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Noise Analysis for the Euclid Terrace Project San Diego, California

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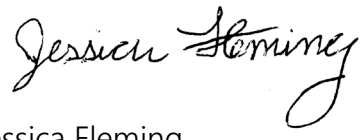

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Acronyms and Abbreviations

Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of San Diego
CNEL	community noise equivalent level
CPU	Community Plan Update
dB	decibel
dB(A)	A-weighted decibel
FPEIR	Final Program Environmental Impact Report
FHWA	Federal Highway Administration
HVAC	heating, ventilation, and air conditioning
L_{eq}	one-hour equivalent noise level
L_{pw}	sound power level
project	Euclid Terrace Project
SEL	sound exposure level

Executive Summary

The Euclid Terrace project (project) site is located east of Euclid Avenue between Trinidad Way and La Paz Drive in the Southeastern San Diego community planning area, in the city of San Diego, California. The 3.02-acre project site is currently undeveloped and is surrounded by single-family residential development. The project would construct 25 single-family residential units.

The project is located within the Southeastern San Diego Community Plan Update (CPU) area. Noise impacts associated with the Southeastern San Diego CPU were addressed in the Final Program Environmental Impact Report for the Southeastern San Diego and Encanto Neighborhoods (FPEIR; Project Number 386029, SCH No. 2014051075) approved by the City of San Diego (City) in 2015 (City of San Diego 2015a). The FPEIR identified a mitigation framework that is applicable to the project, including demonstrating the exterior and interior noise levels for residential uses would not exceed the compatibility standards of the City's General Plan. This report discusses potential noise impacts from the construction and operation of the project, and implements the Southeastern San Diego CPU mitigation framework, as necessary. As part of this assessment, noise levels due to vehicle traffic were calculated and evaluated against City noise and land use compatibility guidelines. In addition to compatibility, the potential for noise to impact adjacent receivers from future on-site sources and construction activity was assessed. A summary of the findings is provided below.

Construction Noise

Project construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading, building construction, loading, unloading, and placing materials and paving. Construction noise would potentially result in short-term impacts to surrounding properties. The project site is surrounded by single-family residential uses in all directions. The construction noise level limit at residential uses is 75 A-weighted decibels [dB(A)] one-hour equivalent noise level (L_{eq}).

As calculated in this analysis, construction noise levels are not anticipated to exceed 75 dB(A) L_{eq} at the adjacent residential uses. Although the existing adjacent residences would be exposed to construction noise levels that could be heard above ambient conditions, the exposure would be temporary. Additionally, construction activities are not anticipated to exceed 75 dB(A) L_{eq}. Therefore, construction activities would result in less than significant noise impacts.

Vehicle Traffic Noise

On-site Noise Compatibility

The main source of traffic noise at the project site is vehicle traffic on Euclid Avenue. According to the General Plan Noise Element, single-family residential uses are considered "compatible" with exterior noise levels up to 60 community noise equivalent level (CNEL) and "conditionally compatible" with

exterior noise levels up to 65 CNEL. The City's interior noise level standard for all residential uses is 45 CNEL.

As calculated in this analysis, exterior noise levels at the proposed lots would range from 49 to 56 CNEL. Noise levels would be less than the "compatible" exterior noise level for single-family residential uses. Exterior noise impacts would be less than significant.

Standard light-frame construction would reduce exterior to interior noise levels by at least 20 dB. Therefore, interior noise levels would be 36 CNEL or less, and are not projected to exceed the interior noise level standard of 45 CNEL. Interior noise impacts would be less than significant.

Off-site Vehicle Traffic Noise

The project would increase traffic volumes on local roadways. However, the project would not substantially alter the vehicle classifications mix on local or regional roadways nor would the project alter the speed on an existing roadway or create a new roadway. Thus, the primary factor affecting off-site noise levels would be increased traffic volumes. A substantial noise increase is defined as an increase of 3 dB above existing conditions as stated in the City's California Environmental Quality Act (CEQA) significance standards.

Based on a trip generation rate of 10 trips per dwelling unit (SANDAG 2002), the project is anticipated to generate 250 daily trips. An increase of 250 trips on Euclid Avenue would result in a noise increase of 0.1 dB or less, which would not be an audible change in noise levels. Therefore, the project would not result in the exposure of noise sensitive land uses to significant noise levels, and impacts would be less than significant.

On-site Generated Noise

The noise sources on the project site after completion of construction are anticipated to be those that would be typical of any single-family residential neighborhood, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources associated with single-family uses are anticipated to violate the City's Noise Abatement and Control Ordinance or result in a substantial permanent increase in existing noise levels. Noise levels would be similar to the surrounding single-family residential neighborhoods. Noise levels due to heating, ventilation, and air conditioning (HVAC) units were modeled to determine if they have the potential to produce noise in excess of City limits. The applicable daytime, evening, and nighttime noise limits are 50, 45, and 40 dB(A) L_{eq}, respectively. As calculated in this analysis, daytime and evening noise levels would not exceed 45 dB(A) L_{eq} and nighttime noise level would not exceed 40 dB(A) L_{eq}. Impacts associated with operational noise sources would be less than significant. Impacts associated with operational noise sources would be less than significant.

1.0 Introduction

1.1 Project Description

The project site is located east of Euclid Avenue between Trinidad Way and La Paz Drive in the Southeastern San Diego community planning area, in the city of San Diego, California. Figure 1 shows the regional location. An aerial photograph of the project site and vicinity is shown in Figure 2. The 3.02-acre project site is currently undeveloped and is surrounded by single-family residential development. The project would construct 25 single-family residential units. Figure 3 shows the proposed site plan.

1.2 Fundamentals of Noise

Sound levels are described in units called the decibel (dB). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease.

Additionally, in technical terms, sound levels are described as either a "sound power level" or a "sound pressure level," which while commonly confused are two distinct characteristics of sound. Both share the same unit of measure, the dB. However, sound power, expressed as L_{pw}, is the energy converted into sound by the source. The L_{pw} is used to estimate how far a noise will travel and to predict the sound levels at various distances from the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers such as an eardrum or microphone and is the sound pressure level. Noise measurement instruments only measure sound pressure, and noise level limits used in standards are generally sound pressure levels.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale, which approximates the frequency response of the average young ear when listening to most ordinary everyday sounds, was devised. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Therefore, the "A-weighted" noise scale is used for measurements and standards involving the human perception of noise. Noise levels using A-weighted measurements are designated with the notation dB(A).

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this study are the one-hour equivalent noise level (L_{eq}), the community noise equivalent level (CNEL), and the sound exposure level (SEL). The CNEL is a 24-hour equivalent sound level. The CNEL calculation applies an additional 5 dB(A) penalty to noise occurring during evening hours, between 7:00 p.m. and 10:00 p.m., and an additional 10 dB(A) penalty is added to noise occurring during the night, between 10:00 p.m. and 7:00 a.m. These increases for certain times are intended to account for the added sensitivity of humans to noise during the evening and night. The SEL is a noise level over a stated period of time or event and normalized to one second.

Project Location

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FIGURE 1
Regional Location

Image Source: NearMap (flown September 2021)

FIGURE 2
Project Location on Aerial Photograph

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Image Source: NearMap (flown September 2021)

Project Boundary

Site Plan

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FIGURE 3
Site Plan

Sound from a small, localized source (approximating a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern, known as geometric spreading. The sound level decreases or drops off at a rate of 6 dB(A) for each doubling of the distance.

Traffic noise is not a single, stationary point source of sound. The movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. The drop-off rate for a line source is 3 dB(A) for each doubling of distance.

The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site (such as parking lots or smooth bodies of water) receives no additional ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. A soft site (such as soft dirt, grass, or scattered bushes and trees) receives an additional ground attenuation value of 1.5 dB(A) per doubling of distance. Thus, a point source over a soft site would attenuate at 7.5 dB(A) per doubling of distance.

Human perception of noise has no simple correlation with acoustical energy. A change in noise levels is generally perceived as follows: 3 dB(A) barely perceptible, 5 dB(A) readily perceptible, and 10 dB(A) perceived as a doubling or halving of noise (California Department of Transportation [Caltrans] 2013).

2.0 Applicable Standards

2.1 Southeastern San Diego Community Plan Update Mitigation Framework

Noise impacts associated with the Southeastern San Diego Community Plan Update (CPU) were addressed in the Final Program Environmental Impact Report for the Southeastern San Diego and Encanto Neighborhoods (FPEIR; Project Number 386029, SCH No. 2014051075) approved by the City of San Diego (City) in 2015 (City of San Diego 2015a).

The following mitigation framework applies to the project:

Traffic Generated Noise Impacts

MM-NOS-1: Site-specific exterior noise analyses demonstrating that the project would not place residential receptors in locations where the exterior existing or future noise levels would exceed the noise compatibility standards of the City's General Plan shall be required as part of the environmental and discretionary review of future development proposals. Effective noise reduction measures may include, but are not limited to, building noise barriers, increased building setbacks, speed reductions on surrounding roadways, alternative pavement surfaces, or other relevant noise attenuation measures. Exact noise mitigation measures and their effectiveness shall be determined by the site-specific exterior noise analyses.

MM-NOS-2: When building plans are available and prior to the issuance of building permits, site-specific interior noise analyses demonstrating compliance with the interior noise compatibility standards of the City's General Plan and other applicable regulations shall be prepared for noise sensitive receptors located in areas where the exterior

noise levels exceed the noise compatibility standards of the City's General Plan. Noise control measures, including but not limited to, increasing roof, wall, window, and door sound attenuation ratings, placing HVAC units in noise reducing enclosures, or designing buildings so that no windows face freeways or major roadways may be used to achieve the noise compatibility standards. Exact noise mitigation measures and their effectiveness shall be determined by the site-specific exterior noise analyses.

Stationary Source Noise

MM-NOS-3: Prior to the issuance of a building permit, a site-specific acoustical/noise analysis of any on-site generated noise sources, including generators, mechanical equipment, and trucks, shall be prepared which identifies all noise-generating equipment, predicts noise levels at property lines from all identified equipment, and recommends mitigation to be implemented (e.g., enclosures, barriers, site orientation), to ensure compliance with the City's Noise Abatement and Control Ordinance. Noise reduction measures shall include building noise-attenuating walls, reducing noise at the source by requiring quieter machinery or limiting the hours of operation, or other attenuation measures. Additionally, future projects shall be required to buffer sensitive receptors from noise sources through the use of open space and other separation techniques as recommended after thorough analysis by a qualified acoustical engineer. Exact noise mitigation measures and their effectiveness shall be determined by the site-specific noise analyses.

Construction Noise

MM-NOS-4: For projects that exceed daily construction noise thresholds established by the City of San Diego, best construction management practices shall be used to reduce construction noise levels to comply with standards established by the Municipal Code in Chapter 5, Article 9.5, Noise Abatement and Control. The project applicant shall prepare and implement a Construction Noise Management Plan. Appropriate management practices shall be determined on a project-by-project basis and are specific to the location. Control measures shall include:

a. Minimizing simultaneous operation of multiple construction equipment units;
b. Locating stationary equipment as far as reasonable from sensitive receptors;
c. Requiring all internal combustion-engine-driven equipment to be equipped with mufflers that are in good operating condition and appropriate for the equipment; and
d. Construction of temporary noise barriers around construction sites that block the line-of-sight to surrounding receptors.

2.2 City of San Diego General Plan

The City's Noise Element of the General Plan specifies compatibility standards for different land use categories (Table 1). Single family residential uses are considered "compatible" with exterior noise levels up to 60 CNEL and "conditionally compatible" with exterior noise levels up to 65 CNEL. The City's interior noise level standard for all residential uses is 45 CNEL.

Table 1
City of San Diego Land Use – Noise Compatibility Guidelines

Land Use Category	Exterior Noise Exposure [dB(A) CNEL] 60	65	70	75
Parks and Recreational				
Parks, Active and Passive Recreation				50
Outdoor Spectator Sports, Golf Courses; Water Recreational Facilities; Indoor Recreation Facilities				
Agricultural				
Crop Raising and Farming; Community Gardens, Aquaculture, Dairies; Horticulture Nurseries and Greenhouses; Animal Raising, Maintaining and Keeping; Commercial Stables				
Residential				
Single Dwelling Units; Mobile Homes		45		
Multiple Dwelling Units **For uses affected by aircraft noise, refer to Policies NE-D.2. & NE-D.3.*		45	45	
Institutional				
Hospitals; Nursing Facilities; Intermediate Care Facilities; Kindergarten through Grade 12 Educational Facilities; Libraries; Museums; Child Care Facilities		45		
Other Educational Facilities including Vocational/Trade Schools and Colleges and Universities		45	45	
Cemeteries				
Retail Sales				
Building Supplies/Equipment; Food, Beverage, and Groceries; Pets and Pet Supplies; Sundries, Pharmaceutical, and Convenience Sales; Wearing Apparel and Accessories			50	50
Commercial Services				
Building Services; Business Support; Eating and Drinking; Financial Institutions; Maintenance & Repair; Personal Services; Assembly and Entertainment (includes public and religious assembly); Radio and Television Studios; Golf Course Support			50	50
Visitor Accommodations		45	45	45
Offices				
Business and Professional; Government; Medical, Dental, and Health Practitioner; Regional and Corporate Headquarters			50	50
Vehicle and Vehicular Equipment Sales and Services Use				
Commercial or Personal Vehicle Repair and Maintenance; Commercial or Personal Vehicle Sales and Rentals; Vehicle Equipment and Supplies Sales and Rentals; Vehicle Parking				
Wholesale, Distribution, Storage Use Category				
Equipment and Materials Storage Yards; Moving and Storage Facilities; Warehouse; Wholesale Distribution				
Industrial				
Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking and Transportation Terminals; Mining and Extractive Industries				
Research and Development				50

	Compatible	Indoor Uses	Standard construction methods should attenuate exterior noise to an acceptable indoor noise level.
		Outdoor Uses	Activities associated with the land use may be carried out.
45, 50	Conditionally Compatible	Indoor Uses	Building structure must attenuate exterior noise to the indoor noise level indicated by the number for occupied areas.
		Outdoor Uses	Feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable.
	Incompatible	Indoor Uses	New construction should not be undertaken.
		Outdoor Uses	Severe noise interference makes outdoor activities unacceptable.

SOURCE: City of San Diego 2015b.

2.3 City of San Diego Municipal Code

2.3.1 On-site Generated Noise

Section 59.5.0401 of the City's Noise Abatement and Control Ordinance states that:

A. It shall be unlawful for any person to cause noise by any means to the extent that the one-hour average sound level exceeds the applicable limit.

B. The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts.

The applicable noise limits of the City's Noise Abatement and Control Ordinance are summarized in Table 2.

Table 2
Applicable Noise Level Limits

Land Use	Time of Day	One-Hour Average Sound Level [dB(A) L_{eq}]
Single-family Residential	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	50 45 40
Multi-family Residential (up to a maximum density of 1 unit/2,000 square feet)	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	55 50 45
All other Residential	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	60 55 50
Commercial	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 60 60
Industrial or Agricultural	Anytime	75

SOURCE: City of San Diego Noise Abatement and Control Ordinance Section 59.5.0401.
dB(A) L_{eq} = A-weighted decibels equivalent noise level

The project site is surrounded by single family uses. The appliable daytime, evening, and nighttime noise limits are 50, 45, and 40 dB(A) L_{eq}, respectively.

2.3.2 Construction Noise

Section 59.5.0404 of the City's Noise Abatement and Control Ordinance states that:

A. It shall be unlawful for any person, between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with exception of Columbus Day and Washington's Birthday, or on Sundays, to erect, construct, demolish, excavate for, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. . . .

B. . . . it shall be unlawful for any person, including the City of San Diego, to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 decibels during the 12-hour period from 7:00 a.m. to 7:00 p.m.

Construction would be restricted to between the hours of 7:00 a.m. and 7:00 p.m. and construction noise levels may not exceed a 12-hour equivalent noise level [dB(A) $L_{eq(12)}$] of 75 dB(A) $L_{eq(12)}$ as assessed at or beyond the property line of a property zoned residential. As discussed, there are residential uses located north of the project site.

2.4 California Code of Regulations

Interior noise levels for habitable rooms are regulated also by Title 24 of the California Code of Regulations California Noise Insulation Standards. Title 24, Chapter 12, Section 1206.4, of the 2019 California Building Code requires that interior noise levels attributable to exterior sources not exceed 45 CNEL in any habitable room (California Code of Regulations 2019). A habitable room is a room used for living, sleeping, eating, or cooking. Bathrooms, closets, hallways, utility spaces, and similar areas are not considered habitable rooms for this regulation (24 California Code of Regulations, Chapter 12, Section 1206.4 2019).

3.0 Existing Conditions

Existing noise levels at the project site were measured on October 26, 2021, using one Larson-Davis LxT Sound Expert Sound Level Meters, serial number 3829. The following parameters were used:

Filter:	A-weighted
Response:	Slow
Time History Period:	5 seconds

The meter was calibrated before and after the measurements. The meter was set 5 feet above the ground level for each measurement.

Noise measurements were taken to obtain typical ambient noise levels at the project site and in the vicinity. The weather was partly cloudy with a slight breeze. Two 15-minute measurements were taken, as described below. The measurement locations are shown on Figure 4, and detailed data is contained in Attachment 1.

Measurement 1 was located at the western portion of the project site, approximately 125 feet east of Euclid Avenue. The main source of noise at this location was vehicle traffic on Euclid Avenue. The secondary source of noise was aircraft flyovers on approach to San Diego International Airport. During the 15-minute measurement period, vehicle traffic on Euclid Avenue was counted. The average measured noise level was 56.8 dB(A) L_{eq}.

Measurement 2 was located at the eastern portion of the project site, approximately 470 feet east of Euclid Avenue. The main source of noise at this location was vehicle traffic on Euclid Avenue. Secondary sources of noise included aircraft flyovers, barking dogs, and occasional construction equipment in the distance. During the 15 minute measurement period, vehicle traffic on Euclid Avenue was counted. The average measured noise level was 56.2 dB(A) L_{eq}.

Image Source: NearMap (flown September 2021)

Project Boundary

Noise Measurement Location

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FIGURE 4
Noise Measurement Locations

Noise measurements are summarized in Table 3, and vehicle traffic counts are summarized in Table 4.

Table 3 Noise Measurements				
Measurement	Location	Time	Noise Sources	L_{eq}
1	125 feet east of Euclid Avenue	11:04 a.m. – 11:19 a.m.	Euclid Avenue, aircraft	56.8
2	470 feet east of Euclid Avenue	11:23 a.m. – 11:38 a.m.	Euclid Avenue, aircraft, dogs, construction equipment	56.2
NOTE: Noise measurement data is contained in Attachment 1.				

Table 4 15-minute Traffic Counts							
Measurement	Roadway	Direction	Autos	Medium Trucks	Heavy Trucks	Buses	Motorcycles
1	Euclid Avenue	Northbound	61	0	0	0	3
		Southbound	62	2	0	0	5
2	Euclid Avenue	Northbound	77	1	0	1	4
		Southbound	71	0	1	0	2

4.0 Analysis Methodology

Noise level predictions and contour mapping were developed using noise modeling software, SoundPlan Essential, version 3.0 (Navcon Engineering 2015). SoundPLAN calculates noise propagation based on the International Organization for Standardization method (ISO 9613-2 – Acoustics, Attenuation of Sound during Propagation Outdoors). The model calculates noise levels at selected receiver locations using input parameter estimates such as total noise generated by each noise source; distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. The model outputs can be developed as noise level contour maps or noise levels at specific receivers. In all cases, receivers were modeled at 5 feet above ground elevation, which represents the average height of the human ear.

4.1 Construction Noise Analysis

Project construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading, building construction, loading, unloading, and placing materials and paving. Diesel engine-driven trucks also would bring materials to the site and remove the soils from excavation.

Construction equipment with a diesel engine typically generates maximum noise levels from 80 to 90 dB(A) L_{eq} at a distance of 50 feet (Federal Highway Administration [FHWA] 2006). Table 5 summarizes typical construction equipment noise levels.

Table 5 Typical Construction Equipment Noise Levels		
Equipment	Noise Level at 50 Feet [dB(A) L_{eq}]	Typical Duty Cycle
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 kilovolt ampts or less)	70	50%
Generator (more than 25 kilovolt amps)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
Impact Pile Driver (diesel or drop)	95	20%
Insitu Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Roller	74	40%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%
Vibratory Pile Driver	95	20%
SOURCE: FHWA 2006.		

During excavation, grading, and paving operations, equipment moves to different locations and goes through varying load cycles, and there are breaks for the operators and for non-equipment tasks, such as measurement. Although maximum noise levels may be 85 to 90 dB(A) at a distance of 50 feet during most construction activities, hourly average noise levels from the grading phase of construction would be 85 dB(A) L_{eq} at 50 feet from the center of construction activity when assessing the loudest pieces of equipment working simultaneously.

4.2 Traffic Noise Analysis

The SoundPLAN program uses the FHWA Traffic Noise Model algorithms and reference levels to calculate traffic noise levels at selected receiver locations. The model uses various input parameters,

such as projected hourly average traffic rates; vehicle mix, distribution, and speed; roadway lengths and gradients; distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. Receivers, roadways, and barriers were input into the model using three-dimensional coordinates.

The main source of traffic noise at the project site is vehicle traffic on Euclid Avenue. Year 2025, 2035, and 2050 traffic volumes were obtained from San Diego Association of Governments Series 14 traffic projections (SANDAG 2021). A vehicle classification mix of 93.0 percent automobiles, 1.0 percent medium trucks, 0.5 percent heavy trucks, 5.0 percent buses, and 0.5 percent motorcycles was modeled. This classification mix is based on field traffic counts conducted during the noise measurements. Table 6 summarizes the modeled future vehicle traffic parameters.

Table 6
Modeled Vehicle Traffic Parameters

Roadway Segment	Year 2025 ADT	Year 2035 ADT	Year 2050 ADT	Speed (mph)
Euclid Avenue	14,200	15,500	16,900	40
SOURCE: SANDAG 2021				

4.3 On-Site Generated Noise Analysis

The noise sources on the project site after completion of construction are anticipated to be those that would be typical of any single-family residential neighborhood, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources associated with single-family uses are anticipated to violate the City's Noise Abatement and Control Ordinance or result in a substantial permanent increase in existing noise levels. The project would include HVAC units. Noise levels due to HVAC units were modeled to determine if they have the potential to produce noise in excess of City limits (see Table 2).

It is not known at this time which manufacturer, brand, or model of unit or units would be selected for use in the project. For the purposes of this analysis, to determine what general noise levels the HVAC units would generate, it was assumed that the units would be similar to a Trane split system unit with a sound power level of 72 dB(A). The unit specification sheets are included in Attachment 2. Noise generated by HVAC equipment would occur on an intermittent basis, primarily during the day and evening hours and less frequently during the nighttime hours. The HVAC units were modeled at full capacity during the daytime and evening hours and at half capacity during the nighttime hours. This is typical of HVAC operation during hotter summer days.

5.0 Future Acoustical Environment and Impacts

5.1 Construction Noise

Noise associated with the grading, building, and paving for the project would potentially result in short-term impacts to surrounding properties. The project site is surrounded by single-family residential uses in all directions. A variety of noise-generating equipment would be used during the

construction phase of the project, such as excavators, backhoes, front-end loaders, and concrete saws, along with others. The exact number and pieces of construction equipment required are not known at this time. Although maximum noise levels may be 85 to 90 dB(A) at a distance of 50 feet during most construction activities, hourly average noise levels would be lower when taking into account the equipment usage factors. The loudest phase of construction would be the grading/excavation phase and would include dozers, loaders, and graders. Construction noise levels were calculated based on all three pieces of equipment being active simultaneously.

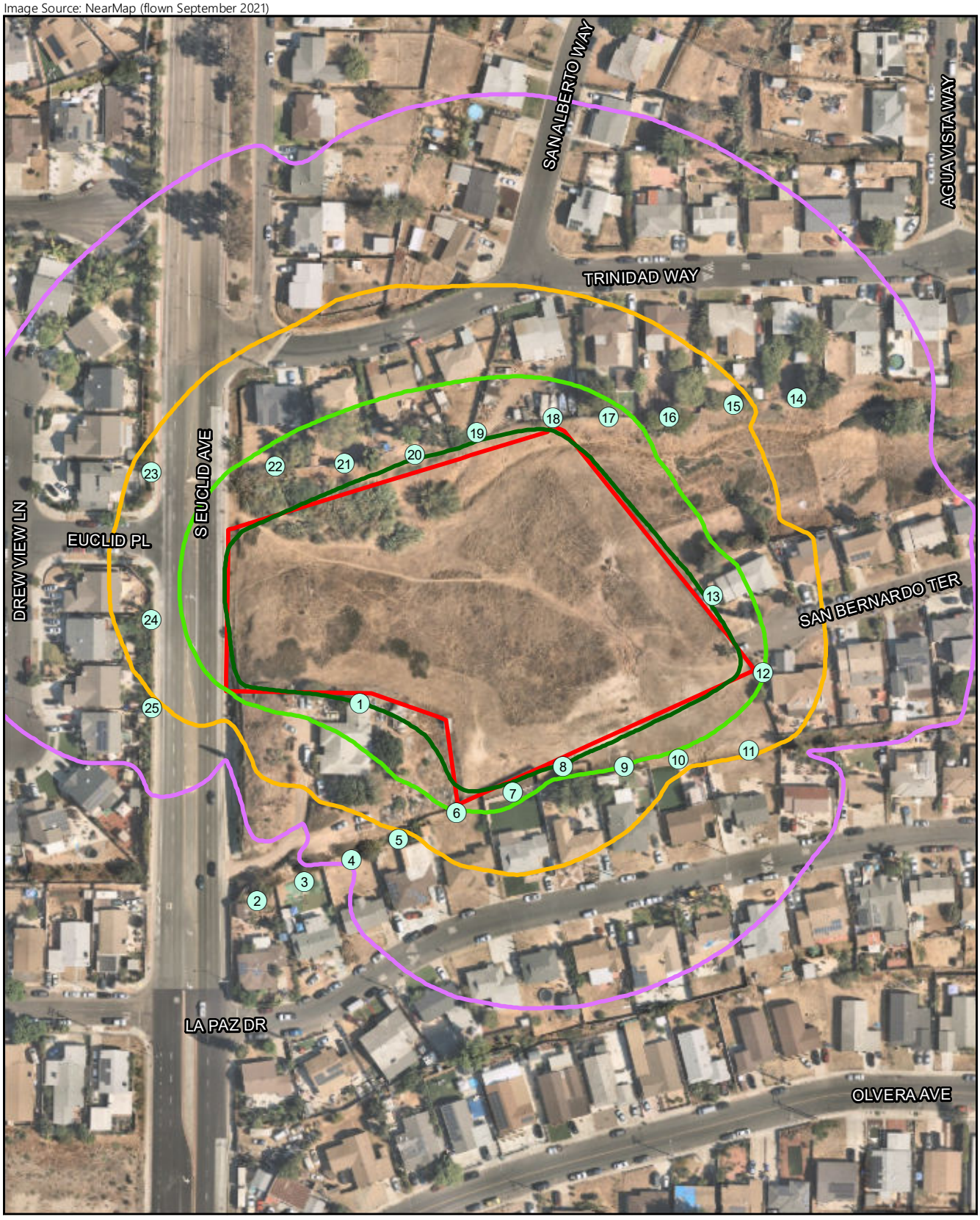
Construction noise is considered a point source and would attenuate at approximately 6 dB(A) for every doubling of distance. Average hourly noise levels due to simultaneous activity would be 85 dB(A) L_{eq} at 50 feet. To reflect the nature of grading and construction activities, equipment was modeled as an area source distributed over the project footprint. The total sound energy of the area source was modeled with three pieces of equipment operating simultaneously. Noise levels were modeled at a series of 25 receivers located at the adjacent uses. The results are summarized in Table 7. Modeled receiver locations and construction noise contours are shown in Figure 5. SoundPLAN data is contained in Attachment 3.

Table 7
Construction Noise Levels at Off-site Receivers

Receiver	Land Use	Construction Noise Level [dB(A) L_{eq}]
1	Residential	75
2	Residential	58
3	Residential	58
4	Residential	59
5	Residential	63
6	Residential	69
7	Residential	72
8	Residential	75
9	Residential	69
10	Residential	69
11	Residential	66
12	Residential	70
13	Residential	74
14	Residential	64
15	Residential	66
16	Residential	69
17	Residential	71
18	Residential	73
19	Residential	74
20	Residential	75
21	Residential	73
22	Residential	71
23	Residential	66
24	Residential	67
25	Residential	64

dB(A) L_{eq} = A-weighted decibels equivalent noise level

Image Source: NearMap (flown September 2021)



Project Boundary

Receivers

Construction Noise

60 dB(A) L_{eq}

65 dB(A) L_{eq}

70 dB(A) L_{eq}

75 dB(A) L_{eq}

0 Feet 150

FIGURE 5

Construction Noise Contours

RECON

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As shown, construction noise levels are not anticipated to exceed 75 dB(A) L_{eq} at the adjacent residential uses. Although the existing adjacent residences would be exposed to construction noise levels that could be heard above ambient conditions, the exposure would be temporary. Additionally, construction activities are not anticipated to exceed 75 dB(A)L_{eq}. As construction activities associated with the project would comply with noise level limits from Noise Abatement and Control Ordinance Section 59.5.0404, temporary increases in noise levels from construction activities would be less than significant.

5.2 Vehicle Traffic Noise

5.2.1 On-site Noise Compatibility

The project site is located within the Southeastern San Diego community planning area. As discussed, noise impacts were addressed in the FPEIR which was approved in 2015. For the proposed project, as required by mitigation measure NOI-1, this site-specific noise analysis calculates exterior noise levels and analyzes noise reduction measures, if necessary, to demonstrate that future noise would not exceed the residential noise compatibility standards of the General Plan. Single-family residential uses are "compatible" with exterior noise levels up to 60 CNEL, and "conditionally compatible" with exterior noise levels up to 65 CNEL. In "conditionally compatible" areas, feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable, and building structures must attenuate exterior noise levels to an indoor noise level of 45 CNEL. The exterior compatibility standard is applicable at the proposed exterior use areas. In the case of the proposed project, exterior use areas include the balconies.

Exterior Noise

Vehicle traffic noise level contours across the project site were calculated using SoundPLAN. These contours take into account the project area topography. These noise contours are shown in Figure 6. As shown, first-floor noise levels would be less than 60 CNEL at the proposed lot locations.

Noise levels were also modeled at each of the lot locations. Exterior noise levels are summarized in Table 8. SoundPLAN data is contained in Attachment 4.

Image Source: NearMap (flown September 2021)

Project Boundary
Site Plan
Receivers

Vehicle Traffic Noise
50 CNEL
55 CNEL
60 CNEL
65 CNEL

0 Feet 100

FIGURE 6
Vehicle Traffic Noise Contours

RECON

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Table 8 On-Site Vehicle Traffic Noise Levels		
Receiver	Lot	Exterior Noise Level (CNEL)
1	Lot 1	56
2	Lot 2	55
3	Lot 3	53
4	Lot 4	52
5	Lot 5	51
6	Lot 6	51
7	Lot 7	52
8	Lot 8	52
9	Lot 9	51
10	Lot 10	51
11	Lot 11	51
12	Lot 12	50
13	Lot 13	50
14	Lot 14	49
15	Lot 15	49
16	Lot 16	49
17	Lot 17	50
18	Lot 18	50
19	Lot 19	50
20	Lot 20	50
21	Lot 21	50
22	Lot 22	50
23	Lot 23	50
24	Lot 24	50
25	Lot 25	50
CNEL = community noise equivalent level		

As shown, exterior noise levels are projected to range from 49 to 56 CNEL. Noise levels would be less than the "compatible" exterior noise level for single-family residential uses. Exterior noise impacts would be less than significant.

Interior Noise

Interior noise levels can be reduced through standard construction techniques. When windows are closed, standard construction techniques provide various exterior-to-interior noise level reductions depending on the type of structure and window. According to the FHWA's Highway Traffic Noise Analysis and Abatement Guidance, buildings with masonry façades and double glazed windows can be estimated to provide a noise level reduction of 35 dB, while light-frame structures with double glazed windows may provide noise level reductions of 20 to 25 dB (FHWA 2011).

The interior noise level standard for residential uses is 45 CNEL. As shown in Table 8, exterior noise levels at the proposed lots would range from 49 to 56 CNEL. Standard light-frame construction would reduce

exterior to interior noise levels by at least 20 dB. Therefore, interior noise levels would be 36 CNEL or less, and are not projected to exceed the interior noise level standard of 45 CNEL.

5.2.2 Off-site Vehicle Traffic Noise

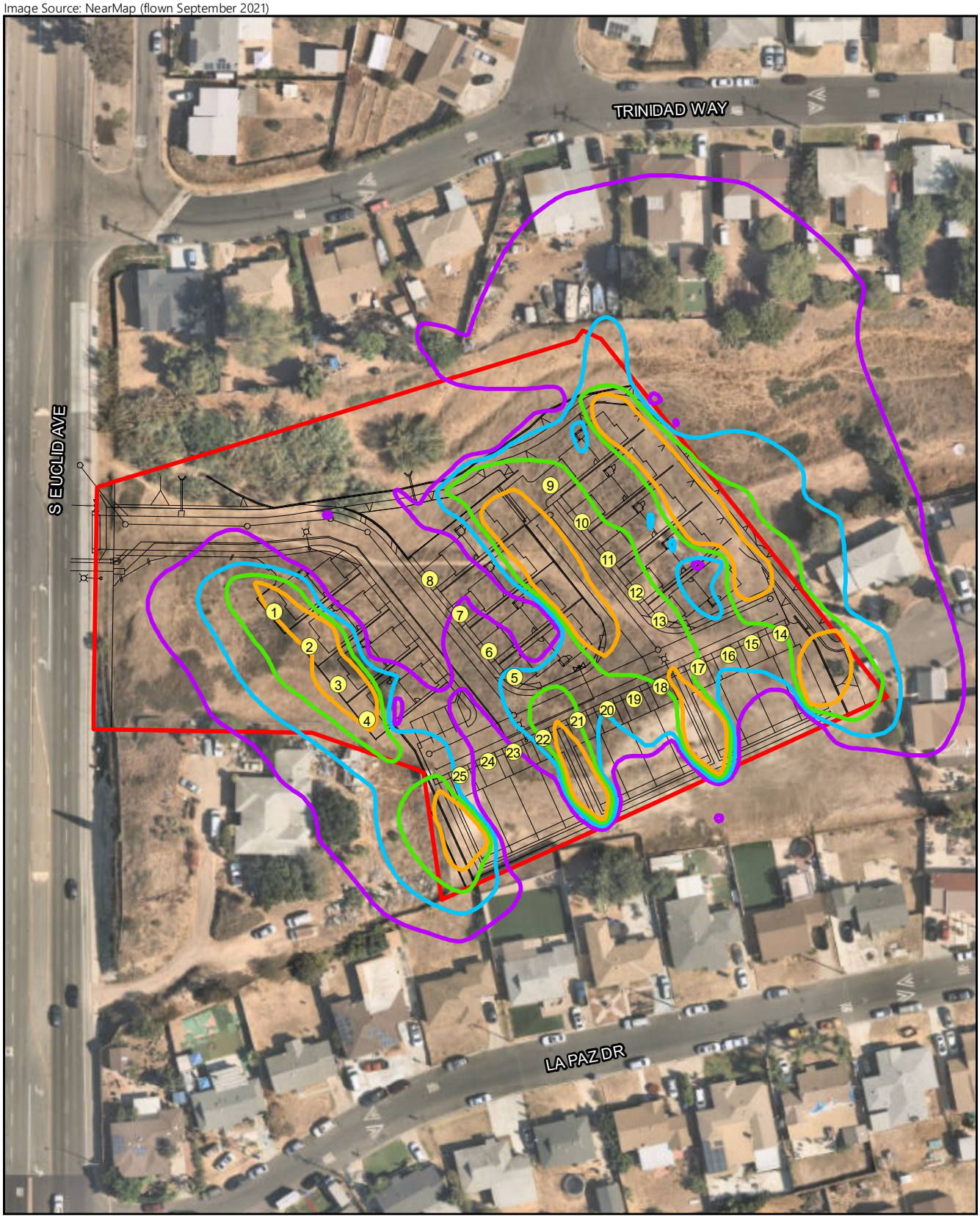
The project would increase traffic volumes on local roadways. However, the project would not substantially alter the vehicle classifications mix on local or regional roadways nor would the project alter the speed on an existing roadway or create a new roadway. Thus, the primary factor affecting off-site noise levels would be increased traffic volumes. While changes in noise levels would occur along any roadway where project-related traffic occurs, for noise assessment purposes, noise level increases are assumed to be greatest nearest the project site, as this location would represent the greatest concentration of project-related traffic. A substantial noise increase is defined as an increase of 3 dB above existing conditions as stated in the City's California Environmental Quality Act (CEQA) significance standards.

Based on a trip generation rate of 10 trips per dwelling unit (SANDAG 2002), the project is anticipated to generate 250 daily trips. Typically, a project would have to double the traffic volume on a roadway in order to have a significant direct noise increase of 3 dB or more or to be major contributor to the cumulative traffic volumes. An increase of 250 trips on Euclid Avenue would result in a noise increase of 0.1 dB or less, which would not be an audible change in noise levels. Therefore, the project would not result in the exposure of noise sensitive land uses to significant noise levels, and impacts would be less than significant.

5.3 On-site Generated Noise

The primary noise sources on-site would be HVAC equipment. Using the on-site noise source parameters discussed in Section 4.3, noise levels were modeled at a series of 25 receivers located at the project boundary. The locations of the HVAC units were obtained from project drawings. Modeled receivers and HVAC noise contours are shown in Figures 7a and 7b. Modeled data is included in Attachment 5. Future projected noise levels are summarized in Table 9.

Image Source: NearMap (flown September 2021)



Project Boundary
Site Plan
Receivers

Daytime/Evening HVAC Noise

35 dB(A) L_{eq}
40 dB(A) L_{eq}
45 dB(A) L_{eq}
50 dB(A) L_{eq}

0 Feet 100

RECON

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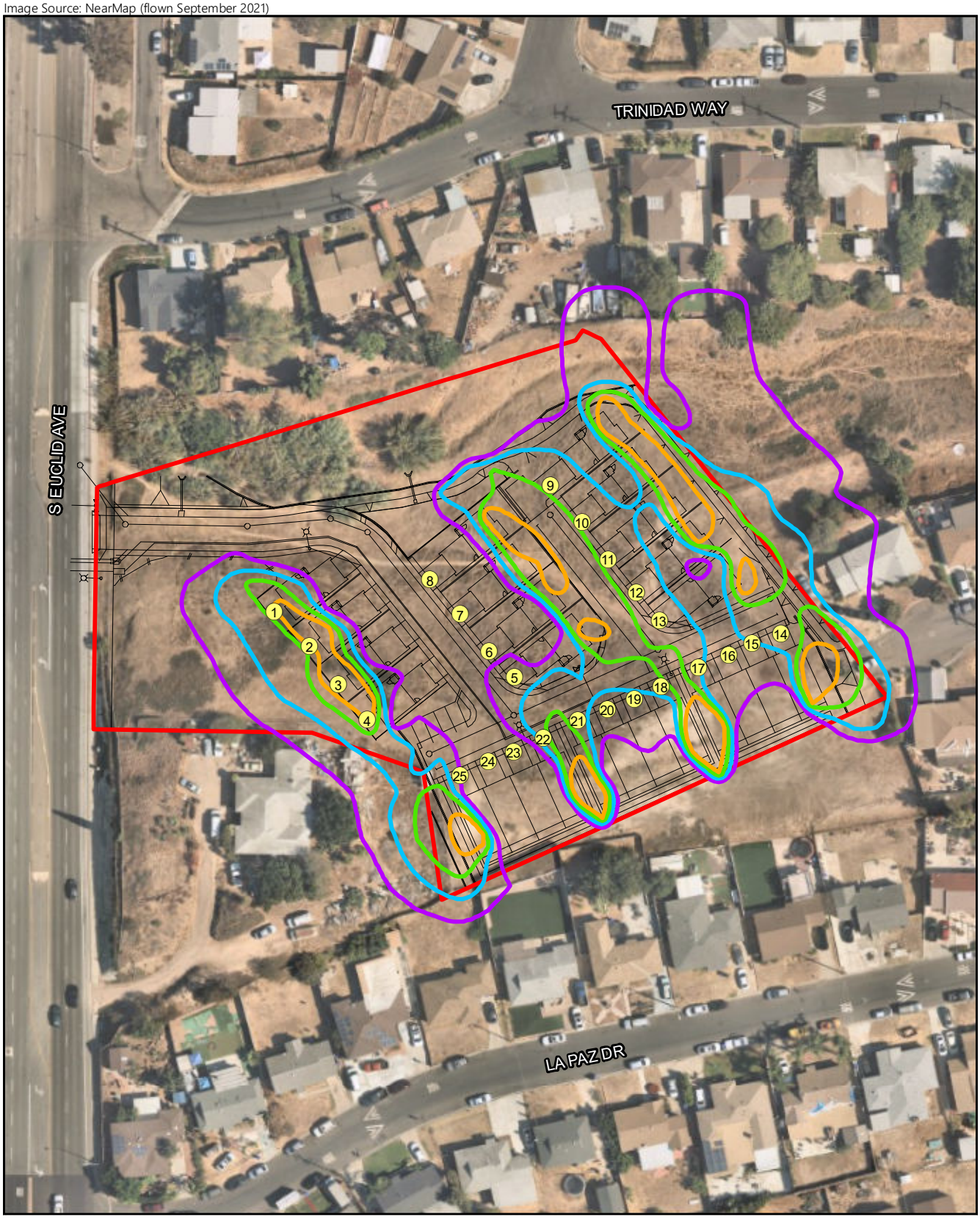
FIGURE 7a
Daytime/Evening HVAC Noise Contours

Image Source: NearMap (flown September 2021)



Project Boundary
Site Plan
Receivers

Nighttime HVAC Noise

35 dB(A) L_{eq}
40 dB(A) L_{eq}
45 dB(A) L_{eq}
50 dB(A) L_{eq}

0 Feet 100

RECON

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FIGURE 7b
Nighttime HVAC Noise Contours

Table 9 HVAC Noise Levels at Adjacent Property Lines [dB(A) L_{eq}]			
Receiver	Land Use	Daytime/Evening HVAC Noise Level	Nighttime HVAC Noise Level
1	Residential	38	35
2	Residential	19	16
3	Residential	20	17
4	Residential	22	19
5	Residential	27	24
6	Residential	38	35
7	Residential	23	20
8	Residential	31	28
9	Residential	25	22
10	Residential	28	25
11	Residential	23	20
12	Residential	40	37
13	Residential	41	38
14	Residential	33	30
15	Residential	36	33
16	Residential	38	35
17	Residential	41	38
18	Residential	40	37
19	Residential	36	33
20	Residential	33	30
21	Residential	31	28
22	Residential	29	26
23	Residential	27	24
24	Residential	26	23
25	Residential	19	16
dB(A) L_{eq} = A-weighted decibels equivalent noise level			

The appliable daytime, evening, and nighttime noise limits are 50, 45, and 40 dB(A) L_{eq}, respectively. As shown, daytime and evening noise levels would not exceed 45 dB(A) L_{eq} and nighttime noise level would not exceed 40 dB(A) L_{eq}. Impacts associated with operational noise sources would be less than significant.

6.0 Conclusions

6.1 Construction Noise

Southeastern San Diego CPU mitigation measure MM-NOS-4 addresses construction noise and requires construction noise reduction measures to be implemented for projects that exceed the standards established by the Municipal Code in Chapter 5, Article 9.5, Noise Abatement and Control. As shown in Table 7, construction noise levels are not anticipated to exceed 75 dB(A) L_{eq} at the adjacent residential uses. Although the existing adjacent residences would be exposed to

construction noise levels that could be heard above ambient conditions, the exposure would be temporary. Additionally, construction activities are not anticipated to exceed 75 dB(A)L_{eq}. As construction activities associated with the project would comply with noise level limits from Noise Abatement and Control Ordinance Section 59.5.0404, temporary increases in noise levels from construction activities would be less than significant. Since construction noise levels are not anticipated to exceed standards established by the Municipal Code in Chapter 5, Article 9.5, Noise Abatement and Control, and project-specific Construction Noise Management Plan would not be required.

6.2 Vehicle Traffic Noise

6.2.1 On-site Noise Compatibility

Southeastern San Diego CPU mitigation measure MM-NOS-1 and MM-NOS-2 address exterior and interior noise exposure, respectively. Both these measures are applicable to the project, and an exterior and interior analysis was performed to demonstrate compatibility with the City's General Plan exterior and interior noise standards. The main source of traffic noise at the project site is vehicle traffic on Euclid Avenue. According to the General Plan Noise Element, single-family residential uses are considered "compatible" with exterior noise levels up to 60 CNEL and "conditionally compatible" with exterior noise levels up to 65 CNEL. The City's interior noise level standard for all residential uses is 45 CNEL.

As shown in Table 8, exterior noise levels at the proposed lots would range from 49 to 56 CNEL. Noise levels would be less than the "compatible" exterior noise level for single family residential uses. Exterior noise impacts would be less than significant.

Standard light-frame construction would reduce exterior to interior noise levels by at least 20 dB. Therefore, interior noise levels would be 36 CNEL or less, and are not projected to exceed the interior noise level standard of 45 CNEL. Interior noise impacts would be less than significant.

6.2.2 Off-site Vehicle Traffic Noise

The project would increase traffic volumes on local roadways. However, the project would not substantially alter the vehicle classifications mix on local or regional roadways, nor would the project alter the speed on an existing roadway or create a new roadway. Thus, the primary factor affecting off-site noise levels would be increased traffic volumes. A substantial noise increase is defined as an increase of 3 dB above existing conditions as stated in the City's CEQA significance standards.

Based on a trip generation rate of 10 trips per dwelling unit (SANDAG 2002), the project is anticipated to generate 250 daily trips. An increase of 250 trips on Euclid Avenue would result in a noise increase of 0.1 dB or less, which would not be an audible change in noise levels. Therefore, the project would not result in the exposure of noise sensitive land uses to significant noise levels, and impacts would be less than significant.

6.3 On-site Generated Noise

Southeastern San Diego CPU mitigation measure MM-NOS-3 addresses on-site generated noise and is applicable to the project. A site-specific analysis was performed to demonstrate compliance with the City's Noise Abatement and Control Ordinance. The project site is surrounded by single-family uses. The applicable daytime, evening, and nighttime noise limits are 50, 45, and 40 dB(A) L_{eq}, respectively. The noise sources on the project site after completion of construction are anticipated to be those that would be typical of any single family residential neighborhood, such as vehicles arriving and leaving, children at play, and landscape maintenance machinery. None of these noise sources associated with single family uses are anticipated to violate the City's Noise Abatement and Control Ordinance or result in a substantial permanent increase in existing noise levels. Noise levels would be similar to the surrounding single-family residential neighborhoods. Noise levels due to HVAC units were modeled to determine if they have the potential to produce noise in excess of City limits. As shown in Table 9, daytime and evening noise levels would not exceed 45 dB(A) L_{eq} and nighttime noise level would not exceed 40 dB(A) L_{eq}. Impacts associated with operational noise sources would be less than significant. Impacts associated with operational noise sources would be less than significant.

7.0 References Cited

California Code of Regulations

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2015a Final Program Environmental Impact Report for the Southeastern San Diego and Encanto Neighborhoods Community Plan Updates. Project Number 386029, SCH No. 2014051075. October 2015.

2015b City of San Diego General Plan Amendments. Resolution Number R- 309817 Final Environmental Impact Report No. 104495 Addendum R-309818. Adopted by City Council on June 29.

ATTACHMENTS

ATTACHMENT 1

Noise Measurement Data

Summary

File Name on Meter	LxT_Data.001.s
File Name on PC	LxTse_0003829-20211026 110423-LxT_Data.001.ldbin
Serial Number	0003829
Model	SoundExpert® LxT
Firmware Version	2.301
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2021-10-26 11:04:23
Stop	2021-10-26 11:19:24
Duration	00:15:00.7
Run Time	00:15:00.7
Pause	00:00:00.0
Pre-Calibration	2021-10-26 10:57:36
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	At LMax
Overload	122.1 dB

	A	C	Z
Under Range Peak	**78.4**	75.4	80.4 dB
Under Range Limit	**26.2**	25.3	32.2 dB
Noise Floor	16.3	16.2	22.1 dB

Results

LAeq	56.8	
LAE	86.4	
EA	47.996	µPa²h
LApeak (max)	2021-10-26 11:16:02	88.1 dB
LASmax	2021-10-26 11:11:44	68.7 dB
LASmin	2021-10-26 11:08:15	38.8 dB
SEA	-99.9	dB
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	Ldn	LDay 07:00-22:00	LNight 22:00-07:00	Lden	LDay 07:00-19:00	LEvening 19:00-22:00
	56.8	56.8	-99.9	56.8	56.8	-99.9

LCeq	65.2	dB
LAeq	56.8	dB
LCeq - LAeq	8.4	dB
LAleq	59.1	dB
LAeq	56.8	dB
LAleq - LAeq	2.3	dB

	A		C		Z	
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp
Leq	56.8		65.2			
LS(max)	68.7	2021/10/26 11:11:44				
LS(min)	38.8	2021/10/26 11:08:15				
LPeak(max)	88.1	2021/10/26 11:16:02				

Overload Count	0	
Overload Duration	0.0	s
OBA Overload Count	0	
OBA Overload Duration	0.0	s

Statistics

LAI5.00	62.0	dB
LAI10.00	60.6	dB
LAI33.30	56.9	dB
LAI50.00	54.3	dB
LAI66.60	51.1	dB
LAI90.00	44.7	dB

Summary

File Name on Meter	LxT_Data.002.s
File Name on PC	LxTse_0003829-20211026 112325-LxT_Data.002.ldbin
Serial Number	0003829
Model	SoundExpert® LxT
Firmware Version	2.301
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2021-10-26 11:23:25
Stop	2021-10-26 11:38:26
Duration	00:15:01.1
Run Time	00:15:01.1
Pause	00:00:00.0
Pre-Calibration	2021-10-26 10:57:35
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	At LMax
Overload	122.1 dB

	A	C	Z
Under Range Peak	**78.4**	75.4	80.4 dB
Under Range Limit	**26.2**	25.3	32.2 dB
Noise Floor	16.3	16.2	22.1 dB

Results

LAeq	56.2	
LAE	85.8	
EA	42.205	µPa²h
LApeak (max)	2021-10-26 11:37:04	86.6 dB
LASmax	2021-10-26 11:36:32	69.3 dB
LASmin	2021-10-26 11:28:21	45.2 dB
SEA	-99.9	dB
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	Ldn	LDay 07:00-22:00	LNight 22:00-07:00	Lden	LDay 07:00-19:00	LEvening 19:00-22:00
	56.2	56.2	-99.9	56.2	56.2	-99.9

LCeq	63.8	dB
LAeq	56.2	dB
LCeq - LAeq	7.6	dB
LAleq	58.8	dB
LAeq	56.2	dB
LAleq - LAeq	2.6	dB

	A		C		Z	
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp
Leq	56.2		63.8			
LS(max)	69.3	2021/10/26 11:36:32				
LS(min)	45.2	2021/10/26 11:28:21				
LPeak(max)	86.6	2021/10/26 11:37:04				

Overload Count	0	
Overload Duration	0.0	s
OBA Overload Count	0	
OBA Overload Duration	0.0	s

Statistics

LAI5.00	62.8	dB
LAI10.00	59.4	dB
LAI33.30	53.8	dB
LAI50.00	52.1	dB
LAI66.60	50.4	dB
LAI90.00	47.9	dB

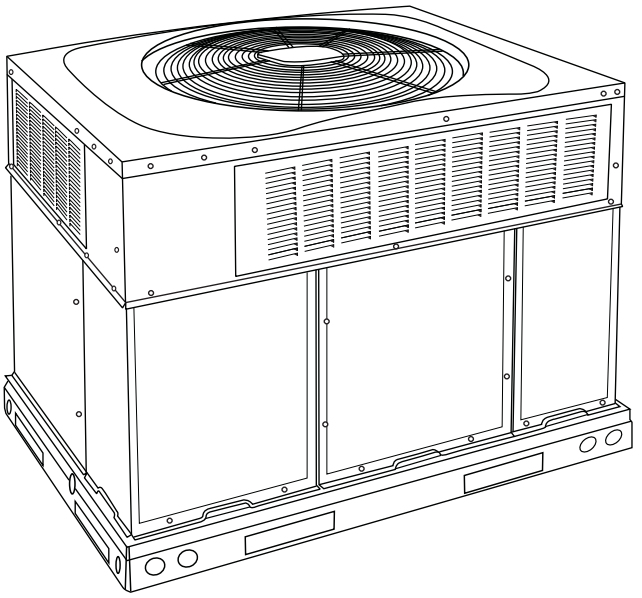
ATTACHMENT 2

HVAC Specifications

50VG–A
Performance™ 16 SEER 2–Stage Packaged Air Conditioner System with Puron® (R–410A) Refrigerant
Single and Three Phase
2 to 5 Nominal Tons (Sizes 24–60)

Carrier
turn to the experts

Product Data



A09033

Fig. 1 - Unit 50VG-A

Single-Packaged Products with Energy-Saving Features and Puron® refrigerant.

- 15.0-16.0 SEER / 12.0-12.5 EER
- Factory-Installed TXV
- Multi-speed ECM Blower Motor - Standard
- Sound levels as low as 72dBA
- Two Stages of Cooling
- Dehumidification Feature

FEATURES/BENEFITS

One-piece cooling unit with optional electric heater, low sound levels, easy installation, low maintenance, and dependable performance.

Puron Environmentally Sound Refrigerant is Carrier's unique refrigerant designed to help protect the environment. Puron is an HFC refrigerant which does not contain chlorine that can harm the ozone layer. Puron refrigerant is in service in millions of systems proving highly reliable, environmentally sound performance.

Easy Installation

Factory-assembled package is a compact, fully self-contained, electric cooling unit that is prewired, pre-piped, and pre-charged for minimum installation expense. These units are available in a variety of standard cooling sizes with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The high tech composite base eliminates rust problems associated with ground level applications.

Innovative Unit Base Design

On the inside a high-tech composite material will not rust and incorporates a sloped drain pan which improves drainage and helps inhibit mold, algae and bacterial growth. On the outside metal base rails provide added stability as well as easier handling and rigging.

Convertible duct configuration

Unit is designed for use in either downflow or horizontal applications. Each unit is converted from horizontal to downflow and includes horizontal duct covers. Downflow operation is provided in the field to allow vertical ductwork connections. The basepan seals on the bottom openings to ensure a positive seal in the vertical airflow mode.

Efficient operation High-efficiency design offers SEER (Seasonal Energy Efficiency Ratios) of up to 16.0. (See page 4.)

Durable, dependable components

Scroll Compressors have 2 stages of cooling and are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Each compressor also has vibration isolation to provide quieter operation. All compressors have internal high pressure and overcurrent protection.

Multi-speed ECM Blower Motor is standard on all 50VG-A.

Direct-drive PSC (Permanent Split Capacitor) condenser-fan motors are designed to help reduce energy consumption and provide for cooing operation down to 40°F (4.4°C) outdoor temperature. Motormaster® II low ambient kit is available as a field-installed accessory.

Thermostatic Expansion Valve - A hard shutoff, balance port TXV maintains a constant superheat at the evaporator exit (cooling cycle) resulting in higher overall system efficiency.

Refrigerant system is designed to provide dependability. Liquid filter driers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

High and Low Pressure Switches provide added reliability for the compressor.

Indoor and Outdoor coils are computer-designed for optimum heat transfer and efficiency. The indoor coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The outdoor coil is internally mounted on the top tier of the unit.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 72dBA. (See Page 4.)

Easy to service cabinets provide easy 3 panel accessibility to serviceable components during maintenance and installation. The basepan with integrated drain pan provides easy ground level installation with a mounting pad. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. (19.05 mm) wide perimeter flange makes frame mounting on a rooftop easy.

AHRI* CAPACITIES

Cooling Capacities and Efficiencies

Unit Model 50VG-A	Nominal Tons	Standard CFM (High / Low Stage)	Net Cooling Capacities - Btuh (High Stage)	EER @A**	SEER†
24	2	800 / 600	23000	12.0	15.0
30	2-1/2	1000 / 750	29000	12.0	15.0
36	3	1200 / 900	35400	12.5	16.0
42	3-1/2	1400 / 1050	42000	12.5	16.0
48	4	1600 / 1200	47500	12.3	16.0
60	5	1750 / 1200	57000	12.3	16.0

LEGEND
dB–Sound Levels (decibels)
db—Dry Bulb
SEER—Seasonal Energy Efficiency Ratio
wb—Wet Bulb
COP–Coefficient of Performance
* Air Conditioning, Heating & Refrigeration Institute.
**At "A" conditions–80°F (26.7°C) indoor db/67°F (19.4°C) indoor wb & 95°F (35°C) outdoor db.
† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or AHRI Standards 210/240.

Notes:
1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
Cooling Standard: 80°F (26.7°C) db, 67°F wb (19.4°C) indoor entering–air temperature and 95°F db (35°C) outdoor entering–air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from AHRIdirectory.org.

A-WEIGHTED SOUND POWER LEVEL (dBA)

Model 50VG-A	Sound Ratings (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24	73	60.0	62.5	68.5	68.5	64.0	60.0	53.0
30	77	57.5	67.0	73.5	72.0	67.0	61.0	52.5
36	73	62.5	65.5	67.5	68.0	65.5	60.0	52.5
42	73	60.5	63.5	68.0	68.0	66.0	60.5	53.0
48	72	60.0	63.5	66.0	67.0	63.5	58.5	49.5
60	75	69.0	67.0	69.0	68.0	65.0	61.5	54.0

NOTE: Tested in accordance with AHRI Standard 270 (not listed in AHRI).

ATTACHMENT 3

SoundPLAN Data – Construction Noise

9215 Euclid Terrace

SoundPLAN Data - Construction

		Level	Corrections		
Source name	Reference	Leq1	Cwall	CI	CT
		dB(A)	dB(A)	dB(A)	dB(A)
Construction	Lw/unit	116.3	-	-	-

9215 Euclid Terrace

SoundPLAN Data - Construction

No.	Coordinates X (meters)	Y	Height (meters)	Noise Level Leq1 dB(A)
1	492078.32	3617924.48	52.10	74.9
2	492045.51	3617860.19	46.20	57.5
3	492060.59	3617866.54	45.88	57.6
4	492075.94	3617873.68	46.34	59.2
5	492091.28	3617880.56	47.12	63.4
6	492109.81	3617889.29	47.58	69.3
7	492128.06	3617895.90	47.94	71.8
8	492144.20	3617904.64	50.65	74.6
9	492164.05	3617904.64	49.65	69.4
10	492181.77	3617907.02	50.33	68.6
11	492204.53	3617910.19	50.76	66.2
12	492209.02	3617935.33	51.18	70.2
13	492192.62	3617960.20	49.67	73.9
14	492219.34	3618024.49	43.56	63.6
15	492198.71	3618022.11	42.88	65.7
16	492178.07	3618018.14	41.82	68.5
17	492158.22	3618017.88	41.29	71.1
18	492140.23	3618017.61	40.82	73.4
19	492115.63	3618012.59	40.51	74.2
20	492095.52	3618005.44	39.92	74.5
21	492072.76	3618002.27	39.68	73.3
22	492050.27	3618001.21	39.37	71.4
23	492010.06	3617998.83	41.35	65.9
24	492010.59	3617951.20	42.09	67.3
25	492010.85	3617922.63	43.56	64.3

ATTACHMENT 4

SoundPLAN Data – Traffic Noise

9215 Euclid Terrace

SoundPLAN Data - Vehicle Traffic

Station	ADT	Traffic values Vehicles type	Vehicle name	day	evening	night	Speed	Control device	Constr. Speed	Affect. veh.	Road surface	Gradient Min / Max
km	Veh/24h			Veh/h	Veh/h	Veh/h	km/h		km/h	%		%
Euclid Avenue		Traffic direction:	In entry direction									
0+000	16893	Total	-	1084	563	244	-	none	-	-	Average (of DGAC and PCC)	-0.5
0+000	16893	Automobiles	-	1008	524	227	56	none	-	-	Average (of DGAC and PCC)	-0.5
0+000	16893	Medium trucks	-	11	6	2	56	none	-	-	Average (of DGAC and PCC)	-0.5
0+000	16893	Heavy trucks	-	5	3	1	56	none	-	-	Average (of DGAC and PCC)	-0.5
0+000	16893	Buses	-	54	28	12	56	none	-	-	Average (of DGAC and PCC)	-0.5
0+000	16893	Motorcycles	-	5	3	1	56	none	-	-	Average (of DGAC and PCC)	-0.5
0+000	16893	Auxiliary vehicle	-	-	-	-	-	none	-	-	Average (of DGAC and PCC)	-0.5
0+419	-	-	-	-	-	-						

9215 Euclid Terrace

SoundPLAN Data - Vehicle Traffic

	Coordinates				Noise Level		
No.	X	Y	Height	Day	Evening	Night	CNEL
	(meters)		(meters)		dB(A)		
1	492073.56	3617953.85	45.06	54.3	51.5	47.8	56.2
2	492081.23	3617946.44	46.53	52.6	49.8	46.1	54.5
3	492087.58	3617938.24	48.10	51.3	48.5	44.8	53.2
4	492093.93	3617930.56	49.21	50.2	47.3	43.7	52.1
5	492125.68	3617940.09	46.37	48.9	46.0	42.4	50.8
6	492120.12	3617945.65	45.29	49.4	46.5	42.9	51.3
7	492113.77	3617953.58	43.41	49.9	47.1	43.4	51.8
8	492107.16	3617960.99	41.92	50.5	47.7	44.1	52.4
9	492133.09	3617981.63	40.95	49.2	46.3	42.7	51.1
10	492139.97	3617973.69	42.61	48.8	46.0	42.3	50.7
11	492145.79	3617965.75	44.54	48.6	45.8	42.2	50.5
12	492151.87	3617958.61	46.37	48.4	45.5	41.9	50.3
13	492156.90	3617952.52	47.47	48.0	45.2	41.5	49.9
14	492183.10	3617949.88	49.80	46.9	44.1	40.4	48.8
15	492177.01	3617947.76	49.87	47.1	44.3	40.7	49.0
16	492171.98	3617945.12	50.10	47.4	44.6	41.0	49.3
17	492165.37	3617942.47	49.85	47.7	44.8	41.2	49.6
18	492157.43	3617938.24	50.32	48.1	45.3	41.6	50.0
19	492151.61	3617935.59	50.21	48.2	45.4	41.7	50.1
20	492145.79	3617933.21	49.90	48.3	45.5	41.9	50.2
21	492139.44	3617930.83	49.26	48.3	45.4	41.8	50.2
22	492132.03	3617926.86	48.90	48.3	45.4	41.8	50.2
23	492125.68	3617923.95	48.78	48.1	45.3	41.6	50.0
24	492120.12	3617921.83	48.76	48.3	45.4	41.8	50.2
25	492114.04	3617918.66	49.02	47.8	45.0	41.4	49.7

ATTACHMENT 5

SoundPLAN Data – HVAC Noise

9215 Euclid Terrace

SoundPLAN Data - HVAC

Source name	Reference	Level		Corrections		
		Daytime/Evening	Nighttime	Cwall	CI	CT
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
HVAC1	Lw/unit	72	69	-	-	-
HVAC2	Lw/unit	72	69	-	-	-
HVAC3	Lw/unit	72	69	-	-	-
HVAC4	Lw/unit	72	69	-	-	-
HVAC5	Lw/unit	72	69	-	-	-
HVAC6	Lw/unit	72	69	-	-	-
HVAC7	Lw/unit	72	69	-	-	-
HVAC8	Lw/unit	72	69	-	-	-
HVAC9	Lw/unit	72	69	-	-	-
HVAC10	Lw/unit	72	69	-	-	-
HVAC11	Lw/unit	72	69	-	-	-
HVAC12	Lw/unit	72	69	-	-	-
HVAC13	Lw/unit	72	69	-	-	-
HVAC14	Lw/unit	72	69	-	-	-
HVAC15	Lw/unit	72	69	-	-	-
HVAC16	Lw/unit	72	69	-	-	-
HVAC17	Lw/unit	72	69	-	-	-
HVAC18	Lw/unit	72	69	-	-	-
HVAC19	Lw/unit	72	69	-	-	-
HVAC20	Lw/unit	72	69	-	-	-
HVAC21	Lw/unit	72	69	-	-	-
HVAC22	Lw/unit	72	69	-	-	-
HVAC23	Lw/unit	72	69	-	-	-
HVAC24	Lw/unit	72	69	-	-	-
HVAC25	Lw/unit	72	69	-	-	-

9215 Euclid Terrace

SoundPLAN Data - HVAC

	Coordinates			Noise Level	
Receiver name	X	Y	Height	Daytime/Evening	Nighttime
	meters		meters	dB(A)	
1	492078.32	3617924.48	52.10	38	35
2	492045.51	3617860.19	46.20	19	16
3	492060.59	3617866.54	45.88	20	17
4	492075.94	3617873.68	46.34	22	19
5	492091.28	3617880.56	47.12	27	24
6	492110.49	3617888.76	47.33	38	35
7	492128.52	3617895.13	47.51	23	20
8	492144.74	3617900.17	48.18	31	28
9	492164.89	3617902.46	48.44	25	22
10	492183.41	3617905.11	49.71	28	25
11	492203.89	3617907.97	49.06	23	20
12	492209.02	3617935.33	51.18	40	37
13	492194.53	3617960.89	49.74	41	38
14	492219.34	3618024.49	43.56	33	30
15	492198.71	3618022.11	42.88	36	33
16	492178.07	3618018.14	41.82	38	35
17	492158.22	3618017.88	41.29	41	38
18	492140.23	3618017.61	40.82	40	37
19	492115.63	3618012.59	40.51	36	33
20	492095.52	3618005.44	39.92	33	30
21	492072.76	3618002.27	39.68	31	28
22	492050.27	3618001.21	39.37	29	26
23	492010.06	3617998.83	41.35	27	24
24	492010.59	3617951.20	42.09	26	23
25	492010.85	3617922.63	43.56	19	16

9215 Euclid Terrace

SoundPLAN Data - HVAC

Source name		Noise Level Daytime/Evening	Nighttime
		dB(A)	
1	1.Fl	38.2	35.2
HVAC1		30.8	27.8
HVAC2		31.9	28.9
HVAC3		31.6	28.6
HVAC4		29.2	26.2
HVAC5		13.6	10.6
HVAC6		12	9
HVAC7		9	6
HVAC8		17.3	14.3
HVAC9		5.9	2.9
HVAC10		7.3	4.3
HVAC11		10.5	7.5
HVAC12		6.2	3.2
HVAC13		5.3	2.3
HVAC14		4.7	1.7
HVAC15		4.2	1.2
HVAC16		9	6
HVAC17		9.1	6.1
HVAC18		9.3	6.3
HVAC19		9.6	6.6
HVAC20		13.5	10.5
HVAC21		12.9	9.9
HVAC22		12.5	9.5
HVAC23		12.3	9.3
HVAC24		28.1	25.1
HVAC25		28.1	25.1
2	1.Fl	18.7	15.7
HVAC1		5.9	2.9
HVAC2		6	3
HVAC3		6	3
HVAC4		6.1	3.1
HVAC5		-3.6	-6.6
HVAC6		3.3	0.3
HVAC7		-3.8	-6.8
HVAC8		-4	-7
HVAC9		-5.9	-8.9
HVAC10		-5.8	-8.8
HVAC11		-5.7	-8.7

HVAC12			-5.6	-8.6
HVAC13			-5.6	-8.6
HVAC14			-5.7	-8.7
HVAC15			-5.7	-8.7
HVAC16			-0.9	-3.9
HVAC17			-1	-4
HVAC18			-0.9	-3.9
HVAC19			-1	-4
HVAC20			1.7	-1.3
HVAC21			1.7	-1.3
HVAC22			1.7	-1.3
HVAC23			1.7	-1.3
HVAC24			13.4	10.4
HVAC25			13.2	10.2
3	1.Fl	19.8	16.8	
HVAC1			6	3
HVAC2			6.3	3.3
HVAC3			6.8	3.8
HVAC4			7.3	4.3
HVAC5			-2.4	-5.4
HVAC6			3.1	0.1
HVAC7			-2.9	-5.9
HVAC8			-3.1	-6.1
HVAC9			-5.1	-8.1
HVAC10			-5	-8
HVAC11			-4.8	-7.8
HVAC12			-4.7	-7.7
HVAC13			-4.7	-7.7
HVAC14			-4.8	-7.8
HVAC15			-4.8	-7.8
HVAC16			0.1	-2.9
HVAC17			0.1	-2.9
HVAC18			0.1	-2.9
HVAC19			0.1	-2.9
HVAC20			2.9	-0.1
HVAC21			3	0
HVAC22			3	0
HVAC23			3	0
HVAC24			14.8	11.8
HVAC25			14.5	11.5
4	1.Fl	21.9	18.9	

HVAC1			6.9	3.9
HVAC2			7.6	4.6
HVAC3			8.2	5.2
HVAC4			8.9	5.9
HVAC5			-1.2	-4.2
HVAC6			-1.5	-4.5
HVAC7			-1.8	-4.8
HVAC8			-2.2	-5.2
HVAC9			-4.3	-7.3
HVAC10			-4.1	-7.1
HVAC11			-3.9	-6.9
HVAC12			-3.7	-6.7
HVAC13			-3.6	-6.6
HVAC14			-3.7	-6.7
HVAC15			-3.7	-6.7
HVAC16			1.3	-1.7
HVAC17			1.3	-1.7
HVAC18			1.3	-1.7
HVAC19			1.3	-1.7
HVAC20			4.5	1.5
HVAC21			4.5	1.5
HVAC22			4.5	1.5
HVAC23			4.6	1.6
HVAC24			17.6	14.6
HVAC25			17.1	14.1
5	1.Fl	27.1	24.1	
HVAC1			8.4	5.4
HVAC2			9.3	6.3
HVAC3			10.2	7.2
HVAC4			11.5	8.5
HVAC5			0.3	-2.7
HVAC6			-0.3	-3.3
HVAC7			-0.7	-3.7
HVAC8			-1.2	-4.2
HVAC9			-3.4	-6.4
HVAC10			-3.1	-6.1
HVAC11			-2.9	-5.9
HVAC12			-2.7	-5.7
HVAC13			-2.5	-5.5
HVAC14			-2.6	-5.6
HVAC15			-2.5	-5.5

HVAC16			2.8	-0.2
HVAC17			2.8	-0.2
HVAC18			2.8	-0.2
HVAC19			2.8	-0.2
HVAC20			6.4	3.4
HVAC21			6.4	3.4
HVAC22			6.5	3.5
HVAC23			6.5	3.5
HVAC24			24.4	21.4
HVAC25			22.2	19.2
6	1.Fl	38.0	35.0	
HVAC1			8.2	5.2
HVAC2			12	9
HVAC3			10.5	7.5
HVAC4			16.3	13.3
HVAC5			6.7	3.7
HVAC6			1.3	-1.7
HVAC7			0.7	-2.3
HVAC8			-0.1	-3.1
HVAC9			-2.3	-5.3
HVAC10			-1.9	-4.9
HVAC11			-1.5	-4.5
HVAC12			0.4	-2.6
HVAC13			0	-3
HVAC14			-0.3	-3.3
HVAC15			-0.8	-3.8
HVAC16			5.3	2.3
HVAC17			5.2	2.2
HVAC18			5.2	2.2
HVAC19			5.2	2.2
HVAC20			11.1	8.1
HVAC21			9.7	6.7
HVAC22			9.8	6.8
HVAC23			9.8	6.8
HVAC24			35.1	32.1
HVAC25			34.7	31.7
7	1.Fl	23.2	20.2	
HVAC1			0.5	-2.5
HVAC2			4.8	1.8
HVAC3			6.9	3.9
HVAC4			8.3	5.3

HVAC5			4.1	1.1
HVAC6			5.4	2.4
HVAC7			4.4	1.4
HVAC8			0.6	-2.4
HVAC9			-1.5	-4.5
HVAC10			-0.9	-3.9
HVAC11			-0.4	-3.4
HVAC12			0.1	-2.9
HVAC13			0.7	-2.3
HVAC14			1	-2
HVAC15			1	-2
HVAC16			7.8	4.8
HVAC17			7.7	4.7
HVAC18			7.6	4.6
HVAC19			7.5	4.5
HVAC20			13.2	10.2
HVAC21			13.5	10.5
HVAC22			13.8	10.8
HVAC23			14	11
HVAC24			15.2	12.2
HVAC25			14.7	11.7
8	1.Fl	31.1	28.1	
HVAC1			0	-3
HVAC2			3.7	0.7
HVAC3			5.4	2.4
HVAC4			6.6	3.6
HVAC5			5.2	2.2
HVAC6			6.1	3.1
HVAC7			4.9	1.9
HVAC8			0.8	-2.2
HVAC9			-0.9	-3.9
HVAC10			-0.2	-3.2
HVAC11			0.5	-2.5
HVAC12			1.2	-1.8
HVAC13			2.2	-0.8
HVAC14			2.9	-0.1
HVAC15			3	0
HVAC16			10.9	7.9
HVAC17			10.8	7.8
HVAC18			10.7	7.7
HVAC19			10.5	7.5

HVAC20			24.2	21.2
HVAC21			24.4	21.4
HVAC22			24.9	21.9
HVAC23			25.2	22.2
HVAC24			11.3	8.3
HVAC25			11.2	8.2
9	1.Fl	24.9	21.9	
HVAC1			-1.7	-4.7
HVAC2			2.6	-0.4
HVAC3			3.4	0.4
HVAC4			7.8	4.8
HVAC5			12.2	9.2
HVAC6			10.1	7.1
HVAC7			8.9	5.9
HVAC8			0.9	-2.1
HVAC9			-0.9	-3.9
HVAC10			3.3	0.3
HVAC11			4.3	1.3
HVAC12			6.1	3.1
HVAC13			3.4	0.4
HVAC14			5.2	2.2
HVAC15			5.4	2.4
HVAC16			14.8	11.8
HVAC17			14.4	11.4
HVAC18			14.1	11.1
HVAC19			13.9	10.9
HVAC20			13.8	10.8
HVAC21			14.2	11.2
HVAC22			14.9	11.9
HVAC23			15.5	12.5
HVAC24			9.5	6.5
HVAC25			9.5	6.5
10	1.Fl	27.9	24.9	
HVAC1			-2.9	-5.9
HVAC2			-2.1	-5.1
HVAC3			2.4	-0.6
HVAC4			8	5
HVAC5			10.4	7.4
HVAC6			10.1	7.1
HVAC7			9.3	6.3
HVAC8			8.7	5.7

HVAC9			-0.2	-3.2
HVAC10			3.3	0.3
HVAC11			4.3	1.3
HVAC12			5.3	2.3
HVAC13			10.4	7.4
HVAC14			7.4	4.4
HVAC15			7.8	4.8
HVAC16			20.5	17.5
HVAC17			20.6	17.6
HVAC18			20.7	17.7
HVAC19			20.5	17.5
HVAC20			12.8	9.8
HVAC21			12.9	9.9
HVAC22			13	10
HVAC23			13.2	10.2
HVAC24			2.2	-0.8
HVAC25			2.1	-0.9
11	1.Fl	23.4	20.4	
HVAC1			-4.1	-7.1
HVAC2			-3.5	-6.5
HVAC3			-2.9	-5.9
HVAC4			5.9	2.9
HVAC5			7.9	4.9
HVAC6			7.3	4.3
HVAC7			6.5	3.5
HVAC8			5.9	2.9
HVAC9			-1.1	-4.1
HVAC10			3	0
HVAC11			4	1
HVAC12			4.9	1.9
HVAC13			8.8	5.8
HVAC14			17.2	14.2
HVAC15			17.2	14.2
HVAC16			10	7
HVAC17			9.7	6.7
HVAC18			9.5	6.5
HVAC19			9.4	6.4
HVAC20			9.7	6.7
HVAC21			9.7	6.7
HVAC22			9.8	6.8
HVAC23			6.5	3.5

HVAC24			-0.1	-3.1
HVAC25			-0.2	-3.2
12	1.Fl	40.0	37.0	
HVAC1			-2.6	-5.6
HVAC2			-2.1	-5.1
HVAC3			2.6	-0.4
HVAC4			3.1	0.1
HVAC5			15.4	12.4
HVAC6			16.4	13.4
HVAC7			14.1	11.1
HVAC8			11.6	8.6
HVAC9			20.8	17.8
HVAC10			21.9	18.9
HVAC11			23.2	20.2
HVAC12			24.8	21.8
HVAC13			28	25
HVAC14			36	33
HVAC15			36.3	33.3
HVAC16			11.7	8.7
HVAC17			11.3	8.3
HVAC18			11.1	8.1
HVAC19			10.9	7.9
HVAC20			6.3	3.3
HVAC21			6.4	3.4
HVAC22			6.6	3.6
HVAC23			6.7	3.7
HVAC24			1.3	-1.7
HVAC25			1.2	-1.8
13	1.Fl	40.8	37.8	
HVAC1			0.4	-2.6
HVAC2			1.5	-1.5
HVAC3			4.3	1.3
HVAC4			5.3	2.3
HVAC5			27.5	24.5
HVAC6			15	12
HVAC7			13.9	10.9
HVAC8			12.9	9.9
HVAC9			25	22
HVAC10			26.6	23.6
HVAC11			31.1	28.1
HVAC12			33.7	30.7

HVAC13		36	33	
HVAC14		31.8	28.8	
HVAC15		31.4	28.4	
HVAC16		11.4	8.4	
HVAC17		11.7	8.7	
HVAC18		12	9	
HVAC19		12.4	9.4	
HVAC20		6.7	3.7	
HVAC21		6.4	3.4	
HVAC22		6.2	3.2	
HVAC23		6.1	3.1	
HVAC24		0.7	-2.3	
HVAC25		1	-2	
14	1.Fl	32.7	29.7	
HVAC1		-2	-5	
HVAC2		-2	-5	
HVAC3		0.9	-2.1	
HVAC4		1.5	-1.5	
HVAC5		15	12	
HVAC6		11.5	8.5	
HVAC7		10.9	7.9	
HVAC8		12.1	9.1	
HVAC9		25.6	22.6	
HVAC10		25.7	22.7	
HVAC11		26.4	23.4	
HVAC12		24.6	21.6	
HVAC13		23.8	20.8	
HVAC14		14.6	11.6	
HVAC15		14.5	11.5	
HVAC16		1.8	-1.2	
HVAC17		1.9	-1.1	
HVAC18		2.3	-0.7	
HVAC19		3	0	
HVAC20		-0.5	-3.5	
HVAC21		-0.5	-3.5	
HVAC22		-0.5	-3.5	
HVAC23		-0.6	-3.6	
HVAC24		-5.2	-8.2	
HVAC25		-5.2	-8.2	
15	1.Fl	35.6	32.6	
HVAC1		0	-3	

HVAC2		-1.3	-4.3
HVAC3		2.6	-0.4
HVAC4		1.5	-1.5
HVAC5		16.5	13.5
HVAC6		22.6	19.6
HVAC7		12.7	9.7
HVAC8		12	9
HVAC9		29	26
HVAC10		28.2	25.2
HVAC11		29.4	26.4
HVAC12		27.2	24.2
HVAC13		25.9	22.9
HVAC14		16	13
HVAC15		15.8	12.8
HVAC16		3.4	0.4
HVAC17		3.8	0.8
HVAC18		4.4	1.4
HVAC19		3.1	0.1
HVAC20		0.5	-2.5
HVAC21		0.4	-2.6
HVAC22		0.4	-2.6
HVAC23		0.4	-2.6
HVAC24		-4.3	-7.3
HVAC25		-4.3	-7.3
16	1.Fl	37.8	34.8
HVAC1		-2.8	-5.8
HVAC2		-2.6	-5.6
HVAC3		0.9	-2.1
HVAC4		1.3	-1.7
HVAC5		9.2	6.2
HVAC6		12	9
HVAC7		25.1	22.1
HVAC8		9.4	6.4
HVAC9		32.4	29.4
HVAC10		30.8	27.8
HVAC11		29.7	26.7
HVAC12		30.3	27.3
HVAC13		26.8	23.8
HVAC14		18.7	15.7
HVAC15		18.3	15.3
HVAC16		3.2	0.2

HVAC17			3.2	0.2
HVAC18			3.2	0.2
HVAC19			6.2	3.2
HVAC20			1.4	-1.6
HVAC21			1.4	-1.6
HVAC22			1.3	-1.7
HVAC23			1.3	-1.7
HVAC24			-3.3	-6.3
HVAC25			-3.3	-6.3
17	1.Fl	40.8	37.8	
HVAC1			5.1	2.1
HVAC2			7.2	4.2
HVAC3			6.2	3.2
HVAC4			4.2	1.2
HVAC5			11	8
HVAC6			12	9
HVAC7			11	8
HVAC8			26.6	23.6
HVAC9			38.5	35.5
HVAC10			33.1	30.1
HVAC11			30.8	27.8
HVAC12			26.4	23.4
HVAC13			26.8	23.8
HVAC14			20.1	17.1
HVAC15			19.9	16.9
HVAC16			5.3	2.3
HVAC17			5.3	2.3
HVAC18			5.3	2.3
HVAC19			5.4	2.4
HVAC20			5.1	2.1
HVAC21			1.9	-1.1
HVAC22			1.8	-1.2
HVAC23			1.8	-1.2
HVAC24			-2.7	-5.7
HVAC25			-2.6	-5.6
18	1.Fl	39.9	36.9	
HVAC1			1.4	-1.6
HVAC2			12.7	9.7
HVAC3			6.1	3.1
HVAC4			4.9	1.9
HVAC5			10.4	7.4

HVAC6			20.5	17.5
HVAC7			27.5	24.5
HVAC8			31.3	28.3
HVAC9			37.4	34.4
HVAC10			30.1	27.1
HVAC11			27.4	24.4
HVAC12			25.5	22.5
HVAC13			22.8	19.8
HVAC14			19.9	16.9
HVAC15			5.9	2.9
HVAC16			0.6	-2.4
HVAC17			4	1
HVAC18			4.1	1.1
HVAC19			4.2	1.2
HVAC20			3.8	0.8
HVAC21			3.7	0.7
HVAC22			3.7	0.7
HVAC23			3.6	0.6
HVAC24			-2.3	-5.3
HVAC25			-2.2	-5.2
19	1.Fl	36.2	33.2	
HVAC1			18.5	15.5
HVAC2			7.2	4.2
HVAC3			2.1	-0.9
HVAC4			3.4	0.4
HVAC5			23.1	20.1
HVAC6			24.7	21.7
HVAC7			26.1	23.1
HVAC8			28.1	25.1
HVAC9			33.3	30.3
HVAC10			15.9	12.9
HVAC11			11.8	8.8
HVAC12			8.2	5.2
HVAC13			6.8	3.8
HVAC14			-1.3	-4.3
HVAC15			-1.4	-4.4
HVAC16			19.2	16.2
HVAC17			19.3	16.3
HVAC18			19.4	16.4
HVAC19			19.5	16.5
HVAC20			5	2

HVAC21			5	2
HVAC22			7.5	4.5
HVAC23			5.6	2.6
HVAC24			-1.6	-4.6
HVAC25			2.9	-0.1
20	1.Fl	33.4	30.4	
HVAC1			21.6	18.6
HVAC2			7.9	4.9
HVAC3			5.2	2.2
HVAC4			2.7	-0.3
HVAC5			18.1	15.1
HVAC6			21.9	18.9
HVAC7			26.3	23.3
HVAC8			29.6	26.6
HVAC9			23	20
HVAC10			10.8	7.8
HVAC11			8.3	5.3
HVAC12			6.2	3.2
HVAC13			4.2	1.2
HVAC14			-2.2	-5.2
HVAC15			-2.3	-5.3
HVAC16			17.7	14.7
HVAC17			17.8	14.8
HVAC18			17.9	14.9
HVAC19			18	15
HVAC20			4.6	1.6
HVAC21			4.5	1.5
HVAC22			6.6	3.6
HVAC23			6.6	3.6
HVAC24			0.3	-2.7
HVAC25			0.4	-2.6
21	1.Fl	30.5	27.5	
HVAC1			24.4	21.4
HVAC2			8.9	5.9
HVAC3			7.3	4.3
HVAC4			9	6
HVAC5			3.9	0.9
HVAC6			8.9	5.9
HVAC7			12.9	9.9
HVAC8			27.2	24.2
HVAC9			18.2	15.2

HVAC10			6.2	3.2
HVAC11			6.3	3.3
HVAC12			4.6	1.6
HVAC13			1.6	-1.4
HVAC14			-3.5	-6.5
HVAC15			-3.6	-6.6
HVAC16			1.2	-1.8
HVAC17			1.1	-1.9
HVAC18			4.6	1.6
HVAC19			4.6	1.6
HVAC20			17.2	14.2
HVAC21			16.3	13.3
HVAC22			16.2	13.2
HVAC23			16	13
HVAC24			5.3	2.3
HVAC25			5.4	2.4
22	1.Fl	29.3	26.3	
HVAC1			25.4	22.4
HVAC2			12.1	9.1
HVAC3			10.7	7.7
HVAC4			8.5	5.5
HVAC5			1.3	-1.7
HVAC6			5.3	2.3
HVAC7			8.1	5.1
HVAC8			23.8	20.8
HVAC9			15.2	12.2
HVAC10			2.9	-0.1
HVAC11			2.3	-0.7
HVAC12			3.1	0.1
HVAC13			0	-3
HVAC14			-4.8	-7.8
HVAC15			-4.9	-7.9
HVAC16			-0.1	-3.1
HVAC17			-0.2	-3.2
HVAC18			-0.2	-3.2
HVAC19			3.4	0.4
HVAC20			16.5	13.5
HVAC21			16.4	13.4
HVAC22			16.2	13.2
HVAC23			16.1	13.1
HVAC24			4.5	1.5

HVAC25			4.8	1.8
23	1.Fl	27.0	24.0	
HVAC1			21.8	18.8
HVAC2			16.8	13.8
HVAC3			20.4	17.4
HVAC4			18	15
HVAC5			-2.3	-5.3
HVAC6			3.2	0.2
HVAC7			4.8	1.8
HVAC8			18.3	15.3
HVAC9			11.5	8.5
HVAC10			0.8	-2.2
HVAC11			2.2	-0.8
HVAC12			1.1	-1.9
HVAC13			-1.8	-4.8
HVAC14			-4.4	-7.4
HVAC15			-4.7	-7.7
HVAC16			-1.3	-4.3
HVAC17			-1.4	-4.4
HVAC18			-1.3	-4.3
HVAC19			-1.2	-4.2
HVAC20			5.7	2.7
HVAC21			5.6	2.6
HVAC22			0.2	-2.8
HVAC23			0.2	-2.8
HVAC24			10	7
HVAC25			10	7
24	1.Fl	25.8	22.8	
HVAC1			23.9	20.9
HVAC2			17.9	14.9
HVAC3			13.4	10.4
HVAC4			10.7	7.7
HVAC5			-1.6	-4.6
HVAC6			-0.7	-3.7
HVAC7			-0.7	-3.7
HVAC8			12.8	9.8
HVAC9			4.1	1.1
HVAC10			-2.8	-5.8
HVAC11			-3	-6
HVAC12			-2	-5
HVAC13			-5.6	-8.6

HVAC14			-6.4	-9.4
HVAC15			-6.4	-9.4
HVAC16			-2	-5
HVAC17			-2	-5
HVAC18			-1.9	-4.9
HVAC19			-1.8	-4.8
HVAC20			-0.4	-3.4
HVAC21			-0.4	-3.4
HVAC22			-0.5	-3.5
HVAC23			-0.5	-3.5
HVAC24			6.8	3.8
HVAC25			6.8	3.8
25	1.Fl	18.5	15.5	
HVAC1			14	11
HVAC2			10.8	7.8
HVAC3			8.7	5.7
HVAC4			7.7	4.7
HVAC5			-3.7	-6.7
HVAC6			-3.3	-6.3
HVAC7			-3.1	-6.1
HVAC8			-2.9	-5.9
HVAC9			-5	-8
HVAC10			-5.1	-8.1
HVAC11			-5.3	-8.3
HVAC12			-5.4	-8.4
HVAC13			-5.8	-8.8
HVAC14			-6.4	-9.4
HVAC15			-6.4	-9.4
HVAC16			-2.1	-5.1
HVAC17			-2.1	-5.1
HVAC18			-2.1	-5.1
HVAC19			-2.1	-5.1
HVAC20			-0.4	-3.4
HVAC21			-0.4	-3.4
HVAC22			-0.5	-3.5
HVAC23			-0.5	-3.5
HVAC24			7.4	4.4
HVAC25			7.4	4.4