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Acoustical Analysis Report for Santa Fe Multi-Family

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1.0 Executive Summary

The proposed project, Santa Fe Multi-Family, consists of the demolition of the existing on-site structures and the construction of a residential development to include 43 lots with 35 single-family residences and eight duplexes. The project site is located at 845 Santa Fe Drive and 846 Munevar Road in the City of Encinitas, California.

The current and future noise environment consists primarily of traffic noise from Santa Fe Drive. Worst-case noise levels at building facades are expected to range from approximately 38.7 CNEL at the south facade of the building on Lot 37 to 70.4 CNEL at the north facade of the building on Lot 43. Calculations show, with the sound barriers shown in Figure 8 in place, exterior noise levels at outdoor use areas are expected to be in compliance with the noise limits established in the City of Encinitas Noise Element to the General Plan.

Calculations show that future noise levels on site are expected to exceed 60 CNEL at the facades of the buildings at Lot 14 and Lots 37 through 43, such that interior noise levels may exceed 45 CNEL with windows open in residential space without appropriate treatment. Due to high noise levels on-site at some facades, an exterior to interior analysis should be performed when building plans become available, prior to the issuance of building permits. The required interior noise levels are feasible and can be achieved with readily available building materials and construction methods.

The City of Encinitas Municipal Code states that construction activity is prohibited except on Monday through Saturday between the hours of 7 a.m. and 7 p.m. Construction activity is also prohibited on Sundays and legal holidays. During permissible hours of operation, noise levels from construction activity may not exceed an eight-hour average sound level limit of 75 dBA at any time. An analysis of temporary construction noise considering typical and anticipated activity on site demonstrates that construction noise impacts are expected to be below an hourly average noise level of 75 dBA at surrounding residential properties. Provided construction is limited to the allowable hours of the City of Encinitas and equipment is maintained in proper working condition, temporary noise impacts are expected to be less than significant. No mitigation is deemed necessary for the attenuation of temporary noise impacts.

2.0 Introduction

This acoustical analysis report is submitted to satisfy the acoustical requirements of the City of Encinitas and the State of California. Its purpose is to assess noise impacts from nearby roadway traffic to identify project features or requirements necessary to achieve noise levels of 60 CNEL or less at outdoor use areas and 45 CNEL or less in interior residential space, per the noise regulations of the City of Encinitas Noise Element to the General Plan. In addition, this report assesses noise impacts from temporary construction noise.

All noise level or sound level values presented herein are expressed in terms of decibels, with A-weighting to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ} for a specified duration. Unless a different time period is specified, L_{EQ} is implied to mean 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 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. 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. As L_{DN} and CNEL are generally found to be within approximately 0.5 dB or less of one another, they are considered

equivalent for purposes of this analysis. These metrics are used to express noise levels for both measurement and municipal regulations, for land use guidelines, and for enforcement of noise ordinances.

2.1 Project Description

The proposed project, Santa Fe Multi-Family, consists of the demolition of the existing on-site structures and the construction of a residential development to include 43 lots with 35 single-family residences and eight duplexes. Additionally, outdoor use areas are provided as a rooftop deck at each residential unit and an open landscape area. For further details, please refer to the project plans, provided as Appendix A.

2.2 Project Location

The project site is located at 845 Santa Fe Drive and 846 Munevar Road in the City of Encinitas, California. The Assessor's Parcel Number (APN) for the property is 260-132-23-00. The project location is shown on the Vicinity Map, Figure 1, following this report. An Assessor's Parcel Map, Satellite Aerial Photograph, and Topographic Map of this area are also provided as Figures 2 through 4, respectively.

2.3 Applicable Noise Regulations

The proposed project must meet the acoustical requirements of the City of Encinitas in order to obtain approval. The City of Encinitas and State of California require interior noise levels not exceeding 45 CNEL in habitable space. Additionally, the City of Encinitas Noise Element to the General Plan Policy 1.2 requires that noise levels at outdoor use areas for residential areas do not exceed 60 CNEL.

Additionally, Section 9.32.410 of the City of Encinitas Municipal Code states that construction activity is prohibited except on Monday through Saturday between the hours of 7 a.m. and 7 p.m. Construction activity is also prohibited on Sundays and legal holidays. During permissible hours of operation, noise levels from construction activity may not exceed an eight-hour average sound level limit of 75 dBA at residential properties.

Pertinent sections of the City of Encinitas Noise Element to the General Plan, City of Encinitas Municipal Code, and California Building Code are provided as Appendix B.

3.0 Environmental Setting

3.1 Existing Noise Environment

3.1.1 Roadway Noise Sources

The primary source of noise in the vicinity of the project site is traffic Santa Fe Drive. No other noise source is considered significant. Current traffic volumes are given based on information from the San Diego Association of Governments (SANDAG) Transportation Data (see reference).

Santa Fe Drive is a two-lane, two-way Local Collector running east-west along the northern boundary of the project site. The posted speed limit is 35 mph. According to SANDAG, the current (2015) traffic volume of Santa Fe Drive is approximately 15,000 Average Daily Trips (ADT) in the vicinity of the project site.

No current or future truck percentages were available for Santa Fe Drive 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 1.0% medium and 0.5% heavy trucks was used for the roadway.

Current and future (See Section 3.2) traffic volumes and vehicle mixes for roadway sections near the project site are shown in Table 1. For more information, please refer to Appendix C: CadnaA Analysis Data and Results.

Table 1. Overall Roadway Traffic Information					
Roadway Name	Speed Limit (mph)	Vehicle Mix (%)		Current ADT (2015)	Future ADT (2035)
		Medium Trucks	Heavy Trucks		
Santa Fe Drive	35	1.0	0.5	15,000	10,000

Current traffic noise levels were calculated at ground level and show that noise impacts to the entire project site are between 53 and 71 CNEL. See Figure 5 for a graphical representation of current traffic noise contours.

3.1.2 Measured Noise Level

An on-site inspection and traffic noise measurement was made on the afternoon of Monday, August 24, 2020. The noise measurement was made using the methodology described in Section 4.1, at approximately 48 feet south of the Santa Fe Drive centerline and approximately 455 feet west of the Windsor Road centerline. The noise measurement location is shown in Figures 5 and 6. Traffic volumes were recorded for automobiles, medium-size trucks, and large trucks on Santa Fe Drive during the measurement period. After a 15-minute sound level measurement (paused for extraneous non-traffic noise sources), there was no change in the L_{EQ} and results were then recorded. The measured noise level and related weather conditions are shown in Table 2.

Table 2. On-Site Noise Measurement Conditions and Results	
Date	Monday, August 24, 2020
Time	2:00 p.m. – 2:18 p.m.
Conditions	Cloudy skies, winds at 11 mph, temperature in the high 70s with high humidity
Measured Noise Level	65.9 dBA L_{EQ}

3.1.3 Calculated Noise Level

Noise levels were calculated for the site using the methodology described in Section 4.1.2 for the location, conditions, and traffic volumes counted during the noise measurement. The calculated noise level (L_{EQ}) was 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 65.9 dBA L_{EQ} at approximately 48 feet south of the Santa Fe Drive centerline and approximately 455 feet west of the Windsor Road centerline was compared to the calculated (modeled) noise level of 67.9 dBA L_{EQ} for the same conditions and 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 shown in Table 3.

Table 3. Calculated versus Measured Traffic Noise Data				
Location	Calculated	Measured	Difference	Correction
48' south of Santa Fe Drive C.L. and 455' west of Windsor Road C.L.	67.9 dBA L _{EQ}	65.9 dBA L _{EQ}	2.0 dB	None Applied

3.2 Future Noise Environment

3.2.1 Roadway Traffic Noise

Future (year 2035) traffic volumes for surrounding roadways were provided by the SANDAG Series 14 Transportation Forecast Information Center (see reference). In the vicinity of the project site, the traffic volume of Santa Fe Drive is expected to decrease to 10,000 ADT.

The same truck percentages from the current traffic volumes were used for future traffic volume modeling. For further roadway details and projected future ADT traffic volumes, please refer to Appendix C: CadnaA Analysis Data and Results.

Future traffic noise contours were calculated at ground level and show that future traffic noise impacts to the entire project site are expected to decrease slightly to be between approximately 51 and 69 CNEL. For a graphical representation of these contours, please refer to Figure 6: Site Plan Showing Future Traffic CNEL Contours and Noise Measurement Location. As the current noise impacts to the project site are expected to exceed future impacts, current traffic levels were used to calculate worst-case impacts to outdoor use areas and building facades. Please refer to Section 5.0 for additional information.

3.2.2 Temporary Construction Equipment

Detailed construction information was not available at the time this study was prepared. A list of typical construction equipment expected to be operational on the site is shown in Table 4, based on experience working on similar projects. Noise impacts for the grading phase of construction are the focus of this analysis, as this stage is when the most pieces of heavy equipment would be operational on site, and therefore, noise levels at neighboring properties would be at their highest. Unless otherwise noted, construction equipment noise levels were obtained from noise measurements made by Eilar Associates on March 25, 2010 for Brutoco Engineering & Construction, Inc. for the Orange Line Extension Project, Metro Contract #C0943, City of Los Angeles, California. Noise levels are shown in Table 4.

Table 4. Anticipated Construction Activity and Equipment Noise Levels		
Equipment	Duty Cycle (%) ¹	Noise Level at 50 feet (dBA)
Front Loader	40	72
Backhoe	40	74
Excavator	40	75
Water Truck	40	77
Dump Truck ²	40	76

¹Duty cycle information was provided by the Federal Highway Administration.

²Noise level information was provided by UK Department for Environment, Food and Rural Affairs.

Equipment noise levels shown above were incorporated into the temporary construction noise impact analysis as shown in Section 5.3.

4.0 Methodology and Equipment

4.1 Methodology

4.1.1 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.

4.1.2 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). 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.

4.1.3 Formulas and Calculations

Decibel Addition

To determine the combined logarithmic noise level of two known noise source levels, the values are converted to the base values, added together, and then converted back to the final logarithmic value, using the following formula:

$$L_C = 10 \log(10^{L1/10} + 10^{L2/10} + 10^{LN/10})$$

where L_C = the combined noise level (dB), and
 L_N = the individual noise sources (dB).

This procedure is also valid when used successively for each added noise source beyond the first two. The reverse procedure can be used to estimate the contribution of one source when the contribution of another concurrent source is known and the combined noise level is known. These methods can be used for L_{EQ} or other metrics (such as L_{DN} or $CNEL$), as long as the same metric is used for all components.

Attenuation Due to Distance

Attenuation due to distance is calculated by the equation:

$$SPL_2 = SPL_1 - 20 \log\left(\frac{D_2}{D_1}\right)$$

where SPL_1 = Known sound pressure level at known distance,
 SPL_2 = Calculated sound pressure level at distance,
 D_1 = Distance from source to location of known sound pressure level, and
 D_2 = Distance from source to location of calculated sound pressure level.

This is identical to the more commonly used reference of 6 dB reduction for every doubling of distance. This equation does not take into account reduction in noise due to atmospheric absorption.

Hourly L_{EQ} Summation

To determine the hourly average noise levels (L_{EQ}) when the noise is created for less than the full hour, convert the logarithm values to the base energy value, multiply by the percentage of the hour that the noise occurs, and then convert the sum back to a logarithmic value. This is done with the following formula:

$$L_{EQ} = 10 \log(P_H \times 10^{L_P/10})$$

where P_H = the percent or fraction of the hour noise is created, and
 L_P = the partial hour noise level (dB).

4.2 Measurement Equipment

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

- Larson Davis Model LxT Type 1 Sound Level Meter, Serial # 4084
- Larson Davis Model CA250 Type 1 Calibrator, Serial # 2106

The sound level meter was 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 and calibrated per the manufacturers’ standards.

5.0 Impacts and Mitigation

5.1 Exterior

5.1.1 Outdoor Use Areas

The City of Encinitas Noise Element to the General Plan states that exterior noise levels should not exceed 60 CNEL at outdoor use areas of residential properties. Worst-case roadway traffic noise levels were calculated at proposed private roof decks and the open landscape area, and are shown in Table 5. Calculations were performed at representative receivers; receivers located at a further distance from Santa Fe Drive are expected to have lower levels of noise due to distance attenuation and shielding from intervening structures. These calculations considered shielding that would be provided by proposed buildings on site in addition to the existing building along the northwest boundary of the project site. Receivers were calculated at a height of 3.5 feet above ground or deck height to estimate the height of a seated person. A graphical representation of receiver locations is provided as Figure 7.

Table 5. Worst-Case Traffic Noise Levels at Representative Outdoor Use Areas – Current Design			
Location	Receiver	Noise Limit (CNEL)	Exterior Noise Level (CNEL)
Open Landscape Area	OU1	60	56.7
	OU2	60	55.2
Roof Deck – Lot 38	OU3	60	65.5
	OU4	60	66.8
Roof Deck – Lot 39	OU5	60	64.6
	OU6	60	68.4
Roof Deck – Lot 40	OU7	60	66.3
	OU8	60	68.5
Roof Deck – Lot 41	OU9	60	64.4
	OU10	60	67.0
Roof Deck – Lot 42	OU11	60	66.6
	OU12	60	68.5
Roof Deck – Lot 43	OU13	60	67.2
	OU14	60	67.9
Roof Deck – Lot 14	OU15	60	59.4

Table 5. Worst-Case Traffic Noise Levels at Representative Outdoor Use Areas – Current Design			
Location	Receiver	Noise Limit (CNEL)	Exterior Noise Level (CNEL)
Roof Deck – Lot 14	OU16	60	55.3
Roof Deck – Lot 37	OU17	60	60.0
Roof Deck – Lot 37	OU18	60	58.6
Roof Deck – Lot 9	OU19	60	50.4
Roof Deck – Lot 6	OU20	60	47.7
Roof Deck – Lot 1	OU21	60	51.0
Roof Deck – Lot 32	OU22	60	53.6

As shown above, as currently designed, worst-case traffic noise levels are expected to exceed 60 CNEL at the roof deck receivers at Lots 38 through 43; therefore, mitigation will be required at those receivers. As all other outdoor use areas are expected to be below 60 CNEL and in compliance with the City of Encinitas noise regulations, no mitigation is required in those areas.

A 4-foot-high sound barrier was placed along the west, north, and east boundaries of the proposed roof decks of the buildings on Lots 38 and 43; additionally, a 4.5-foot-high sound barrier was placed along the west, north, and east boundaries of the proposed roof decks of the buildings on Lots 39 through 42. Please refer to Table 6 for noise levels at the outdoor use areas of Lots 38 through 43 with the sound barriers in place. A graphical representation of the required barrier locations is shown in Figure 8.

Table 6. Worst-Case Traffic Noise Levels at Outdoor Use Areas – with Required Sound Barriers				
Location	Required Sound Barrier Height (ft)	Receiver	Noise Limit (CNEL)	Exterior Noise Level (CNEL)
Roof Deck – Lot 38	4.0	OU3	60	58.3
		OU4	60	57.1
Roof Deck – Lot 39	4.5	OU5	60	58.6
		OU6	60	57.3
Roof Deck – Lot 40	4.5	OU7	60	59.4
		OU8	60	57.5
Roof Deck – Lot 41	4.5	OU9	60	60.0
		OU10	60	58.6
Roof Deck – Lot 42	4.5	OU11	60	59.1
		OU12	60	57.0
Roof Deck – Lot 43	4.0	OU13	60	57.4
		OU14	60	56.9

With the sound barriers shown in Figure 8 in place, exterior noise levels at outdoor use areas are expected to be in compliance with the noise limits established in the City of Encinitas Noise Element to the General Plan.

A sound wall should be solid and constructed of masonry, wood, plastic, fiberglass, steel, or a combination of those materials, with no cracks or gaps, through or below the wall. Any seams or cracks must be filled or caulked. If wood is used, it can be tongue and groove and must be at least 7/8-inch thick or have a surface density of at least 3½ pounds per square foot. Where architectural or aesthetic factors allow, glass or clear plastic may be used on the upper portion, if it is desirable to preserve a view. Sheet metal of 18-gauge (minimum) may be used, if it meets the other criteria and is properly supported and stiffened so that it does not rattle or create noise itself from vibration or wind. Any gate(s) proposed to be constructed in a sound wall must be designed with overlapping closures. The gate(s) may be of 3/4-inch or thicker wood, solid-sheet metal of at least 18-gauge metal, or an exterior-grade solid-core steel door with prefabricated door jambs.

5.1.2 Building Facades

Worst-case traffic noise impacts were calculated at building facades considering shielding provided by the proposed buildings on site and the building along the northwest boundary of the project site. Worst-case noise levels at building facades are expected to range from approximately 38.7 CNEL at the south facade of the building on Lot 37 to 70.4 CNEL at the north facade of the building on Lot 43. Worst-case traffic noise impacts at building facades are shown in Table 7, and receiver locations are shown in Figure 9.

Table 7. Worst-Case Traffic Noise Levels Building Facades				
Lot	Receiver	Direction	Exterior Noise Level (CNEL)	
			Floor 1	Floor 2
43	F1	North	70.4	69.9
	F2	West	65.3	65.4
	F3	South	51.1	53.9
	F4	East	64.5	64.7
42	F5	North	70.3	69.8
	F6	West	64.9	65.1
	F7	South	49.7	54.6
40	F8	South	49.1	54.6
38	F9	South	52.2	55.1
38	F10	East	64.6	64.9
	F11	North	69.8	69.5
40	F12	North	70.0	69.6
14	F13	North	59.4	60.2
	F14	West	55.7	56.7
	F15	South	42.9	47.4
	F16	East	57.0	57.8
37	F17	North	59.2	59.9

Table 7. Worst-Case Traffic Noise Levels Building Facades

Lot	Receiver	Direction	Exterior Noise Level (CNEL)	
			Floor 1	Floor 2
37	F18	West	49.8	50.9
	F19	South	38.7	45.8
	F20	East	59.8	60.5
10	F21	North	50.2	53.9
	F22	West	52.9	54.8
	F23	South	49.5	52.6
	F24	East	52.6	55.5
33	F25	North	48.2	51.6
	F26	West	48.2	52.4
	F27	South	44.9	48.9
	F28	East	55.0	55.9
6	F29	North	52.2	54.7
	F30	West	50.4	52.6
	F31	South	47.5	50.5
	F32	East	49.9	53.3
1	F33	North	51.2	53.7
	F34	West	49.3	52.5
	F35	South	46.0	49.1
	F36	East	52.2	53.3

5.2 Interior

The State of California and the City of Encinitas require buildings to be designed in order to attenuate, control, and maintain interior noise levels not greater than 45 CNEL in habitable space, as formulated in the City of Encinitas Municipal Code and the California Building Code, Section 1206.4. According to the U.S. EPA (see reference), current exterior building construction is generally expected to achieve at least 15 decibels of exterior-to-interior noise attenuation with windows opened. Therefore, proposed project building structures exposed to exterior noise levels greater than 60 CNEL could be subject to interior noise levels exceeding the 45 CNEL noise limit for residential habitable space.

Calculations show that future noise levels on site are expected to exceed 60 CNEL at the facades of the buildings at Lot 14 and Lots 37 through 43, such that interior noise levels may exceed 45 CNEL with windows open in residential space at those areas without appropriate treatment. Due to high noise levels on-site, an exterior-to-interior analysis should be performed when building plans become available, prior to the issuance of building permits. The required interior noise levels are feasible and can be achieved with readily available building materials and construction methods. Typically, the use of dual-paned windows with improved STC ratings and the incorporation of a mechanical ventilation system meeting the requirement for fresh air exchange rates are

sufficient for meeting interior noise requirements, but specific requirements will be determined upon completion of a detailed exterior to interior noise analysis.

5.3 Temporary Construction Noise Impacts

Temporary construction noise is expected to be at its highest during grading operations, when the most pieces of heavy equipment would be located on site. The City of Encinitas requires that noise levels from construction activity do not exceed 75 dBA for more than eight hours, and that construction activity is limited to the hours of 7 a.m. to 7 p.m. on Mondays through Saturdays.

As construction equipment will move around the site over the course of each day, equipment noise levels of construction equipment were calculated from the center of the lot, to evaluate the average distance to receivers while the equipment moves around on site. The nearest receivers are the residential lots to the west of the project site, which are located at a distance of approximately 180 feet from the center of the lot. Calculations show that, at these worst-case locations, construction equipment noise levels are expected to be 67 dBA, over an average workday during grading activity. Calculation sheets are provided in Appendix E and a graphical representation of source and receiver locations is shown in Figure 10.

As grading activity is anticipated to comply with the 75 dBA noise limit without the implementation of sound barriers, and as any other phase of construction would be expected to result in lower noise impacts at off-site receivers, no sound attenuation barriers are deemed necessary to reduce temporary noise impacts. The following measures should still be practiced as a courtesy to residential neighbors.

1. Construction activity must be limited to the hours of 7 a.m. to 7 p.m., Mondays through Saturdays, as per the City of Encinitas Municipal Code.
2. Staging areas should be placed as far as possible from residential receivers. Ideally, staging areas would be located toward the center of the site.
3. Place stationary equipment in locations that will have a lesser noise impact on nearby sensitive receivers.
4. Turn off equipment when not in use.
5. Limit the use of enunciators or public address systems, except for emergency notifications.
6. Equipment used in construction should be maintained in proper operating condition, and all loads should be properly secured to prevent rattling and banging.
7. Schedule work to avoid simultaneous construction activities that both generate high noise levels.
8. Use equipment with effective mufflers.
9. Minimize the use of backup alarms.

With work hours limited to those allowable by the City of Encinitas, temporary construction noise will not exceed the applicable thresholds of the City of Encinitas Municipal Code.

6.0 Conclusion

The current and future noise environment consists primarily of traffic noise from Santa Fe Drive. Worst-case noise levels at building facades are expected to range from approximately 38.7 CNEL at the south facade of the building on Lot 37 to 70.4 CNEL at the north facade of the building on Lot 43. Calculations show, with the sound barriers shown in Figure 8 in place, exterior noise levels at outdoor use areas are expected to be in compliance with the noise limits established in the City of Encinitas Noise Element to the General Plan.

Calculations show that future noise levels on site are expected to exceed 60 CNEL at the facades of the buildings at Lot 14 and Lots 37 through 43, such that interior noise levels may exceed 45 CNEL with windows open in residential space without appropriate treatment. Due to high noise levels on-site at some facades, an exterior to interior analysis should be performed when building plans become available, prior to the issuance of building permits. The required interior noise levels are feasible and can be achieved with readily available building materials and construction methods.

The City of Encinitas Municipal Code states that construction activity is prohibited except on Monday through Saturday between the hours of 7 a.m. and 7 p.m. Construction activity is also prohibited on Sundays and legal holidays. During permissible hours of operation, noise levels from construction activity may not exceed an eight-hour average sound level limit of 75 dBA at any time. An analysis of temporary construction noise considering typical and anticipated activity on site demonstrates that construction noise impacts are expected to be below an hourly average noise level of 75 dBA at surrounding residential properties. Provided construction is limited to the allowable hours of the City of Encinitas and equipment is maintained in proper working condition, temporary noise impacts are expected to be less than significant. No mitigation is deemed necessary for the attenuation of temporary noise impacts.

7.0 Certification

All recommendations for noise control are based on the best information available at the time our consulting services are provided. However, as there are many factors involved in sound and impact transmission, and Eilar Associates has no control over the construction, workmanship, or materials, Eilar Associates is specifically not liable for final results of any recommendations or implementation of the recommendations.

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 Santa Fe Multi-Family project, to be located at 845 Santa Fe Drive and 846 Munevar Road in the City of Encinitas, California. This report was prepared by Mo Ouwenga, Rachael Cowell, and Amy Hool.



Mo Ouwenga, INCE
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8.0 References

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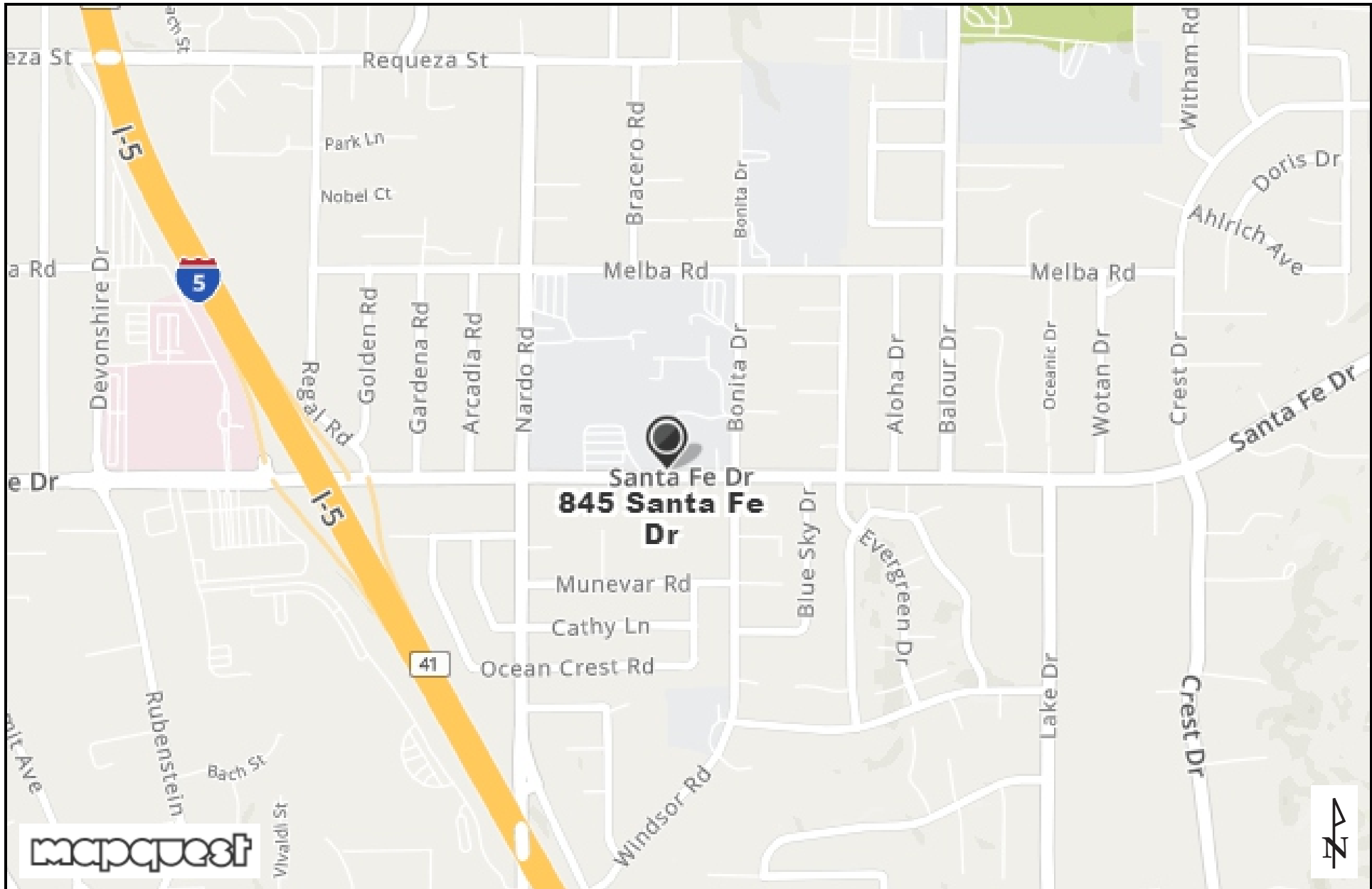
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Figures



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 210 South Juniper Street, Suite 100
 Escondido, California 92025
 760-738-5570

Vicinity Map
Job #S200805

Figure 1

San Diego County
Assessor's
Parcel Number:

260-132-23-00

San Dieguito
High Academy

Santa Fe Dr

Project Location



2601322300

Mackinnon Ct

Munivar Rd

Crathy Ln

Justin Rd

Blue Sky Dr

Grange Hall Rd



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Assessor's Parcel Map
Job # S200805

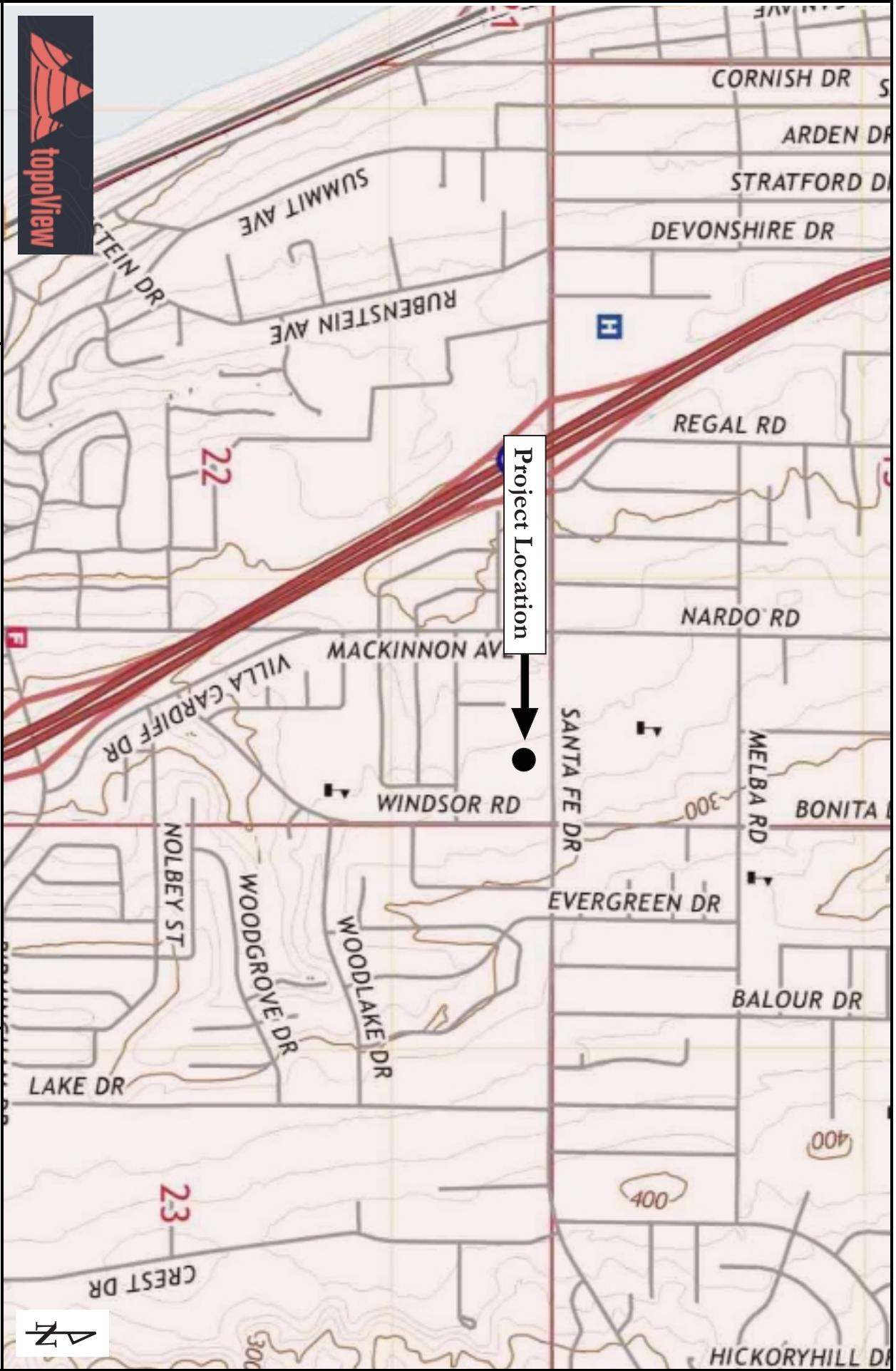
Figure 2



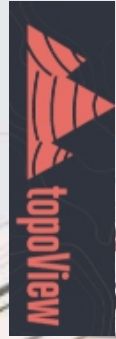
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Satellite Aerial Photograph
 Job # S200805

Figure 3



Project Location



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Topographic Map
 Job # S200805

Figure 4

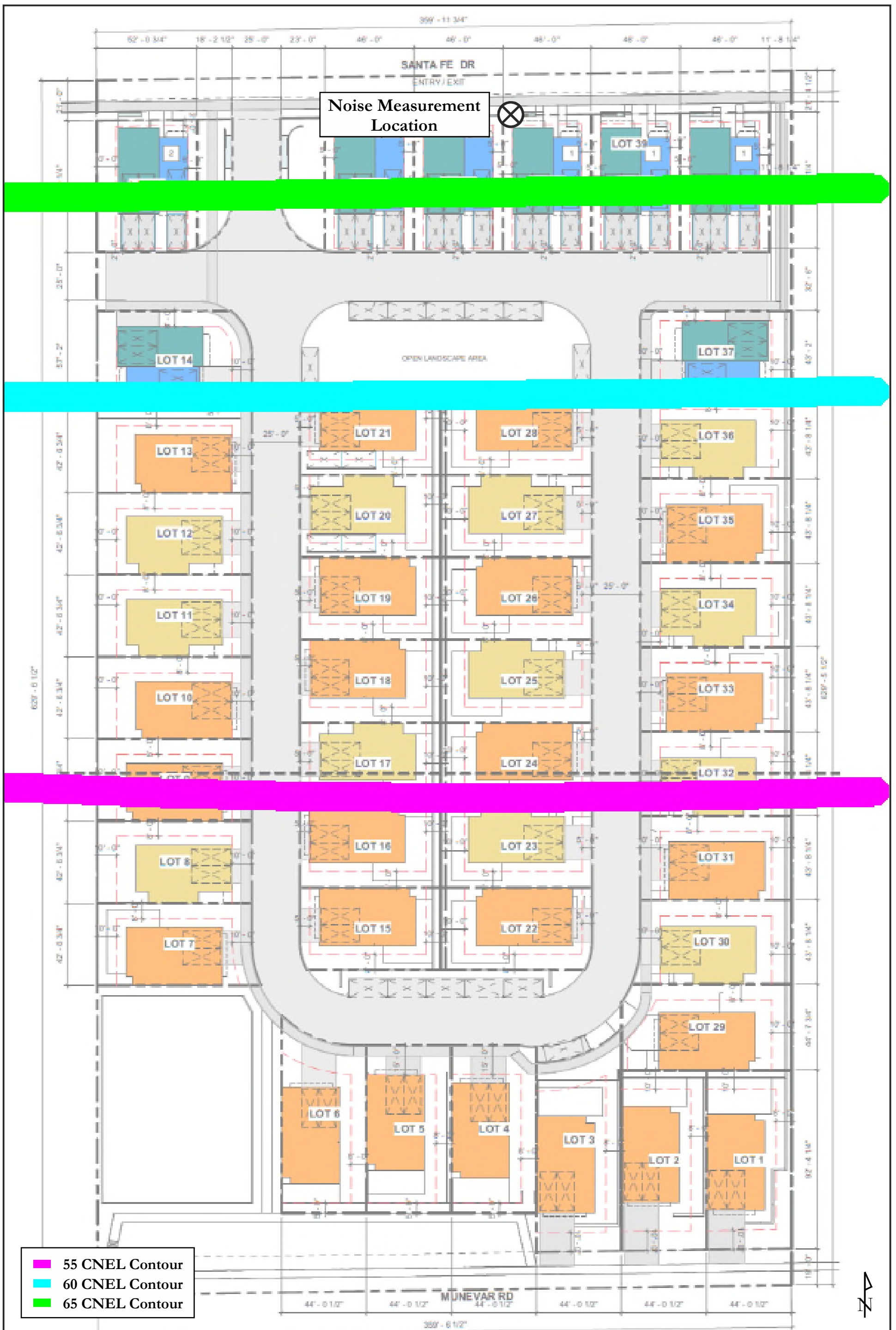


- █ 55 CNEL Contour
- █ 60 CNEL Contour
- █ 65 CNEL Contour

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Site Plan Showing Current Traffic CNEL Noise Contours
 and Noise Measurement Location
 Job # S200805.3

Figure 5

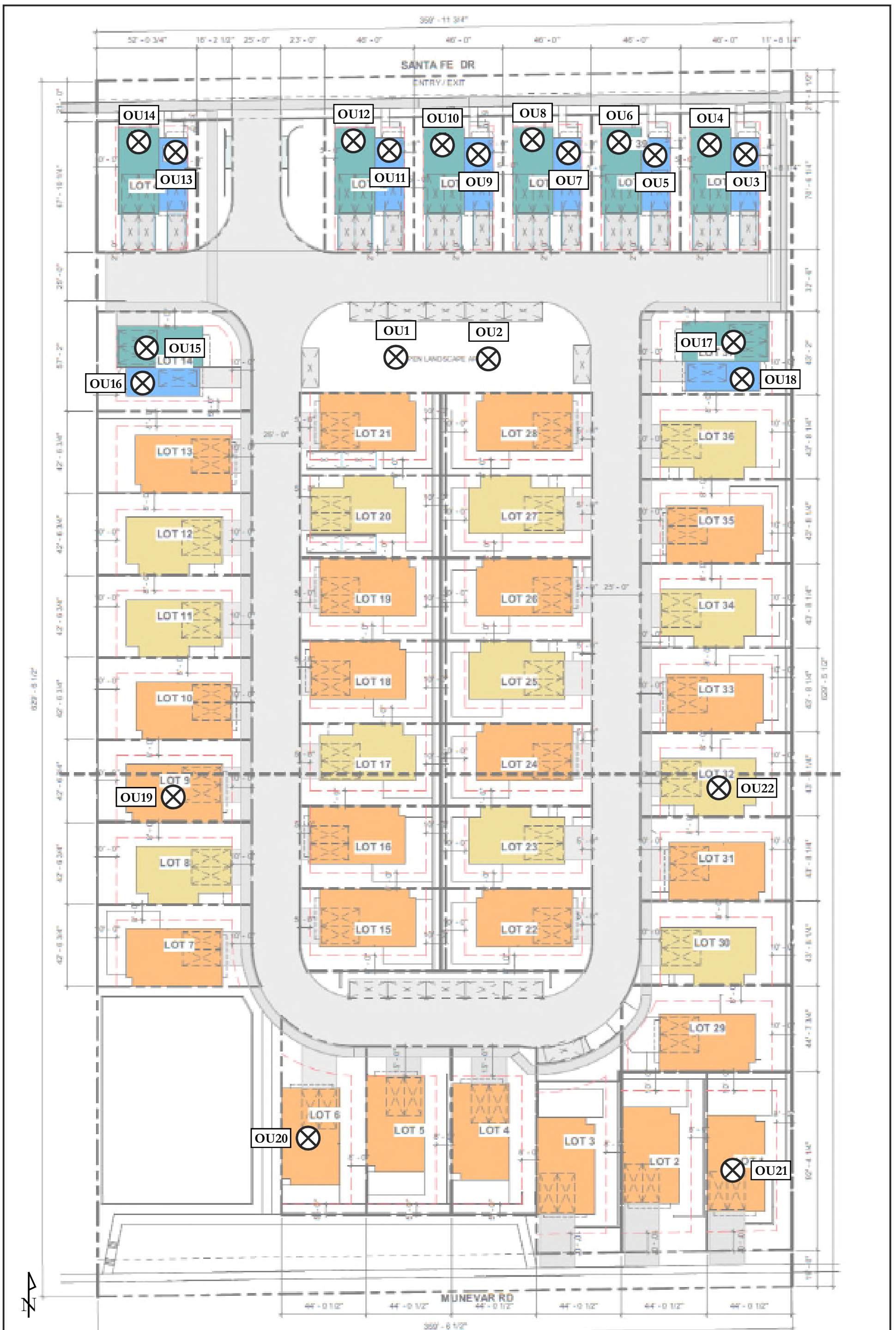


- █ 55 CNEL Contour
- █ 60 CNEL Contour
- █ 65 CNEL Contour

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**Site Plan Showing Future Traffic CNEL Noise Contours
 and Noise Measurement Location
 Job # S200805.3**

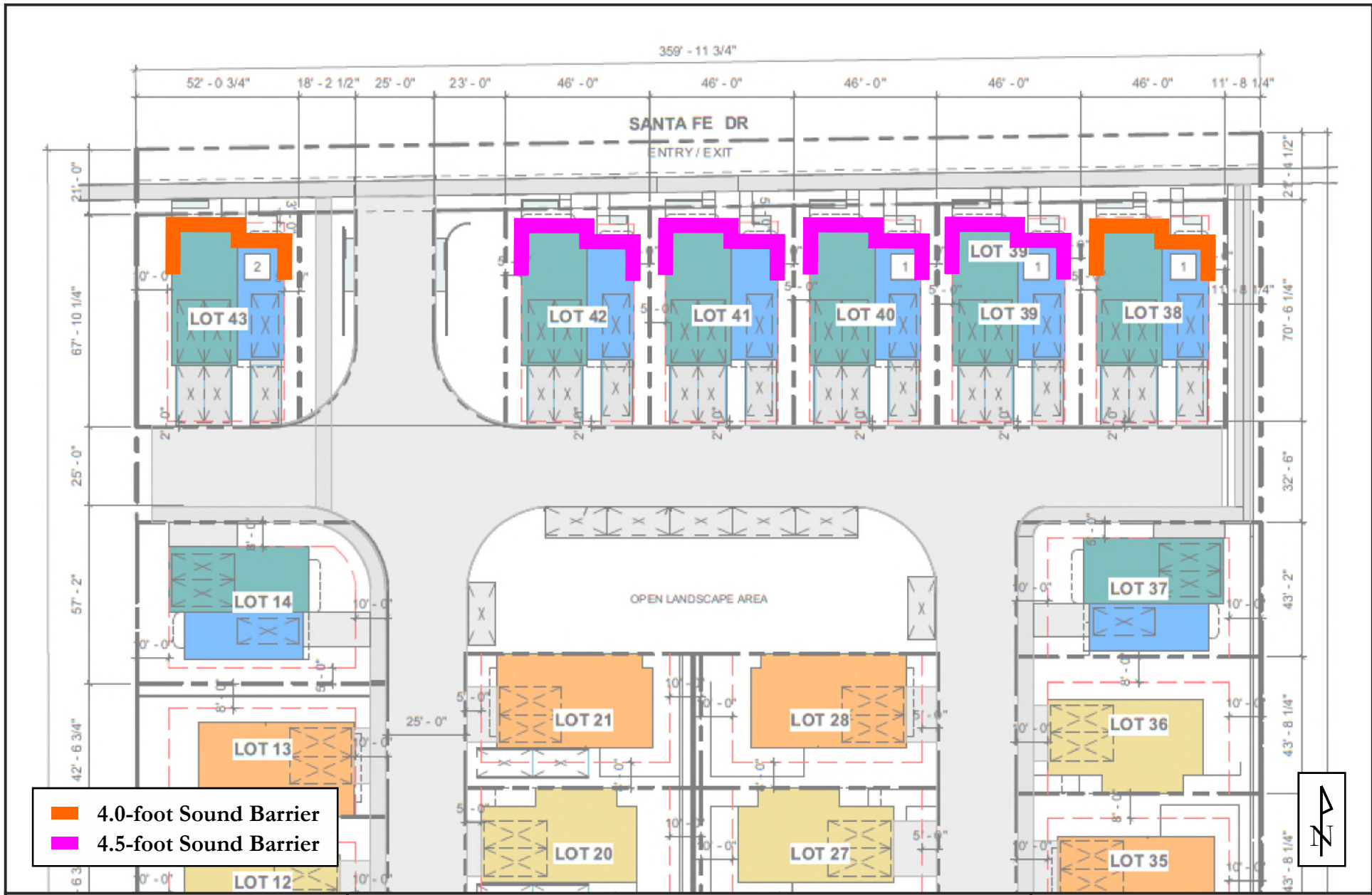
Figure 6



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Site Plan Showing Outdoor Use
 Receiver Locations
 Job # S200805.3

Figure 7

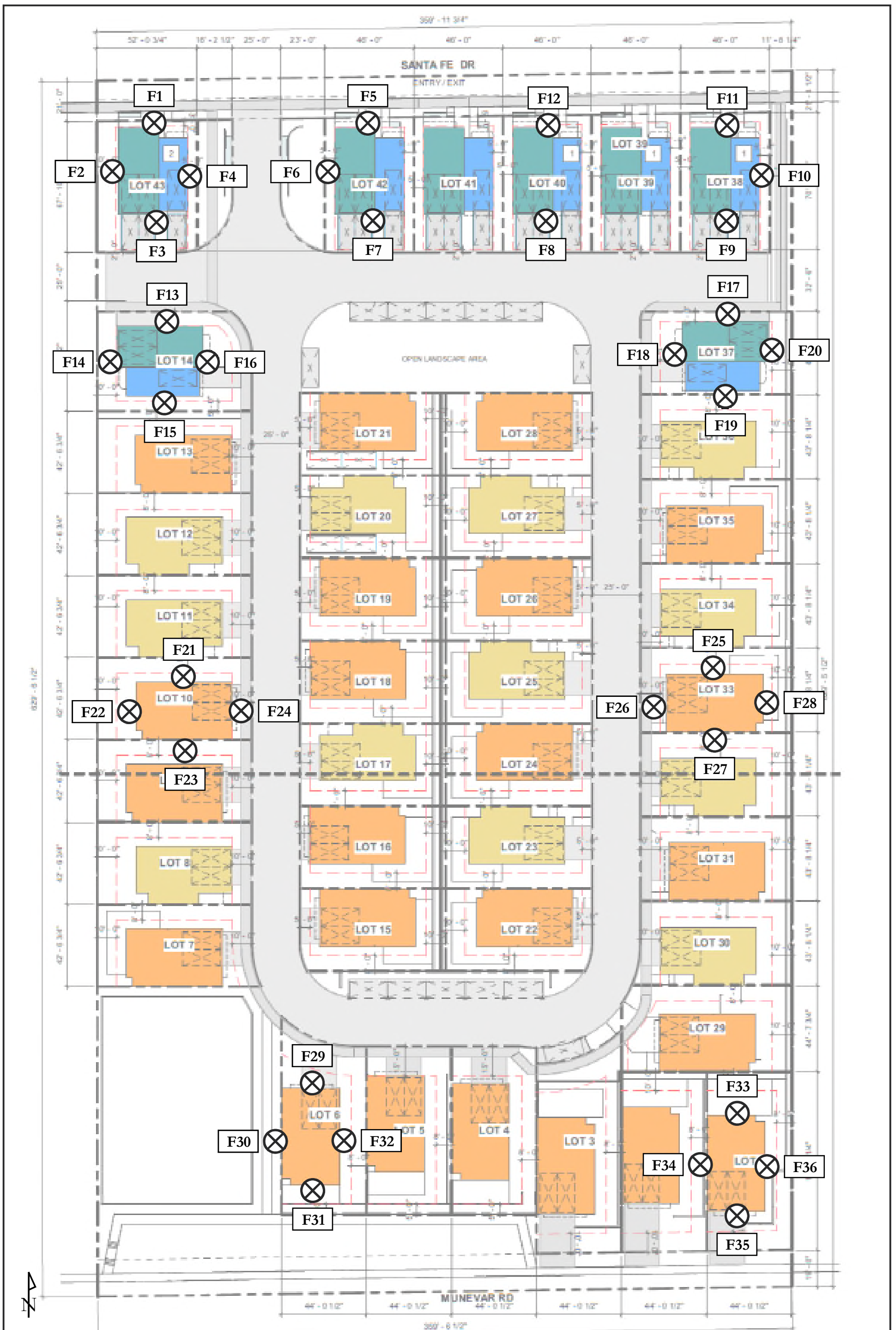


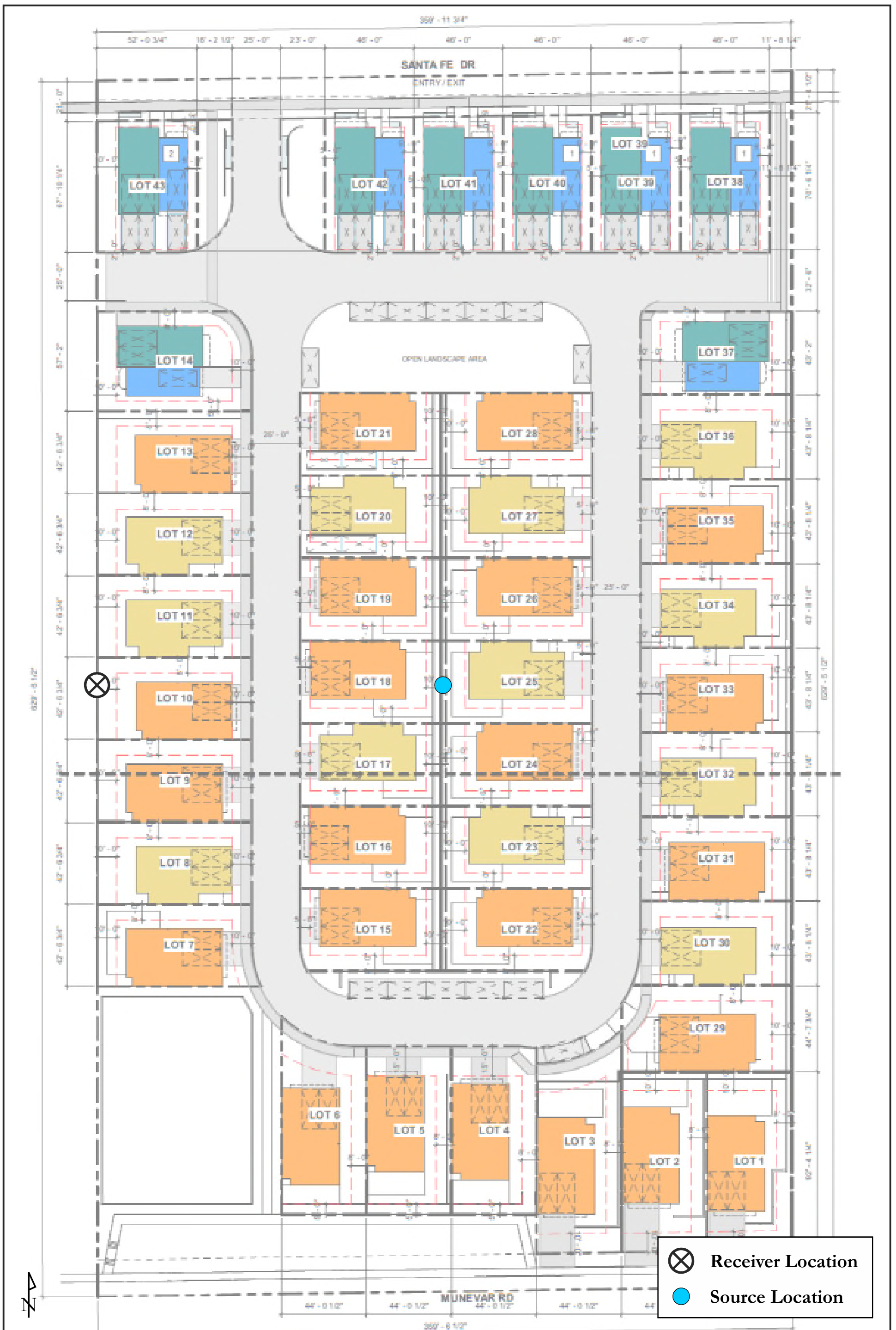
█ 4.0-foot Sound Barrier
█ 4.5-foot Sound Barrier



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Site Plan Showing Required Sound Barrier Locations
Job # S200805.3

Figure 8





 Receiver Location
 Source Location

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 760-738-5570

Site Plan Showing Construction Noise Source and Receiver Locations
 Job # S200805.3

Figure 10



Appendix A

Project Plans

1 LOT PLAN

1/32" = 1'-0"



LOT SCHEDULE

LOT ID	LOT TYPE	GROSS LOT SF	NET LOT AREA	UNIT COUNT	UNIT TYPE	UNIT SF (GROSS)	LOT COVERAGE	LOT COVERAGE %	LOT FAR	FAR %	PAD ELEVATION
1	SFR	4,082 SF	4,081.71	1	B	2,562 SF	1,348 SF	36%	2,030 SF	50%	239.0
2	SFR	4,110 SF	4,109.5	1	B	2,562 SF	1,348 SF	36%	2,030 SF	49%	238.0
3	SFR	4,551 SF	4,550.85	1	B	2,562 SF	1,348 SF	30%	2,030 SF	45%	235.0
4	SFR	3,827 SF	3,827.27	1	B	2,562 SF	1,348 SF	39%	2,030 SF	53%	238.0
5	SFR	3,832 SF	3,831.59	1	B	2,562 SF	1,379 SF	39%	2,113 SF	55%	235.0
6	SFR	4,014 SF	4,014.3	1	B	2,562 SF	1,379 SF	37%	2,113 SF	53%	233.5
7	SFR	3,437 SF	3,436.79	1	B	2,562 SF	1,379 SF	43%	2,113 SF	61%	232.0
8	SFR	3,404 SF	3,404.08	1	A	2,368 SF	1,431 SF	40%	1,934 SF	57%	233.0
9	SFR	3,405 SF	3,405.36	1	B	2,562 SF	1,348 SF	43%	2,030 SF	60%	233.0
10	SFR	3,407 SF	3,406.64	1	B	2,562 SF	1,431 SF	43%	1,934 SF	57%	234.0
11	SFR	3,408 SF	3,407.92	1	A	2,368 SF	1,431 SF	40%	1,934 SF	57%	234.5
12	SFR	3,409 SF	3,409.49	1	A	2,368 SF	1,431 SF	40%	1,934 SF	57%	234.8
13	SFR	3,411 SF	3,410.78	1	B	2,562 SF	1,431 SF	43%	1,934 SF	57%	235.3
14	DUPLEX	4,069 SF	4,069.2	2	E/F	2,899 SF	1,516 SF	37%			
15	SFR	3,209 SF	3,208.77	1	B	2,562 SF	1,348 SF	46%	2,030 SF	63%	233.5
16	SFR	3,226 SF	3,225.78	1	B	2,562 SF	1,348 SF	46%	2,030 SF	63%	234.0
17	SFR	3,226 SF	3,225.78	1	A	2,368 SF	1,431 SF	42%	1,934 SF	60%	234.5
18	SFR	3,226 SF	3,225.78	1	B	2,562 SF	1,348 SF	46%	2,030 SF	63%	235.0
19	SFR	3,226 SF	3,225.78	1	B	2,562 SF	1,355 SF	46%	1,934 SF	60%	235.5
20	SFR	3,226 SF	3,225.78	1	A	2,368 SF	1,348 SF	42%	2,030 SF	63%	236.0
21	SFR	3,226 SF	3,225.78	1	B	2,562 SF	1,348 SF	46%	2,030 SF	63%	237.0
22	SFR	3,229 SF	3,229.41	1	B	2,562 SF	1,314 SF	46%	1,917 SF	59%	243.0
23	SFR	3,247 SF	3,246.76	1	A	2,368 SF	1,355 SF	42%	2,054 SF	63%	243.5
24	SFR	3,247 SF	3,246.76	1	B	2,562 SF	1,314 SF	46%	1,917 SF	59%	244.0
25	SFR	3,247 SF	3,246.77	1	A	2,368 SF	1,355 SF	42%	2,054 SF	63%	244.5
26	SFR	3,247 SF	3,246.77	1	B	2,562 SF	1,314 SF	46%	1,917 SF	59%	245.0
27	SFR	3,247 SF	3,246.78	1	A	2,368 SF	1,355 SF	42%	2,054 SF	63%	245.5
28	SFR	3,247 SF	3,246.78	1	B	2,562 SF	1,314 SF	46%	1,917 SF	59%	246.0
29	SFR	3,907 SF	3,906.52	1	B	2,562 SF	1,379 SF	38%	2,113 SF	54%	243.5
30	SFR	3,455 SF	3,455.35	1	A	2,368 SF	1,379 SF	39%	2,113 SF	61%	243.5
31	SFR	3,424 SF	3,423.97	1	B	2,562 SF	1,314 SF	43%	1,917 SF	56%	244.0
32	SFR	3,424 SF	3,423.97	1	A	2,368 SF	1,355 SF	40%	2,054 SF	60%	244.5
33	SFR	3,424 SF	3,423.97	1	B	2,562 SF	1,314 SF	43%	1,917 SF	56%	245.0
34	SFR	3,424 SF	3,423.96	1	A	2,368 SF	1,355 SF	40%	2,054 SF	60%	245.5
35	SFR	3,424 SF	3,423.96	1	B	2,562 SF	1,314 SF	43%	1,917 SF	56%	246.0
36	SFR	3,424 SF	3,423.96	1	A	2,368 SF	1,355 SF	40%	2,054 SF	60%	246.5
37	SFR	3,380 SF	3,380.45	2	E/F	2,899 SF	1,516 SF	40%	2,113 SF	63%	247.0
38	DUPLEX	3,322 SF	3,322.17	2	C/D	2,899 SF	1,516 SF	46%			
39	DUPLEX	3,294 SF	3,293.73	2	C/D	2,899 SF	1,516 SF	46%			
40	DUPLEX	3,265 SF	3,265.28	2	C/D	2,899 SF	1,516 SF	46%			
41	DUPLEX	3,237 SF	3,236.83	2	C/D	2,899 SF	1,516 SF	47%			
42	DUPLEX	3,208 SF	3,207.63	2	C/D	2,899 SF	1,516 SF	47%			
43	DUPLEX	3,543 SF	3,542.67	2	C/D	2,899 SF	1,516 SF	43%	6,384 SF	180%	237.7
TOTALS: 43				51		110,534 SF	59,772 SF		78,643 SF		

PROJECT CALCULATIONS

LOT AREA CALCULATIONS	GROSS	GROSS AC	DU/AC	BASE DENSITY	DENSITY BONUS
LOT	226,446.63 SF	5.20 AC	8 DU/AC	41 UNITS	20.0%

AFFORDABILITY REQUIREMENTS	VERY LOW IN.	3 UNITS	1 INSENTIVES
	5.00%		

UNIT MATRIX	UNIT TYPE	PARKING RATIO	UNIT COUNT	BEDS	TOTAL BEDS	TYP. UNIT SIZE	UNIT TYPE SF	AVG. UNIT SIZE	MIX %	PARKING REQ.
RESIDENTIAL			51 UNITS							
UNIT A	DB-2-3 BED	2.0 / UNIT	12 UNITS	3	36	2,368	28416 SF	2167 SF	23.53%	24.0
UNIT B	DB-2-3 BED	2.0 / UNIT	23 UNITS	3	69	2,562	58926 SF	2167 SF	45.10%	46.0
UNIT C	DB-2-3 BED	2.0 / UNIT	6 UNITS	2	12	1,779	10674 SF	2167 SF	11.76%	12.0
UNIT D	DB-0-1 BED	1.0 / UNIT	6 UNITS	1	6	1,120	6720 SF	2167 SF	11.76%	6.0
UNIT E	DB-2-3 BED	2.0 / UNIT	2 UNITS	2	4	1,779	3558 SF	2167 SF	3.92%	4.0
UNIT F	DB-0-1 BED	1.0 / UNIT	2 UNITS	1	2	1,120	2240 SF	2167 SF	3.92%	2.0
Totals			51	129	110,534			2,167.33 SF	100.00%	94.0

UNIT TYPES

- UNIT TYPE A
- UNIT TYPE B
- UNIT TYPE C
- UNIT TYPE D
- UNIT TYPE E
- UNIT TYPE F

KEYNOTES

- 1 DENSITY BONUS - VERY LOW INCOME - AFFORDABLE UNITS
- 2 ADDITIONAL AFFORDABLE UNIT AS PART OF THE INCLUSIONARY HOUSING REQUIREMENTS

SANTA FE
PROJECT NO. 845
DRAWN BY: Designer
CHECKED BY: Checker
DATE: 07/28/23

REVISIONS:

THE BROWN STUDIO INC.
 1144-B N Coast Hwy 101
 Encinitas CA 92024
 619.577.4610 thebrownstudio.com

SANTA FE
MULTI-FAMILY
 845 SANTA FE DR, ENCINITAS CA 92024

PROJECT NO. SANTA FE 845

DRAWINGS PREPARED BY:
 LINDSAY BROWN

SHEET TITLE
 PROJECT DATA

SHEET NUMBER

G0.01x



Appendix B

Applicable Noise Regulations

Construction Modifications

If site planning, architectural layout, noise barriers, or a combination of these measures does not achieve the required noise reduction for the building, it will be necessary to modify the building's construction. Indoor noise levels from exterior sources are controlled by the noise reduction characteristics of the building shell. The walls, roof, ceilings, doors, windows and other penetrations are all determinants of the structure's overall noise reduction capabilities.

In general, windows and doors are the acoustical weak links in a building. Often all that is required is that the windows be sealed on the noisy side of the building and an alternative means of ventilating the building provided. Beyond this, thicker windows or double-glazed windows will be required. Doors should not be located on the side of the building facing a noise source. If they are, they should be solid-core doors and should be equipped with an appropriate acoustical door gasket. In cases in which more noise reduction is required, the ceiling/roof and/or the walls must be modified to provide the required noise reduction. The actual modifications will depend on the amount of noise reduction required.

Noise and Land Use Compatibility Guidelines

Community noise levels are generally presented in terms of CNEL (Community Noise Equivalent Level) or Ldn (Day-Night Noise Level). CNEL is the average equivalent A-weighted sound level during a 24-hour day. It is based on the premise that noise during the evening and night is more annoying than daytime noise. To calculate CNEL, 5 decibels are added to the sound levels in the evening (7 p.m. to 10 p.m.) and 10 decibels are added to the sound levels at night (10 p.m. to 7 a.m.). The A-weighted scale measures noise levels that correspond to the human hearing range.

Ldn is identical to CNEL except no weighting is added to the evening period. CNEL and Ldn noise levels usually agree within one decibel for the same noise. For all practical purposes, CNEL and Ldn can therefore be considered synonymous.

Figure 2 (page N-17), the Noise and Land Use Compatibility Guidelines, is a chart showing the limits of acceptable noise in Ldn for various types of Land uses.

The objective of Figure 2 is to provide an acceptable community noise environment and to minimize noise-related complaints from residents. The compatibility guidelines should be used in conjunction with the future noise

exposure levels in Figure 1 to identify projects or activities which may require special treatment to minimize noise exposure. Homes should not be allowed near a freeway, for example, unless mitigation measures can effectively reduce noise exposure to acceptable levels.

A land use or project in the "normally acceptable" category will be acceptable within the noise levels indicated, in most cases, without special noise abatement measures. For example, a home of standard construction would be an acceptable use in any area of 60 Ldn or less without special insulation, setback, or building design. The same home in an area projected for noise levels of 60 to 70 Ldn should be allowed only following an acoustical study which recommends site-specific noise attenuation measures such as double pane windows, setbacks, and/or construction of soundwalls.

The following considerations should be taken into account when using the Noise and Land Use Compatibility Guidelines:

The goal for maximum outdoor noise levels in residential areas is an Ldn of 60 dB. This level is a requirement to guide the design and location of future development and a goal for the reduction of noise in existing development. However, 60 Ldn is a goal which cannot necessarily be reached in all residential areas within the realm of economic or aesthetic feasibility. This goal should be applied where outdoor use is a major consideration (eg., backyards in single-family housing projects). The outdoor standards should not normally be applied to the small decks associated with apartments and condominiums because of the lack of use of these decks even in quiet areas. A multi-family development can often be designed in such a way that the buildings shield common outdoor areas and achieve an acceptable outdoor noise level without the use of soundwalls. For this reason, multi-family housing can often be developed more successfully in noise environments in which the Ldn exceeds 60 dB.

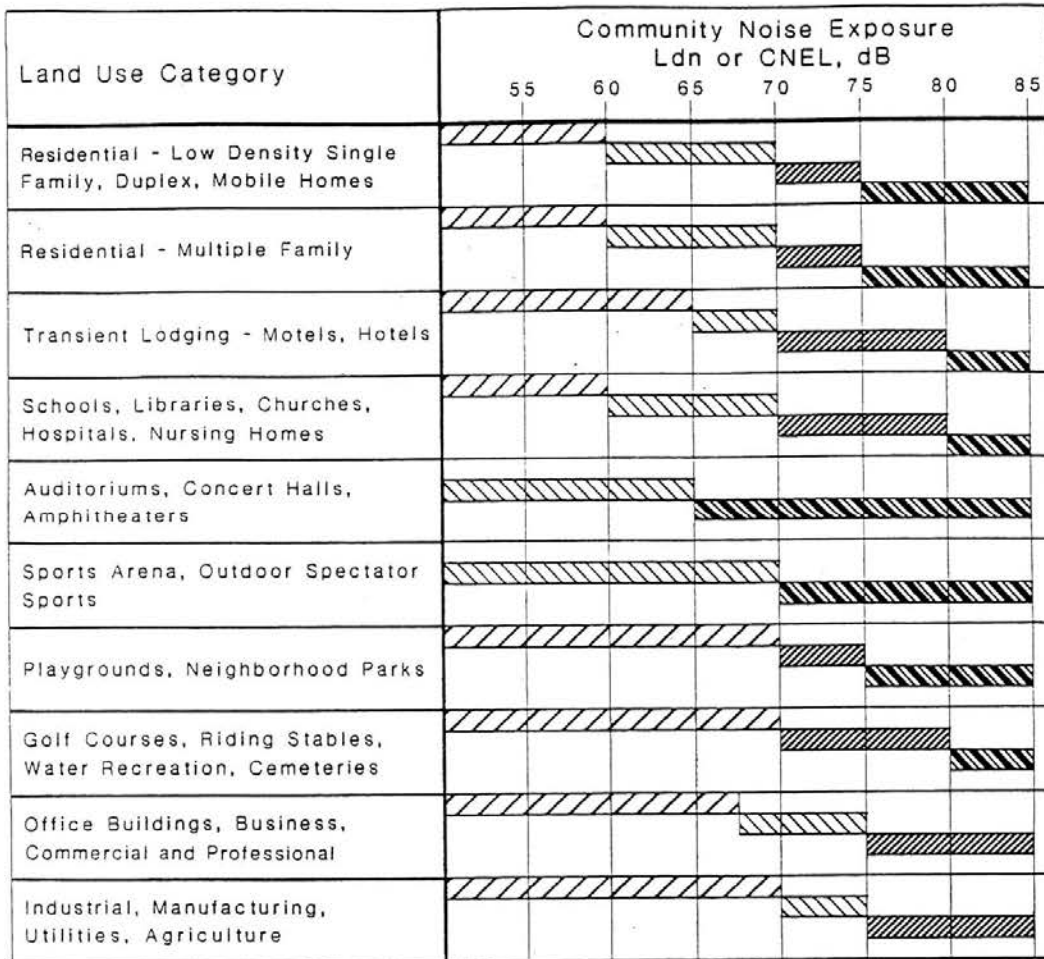
The indoor noise level as required by the State of California Noise Insulation Standards must not exceed an Ldn of 45 dB in multi-family dwellings. This indoor criterion should also be the maximum acceptable indoor noise level in single-family homes.

If the noise source is aircraft or helicopters, people are generally annoyed at a lower average sound level than for surface transportation sources. Recent studies have

shown that aircraft noise at a given Ldn is more annoying than traffic noise at the same Ldn. Residential developments should be strongly discouraged where the exterior Ldn exceeds 55 dB due to aircraft. If residential uses are allowed in areas in which the Ldn exceeds 55 dB, then interior noise levels should be controlled so that maximum instantaneous noise levels do not exceed 50 dB in bedrooms or 55 dB in other rooms. Residential construction should not be allowed in areas where the Ldn exceeds 65 dB from aircraft.

Appropriate interior noise levels in commercial, industrial, and office buildings are a function of the use of space. For example, the noise level in private offices should generally be quieter than for data processing rooms. Interior noise levels in offices generally should be maintained at 45 dB or less. Acoustical designs to achieve this level should be demonstrated by the project sponsor in sufficient detail to satisfy City staff and OSHA requirements.

The guidelines are not intended to be applied reciprocally. In other words, if an area currently is below the desired noise standard, an increase in noise up to the maximum should not necessarily be allowed. The impact of a proposed project on an existing land use should be evaluated in terms of the potential for adverse community response, based on a significant increase in existing noise levels, regardless of the compatibility guidelines (see Policy 1.1).




 Normally Acceptable

Specified Land Use is Satisfactory, Based Upon the Assumption that Any Buildings Involved are of Normal Conventional Construction, Without Any Special Noise Insulation Requirements.

 Conditionally Acceptable

New Construction or Development Should be Undertaken Only After a Detailed Analysis of the Noise Reduction Requirement is Made and Needed Noise Insulation Features Included in the Design. Conventional Construction, but with Closed Windows and Fresh Air Supply Systems or Air Conditioning, Will Normally Suffice.

 Normally Unacceptable

New Construction or Development Should Generally be Discouraged. If New Construction or Development Does Proceed, a Detailed Analysis of the Noise Reduction Requirements Must be Made and Needed Noise Insulation Features Included in the Design.

 Clearly Unacceptable

New Construction or Development Should Generally not be Undertaken.

SOURCE: Cotton/Beland/Associates Modified From U.S. Department of Housing and Urban Development and State of California Guidelines.



Figure 2
State of California Noise and Land Use
Compatibility Guidelines

9.32.407 Solid Waste Management Vehicles & Parking Lot Cleaning Devices.

A. Solid Waste Management Vehicles. No person shall operate, or permit to be operated, a refuse compacting, processing, or collection vehicle between the hours of 10 p.m. to 6 a.m. in or adjacent to any residential zone unless a variance has been applied for and granted pursuant to this Chapter.

B. Parking Lot and Sidewalk Cleaning Devices.

1. No person shall operate, or permit to be operated, an engine-powered parking lot or sidewalk sweeper or blower or high pressure cleaning devices between the hours of 8 p.m. to 7 a.m. in or adjacent to any residential zone unless a variance has been applied for and granted pursuant to this Chapter; and

2. No person shall operate, or permit to be operated, an engine-powered parking lot and sidewalk sweeper or blower or high pressure cleaning devices on a Sunday or on a Federal holiday in or adjacent to any residential zone unless a variance has been applied for and granted pursuant to this Chapter.

9.32.408 Watercraft. Violations for excessive noise of watercraft operating in waters under the jurisdiction of the City shall be prosecuted under applicable provisions of the California Harbors and Navigation Code.

9.32.409 Airports. All noise emanating from airport activities other than that produced by aircraft shall be subject to all of the regulations contained in this Chapter.

9.32.410 Construction Equipment. Except for emergency work, it shall be unlawful for any person, including the City, to operate construction equipment at any construction site, except as outlined in subsections A and B below:

A. It shall be unlawful for any person, including the City, to operate construction equipment at any construction site on Sundays, and days appointed by the President, Governor or the City Council for a public fast, thanksgiving or holiday. Notwithstanding the above, a person may operate construction equipment on the above-specified days between the hours of 10 a.m. and 5 p.m. in compliance with the requirements of subsection B of

this Section at his residence or for the purpose of constructing a residence for himself, provided such operation of construction equipment is not carried on for profit or livelihood. In addition, it shall be unlawful for any person to operate construction equipment at any construction site on Mondays through Saturdays except between the hours of 7 a.m. and 7 p.m.

B. No such equipment, or combination of equipment regardless of age or date of acquisition, shall be operated so as to cause noise at a level in excess of seventy-five (75) decibels for more than 8 hours during any twenty-four (24) hour period when measured at or within the property lines of any property which is developed and used either in part or in whole for residential purposes.

In the event that lower noise limit standards are established for construction equipment pursuant to State or Federal law, said lower limits shall be used as a basis for revising and amending the noise level limits specified in this subsection.

9.32.411 Containers and Construction Material. It shall be unlawful for any person to handle or transport or cause to be handled or transported in any public place, any container or any construction material in such a way as to create a disturbing, excessive, or offensive noise.

9.32.412 Signal Device for Food Trucks. No person shall operate or cause to have operated or used any sound signal device other than sound-amplification equipment attached to a motor vehicle wagon or manually propelled cart from which food or any other items are sold which emits a sound signal more frequently than once every ten minutes in any one street block and with a duration of more than ten seconds for any single emission. The sound level of this sound signal shall not exceed ninety (90) decibels at fifty (50) feet.

9.32.413 Multiple Family Dwelling Units. See Section 30.40.010A for allowable interior noise levels for multiple family dwelling units.

9.32.414 General Noise Regulations

A. General Prohibitions. In the absence of objective measurement by use of a sound level meter, additionally it shall be unlawful for any person to make, continue, or cause to be made or continued, within the limits of the City, any disturbing, excessive or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity residing in the area.

Section 1206 Sound Transmission

1206.1 Scope

This section shall apply to common interior walls, partitions and floor/ceiling assemblies between adjacent *dwelling units* and *sleeping units* or between *dwelling units* and *sleeping units* and adjacent public areas such as halls, *corridors*, *stairways* or *service areas*.

1206.2 Airborne sound

Walls, partitions and floor-ceiling assemblies separating *dwelling units* and *sleeping units* from each other or from public or service areas shall have a sound transmission class of not less than 50, or not less than 45 if field tested, for airborne noise where tested in accordance with ASTM E90. Alternatively, the sound transmission class of walls, partitions and floor-ceiling assemblies shall be established by engineering analysis based on a comparison of walls, partitions and floor-ceiling assemblies having sound transmission class ratings as determined by the test procedures set forth in ASTM E90. Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings. This requirement shall not apply to entrance doors; however, such doors shall be tight fitting to the frame and sill.

1206.2.1 Masonry

The sound transmission class of concrete masonry and clay masonry assemblies shall be calculated in accordance with TMS 0302 or determined through testing in accordance with ASTM E90.

1206.3 Structure-borne sound

Floor-ceiling assemblies between *dwelling units* and *sleeping units* or between a *dwelling unit* or *sleeping unit* and a public or service area within the structure shall have an impact insulation class rating of not less than 50, or not less than 45 if field tested, where tested in accordance with ASTM E492. Alternatively, the impact insulation class of floor-ceiling assemblies shall be established by engineering analysis based on a comparison of floor-ceiling assemblies having impact insulation class ratings as determined by the test procedures in ASTM E492.

Exception: Impact sound insulation is not required for floor-ceiling assemblies over nonhabitable rooms or spaces not designed to be occupied, such as garages, mechanical rooms or storage areas.

1206.4 Allowable interior noise levels

Interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be either the day-night average sound level (Ldn) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan.

1206.5 Acoustical control

[BSC-CG] See *California Green Building Standards Code*, Chapter 5, Division 5.5 for additional sound transmission requirements.



Appendix C

CadnaA Analysis Data and Results

S200805 Santa Fe Multi-Family - Calibration

Eilar Associates, Inc.

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

Date: 20 Sep 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 Rcvr - 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	0.30
Wind Speed for Dir. #(Unit,SPEED)	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
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				67.9	-61.7	65.9	0.0				13.12	r	881.81	897.97	13.12

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)	(%)
Santa Fe EB				60.6	0.0	0.0			404.0	0.0	0.0	2.0	0.0	0.0	35		w3.05	0.0	1	0.0	0.0			
Santa Fe WB				60.6	0.0	0.0			404.0	0.0	0.0	2.0	0.0	0.0	35		w3.05	0.0	1	0.0	0.0			

Geometry - Roads

Name	Height		Coordinates				Dist (ft)	LSlope (%)
	Begin (ft)	End (ft)	x (ft)	y (ft)	z (ft)	Ground (ft)		
Santa Fe EB	0.00	r	58.56	921.80	0.00	0.00		
			653.53	925.27	0.00	0.00		
			834.93	927.88	0.00	0.00		
			1026.74	929.61	0.00	0.00		
			1342.25	931.33	0.00	0.00		
			1450.74	933.29	0.00	0.00		
			1788.92	930.28	0.00	0.00		
Santa Fe WB	0.00	r	1793.61	949.65	0.00	0.00		
			1345.14	954.81	0.00	0.00		
			1293.82	952.75	0.00	0.00		
			1027.56	950.34	0.00	0.00		
			648.32	945.51	0.00	0.00		
			397.07	943.60	0.00	0.00		
			58.82	941.88	0.00	0.00		

S200805 Santa Fe Multi-Family - Current (Worst-Case)

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

Date: 20 Sep 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 Rcvr - 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	0.30
Wind Speed for Dir. #(Unit,SPEED)	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
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)
Santa Fe EB				62.9	0.0	0.0			690.0	0.0	0.0	2.0	0.0	0.0	35		w3.05	0.0	1	0.0	0.0		
Santa Fe WB				62.9	0.0	0.0			690.0	0.0	0.0	2.0	0.0	0.0	35		w3.05	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height		Coordinates				Dist (ft)	LSlope (%)
	Begin (ft)	End (ft)	x (ft)	y (ft)	z (ft)	Ground (ft)		
Santa Fe EB	0.00	r		58.56	921.80	0.00	0.00	
				653.53	925.27	0.00	0.00	
				834.93	927.88	0.00	0.00	
				1026.74	929.61	0.00	0.00	
				1342.25	931.33	0.00	0.00	
				1450.74	933.29	0.00	0.00	
				1788.92	930.28	0.00	0.00	
Santa Fe WB	0.00	r		1793.61	949.65	0.00	0.00	
				1345.14	954.81	0.00	0.00	
				1293.82	952.75	0.00	0.00	
				1027.56	950.34	0.00	0.00	
				648.32	945.51	0.00	0.00	
				397.07	943.60	0.00	0.00	
				58.82	941.88	0.00	0.00	

S200805 Santa Fe Multi-Family - Future

Eilar Associates, Inc.

210 South Juniper Street, Suite 100

Escondido, California 92025-4230

Phone: (760) 738-5570

Date: 20 Sep 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 Rcvr - 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	0.30
Wind Speed for Dir. #(Unit,SPEED)	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
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)							(%)	(%)
Santa Fe EB				61.2	0.0	0.0			460.0	0.0	0.0	2.0	0.0	0.0	35		w3.05	0.0	1	0.0	0.0			
Santa Fe WB				61.2	0.0	0.0			460.0	0.0	0.0	2.0	0.0	0.0	35		w3.05	0.0	1	0.0	0.0			

Geometry - Roads

Name	Height		Coordinates				Dist (ft)	LSlope (%)
	Begin (ft)	End (ft)	x (ft)	y (ft)	z (ft)	Ground (ft)		
Santa Fe EB	0.00	r	58.56	921.80	0.00	0.00		
			653.53	925.27	0.00	0.00		
			834.93	927.88	0.00	0.00		
			1026.74	929.61	0.00	0.00		
			1342.25	931.33	0.00	0.00		
			1450.74	933.29	0.00	0.00		
			1788.92	930.28	0.00	0.00		
Santa Fe WB	0.00	r	1793.61	949.65	0.00	0.00		
			1345.14	954.81	0.00	0.00		
			1293.82	952.75	0.00	0.00		
			1027.56	950.34	0.00	0.00		
			648.32	945.51	0.00	0.00		
			397.07	943.60	0.00	0.00		
			58.82	941.88	0.00	0.00		

S200805 Santa Fe Multi-Family - Outdoor Use

Eilar Associates, Inc.

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

Date: 20 Sep 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 Rcvr - 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	0.30
Wind Speed for Dir. #(Unit,SPEED)	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receivers

Name	Sel.	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
				Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)
OU1				56.7	-72.9	60.0	0.0				3.50	r	821.45	772.99	3.50
OU2				55.2	-73.9	60.0	0.0				3.50	r	869.67	771.99	3.50
OU3				65.5	-66.2	60.0	0.0				3.50	g	1002.85	877.13	23.50
OU4				66.8	-65.0	60.0	0.0				3.50	g	984.25	882.45	23.50
OU5				64.6	-66.8	60.0	0.0				3.50	g	956.61	877.40	23.50
OU6				68.4	-63.4	60.0	0.0				3.50	g	937.21	884.31	23.50
OU7				66.3	-65.3	60.0	0.0				3.50	g	910.63	878.99	23.50
OU8				68.5	-63.2	60.0	0.0				3.50	g	892.02	885.37	23.50
OU9				64.4	-67.0	60.0	0.0				3.50	g	864.38	877.40	23.50
OU10				67.0	-64.7	60.0	0.0				3.50	g	846.05	883.51	23.50
OU11				66.6	-65.0	60.0	0.0				3.50	g	818.67	879.26	23.50
OU12				68.5	-63.2	60.0	0.0				3.50	g	800.33	884.57	23.50
OU13				67.2	-64.4	60.0	0.0				3.50	g	707.85	878.73	23.50
OU14				67.9	-63.8	60.0	0.0				3.50	g	688.44	884.57	23.50
OU15				59.4	-71.8	60.0	0.0				3.50	g	692.73	777.20	23.50
OU16				55.3	-74.4	60.0	0.0				3.50	g	690.84	759.40	23.50
OU17				60.0	-71.3	60.0	0.0				3.50	g	996.67	780.19	23.50
OU18				58.6	-72.2	60.0	0.0				3.50	g	1000.99	761.52	23.50
OU19				50.4	-76.8	60.0	0.0				3.50	g	706.51	545.37	23.50
OU20				47.7	-78.0	60.0	0.0				3.50	g	776.54	368.18	23.50
OU21				51.0	-76.8	60.0	0.0				3.50	g	995.92	351.30	23.50
OU22				53.6	-75.5	60.0	0.0				3.50	g	989.17	549.59	23.50

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)	(%)
Santa Fe EB				62.9	0.0	0.0			690.0	0.0	0.0	2.0	0.0	0.0	35		w3.05	0.0	1	0.0	0.0			
Santa Fe WB				62.9	0.0	0.0			690.0	0.0	0.0	2.0	0.0	0.0	35		w3.05	0.0	1	0.0	0.0			

Geometry - Roads

Name	Height		Coordinates				Dist (ft)	LSlope (%)
	Begin (ft)	End (ft)	x (ft)	y (ft)	z (ft)	Ground (ft)		
Santa Fe EB	0.00	r	58.56	921.80	0.00	0.00		
			653.53	925.27	0.00	0.00		
			834.93	927.88	0.00	0.00		
			1026.74	929.61	0.00	0.00		
			1342.25	931.33	0.00	0.00		
			1450.74	933.29	0.00	0.00		
			1788.92	930.28	0.00	0.00		
Santa Fe WB	0.00	r	1793.61	949.65	0.00	0.00		
			1345.14	954.81	0.00	0.00		
			1293.82	952.75	0.00	0.00		
			1027.56	950.34	0.00	0.00		
			648.32	945.51	0.00	0.00		
			397.07	943.60	0.00	0.00		
			58.82	941.88	0.00	0.00		

Buildings

Name	Sel.	M.	ID	RB	Residents	Absorption	Height Begin (ft)
1					0		20.00 r
2					0		20.00 r
3					0		20.00 r
4					0		20.00 r
5					0		20.00 r
6					0		20.00 r
7					0		20.00 r
8					0		20.00 r
9					0		20.00 r
10					0		20.00 r
11					0		20.00 r
12					0		20.00 r
13					0		20.00 r
14					0		20.00 r
15					0		20.00 r
16					0		20.00 r
17					0		20.00 r
20					0		20.00 r
18					0		20.00 r
19					0		20.00 r
21					0		20.00 r
22					0		20.00 r
23					0		20.00 r
24					0		20.00 r
25					0		20.00 r
26					0		20.00 r
27					0		20.00 r
28					0		20.00 r
29					0		20.00 r
30					0		20.00 r
31					0		20.00 r
32					0		20.00 r
33					0		20.00 r
34					0		20.00 r
35					0		20.00 r
36					0		20.00 r
37					0		20.00 r
38					0		20.00 r
39					0		20.00 r
40					0		20.00 r
41					0		20.00 r
42					0		20.00 r
43					0		20.00 r
offsite building					0		24.00 r

Geometry - Buildings

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
								Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)	(ft)	
1					0		20.00	r	982.76	379.46	20.00	0.00
									982.76	329.97	20.00	0.00
									1013.08	329.97	20.00	0.00
									1013.08	379.46	20.00	0.00
2					0		20.00	r	938.77	383.57	20.00	0.00
									938.77	334.08	20.00	0.00
									969.08	334.08	20.00	0.00
									969.08	383.57	20.00	0.00
3					0		20.00	r	894.78	377.77	20.00	0.00
									894.78	328.28	20.00	0.00
									925.09	328.28	20.00	0.00
									925.09	377.77	20.00	0.00
4					0		20.00	r	850.79	395.78	20.00	0.00
									850.79	346.28	20.00	0.00
									881.10	346.29	20.00	0.00
									881.10	395.78	20.00	0.00
5					0		20.00	r	806.68	399.77	20.00	0.00
									806.68	350.27	20.00	0.00
									836.99	350.27	20.00	0.00
									836.99	399.76	20.00	0.00
6					0		20.00	r	762.57	393.24	20.00	0.00
									762.57	343.75	20.00	0.00
									792.88	343.75	20.00	0.00
									792.88	393.24	20.00	0.00
7					0		20.00	r	682.40	476.23	20.00	0.00
									732.74	476.23	20.00	0.00
									732.74	446.50	20.00	0.00
									682.40	446.50	20.00	0.00
8					0		20.00	r	687.33	518.68	20.00	0.00
									737.66	518.68	20.00	0.00
									737.61	495.06	20.00	0.00
									720.08	495.08	20.00	0.00
									720.08	488.99	20.00	0.00
									694.02	488.93	20.00	0.00
									694.04	495.13	20.00	0.00
									687.30	495.14	20.00	0.00
9					0		20.00	r	682.28	561.19	20.00	0.00
									732.62	561.19	20.00	0.00
									732.62	531.46	20.00	0.00
									682.28	531.46	20.00	0.00
10					0		20.00	r	687.36	603.61	20.00	0.00
									737.70	603.61	20.00	0.00
									737.70	573.88	20.00	0.00
									687.36	573.88	20.00	0.00

S200805 Santa Fe Multi-Family - Outdoor Use

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
								Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)		
11					0		20.00	r	682.74	646.06	20.00	0.00
									733.07	646.06	20.00	0.00
									733.01	622.45	20.00	0.00
									715.49	622.47	20.00	0.00
									715.49	616.38	20.00	0.00
									689.42	616.31	20.00	0.00
									689.45	622.52	20.00	0.00
									682.71	622.52	20.00	0.00
12					0		20.00	r	682.49	688.60	20.00	0.00
									732.83	688.60	20.00	0.00
									732.77	664.99	20.00	0.00
									715.24	665.01	20.00	0.00
									715.25	658.92	20.00	0.00
									689.18	658.86	20.00	0.00
									689.20	665.06	20.00	0.00
									682.47	665.07	20.00	0.00
13					0		20.00	r	686.60	731.39	20.00	0.00
									736.94	731.39	20.00	0.00
									736.94	701.66	20.00	0.00
									686.60	701.66	20.00	0.00
14					0		20.00	r	722.28	788.15	20.00	0.00
									677.41	787.82	20.00	0.00
									677.24	767.06	20.00	0.00
									682.43	766.72	20.00	0.00
									682.77	751.82	20.00	0.00
									720.27	751.82	20.00	0.00
									720.27	766.56	20.00	0.00
									722.28	766.56	20.00	0.00
15					0		20.00	r	782.24	496.67	20.00	0.00
									832.58	496.67	20.00	0.00
									832.58	466.94	20.00	0.00
									782.24	466.94	20.00	0.00
16					0		20.00	r	776.77	539.64	20.00	0.00
									827.11	539.64	20.00	0.00
									827.11	509.91	20.00	0.00
									776.77	509.91	20.00	0.00
17					0		20.00	r	799.73	576.37	20.00	0.00
									799.76	581.71	20.00	0.00
									826.19	581.78	20.00	0.00
									826.17	576.19	20.00	0.00
									833.05	576.19	20.00	0.00
									833.06	552.02	20.00	0.00
									782.72	552.02	20.00	0.00
									782.72	576.36	20.00	0.00
20					0		20.00	r	794.25	704.29	20.00	0.00
									794.28	709.62	20.00	0.00

S200805 Santa Fe Multi-Family - Outdoor Use

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates			
								Begin	x	y	z
							(ft)	(ft)	(ft)	(ft)	
							820.71	709.69	20.00	0.00	
							820.69	704.10	20.00	0.00	
							827.57	704.10	20.00	0.00	
							827.57	679.93	20.00	0.00	
							777.23	679.93	20.00	0.00	
							777.23	704.27	20.00	0.00	
18					0	20.00	r 777.25	624.92	20.00	0.00	
							827.59	624.92	20.00	0.00	
							827.59	595.19	20.00	0.00	
							777.25	595.19	20.00	0.00	
19					0	20.00	r 782.62	667.60	20.00	0.00	
							832.96	667.60	20.00	0.00	
							832.96	637.87	20.00	0.00	
							782.62	637.87	20.00	0.00	
21					0	20.00	r 782.34	753.07	20.00	0.00	
							832.67	753.07	20.00	0.00	
							832.67	723.34	20.00	0.00	
							782.33	723.34	20.00	0.00	
22					0	20.00	r 864.08	496.09	20.00	0.00	
							914.42	496.09	20.00	0.00	
							914.42	466.36	20.00	0.00	
							864.08	466.36	20.00	0.00	
23					0	20.00	r 866.76	533.50	20.00	0.00	
							866.72	539.38	20.00	0.00	
							892.86	539.38	20.00	0.00	
							892.88	533.69	20.00	0.00	
							910.46	533.72	20.00	0.00	
							910.43	509.62	20.00	0.00	
							860.09	509.62	20.00	0.00	
							859.96	533.48	20.00	0.00	
24					0	20.00	r 863.48	581.90	20.00	0.00	
							913.81	581.90	20.00	0.00	
							913.81	552.17	20.00	0.00	
							863.47	552.17	20.00	0.00	
25					0	20.00	r 866.28	618.58	20.00	0.00	
							866.24	624.46	20.00	0.00	
							892.38	624.46	20.00	0.00	
							892.39	618.77	20.00	0.00	
							909.98	618.80	20.00	0.00	
							909.95	594.70	20.00	0.00	
							859.61	594.70	20.00	0.00	
							859.47	618.56	20.00	0.00	
26					0	20.00	r 863.60	667.58	20.00	0.00	
							913.94	667.58	20.00	0.00	
							913.94	637.85	20.00	0.00	
							863.60	637.85	20.00	0.00	

S200805 Santa Fe Multi-Family - Outdoor Use

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
								Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)		
27					0		20.00	r	866.04	704.39	20.00	0.00
									866.00	710.27	20.00	0.00
									892.14	710.27	20.00	0.00
									892.15	704.59	20.00	0.00
									909.74	704.62	20.00	0.00
									909.71	680.51	20.00	0.00
									859.37	680.52	20.00	0.00
									859.23	704.38	20.00	0.00
28					0		20.00	r	863.48	752.91	20.00	0.00
									913.81	752.91	20.00	0.00
									913.81	723.18	20.00	0.00
									863.47	723.18	20.00	0.00
29					0		20.00	r	957.95	432.32	20.00	0.00
									1008.29	432.32	20.00	0.00
									1008.29	402.59	20.00	0.00
									957.95	402.59	20.00	0.00
30					0		20.00	r	959.49	475.89	20.00	0.00
									1009.83	475.89	20.00	0.00
									1009.77	452.28	20.00	0.00
									1002.52	452.23	20.00	0.00
									1002.52	445.84	20.00	0.00
									976.40	445.90	20.00	0.00
									976.36	452.35	20.00	0.00
									959.47	452.35	20.00	0.00
31					0		20.00	r	963.51	520.54	20.00	0.00
									1013.85	520.54	20.00	0.00
									1013.85	490.81	20.00	0.00
									963.51	490.81	20.00	0.00
32					0		20.00	r	959.01	563.39	20.00	0.00
									1009.35	563.39	20.00	0.00
									1009.29	539.78	20.00	0.00
									1002.03	539.74	20.00	0.00
									1002.04	533.35	20.00	0.00
									975.91	533.40	20.00	0.00
									975.87	539.85	20.00	0.00
									958.98	539.85	20.00	0.00
33					0		20.00	r	962.31	608.29	20.00	0.00
									1012.64	608.29	20.00	0.00
									1012.64	578.56	20.00	0.00
									962.30	578.56	20.00	0.00
34					0		20.00	r	958.77	650.90	20.00	0.00
									1009.10	650.90	20.00	0.00
									1009.05	627.28	20.00	0.00
									1001.79	627.24	20.00	0.00
									1001.80	620.85	20.00	0.00
									975.67	620.90	20.00	0.00

S200805 Santa Fe Multi-Family - Outdoor Use

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates			
								x	y	z	Ground
							Begin				
							(ft)	(ft)	(ft)	(ft)	
								975.63	627.35	20.00	0.00
								958.74	627.36	20.00	0.00
35					0		20.00 r	961.82	695.30	20.00	0.00
								1012.16	695.30	20.00	0.00
								1012.16	665.57	20.00	0.00
								961.82	665.57	20.00	0.00
36					0		20.00 r	959.01	738.40	20.00	0.00
								1009.35	738.40	20.00	0.00
								1009.29	714.79	20.00	0.00
								1002.03	714.74	20.00	0.00
								1002.04	708.35	20.00	0.00
								975.91	708.41	20.00	0.00
								975.87	714.86	20.00	0.00
								958.98	714.86	20.00	0.00
37					0		20.00 r	970.20	790.82	20.00	0.00
								969.94	769.56	20.00	0.00
								972.20	769.56	20.00	0.00
								972.06	754.41	20.00	0.00
								1010.53	754.41	20.00	0.00
								1010.40	769.36	20.00	0.00
								1015.05	769.62	20.00	0.00
								1015.12	790.62	20.00	0.00
38					0		20.00 r	974.15	890.60	20.00	0.00
								995.14	890.60	20.00	0.00
								995.35	885.33	20.00	0.00
								1010.33	885.65	20.00	0.00
								1010.22	847.57	20.00	0.00
								995.35	847.68	20.00	0.00
								995.35	845.67	20.00	0.00
								974.15	845.67	20.00	0.00
39					0		20.00 r	927.96	890.71	20.00	0.00
								948.95	890.71	20.00	0.00
								949.16	885.44	20.00	0.00
								964.13	885.75	20.00	0.00
								964.03	847.68	20.00	0.00
								949.16	847.78	20.00	0.00
								949.16	845.78	20.00	0.00
								927.96	845.78	20.00	0.00
40					0		20.00 r	882.60	890.81	20.00	0.00
								903.59	890.81	20.00	0.00
								903.80	885.54	20.00	0.00
								918.78	885.86	20.00	0.00
								918.68	847.78	20.00	0.00
								903.80	847.89	20.00	0.00
								903.80	845.88	20.00	0.00
								882.60	845.88	20.00	0.00

S200805 Santa Fe Multi-Family - Outdoor Use

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
								Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)		
41					0		20.00	r	836.30	890.71	20.00	0.00
									857.29	890.71	20.00	0.00
									857.50	885.44	20.00	0.00
									872.48	885.75	20.00	0.00
									872.37	847.68	20.00	0.00
									857.50	847.78	20.00	0.00
									857.50	845.78	20.00	0.00
									836.30	845.78	20.00	0.00
42					0		20.00	r	790.32	890.71	20.00	0.00
									811.31	890.71	20.00	0.00
									811.52	885.44	20.00	0.00
									826.49	885.75	20.00	0.00
									826.39	847.68	20.00	0.00
									811.52	847.78	20.00	0.00
									811.52	845.78	20.00	0.00
									790.32	845.78	20.00	0.00
43					0		20.00	r	678.62	890.81	20.00	0.00
									699.61	890.81	20.00	0.00
									699.82	885.54	20.00	0.00
									714.80	885.86	20.00	0.00
									714.70	847.78	20.00	0.00
									699.82	847.89	20.00	0.00
									699.82	845.88	20.00	0.00
									678.62	845.88	20.00	0.00
offsite building					0		24.00	r	633.92	851.75	24.00	0.00
									633.92	757.43	24.00	0.00
									531.69	756.21	24.00	0.00
									532.29	778.12	24.00	0.00
									494.57	781.16	24.00	0.00
									493.35	851.75	24.00	0.00

S200805 Santa Fe Multi-Family - Outdoor Use (Mitigated)

Eilar Associates, Inc.

210 South Juniper Street, Suite 100

Escondido, California 92025-4230

Phone: (760) 738-5570

Date: 20 Sep 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 Rcvr - 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	0.30
Wind Speed for Dir. #(Unit,SPEED)	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receivers

Name	Sel.	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates			
				Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)	
OU1				56.6	-73.5	60.0	0.0					3.50	r	821.45	772.99	3.50
OU2				55.1	-74.4	60.0	0.0					3.50	r	869.67	771.99	3.50
OU3				58.3	-71.0	60.0	0.0					3.50	g	1002.85	877.13	23.50
OU4				57.1	-71.9	60.0	0.0					3.50	g	984.25	882.45	23.50
OU5				58.6	-71.4	60.0	0.0					3.50	g	956.61	877.40	23.50
OU6				57.3	-71.5	60.0	0.0					3.50	g	937.21	884.31	23.50
OU7				59.4	-70.1	60.0	0.0					3.50	g	910.63	878.99	23.50
OU8				57.5	-71.2	60.0	0.0					3.50	g	892.02	885.37	23.50
OU9				60.0	-69.8	60.0	0.0					3.50	g	864.38	877.40	23.50
OU10				58.6	-70.9	60.0	0.0					3.50	g	846.05	883.51	23.50
OU11				59.1	-70.2	60.0	0.0					3.50	g	818.67	879.26	23.50
OU12				57.0	-71.6	60.0	0.0					3.50	g	800.33	884.57	23.50
OU13				57.4	-71.2	60.0	0.0					3.50	g	707.85	878.73	23.50
OU14				56.9	-71.7	60.0	0.0					3.50	g	688.44	884.57	23.50
OU15				59.4	-71.8	60.0	0.0					3.50	g	692.73	777.20	23.50
OU16				55.3	-74.4	60.0	0.0					3.50	g	690.84	759.40	23.50
OU17				60.0	-71.3	60.0	0.0					3.50	g	996.67	780.19	23.50
OU18				58.7	-72.1	60.0	0.0					3.50	g	1000.99	761.52	23.50
OU19				50.4	-76.9	60.0	0.0					3.50	g	706.51	545.37	23.50
OU20				47.6	-78.0	60.0	0.0					3.50	g	776.54	368.18	23.50
OU21				51.0	-76.8	60.0	0.0					3.50	g	995.92	351.30	23.50
OU22				53.6	-75.6	60.0	0.0					3.50	g	989.17	549.59	23.50

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)
Santa Fe EB				62.9	0.0	0.0			690.0	0.0	0.0	2.0	0.0	0.0	35		w3.05	0.0	1	0.0	0.0		
Santa Fe WB				62.9	0.0	0.0			690.0	0.0	0.0	2.0	0.0	0.0	35		w3.05	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height		Coordinates				Dist (ft)	LSlope (%)
	Begin (ft)	End (ft)	x (ft)	y (ft)	z (ft)	Ground (ft)		
Santa Fe EB	0.00	r		58.56	921.80	0.00	0.00	
				653.53	925.27	0.00	0.00	
				834.93	927.88	0.00	0.00	
				1026.74	929.61	0.00	0.00	
				1342.25	931.33	0.00	0.00	
				1450.74	933.29	0.00	0.00	
				1788.92	930.28	0.00	0.00	
Santa Fe WB	0.00	r		1793.61	949.65	0.00	0.00	
				1345.14	954.81	0.00	0.00	
				1293.82	952.75	0.00	0.00	
				1027.56	950.34	0.00	0.00	
				648.32	945.51	0.00	0.00	
				397.07	943.60	0.00	0.00	
				58.82	941.88	0.00	0.00	

Barriers

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height	
				left	right		horz.	vert.	Begin	End
						(ft)	(ft)	(ft)	(ft)	
Lot 38 Barrier									4.00	g
Lot 39 Barrier									4.50	g
Lot 40 Barrier									4.50	g
Lot 41 Barrier									4.50	g
Lot 42 Barrier									4.50	g
Lot 43 Barrier									4.00	g

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)	(ft)
Lot 38 Barrier									4.00	g	1010.02	872.99	24.00	0.00	
											1009.94	885.21	24.00	0.00	
											995.04	885.13	24.00	0.00	
											994.83	890.32	24.00	0.00	
											974.44	890.27	24.00	0.00	
Lot 39 Barrier									4.50	g	974.44	874.83	24.00	0.00	
											963.98	873.15	24.50	0.00	
											963.89	885.37	24.50	0.00	
											948.99	885.29	24.50	0.00	
											948.78	890.48	24.50	0.00	
Lot 40 Barrier									4.50	g	928.40	890.44	24.50	0.00	
											928.40	874.99	24.50	0.00	
											918.56	873.19	24.50	0.00	
											918.48	885.41	24.50	0.00	
											903.58	885.32	24.50	0.00	
Lot 41 Barrier									4.50	g	903.37	890.51	24.50	0.00	
											882.98	890.47	24.50	0.00	
											882.98	875.03	24.50	0.00	
											872.25	873.09	24.50	0.00	
											872.17	885.31	24.50	0.00	
Lot 42 Barrier									4.50	g	857.27	885.22	24.50	0.00	
											857.06	890.42	24.50	0.00	
											836.67	890.37	24.50	0.00	
											836.67	874.93	24.50	0.00	
											826.18	873.04	24.50	0.00	
Lot 43 Barrier									4.00	g	826.09	885.27	24.50	0.00	
											811.19	885.18	24.50	0.00	
											810.98	890.37	24.50	0.00	
											790.60	890.33	24.50	0.00	
										790.60	874.88	24.50	0.00		
										714.47	873.20	24.00	0.00		
										714.39	885.42	24.00	0.00		

S200805 Santa Fe Multi-Family - Outdoor Use (Mitigated)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height		Coordinates				
				left	right	(ft)	horz.	vert.	Begin	End	x	y	z	Ground	
						(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
											699.49	885.34	24.00	0.00	
											699.28	890.53	24.00	0.00	
											678.89	890.49	24.00	0.00	
											678.89	875.04	24.00	0.00	

Buildings

Name	Sel.	M.	ID	RB	Residents	Absorption	Height Begin (ft)
1					0		20.00 r
2					0		20.00 r
3					0		20.00 r
4					0		20.00 r
5					0		20.00 r
6					0		20.00 r
7					0		20.00 r
8					0		20.00 r
9					0		20.00 r
10					0		20.00 r
11					0		20.00 r
12					0		20.00 r
13					0		20.00 r
14					0		20.00 r
15					0		20.00 r
16					0		20.00 r
17					0		20.00 r
20					0		20.00 r
18					0		20.00 r
19					0		20.00 r
21					0		20.00 r
22					0		20.00 r
23					0		20.00 r
24					0		20.00 r
25					0		20.00 r
26					0		20.00 r
27					0		20.00 r
28					0		20.00 r
29					0		20.00 r
30					0		20.00 r
31					0		20.00 r
32					0		20.00 r
33					0		20.00 r
34					0		20.00 r
35					0		20.00 r
36					0		20.00 r
37					0		20.00 r
38					0		20.00 r
39					0		20.00 r
40					0		20.00 r
41					0		20.00 r
42					0		20.00 r
43					0		20.00 r
offsite building					0		24.00 r

Geometry - Buildings

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
								Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)	(ft)	
1					0		20.00	r	982.76	379.46	20.00	0.00
									982.76	329.97	20.00	0.00
									1013.08	329.97	20.00	0.00
									1013.08	379.46	20.00	0.00
2					0		20.00	r	938.77	383.57	20.00	0.00
									938.77	334.08	20.00	0.00
									969.08	334.08	20.00	0.00
									969.08	383.57	20.00	0.00
3					0		20.00	r	894.78	377.77	20.00	0.00
									894.78	328.28	20.00	0.00
									925.09	328.28	20.00	0.00
									925.09	377.77	20.00	0.00
4					0		20.00	r	850.79	395.78	20.00	0.00
									850.79	346.28	20.00	0.00
									881.10	346.29	20.00	0.00
									881.10	395.78	20.00	0.00
5					0		20.00	r	806.68	399.77	20.00	0.00
									806.68	350.27	20.00	0.00
									836.99	350.27	20.00	0.00
									836.99	399.76	20.00	0.00
6					0		20.00	r	762.57	393.24	20.00	0.00
									762.57	343.75	20.00	0.00
									792.88	343.75	20.00	0.00
									792.88	393.24	20.00	0.00
7					0		20.00	r	682.40	476.23	20.00	0.00
									732.74	476.23	20.00	0.00
									732.74	446.50	20.00	0.00
									682.40	446.50	20.00	0.00
8					0		20.00	r	687.33	518.68	20.00	0.00
									737.66	518.68	20.00	0.00
									737.61	495.06	20.00	0.00
									720.08	495.08	20.00	0.00
									720.08	488.99	20.00	0.00
									694.02	488.93	20.00	0.00
									694.04	495.13	20.00	0.00
									687.30	495.14	20.00	0.00
9					0		20.00	r	682.28	561.19	20.00	0.00
									732.62	561.19	20.00	0.00
									732.62	531.46	20.00	0.00
									682.28	531.46	20.00	0.00
10					0		20.00	r	687.36	603.61	20.00	0.00
									737.70	603.61	20.00	0.00
									737.70	573.88	20.00	0.00
									687.36	573.88	20.00	0.00

S200805 Santa Fe Multi-Family - Outdoor Use (Mitigated)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
								Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)		
11					0		20.00	r	682.74	646.06	20.00	0.00
									733.07	646.06	20.00	0.00
									733.01	622.45	20.00	0.00
									715.49	622.47	20.00	0.00
									715.49	616.38	20.00	0.00
									689.42	616.31	20.00	0.00
									689.45	622.52	20.00	0.00
									682.71	622.52	20.00	0.00
12					0		20.00	r	682.49	688.60	20.00	0.00
									732.83	688.60	20.00	0.00
									732.77	664.99	20.00	0.00
									715.24	665.01	20.00	0.00
									715.25	658.92	20.00	0.00
									689.18	658.86	20.00	0.00
									689.20	665.06	20.00	0.00
									682.47	665.07	20.00	0.00
13					0		20.00	r	686.60	731.39	20.00	0.00
									736.94	731.39	20.00	0.00
									736.94	701.66	20.00	0.00
									686.60	701.66	20.00	0.00
14					0		20.00	r	722.28	788.15	20.00	0.00
									677.41	787.82	20.00	0.00
									677.24	767.06	20.00	0.00
									682.43	766.72	20.00	0.00
									682.77	751.82	20.00	0.00
									720.27	751.82	20.00	0.00
									720.27	766.56	20.00	0.00
									722.28	766.56	20.00	0.00
15					0		20.00	r	782.24	496.67	20.00	0.00
									832.58	496.67	20.00	0.00
									832.58	466.94	20.00	0.00
									782.24	466.94	20.00	0.00
16					0		20.00	r	776.77	539.64	20.00	0.00
									827.11	539.64	20.00	0.00
									827.11	509.91	20.00	0.00
									776.77	509.91	20.00	0.00
17					0		20.00	r	799.73	576.37	20.00	0.00
									799.76	581.71	20.00	0.00
									826.19	581.78	20.00	0.00
									826.17	576.19	20.00	0.00
									833.05	576.19	20.00	0.00
									833.06	552.02	20.00	0.00
									782.72	552.02	20.00	0.00
									782.72	576.36	20.00	0.00
20					0		20.00	r	794.25	704.29	20.00	0.00
									794.28	709.62	20.00	0.00

S200805 Santa Fe Multi-Family - Outdoor Use (Mitigated)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
								x	y	z	Ground	
							Begin					
							(ft)	(ft)	(ft)	(ft)	(ft)	
								820.71	709.69	20.00	0.00	
								820.69	704.10	20.00	0.00	
								827.57	704.10	20.00	0.00	
								827.57	679.93	20.00	0.00	
								777.23	679.93	20.00	0.00	
								777.23	704.27	20.00	0.00	
18					0		20.00	r	777.25	624.92	20.00	0.00
									827.59	624.92	20.00	0.00
									827.59	595.19	20.00	0.00
									777.25	595.19	20.00	0.00
19					0		20.00	r	782.62	667.60	20.00	0.00
									832.96	667.60	20.00	0.00
									832.96	637.87	20.00	0.00
									782.62	637.87	20.00	0.00
21					0		20.00	r	782.34	753.07	20.00	0.00
									832.67	753.07	20.00	0.00
									832.67	723.34	20.00	0.00
									782.33	723.34	20.00	0.00
22					0		20.00	r	864.08	496.09	20.00	0.00
									914.42	496.09	20.00	0.00
									914.42	466.36	20.00	0.00
									864.08	466.36	20.00	0.00
23					0		20.00	r	866.76	533.50	20.00	0.00
									866.72	539.38	20.00	0.00
									892.86	539.38	20.00	0.00
									892.88	533.69	20.00	0.00
									910.46	533.72	20.00	0.00
									910.43	509.62	20.00	0.00
									860.09	509.62	20.00	0.00
									859.96	533.48	20.00	0.00
24					0		20.00	r	863.48	581.90	20.00	0.00
									913.81	581.90	20.00	0.00
									913.81	552.17	20.00	0.00
									863.47	552.17	20.00	0.00
25					0		20.00	r	866.28	618.58	20.00	0.00
									866.24	624.46	20.00	0.00
									892.38	624.46	20.00	0.00
									892.39	618.77	20.00	0.00
									909.98	618.80	20.00	0.00
									909.95	594.70	20.00	0.00
									859.61	594.70	20.00	0.00
									859.47	618.56	20.00	0.00
26					0		20.00	r	863.60	667.58	20.00	0.00
									913.94	667.58	20.00	0.00
									913.94	637.85	20.00	0.00
									863.60	637.85	20.00	0.00

S200805 Santa Fe Multi-Family - Outdoor Use (Mitigated)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
								Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)		
27					0		20.00	r	866.04	704.39	20.00	0.00
									866.00	710.27	20.00	0.00
									892.14	710.27	20.00	0.00
									892.15	704.59	20.00	0.00
									909.74	704.62	20.00	0.00
									909.71	680.51	20.00	0.00
									859.37	680.52	20.00	0.00
									859.23	704.38	20.00	0.00
28					0		20.00	r	863.48	752.91	20.00	0.00
									913.81	752.91	20.00	0.00
									913.81	723.18	20.00	0.00
									863.47	723.18	20.00	0.00
29					0		20.00	r	957.95	432.32	20.00	0.00
									1008.29	432.32	20.00	0.00
									1008.29	402.59	20.00	0.00
									957.95	402.59	20.00	0.00
30					0		20.00	r	959.49	475.89	20.00	0.00
									1009.83	475.89	20.00	0.00
									1009.77	452.28	20.00	0.00
									1002.52	452.23	20.00	0.00
									1002.52	445.84	20.00	0.00
									976.40	445.90	20.00	0.00
									976.36	452.35	20.00	0.00
									959.47	452.35	20.00	0.00
31					0		20.00	r	963.51	520.54	20.00	0.00
									1013.85	520.54	20.00	0.00
									1013.85	490.81	20.00	0.00
									963.51	490.81	20.00	0.00
32					0		20.00	r	959.01	563.39	20.00	0.00
									1009.35	563.39	20.00	0.00
									1009.29	539.78	20.00	0.00
									1002.03	539.74	20.00	0.00
									1002.04	533.35	20.00	0.00
									975.91	533.40	20.00	0.00
									975.87	539.85	20.00	0.00
									958.98	539.85	20.00	0.00
33					0		20.00	r	962.31	608.29	20.00	0.00
									1012.64	608.29	20.00	0.00
									1012.64	578.56	20.00	0.00
									962.30	578.56	20.00	0.00
34					0		20.00	r	958.77	650.90	20.00	0.00
									1009.10	650.90	20.00	0.00
									1009.05	627.28	20.00	0.00
									1001.79	627.24	20.00	0.00
									1001.80	620.85	20.00	0.00
									975.67	620.90	20.00	0.00

S200805 Santa Fe Multi-Family - Outdoor Use (Mitigated)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates			
								x	y	z	Ground
							Begin				
							(ft)	(ft)	(ft)	(ft)	
							975.63	627.35	20.00	0.00	
							958.74	627.36	20.00	0.00	
35					0		20.00	r 961.82	695.30	20.00	0.00
								1012.16	695.30	20.00	0.00
								1012.16	665.57	20.00	0.00
								961.82	665.57	20.00	0.00
36					0		20.00	r 959.01	738.40	20.00	0.00
								1009.35	738.40	20.00	0.00
								1009.29	714.79	20.00	0.00
								1002.03	714.74	20.00	0.00
								1002.04	708.35	20.00	0.00
								975.91	708.41	20.00	0.00
								975.87	714.86	20.00	0.00
								958.98	714.86	20.00	0.00
37					0		20.00	r 970.20	790.82	20.00	0.00
								969.94	769.56	20.00	0.00
								972.20	769.56	20.00	0.00
								972.06	754.41	20.00	0.00
								1010.53	754.41	20.00	0.00
								1010.40	769.36	20.00	0.00
								1015.05	769.62	20.00	0.00
								1015.12	790.62	20.00	0.00
38					0		20.00	r 974.15	890.60	20.00	0.00
								995.14	890.60	20.00	0.00
								995.35	885.33	20.00	0.00
								1010.33	885.65	20.00	0.00
								1010.22	847.57	20.00	0.00
								995.35	847.68	20.00	0.00
								995.35	845.67	20.00	0.00
								974.15	845.67	20.00	0.00
39					0		20.00	r 927.96	890.71	20.00	0.00
								948.95	890.71	20.00	0.00
								949.16	885.44	20.00	0.00
								964.13	885.75	20.00	0.00
								964.03	847.68	20.00	0.00
								949.16	847.78	20.00	0.00
								949.16	845.78	20.00	0.00
								927.96	845.78	20.00	0.00
40					0		20.00	r 882.60	890.81	20.00	0.00
								903.59	890.81	20.00	0.00
								903.80	885.54	20.00	0.00
								918.78	885.86	20.00	0.00
								918.68	847.78	20.00	0.00
								903.80	847.89	20.00	0.00
								903.80	845.88	20.00	0.00
								882.60	845.88	20.00	0.00

S200805 Santa Fe Multi-Family - Outdoor Use (Mitigated)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
								Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)		
41					0		20.00	r	836.30	890.71	20.00	0.00
									857.29	890.71	20.00	0.00
									857.50	885.44	20.00	0.00
									872.48	885.75	20.00	0.00
									872.37	847.68	20.00	0.00
									857.50	847.78	20.00	0.00
									857.50	845.78	20.00	0.00
									836.30	845.78	20.00	0.00
42					0		20.00	r	790.32	890.71	20.00	0.00
									811.31	890.71	20.00	0.00
									811.52	885.44	20.00	0.00
									826.49	885.75	20.00	0.00
									826.39	847.68	20.00	0.00
									811.52	847.78	20.00	0.00
									811.52	845.78	20.00	0.00
									790.32	845.78	20.00	0.00
43					0		20.00	r	678.62	890.81	20.00	0.00
									699.61	890.81	20.00	0.00
									699.82	885.54	20.00	0.00
									714.80	885.86	20.00	0.00
									714.70	847.78	20.00	0.00
									699.82	847.89	20.00	0.00
									699.82	845.88	20.00	0.00
									678.62	845.88	20.00	0.00
offsite building					0		24.00	r	633.92	851.75	24.00	0.00
									633.92	757.43	24.00	0.00
									531.69	756.21	24.00	0.00
									532.29	778.12	24.00	0.00
									494.57	781.16	24.00	0.00
									493.35	851.75	24.00	0.00

S200805 Santa Fe Multi-Family - Facades

Eilar Associates, Inc.

210 South Juniper Street, Suite 100

Escondido, California 92025-4230

Phone: (760) 738-5570

Date: 20 Sep 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 Rcvr - 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	0.30
Wind Speed for Dir. #(Unit,SPEED)	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receivers

Name	Sel.	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
				Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)
1-F01				70.4	-61.8	0.0	0.0		x	Total	5.00	r	696.69	893.87	5.00
1-F02				65.3	-66.6	0.0	0.0		x	Total	5.00	r	675.37	868.94	5.00
1-F03				51.1	-76.5	0.0	0.0		x	Total	5.00	r	697.45	843.25	5.00
1-F04				64.5	-67.4	0.0	0.0		x	Total	5.00	r	716.29	866.65	5.00
1-F05				70.3	-61.9	0.0	0.0		x	Total	5.00	r	807.57	894.20	5.00
1-F06				64.9	-66.9	0.0	0.0		x	Total	5.00	r	787.43	869.27	5.00
1-F07				49.7	-75.8	0.0	0.0		x	Total	5.00	r	809.97	843.85	5.00
1-F08				49.1	-75.6	0.0	0.0		x	Total	5.00	r	899.99	843.93	5.00
1-F09				52.2	-75.2	0.0	0.0		x	Total	5.00	r	993.63	844.07	5.00
1-F10				64.6	-67.1	0.0	0.0		x	Total	5.00	r	1011.33	867.47	5.00
1-F11				69.8	-62.3	0.0	0.0		x	Total	5.00	r	992.87	892.59	5.00
1-F12				70.0	-62.2	0.0	0.0		x	Total	5.00	r	900.53	892.95	5.00
1-F13				59.4	-71.2	0.0	0.0		x	Total	5.00	r	703.01	791.50	5.00
1-F14				55.7	-74.3	0.0	0.0		x	Total	5.00	r	674.24	770.40	5.00
1-F15				42.9	-78.6	0.0	0.0		x	Total	5.00	r	702.53	748.83	5.00
1-F16				57.0	-72.8	0.0	0.0		x	Total	5.00	r	724.83	770.40	5.00
1-F17				59.2	-71.1	0.0	0.0		x	Total	5.00	r	994.07	795.10	5.00
1-F18				49.8	-76.6	0.0	0.0		x	Total	5.00	r	966.67	774.93	5.00
1-F19				38.7	-79.5	0.0	0.0		x	Total	5.00	r	992.17	751.71	5.00
1-F20				59.8	-71.1	0.0	0.0		x	Total	5.00	r	1016.91	776.83	5.00
1-F21				50.2	-75.9	0.0	0.0		x	Total	5.00	r	712.36	607.93	5.00
1-F22				52.9	-74.5	0.0	0.0		x	Total	5.00	r	683.82	589.66	5.00
1-F23				49.5	-76.2	0.0	0.0		x	Total	5.00	r	713.12	569.10	5.00
1-F24				52.6	-74.9	0.0	0.0		x	Total	5.00	r	742.05	589.28	5.00
1-F25				48.2	-76.7	0.0	0.0		x	Total	5.00	r	986.02	611.73	5.00
1-F26				48.2	-76.4	0.0	0.0		x	Total	5.00	r	955.57	591.56	5.00
1-F27				44.9	-77.9	0.0	0.0		x	Total	5.00	r	987.16	574.81	5.00
1-F28				55.0	-74.0	0.0	0.0		x	Total	5.00	r	1014.57	594.22	5.00
1-F29				52.2	-75.9	0.0	0.0		x	Total	5.00	r	778.95	396.67	5.00
1-F30				50.4	-76.4	0.0	0.0		x	Total	5.00	r	760.49	366.42	5.00
1-F31				47.5	-77.2	0.0	0.0		x	Total	5.00	r	779.52	341.11	5.00
1-F32				49.9	-76.8	0.0	0.0		x	Total	5.00	r	795.12	367.37	5.00
1-F33				51.2	-76.2	0.0	0.0		x	Total	5.00	r	998.12	382.05	5.00
1-F34				49.3	-77.2	0.0	0.0		x	Total	5.00	r	979.47	355.02	5.00
1-F35				46.0	-77.9	0.0	0.0		x	Total	5.00	r	998.70	328.38	5.00
1-F36				52.2	-75.7	0.0	0.0		x	Total	5.00	r	1014.68	353.88	5.00
2-F01				69.9	-61.9	0.0	0.0		x	Total	15.00	r	696.69	893.87	15.00
2-F02				65.4	-66.5	0.0	0.0		x	Total	15.00	r	675.37	868.94	15.00
2-F03				53.9	-74.7	0.0	0.0		x	Total	15.00	r	697.45	843.25	15.00
2-F04				64.7	-67.2	0.0	0.0		x	Total	15.00	r	716.29	866.65	15.00
2-F05				69.8	-62.1	0.0	0.0		x	Total	15.00	r	807.57	894.20	15.00
2-F06				65.1	-66.7	0.0	0.0		x	Total	15.00	r	787.43	869.27	15.00
2-F07				54.6	-73.1	0.0	0.0		x	Total	15.00	r	809.97	843.85	15.00
2-F08				54.6	-71.7	0.0	0.0		x	Total	15.00	r	899.99	843.93	15.00
2-F09				55.1	-72.8	0.0	0.0		x	Total	15.00	r	993.63	844.07	15.00

S200805 Santa Fe Multi-Family - Facades

Name	Sel.	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
				Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Type	Auto	Noise Type	(ft)		X (ft)	Y (ft)	Z (ft)
2-F10				64.9	-66.9	0.0	0.0		x	Total	15.00	r	1011.33	867.47	15.00
2-F11				69.5	-62.4	0.0	0.0		x	Total	15.00	r	992.87	892.59	15.00
2-F12				69.6	-62.3	0.0	0.0		x	Total	15.00	r	900.53	892.95	15.00
2-F13				60.2	-70.9	0.0	0.0		x	Total	15.00	r	703.01	791.50	15.00
2-F14				56.7	-73.3	0.0	0.0		x	Total	15.00	r	674.24	770.40	15.00
2-F15				47.4	-76.5	0.0	0.0		x	Total	15.00	r	702.53	748.83	15.00
2-F16				57.8	-72.5	0.0	0.0		x	Total	15.00	r	724.83	770.40	15.00
2-F17				59.9	-70.9	0.0	0.0		x	Total	15.00	r	994.07	795.10	15.00
2-F18				50.9	-76.2	0.0	0.0		x	Total	15.00	r	966.67	774.93	15.00
2-F19				45.8	-76.7	0.0	0.0		x	Total	15.00	r	992.17	751.71	15.00
2-F20				60.5	-70.4	0.0	0.0		x	Total	15.00	r	1016.91	776.83	15.00
2-F21				53.9	-74.2	0.0	0.0		x	Total	15.00	r	712.36	607.93	15.00
2-F22				54.8	-73.9	0.0	0.0		x	Total	15.00	r	683.82	589.66	15.00
2-F23				52.6	-75.0	0.0	0.0		x	Total	15.00	r	713.12	569.10	15.00
2-F24				55.5	-73.9	0.0	0.0		x	Total	15.00	r	742.05	589.28	15.00
2-F25				51.6	-74.9	0.0	0.0		x	Total	15.00	r	986.02	611.73	15.00
2-F26				52.4	-75.0	0.0	0.0		x	Total	15.00	r	955.57	591.56	15.00
2-F27				48.9	-76.2	0.0	0.0		x	Total	15.00	r	987.16	574.81	15.00
2-F28				55.9	-73.4	0.0	0.0		x	Total	15.00	r	1014.57	594.22	15.00
2-F29				54.7	-75.3	0.0	0.0		x	Total	15.00	r	778.95	396.67	15.00
2-F30				52.6	-75.9	0.0	0.0		x	Total	15.00	r	760.49	366.42	15.00
2-F31				50.5	-76.5	0.0	0.0		x	Total	15.00	r	779.52	341.11	15.00
2-F32				53.3	-75.7	0.0	0.0		x	Total	15.00	r	795.12	367.37	15.00
2-F33				53.7	-75.6	0.0	0.0		x	Total	15.00	r	998.12	382.05	15.00
2-F34				52.5	-76.2	0.0	0.0		x	Total	15.00	r	979.47	355.02	15.00
2-F35				49.1	-77.4	0.0	0.0		x	Total	15.00	r	998.70	328.38	15.00
2-F36				53.3	-75.5	0.0	0.0		x	Total	15.00	r	1014.68	353.88	15.00

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)
Santa Fe EB				62.9	0.0	0.0			690.0	0.0	0.0	2.0	0.0	0.0	35		w3.05	0.0	1	0.0	0.0		
Santa Fe WB				62.9	0.0	0.0			690.0	0.0	0.0	2.0	0.0	0.0	35		w3.05	0.0	1	0.0	0.0		

Geometry - Roads

Name	Height		Coordinates				Dist (ft)	LSlope (%)
	Begin (ft)	End (ft)	x (ft)	y (ft)	z (ft)	Ground (ft)		
Santa Fe EB	0.00	r	58.56	921.80	0.00	0.00		
			653.53	925.27	0.00	0.00		
			834.93	927.88	0.00	0.00		
			1026.74	929.61	0.00	0.00		
			1342.25	931.33	0.00	0.00		
			1450.74	933.29	0.00	0.00		
			1788.92	930.28	0.00	0.00		
Santa Fe WB	0.00	r	1793.61	949.65	0.00	0.00		
			1345.14	954.81	0.00	0.00		
			1293.82	952.75	0.00	0.00		
			1027.56	950.34	0.00	0.00		
			648.32	945.51	0.00	0.00		
			397.07	943.60	0.00	0.00		
			58.82	941.88	0.00	0.00		

Buildings

Name	Sel.	M.	ID	RB	Residents	Absorption	Height Begin (ft)
1					0		20.00 r
2					0		20.00 r
3					0		20.00 r
4					0		20.00 r
5					0		20.00 r
6					0		20.00 r
7					0		20.00 r
8					0		20.00 r
9					0		20.00 r
10					0		20.00 r
11					0		20.00 r
12					0		20.00 r
13					0		20.00 r
14					0		20.00 r
15					0		20.00 r
16					0		20.00 r
17					0		20.00 r
20					0		20.00 r
18					0		20.00 r
19					0		20.00 r
21					0		20.00 r
22					0		20.00 r
23					0		20.00 r
24					0		20.00 r
25					0		20.00 r
26					0		20.00 r
27					0		20.00 r
28					0		20.00 r
29					0		20.00 r
30					0		20.00 r
31					0		20.00 r
32					0		20.00 r
33					0		20.00 r
34					0		20.00 r
35					0		20.00 r
36					0		20.00 r
37					0		20.00 r
38					0		20.00 r
39					0		20.00 r
40					0		20.00 r
41					0		20.00 r
42					0		20.00 r
43					0		20.00 r
offsite building					0		24.00 r

Geometry - Buildings

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
								Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)	(ft)	
1					0		20.00	r	982.76	379.46	20.00	0.00
									982.76	329.97	20.00	0.00
									1013.08	329.97	20.00	0.00
									1013.08	379.46	20.00	0.00
2					0		20.00	r	938.77	383.57	20.00	0.00
									938.77	334.08	20.00	0.00
									969.08	334.08	20.00	0.00
									969.08	383.57	20.00	0.00
3					0		20.00	r	894.78	377.77	20.00	0.00
									894.78	328.28	20.00	0.00
									925.09	328.28	20.00	0.00
									925.09	377.77	20.00	0.00
4					0		20.00	r	850.79	395.78	20.00	0.00
									850.79	346.28	20.00	0.00
									881.10	346.29	20.00	0.00
									881.10	395.78	20.00	0.00
5					0		20.00	r	806.68	399.77	20.00	0.00
									806.68	350.27	20.00	0.00
									836.99	350.27	20.00	0.00
									836.99	399.76	20.00	0.00
6					0		20.00	r	762.57	393.24	20.00	0.00
									762.57	343.75	20.00	0.00
									792.88	343.75	20.00	0.00
									792.88	393.24	20.00	0.00
7					0		20.00	r	682.40	476.23	20.00	0.00
									732.74	476.23	20.00	0.00
									732.74	446.50	20.00	0.00
									682.40	446.50	20.00	0.00
8					0		20.00	r	687.33	518.68	20.00	0.00
									737.66	518.68	20.00	0.00
									737.61	495.06	20.00	0.00
									720.08	495.08	20.00	0.00
									720.08	488.99	20.00	0.00
									694.02	488.93	20.00	0.00
									694.04	495.13	20.00	0.00
									687.30	495.14	20.00	0.00
9					0		20.00	r	682.28	561.19	20.00	0.00
									732.62	561.19	20.00	0.00
									732.62	531.46	20.00	0.00
									682.28	531.46	20.00	0.00
10					0		20.00	r	687.36	603.61	20.00	0.00
									737.70	603.61	20.00	0.00
									737.70	573.88	20.00	0.00
									687.36	573.88	20.00	0.00

S200805 Santa Fe Multi-Family - Facades

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
								Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)		
11					0		20.00	r	682.74	646.06	20.00	0.00
									733.07	646.06	20.00	0.00
									733.01	622.45	20.00	0.00
									715.49	622.47	20.00	0.00
									715.49	616.38	20.00	0.00
									689.42	616.31	20.00	0.00
									689.45	622.52	20.00	0.00
									682.71	622.52	20.00	0.00
12					0		20.00	r	682.49	688.60	20.00	0.00
									732.83	688.60	20.00	0.00
									732.77	664.99	20.00	0.00
									715.24	665.01	20.00	0.00
									715.25	658.92	20.00	0.00
									689.18	658.86	20.00	0.00
									689.20	665.06	20.00	0.00
									682.47	665.07	20.00	0.00
13					0		20.00	r	686.60	731.39	20.00	0.00
									736.94	731.39	20.00	0.00
									736.94	701.66	20.00	0.00
									686.60	701.66	20.00	0.00
14					0		20.00	r	722.28	788.15	20.00	0.00
									677.41	787.82	20.00	0.00
									677.24	767.06	20.00	0.00
									682.43	766.72	20.00	0.00
									682.77	751.82	20.00	0.00
									720.27	751.82	20.00	0.00
									720.27	766.56	20.00	0.00
									722.28	766.56	20.00	0.00
15					0		20.00	r	782.24	496.67	20.00	0.00
									832.58	496.67	20.00	0.00
									832.58	466.94	20.00	0.00
									782.24	466.94	20.00	0.00
16					0		20.00	r	776.77	539.64	20.00	0.00
									827.11	539.64	20.00	0.00
									827.11	509.91	20.00	0.00
									776.77	509.91	20.00	0.00
17					0		20.00	r	799.73	576.37	20.00	0.00
									799.76	581.71	20.00	0.00
									826.19	581.78	20.00	0.00
									826.17	576.19	20.00	0.00
									833.05	576.19	20.00	0.00
									833.06	552.02	20.00	0.00
									782.72	552.02	20.00	0.00
									782.72	576.36	20.00	0.00
20					0		20.00	r	794.25	704.29	20.00	0.00
									794.28	709.62	20.00	0.00

S200805 Santa Fe Multi-Family - Facades

Name	Sel.	M.	ID	RB	Residents	Absorption	Height Begin (ft)	Coordinates			
								x (ft)	y (ft)	z (ft)	Ground (ft)
								820.71	709.69	20.00	0.00
								820.69	704.10	20.00	0.00
								827.57	704.10	20.00	0.00
								827.57	679.93	20.00	0.00
								777.23	679.93	20.00	0.00
								777.23	704.27	20.00	0.00
18					0	20.00	r	777.25	624.92	20.00	0.00
								827.59	624.92	20.00	0.00
								827.59	595.19	20.00	0.00
								777.25	595.19	20.00	0.00
19					0	20.00	r	782.62	667.60	20.00	0.00
								832.96	667.60	20.00	0.00
								832.96	637.87	20.00	0.00
								782.62	637.87	20.00	0.00
21					0	20.00	r	782.34	753.07	20.00	0.00
								832.67	753.07	20.00	0.00
								832.67	723.34	20.00	0.00
								782.33	723.34	20.00	0.00
22					0	20.00	r	864.08	496.09	20.00	0.00
								914.42	496.09	20.00	0.00
								914.42	466.36	20.00	0.00
								864.08	466.36	20.00	0.00
23					0	20.00	r	866.76	533.50	20.00	0.00
								866.72	539.38	20.00	0.00
								892.86	539.38	20.00	0.00
								892.88	533.69	20.00	0.00
								910.46	533.72	20.00	0.00
								910.43	509.62	20.00	0.00
								860.09	509.62	20.00	0.00
								859.96	533.48	20.00	0.00
24					0	20.00	r	863.48	581.90	20.00	0.00
								913.81	581.90	20.00	0.00
								913.81	552.17	20.00	0.00
								863.47	552.17	20.00	0.00
25					0	20.00	r	866.28	618.58	20.00	0.00
								866.24	624.46	20.00	0.00
								892.38	624.46	20.00	0.00
								892.39	618.77	20.00	0.00
								909.98	618.80	20.00	0.00
								909.95	594.70	20.00	0.00
								859.61	594.70	20.00	0.00
								859.47	618.56	20.00	0.00
26					0	20.00	r	863.60	667.58	20.00	0.00
								913.94	667.58	20.00	0.00
								913.94	637.85	20.00	0.00
								863.60	637.85	20.00	0.00

S200805 Santa Fe Multi-Family - Facades

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
								Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)		
27					0		20.00	r	866.04	704.39	20.00	0.00
									866.00	710.27	20.00	0.00
									892.14	710.27	20.00	0.00
									892.15	704.59	20.00	0.00
									909.74	704.62	20.00	0.00
									909.71	680.51	20.00	0.00
									859.37	680.52	20.00	0.00
									859.23	704.38	20.00	0.00
28					0		20.00	r	863.48	752.91	20.00	0.00
									913.81	752.91	20.00	0.00
									913.81	723.18	20.00	0.00
									863.47	723.18	20.00	0.00
29					0		20.00	r	957.95	432.32	20.00	0.00
									1008.29	432.32	20.00	0.00
									1008.29	402.59	20.00	0.00
									957.95	402.59	20.00	0.00
30					0		20.00	r	959.49	475.89	20.00	0.00
									1009.83	475.89	20.00	0.00
									1009.77	452.28	20.00	0.00
									1002.52	452.23	20.00	0.00
									1002.52	445.84	20.00	0.00
									976.40	445.90	20.00	0.00
									976.36	452.35	20.00	0.00
									959.47	452.35	20.00	0.00
31					0		20.00	r	963.51	520.54	20.00	0.00
									1013.85	520.54	20.00	0.00
									1013.85	490.81	20.00	0.00
									963.51	490.81	20.00	0.00
32					0		20.00	r	959.01	563.39	20.00	0.00
									1009.35	563.39	20.00	0.00
									1009.29	539.78	20.00	0.00
									1002.03	539.74	20.00	0.00
									1002.04	533.35	20.00	0.00
									975.91	533.40	20.00	0.00
									975.87	539.85	20.00	0.00
									958.98	539.85	20.00	0.00
33					0		20.00	r	962.31	608.29	20.00	0.00
									1012.64	608.29	20.00	0.00
									1012.64	578.56	20.00	0.00
									962.30	578.56	20.00	0.00
34					0		20.00	r	958.77	650.90	20.00	0.00
									1009.10	650.90	20.00	0.00
									1009.05	627.28	20.00	0.00
									1001.79	627.24	20.00	0.00
									1001.80	620.85	20.00	0.00
									975.67	620.90	20.00	0.00

S200805 Santa Fe Multi-Family - Facades

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates			
								x	y	z	Ground
							Begin				
							(ft)	(ft)	(ft)	(ft)	(ft)
								975.63	627.35	20.00	0.00
								958.74	627.36	20.00	0.00
35					0		20.00 r	961.82	695.30	20.00	0.00
								1012.16	695.30	20.00	0.00
								1012.16	665.57	20.00	0.00
								961.82	665.57	20.00	0.00
36					0		20.00 r	959.01	738.40	20.00	0.00
								1009.35	738.40	20.00	0.00
								1009.29	714.79	20.00	0.00
								1002.03	714.74	20.00	0.00
								1002.04	708.35	20.00	0.00
								975.91	708.41	20.00	0.00
								975.87	714.86	20.00	0.00
								958.98	714.86	20.00	0.00
37					0		20.00 r	970.20	790.82	20.00	0.00
								969.94	769.56	20.00	0.00
								972.20	769.56	20.00	0.00
								972.06	754.41	20.00	0.00
								1010.53	754.41	20.00	0.00
								1010.40	769.36	20.00	0.00
								1015.05	769.62	20.00	0.00
								1015.12	790.62	20.00	0.00
38					0		20.00 r	974.15	890.60	20.00	0.00
								995.14	890.60	20.00	0.00
								995.35	885.33	20.00	0.00
								1010.33	885.65	20.00	0.00
								1010.22	847.57	20.00	0.00
								995.35	847.68	20.00	0.00
								995.35	845.67	20.00	0.00
								974.15	845.67	20.00	0.00
39					0		20.00 r	927.96	890.71	20.00	0.00
								948.95	890.71	20.00	0.00
								949.16	885.44	20.00	0.00
								964.13	885.75	20.00	0.00
								964.03	847.68	20.00	0.00
								949.16	847.78	20.00	0.00
								949.16	845.78	20.00	0.00
								927.96	845.78	20.00	0.00
40					0		20.00 r	882.60	890.81	20.00	0.00
								903.59	890.81	20.00	0.00
								903.80	885.54	20.00	0.00
								918.78	885.86	20.00	0.00
								918.68	847.78	20.00	0.00
								903.80	847.89	20.00	0.00
								903.80	845.88	20.00	0.00
								882.60	845.88	20.00	0.00

S200805 Santa Fe Multi-Family - Facades

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
								Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)		
41					0		20.00	r	836.30	890.71	20.00	0.00
									857.29	890.71	20.00	0.00
									857.50	885.44	20.00	0.00
									872.48	885.75	20.00	0.00
									872.37	847.68	20.00	0.00
									857.50	847.78	20.00	0.00
									857.50	845.78	20.00	0.00
									836.30	845.78	20.00	0.00
42					0		20.00	r	790.32	890.71	20.00	0.00
									811.31	890.71	20.00	0.00
									811.52	885.44	20.00	0.00
									826.49	885.75	20.00	0.00
									826.39	847.68	20.00	0.00
									811.52	847.78	20.00	0.00
									811.52	845.78	20.00	0.00
									790.32	845.78	20.00	0.00
43					0		20.00	r	678.62	890.81	20.00	0.00
									699.61	890.81	20.00	0.00
									699.82	885.54	20.00	0.00
									714.80	885.86	20.00	0.00
									714.70	847.78	20.00	0.00
									699.82	847.89	20.00	0.00
									699.82	845.88	20.00	0.00
									678.62	845.88	20.00	0.00
offsite building					0		24.00	r	633.92	851.75	24.00	0.00
									633.92	757.43	24.00	0.00
									531.69	756.21	24.00	0.00
									532.29	778.12	24.00	0.00
									494.57	781.16	24.00	0.00
									493.35	851.75	24.00	0.00



Appendix D

Construction Noise Analysis and Results

Noise Attenuation by Distance Calculation

Job: 845 Santa Fe Drive
Job #: S200805.2
Date: 10/27/2021
Source: Front Loader
Phase: Grading

Noise Source

Noise Level (dBA) 72 at 50 feet

Distances

Source Elevation 0 feet at 5 feet above grade
Receiver Elevation: 0 feet at 5 feet above grade
Source to Receiver Distance: 180 feet

Path Calculation

Source to Receiver Direct Path Distance: 180 feet

Sound Pressure Level

60.9 at 180 feet
Hours of Use: 8
Duty Cycle (%): 40
Level During 8 Hour day: 56.9

Summation

Number of Sources: 5
Level during 8 hour day: 67.0

Noise Attenuation by Distance Calculation

Job: 845 Santa Fe Drive
Job #: S200805.2
Date: 10/27/2021
Source: Excavator
Receiver: Grading

Noise Source

Noise Level (dBA) 75 at 50 feet

Distances

Source Elevation: 0 feet at 5 feet above grade
Receiver Elevation: 0 feet at 5 feet above grade
Source to Receiver Distance: 180 feet

Path Calculation

Source to Receiver Direct Path Distance: 180 feet

Sound Pressure Level

63.9 at 180 feet
Hours of Use: 8
Duty Cycle (%): 40
Level During 8 Hour day: 59.9

Noise Attenuation by Distance Calculation

Job: 845 Santa Fe Drive
Job #: S200805.2
Date: 10/27/2021
Source: **Backhoe**
Receiver: Grading

Noise Source

Noise Level (dBA) 74 at 50 feet

Distances

Source Elevation 0 feet at 5 feet above grade
Receiver Elevation: 0 feet at 5 feet above grade
Source to Receiver Distance: 180 feet

Path Calculation

Source to Receiver Direct Path Distance: 180 feet

Sound Pressure Level

62.9 at 180 feet
Hours of Use: 8
Duty Cycle (%): 40
Level During 8 Hour day: 58.9

Noise Attenuation by Distance Calculation

Job: 845 Santa Fe Drive
Job #: S200805.2
Date: 10/27/2021
Source: **Water Truck**
Receiver: Grading

Noise Source

Noise Level (dBA) 77 at 50 feet

Distances

Source Elevation 0 feet at 5 feet above grade
Receiver Elevation: 0 feet at 5 feet above grade
Source to Receiver Distance: 180 feet

Path Calculation

Source to Receiver Direct Path Distance: 180 feet

Sound Pressure Level

65.9 at 180 feet
Hours of Use: 8
Duty Cycle (%): 40
Level During 8 Hour day: 61.9

Noise Attenuation by Distance Calculation

Job: 845 Santa Fe Drive
Job #: S200805.2
Date: 10/27/2021
Source: **Dump Truck**
Receiver: Grading

Noise Source

Noise Level (dBA) 76 at 50 feet

Distances

Source Elevation 0 feet at 5 feet above grade
Receiver Elevation: 0 feet at 5 feet above grade
Source to Receiver Distance: 180 feet

Path Calculation

Source to Receiver Direct Path Distance: 180 feet

Sound Pressure Level

64.9 at 180 feet
Hours of Use: 8
Duty Cycle (%): 40
Level During 8 Hour day: 60.9