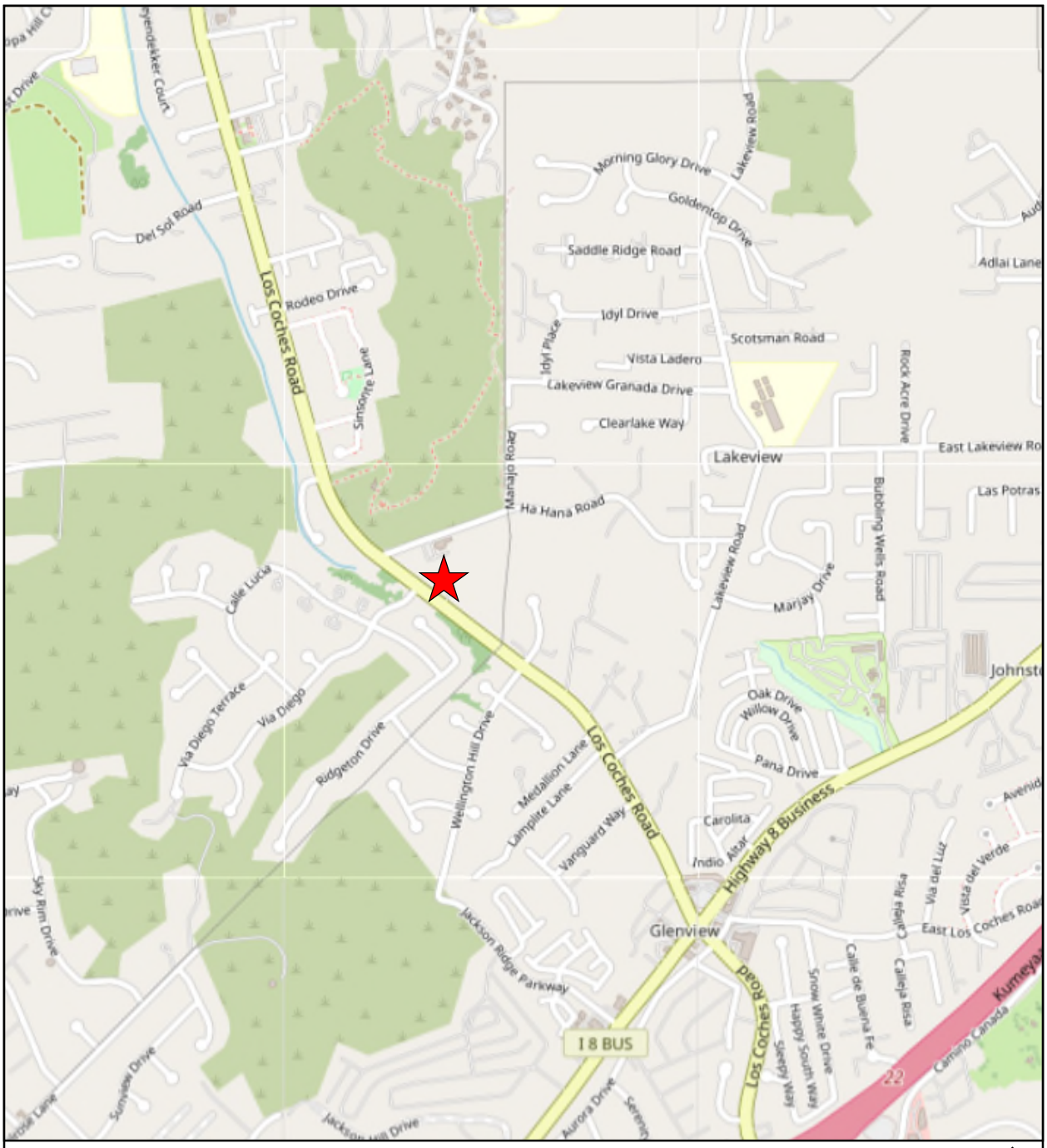
Figures



Source: Open Street Map, 2023

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Project Location

Figure 1.

Vicinity Map

Job # S231201

Source: SanGIS , 2023

N

Project Location

Figure 2.

Assessor's Parcel Map

Job # S231201

Source: Google Earth Pro, 2023

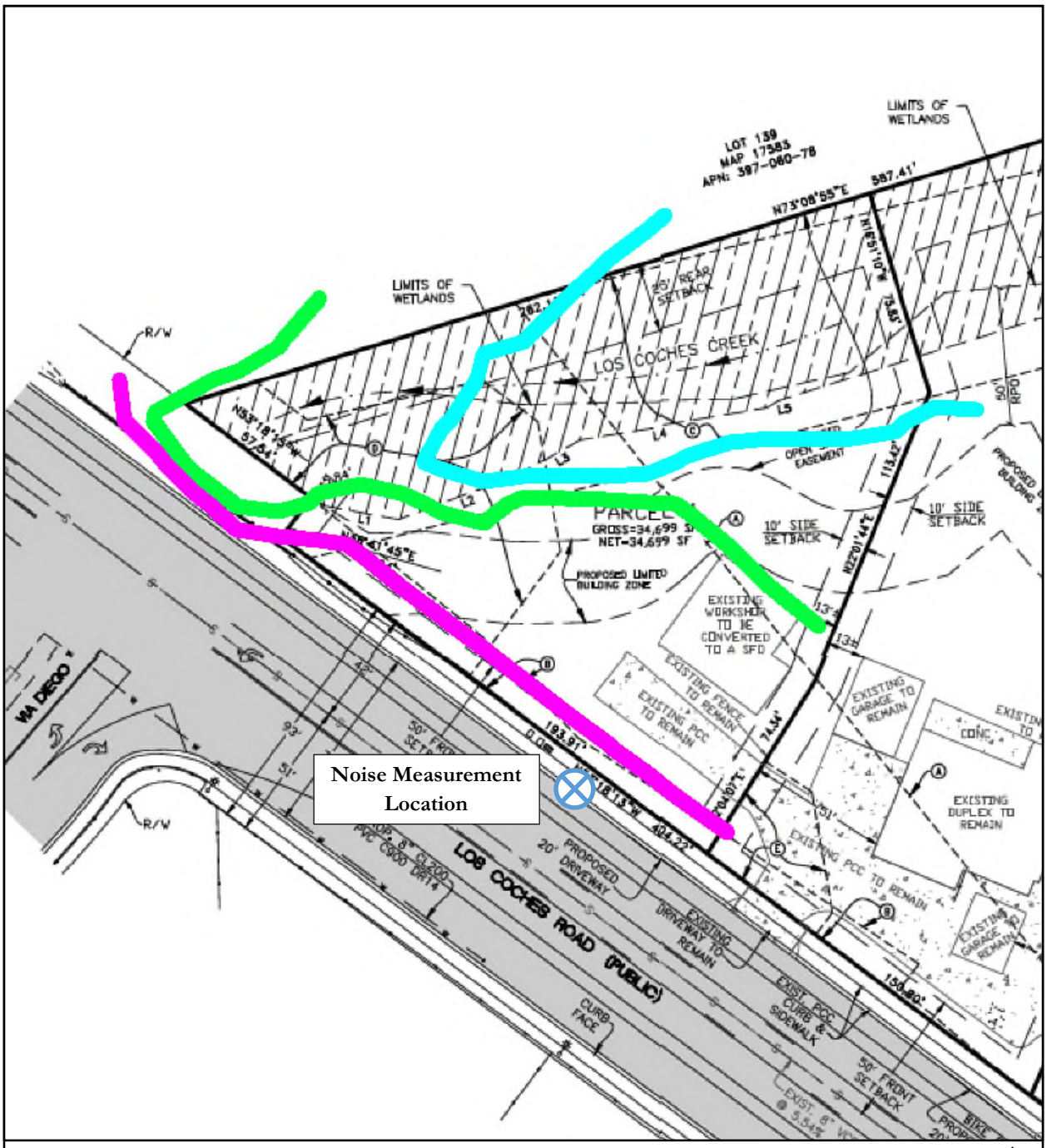
Noise Measurement Location

Project Location

Figure 3.

Satellite Aerial Photograph

Job # S231201



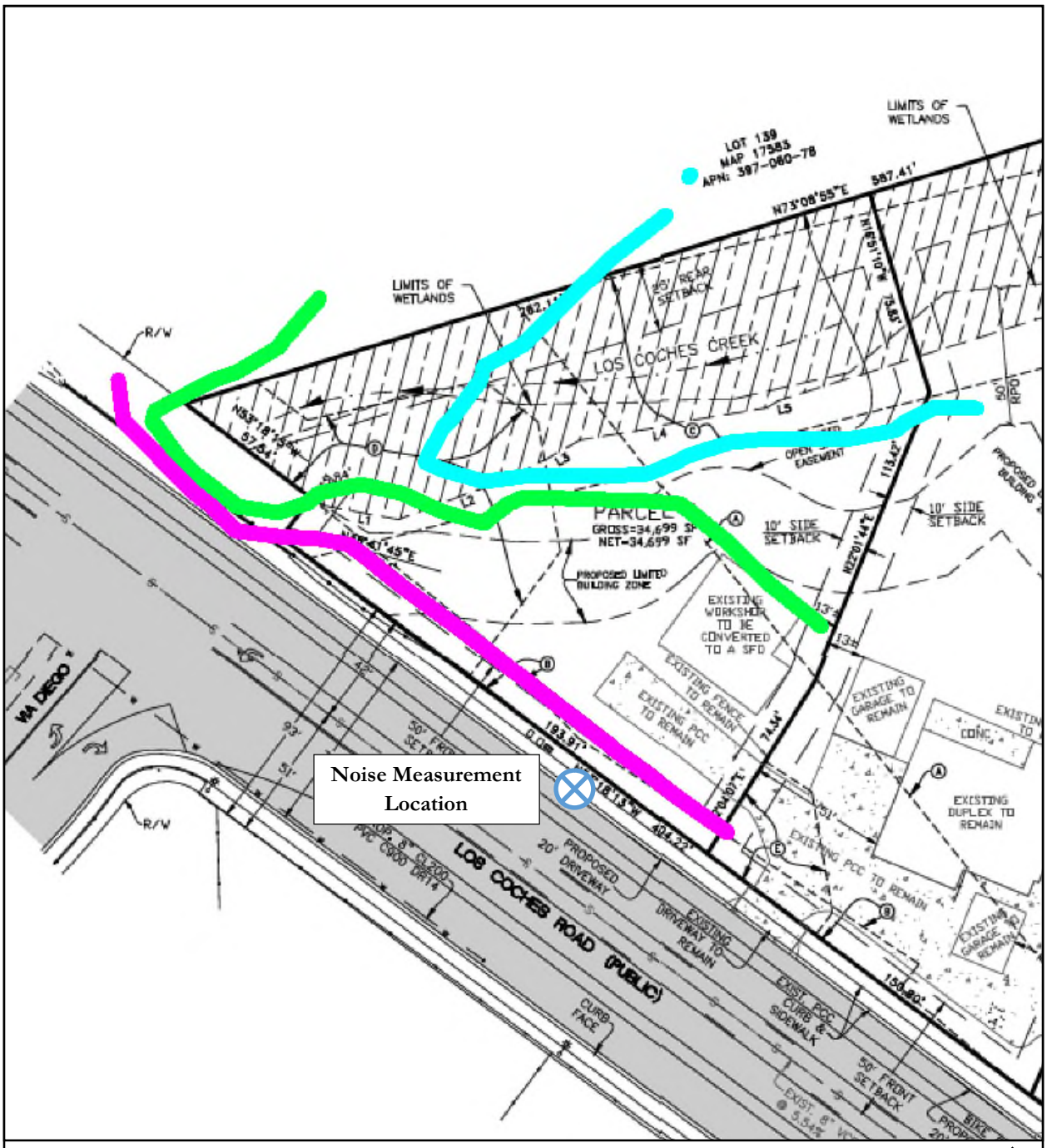
Source: Walsh Engineering & Surveying, Inc., 2023

60 CNEL Contour
65 CNEL Contour
70 CNEL Contour

Figure 4.

Current Traffic Noise Contours

Job # S231201



Source: Walsh Engineering & Surveying, Inc., 2023

60 CNEL Contour

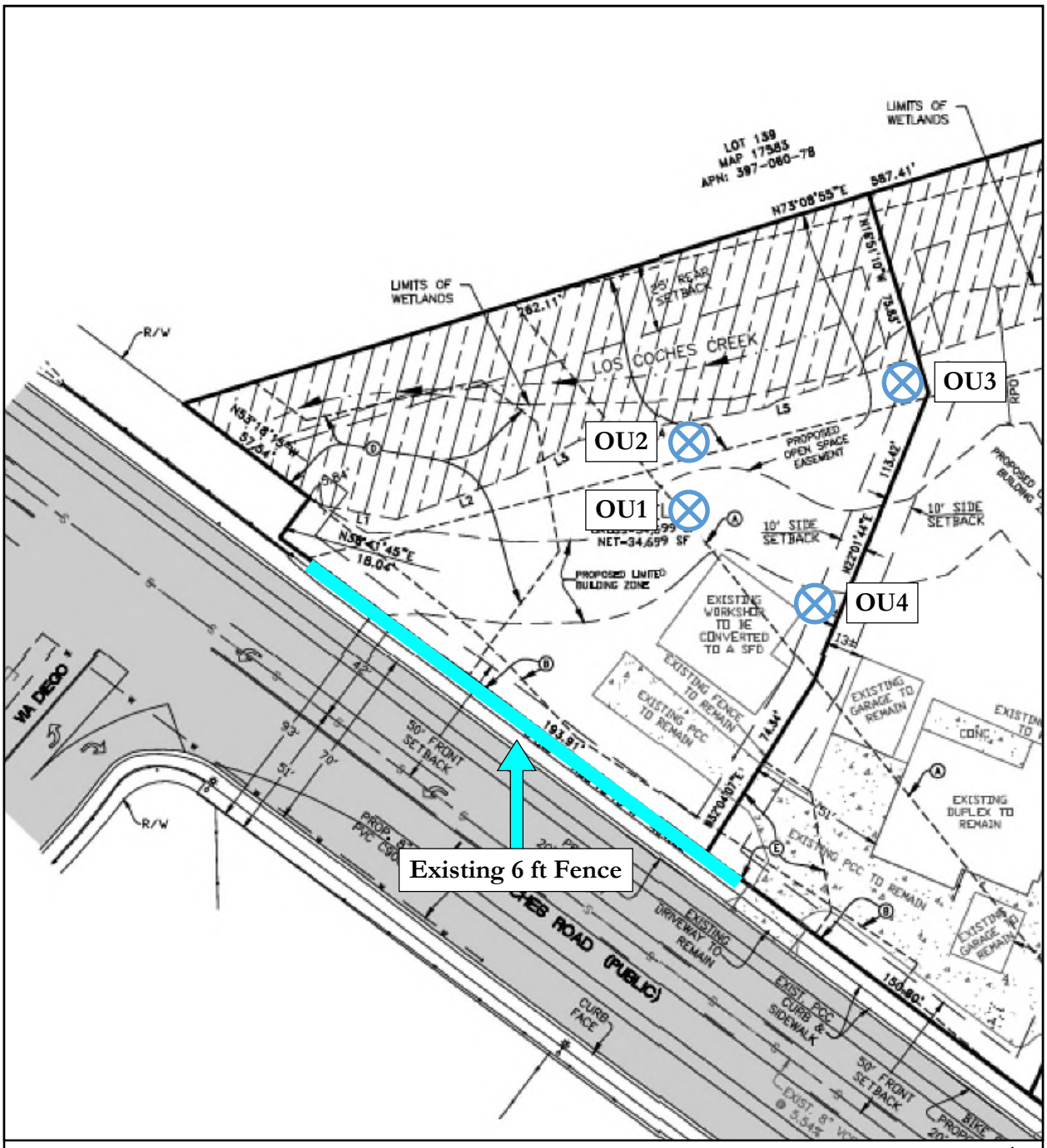
65 CNEL Contour

70 CNEL Contour

Figure 5.

Future Traffic Noise Contours

Job # S231201



Source: Walsh Engineering & Surveying, Inc., 2023

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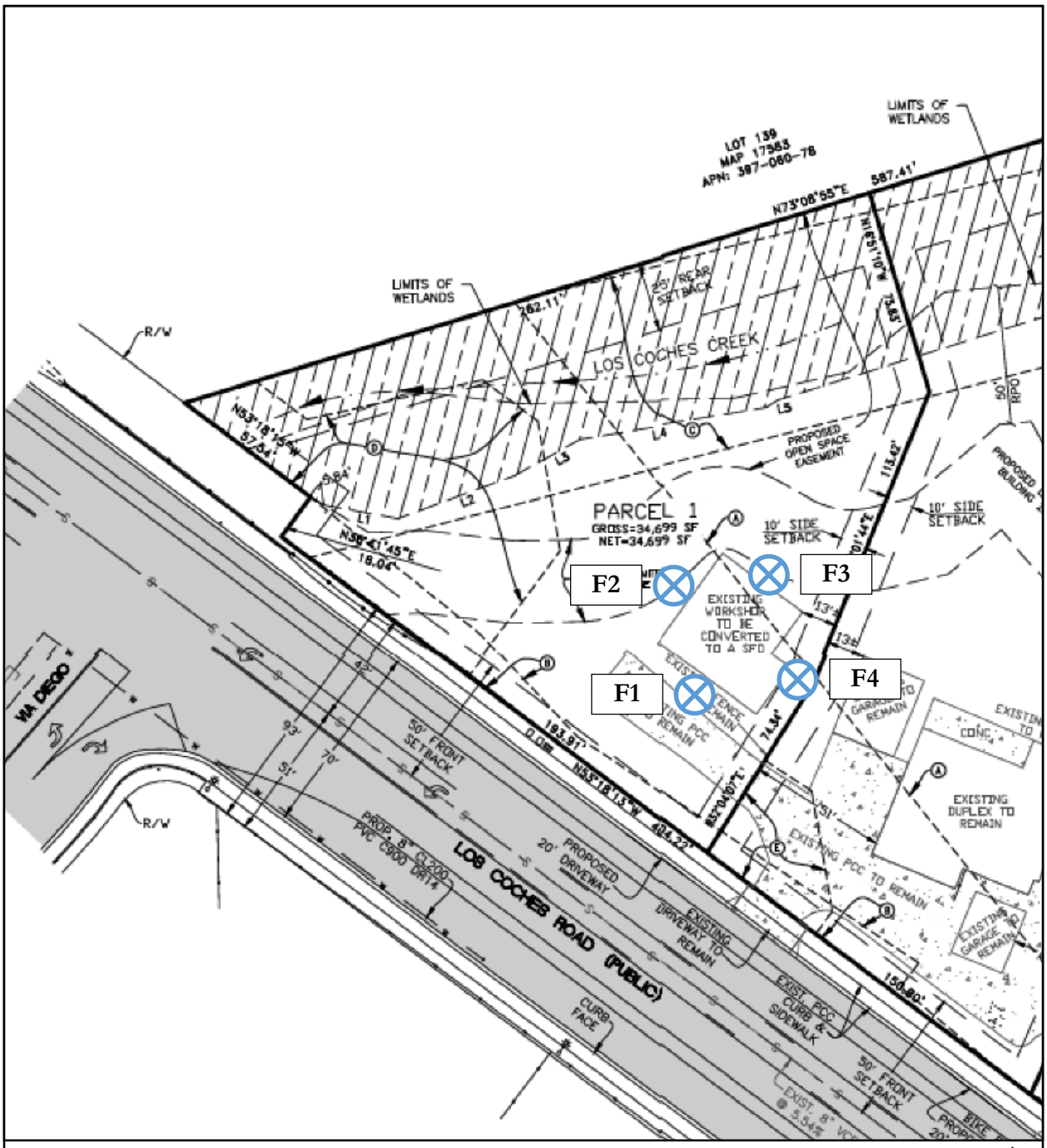
⊗ Outdoor Use Receiver Location

Figure 6.

Outdoor Use Receiver Locations

Job # S231201



Source: Walsh Engineering & Surveying, Inc., 2023

⊗ Facade Receiver Location

Figure 7.

Facade Receiver Locations

Job # S231201

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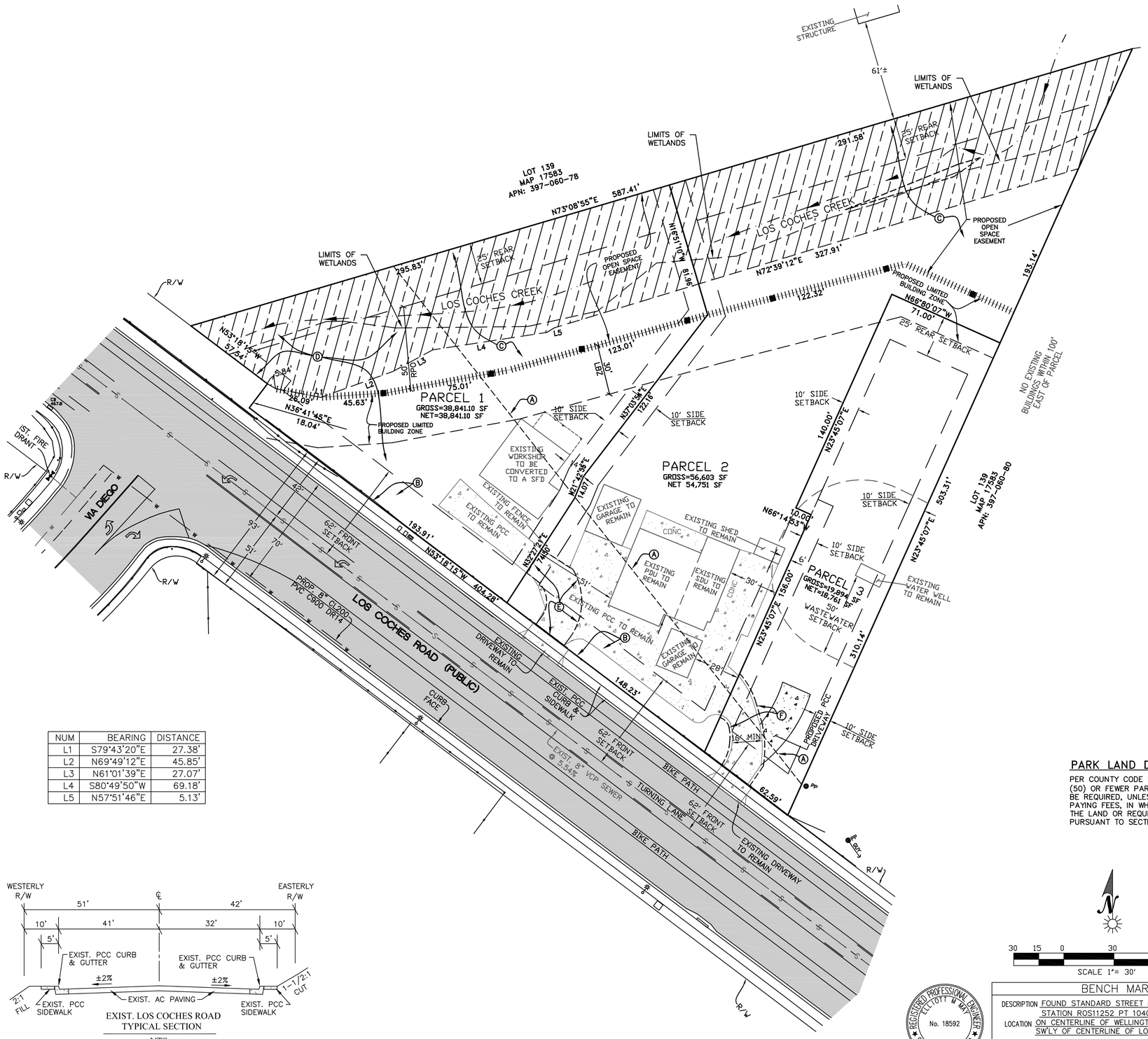
Appendix A
Project Plans

TENTATIVE PARCEL MAP NO. 21331



NUM	BEARING	DISTANCE
L1	S79°43'20"E	27.38'
L2	N69°49'12"E	45.85'
L3	N61°01'39"E	27.07'
L4	S80°49'50"W	69.18'
L5	N57°51'46"E	5.13'

EXIST. LOS COCHES ROAD
TYPICAL SECTION
NTS

LEGEND & ABBREVIATIONS

SINGLE FAMILY DWELLING - - - SFD
PRIMARY DWELLING UNIT - - - PDU
SECONDARY DWELLING UNIT - - - SDU
PROPERTY LINE ———————
CENTER LINE ——℄——
FLOW DIRECTION 1% MIN. ——→——→
EXIST. CURB AND GUTTER ═══

EXIST. FINAL APPROVED AREA OF FLOOD ZONE "A" PER FEMA MAP PANEL 06073C1660G EFFECTIVE AS OF 5/16/2012 AND LOMA 20-09-0290A DATED 2/20/2020

EXISTING/PROPOSED ZONING:

ZONE	
USE REGULATIONS	Rs
ANIMAL REGULATIONS	Q
DENSITY	--
MIN LOT SIZE	10,000 SF
BUILDING TYPE	C
MAXIMUM FLOOR AREA	--
FLOOR AREA RATIO	--
HEIGHT	G
LOT COVERAGE	--
SETBACK	H
OPEN SPACE	--
SPECIAL AREA REGULATIONS	--

EASEMENT NOTES

Ⓐ SDG&E ELECTRIC EASEMENT PER DOCUMENT RECORDED FEBRUARY 2, 1954 IN BOOK 5128, PAGE 544 (NO WIDTH GIVEN)

Ⓑ COUNTY OF SAN DIEGO EASEMENT FOR DRAINAGE STRUCTURES AND EMBANKMENT SLOPE PURPOSES PER DOCUMENT RECORDED FEBRUARY 25, 1971 AS DOC# 1971-35767

Ⓒ COUNTY OF SAN DIEGO FLOOD CONTROL DISTRICT EASEMENT FOR FLOWAGE OF WATER PURPOSES PER DOCUMENT RECORDED DECEMBER 7, 1981 AS DOC# 1981-383557

Ⓓ COUNTY OF SAN DIEGO EASEMENT FOR DRAINAGE STRUCTURES AND EMBANKMENT SLOPE PURPOSES PER DOCUMENT RECORDED AUGUST 15, 1984 AS DOC# 1984-309685

Ⓔ PROPOSED PRIVATE ACCESS AND UTILITY EASEMENT OVER PARCEL 2 FOR THE BENEFIT OF PARCEL 1 FOR PORTION OF SHARED DRIVEWAY

Ⓕ PROPOSED PRIVATE ACCESS AND UTILITY EASEMENT OVER PARCEL 3 FOR THE BENEFIT OF PARCEL 2 FOR PORTION OF SHARED DRIVEWAY

EASEMENT FOR WATER LINE PURPOSES GRANTED TO SAN DIEGO FLUME COMPANY, THE INTEREST HAS SINCE PASSED TO HELIX WATER DISTRICT, PER DOCUMENT RECORDED JUNE 9, 1869 IN BOOK 7, PAGE 124 (NOT PLOTTABLE-NO LOCATION GIVEN)

SDG&E ELECTRIC EASEMENT PER DOCUMENT RECORDED JANUARY 7, 1924 IN BOOK 976, PAGE 415 OF DEEDS (NOT PLOTTABLE-NO LOCATION GIVEN)

SDG&E ELECTRIC EASEMENT PER DOCUMENT RECORDED OCTOBER 20, 1995 AS DOC# 1995-0473823 (NOT PLOTTABLE-NO LOCATION GIVEN)

PARK LAND DEDICATION STATEMENT:

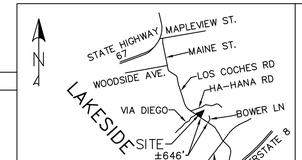
PER COUNTY CODE SECTION 810.103 (B) FOR SUBDIVISIONS CONTAINING FIFTY (50) OR FEWER PARCELS, ONLY THE PAYMENT OF PARK IN-LIEU FEES SHALL BE REQUIRED, UNLESS THE APPLICANT OFFERS TO DEDICATE LAND IN LIEU OF PAYING FEES, IN WHICH EVENT THE APPROVING BODY MAY ELECT TO ACCEPT THE LAND OR REQUIRE THE PAYMENT OF FEES OR A COMBINATION OF BOTH PURSUANT TO SECTION 810.105.

SCALE 1"= 30'

REGISTERED PROFESSIONAL ENGINEER ELLIOTT M MAY No. 18592 CIVIL STATE OF CALIFORNIA

BENCH MARK

DESCRIPTION FOUND STANDARD STREET MONUMENT
STATION ROS11252 PT 1040 PER MAP 9524
LOCATION ON CENTERLINE OF WELLINGTON HILL DRIVE 5' SW'LY OF CENTERLINE OF LOS COCHES ROAD
RECORD FROM COUNTY OF SAN DIEGO CONTROL DATA SHEET
ELEVATION 516.95 DATUM MSL



VICINITY MAP
NTS

OWNER'S CERTIFICATE

I CERTIFY THAT I AM THE RECORD OWNER, AS SHOWN ON THE LATEST EQUALIZED COUNTY ASSESSMENT, OF THE PROPERTY SHOWN ON THE TENTATIVE MAP. ALL OF MAY CONTIGUOUS OWNERSHIP WITHIN AND BEYOND THE BOUNDARIES OF THE PARCEL MAP IS SHOWN. THE BASIS OF CREATION OF LOTS IN MY OWNERSHIP (e.g. PARCEL MAP ,FINAL MAP, CERTIFICATE OF COMPLIANCE, RECORDED DEED BEFORE 2-1-1972) IS INDICATED ON THE TENTATIVE PARCEL MAP. I UNDERSTAND THAT PROPOERTY IS CONSIDERED AS CONTIGUOUS EVEN IF IT IS SEPARATED BY ROADS STREETS, UTILITY EASEMENTS, OR RAILROAD RIGHT-OF-WAY. "FREEWAY: AS DEFINED IN SECTION 23.5 OF THE STREETS AND HIGHWAY CODES, SHALL NOT BE CONSIDERED AS ROADS OR STREETS.

I FURTHER CERTIFY THAT I WILL NOT, BY THIS APPLICATION, CREATE OR CAUSE TO BE CREATED, OR WILL NOT HAVE PARTICIPATED IN THE CREATION OF MORE THAN FOUR PARCELS ON CONTIGUOUS PROPERTY UNLESS SUCH CONTIUOUS PARCELS WERE CREATED BY A MAJOR SUBDIVISION. FOR PURPOSES OF THIS CERTIFICATION. THE TERM "PARTICIPATED" MEANS HAVING COOPERATED WITH OR ACTED IN A PLANNING, COORDINATING, OR DECISION-MAKING CAPACITY IN ANY FORMAL, OR INFORMAL ASSOCIATION, OR PARTNERSHIP, FOR THE PURPOSE OF DIVIDING REAL PROPRTY. I CERTIFY UNDER PURJURY THAT THE FORGOING IS TRUE AND CORRECT.

W. DANIEL FITCH, MANAGING MEMBER — 2-21-25 DATE
MOREHEAD WEST, LLC
P.O. BOX 1550
LAKESIDE, CA 92040

SOLAR ACCESS STATEMENT

ALL LOTS WITHIN THIS SUBDIVISION HAVE A MINIMUM 100 SQUARE FEET OF SOLAR ACCESS FOR EACH FUTURE DWELLING UNIT ALLOWED BY THIS SUBDIVISION

GENERAL PLAN REGIONAL CATEGORY
VILLAGE
GENERAL PLAN LAND USE DESIGNATION
VILLAGE RESIDENTIAL (VR-4.3) 4.3 DU/AC
COMMUNITY PLAN AREA
LAKESIDE
WATER
LAKESIDE WATER DISTRICT
SEWER
SAN DIEGO COUNTY SANITATION DISTRICT
FIRE
LAKESIDE FIRE PROTECTION DISTRICT
POWER
SDG&E
TELEPHONE
AT&T
A.P.N.
397-060-79-00
AVERAGE SLOPE
APPROX. 10%
LEGAL DESCRIPTION
PORTION LOT 139 MAP 289
TOPOGRAPHY
SAN LO AREAL
ADDITIONAL REQUIREMENTS
STREET LIGHTING STANDARDS TO BE COMPLIED WITH COUNY OF SAN DIEGO
SPECIAL ASSESSMENT ACT STATEMENT
THIS PROJECT DOES NOT REQUIRE A SPECIAL ASSESSMENT ACT.
TOTAL AREA (GROSS)
115,361 sq/ft 2.65 AC ALL RESIDENTIAL
OPEN SPACE EASEMENT
1.44 AC
PUBLICLY MAINTAINED ACCESS ROAD
LOS COCHES ROAD
GRADING
SEE PRELIMINARY GRADING PLAN
SCHOOL DISTRICTS
GEN. ELEMENTARY LAKESIDE UNION
HIGH GROSSMOUNT UNION
SITE ADDRESS
9009 LOS COCHES ROAD LAKESIDE, CA 92040
TOTAL PROPOSED PARCELS
3 PROPOSED PARCELS
TOTAL PARCELS = 3
IMPERVIOUS AREA (PROPOSED)
3,500 SQ/FT
SOLID WASTE DISPOSAL
EDCO WASTE DISPOSAL
TAX RATE AREA
82184
MINIMUM PROPOSED LOT AREA
GROSS=11,155 SF
NET=10,022 SF
MAP PREPARED
DATE: 5-30-24

MAY ENGINEERING & SURVEYING
11345 SOUTH HELEN DRIVE, YUMA
ARIZONA 85367 PH. (619) 251-5094
ELLIOTTMAY901@GMAIL.COM

ENGINEER OF WORK

ELLIOTT M. MAY R.C.E. 18592 — 10-31-2025 DATE

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix B

CadnaA Analysis Data and Results

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570

Date: 19 Dec 2023

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.15
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (NONE)	
Strictly acc. to AzB	

Receivers

Name	Sel.	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
				Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
				(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
NML				71.7	-62.6	72.7	0.0				5.00	r	918.02	586.13	480.08

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)
Los Coches Road-East				65.0	0.0	0.0			792.0	0.0	0.0	2.5	0.0	0.0	45		9	0.0	1	0.0	0.0		
Los Coches Road-West				65.0	0.0	0.0			792.0	0.0	0.0	2.5	0.0	0.0	45		9	0.0	1	0.0	0.0		
Via Diego				51.5	0.0	0.0			55.0	0.0	0.0	1.0	0.0	0.0	25		13.41	0.0	1	0.0	0.0		
Ha Hana Road				52.1	0.0	0.0			62.0	0.0	0.0	1.0	0.0	0.0	35		4	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Los Coches Road-East	0.00	r			753.21	663.98	469.46	469.46		
					852.61	590.63	472.78	472.78		
					962.00	508.59	478.37	478.37		
					1088.31	414.39	487.85	487.85		
					1195.53	334.53	493.68	493.68		
					1320.97	239.90	499.59	499.59		
					1453.96	139.99	508.22	508.22		
					1536.64	77.29	513.70	513.70		
Los Coches Road-West	0.00	r			753.21	663.98	469.46	469.46		
					646.07	748.04	469.00	469.00		
					528.25	835.55	469.00	469.00		
					490.29	863.55	469.00	469.00		
					454.46	890.43	468.99	468.99		
					414.77	920.86	467.70	467.70		
					341.49	985.12	464.72	464.72		
					294.45	1029.97	462.71	462.71		
					262.73	1063.87	461.48	461.48		
					222.80	1109.67	460.09	460.09		
					169.63	1178.25	458.11	458.11		
					133.38	1233.16	456.59	456.59		
Via Diego	0.00	r			761.88	657.73	469.56	469.56		
					730.20	619.54	470.26	470.26		
					693.95	577.65	474.17	474.17		
					665.30	552.25	477.11	477.11		
					630.58	527.30	479.41	479.41		
					604.33	515.58	479.99	479.99		
					576.83	505.25	480.56	480.56		
					554.72	497.66	481.02	481.02		
					531.70	488.71	481.54	481.54		
					492.77	469.76	482.47	482.47		
					463.83	448.74	482.49	482.49		
					438.40	426.05	480.97	480.97		
					410.23	391.32	479.54	479.54		

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Ha Hana Road	0.00	r			1308.95	1218.57	514.34	514.34		
					1186.99	1168.26	508.69	508.69		
					1080.90	1132.44	503.82	503.82		
					954.80	1088.34	497.24	497.24		
					777.02	1024.94	485.94	485.94		
					671.25	984.63	479.01	479.01		
					590.97	953.62	473.95	473.95		
					493.47	920.55	469.00	469.00		
					447.99	895.05	468.79	468.79		

Terrain Contours

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)
cLos Coches							84.06	1227.65	456.00
							248.05	1020.94	462.00
							343.82	929.30	466.00
							424.47	867.70	469.00
							697.58	661.49	469.00
							773.54	595.95	470.00
							931.68	472.95	478.00
							1090.54	352.28	490.00
							1299.66	187.26	500.00
							1533.25	26.72	515.00
cLos Coches							146.76	1275.88	456.00
							306.62	1071.24	462.00
							394.81	984.43	466.00
							487.86	915.25	469.00
							738.93	726.95	469.00
							819.02	666.23	470.00
							977.15	543.24	478.00
							1136.02	422.57	490.00
							1347.90	260.99	500.00
							1578.72	97.00	515.00
c							1246.20	72.19	542.00
							980.95	366.42	519.00
							794.46	510.25	513.00
							605.79	427.67	511.00
cVia Diego							795.75	97.15	528.00
							569.75	255.63	500.00
							424.77	334.20	478.00
							494.65	427.09	483.00
							675.23	509.13	479.00
							773.54	595.95	470.00
							697.58	661.49	469.00
							618.28	566.88	479.00
							447.65	488.67	483.00
							345.93	368.90	478.00
c							66.72	861.91	450.00
							70.00	502.05	464.00
							71.10	73.28	490.00
cHaHana							532.75	902.95	469.00
							770.65	1004.13	485.00
							1004.62	1086.60	500.00
							1351.21	1209.94	516.00
							1831.38	1217.60	528.00
cHaHana							475.87	955.22	469.00
							751.51	1038.35	485.00

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)
							989.95	1123.66	500.00
							1339.97	1251.64	516.00
c							1471.04	240.33	530.00
							1471.91	320.20	540.00
							1471.91	471.25	566.00
							1461.49	578.90	580.00
							1597.79	640.54	594.00
c							1136.02	422.57	490.00
							1187.35	513.18	496.00
							1235.97	626.47	515.00
							1307.61	720.54	524.00
c							1322.92	896.48	462.00
							757.17	722.54	462.00
							798.46	692.19	455.00
							815.41	711.60	455.00
							877.35	712.42	455.00
							919.32	713.52	455.00
							969.64	721.45	455.00
							1044.02	742.78	455.00
							1225.03	793.13	455.00
cPad							1131.43	591.63	480.00
							1089.76	505.25	479.00
							975.59	569.06	477.00
							857.09	675.84	472.00
							1126.59	732.79	476.00

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570

Date: 20 Dec 2023

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.15
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (NONE)	
Strictly acc. to AzB	

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)
Los Coches Road-East				65.6	0.0	0.0			938.0	0.0	0.0	3.0	0.0	0.0	45		9	0.0	1	0.0	0.0		
Los Coches Road-West				66.0	0.0	0.0			1012.0	0.0	0.0	3.0	0.0	0.0	45		9	0.0	1	0.0	0.0		
Via Diego				52.8	0.0	0.0			74.0	0.0	0.0	1.0	0.0	0.0	25		13.41	0.0	1	0.0	0.0		
Ha Hana Road				53.3	0.0	0.0			83.0	0.0	0.0	1.0	0.0	0.0	35		4	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Los Coches Road-East	0.00	r			753.21	663.98	469.46	469.46		
					852.61	590.63	472.78	472.78		
					962.00	508.59	478.37	478.37		
					1088.31	414.39	487.85	487.85		
					1195.53	334.53	493.68	493.68		
					1320.97	239.90	499.59	499.59		
					1453.96	139.99	508.22	508.22		
					1536.64	77.29	513.70	513.70		
Los Coches Road-West	0.00	r			753.21	663.98	469.46	469.46		
					646.07	748.04	469.00	469.00		
					528.25	835.55	469.00	469.00		
					490.29	863.55	469.00	469.00		
					454.46	890.43	468.99	468.99		
					414.77	920.86	467.70	467.70		
					341.49	985.12	464.72	464.72		
					294.45	1029.97	462.71	462.71		
					262.73	1063.87	461.48	461.48		
					222.80	1109.67	460.09	460.09		
					169.63	1178.25	458.11	458.11		
					133.38	1233.16	456.59	456.59		
Via Diego	0.00	r			761.88	657.73	469.56	469.56		
					730.20	619.54	470.26	470.26		
					693.95	577.65	474.17	474.17		
					665.30	552.25	477.11	477.11		
					630.58	527.30	479.41	479.41		
					604.33	515.58	479.99	479.99		
					576.83	505.25	480.56	480.56		
					554.72	497.66	481.02	481.02		
					531.70	488.71	481.54	481.54		
					492.77	469.76	482.47	482.47		
					463.83	448.74	482.49	482.49		
					438.40	426.05	480.97	480.97		
					410.23	391.32	479.54	479.54		

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Ha Hana Road	0.00	r			1308.95	1218.57	514.34	514.34		
					1186.99	1168.26	508.69	508.69		
					1080.90	1132.44	503.82	503.82		
					954.80	1088.34	497.24	497.24		
					777.02	1024.94	485.94	485.94		
					671.25	984.63	479.01	479.01		
					590.97	953.62	473.95	473.95		
					493.47	920.55	469.00	469.00		
					447.99	895.05	468.79	468.79		

Terrain Contours

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)
cLos Coches							84.06	1227.65	456.00
							248.05	1020.94	462.00
							343.82	929.30	466.00
							424.47	867.70	469.00
							697.58	661.49	469.00
							773.54	595.95	470.00
							931.68	472.95	478.00
							1090.54	352.28	490.00
							1299.66	187.26	500.00
							1533.25	26.72	515.00
cLos Coches							146.76	1275.88	456.00
							306.62	1071.24	462.00
							394.81	984.43	466.00
							487.86	915.25	469.00
							738.93	726.95	469.00
							819.02	666.23	470.00
							977.15	543.24	478.00
							1136.02	422.57	490.00
							1347.90	260.99	500.00
							1578.72	97.00	515.00
c							1246.20	72.19	542.00
							980.95	366.42	519.00
							794.46	510.25	513.00
							605.79	427.67	511.00
cVia Diego							795.75	97.15	528.00
							569.75	255.63	500.00
							424.77	334.20	478.00
							494.65	427.09	483.00
							675.23	509.13	479.00
							773.54	595.95	470.00
							697.58	661.49	469.00
							618.28	566.88	479.00
							447.65	488.67	483.00
							345.93	368.90	478.00
c							66.72	861.91	450.00
							70.00	502.05	464.00
							71.10	73.28	490.00
cHaHana							532.75	902.95	469.00
							770.65	1004.13	485.00
							1004.62	1086.60	500.00
							1351.21	1209.94	516.00
							1831.38	1217.60	528.00
cHaHana							475.87	955.22	469.00
							751.51	1038.35	485.00

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)
							989.95	1123.66	500.00
							1339.97	1251.64	516.00
c							1471.04	240.33	530.00
							1471.91	320.20	540.00
							1471.91	471.25	566.00
							1461.49	578.90	580.00
							1597.79	640.54	594.00
c							1136.02	422.57	490.00
							1187.35	513.18	496.00
							1235.97	626.47	515.00
							1307.61	720.54	524.00
c							1322.92	896.48	462.00
							757.17	722.54	462.00
							798.46	692.19	455.00
							815.41	711.60	455.00
							877.35	712.42	455.00
							919.32	713.52	455.00
							969.64	721.45	455.00
							1044.02	742.78	455.00
							1225.03	793.13	455.00
cPad							1131.43	591.63	480.00
							1089.76	505.25	479.00
							975.59	569.06	477.00
							857.09	675.84	472.00
							1126.59	732.79	476.00

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570

Date: 20 Dec 2023

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.15
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (NONE)	
Strictly acc. to AzB	

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)
Los Coches Road-East				65.6	0.0	0.0			938.0	0.0	0.0	3.0	0.0	0.0	45		9	0.0	1	0.0	0.0		
Los Coches Road-West				65.6	0.0	0.0			938.0	0.0	0.0	3.0	0.0	0.0	45		9	0.0	1	0.0	0.0		
Via Diego				57.9	0.0	0.0			239.0	0.0	0.0	1.0	0.0	0.0	25		13.41	0.0	1	0.0	0.0		
Ha Hana Road				54.2	0.0	0.0			101.0	0.0	0.0	1.0	0.0	0.0	35		4	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Los Coches Road-East	0.00	r			753.21	663.98	469.46	469.46		
					852.61	590.63	472.78	472.78		
					962.00	508.59	478.37	478.37		
					1088.31	414.39	487.85	487.85		
					1195.53	334.53	493.68	493.68		
					1320.97	239.90	499.59	499.59		
					1453.96	139.99	508.22	508.22		
					1536.64	77.29	513.70	513.70		
Los Coches Road-West	0.00	r			753.21	663.98	469.46	469.46		
					646.07	748.04	469.00	469.00		
					528.25	835.55	469.00	469.00		
					490.29	863.55	469.00	469.00		
					454.46	890.43	468.99	468.99		
					414.77	920.86	467.70	467.70		
					341.49	985.12	464.72	464.72		
					294.45	1029.97	462.71	462.71		
					262.73	1063.87	461.48	461.48		
					222.80	1109.67	460.09	460.09		
					169.63	1178.25	458.11	458.11		
					133.38	1233.16	456.59	456.59		
Via Diego	0.00	r			761.88	657.73	469.56	469.56		
					730.20	619.54	470.26	470.26		
					693.95	577.65	474.17	474.17		
					665.30	552.25	477.11	477.11		
					630.58	527.30	479.41	479.41		
					604.33	515.58	479.99	479.99		
					576.83	505.25	480.56	480.56		
					554.72	497.66	481.02	481.02		
					531.70	488.71	481.54	481.54		
					492.77	469.76	482.47	482.47		
					463.83	448.74	482.49	482.49		
					438.40	426.05	480.97	480.97		
					410.23	391.32	479.54	479.54		

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Ha Hana Road	0.00	r			1308.95	1218.57	514.34	514.34		
					1186.99	1168.26	508.69	508.69		
					1080.90	1132.44	503.82	503.82		
					954.80	1088.34	497.24	497.24		
					777.02	1024.94	485.94	485.94		
					671.25	984.63	479.01	479.01		
					590.97	953.62	473.95	473.95		
					493.47	920.55	469.00	469.00		
					447.99	895.05	468.79	468.79		

Terrain Contours

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)
cLos Coches							84.06	1227.65	456.00
							248.05	1020.94	462.00
							343.82	929.30	466.00
							424.47	867.70	469.00
							697.58	661.49	469.00
							773.54	595.95	470.00
							931.68	472.95	478.00
							1090.54	352.28	490.00
							1299.66	187.26	500.00
							1533.25	26.72	515.00
cLos Coches							146.76	1275.88	456.00
							306.62	1071.24	462.00
							394.81	984.43	466.00
							487.86	915.25	469.00
							738.93	726.95	469.00
							819.02	666.23	470.00
							977.15	543.24	478.00
							1136.02	422.57	490.00
							1347.90	260.99	500.00
							1578.72	97.00	515.00
c							1246.20	72.19	542.00
							980.95	366.42	519.00
							794.46	510.25	513.00
							605.79	427.67	511.00
cVia Diego							795.75	97.15	528.00
							569.75	255.63	500.00
							424.77	334.20	478.00
							494.65	427.09	483.00
							675.23	509.13	479.00
							773.54	595.95	470.00
							697.58	661.49	469.00
							618.28	566.88	479.00
							447.65	488.67	483.00
							345.93	368.90	478.00
c							66.72	861.91	450.00
							70.00	502.05	464.00
							71.10	73.28	490.00
cHaHana							532.75	902.95	469.00
							770.65	1004.13	485.00
							1004.62	1086.60	500.00
							1351.21	1209.94	516.00
							1831.38	1217.60	528.00
cHaHana							475.87	955.22	469.00
							751.51	1038.35	485.00

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)
							989.95	1123.66	500.00
							1339.97	1251.64	516.00
c							1471.04	240.33	530.00
							1471.91	320.20	540.00
							1471.91	471.25	566.00
							1461.49	578.90	580.00
							1597.79	640.54	594.00
c							1136.02	422.57	490.00
							1187.35	513.18	496.00
							1235.97	626.47	515.00
							1307.61	720.54	524.00
c							1322.92	896.48	462.00
							757.17	722.54	462.00
							798.46	692.19	455.00
							815.41	711.60	455.00
							877.35	712.42	455.00
							919.32	713.52	455.00
							969.64	721.45	455.00
							1044.02	742.78	455.00
							1225.03	793.13	455.00
cPad							1131.43	591.63	480.00
							1089.76	505.25	479.00
							975.59	569.06	477.00
							857.09	675.84	472.00
							1126.59	732.79	476.00

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570

Date: 20 Dec 2023

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.15
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (NONE)	
Strictly acc. to AzB	

Receivers

Name	Sel.	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
				Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
				(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
OU1				59.9	-71.1	60.0	0.0				3.50	r	959.90	685.72	477.32
OU2				55.5	-74.2	60.0	0.0				3.50	r	960.09	712.59	464.21
OU3				55.6	-74.4	60.0	0.0				3.50	r	1038.05	733.97	462.92
OU4				57.5	-73.9	60.0	0.0				3.50	r	1005.50	652.61	479.05

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)
Los Coches Road-East				65.6	0.0	0.0			938.0	0.0	0.0	3.0	0.0	0.0	45		9	0.0	1	0.0	0.0		
Los Coches Road-West				66.0	0.0	0.0			1012.0	0.0	0.0	3.0	0.0	0.0	45		9	0.0	1	0.0	0.0		
Via Diego				57.9	0.0	0.0			239.0	0.0	0.0	1.0	0.0	0.0	25		13.41	0.0	1	0.0	0.0		
Ha Hana Road				54.2	0.0	0.0			101.0	0.0	0.0	1.0	0.0	0.0	35		4	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Los Coches Road-East	0.00	r			753.21	663.98	469.46	469.46		
					852.61	590.63	472.78	472.78		
					962.00	508.59	478.37	478.37		
					1088.31	414.39	487.85	487.85		
					1195.53	334.53	493.68	493.68		
					1320.97	239.90	499.59	499.59		
					1453.96	139.99	508.22	508.22		
					1536.64	77.29	513.70	513.70		
Los Coches Road-West	0.00	r			753.21	663.98	469.46	469.46		
					646.07	748.04	469.00	469.00		
					528.25	835.55	469.00	469.00		
					490.29	863.55	469.00	469.00		
					454.46	890.43	468.99	468.99		
					414.77	920.86	467.70	467.70		
					341.49	985.12	464.72	464.72		
					294.45	1029.97	462.71	462.71		
					262.73	1063.87	461.48	461.48		
					222.80	1109.67	460.09	460.09		
					169.63	1178.25	458.11	458.11		
					133.38	1233.16	456.59	456.59		
Via Diego	0.00	r			761.88	657.73	469.56	469.56		
					730.20	619.54	470.26	470.26		
					693.95	577.65	474.17	474.17		
					665.30	552.25	477.11	477.11		
					630.58	527.30	479.41	479.41		
					604.33	515.58	479.99	479.99		
					576.83	505.25	480.56	480.56		
					554.72	497.66	481.02	481.02		
					531.70	488.71	481.54	481.54		
					492.77	469.76	482.47	482.47		
					463.83	448.74	482.49	482.49		
					438.40	426.05	480.97	480.97		
					410.23	391.32	479.54	479.54		

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Ha Hana Road	0.00	r			1308.95	1218.57	514.34	514.34		
					1186.99	1168.26	508.69	508.69		
					1080.90	1132.44	503.82	503.82		
					954.80	1088.34	497.24	497.24		
					777.02	1024.94	485.94	485.94		
					671.25	984.63	479.01	479.01		
					590.97	953.62	473.95	473.95		
					493.47	920.55	469.00	469.00		
					447.99	895.05	468.79	468.79		

Barriers

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			
				left	right		horz.	vert.	Begin		End	
						(ft)	(ft)	(ft)	(ft)		(ft)	
		+							6.00	r		
		+							6.00	r		

Geometry - Barriers

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
				left	right		horz.	vert.	Begin		End		x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
		+							6.00	r			977.98	551.24	483.68	477.68
													961.18	563.73	482.89	476.89
													944.37	576.22	482.06	476.06
													925.04	590.52	481.11	475.11
		+							6.00	r			921.62	592.94	480.95	474.95
													910.77	601.19	480.40	474.40
													893.97	613.68	479.58	473.58
													877.17	626.17	478.75	472.75
													860.37	638.66	477.92	471.92
													843.56	651.14	477.10	471.10
													826.76	663.63	476.37	470.37
													821.40	667.54	475.90	469.90

Buildings

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	
							Begin	
							(ft)	
On-Site Building					0		10.00	r
Off-Site Building					0		10.00	r
Off-Site Building					0		10.00	r

Geometry - Buildings

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
On-Site Building					0		10.00	r	948.64	638.82	484.74	474.74
									984.52	612.55	484.74	476.11
									997.43	629.96	484.74	475.94
									990.97	634.92	484.74	475.69
									1001.63	649.78	484.74	475.54
									972.81	671.85	484.74	474.42
Off-Site Building					0		10.00	r	1023.51	634.18	486.36	476.36
									1012.55	606.10	486.36	476.84
									1034.62	597.09	486.36	477.60
									1046.19	625.02	486.36	477.10
Off-Site Building					0		10.00	r	1045.59	607.45	487.57	477.57
									1026.82	561.49	487.57	477.95
									1058.95	548.43	487.57	478.52
									1061.66	555.94	487.57	478.59
									1084.03	546.93	487.57	478.99
									1086.28	552.78	487.57	479.05
									1088.54	551.88	487.57	479.09
									1105.21	595.43	487.57	479.29
									1086.73	602.94	487.57	478.65
									1082.38	593.03	487.57	478.82

Terrain Contours

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)
cLos Coches							84.06	1227.65	456.00
							248.05	1020.94	462.00
							343.82	929.30	466.00
							424.47	867.70	469.00
							697.58	661.49	469.00
							773.54	595.95	470.00
							931.68	472.95	478.00
							1090.54	352.28	490.00
							1299.66	187.26	500.00
							1533.25	26.72	515.00
cLos Coches							146.76	1275.88	456.00
							306.62	1071.24	462.00
							394.81	984.43	466.00
							487.86	915.25	469.00
							738.93	726.95	469.00
							819.02	666.23	470.00
							977.15	543.24	478.00
							1136.02	422.57	490.00
							1347.90	260.99	500.00
							1578.72	97.00	515.00
c							1246.20	72.19	542.00
							980.95	366.42	519.00
							794.46	510.25	513.00
							605.79	427.67	511.00
cVia Diego							795.75	97.15	528.00
							569.75	255.63	500.00
							424.77	334.20	478.00
							494.65	427.09	483.00
							675.23	509.13	479.00
							773.54	595.95	470.00
							697.58	661.49	469.00
							618.28	566.88	479.00
							447.65	488.67	483.00
							345.93	368.90	478.00
c							66.72	861.91	450.00
							70.00	502.05	464.00
							71.10	73.28	490.00
cHaHana							532.75	902.95	469.00
							770.65	1004.13	485.00
							1004.62	1086.60	500.00
							1351.21	1209.94	516.00
							1831.38	1217.60	528.00
cHaHana							475.87	955.22	469.00
							751.51	1038.35	485.00

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)
							989.95	1123.66	500.00
							1339.97	1251.64	516.00
c							1471.04	240.33	530.00
							1471.91	320.20	540.00
							1471.91	471.25	566.00
							1461.49	578.90	580.00
							1597.79	640.54	594.00
c							1136.02	422.57	490.00
							1187.35	513.18	496.00
							1235.97	626.47	515.00
							1307.61	720.54	524.00
c							1322.92	896.48	462.00
							757.17	722.54	462.00
							798.46	692.19	455.00
							815.41	711.60	455.00
							877.35	712.42	455.00
							919.32	713.52	455.00
							969.64	721.45	455.00
							1044.02	742.78	455.00
							1225.03	793.13	455.00
cPad							1131.43	591.63	480.00
							1089.76	505.25	479.00
							975.59	569.06	477.00
							857.09	675.84	472.00
							1126.59	732.79	476.00

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570

Date: 20 Dec 2023

Calculation Configuration

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.15
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (NONE)	
Strictly acc. to AzB	

Receivers

Name	Sel.	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
				Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
				(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
F1				62.6	-70.0	0.0	0.0		x	Total	5.00	r	961.70	620.30	480.46
F2				59.7	-71.2	0.0	0.0		x	Total	5.00	r	954.78	659.97	479.35
F3				49.4	-75.6	0.0	0.0		x	Total	5.00	r	989.47	664.65	479.93
F4				60.6	-72.6	0.0	0.0		x	Total	5.00	r	999.66	624.95	481.11

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)
Los Coches Road-East				65.6	0.0	0.0			938.0	0.0	0.0	3.0	0.0	0.0	45		9	0.0	1	0.0	0.0		
Los Coches Road-West				66.0	0.0	0.0			1012.0	0.0	0.0	3.0	0.0	0.0	45		9	0.0	1	0.0	0.0		
Via Diego				57.9	0.0	0.0			239.0	0.0	0.0	1.0	0.0	0.0	25		13.41	0.0	1	0.0	0.0		
Ha Hana Road				54.2	0.0	0.0			101.0	0.0	0.0	1.0	0.0	0.0	35		4	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Los Coches Road-East	0.00	r			753.21	663.98	469.46	469.46		
					852.61	590.63	472.78	472.78		
					962.00	508.59	478.37	478.37		
					1088.31	414.39	487.85	487.85		
					1195.53	334.53	493.68	493.68		
					1320.97	239.90	499.59	499.59		
					1453.96	139.99	508.22	508.22		
					1536.64	77.29	513.70	513.70		
Los Coches Road-West	0.00	r			753.21	663.98	469.46	469.46		
					646.07	748.04	469.00	469.00		
					528.25	835.55	469.00	469.00		
					490.29	863.55	469.00	469.00		
					454.46	890.43	468.99	468.99		
					414.77	920.86	467.70	467.70		
					341.49	985.12	464.72	464.72		
					294.45	1029.97	462.71	462.71		
					262.73	1063.87	461.48	461.48		
					222.80	1109.67	460.09	460.09		
					169.63	1178.25	458.11	458.11		
					133.38	1233.16	456.59	456.59		
Via Diego	0.00	r			761.88	657.73	469.56	469.56		
					730.20	619.54	470.26	470.26		
					693.95	577.65	474.17	474.17		
					665.30	552.25	477.11	477.11		
					630.58	527.30	479.41	479.41		
					604.33	515.58	479.99	479.99		
					576.83	505.25	480.56	480.56		
					554.72	497.66	481.02	481.02		
					531.70	488.71	481.54	481.54		
					492.77	469.76	482.47	482.47		
					463.83	448.74	482.49	482.49		
					438.40	426.05	480.97	480.97		
					410.23	391.32	479.54	479.54		

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Ha Hana Road	0.00	r			1308.95	1218.57	514.34	514.34		
					1186.99	1168.26	508.69	508.69		
					1080.90	1132.44	503.82	503.82		
					954.80	1088.34	497.24	497.24		
					777.02	1024.94	485.94	485.94		
					671.25	984.63	479.01	479.01		
					590.97	953.62	473.95	473.95		
					493.47	920.55	469.00	469.00		
					447.99	895.05	468.79	468.79		

Barriers

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			
				left	right		horz.	vert.	Begin		End	
						(ft)	(ft)	(ft)	(ft)		(ft)	
		+							6.00	r		
		+							6.00	r		

Geometry - Barriers

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
				left	right		horz.	vert.	Begin		End		x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
		+							6.00	r			977.98	551.24	483.68	477.68
													961.18	563.73	482.89	476.89
													944.37	576.22	482.06	476.06
													925.04	590.52	481.11	475.11
		+							6.00	r			921.62	592.94	480.95	474.95
													910.77	601.19	480.40	474.40
													893.97	613.68	479.58	473.58
													877.17	626.17	478.75	472.75
													860.37	638.66	477.92	471.92
													843.56	651.14	477.10	471.10
													826.76	663.63	476.37	470.37
													821.40	667.54	475.90	469.90

Buildings

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	
							Begin	
							(ft)	
On-Site Building					0		10.00	r
Off-Site Building					0		10.00	r
Off-Site Building					0		10.00	r

Geometry - Buildings

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
On-Site Building					0		10.00	r	948.64	638.82	484.74	474.74
									984.52	612.55	484.74	476.11
									997.43	629.96	484.74	475.94
									990.97	634.92	484.74	475.69
									1001.63	649.78	484.74	475.54
									972.81	671.85	484.74	474.42
Off-Site Building					0		10.00	r	1023.51	634.18	486.36	476.36
									1012.55	606.10	486.36	476.84
									1034.62	597.09	486.36	477.60
									1046.19	625.02	486.36	477.10
Off-Site Building					0		10.00	r	1045.59	607.45	487.57	477.57
									1026.82	561.49	487.57	477.95
									1058.95	548.43	487.57	478.52
									1061.66	555.94	487.57	478.59
									1084.03	546.93	487.57	478.99
									1086.28	552.78	487.57	479.05
									1088.54	551.88	487.57	479.09
									1105.21	595.43	487.57	479.29
									1086.73	602.94	487.57	478.65
									1082.38	593.03	487.57	478.82

Terrain Contours

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)
cLos Coches							84.06	1227.65	456.00
							248.05	1020.94	462.00
							343.82	929.30	466.00
							424.47	867.70	469.00
							697.58	661.49	469.00
							773.54	595.95	470.00
							931.68	472.95	478.00
							1090.54	352.28	490.00
							1299.66	187.26	500.00
							1533.25	26.72	515.00
cLos Coches							146.76	1275.88	456.00
							306.62	1071.24	462.00
							394.81	984.43	466.00
							487.86	915.25	469.00
							738.93	726.95	469.00
							819.02	666.23	470.00
							977.15	543.24	478.00
							1136.02	422.57	490.00
							1347.90	260.99	500.00
							1578.72	97.00	515.00
c							1246.20	72.19	542.00
							980.95	366.42	519.00
							794.46	510.25	513.00
							605.79	427.67	511.00
cVia Diego							795.75	97.15	528.00
							569.75	255.63	500.00
							424.77	334.20	478.00
							494.65	427.09	483.00
							675.23	509.13	479.00
							773.54	595.95	470.00
							697.58	661.49	469.00
							618.28	566.88	479.00
							447.65	488.67	483.00
							345.93	368.90	478.00
c							66.72	861.91	450.00
							70.00	502.05	464.00
							71.10	73.28	490.00
cHaHana							532.75	902.95	469.00
							770.65	1004.13	485.00
							1004.62	1086.60	500.00
							1351.21	1209.94	516.00
							1831.38	1217.60	528.00
cHaHana							475.87	955.22	469.00
							751.51	1038.35	485.00

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)
							989.95	1123.66	500.00
							1339.97	1251.64	516.00
c							1471.04	240.33	530.00
							1471.91	320.20	540.00
							1471.91	471.25	566.00
							1461.49	578.90	580.00
							1597.79	640.54	594.00
c							1136.02	422.57	490.00
							1187.35	513.18	496.00
							1235.97	626.47	515.00
							1307.61	720.54	524.00
c							1322.92	896.48	462.00
							757.17	722.54	462.00
							798.46	692.19	455.00
							815.41	711.60	455.00
							877.35	712.42	455.00
							919.32	713.52	455.00
							969.64	721.45	455.00
							1044.02	742.78	455.00
							1225.03	793.13	455.00
cPad							1131.43	591.63	480.00
							1089.76	505.25	479.00
							975.59	569.06	477.00
							857.09	675.84	472.00
							1126.59	732.79	476.00

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Appendix C
Applicable Noise Regulations

Table N-1 Noise Compatibility Guidelines

	Land Use Category	Exterior Noise Level (CNEL)						
			55	60	65	70	75	80
A	Residential—single family residences, mobile homes, senior housing, convalescent homes							
B	Residential—multi-family residences, mixed-use (commercial/residential)							
C	Transient lodging—motels, hotels, resorts							
D*	Schools, churches, hospitals, nursing homes, child care facilities							
E*	Passive recreational parks, nature preserves, contemplative spaces, cemeteries							
F*	Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation							
G*	Office\professional, government, medical\dental, commercial, retail, laboratories							
H*	Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance/repair							

	ACCEPTABLE—Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.
	CONDITIONALLY ACCEPTABLE—New construction or development should be undertaken only after a detailed noise analysis is conducted to determine if noise reduction measures are necessary to achieve acceptable levels for land use. Criteria for determining exterior and interior noise levels are listed in Table N-2, Noise Standards. If a project cannot mitigate noise to a level deemed Acceptable, the appropriate county decision-maker must determine that mitigation has been provided to the greatest extent practicable or that extraordinary circumstances exist.
	UNACCEPTABLE—New construction or development shall not be undertaken.

* Denotes facilities used for part of the day; therefore, an hourly standard would be used rather than CNEL (refer to Table N-2).

Note: For projects located within an Airport Influence Area of an adopted Airport Land Use Compatibility Plan (ALUCP), additional Noise Compatibility Criteria restrictions may apply as specified in the ALUCP.

Table N-2 Noise Standards[Note]
1. The exterior noise level (as defined in Item 3) standard for Category A shall be 60 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
2. The exterior noise level standard for Categories B and C shall be 65 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
3. The exterior noise level standard for Categories D and G shall be 65 CNEL and the interior noise level standard shall be 50 dBA L_{eq} (one hour average).
4. For single-family detached dwelling units, "exterior noise level" is defined as the noise level measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum net lot area: *(i)* for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet, *(ii)* for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area; *(iii)* for lots over 10 acres in area, the exterior area shall include 1 acre.
5. For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas which are provided for private or group usable open space purposes. "Private Usable Open Space" is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior noise level standard shall be provided. "Group Usable Open Space" is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways.
6. For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use.
7. For noise sensitive land uses where people normally do not sleep at night, the exterior and interior noise standard may be measured using either CNEL or the one-hour average noise level determined at the loudest hour during the period when the facility is normally occupied.
8. The exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
9. For Categories E and F the exterior noise level standard shall not exceed the limit defined as "Acceptable" in Table N-1 or an equivalent one-hour noise standard.

Note: Exterior Noise Level compatibility guidelines for Land Use Categories A-H are identified in Table N-1, Noise Compatibility Guidelines.

In addition, the County has adopted community noise control standards as part of the County's Noise Abatement and Control Ordinance (County Code of Regulatory Ordinances, Title 3, Division 6, Chapter 4) and provides guidance for implementation of the County's noise policies and ordinance in the County's *California Environmental Quality Act* (CEQA) Guidelines for Determining Significance for Noise. The Noise Ordinance defines limits for activities that generate excessive noise and sets noise level limits for land uses. The County's CEQA significance guidelines provide guidance on the use of the General Plan Noise Element and the County Noise Abatement and Control Ordinance when considering the environmental impact of noise exposure to high or excessive noise levels.

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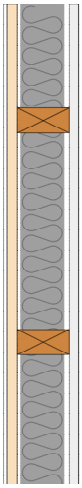
Appendix D

Sound Insulation Prediction Results

Sound Insulation Prediction (v9.0.24)

Program copyright Marshall Day Acoustics 2017
Margin of error is generally within STC ±3 dB
- Key No. 1866
Job Name:
Job No.: Initials:mouwenga
Date:12/20/2023
File Name:exterior.ixl

Notes:



STC 35
OITC 26

Mass-air-mass resonant frequency = =65 Hz

Panel Size = 8.9 ft x 13.1 ft

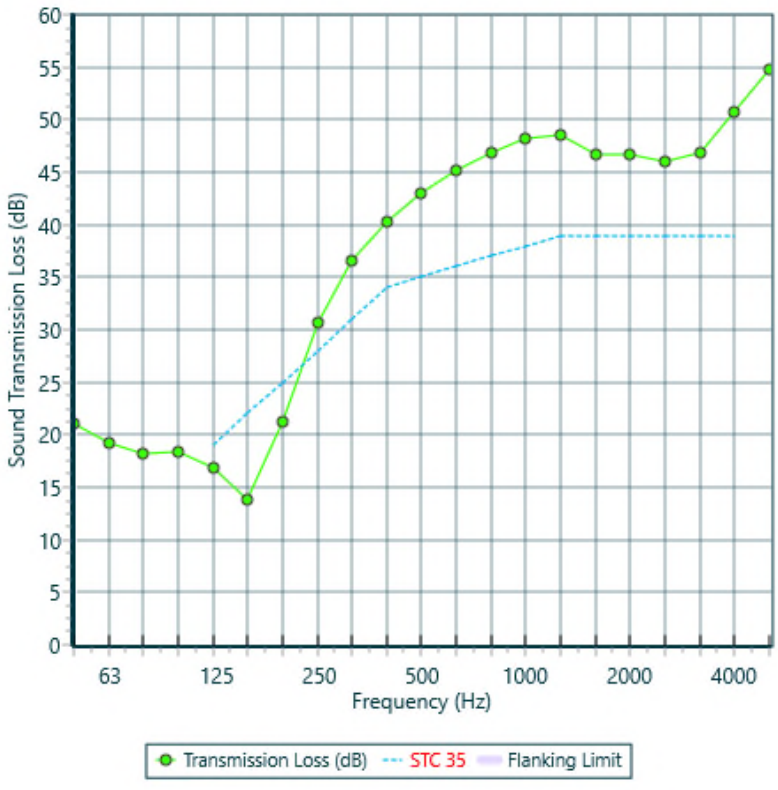
Partition surface mass = 6.61 lb/ft2

System description

Panel 1 : 1 x 0.248 in Fibre Cement + 1 x 0.689 in Plywood

Frame: Timber stud (3.5 in x 1.8 in), Stud spacing 16 in ; Cavity Width 3.54 in , 1 x fiberglass (1.4 lb/ft3) Thickness 3.0 in
Panel 2 : 1 x 0.626 in Type X Gypsum Board

freq.(Hz)	TL(dB)	TL(dB)
50	21	
63	19	19
80	18	
100	18	
125	17	16
160	14	
200	21	
250	31	25
315	37	
400	40	
500	43	42
630	45	
800	47	
1000	48	48
1250	49	
1600	47	
2000	47	46
2500	46	
3150	47	
4000	51	50
5000	55	



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Appendix E

Exterior-to-Interior Noise Analysis

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Los Coches TPM
Project # : S231201
Room Name: Living-Kitchen

Wall 1 of 3

Room Type :	**Medium Soft**						
	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.6	0.6	0.6	0.6	0.5	0.5	: Moderately Absorptive Room
Room Absorption (Sabins) :	476	476	476	476	572	572	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**49.4**	**CNEL**	32.7	38.2	40.7	44.7	44.7	38.7	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**49.4**	**CNEL**	32.7	38.2	40.7	44.7	44.7	38.7	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 35 Hardiplank Wall	N	24	9	1	137.4	16	25	42	48	46	50
Single Pane Glass Door (STC 20)	Y	4	6.7	2	53.6	12	19	21	19	27	26
Window, Insulated Dual-Glazed (STC 25)	Y	2.5	5	1	12.5	14	21	24	22	30	29
Window, Insulated Dual-Glazed (STC 25)	N	2.5	5	1	12.5	14	21	24	22	30	29
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **27** ft

Overall Area: **216** ft²
Volume: **5832** ft³

Number of Impacted Walls: **3**

Windows Open		
Interior Noise Level:	**43.1**	**CNEL**
Windows Closed		
Interior Noise Level:	**29.1**	**CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
32.7	38.2	40.7	44.7	44.7	38.7	: Exterior Wall Noise Exposure
7.4	8.0	8.1	8.1	8.1	8.1	: Transmission Loss
23.3	23.3	23.3	23.3	23.3	23.3	: Wall Surface Area Factor
26.8	26.8	26.8	26.8	27.6	27.6	: Absorption
21.8	26.7	29.2	33.2	32.3	26.3	: Noise Level
37.5	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
32.7	38.2	40.7	44.7	44.7	38.7	: Exterior Wall Noise Exposure
14.4	22.2	26.1	24.1	32.0	31.1	: Transmission Loss
23.3	23.3	23.3	23.3	23.3	23.3	: Wall Surface Area Factor
26.8	26.8	26.8	26.8	27.6	27.6	: Absorption
14.9	12.6	11.2	17.1	8.5	3.4	: Noise Level
20.9	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Los Coches TPM **Wall 2 of 3**
Project # : S231201
Room Name: Living-Kitchen

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**60.6**	**CNEL**	43.9	49.4	51.9	55.9	55.9	49.9	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**60.6**	**CNEL**	43.9	49.4	51.9	55.9	55.9	49.9	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 35 Hardiplank Wall	N	14	9	1	101.0	16	25	42	48	46	50
Window, Insulated Dual-Glazed (STC 25)	Y	2.5	5	1	12.5	14	21	24	22	30	29
Window, Insulated Dual-Glazed (STC 25)	N	2.5	5	1	12.5	14	21	24	22	30	29
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **126** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
43.9	49.4	51.9	55.9	55.9	49.9	: Exterior Wall Noise Exposure
11.2	12.7	13.0	13.0	13.0	13.0	: Transmission Loss
21.0	21.0	21.0	21.0	21.0	21.0	: Wall Surface Area Factor
26.8	26.8	26.8	26.8	27.6	27.6	: Absorption
26.9	30.9	33.1	37.2	36.3	30.3	: Noise Level
41.6	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
43.9	49.4	51.9	55.9	55.9	49.9	: Exterior Wall Noise Exposure
15.5	23.9	30.8	29.0	36.6	35.9	: Transmission Loss
21.0	21.0	21.0	21.0	21.0	21.0	: Wall Surface Area Factor
26.8	26.8	26.8	26.8	27.6	27.6	: Absorption
22.6	19.8	15.4	21.2	12.7	7.5	: Noise Level
26.7	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Los Coches TPM
Project # : S231201
Room Name: Living-Kitchen

Wall 3 of 3

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**62.6**	**CNEL**	45.9	51.4	53.9	57.9	57.9	51.9	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**62.6**	**CNEL**	45.9	51.4	53.9	57.9	57.9	51.9	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 35 Hardiplank Wall	N	4.5	9	1	17.1	16	25	42	48	46	50
STC 28 Hollow Metal Door with Seals	N	3.5	6.7	1	23.5	22	24	25	27	30	34
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: 40.5 ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.9	51.4	53.9	57.9	57.9	51.9	: Exterior Wall Noise Exposure
18.5	24.4	27.3	29.3	32.3	36.3	: Transmission Loss
16.1	16.1	16.1	16.1	16.1	16.1	: Wall Surface Area Factor
26.8	26.8	26.8	26.8	27.6	27.6	: Absorption
16.7	16.3	15.9	17.9	14.1	4.1	: Noise Level

23.4 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.9	51.4	53.9	57.9	57.9	51.9	: Exterior Wall Noise Exposure
18.5	24.4	27.3	29.3	32.3	36.3	: Transmission Loss
16.1	16.1	16.1	16.1	16.1	16.1	: Wall Surface Area Factor
26.8	26.8	26.8	26.8	27.6	27.6	: Absorption
16.7	16.3	15.9	17.9	14.1	4.1	: Noise Level

23.4 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Los Coches TPM
Project # : S231201
Room Name: Main Bedroom

Wall 1 of 1

Room Type : **Soft**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.5	0.5	0.5	0.5	0.4	0.4	: Highly Absorptive Room
Room Absorption (Sabins) :	191	191	191	191	238	238	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**62.6**	**CNEL**	45.9	51.4	53.9	57.9	57.9	51.9	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**62.6**	**CNEL**	45.9	51.4	53.9	57.9	57.9	51.9	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 35 Hardiplank Wall	N	16	9	1	119.0	16	25	42	48	46	50
Window, Insulated Dual-Glazed (STC 25)	Y	2.5	5	1	12.5	14	21	24	22	30	29
Window, Insulated Dual-Glazed (STC 25)	N	2.5	5	1	12.5	14	21	24	22	30	29
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **13.5** ft **Overall Area:** **144** ft²
Volume: **1944** ft³

Number of Impacted Walls: **1**

Windows Open
Interior Noise Level: **47.5** **CNEL**

Windows Closed
Interior Noise Level: **33.0** **CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.9	51.4	53.9	57.9	57.9	51.9	: Exterior Wall Noise Exposure
11.6	13.3	13.6	13.5	13.6	13.6	: Transmission Loss
21.6	21.6	21.6	21.6	21.6	21.6	: Wall Surface Area Factor
22.8	22.8	22.8	22.8	23.8	23.8	: Absorption
33.1	36.9	39.1	43.1	42.1	36.1	: Noise Level

47.5 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.9	51.4	53.9	57.9	57.9	51.9	: Exterior Wall Noise Exposure
15.6	24.0	31.3	29.6	37.1	36.4	: Transmission Loss
21.6	21.6	21.6	21.6	21.6	21.6	: Wall Surface Area Factor
22.8	22.8	22.8	22.8	23.8	23.8	: Absorption
29.1	26.2	21.4	27.1	18.6	13.3	: Noise Level

33.0 **CNEL** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Los Coches TPM
Project # : S231201
Room Name: Other Bedrooms

Wall 1 of 2

Room Type : **Soft**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.5	0.5	0.5	0.5	0.4	0.4	: Highly Absorptive Room
Room Absorption (Sabins) :	131	131	131	131	164	164	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**59.7**	**CNEL**	43.0	48.5	51.0	55.0	55.0	49.0	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**59.7**	**CNEL**	43.0	48.5	51.0	55.0	55.0	49.0	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 35 Hardiplank Wall	N	11	9	1	74.0	16	25	42	48	46	50
Window, Insulated Dual-Glazed (STC 25)	Y	2.5	5	1	12.5	14	21	24	22	30	29
Window, Insulated Dual-Glazed (STC 25)	N	2.5	5	1	12.5	14	21	24	22	30	29
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **13.5** ft

Overall Area: **99** ft²
Volume: **1337** ft³

Number of Impacted Walls: **2**

Windows Open		
Interior Noise Level:	**50.9**	**CNEL**
Windows Closed		
Interior Noise Level:	**35.6**	**CNEL**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
43.0	48.5	51.0	55.0	55.0	49.0	: Exterior Wall Noise Exposure
10.5	11.7	11.9	11.9	12.0	12.0	: Transmission Loss
20.0	20.0	20.0	20.0	20.0	20.0	: Wall Surface Area Factor
21.2	21.2	21.2	21.2	22.1	22.1	: Absorption
31.3	35.6	37.8	41.9	40.8	34.8	: Noise Level
46.2	**CNEL**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
43.0	48.5	51.0	55.0	55.0	49.0	: Exterior Wall Noise Exposure
15.4	23.6	29.8	27.9	35.7	34.9	: Transmission Loss
20.0	20.0	20.0	20.0	20.0	20.0	: Wall Surface Area Factor
21.2	21.2	21.2	21.2	22.1	22.1	: Absorption
26.4	23.7	20.0	25.8	17.2	11.9	: Noise Level
30.9	**CNEL**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Los Coches TPM **Wall 2 of 2**
Project # : S231201
Room Name: Other Bedrooms

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**62.6**	**CNEL**	45.9	51.4	53.9	57.9	57.9	51.9	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**CNEL**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**62.6**	**CNEL**	45.9	51.4	53.9	57.9	57.9	51.9	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 35 Hardiplank Wall	N	11	9	1	74.0	16	25	42	48	46	50
Window, Insulated Dual-Glazed (STC 25)	Y	2.5	5	1	12.5	14	21	24	22	30	29
Window, Insulated Dual-Glazed (STC 25)	N	2.5	5	1	12.5	14	21	24	22	30	29
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **99** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.9	51.4	53.9	57.9	57.9	51.9	: Exterior Wall Noise Exposure
10.5	11.7	11.9	11.9	12.0	12.0	: Transmission Loss
20.0	20.0	20.0	20.0	20.0	20.0	: Wall Surface Area Factor
21.2	21.2	21.2	21.2	22.1	22.1	: Absorption
34.2	38.5	40.7	44.8	43.7	37.7	: Noise Level

49.1 **CNEL** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
45.9	51.4	53.9	57.9	57.9	51.9	: Exterior Wall Noise Exposure
15.4	23.6	29.8	27.9	35.7	34.9	: Transmission Loss
20.0	20.0	20.0	20.0	20.0	20.0	: Wall Surface Area Factor
21.2	21.2	21.2	21.2	22.1	22.1	: Absorption
29.3	26.6	22.9	28.7	20.1	14.8	: Noise Level

33.8 **CNEL** WINDOWS CLOSED