Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Acoustical Analysis Report for Chick-fil-A and Starbucks – Huntington and 210

Prepared for:
Chick-fil-A
Attention: Jennifer Daw
15635 Alton Parkway, #350
Irvine, California 92618
Phone: 404-305-4834

Prepared by:
Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025
Phone: 760-738-5570
info@eilarassociates.com

Job # L200702.2

Original Report: November 20, 2020
First Revision: January 18, 2021
Second Revision: March 18, 2021

Table of Contents

Figures

Appendices

1.0 Executive Summary

The proposed project, Chick-fil-A and Starbucks – Huntington Drive and 210, consists of the demolition of an existing restaurant building and the construction of a new standalone fast-food restaurant and a new standalone coffee shop. The project site is located at 820 Huntington Drive in the City of Monrovia, California.

The California Green Building Standards Code (known as CALGreen) requires interior noise levels of 50 dBA or less during any hour of operation in occupied nonresidential spaces. Calculations show that with the proposed exterior wall and roof assemblies and standard commercial glazing, interior noise levels of 50 dBA or less can be achieved. Therefore, the project is expected to comply with CALGreen noise regulations as currently designed.

Noise from the anticipated operations on site was calculated to determine if specific project design features are necessary to reduce the noise impacts to be compliant with applicable limits. Noise limits specified within the City of Monrovia Municipal code must be met at neighboring noise-sensitive property lines. Calculations show that noise levels from on-site operations will be in compliance with the City of Monrovia noise limits as designed. No project design features are deemed necessary to control project-generated noise impacts from on-site operations. Project-generated traffic noise is also expected to be less than significant.

The City of Monrovia does not provide noise limits for temporary construction activity at surrounding noise-sensitive property lines; however, the hours during which construction activity can take place are limited by the Municipal Code. The City of Monrovia prohibits construction activity after 7 p.m. and before 7 a.m. on weekdays and after 6 p.m. and before 9 a.m. on weekends and holidays. Though it is not required by regulations, the general good practice construction noise control methods listed herein should be followed, as a courtesy to surrounding properties. With operating hours being limited to those allowable in the City of Monrovia and standard good practice construction noise control measures being followed, temporary construction noise and vibration are expected to be less than significant.

The proposed project is not expected to result in any potentially significant noise impacts by the standards of the California Environmental Quality Act (CEQA). Noise impacts are summarized in Section 5.5.

2.0 Introduction

This acoustical analysis report is submitted to satisfy the noise requirements of the City of Monrovia and the State of California. Its purpose is to assess interior and exterior noise impacts to the project site from transportation noise sources to determine if mitigation is necessary to reduce these noise impacts to comply with the applicable noise regulations of the California Green Building Standards Code (CALGreen). In addition, this report assesses noise impacts from potential project-related noise sources, such as mechanical equipment, truck deliveries, and project-generated traffic, as well as temporary construction noise. This analysis aims to determine if additional project design features are necessary and feasible to reduce these impacts to comply with the applicable noise regulations of the City of Monrovia Municipal Code. Potential impacts will also be assessed for significance per the California Environmental Quality Act (CEQA).

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. Sound pressure is the actual noise experienced by a human or registered by a sound level instrument. When sound pressure is used to describe a noise source, the distance from the noise source must be specified in order to provide complete information. Sound power, on the other hand, is a specialized analytical metric used to provide information without the distance requirement, but it may be used to calculate the sound pressure at any desired distance.

2.1 Project Description

The proposed project, Chick-fil-A and Starbucks – Huntington Drive and 210, consists of the construction of a new standalone Chick-fil-A restaurant (4,562 square-foot gross area) and a new standalone Starbucks coffee shop (2,200 square-foot gross area). Both the restaurant and the coffee shop will have drive-through services. The Chick-fil-A restaurant will include a dining room, drive-through area, serving area, kitchen, service area, restrooms, office, and other associated spaces. It is anticipated that the hours of operation for the restaurant will be 5:00 a.m. to 11:00 p.m., Monday through Saturday. The Starbucks coffee shop will include a cafe seating area, backbar, workroom, storage area, restrooms, office, and other associated spaces. It is anticipated that the hours of operation for the coffee shop will be 24 hours a day, seven days a week. For additional project details, please refer to the project plans provided in Appendix A.

2.2 Project Location

The subject property is located at 820 Huntington Drive in the City of Monrovia, California. The Assessor's Parcel Numbers (APNs) for the site are 8507-008-035, -041, -042, -044, -070, -071, and -072. The site is occupied by an existing restaurant, to be demolished. The restaurant is currently open and operational. For a graphical representation of the site, please refer to the Vicinity Map, Assessor's Parcel Map, Satellite Aerial Photograph, and Topographic Map, provided as Figures 1 through 4, respectively.

2.3 Applicable Noise Regulations

The State of California requires that commercial developments demonstrate compliance with the requirements of the California Green Building Standards Code (known as CALGreen). CALGreen states that, if noise level readings of 65 dBA L_{EQ} or greater are documented at the proposed project site, the project must either (a) incorporate wall and roof/ceiling assemblies with a composite STC rating of at least 50 and exterior windows with an STC 40, or (b) provide an acoustical analysis documenting interior noise levels do not exceed 50 dBA in occupied areas during any hour of operation. This report provides the performance method analysis described in Item (b).

The City of Monrovia Municipal Code gives noise limits at residential receivers. According to the Municipal Code, project-generated noise sources must not exceed the actual measured median ambient noise level or presumed ambient noise level of 55 dBA between the hours of 7 a.m. and 9 p.m. and 50 dBA between the hours of 9 p.m. and 7 a.m., whichever is greater. As shown in Table 4 herein, the median measured noise levels of 60.8 dBA during daytime hours and 60.2 dBA during nighttime hours exceed the presumed ambient noise levels of 55 dBA and 50 dBA, respectively; therefore the measured median noise levels were applied as the noise limits.

The City of Monrovia Municipal Code also contains general requirements for temporary construction noise impacts. The City of Monrovia prohibits construction activity after 7 p.m. and before 7 a.m. on weekdays and after 6 p.m. and before 9 a.m. on weekends and holidays. During permissible hours of operation, the City does not have a noise limit with which construction noise must comply; however, 75 dBA is the construction noise threshold used by the County of Los Angeles for daytime construction at single-family residential receivers. Therefore, a 75 dBA construction noise limit that has been applied to this project.

Pertinent sections of CALGreen and the City of Monrovia Municipal Code are provided as Appendix B.

3.0 Environmental Setting

3.1 Existing Noise Environment

The primary noise source in the vicinity of the project site is roadway traffic from Huntington Drive, Encino Avenue, and Interstate 210 (I-210) and associated ramps. A rail line is also located to the west of the project site. No other noise sources in the vicinity of the project site are considered to be significant.

3.1.1 Railway Noise Sources

The Gold Line of the Metro light rail system is located approximately 900 feet to the west of the project site. Based on the current rail schedule for the Gold Line (see reference), a maximum hourly volume of 16 trains pass the site during the hour with the highest traffic. Calculations were performed using the CREATE Freight Noise and Vibration Model (see reference) to determine the noise impacts from train traffic on the project site. With the anticipated worst-case volume of 16 light rail trains during the worst-case hour, the railway noise level was calculated to be approximately 41 dBA L_{EQ} at a distance of 900 feet. As the calculated railway noise level of 41 dBA L_{EQ} at the worst-case building facade is at least 20 dB quieter than on-site traffic noise impacts, railway noise is not expected to be a significant source of noise on site. Therefore, railway noise impacts were not evaluated further. Please refer to Appendix C for additional information.

3.1.2 Roadway Noise Sources

Existing and future (future plus project) peak hour traffic volumes for Huntington Drive and Encino Avenue are given based on information provided in the project traffic study (see reference). The existing traffic volumes for I-210 and associated ramps are provided by the Caltrans Traffic Census Program (see reference). Please refer to Appendix D for pertinent sections of the project traffic study.

Huntington Drive is a five-lane, two-way Primary Arterial running east-west along the north boundary of the project site. The posted speed limit is 35 mph. According to the project traffic study, the existing peak hour traffic volume of Huntington Drive is 6,228 hourly vehicle trips.

Encino Avenue is a two-lane, two-way roadway running north-south along the east boundary of the project site. No speed limit was observed to be posted in the vicinity of the project site; however, the project traffic study shows that the speed limit on Encino Avenue is 25 mph. According to the project traffic study, the existing peak hour traffic volume of Encino Avenue is 118 hourly vehicle trips.

I-210 is a ten-lane (including HOV lanes), two-way Freeway running generally east-west to the north and east of the project site. The posted speed limit is 65 mph. According to Caltrans traffic count data, I-210 carries a traffic volume of approximately 254,000 Average Daily Trips (ADT) as of the year 2016. The peak hour traffic volume of I-210 is expected to be 21,844 trips. Please refer to Section 4.1.3 for additional details regarding peak hour traffic methodology.

There are three on-ramps to I-210 in the vicinity of the project site. The I-210 eastbound on-ramps from eastbound and westbound Huntington Drive currently carry 7,203 ADT (619 peak hour trips) and 1,489 ADT (128 peak hour trips), respectively. The I-210 westbound on-ramp currently carries 7,322 ADT (630 peak hour trips). There are two off-ramps from I-210 in the vicinity of the project site. The I-210 eastbound and westbound off-ramps currently carry 6,200 ADT (533 peak hour trips) and 6,437 ADT (554 peak hour trips), respectively.

No existing or future truck percentages were available for any of the roadways in the vicinity of the project site other than for I-210. However, based on neighboring and surrounding land use, roadway classification,

professional experience, and on-site observations, a truck percentage mix of 2.0% medium and 1.0% heavy trucks was used for Huntington Drive and Encino Avenue. According to Caltrans, I-210 currently carries a truck percentage mix of 1.72% medium and 4.42% heavy. The same truck percentages were assumed for I-210 on- and off-ramps.

Current and future (See Section 3.2) traffic volumes and vehicle mixes for roadway sections near the project site are shown in Table 1.

Table 1. Overall Roadway Traffic Information

Roadway Name	Speed Limit (mph)	Vehicle Mix (%)		Existing (Peak Hour Trips)	Future + Project (Peak Hour Trips)
		Medium Trucks	Heavy Trucks		
Huntington Drive	30	2.00	1.00	6,228	7,126
Encino Avenue	25	0.50	0.50	118	176
I-210	65	1.72	4.42	21,844	26,390
I-210 EB On-Ramp from EB Huntington	40	1.72	4.42	619	748
I-210 EB On-Ramp from WB Huntington	40	1.72	4.42	128	155
I-210 WB On-Ramp	40	1.72	4.42	630	761
I-210 EB Off-Ramp	30	1.72	4.42	533	644
I-210 WB Off-Ramp	20	1.72	4.42	554	669

3.1.3 Measured Noise Level

An on-site inspection and a traffic noise measurement were made on the afternoon of Monday, July 27, 2020. The weather conditions were as follows: sunny skies, moderate humidity, and temperature in the low 80s with winds at 9 mph. A traffic noise measurement (NML 1) was made along the northeast boundary of the project site, approximately 55 feet south of the Huntington Drive centerline and approximately 30 feet west of the Encino Avenue centerline. The primary source of noise during the measurement was traffic noise. The microphone was placed at approximately five feet above the existing grade. Traffic volumes for Huntington Drive were recorded for automobiles, medium-size trucks, and large trucks during the measurement period. After a 15-minute continuous sound level measurement, no changes in the L_{EQ} were observable and results were recorded. The measured noise level and related weather conditions are shown in Table 2, and the noise measurement location is shown on Figure 3.

Table 2. On-Site Noise Measurement Conditions and Results

Date	Monday, July 27, 2020
Time	11:53 a.m. – 12:08 p.m.
Conditions	Sunny skies, wind at 9 mph, temperature in the low 80s with moderate humidity
Measured Noise Level (NML 1)	73.0 dBA L_{EQ}

Additionally, long-term noise measurements were made beginning the afternoon of Monday, July 27, 2020 and running through the afternoon of Tuesday, July 28, 2020. The purpose of these measurements was to obtain noise information for the site during operating hours, which are expected to be 6:30 a.m. to 10:00 p.m. (with employees on site from 5:00 a.m. to 11:00 p.m.), Monday through Saturday for the Chick-fil-A and 24 hours a day, seven days a week for the Starbucks. The noise measurement performed is expected to be representative of the typical noise exposure at the site and encompasses the primary source of noise, which is traffic noise. Two noise measurements were performed, each at approximately four feet above ground level, where the meters were placed in bushes for security purposes. One meter (NML 2) was placed along the northeast boundary of the project site at approximately 60 feet south of the Huntington Drive centerline and approximately 44 feet west of the Encino Avenue centerline; this meter was placed to obtain ambient traffic noise levels near building facades. Another meter (NML 3) was placed to the south of the project site at approximately 23 feet north of the Alta Street centerline and approximately 150 feet west of the Encino Avenue centerline; this meter was placed to obtain ambient noise levels near residential receivers to the south of the project site. Noise data obtained on site is shown in Table 3, and the measurement locations are shown graphically in Figure 3.

Table 3. Long-Term Measured Noise Levels on Site

Date	Time	Hourly Average Noise Level (dBA L_{EQ})	
		NML 2	NML 3
July 27, 2020	1 p.m. – 2 p.m.	70.7	60.6
	2 p.m. – 3 p.m.	70.1	59.4
	3 p.m. – 4 p.m.	69.8	61.4
	4 p.m. – 5 p.m.	69.5	59.2
	5 p.m. – 6 p.m.	72.0	59.3
	6 p.m. – 7 p.m.	70.9	60.5
	7 p.m. – 8 p.m.	70.4	60.9
	8 p.m. – 9 p.m.	69.9	60.7
	9 p.m. – 10 p.m.	69.5	60.3
	10 p.m. – 11 p.m.	68.2	60.1
	11 p.m. – 12 a.m.	67.4	59.4
July 28, 2020	12 a.m. – 1 a.m.	66.2	58.8
	1 a.m. – 2 a.m.	65.4	58.8
	2 a.m. – 3 a.m.	65.5	59.7
	3 a.m. – 4 a.m.	66.7	61.2
	4 a.m. – 5 a.m.	67.3	61.3
	5 a.m. – 6 a.m.	69.9	62.8

Table 3. Long-Term Measured Noise Levels on Site			
Date	**Time**	**Hourly Average Noise Level (dBA L_{EQ})**	
		NML 2	**NML 3**
July 28, 2020	6 a.m. – 7 a.m.	71.9	64.2
	7 a.m. – 8 a.m.	71.9	63.9
	8 a.m. – 9 a.m.	72.1	63.6
	9 a.m. – 10 a.m.	72.5	62.6
	10 a.m. – 11 a.m.	71.1	61.8
	11 a.m. – 12 p.m.	71.0	63.8
	12 p.m. – 1 p.m.	70.8	60.6

Measured noise levels along the northeast boundary of the project site (NML 2) were observed to range from a minimum of 65.4 dBA between the hours of 1 a.m. and 2 a.m. on July 28, 2020 to a maximum of 72.5 dBA between 9 a.m. and 10 a.m. on July 28, 2020. Measured noise levels to the south of the project site (NML 3) were observed to range from a minimum of 58.8 dBA between the hours of 12 a.m. and 1 a.m. on July 28, 2020 to a maximum of 64.2 dBA between 6 a.m. and 7 a.m. on July 28, 2020. As the City of Monrovia gives noise limits based on the actual measured median ambient noise levels, the median measured ambient noise levels during daytime (7 a.m. to 9 p.m.) and nighttime (9 p.m. to 7 a.m.) were determined and are shown in Table 4.

Table 4. Long-Term Median Measured Noise Levels on Site		
Time	**Median Hourly Average Noise Level (dBA L_{EQ})**	
	NML 2	**NML 3**
Daytime (7 a.m. to 9 p.m.)	70.9	60.8
Nighttime (9 p.m. to 7 a.m.)	67.4	60.2

As shown above, the measured median noise levels range from 60.8 dBA to 70.9 dBA during daytime hours and range from 60.2 dBA to 67.4 dBA during nighttime hours. As the minimum median measured noise levels (60.8 dBA during daytime hours and 60.2 dBA during nighttime hours) exceed the presumed ambient noise levels of 55 dBA and 50 dBA, respectively, the measured median noise levels were applied as the noise limits.

3.1.4 Calculated Noise Level

Noise levels were calculated for the site using the methodology described in Section 4.1.3. The calculated noise levels (L_{EQ}) were compared with the measured traffic 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 73.0 dBA L_{EQ} at approximately 55 feet south of the Huntington Drive centerline and approximately 30 feet west of the Encino Avenue centerline was compared to the calculated (modeled)

noise level of 75.1 dBA L_{EQ} for the same anticipated 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 peak hour noise levels for the proposed building as the difference between the measured and calculated levels was found to be less than three decibels. This information is shown in Table 5. Please refer to Appendix E for more information.

Table 5. Calculated versus Measured Traffic Noise Data

Location	Calculated	Measured	Difference	Correction
55' south of Huntington Drive C.L. and 30' west of Encino Avenue C.L.	75.1 dBA L_{EQ}	73.0 dBA L_{EQ}	2.1 dB	None Applied

3.2 Future Noise Environment

3.2.1 Future Transportation Noise

The future on-site noise environment is expected to be the result of the same roadway traffic noise sources. Future (future plus project) traffic volumes for Huntington Drive and Encino Avenue were provided by the project traffic study. The future (year 2035) traffic volumes for I-210 and associated ramps were calculated based on a one-percent growth rate, which is considered to be conservative for this analysis. In the vicinity of the project site, the peak hour traffic volumes of Huntington Drive and Encino Avenue are expected to increase to 7,126 trips and 176 trips, respectively, in the future (future plus project) environment. The traffic volume of I-210 is expected to increase to 306,860 ADT (26,390 peak hour trips) by the year 2035. The traffic volumes of the eastbound on-ramps from eastbound and westbound Huntington Drive are expected to increase to 8,702 ADT (748 peak hour trips) and 1,799 ADT (155 peak hour trips), respectively. The I-210 westbound on-ramp is expected to increase to 8,846 ADT (761 peak hour trips). The traffic volumes on the I-210 eastbound and westbound off-ramps are expected to increase to 7,490 ADT (644 peak hour trips) and 7,777 ADT (669 peak hour trips), respectively.

The same truck percentages from the current traffic volumes were used for future traffic volume modeling. For further roadway details and projected future traffic volumes, please refer to Appendix D and Appendix E.

3.2.2 Operational Noise Sources

The future noise environment in the vicinity of the project site will be primarily a result of the same ambient noise sources, as well as the noise generated by activity on the project site. The primary sources of noise associated with the project site will be the proposed drive-through intercom equipment, rooftop HVAC equipment, and truck deliveries.

The proposed drive-through intercom is expected to be manufactured by HME. The proposed HME Intercom System is documented to have a maximum noise level of 84 dBA at one foot from the speaker post. The system will also be equipped with an automatic volume control (AVC) system that will automatically reduce the sound level produced by the intercom as the ambient noise level decreases. It is likely that the actual sound level produced by the intercom system during hours with lower levels of business will be less than the projected 84 dBA, as the ambient noise level may be lower during these hours due to lower traffic volumes; however, the higher noise level was modeled for a worst-case analysis. For further details on the HME intercom system, please refer to Appendix F: Manufacturer Data Sheets.

Though detailed project mechanical plans are not currently available, based on communication with the project proponent, the Chick-fil-A restaurant building is expected to be served by three rooftop HVAC units; based

on project plans, the Starbucks coffee shop building is expected to be served by two rooftop HVAC units. The restaurant's set of rooftop units is expected to be equivalent to the following units: Lennox LGH150H4B, Lennox LGH210H4B, and Lennox LGH300S4B. The coffee shop's set of rooftop units is expected to be equivalent to the following units: Lennox LGH210H4B and Lennox LGH300S4B. Noise level data for these units was provided by the manufacturer in the form of A-weighted octave band and overall sound power levels. The sound power level data for the proposed rooftop HVAC units is shown in Table 6. Please refer to Appendix F for additional information.

Table 6. Sound Power Levels of HVAC Equipment

Source	Sound Power at Octave Band Frequency (dBA)							Total (dBA)
	125	250	500	1K	2K	4K	8K	
Lennox LGH150H4B	75	81	87	85	80	74	70	90
Lennox LGH210H4B	79	84	88	89	85	82	73	94
Lennox LGH300S4B	79	84	88	89	85	82	73	94

Additionally, truck deliveries to both the restaurant and coffee shop were evaluated for a worst-case analysis of noise impacts to surrounding noise-sensitive properties. In order to approximate noise from this sources, noise levels measured for a previous study conducted by Eilar Associates were implemented into calculations. The previous noise measurement was performed at an operational Henry's grocery store. The noise measurement was performed at a distance of 15 feet from an operational refrigerated truck (with both the engine and refrigeration unit running) and was one minute in duration. In order to determine worst-case noise levels at surrounding property lines, the L_{MAX} of this noise measurement was used in calculations (rather than the average noise level, or L_{EQ}) in order to evaluate operational noise levels of the refrigerated truck maneuvering in the parking lot with its refrigeration unit running. Based on professional experience, it is assumed that a maximum of one delivery per hour would be required for each building; therefore, the worst-case nighttime hour is expected to have two truck deliveries. Each delivery is expected to have a duration of approximately 20 minutes; however, trucks were evaluated as being on site for the entire worst-case hour for a worst-case calculation. In the worst-case scenario (where trucks are closest to sensitive receivers), it is anticipated that delivery trucks will enter the project site from the driveway on Encino Avenue, park near the building during loading/unloading, and exit from the same Encino Avenue driveway. According to the project proponent, the use of Encino Avenue for truck deliveries will be avoided where possible; however noise impacts were calculated with trucks on Encino for a worst-case analysis. Noise measurement data is shown in Table 7.

Table 7. Sound Pressure Levels of Operational Refrigerated Truck at 15 feet

Source	Sound Pressure at Octave Band Frequency (dBA)								Total (dBA L_{MAX})
	63	125	250	500	1K	2K	4K	8K	
Refrigerated Truck	91	95	80	81	80	77	72	66	84

Operational mechanical noise levels were calculated for the project site using the above information. Results of this analysis are provided in Section 5.3.1.

3.2.3 Project-Generated Traffic

Project-generated traffic for this project was analyzed by Linscott, Law & Greenspan, Engineers in a traffic impact analysis dated March 17, 2021. This traffic analysis gives traffic data for intersections within the vicinity of the project site for existing, existing plus project, and future plus project conditions. This traffic information was incorporated into the analysis to determine worst-case noise exposure at surrounding receivers. Please refer to Section 5.3.2 for the results of this analysis and to Appendix D for pertinent sections of the traffic study.

3.2.4 Temporary Construction Equipment

Although the City of Monrovia Municipal code does not have a specific noise limit for temporary construction activity, noise levels of this activity were determined and are detailed in Section 5.4. According to the project proponent and professional experience, on-site construction activities are expected to consist of the following stages: demolition/site preparation/grading, building construction, and paving. Please refer to Table 8 for anticipated on-site construction equipment during each stage of activity with noise levels and duty cycles for each piece of equipment. Construction equipment noise levels were provided by the UK Department for Environment, Food and Rural Affairs (DEFRA), and duty cycle information was taken from the Federal Highway Administration (FHWA) (see references).

Table 8. Anticipated Construction Activity and Equipment Noise Levels

Equipment	Duty Cycle (%)[1]	Noise Level at 50 feet (dBA)[2]	Activity Stage(s)
Dozer	40	71	Demolition/Site Preparation/Grading
Excavator	40	66	Demolition/Site Preparation/Grading
Paver	50	73	Paving
Reach Fork	40	67	Building Construction
Roller	20	76	Paving
Skid Steer	40	65	Building Construction
Skip Loader	40	75	Building Construction & Paving
Tractor Loader	40	75	Demolition/Site Preparation/Grading

[1]Duty cycle information was provided by the Federal Highway Administration.
[2]Noise level information was provided by UK Department for Environment, Food and Rural Affairs.

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 Railway Noise Calculation

The airborne railway noise analysis is accomplished using CREATE noise model (see reference). CREATE performs the evaluation of a site's exposure to railway noise by taking into account factors such as the distance from the site to the railroad track centerline, the number of diesel trains in both directions during the worst-case hour, the average number of diesel locomotives, the average length of each train, the average train speed past the site, the rail types, and whether the site is near crossings where train whistles or horns are sounded.

4.1.3 Roadway Noise Calculation

The Traffic Noise Model (TNM) calculation protocol in CadnaA Version 2020 (based on the methodology used in TNM Version 2.5, released in February 2004 by the U.S. Department of Transportation) was used to determine the peak hour noise level (dBA L_{EQ}) during hours of operation (dBA L_{EQ}). In order to determine this value, the Average Daily Trips (ADT) value is divided into percentages for each hour of the day to establish maximum noise impacts that the project site may experience during a 24-hour period. These percentages were established in a study performed by Katz-Okitsu and Associates, Traffic Engineers (see reference). According to this study, the peak traffic volume expected during proposed operational hours is approximately 8.6% of the ADT value (between the hours of 4 p.m. and 5 p.m.). For this analysis, the peak volume percentage of traffic volumes was used as a worst case.

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

4.1.4 Exterior-to-Interior Noise Analysis

CALGreen requires non-residential buildings to be designed in order to attenuate, control, and maintain average interior noise levels not greater than 50 dBA. Contemporary exterior building construction is expected to achieve at least 15 decibels of exterior-to-interior noise attenuation with windows opened, according to the U.S.

EPA (see reference). As a result, exterior noise levels of more than 65 dBA often result in interior conditions that fail to meet the 50 dBA requirements for occupied space.

Analysis for the interior noise levels requires consideration of:

- Number of unique assemblies in the wall (doors, window/wall mount air conditioners, sliding glass doors, and windows)
- Size, number of units, and sound transmission data for each assembly type
- Length of sound impacted wall(s)
- Depth of sound impacted room
- Height of exterior wall of sound impacted room
- Exterior noise level at wall assembly or assemblies of sound impacted room

The Composite Sound Transmission data is developed for the exterior wall(s) and the calculated noise exposure is converted to octave band sound pressure levels (SPL) for a typical traffic type noise. The reduction in room noise due to absorption is calculated and subtracted from the interior octave noise levels, and the octave band noise levels are logarithmically summed to yield the overall interior room noise level. When interior noise levels exceed 50 dBA, the noise reduction achieved by each element is reviewed to determine which changes will achieve the most cost-effective compliance. Windows are usually the first to be reviewed, followed by exterior doors, and then exterior walls.

Modeling of wall assemblies is accomplished using INSUL Version 9.0, which is a model-based computer program, developed by Marshall Day Acoustics for predicting the sound insulation of walls, floors, ceilings, and windows. It is acoustically based on theoretical models that require only minimal material information that can make reasonable estimates of the sound transmission loss (TL) and STC for use in sound insulation calculations; such as the design of common party walls and multiple family floor-ceiling assemblies, etc. INSUL can be used to quickly evaluate new materials or systems or investigate the effects of changes to existing designs. It models individual materials using the simple mass law and coincidence frequency approach and can model more complex assembly partitions. It has evolved over several versions into an easy to use tool and has refined the theoretical models by continued comparison with laboratory tests to provide acceptable accuracy for a wide range of constructions. INSUL model performance comparisons with laboratory test data show that the model generally predicts the performance of a given assembly within 3 STC points.

4.1.5 CadnaA Noise Modeling Software

Modeling of the outdoor noise environment is accomplished using CadnaA Version 2020, which is a model-based computer program developed by DataKustik for predicting noise impacts in a wide variety of conditions. CadnaA (Computer Aided Noise Abatement) assists in the calculation, presentation, assessment, and alleviation of noise exposure. It allows for the input of project information such as noise source data, barriers, structures, and topography to create a detailed model and uses the most up-to-date calculation standards to predict outdoor noise impacts. Noise standards used by CadnaA that are particularly relevant to this analysis include ISO 9613 (Attenuation of sound during propagation outdoors). CadnaA provides results that are in line with basic acoustical calculations for distance attenuation and barrier insertion loss.

4.1.6 Formulas and Calculations

Project-Generated Traffic Noise Formula

Changes in traffic noise levels can be predicted by inputting the ratio of the two scenarios into the following logarithmic equation:

$$\Delta = 10\log(V2/V1)$$

where: Δ= Change in sound energy,
V1 = original or existing traffic volume, and
V2 = future or cumulative traffic volume.

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).

4.2 Measurement Equipment

Some or all of the following equipment was used at the site to measure existing noise levels:

- Larson Davis Model LxT Type 1 Sound Level Meter, Serial # 4085
- Larson Davis Model CA200 Type 1 Calibrator, Serial # 16455
- Larson Davis Model 706RC Type 2 Sound Level Meter, Serial # 18676
- Soft dB Model Piccolo II Type 2 Sound Level Meter, Serial # P000220050104
- Larson Davis Model CAL150 Type 2 Calibrator, Serial # B2056

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

5.0 Impacts

5.1 Exterior

Peak hour traffic noise impacts were calculated at the building facades for use in interior noise calculations using traffic information shown in Section 3.0. Future peak hour noise impacts at these locations are shown in Table 9. As some roadways have a higher elevation than the building, two receivers (F5 and F10) were placed on the building roofs to determine approximate traffic noise impacts to the roofs. More information is provided in Appendix E, and receiver locations are shown in Figure 5.

Table 9. Peak Hour Traffic Noise Levels at Building Facades

Building	Receiver	Facade Location	Peak Hour Noise Level (dBA L_{EQ})
Starbucks	F1	West	68.8
	F2	North	73.9
	F3	East	72.0
	F4	South	63.5
	F5	Roof	73.6
Chick-fil-A	F6	West	68.2
	F7	North	75.9
	F8	East	75.8
	F9	South	68.0
	F10	Roof	75.2

5.2 Interior

CALGreen requires that nonresidential structures that are exposed to greater than 65 dBA during any hour of operation must control interior noise levels to be 50 dBA or less. Contemporary exterior building construction is expected to achieve at least 15 decibels of exterior-to-interior noise attenuation with windows opened, according to the U.S. EPA. As a result, exterior noise levels of more than 65 dBA may potentially result in interior conditions that fail to meet the 50 dBA requirements for non-residential space.

As noise levels at building facades are expected to exceed 65 dBA during the worst-case hour of operation, an exterior-to-interior noise analysis was conducted for the building to evaluate the sound reduction properties of the proposed exterior wall assemblies, window, and door construction designs in the building. The roof assembly was included in this evaluation as the roof may be exposed to a significant amount of noise from traffic due to the elevation of I-210 above the proposed building.

The exterior wall is expected to be constructed as stucco over plywood sheathing on the exterior with two-inch by six-inch wood framing, insulation in the cavity, and 5/8-inch gypsum board on the interior. This wall assembly was calculated using INSUL and is expected to have a rating of STC 38. As I-210 is elevated above the project site, the proposed roof assembly was also incorporated into interior noise calculations. The roof/ceiling assembly is expected to primarily consist of a roof membrane over rigid insulation on plywood sheathing, with a suspended acoustical ceiling and batt insulation in the cavity. According to INSUL, the

roof/ceiling STC rating is expected to achieve a rating of STC 49. Please refer to Appendix G for more details. Proposed windows were evaluated as STC 25 glazing units and doors were evaluated as STC 20 single pane glass doors for a conservative analysis of standard commercial glazing.

Interior noise calculations were performed using the exterior wall, roof, and glazing information detailed above to determine whether interior noise levels of 50 dBA or less can be achieved during the worst-case hour of operation. Please refer to Table 10 for interior noise level results, and refer to Appendix H for additional information.

Table 10. Interior Peak Hour Noise Levels in Occupied Spaces

Building	Room	Maximum Facade Impact (dBA L_{EQ})	Interior Noise Level (dBA L_{EQ})
Starbucks	Cafe	73.8	45.1
	Backbar	73.6	41.3
	Workroom / Storage	73.9	45.0
Chick-fil-A	Dining / Order / Serving	75.2	42.0
	Drive-Through	75.9	49.1
	Kitchen	75.9	41.0
	Service	75.8	48.4

Calculations show that, with the proposed exterior wall and roof assemblies and standard commercial glazing, noise levels are not expected to exceed an hourly average of 50 dBA L_{EQ} during the worst-case hour of operation (highest ambient noise level). As this represents the maximum noise impact in any one hour period during the day expected to be experienced at the worst-case building facade, all other hours are expected to have interior noise impacts that are less than those shown above.

Exterior door installation should include all-around weather-tight door stop seals and an improved threshold closure system. The additional hardware will improve the doors' overall sound reduction properties. The transmission loss (TL) of an exterior door without weather-tight seals is largely a factor of sound leakage, particularly at the bottom of the door if excessive clearance is allowed for air transfer. By equipping exterior doors with all-around weather-tight seals and an airtight threshold closure at the bottom, a loss of up to 10 STC points can be prevented.

Additionally, it is imperative to seal and caulk between the rough opening and the finished door frame for all doors by applying an acoustically resilient, non-skinning, butyl caulking compound. The same recommendation applies to any other penetrations, cracks, or gaps through the assembly. Sealant application should be as generous as needed to ensure effective sound barrier isolation. The OSI SC175 and Acoustical Sound Sealant and the Pecora AC-20 FTR Sealant are products specifically designed for this purpose. Please see Appendix I: Recommended Products.

The proposed project was analyzed for worst-case exterior noise impacts. With the proposed exterior wall and roof assemblies and standard commercial glazing in place, all occupied rooms are expected to comply with CALGreen noise requirements.

5.3 Permanent Project-Related Noise Impacts

5.3.1 Mechanical Equipment and Truck Delivery Noise

The City of Monrovia Municipal Code states that permanent project-generated noise levels should not exceed median ambient noise levels for daytime and nighttime hours when such ambient levels exceed presumed ambient noise levels. The measured median ambient noise levels were determined to be 60.8 dBA during daytime hours and 60.2 dBA during nighttime hours at surrounding residential receivers, and therefore, these values have been applied as noise limits for off-site noise-sensitive receivers.

Noise impacts from drive-through intercom equipment, roof-mounted HVAC equipment, and truck deliveries as detailed in Section 3.2.2, were calculated at surrounding noise-sensitive receivers to the east (hotel across Encino Avenue), west (hotel), and south (residential across Alta Street) and are shown in Table 11. Any other surrounding receivers are located at a greater distance from proposed equipment and therefore will be exposed to lesser noise impacts due to additional distance attenuation and/or shielding provided by intervening structures. Receivers were calculated at heights of five feet to represent ground-level receivers; additionally, at the west (R1) and east (R3), receivers were placed at 15 feet and 25 feet above ground level to represent second-story and third-story receivers at hotel buildings, respectively. Calculations considered noise shielding that will be provided by proposed on-site buildings. A graphical representation of noise source and receiver locations is provided as Figure 6. Please refer to Appendix D for additional information.

Table 11. Project-Generated Noise Levels at Surrounding Property Lines

Receiver	Location	Nighttime Noise Limit (dBA L_{EQ})	Equipment Noise Level (dBA)		
			Floor 1	Floor 2	Floor 3
R1	Southwest – Hotel	60.2	51.2	51.9	52.1
R2	South – Residential	60.2	51.0	--	--
R3	East – Hotel	60.2	58.8	59.4	59.4

As shown above, as currently designed, noise levels from the on-site operations will be in compliance with the City of Monrovia noise regulations found within the Municipal Code at all surrounding off-site receivers for both daytime and nighttime operation. No project design features are deemed necessary to control project-generated noise impacts from mechanical equipment.

5.3.2 Project-Generated Traffic Noise

As detailed in Section 3.2.3, project-generated traffic impacts were evaluated to determine whether noise impacts from the project site would be significant. Calculations were performed to determine the approximate change in noise exposure at surrounding receivers at intersections evaluated within the traffic study. The project driveway was not considered in this analysis, as there are no nearby sensitive receivers that are anticipated to be affected by the added traffic in this location. A significant direct impact occurs when project traffic combines with existing traffic and causes a doubling of sound energy, which is an increase of 3 dB. Direct impacts are assessed by comparing existing traffic volumes to existing plus project traffic volumes using the calculation methodology shown in Section 4.1.6. Project-generated traffic noise increases are shown in Table 12.

Table 12. Anticipated Traffic Noise Increases with Project-Generated Traffic		
Roadway Intersection	**Maximum Noise Level Increase (dB)**	
	AM Peak Hour	**PM Peak Hour**
Fifth Avenue / Huntington Drive	0.1	0.1
Encino Avenue / Huntington Drive	1.9	1.0
I-210 Westbound Ramps / Huntington Drive	0.1	0.1
Monterey Avenue / Huntington Drive	0.1	0.1

As shown in Table 12, the noise level increase from project-generated traffic is expected to be less than 3 dB at all roadway intersections. For this reason, project-generated traffic noise levels are expected to be less than significant. Please refer to Appendix J for additional information.

5.4 Temporary Construction Noise Impacts

The City of Monrovia prohibits construction activity after 7 p.m. and before 7 a.m. on weekdays and after 6 p.m. and before 9 a.m. on weekends and holidays. While the City of Monrovia does not provide noise limits for temporary construction activity at surrounding noise-sensitive property lines, the County of Los Angeles threshold for temporary daytime construction noise impacts is 75 dBA. This noise limit has been applied to activity on the proposed project site to assess the significance of construction noise impacts.

According to the project proponent and professional experience, on-site construction activities are expected to consist of the following stages: demolition/site preparation/grading, building construction, and paving. Please refer to Table 8 for anticipated on-site construction equipment during each stage of activity, construction equipment noise levels and duty cycles for each piece of equipment. Construction noise levels were calculated at the nearest noise-sensitive receivers to the east, west, and south (across Alta Street). Any other potentially noise-sensitive receivers are located at a greater distance from construction activity and therefore, would be exposed to lesser noise impacts due to distance attenuation and shielding provided by intervening structures.

Construction noise sources were placed near the center of the work area to evaluate typical impacts to the surrounding receivers as equipment moves around the property. Noise calculations consider typical duty cycles of equipment, to account for periods of activity and inactivity on the site.

Noise levels for each stage of construction are shown in Table 13. Detailed calculations are provided in Appendix E, and a graphical representation of construction noise source and receiver locations is provided as Figure 7.

Table 13. Temporary Construction Noise Levels at Surrounding Property Lines			
Activity Stage	**Equipment**	**Receiver**	**Construction Noise Level (dBA L_{EQ})**
Demolition/ Site Preparation/ Grading	Dozer, Excavator, Tractor Loader	R1 (West)	56.6
		R2 (South)	58.1
		R3 (East)	60.2

Table 13. Temporary Construction Noise Levels at Surrounding Property Lines			
Activity Stage	**Equipment**	**Receiver**	**Construction Noise Level (dBA L_{EQ})**
Building Construction	Reach Fork, Skid Steer, Skip Loader	R1 (West)	55.8
		R2 (South)	57.4
		R3 (East)	59.4
Paving	Paver, Roller, Skip Loader	R1 (West)	58.7
		R2 (South)	60.1
		R3 (East)	62.0

As shown above, construction noise levels are not expected to significantly exceed the typical median ambient noise levels, nor will they exceed the Los Angeles County threshold of 75 dBA. Any other surrounding otherwise noise-sensitive receivers are located at a greater distance from proposed construction activity, and therefore will be exposed to lesser noise impacts due to additional distance attenuation and shielding provided by intervening structures.

Despite the fact that noise impacts are expected to remain in compliance with typically accepted construction noise limits, the following "good practice" measures should still be practiced as a courtesy to off-site receivers.

1. Turn off equipment when not in use.

2. Limit the use of enunciators or public address systems, except for emergency notifications.

3. Equipment used in construction should be maintained in proper operating condition, and all loads should be properly secured, to prevent rattling and banging.

4. Schedule work to avoid simultaneous construction activities where both are generating high noise levels.

5. Use equipment with effective mufflers.

6. Minimize the use of backup alarms.

With operating hours limited to those permitted by the City of Monrovia and adherence to the general good practice construction noise control techniques, temporary construction noise impacts are expected to be less than significant at surrounding properties.

5.5 CEQA Significance Determination

Noise impacts from the project site are summarized below and classified per the noise portion of the CEQA Environmental Checklist form. This list summarizes conclusions made within the report and classifies the level of significance as: Potentially Significant Impact, Less than Significant with Mitigation Incorporated, Less than Significant Impact, or No Impact. *Italics* are used to denote language from the CEQA Environmental Checklist form.

XII. NOISE — Would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact. Operational noise impacts calculated in Section 5.3.1 are not expected to generate a substantial permanent increase in ambient noise levels in the vicinity of the project site. A substantial increase would be considered an increase of three decibels or more, which would represent a doubling of sound energy.

Median nighttime ambient noise levels were measured as detailed in Section 3.1.3 and were combined with the projected equipment noise impacts in terms of dBA to determine the cumulative noise impact and the increase in ambient noise levels resulting from operation of the project. Results are shown in Table 14.

Table 14. Calculated Cumulative Noise Impacts at Surrounding Property Lines

Receiver Number	Receiver Location	Noise Level (dBA)				Impact
		Ambient	Operations[1]	Cumulative[2]	Ambient Increase	
R3	East – Hotel (Floor 3)	60.2	59.4	62.8	2.6	Less than Significant

[1]On-site operations include drive-through intercom equipment, roof-mounted HVAC equipment, and truck deliveries.
[2]The cumulative noise environment consists of existing ambient noise plus on-site operations, including drive-through intercom equipment, roof-mounted HVAC equipment, and truck deliveries.

The results in Table 14 demonstrate that the increase in ambient noise levels from on-site operations (including drive-through intercom equipment, roof-mounted HVAC equipment, and truck deliveries) will be less than 3 dBA. Additionally, as demonstrated in Section 5.3.2 of this report, noise impacts from project-generated traffic are not expected to cause a significant direct increase on any surrounding roadway. This impact is also considered to be less than significant.

As shown in Section 5.4 of this report, noise from temporary construction is expected to be less than significant considering a typical construction schedule and assuming that equipment is maintained in proper operating condition and using appropriate mufflers. Additionally, no construction activity will take place during the more sensitive nighttime hours when ambient noise levels tend to be lower, as per City of Monrovia requirements. For these reasons, this impact is deemed to be less than significant.

As demonstrated above, the project is not expected to cause a substantial permanent or temporary increase in ambient noise levels, and therefore, this impact can be classified as less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact. The paving stage of construction has the potential to generate the highest vibration levels of any phase of construction, as paving activities would take place closest to sensitive receivers and may consist of the use of a vibratory roller. According to the Federal Transit Administration Transit Noise and Vibration Assessment Manual (see reference), a vibratory roller generates a peak particle velocity (PPV) of approximately 0.210 inches/second at a distance of 25 feet from equipment. The evaluation of an impact's significance can be determined by reviewing both the likelihood of annoyance to individuals as well as the potential for damage to existing structures. According to the Caltrans Transportation and Construction Vibration Guidance Manual (see reference), the appropriate threshold for damage to modern residential structures is a PPV of 0.5 inches/second. Annoyance is assessed based on levels of perception, with a PPV of

0.01 being considered "barely perceptible," 0.04 inches/second as "distinctly perceptible," 0.1 inches/second as "strongly perceptible," and 0.4 inches/second as "severe."

It is estimated that the nearest location to sensitive hotel receptors would be approximately 70 feet from the nearest hotel structure when the roller is used at the east boundary of the site; the nearest location to sensitive residential receivers would be approximately 170 feet from the nearest residential structure when the roller is used at the drive-through area of the proposed Chick-fil-A. At these distances, the PPV would be approximately 0.045 inches/second at the hotel receiver and 0.012 inches/second at the residential receiver. These levels of vibration fall well below the building damage PPV criteria of 0.5 inches/second. The impact falls between the "distinctly perceptible" and "strongly perceptible" PPV criteria for annoyance at the hotel and between the "barely perceptible" and "distinctly perceptible" PPV criteria for annoyance at the residence; however, vibration would be reduced to "distinctly perceptible" levels by the time the roller is located at a distance of 75 feet from receivers, and "barely perceptible" at 195 feet from receivers. As construction vibration is not anticipated to cause damage to off-site buildings and will only approach the threshold of "strongly perceptible" vibration for a short period of time when work is performed near the eastern boundary of the property, it is the opinion of the undersigned that temporary construction vibration impacts would not be "excessive" and therefore are less than significant.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less Than Significant Impact. The project site is not located within two miles of any public airport or public use airport. Therefore, the proposed project would not expose people working in the project area to excessive noise levels from such uses.

6.0 Conclusion

The California Green Building Standards Code (known as CALGreen) requires interior noise levels of 50 dBA or less during any hour of operation in occupied nonresidential spaces. Calculations show that with the proposed exterior wall and roof assemblies and standard commercial glazing, interior noise levels of 50 dBA or less can be achieved. Therefore, the project is expected to comply with CALGreen noise regulations as currently designed.

Noise from the anticipated operations on site was calculated to determine if specific project design features are necessary to reduce the noise impacts to be compliant with applicable limits. Noise limits specified within the City of Monrovia Municipal code must be met at neighboring noise-sensitive property lines. Calculations show that noise levels from on-site operations will be in compliance with the City of Monrovia noise limits as designed. No project design features are deemed necessary to control project-generated noise impacts from on-site operations. Project-generated traffic noise is also expected to be less than significant.

The City of Monrovia does not provide noise limits for temporary construction activity at surrounding noise-sensitive property lines; however, the hours during which construction activity can take place are limited by the Municipal Code. The City of Monrovia prohibits construction activity after 7 p.m. and before 7 a.m. on weekdays and after 6 p.m. and before 9 a.m. on weekends and holidays. Though it is not required by regulations, the general good practice construction noise control methods listed herein should be followed, as a courtesy to surrounding properties. With operating hours limited to those allowable in the City of Monrovia and standard good practice construction noise control measures followed, temporary construction noise and vibration are expected to be less than significant.

The proposed project is not expected to result in any potentially significant noise impacts by the standards of the California Environmental Quality Act (CEQA). Noise impacts are summarized in Section 5.5.

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 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.

This report is based on the related project information received and measured noise levels, and represents a true and factual analysis of the acoustical impact issues associated with the Chick-fil-A and Starbucks – Huntington Drive and 210 project, located at 820 Huntington Drive in the City of Monrovia, California. This report was prepared by Mo Ouwenga and Amy Hool.

Mo Ouwenga, INCE
Acoustical Consultant

Amy Hool, INCE
President/CEO

8.0 References

2019 California Green Building Code, Nonresidential Mandatory Measures.

City of Monrovia Municipal Code.

County of Los Angeles Code of Ordinances.

Harris Miller Miller & Hanson, Inc., CREATE Freight Noise and Vibration Model, 2006.

Metro Gold Line Timetable, 23 June 2019.

Linscott, Law & Greenspan, Engineers, Chick-fil-A/Starbucks Monrovia Project Transportation Impact Study, 17 March 2021.

Caltrans Traffic Census Program, http://www.dot.ca.gov/trafficops/census/

Federal Highway Administration, Highway Traffic Noise: Analysis and Abatement Guide, December 2011.

Department for Environment Food and Rural Affairs (DEFRA), Update of Noise Database for Prediction of Noise on Construction and Open Sites, 2005.

U.S. Department of Transportation Federal Highway Administration, Construction Noise Handbook, Construction Equipment Noise Levels and Ranges.

DataKustik, CadnaA (Computer Aided Noise Abatement), Version 2020.

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

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

Marshall Day Acoustics, INSUL Version 9.0.

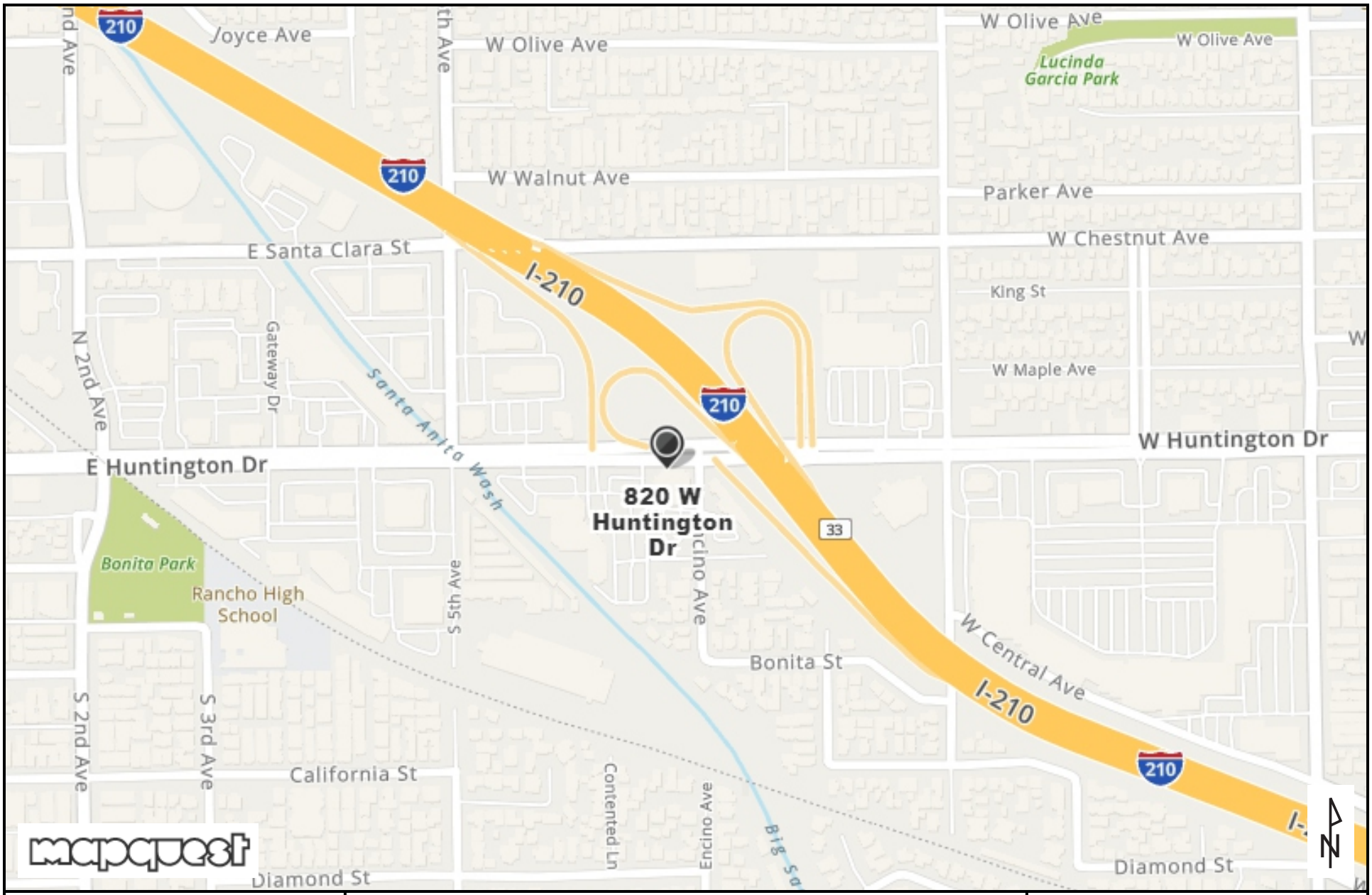
California Environmental Quality Act (CEQA), Statute and Guidelines, 2019.

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

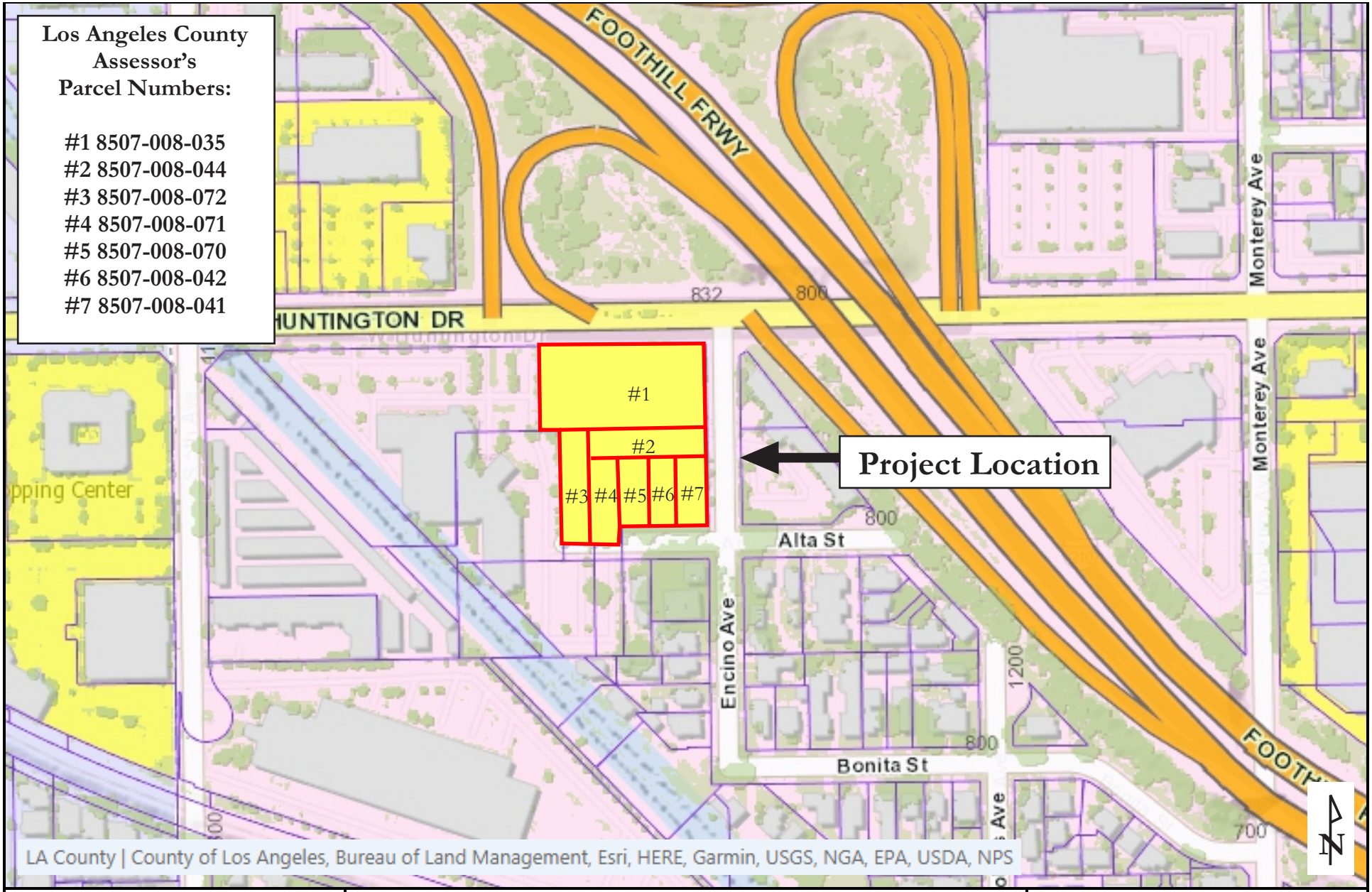
California Department of Transportation (Caltrans), Transportation and Construction Vibration Guidance Manual, September 2013.

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Figures



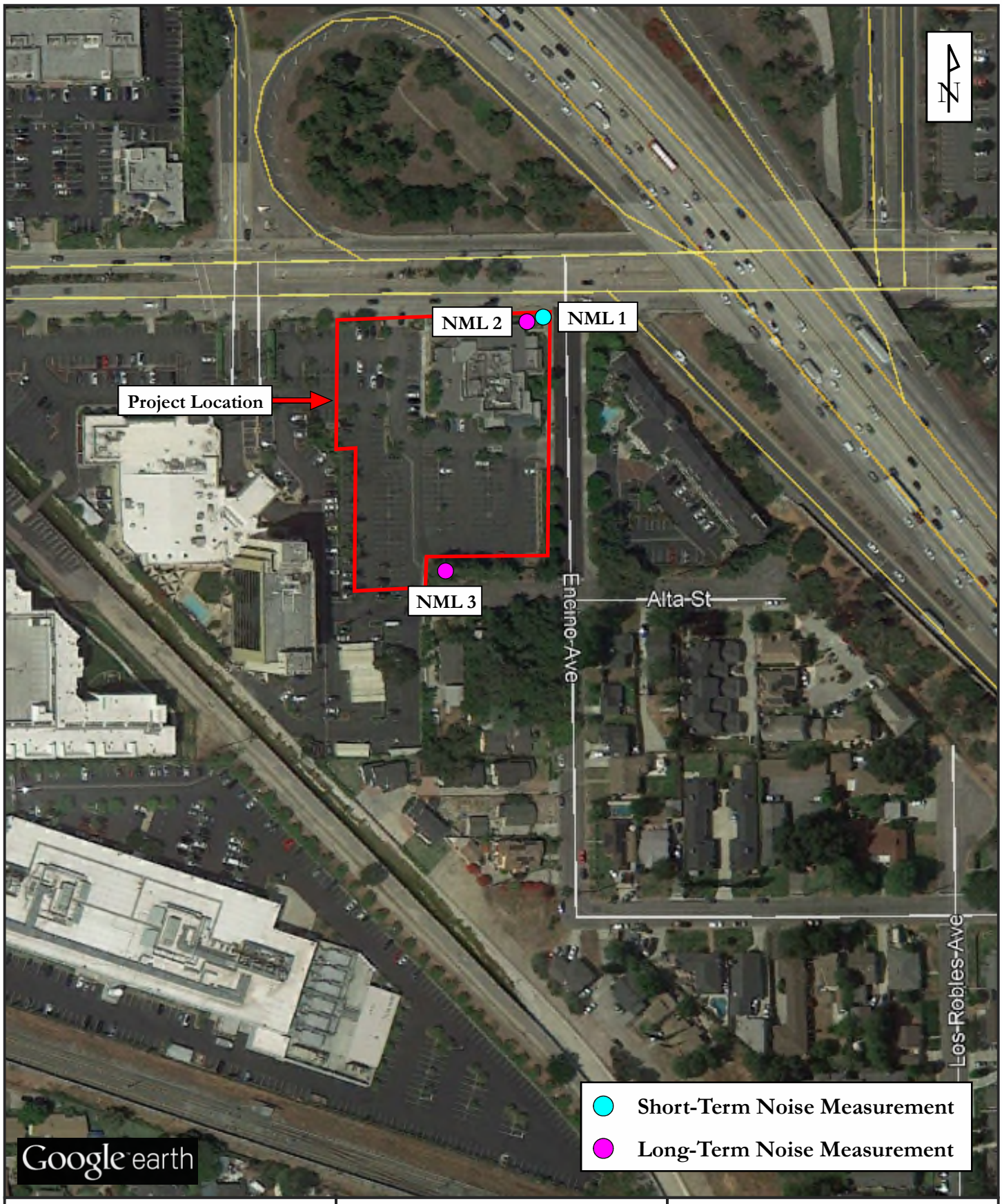
Eilar Associates, Inc. 210 South Juniper Street, Suite 100 Escondido, California 92025 760-738-5570	**Vicinity Map** **Job # L200702**	**Figure 1**



Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025
760-738-5570

Assessor's Parcel Map
Job # L200702

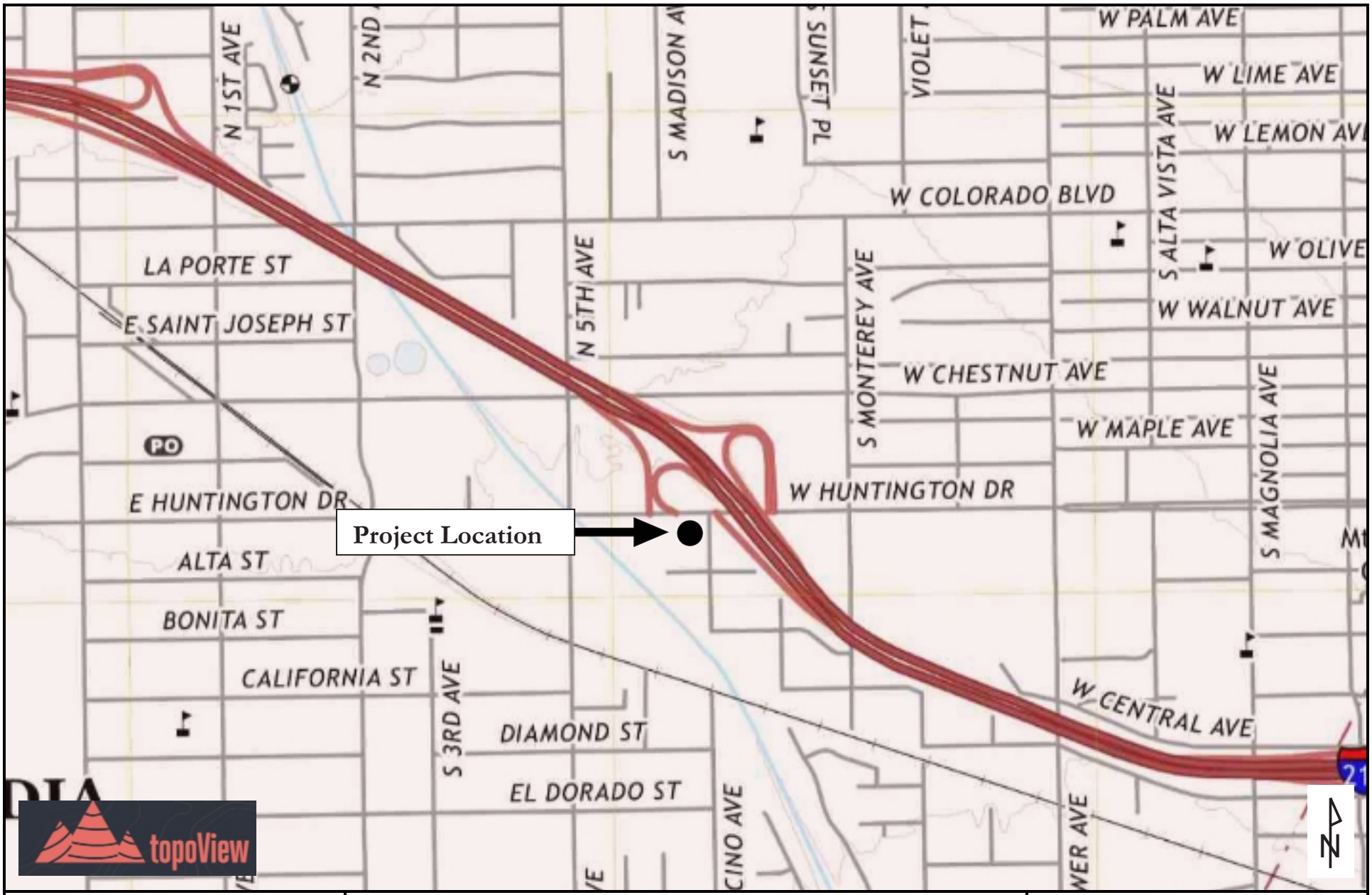
Figure 2



Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025
760-738-5570

Satellite Aerial Photograph Showing Noise Measurement Locations
Job # L200702

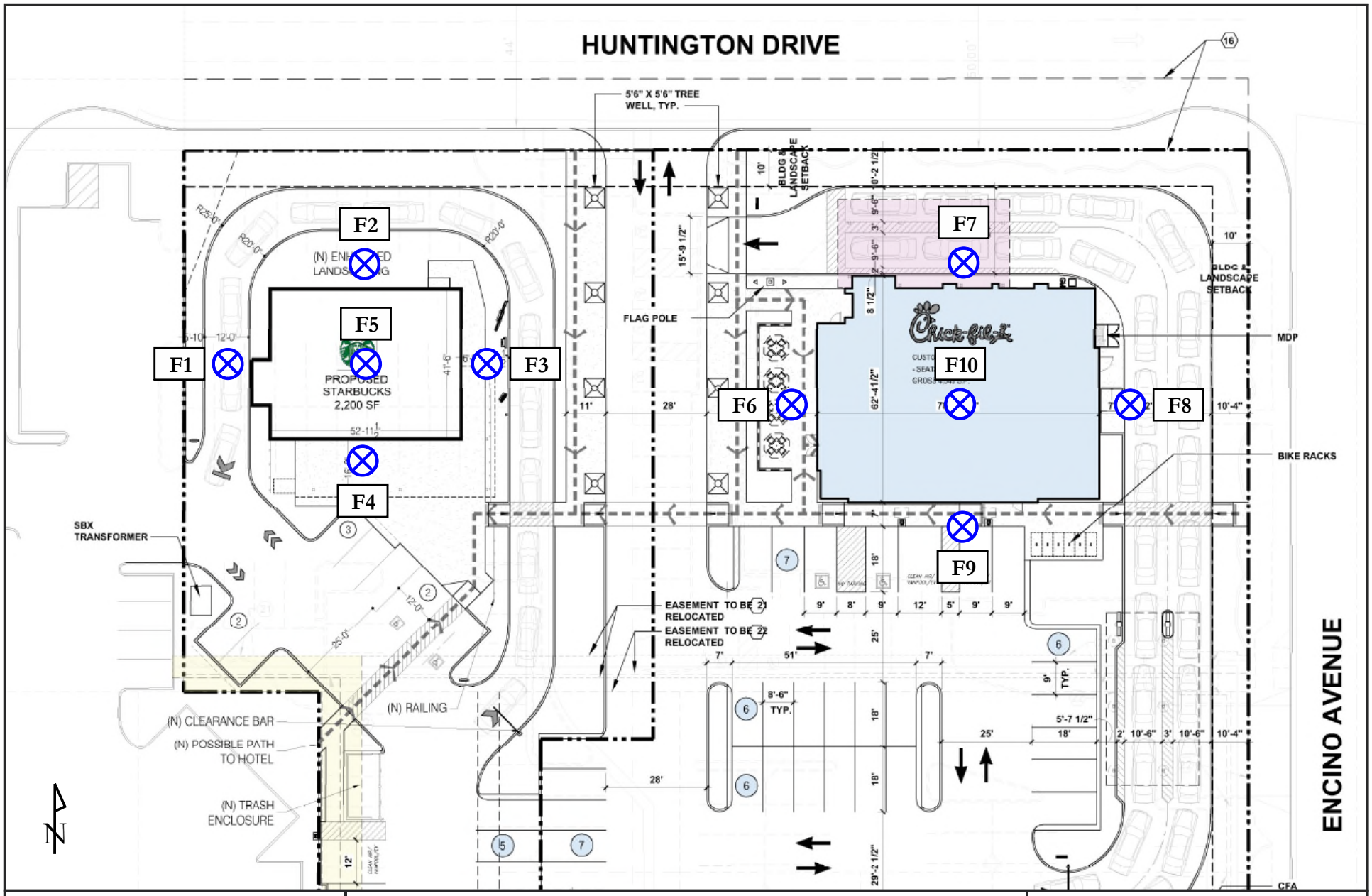
Figure 3



Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025
760-738-5570

Topographic Map
Job # L200702

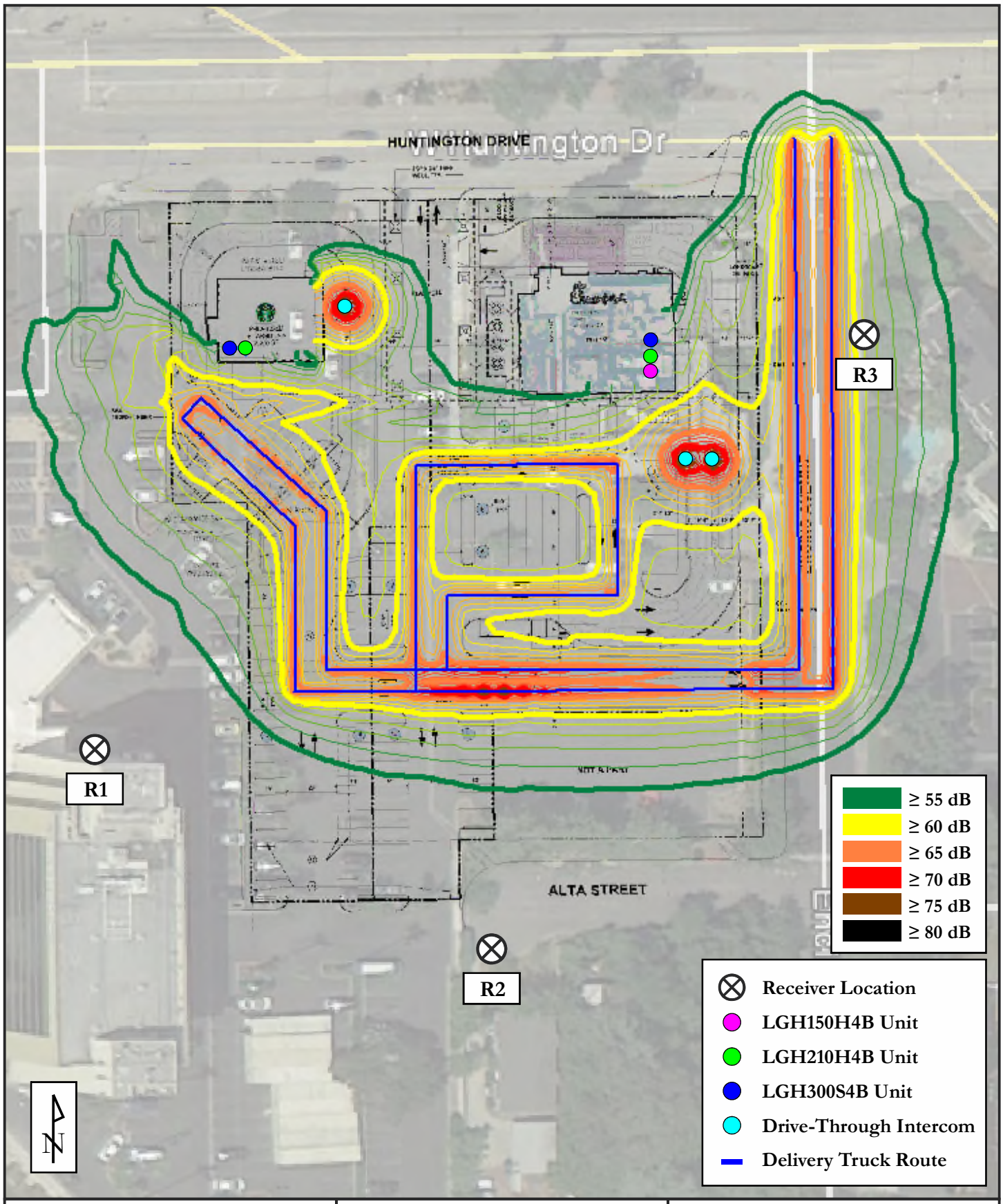
Figure 4



Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025
760-738-5570

Site Plan Showing Facade Receiver Locations
Job # L200702

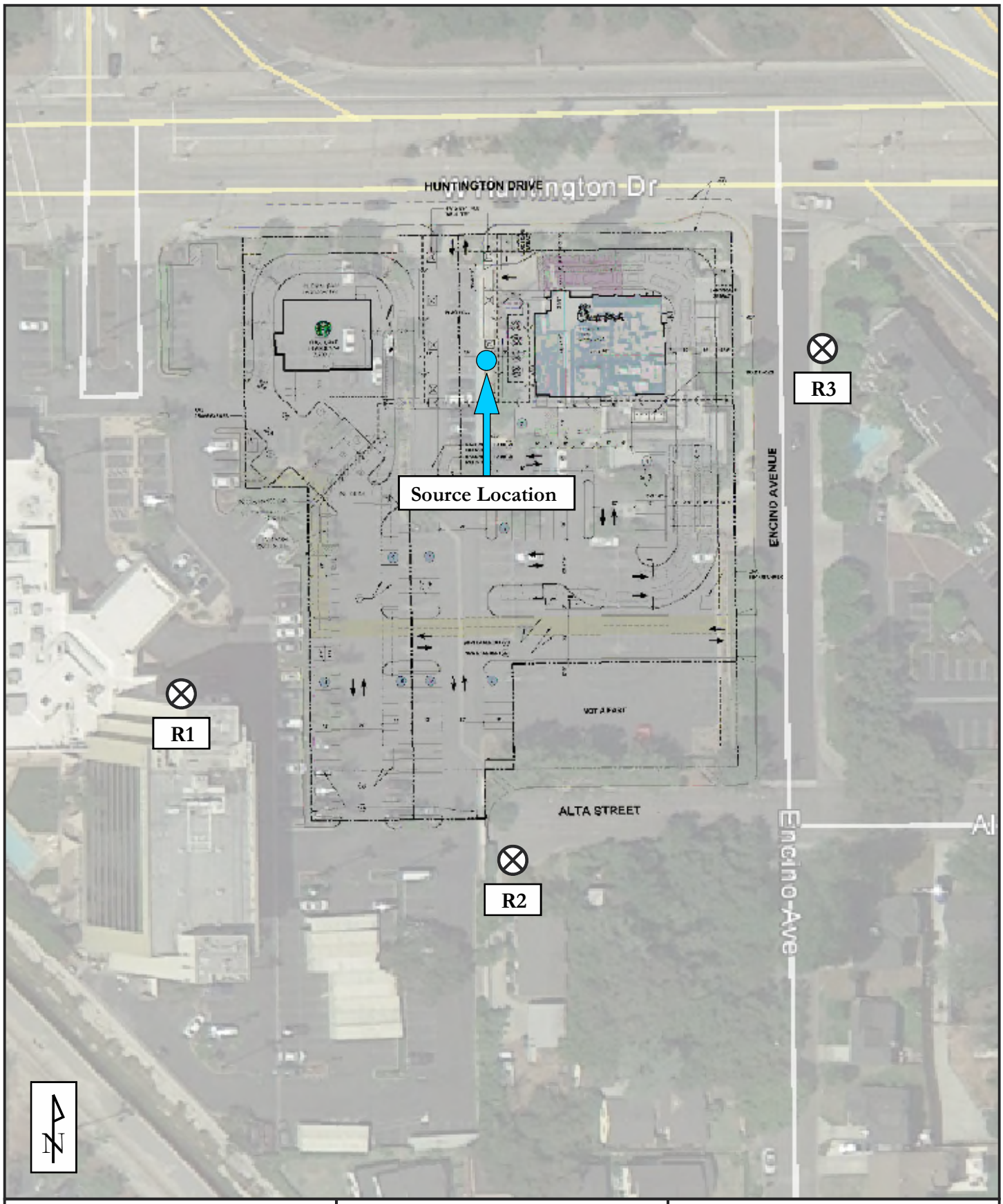
Figure 5



Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025
760-738-5570

Satellite Aerial Photograph Showing Site Plan, Operational Noise Contours, and Receiver Locations
Job # L200702

Figure 6



Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025
760-738-5570

Satellite Aerial Photograph Showing Site Plan, Construction Source Location, and Receiver Locations
Job # L200702

Figure 7

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix A
Project Plans

CODE INFORMATION

BUILDING CODE:
CA BUILDING CODE 2019
PLUMBING CODE:
CA PLUMBING CODE 2019
MECHANICAL CODE:
CA MECHANICAL CODE 2019
ELECTRICAL CODE:
CA ELECTRICAL CODE 2019
ACCESSIBILITY CODE:
ADA/CBC 2019
ENERGY CODE:
TITLE 24
FIRE CODE:
CA FIRE CODE 2019
GREEN CODE:
CA GREEN BUILDING STANDARD CODE 2019

Drawing Index

HUNTINGTON SW & 210
820 HUNTINGTON DRIVE, MONROVIA, CA

Chick-Fil-A Architect:

C.R.H.O.
1833 E. 17TH STREET, SUITE 301
SANTA ANA, CA. 92705
PHONE: (714) 832-1834
FAX: (714) 832-1910
CONTACT: RUSSELL HATFIELD
E-MAIL: RUSSELL@CRHO.COM

Starbucks Architect:

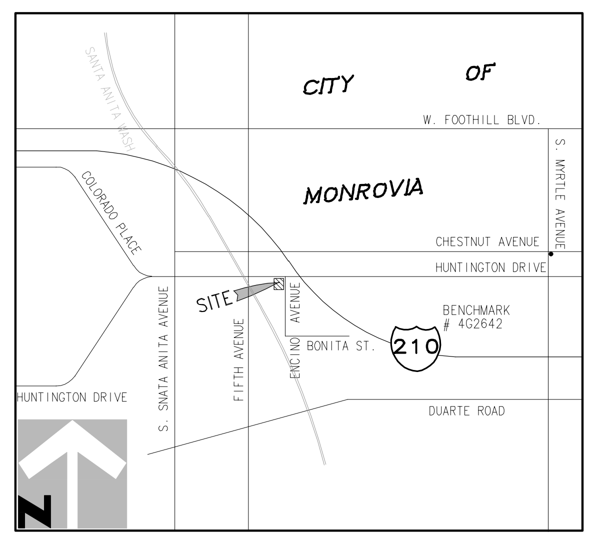
GREENBERGFARROW
30 EXECUTIVE PARK, SUITE 100
IRVINE, CA 92614
PHONE: (949) 371-6685
CONTACT: INDIRA IBRAHIMBEGOVIC
E-MAIL:
IIBRAHIMBEGOVIC@GREENBERGFARROW.COM

Landscape Architect:

JOHN HOURIAN & ASSOC.
107 AVENIDA MIRAMAR, SUITE "D"
SAN CLEMENTE, CA 92672
PHONE: (949) 489-5623
FAX: (949) 489-5632
CONTACT: JOHN HOURIAN
E-MAIL: TEAM@HOURIANASSOCIATES.COM

Civil Engineer:

TRUXAW AND ASSOCIATES
265 ANITA DRIVE
SUITE 111
ORANGE, CA. 92868
PHONE: (714) 935-0265
CONTACT: STEVE HAGER
E-MAIL: STEVEHAGER@TRUXAW.COM



1 VICINITY MAP
NOT TO SCALE

BUILDING DATA

OCCUPANCY:	A2 (RESTAURANT)
FIRE SPRINKLERED:	YES
CONSTRUCTION TYPE:	V-B
ZONING:	RETAIL CORRIDOR MIXED USE (RCM)
APN:	8507-008-041, 8507-008-042, 8507-008-071, 8507-008-035, 8507-008-044, 8507-008-072, 8507-008-070
TOTAL SITE AREA:	90,991 S.F. (2.088 AC)
CHICK FIL A	
SITE AREA:	58,775 S.F. (1.348 AC)
BUILDING AREA:	4,562 S.F.
BUILDING HEIGHT	22'-0"
FAR:	0.077
DINING AREA SEATING	86 SEATS
OUTDOOR SEATING	16 SEATS
STARBUCKS	
SITE AREA:	32,236 S.F. (0.740 AC)
BUILDING AREA:	2,200 S.F.
BUILDING HEIGHT	20'-5 ½"
FAR:	0.068
DINING AREA SEATING	32 SEATS
OUTDOOR SEATING	34 SEATS

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

crho ARCHITECTS
1833 E 17th. Street; Suite 301
Santa Ana, CA. 92705
phone 714.832.1834

CHICK-FIL-A
HUNTINGTON DR & 210 FSU
820 HUNTINGTON DR, MONROVIA, CA

FSR# 04698

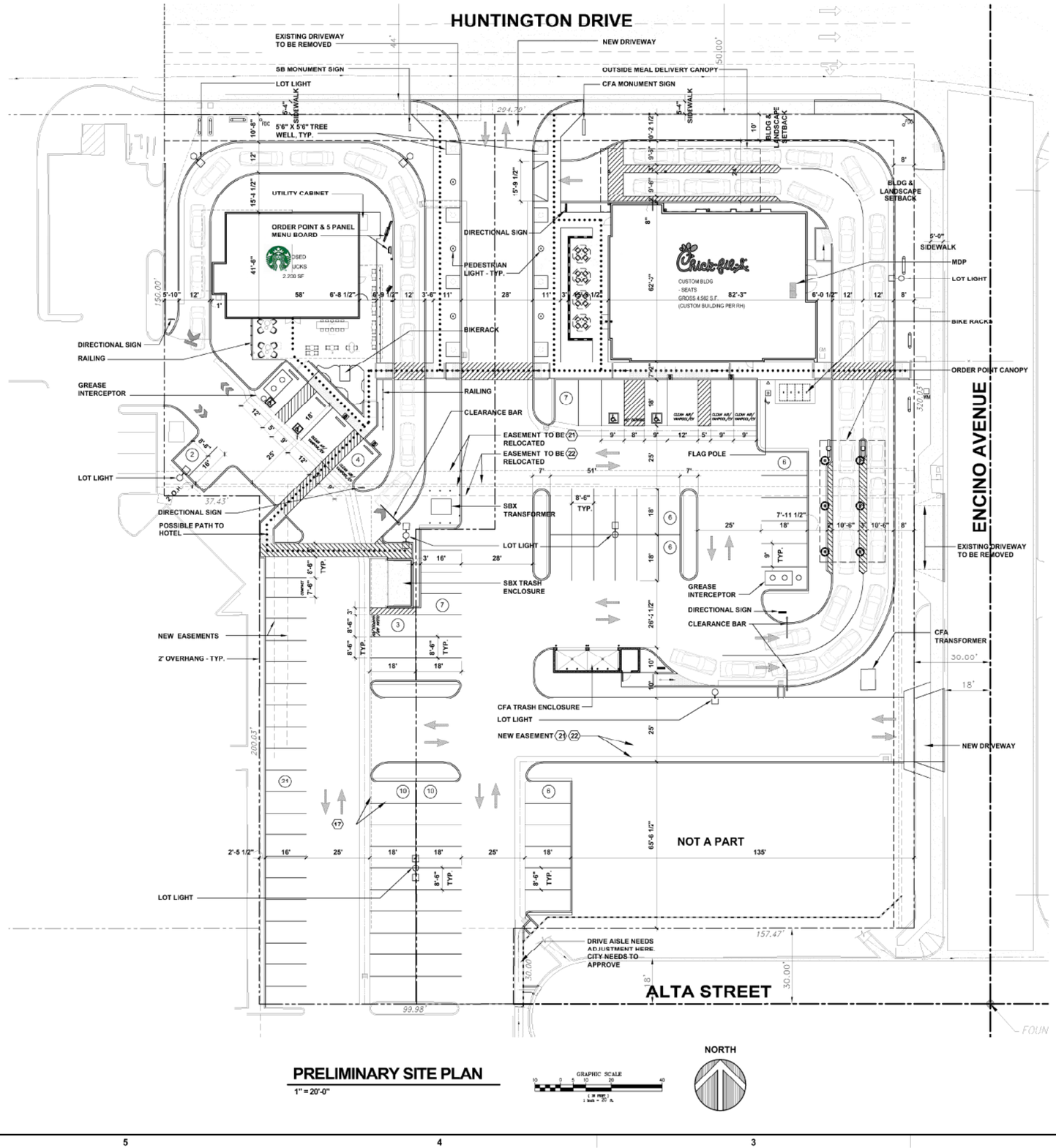
REVISION SCHEDULE

NO.	DATE	DESCRIPTION
	10.16.20	

ARCHITECT'S PROJECT #	19-174
PRINTED FOR	Plan'g, Building, Etc.
DATE	10-16-20
DRAWN BY	-

SHEET
TITLE SHEET

SHEET NUMBER
T-1.1



PRELIMINARY SITE PLAN

1" = 20'-0"

GRAPHIC SCALE

NORTH

SITE INFORMATION

1.	ZONING CLASSIFICATION		RCM (RETAIL CORRIDOR MEXED USE)
2.	TOTAL SITE AREA	-	90,991 S.F. (2.088 AC)
A.	CHICK-FIL-A		
	SITE AREA	-	58,755 S.F. (1.348 AC)
	BUILDING AREA	-	4,562 S.F.
	BUILDING HEIGHT	-	22'-0"
	FAR	-	0.077
B.	STARBUCKS		
	SITE AREA	-	32,236 S.F. (0.740 AC)
	BUILDING AREA	-	2,200 S.F.
	BUILDING HEIGHT	-	20'-5 1/2"
	FAR	-	0.068
3.	PARKING		
	PARKING REQUIRED: 1.5 SPACE FOR EVERY TABLE		
A.	CHICK-FIL-A		
	INDOOR TABLES	-	28
	PARKING REQUIRED	-	28X1.5 = 42 SPACES
	PARKING PROVIDED	-	48 SPACES
	STANDARD STALL	-	44 SPACES
	ACCESSIBLE STALL	-	2 SPACES
	EVCS STALL	-	2 SPACES
	BICYCLE PARKING	-	8 SPACES
	DRIVE-THRU STACKING	-	30 CARS
B.	STARBUCKS		
	INDOOR TABLES	-	13
	PARKING REQUIRED	-	13X1.5 = 20 SPACES
	PARKING PROVIDED	-	40 SPACES
	STANDARD STALL	-	35 SPACES
	ACCESSIBLE STALL	-	2 SPACES
	COMPACT STALL	-	1 SPACE
	EVCS STALL	-	2 SPACES
	BICYCLE PARKING	-	2 SPACES
	DRIVE-THRU STACKING	-	13 CARS

SITE PLAN NOTES:

1. GREASE INTERCEPTORS ARE UNDERGROUND FOR CHICK FIL A AND STARBUCKS
2. SIGNAGE WILL BE SUBMITTED UNDER A SEPARATE SUBMITTAL.

EASEMENT NOTES

16 AN EASEMENT FOR PUBLIC STREET AND INCIDENTAL PURPOSES

17 AN EASEMENT FOR POWER LINES AND INCIDENTAL PURPOSES.

18 THE TERMS, PROVISIONS AND EASEMENT(S) CONTAINED IN THE DOCUMENT ENTITLED "AGREEMENT FOR MUTUAL EASEMENT"

21 AN EASEMENT FOR UNDERGROUND ELECTRICAL SUPPLY SYSTEMS AND COMMUNICATION SYSTEMS AND INCIDENTAL PURPOSES

22 AN EASEMENT FOR TRANSMISSION OF ELECTRIC ENERGY FOR COMMUNICATIONS AND OTHER PURPOSES AND INCIDENTAL PURPOSES

23 THE RIGHTS, IF ANY, OF A CITY, PUBLIC UTILITY OR SPECIAL DISTRICT, PURSUANT TO SECTION 8345 ET SEQ. OF THE CALIFORNIA STREETS AND HIGHWAYS CODE, TO PRESERVE A PUBLIC EASEMENT IN ALTA STREET AS THE SAME WAS VACATED BY THE DOCUMENT RECORDED MARCH 23 1995 AS INSTRUMENT NO. 95-423644 OF OFFICIAL RECORDS.

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

crho architects
1833 E. 17th Street
3rd Floor - Suite 301
Santa Ana, CA 92705
Phone 714.832.1834

CHICK-FIL-A
HUNTINGTON DR & 210 FSU
820 HUNTINGTON DR, MONROVIA, CA

FSR# 04698

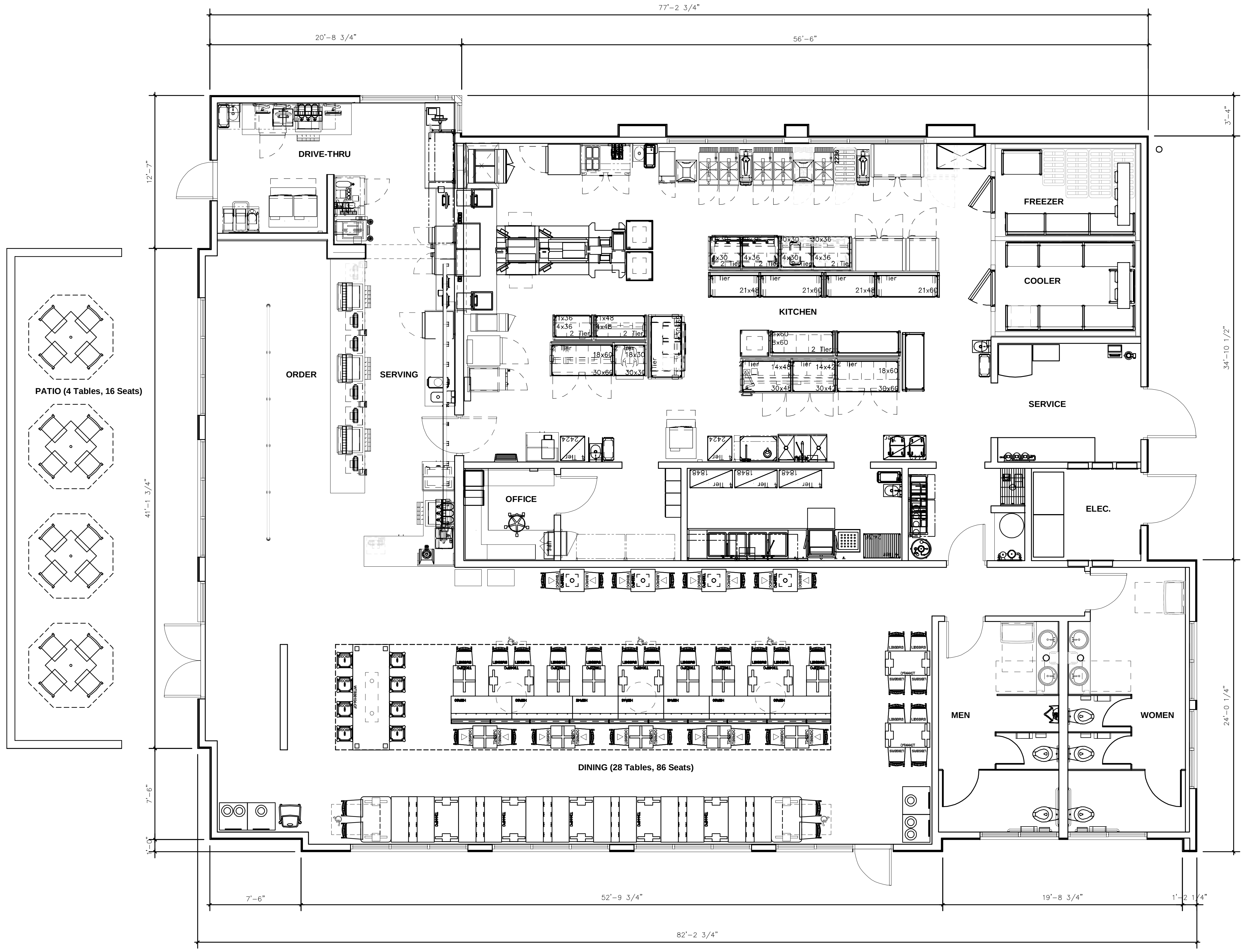
REVISION SCHEDULE

NO.	DATE	DESCRIPTION
	10.16.20	
	12.23.20	

ARCHITECT'S PROJECT # 19-174
PRINTED FOR Plan'g, Building, Etc.
DATE 10-16-20
DRAWN BY -

SHEET
PRELIMINARY SITE PLAN

SHEET NUMBER
SP-1
(PSP-41)



NORTH

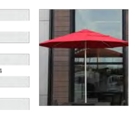
PRELIMINARY FLOOR PLAN

1/4"= 1'-0"

Fire Department Notes

1. NEW STRUCTURAL SHALL BE FIRE SPRINKLERED.
2. THE FIRE SPRINKLER SYSTEM SHALL BE MONITORED BY A LISTED CENTRAL STATION
3. ALL EXIT DOORS SERVING THE DINING AREA SHALL BE PROVIDED WITH PANIC HARDWARE.
4. ALL EXIT SIGNS SHALL BE ILLUMINATED. EMERGENCY LIGHTING SHALL BE PROVIDED FOR ALL PATHS OF EGRESS.
5. FIRE EXTINGUISHERS SHALL BE PROVIDED AT LOCATIONS APPROVED BY THE FIRE INPSECTOR.
6. A KNOX BOX SHALL BE PROVIDED AT AN APPROVED LOCATION.

Name	Umbrella
Schedule Tag	N/A
Last Updated	7/31/14
Responsible Vendor	Strategic Equipment & Supply Corporation
Contact Person	Mitch Welch
Address	5977 Whitesville Road Suite 10, Columbus GA, 31904
Email Address	mwelch@strategicequipment.com
Phone	229-903-3700
Manufacturer	Tuuci
Manufacturer Part #	Ocean Master Parasol
Expected Lead Time	6 Weeks



Description

Octagonal umbrella adds a pop of color to the exterior dining space with its red canopy while providing shade for guests

Usage Guidelines

- Exterior of Restaurant as indicated per location

Size/Finishes/Materials

- 7'-4" Diameter x 7'-10" Overall Height. 6'-4" H to underside of canopy
- Armor-Wall Aluminum Mast with 'Polished Titanium' finish
- Manual lift with Stainless Steel Security Pin
- Stainless Steel Hardware
- Fabric: Sunbrella 100% Solution Dyed Acrylic in Jockey Red
- Market Profile Shade with Single Vent
- Deck Mounted Base: Stainless Steel Deck Mount with Hitch Pin
- Freestanding Base: ACF 95lb Base with Wheels

Installation Guidelines

- Deck mounted base standard.
- Mount through center of 4-top tables

Name	Table - Four Top (w/ Umbrella Hole)
Schedule Tag	N/A
Last Updated	7/31/14
Responsible Vendor	Strategic Equipment & Supply Corporation
Contact Person	Mitch Welch
Address	5977 Whitesville Road Suite 10, Columbus GA, 31904
Email Address	mwelch@strategicequipment.com
Phone	229-903-3700
Manufacturer	Benchmark Design
Manufacturer Part #	TAB3021-3636-AAL-WJ-UH-BDT
Expected Lead Time	4-6 Weeks

Description

Warm, modern outdoor dining table compliments the exterior finishes of the Restaurant

Usage Guideline

- Use on the exterior of Restaurant
- Preferred table
- Should be paired with Table -ADA Four Top (w/ Umbrella Hole)
- Not ADA compliant

Size/Finishes/Materials

- 36" x 36" x 29-1/4" H
- RAL 49/66220 [C34 Bronze One Coat]

Installation Guidelines

- Pair with an Umbrella

Name	Dining Chair
Schedule Tag	N/A
Last Updated	7/31/14
Responsible Vendor	Strategic Equipment & Supply Corporation
Contact Person	Mitch Welch
Address	5977 Whitesville Road Suite 10, Columbus GA, 31904
Email Address	mwelch@strategicequipment.com
Phone	229-903-3700
Manufacturer	Benchmark Design
Manufacturer Part #	Baja Side Stack (2012)
Expected Lead Time	4-6 Weeks

Description

Warm, modern dining chair compliments the interior finishes of the Restaurant and becomes the standard dining chair throughout the Exterior Dining

Usage Guidelines

- Exterior of Restaurant with freestanding Tables
- Preferred typical Dining Chair for exterior use

Size/Finishes/Materials

- 20" W x 21" D x 32.31" H
- 17" Seat Height
- RAL 49/66220 [C34 Bronze One Coat]

Installation Guidelines

- N/A

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

crho ARCHITECTS
195 South C Street; Suite 200
Tustin, CA. 92780
phone 714.832.1834

CHICK-FIL-A
HUNTINGTON DR & 210 FSU
820 HUNTINGTON DR, MONROVIA, CA

FSR# 04698

REVISION SCHEDULE

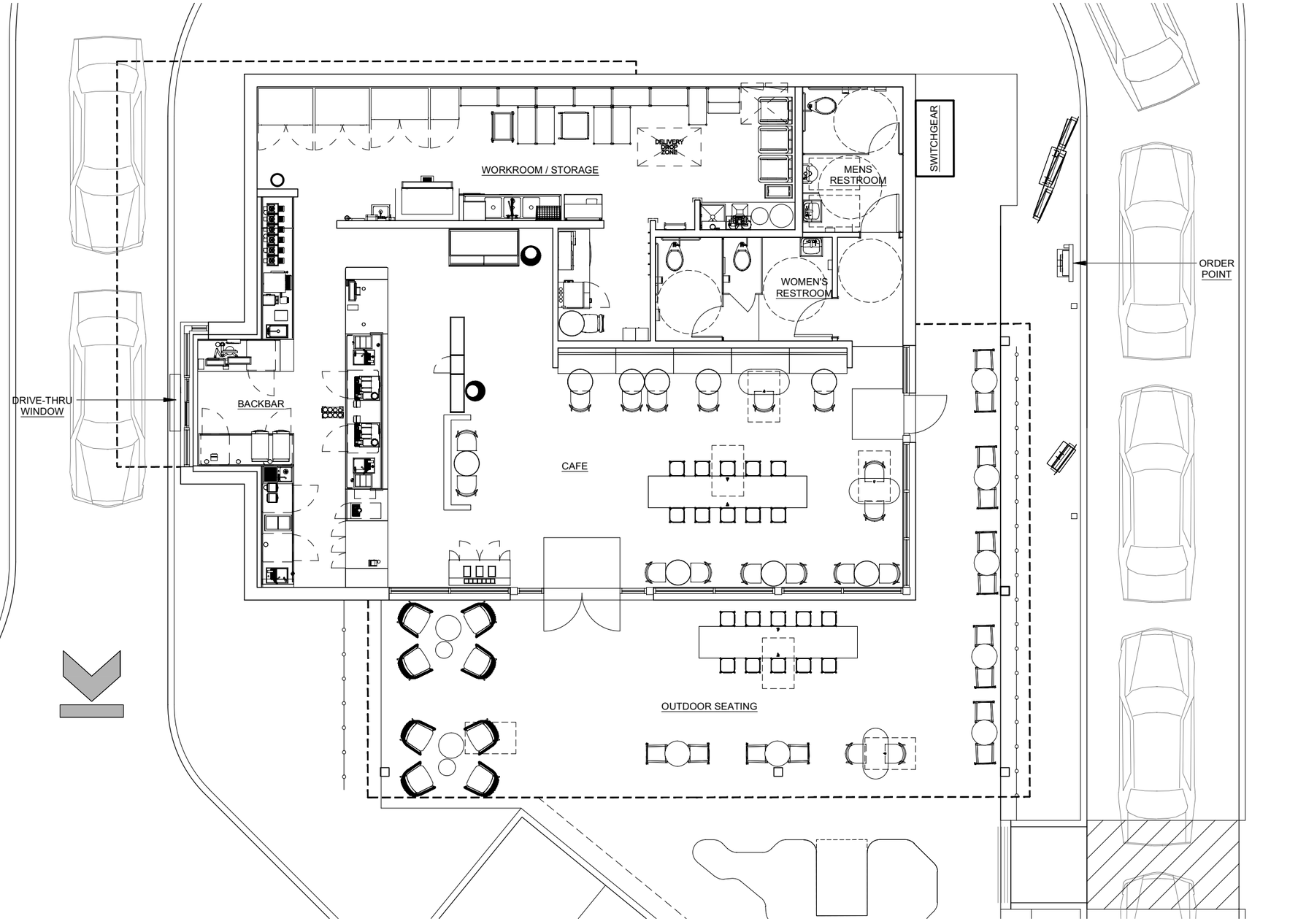
NO.	DATE	DESCRIPTION
	10.16.20	
	12.23.20	

ARCHITECT'S PROJECT #	19-174
PRINTED FOR	Plan'g, Building, Etc.
DATE	10-16-20
DRAWN BY	-

SHEET
PRELIMINARY FLOOR PLAN

SHEET NUMBER

A-1.1



1 FLOOR PLAN

GreenbergFarrow
30 Executive Park, Suite 100
Irvine, CA 92614
t: 949 296 0450 f: 949 296 0479

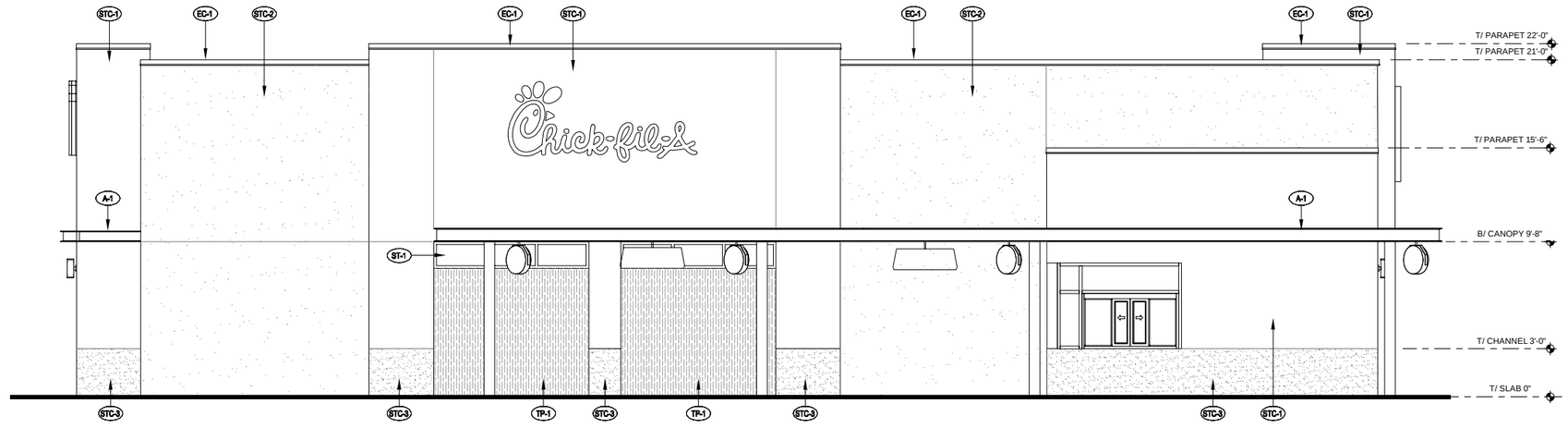
STARBUCKS
HUNTINGTON & FWY 210
MONROVIA, CA
20200724.0

FLOOR PLAN

A-1.2
2020-12-15

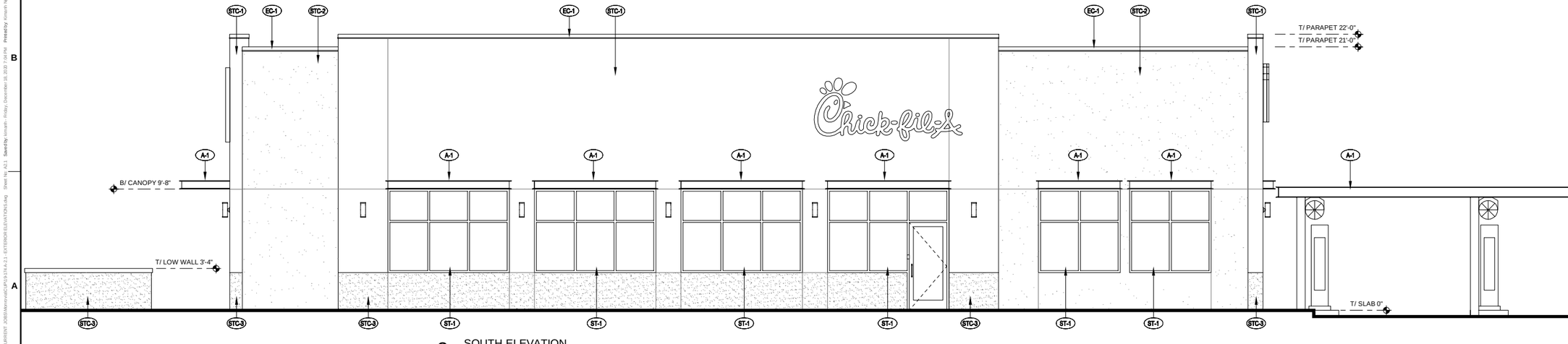
FINISH SCHEDULE - EXTERIOR

MARK	DESCRIPTION	MANUFACTURER	MODEL NAME	COLOR	NOTE
EXTERIOR					
A1	ALUMINUM AWINING			DARK BRONZE	
EC-1	PARAPET WALL COPING	DUROLAST / EXCEPTIONAL METALS		PAINT TO MATCH ADJACENT SURFACE	
ST-1	STOREFRONT	YKK	YES 45	DARK BRONZE (MATTE)	
STC-1	STUCCO	STO		PAINT SHERWIN WILLIAMS SW7566 "WESTHIGHLAND WHITE"	FINISH: SMOOTH TROWEL FINISH
STC-2	STUCCO	STO		PAINT SHERWIN WILLIAMS SW6172 "HARDWARE"	FINISH: SMOOTH TROWEL FINISH
STC-3	STUCCO	STO		PAINT TO MATCH SHERWIN WILLIAMS CFA CUSTOM "URBAN NIGHT"	FINISH: SMOOTH TROWEL FINISH
TP-1	TRESPA METEON WOOD DECOR	TRESPA		ITALIAN WALNUT NW08	



1 NORTH ELEVATION
1/4" = 1'-0"

NOTE:
1. ALL ROOF TOP MECHANICAL EQUIPMENT SHALL BE SCREENED FROM VIEW BY PARAPET WALLS
2. SIGNAGE WILL BE SUBMITTED UNDER SEPARATE SUBMITTAL



2 SOUTH ELEVATION
1/4" = 1'-0"

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

crho ARCHITECTS
195 South C Street; Suite 200
Tustin, CA. 92780
phone 714.832.1834

CHICK-FIL-A
HUNTINGTON DR & 210 FSU
820 HUNTINGTON DR, MONROVIA, CA

FSR# 04698

REVISION SCHEDULE

NO.	DATE	DESCRIPTION
	10.16.20	
	12.23.20	

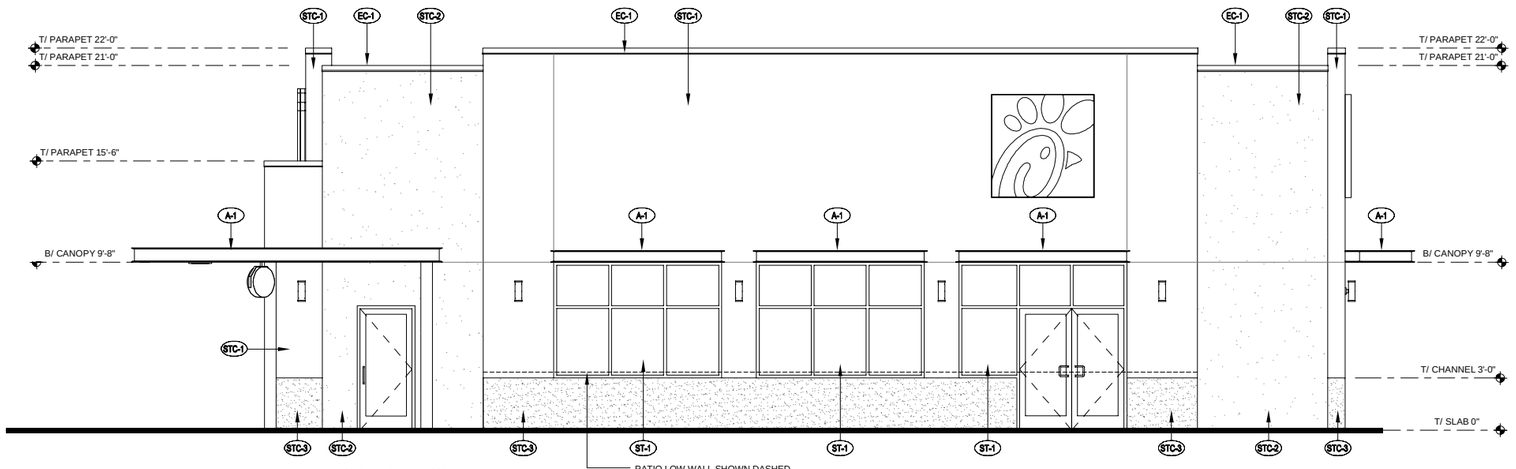
ARCHITECT'S PROJECT # 19-174
PRINTED FOR Plan'g, Building, Etc.
DATE 10-16-20
DRAWN BY -

SHEET
EXTERIOR ELEVATIONS

SHEET NUMBER
A-2.1

FINISH SCHEDULE - EXTERIOR

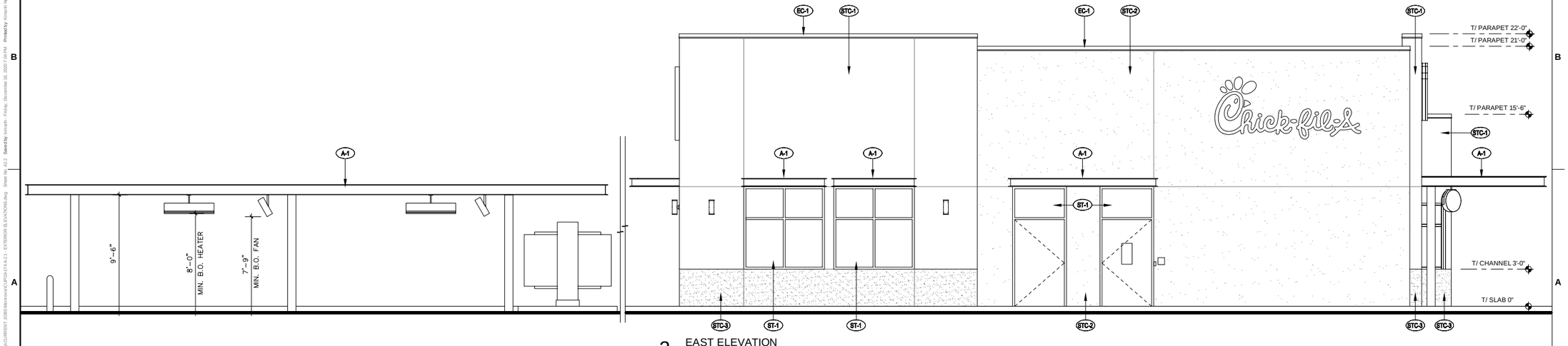
MARK	DESCRIPTION	MANUFACTURER	MODEL NAME	COLOR	NOTE
EXTERIOR					
A1	ALUMINUM AWINING			DARK BRONZE	
EC-1	PARAPET WALL COPING	DUROLAST / EXCEPTIONAL METALS		PAINT TO MATCH ADJACENT SURFACE	
ST-1	STOREFRONT	YKK	YES 45	DARK BRONZE (MATTE)	
STC-1	STUCCO	STO		PAINT SHERWIN WILLIAMS SW7566 "WESTHIGHLAND WHITE"	FINISH: SMOOTH TROWEL FINISH
STC-2	STUCCO	STO		PAINT SHERWIN WILLIAMS SW6172 "HARDWARE"	FINISH: SMOOTH TROWEL FINISH
STC-3	STUCCO	STO		PAINT TO MATCH SHERWIN WILLIAMS CFA CUSTOM "URBAN NIGHT"	FINISH: SMOOTH TROWEL FINISH
TP-1	TRESPA METEON WOOD DECOR	TRESPA		ITALIAN WALNUT NW08	



1 WEST ELEVATION
1/4" = 1'-0"

PATIO LOW WALL SHOWN DASHED

NOTE:
1. ALL ROOF TOP MECHANICAL EQUIPMENT SHALL BE SCREENED FROM VIEW BY PARAPET WALLS.
2. SIGNAGE WILL BE SUBMITTED UNDER A SEPARATE SUBMITTAL



2 EAST ELEVATION
1/4" = 1'-0"

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

crho ARCHITECTS
195 South C Street; Suite 200
Tustin, CA. 92780
phone 714.832.1834

CHICK-FIL-A
HUNTINGTON DR & 210 FSU
820 HUNTINGTON DR, MONROVIA, CA

FSR# 04698

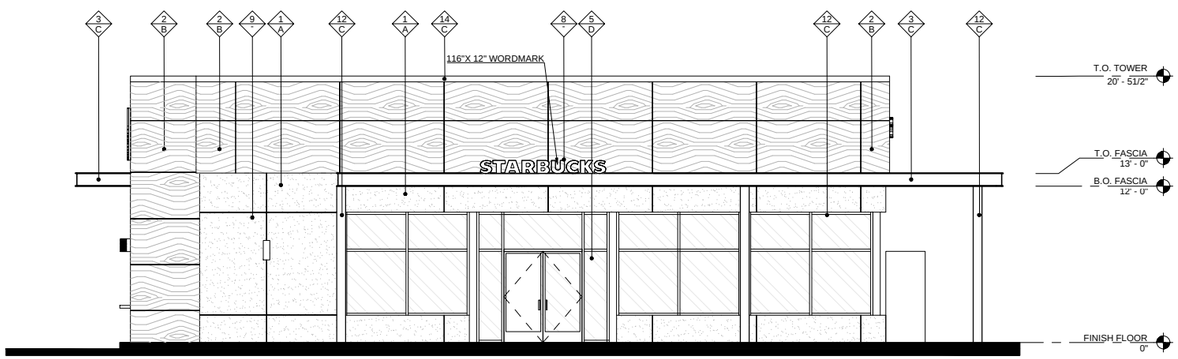
REVISION SCHEDULE

NO.	DATE	DESCRIPTION
	10.16.20	
	12.23.20	

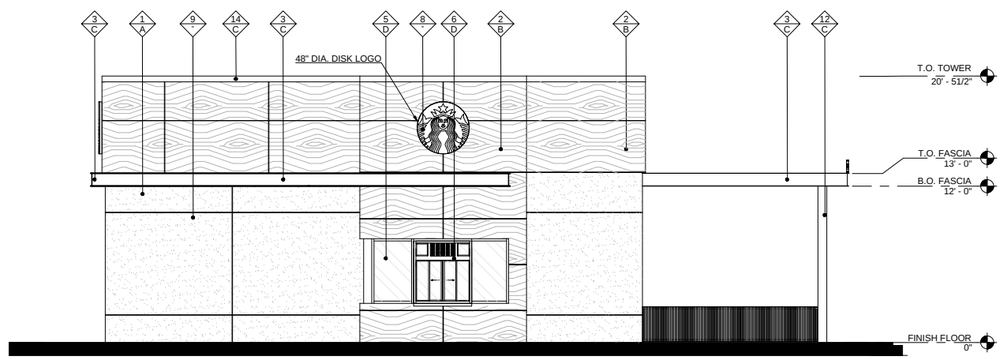
ARCHITECT'S PROJECT # 19-174
PRINTED FOR Plan'g, Building, Etc.
DATE 10-16-20
DRAWN BY -

SHEET
EXTERIOR ELEVATIONS

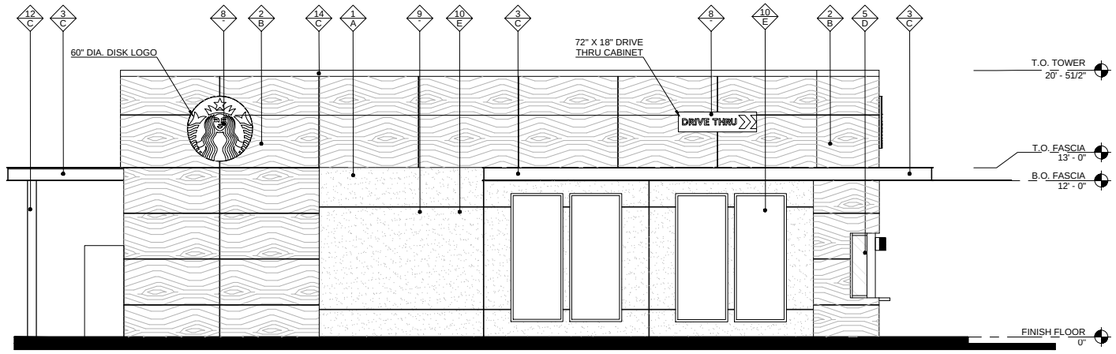
SHEET NUMBER
A-2.2



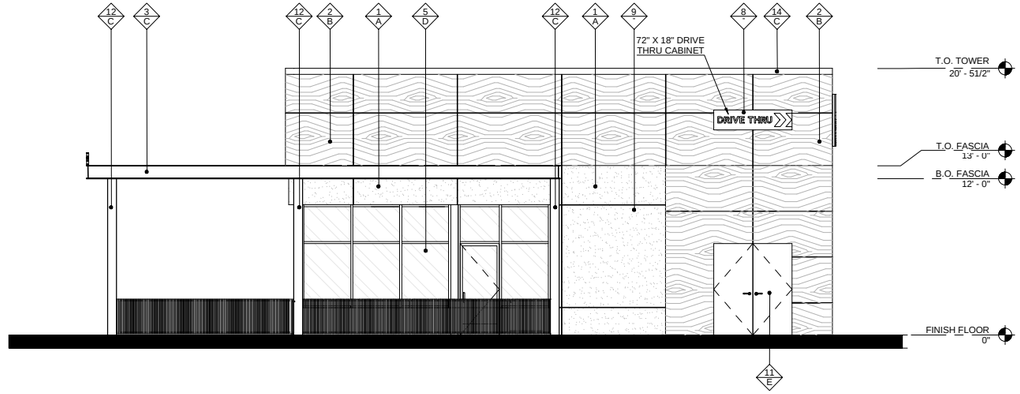
1 SOUTH ELEVATION



2 WEST ELEVATION



3 NORTH ELEVATION



4 EAST ELEVATION

FINISH SCHEDULE

	FINISH MATERIAL
1	CEMENT PLASTER WINTEGRAL COLOR , TEXTURE - SAND
2	4'X8' PARKLEX PANELS, CUT TO MATCH CONTROL JOINTS
3	FASCIA: PAINTED WOOD
4	6" CONCRETE CURB
5	ALUMINUM STOREFRONT SYSTEM
6	DRIVE-THRU WINDOW
7	HOLLOW METAL DOOR AND FRAME
8	SIGNAGE UNDER SEPARATE PERMIT
9	CEMENT PLASTER CONTROL JOINT
10	LATTICE SCREEN
11	UTILITY CABINET
12	COLUMNS
13	NOT USED
14	PREFINISHED METAL CORNICE

	FINISH COLOR
A	FINISH TO MATCH - SW7022 "ALPACA"
B	PARKLEX: COPPER
C	FINISH TO MATCH - SW7020: BLACK FOX
D	ANODIZED - BLACK RAL7021
E	FINISH TO MATCH PARKLEX COPPER

Note:
Colors shown on these elevations are for illustration purposes only. For actual colors, refer to manufacturer's samples.

SCALE: 3/16"=1'-0" 5' 0 5 10

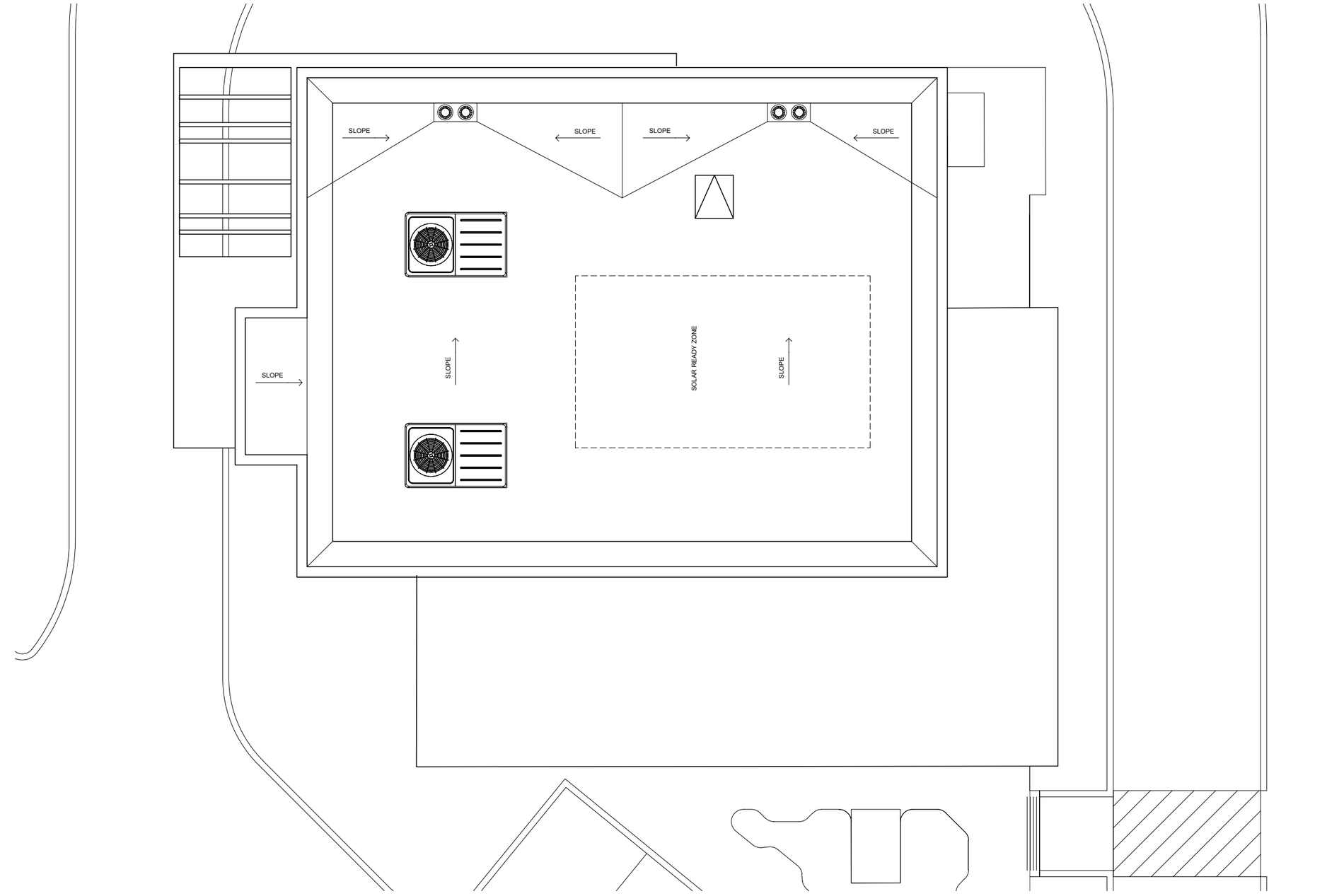
GreenbergFarrow
30 Executive Park, Suite 100
Irvine, CA 92614
t: 949 296 0450 f: 949 296 0479

STARBUCKS
HUNTINGTON & FWY 210
MONROVIA, CA
20200724.0

EXTERIOR ELEVATIONS

A-2.3

12.11.2020

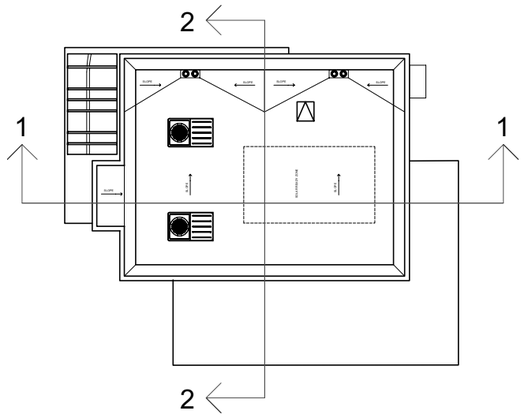


1 ROOF PLAN

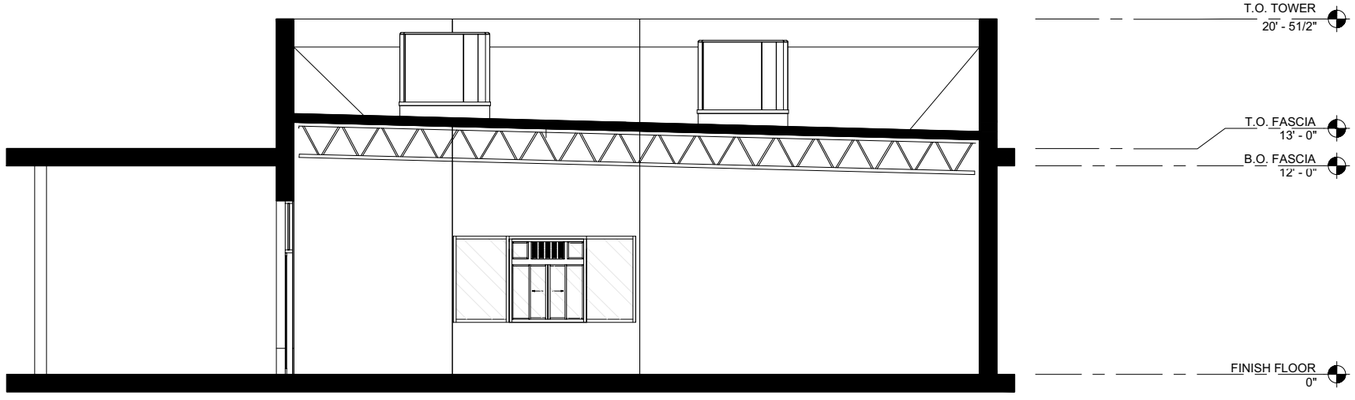
GreenbergFarrow
30 Executive Park, Suite 100
Irvine, CA 92614
t: 949 296 0450 f: 949 296 0479

STARBUCKS | **ROOF PLAN**
HUNTINGTON & FWY 210
MONROVIA, CA
20200724.0

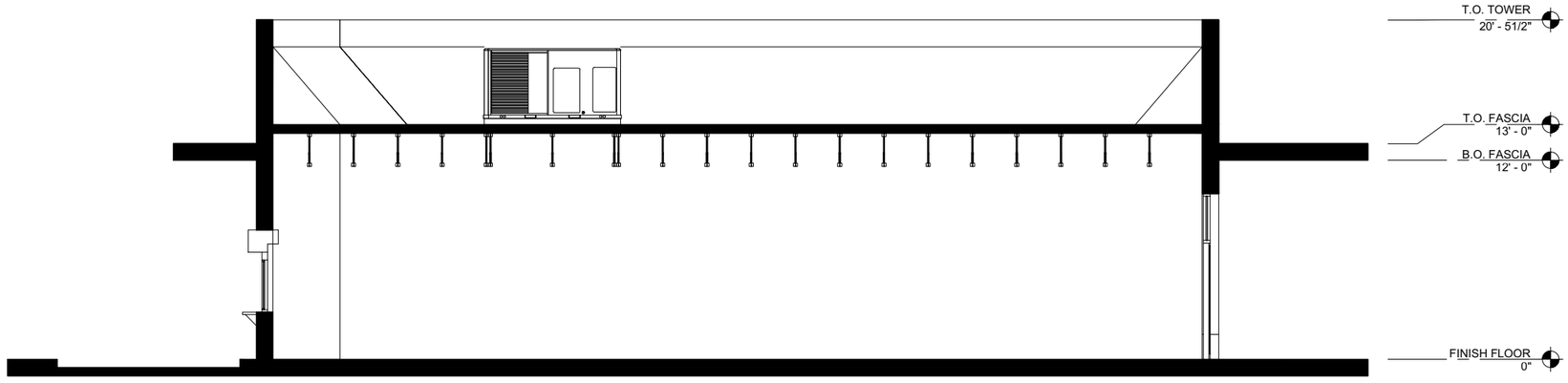
A-3.1
2020-12-15



③ BUILDING KEY PLAN
N.T.S.



② BUILDING SECTION - 02



SCALE: 1/4"=1'-0" 4' 0 4 8

① BUILDING SECTION - 01

GreenbergFarrow
30 Executive Park, Suite 100
Irvine, CA 92614
t: 949 296 0450 f: 949 296 0479

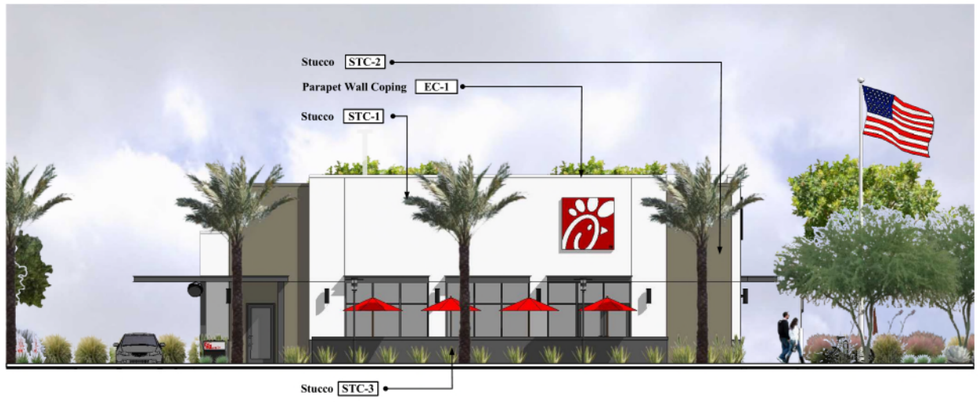
STARBUCKS
HUNTINGTON & FWY 210
MONROVIA, CA
20200724.0

BUILDING SECTIONS

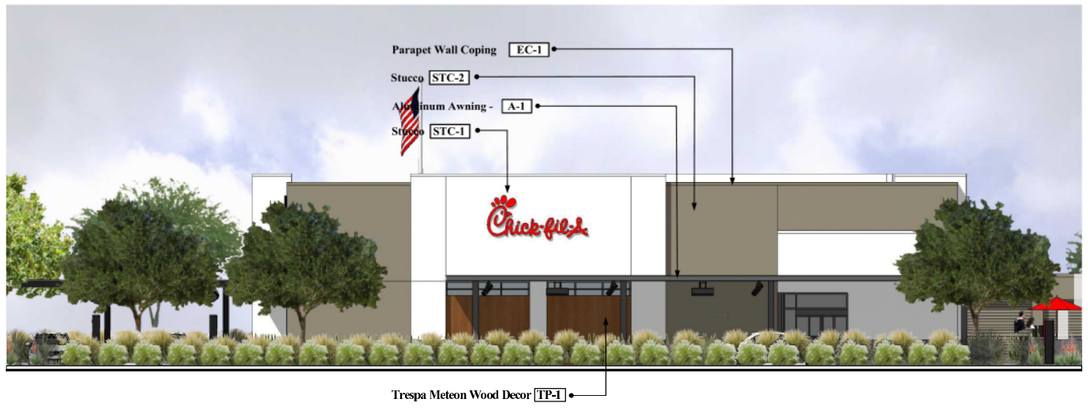
A-3.2

2020-12-15

South Elevation



West Elevation



North Elevation

East Elevation

PRELIMINARY ELEVATIONS
Monrovia, CA

File Name: 19-174 Elevations

4/23/20 Revised: 5/27/20
7/29/20 Revised: 9/14/20
9/21/20 Revised: 1/7/21

Note:
All roof top mechanical equipment shall be located in equipment well and screened from view by parapet walls.

COLOR AND MATERIAL LEGEND

STC-1	Stucco - Paint Sherwin Williams SW7566 "Westhighland White"
STC-2	Stucco - Paint Sherwin Williams SW6172 "Hardware"
STC-3	Stucco - Paint Sherwin Williams CFA Custom "Urban Night"
EC-1	Parapet Wall Coping - Durolast/Exceptional Metals - Color To Match Adjacent Surface
A-1	Aluminum Awning - Color: Dark Bronze
ST-1	YKK Storefront System - Color: Dark Bronze
TP-1	Trespa Meteon Wood Décor - Color: Italian Walnut NW08

0 10 20 30

crho ARCHITECTS
1833 E 17th. Street; Suite 301
Santa Ana, CA. 92705
phone 714.832.1834

1 SOUTH ELEVATION

2 WEST ELEVATION

3 NORTH ELEVATION

4 EAST ELEVATION

FINISH SCHEDULE

	FINISH MATERIAL
1	CEMENT PLASTER W/INTEGRAL COLOR . TEXTURE: - SAND
2	4"X8" PARKLEX PANELS, CUT TO MATCH CONTROL JOINTS
3	FASCIA: PAINTED WOOD
4	6" CONCRETE CURB
5	ALUMINUM STOREFRONT SYSTEM
6	DRIVE-THRU WINDOW
7	HOLLOW METAL DOOR AND FRAME
8	SIGNAGE UNDER SEPARATE PERMIT
9	CEMENT PLASTER CONTROL JOINT
10	LATTICE SCREEN
11	UTILITY CABINET
12	COLUMNS
13	NOT USED
14	PREFINISHED METAL CORNICE

	FINISH COLOR
A	FINISH TO MATCH - SW7022 "ALPACA"
B	PARKLEX: COPPER
C	FINISH TO MATCH - SW7020: BLACK FOX
D	ANODIZED - BLACK RAL7021
E	FINISH TO MATCH PARKLEX COPPER

Note:
Colors shown on these elevations are for illustration purposes only. For actual colors, refer to manufacturer's samples.

SCALE: 3/16"=1'-0" 5' 0 5 10

GreenbergFarrow
30 Executive Park, Suite 100
Irvine, CA 92614
t: 949 296 0450 f: 949 296 0479

STARBUCKS
HUNTINGTON & FWY 210
MONROVIA, CA
20200724.0

EXTERIOR ELEVATIONS

12.11.2020

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix B

Applicable Noise Regulations

CHAPTER 9.44

NOISE

Sections:

§ 9.44.010 DECLARATION OF POLICY.

To control unnecessary, excessive and annoying noise and vibration in residential areas, it is the policy of the city to prohibit such noise and vibration generated from or by all sources as specified in this chapter. It shall be the policy of the city to maintain quiet in those residential areas that exhibit low noise levels and to implement programs aimed at reducing noise in those residential areas within the city where noise levels are above acceptable values. It is determined that certain noise levels and vibration are detrimental to the public health, welfare and safety, and are contrary to public interest. Creating, maintaining, causing or allowing to be created, caused or maintained, any noise or vibration in a manner prohibited by or not in conformity with the provisions of this chapter is declared to be a public nuisance and shall be punishable as such.

(`83 Code, § 9.44.010) (Ord. 85-5 § 1 (part), 1985)

§ 9.44.020 DEFINITIONS.

With the intent of carrying out the purpose of this chapter, the words, phrases and terms included in this section shall be deemed to have the meaning ascribed to them:

A-WEIGHTED SOUND LEVEL. The sound level in decibels as measured on a sound level meter using the “A” weighting network. The level so read is designated dB(A) or dBA.

AMBIENT NOISE LEVEL. The composite of noise from all sources near and far, excluding intrusive noise.

CONSTRUCTION. Any site preparation, assembly, erection, substantial repair, alteration or similar action.

DECIBEL. A unit for measuring the amplitude of a sound equal to 20 times the logarithm to the base ten of the ratio of the pressure of the sound measured to the references pressure, which is 20 micropascals.

DEMOLITION. Any dismantling, intentional destruction or removal of structures, utilities, public or private, right-of-way surfaces or similar property.

EMERGENCY WORK. Any work performed for the purpose of preventing or alleviating physical trauma or property damage threatened or caused by an emergency.

IMPULSIVE SOUND. A sound of high intensity, short duration, usually less than one second, with an abrupt onset and rapid decay.

INTRUSIVE NOISE. An alleged offensive noise which intrudes over and above the existing ambient noise on the property where the noise is received.

PERSON. Any individual, partnership, joint venture or corporation.

REAL PROPERTY BOUNDARY. An imaginary line along the ground surface and its vertical extension, which separates the real property owned by one person from that owned by another person.

SOUND LEVEL METER. An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement of sound levels, which meets or exceeds the requirements pertinent for type S2A meters in American National Standards Institute Specifications for sound level meters, S14-1971, or the most recent revision thereof.

(`83 Code, § 9.44.020) (Ord. 85-5 § 1 (part), 1985)

§ 9.44.030 GENERAL PROHIBITION.

(A) Notwithstanding any other provision of this chapter, and in addition thereto, it shall be unlawful for any person to wilfully make, generate or continue, or cause to be made, generated or continued, any loud, unnecessary, or unusual noise which unreasonably disturbs the peace and quiet of any neighborhood or which causes any discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area.

(B) The factors which shall be considered in determining whether a violation of the provisions of this section exists shall include, but not be limited to, the following:

(1) The volume of the noise;

(2) The intensity of the noise;

(3) Whether the nature of the noise is usual or unusual;

(4) Whether the origin of the noise is natural or unnatural;

(5) The volume and intensity of the background noise, if any;

(6) The proximity of the noise to residential sleeping facilities;

(7) The nature of the zoning of the area from which the noise emanates;

(8) The density of inhabitation of the area from which the noise emanates;

(9) The time of day or night the noise occurs;

(10) The duration of the noise;

(11) Whether the noise is recurrent, intermittent, or constant;

(12) Whether the noise is produced by commercial or noncommercial activity;

(13) Whether the noise is a consequence or expected result of an otherwise lawful use.

(`83 Code, § 9.44.030) (Ord. 85-5 § 1 (part), 1985; Ord. 2003-12 § 1, 2003)

§ 9.44.040 ALLOWABLE NOISE LEVELS.

(A) The noise standards imposed by this section shall apply to all properties in the city occupied for residential purposes, without regard to zoning classification. Except as otherwise allowed in this chapter, no person shall create or allow the creation of noise on any such residential property which causes the noise level to exceed the actual measured median ambient noise level, or the following presumed ambient noise level, whichever is greater:

Time	*Allowable Noise Level—dBA*
7:00 a.m. to 9:00 p.m.	55
9:00 p.m. to 7:00 a.m.	50

(B) If the intruding noise source is continuous and cannot be reasonably discontinued for sufficient time in which the ambient noise level can be determined, the presumed ambient noise level shall be used.

(`83 Code, § 9.44.040) (Ord. 85-5 § 1 (part), 1985)

§ 9.44.050 NOISE LEVEL MEASUREMENTS.

Utilizing the “A” weighting scale of the sound level meter-and the “slow” meter response (“fast” response for impulsive-type sounds), the noise level shall be measured at the street or any point on the property where the noise is received. In general, the microphone shall be located four feet above the ground and five feet from the nearest structure or wall. In those cases where another elevation is deemed appropriate, it shall be utilized.

(`83 Code, § 9.44.050) (Ord. 85-5 § 1 (part), 1985)

§ 9.44.060 PERMITTED INCREASES IN NOISE LEVELS.

Increases in noise levels prescribed in §9.44.040 are permitted in accordance with the following:

Permitted Increase dBA	*Duration of Increase Permitted (in minutes/per hour)*
5	15
10	5
15	1

(`83 Code, § 9.44.060) (Ord. 85-5 § 1 (part), 1985)

§ 9.44.070 IMPULSIVE SOUND.

Noise standards set in this chapter shall be decreased by five dBA for any noise source which emits an impulsive sound.

(`83 Code, § 9.44.070) (Ord. 85-5 § 1 (part), 1985)

§ 9.44.080 EXEMPTIONS.

The following activities shall be exempt from the provisions of this chapter:

(A) The emission of sound for the purpose of alerting persons to the existence of an emergency or the emission of sound in the performance of emergency work;

(B) Activities of the federal, state or local jurisdiction while performing governmental duties;

(C) Activities conducted on public playgrounds and public or private school grounds, including but not limited to school athletic and school entertainment events;

(D) The handling of boxes, crates, containers, garbage cans or other similar objects between the hours of 7:00 a.m. and 7:00 p.m.;

(E) The operation of any mechanically powered saw, sander, drill, grinder, lawn or garden tool or similar tool between 7:00 a.m. and 7:00 p.m. on weekdays and the hours of 10:00 a.m. and 10:00 p.m. on weekends and holidays;

(F) Construction or demolition work conducted between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and the hours of 9:00 a.m. and 6:00 p.m. on weekends and holidays;

(G) Any activity to the extent regulation thereof has been preempted by state or federal law.

(`83 Code, § 9.44.080) (Ord. 85-5 § 1 (part), 1985; Ord. 88-31 § 1, 1989)

§ 9.44.090 RADIOS, TELEVISION SETS, AND SIMILAR DEVICES.

(A) It shall be unlawful for any person within any residential zone of the city to use or operate any radio receiving set, musical instrument, stereo system, entertainment system, television set, or other machine or device for the producing or reproducing of sound or any device by which voice, music, or any other sound is generated, between the hours of 10:00 p.m. and 7:00 a.m. of the following day, in such a manner as to disturb the peace, quiet, and comfort of neighboring residents or any reasonable person of normal sensitiveness residing in the area.

(B) Any noise exceeding the ambient noise level at the property line of any property, or, if a condominium or apartment house, within any adjoining unit by more than five decibels shall be deemed to be prima facie evidence, although not the exclusive evidence, of a violation of the provisions of this section.

(Ord. 2003-12 § 3, 2003)

§ 9.44.100 VIOLATIONS.

(A) Violations of this chapter shall be punishable as either an infraction or a misdemeanor at the discretion of the City Prosecutor, as specified in Chapter 1.16 of this code.

(B) Each day any violation of this chapter occurs or is allowed to continue shall constitute a separate offense.

(`83 Code, § 9.44.090) (Ord. 85-5 § 1 (part), 1985; Ord. 2003-12 § 2, 2003)

Section 5.507 Environmental Comfort

5.507.4 Acoustical control

Employ building assemblies and components with Sound Transmission Class (STC) values determined in accordance with ASTM E90 and ASTM E413 or Outdoor-Indoor Sound Transmission Class (OITC) determined in accordance with ASTM E1332, using either the prescriptive or performance method in Section 5.507.4.1 or 5.507.4.2.

Exception: Buildings with few or no occupants or where occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking structures and utility buildings.

Exception: [DSA-SS] For public schools and community colleges, the requirements of this section and all subsections apply only to new construction.

5.507.4.1 Exterior noise transmission, prescriptive method

Wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the following locations:

1. Within the 65 CNEL noise contour of an airport.
   Exceptions:
   1. L_{dn} or CNEL for military airports shall be determined by the facility Air Installation Compatible Land Use Zone (AICUZ) plan.
   2. L_{dn} or CNEL for other airports and heliports for which a land use plan has not been developed shall be determined by the local general plan noise element.
2. Within the 65 CNEL or L_{dn} noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway source as determined by the Noise Element of the General Plan.

5.507.4.1.1 Noise exposure where noise contours are not readily available

Buildings exposed to a noise level of 65 dB L_{eq}-1-hr during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30).

5.507.4.2 Performance method

For buildings located as defined in Section 5.507.4.1 or 5.507.4.1.1, wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (L_{eq}-1Hr) of 50 dBA in occupied areas during any hour of operation.

5.507.4.2.1 Site features

Exterior features such as sound walls or earth berms may be utilized as appropriate to the building,addition or alteration project to mitigate sound migration to the interior.

5.507.4.2.2 Documentation of compliance

An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record.

5.507.4.3 Interior sound transmission

Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40.

Note: Examples of assemblies and their various STC ratings may be found at the California Office of Noise Control: http://www.toolbase.org/PDF/CaseStudies/stc_icc_ratings.pdf.

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix C

Railway Noise Calculations

Noise Model Based on Federal Transit Adminstration General Transit Noise Assessment
Developed for Chicago Create Project

Case: L200702 Chick-fil-A - Huntington & 210

RESULTS			
Noise Source	**Leq - 1-hr (dB)**		
All Sources	41		
Source 1	41		
Source 2	0		
Source 3	0		
Source 4	0		
Source 5	0		
Source 6	0		
Source 7	0		
Source 8	0		

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	1

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS								
Parameter	**Source 1**		**Source 2**		**Source 3**		**Source 4**	
Source Num.	RRT/LRT	4						
Distance (source to receiver)	distance (ft)	900						
Noisiest Hour of	speed (mph)	40						
Activity During	trains/hour	16						
Sensitive Hours	cars/train	8						
Wheel Flats?	% of cars w/ wheel flats	0.00%						
Jointed Track?	Y/N	N						
Embedded Track?	Y/N	N						
Aerial Structure?	Y/N	N						
Barrier Present?	Y/N	N						
Intervening Rows of of Buildings	number of rows	2						

SOURCE REFERENCE LIST	
Source	**Number**
Commuter Electric Locomotive	1
Commuter Diesel Locomotive	2
Commuter Rail Cars	3
RRT/LRT	4
AGT, Steel Wheel	5
AGT, Rubber Tire	6
Monorail	7
Maglev	8
Freight Locomotive	9
Freight Cars	10
Hopper Cars (empty)	11
Hopper Cars (full)	12
Crossover	13
Automobiles	14
City Buses	15
Commuter Buses	16
Rail Yard or Shop	17
Layover Tracks	18
Bus Storage Yard	19
Bus Op. Facility	20
Bus Transit Center	21
Parking Garage	22
Park & Ride Lot	23

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix D

Pertinent Sections of the Project Traffic Impact Analysis

LINSCOTT LAW & GREENSPAN engineers

TRANSPORTATION IMPACT STUDY

CHICK-FIL-A/STARBUCKS MONROVIA PROJECT

City of Monrovia, California
March 17, 2021

Prepared for:

Chick-fil-A Inc.
15635 Alton Parkway, Suite 350
Irvine, California 92618

LLG Ref. 1-20-4393-1

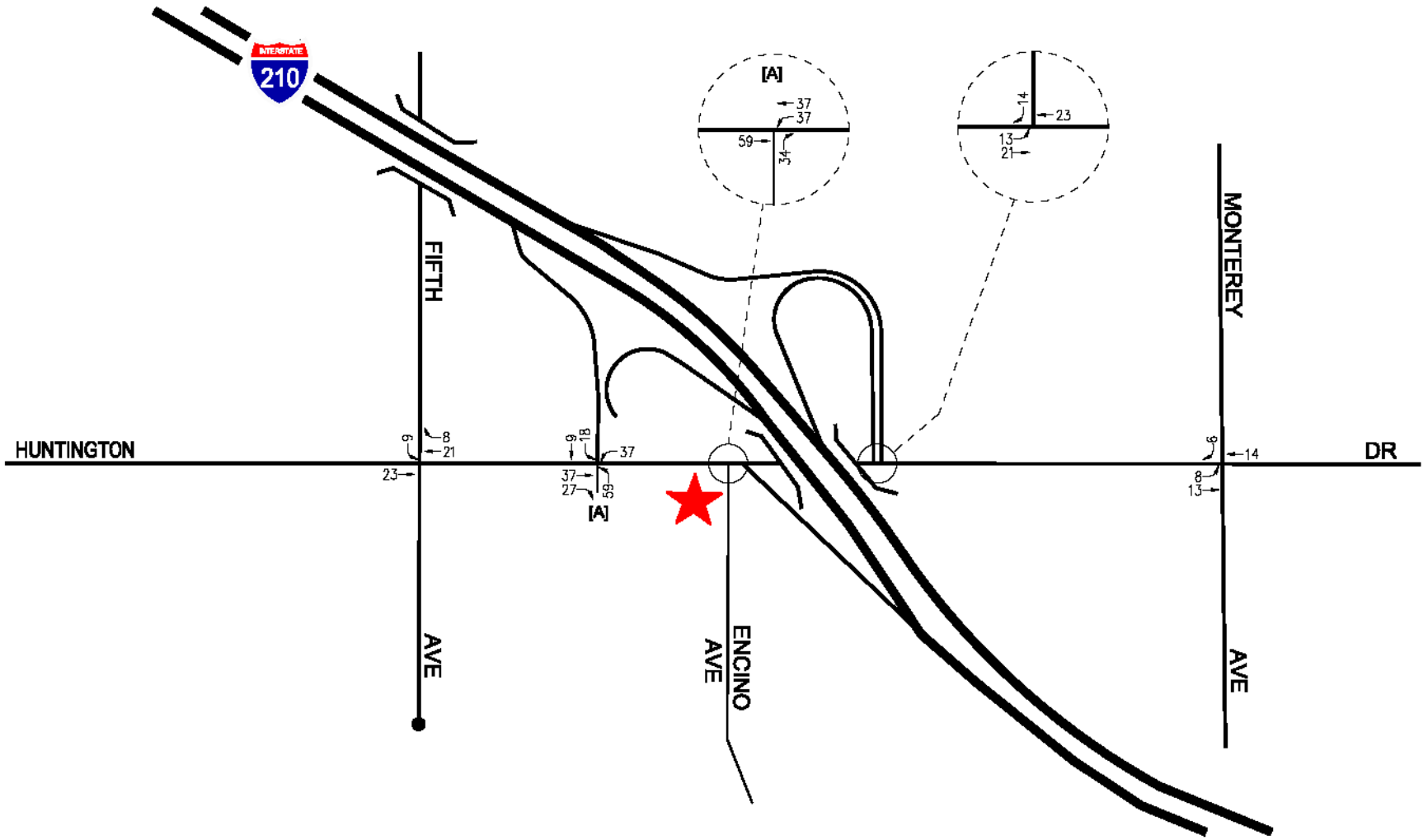
Prepared by:

Grace Turney, EIT
Transportation Engineer III

Under the Supervision of:

Clare M. Look-Jaeger, P.E.
Principal

Linscott, Law & Greenspan, Engineers
600 S. Lake Avenue
Suite 500
Pasadena, CA 91106
626.796.2322 T
626.792.0941 F
www.llgengineers.com



N

NOT TO SCALE

★ PROJECT SITE

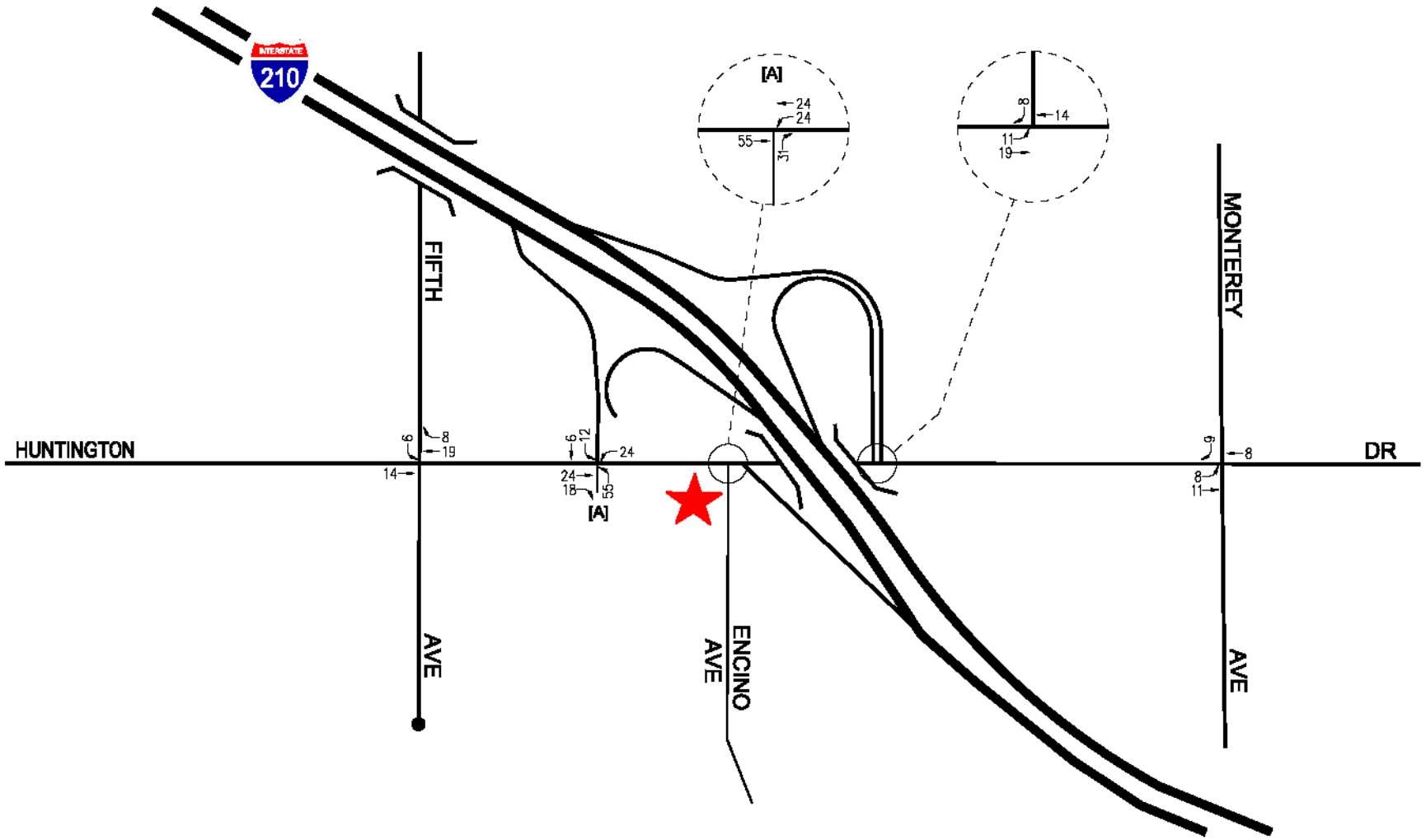
[A] PASS-BY TRIP REDUCTIONS ARE NOT APPLIED TO INTERSECTIONS ADJACENT TO THE PROJECT SITE.

FIGURE 2-4
PROJECT TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

CHICK-FIL-A/STARBUCKS MONROVIA PROJECT

LINSCOTT, LAW & GREENSPAN, engineers



N

NOT TO SCALE

★ PROJECT SITE

[A] PASS-BY TRIP REDUCTIONS ARE NOT APPLIED TO INTERSECTIONS ADJACENT TO THE PROJECT SITE.

FIGURE 2-5
PROJECT TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

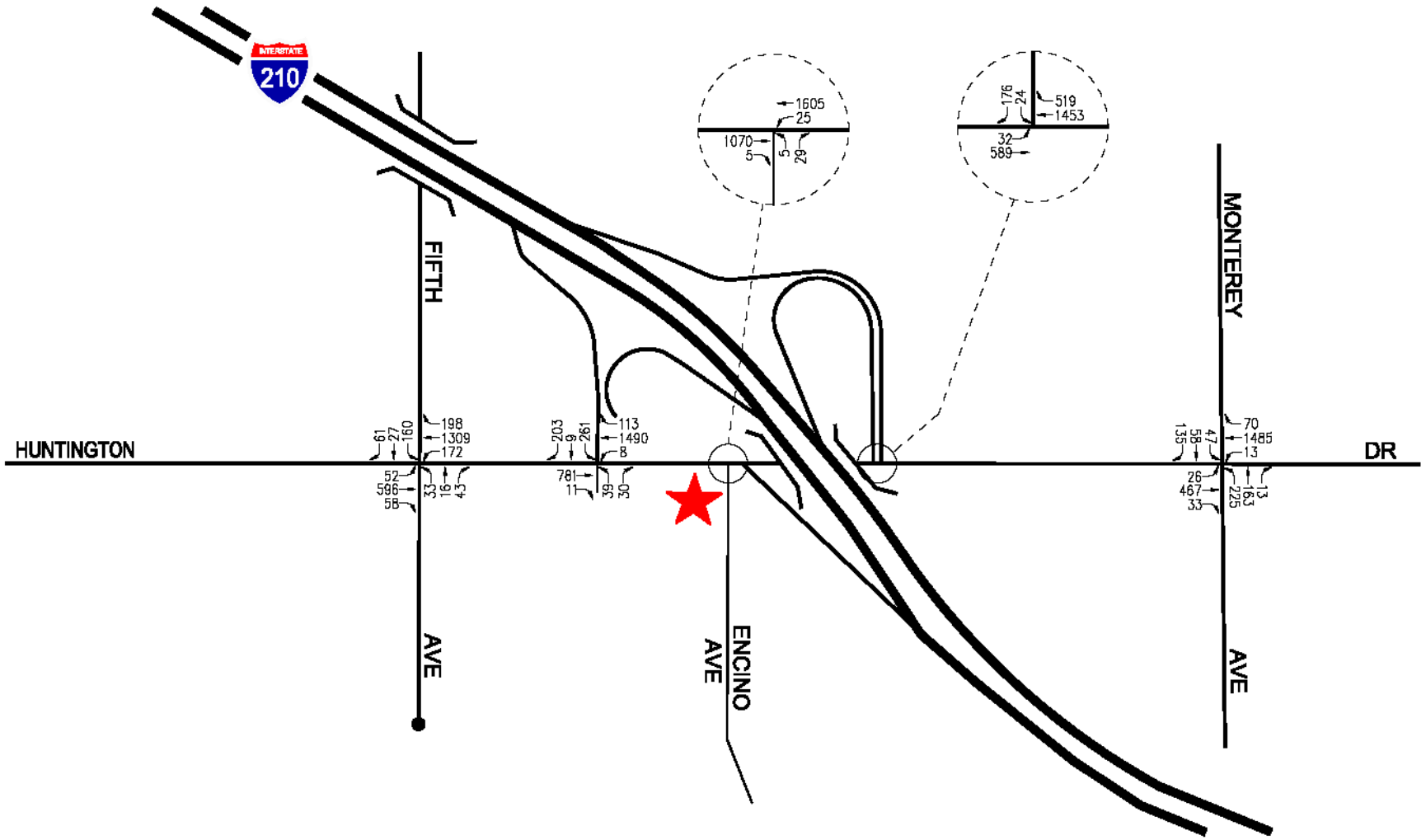
CHICK-FIL-A/STARBUCKS MONROVIA PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

Table 3-2
EXISTING ROADWAY DESCRIPTIONS

ROADWAY	CLASSIFICATION [1]	TRAVEL LANES		MEDIAN TYPES [4]	SPEED LIMIT
		DIRECTION [2]	NO. LANES [3]		
5th Avenue	Collector Street	NB-SB	2 [5]	N/A	35 to 25
Encino Avenue	Local Street	NB-SB	2	N/A	25
Monterey Avenue	Local Street	NB-SB	2 [5]	N/A	30
Huntington Drive -East of City boundary -West of City boundary [6]	 Primary Arterial Principle Travel Corridor	 EB-WB EB-WB	 4 to 6 4 [6]	 RMI RMI	 35 35

[1] Roadway classifications obtained from the *City of Monrovia Circulation Element of the General Plan,* amended November 6, 2012, and *City of Arcadia General Plan Circulation and Infrastructure Plan,* adopted November 2010.
[2] Direction of roadways in the project area: NB-SB = northbound and southbound; and EB-WB = eastbound and westbound.
[3] Number of lanes in both directions on the roadway.
[4] Median type of the road: RMI = Raised Median Island; 2WLT = 2-Way Left-Turn Lane; and N/A = Not Applicable.
[5] Class III Bike Route
[6] City of Arcadia



PROJECT SITE

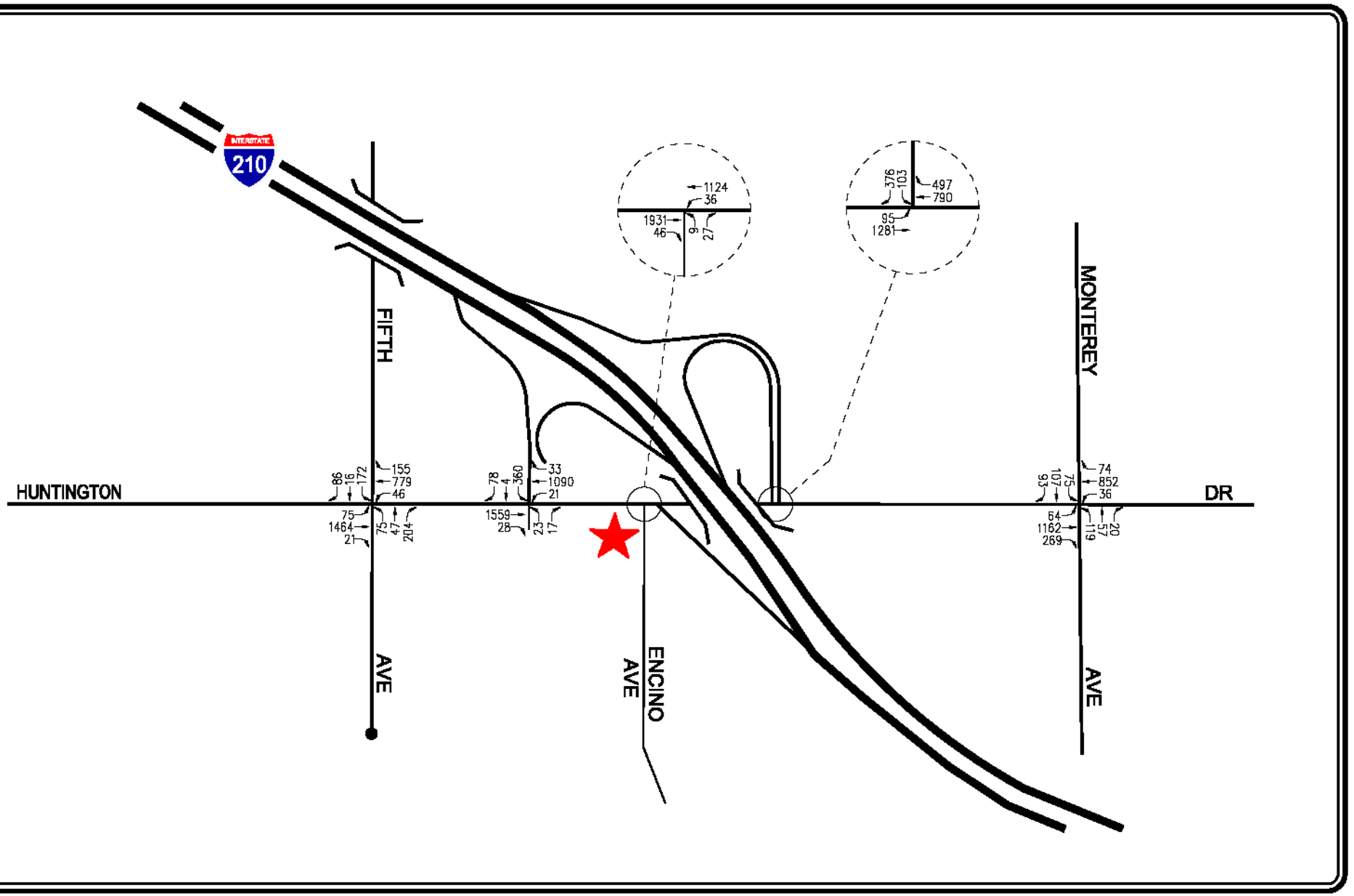
NOT TO SCALE

LINSCOTT, LAW & GREENSPAN, engineers

FIGURE 3-4
EXISTING TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

CHICK-FIL-A/STARBUCKS MONROVIA PROJECT



PROJECT SITE

NOT TO SCALE

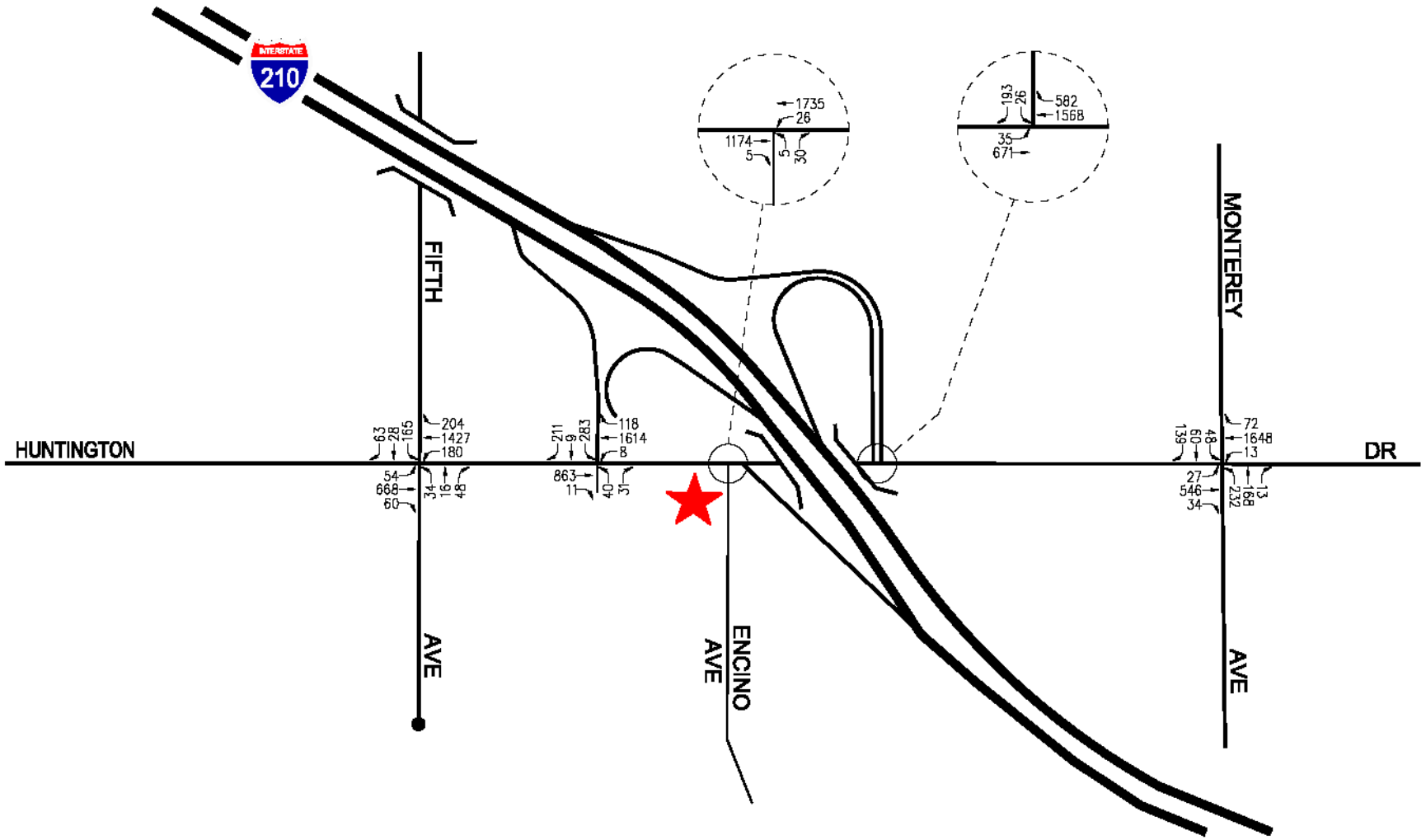
FIGURE 3-5
EXISTING TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

CHICK-FIL-A/STARBUCKS MONROVIA PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

o:\job_file\4393\dwg\f3-5.dwg LDP 12:02:15 10/07/2020 turney



PROJECT SITE

NOT TO SCALE

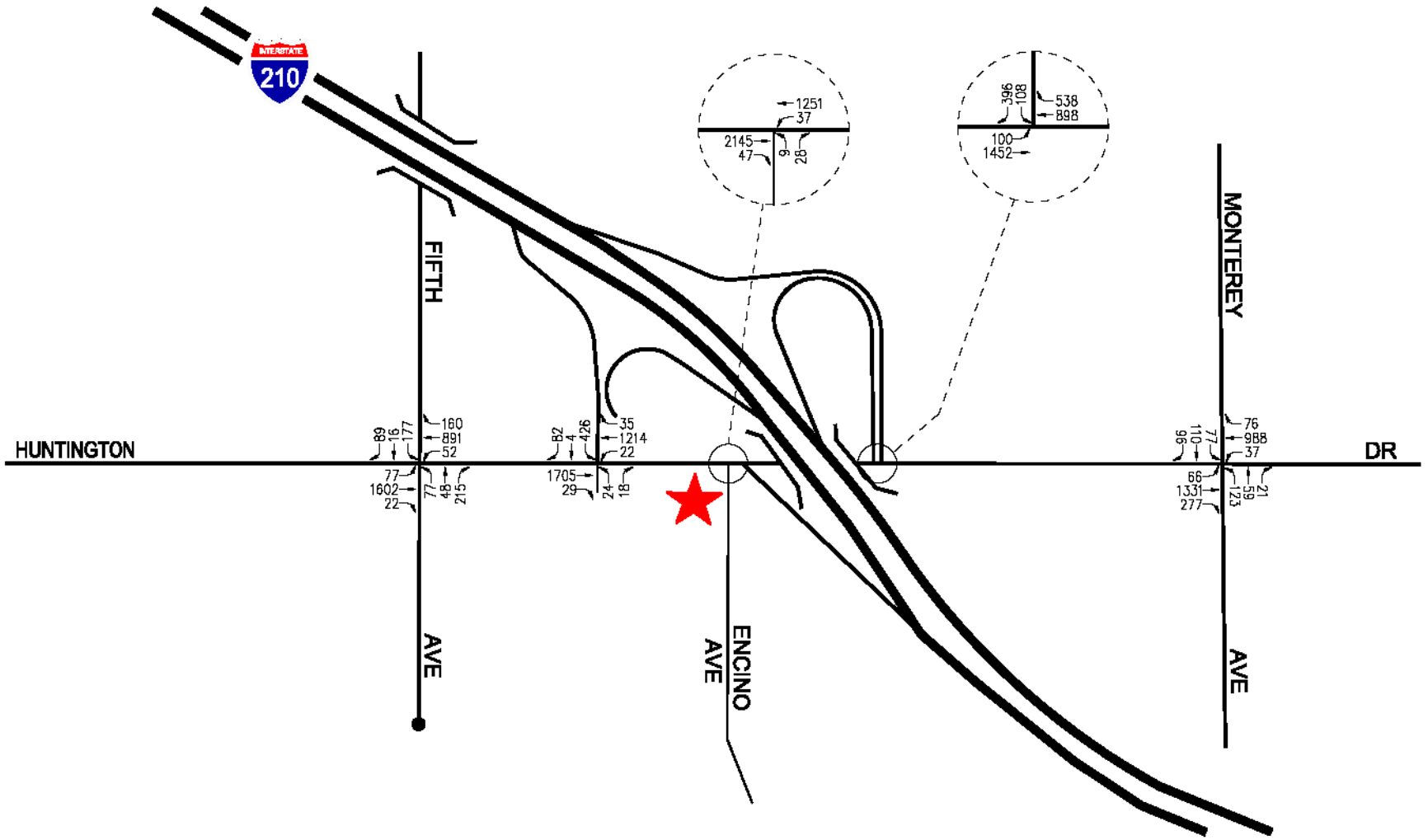
APPENDIX FIGURE G-3
FUTURE WITHOUT PROJECT TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

CHICK-FIL-A/STARBUCKS MONROVIA PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

o:\job_file\4393\dwg\opndx-g-3.dwg LDP 19:22:49 01/20/2021 turney



PROJECT SITE

NOT TO SCALE

APPENDIX FIGURE G-4
FUTURE WITHOUT PROJECT TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

CHICK-FIL-A/STARBUCKS MONROVIA PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix E

CadnaA Analysis Data and Results

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 17 Nov 2020

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.30
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	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			75.1	-61.2	0.0	0.0				5.00	r	1699.63	1274.15	459.05

Roads

Name	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflec	
			Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild
			(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)
Huntington WB			61.7	0.0	0.0			2000.0	0.0	0.0	1.0	0.0	0.0	30		3.05	0.0	1	0.0	0.0	
Huntington EB			61.7	0.0	0.0			2000.0	0.0	0.0	1.0	0.0	0.0	30		6.4	0.0	1	0.0	0.0	
I-210 WB			79.4	0.0	0.0			8763.0	0.0	0.0	6.1	0.0	0.0	65		14.94	0.0	1	0.0	0.0	
I-210 EB			79.4	0.0	0.0			8763.0	0.0	0.0	6.1	0.0	0.0	65		14.94	0.0	1	0.0	0.0	
I-210 EB off ramp			62.5	0.0	0.0			428.0	0.0	0.0	6.1	0.0	0.0	30		4.27	0.0	1	0.0	0.0	
I-210 EB on ramp from WB Huntington			56.8	0.0	0.0			103.0	0.0	0.0	6.1	0.0	0.0	40		4.27	0.0	1	0.0	0.0	
I-210 EB on ramp from EB Huntington			63.6	0.0	0.0			497.0	0.0	0.0	6.1	0.0	0.0	40		3.66	0.0	1	0.0	0.0	
I-210 WB off ramp			63.7	0.0	0.0			444.0	0.0	0.0	6.1	0.0	0.0	20		3.96	0.0	1	0.0	0.0	
I-210 WB on ramp			63.7	0.0	0.0			505.0	0.0	0.0	6.1	0.0	0.0	40		3.96	0.0	1	0.0	0.0	

Geometry - Roads

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Huntington WB	0.00	r			2652.82	1363.64	451.08	451.08		
					2188.27	1359.27	452.85	452.85		
					1825.20	1355.14	453.75	453.75		
					1313.46	1343.23	464.80	464.80		
					1133.20	1337.15	468.59	468.59		
					1002.89	1334.11	470.64	470.64		
					865.20	1332.38	472.08	472.08		
					777.07	1330.79	473.00	473.00		
					56.12	1319.50	473.00	473.00		
Huntington EB	0.00	r			54.62	1290.81	473.00	473.00		
					516.29	1299.06	473.00	473.00		
					755.69	1293.95	473.00	473.00		
					950.33	1300.23	471.19	471.19		
					1143.66	1301.13	468.37	468.37		
					1308.53	1303.06	464.98	464.98		
					1868.15	1310.16	453.66	453.66		
					2221.25	1312.11	452.73	452.73		
					2320.56	1314.03	452.35	452.35		
					2651.51	1319.68	451.09	451.09		
I-210 WB	0.00	r			2655.72	606.66	470.42	470.42		
					2549.01	709.27	472.21	472.21		
					2433.27	825.55	473.33	473.33		
					2373.08	896.41	473.63	473.63		
					2277.04	1017.07	474.37	474.37		
					2108.50	1220.09	476.64	476.64		
					1882.50	1495.34	478.60	478.60		
					1807.52	1578.78	480.17	480.17		
					1721.89	1669.91	480.62	480.62		

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
					1591.65	1787.56	481.90	481.90		
					1515.58	1848.31	482.97	482.97		
					1440.43	1902.77	486.69	486.69		
I-210 EB	0.00	r			1371.31	1863.83	487.22	487.22		
					1522.30	1756.96	482.30	482.30		
					1653.91	1638.39	480.70	480.70		
					1722.53	1566.72	480.24	480.24		
					1771.90	1515.80	479.83	479.83		
					1816.78	1469.43	477.67	477.67		
					2077.39	1156.26	476.07	476.07		
					2158.06	1052.15	475.15	475.15		
					2269.25	917.07	473.89	473.89		
					2407.38	754.63	473.23	473.23		
					2509.42	650.51	472.12	472.12		
					2597.33	569.15	471.09	471.09		
I-210 EB off ramp	0.00	r			1110.68	1923.83	491.96	491.96		
					1198.42	1855.57	488.23	488.23		
					1272.70	1753.28	480.59	480.59		
					1309.07	1643.13	475.56	475.56		
					1309.76	1565.90	472.60	472.60		
					1309.24	1348.70	464.97	464.97		
I-210 EB on ramp from WB Huntington	0.00	r			1732.84	1367.87	453.97	453.97		
					1496.42	1366.23	457.32	457.32		
					1452.64	1368.96	457.59	457.59		
					1418.51	1379.13	457.95	457.95		
					1385.75	1406.54	460.01	460.01		
					1357.83	1438.78	462.20	462.20		
					1347.62	1469.62	464.53	464.53		
					1341.00	1499.05	466.61	466.61		
					1347.03	1547.66	467.00	467.00		
					1357.03	1572.83	467.00	467.00		
					1372.88	1599.97	467.00	467.00		
					1398.95	1621.91	467.46	467.46		
					1438.04	1645.58	468.04	468.04		
					1465.84	1650.58	468.78	468.78		
					1511.01	1652.10	469.83	469.83		
					1544.90	1638.42	470.79	470.79		
					1578.99	1619.09	471.90	471.90		
					1643.30	1561.90	473.61	473.60		
					1763.62	1448.47	476.78	476.78		
					2083.51	1090.54	475.48	475.48		
I-210 EB on ramp from EB Huntington	0.00	r			1791.84	1298.15	453.84	453.84		
					1815.45	1271.08	454.08	454.08		
					2122.99	960.79	468.74	468.74		
					2239.31	847.73	473.96	473.96		
					2328.95	758.09	473.34	473.34		

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
					2398.60	689.82	473.00	473.00		
					2525.30	570.20	469.61	469.61		
I-210 WB off ramp	0.00	r			2198.99	1153.30	475.90	475.90		
					2145.12	1240.61	476.82	476.82		
					1985.04	1471.57	478.24	478.24		
					1858.19	1651.84	479.89	479.89		
					1844.23	1673.91	479.71	479.71		
					1831.13	1725.97	478.73	478.73		
					1829.49	1760.45	478.05	478.05		
					1840.71	1797.67	477.09	477.09		
					1868.46	1834.56	476.00	476.00		
					1899.66	1859.60	476.00	476.00		
					1942.48	1876.70	476.00	476.00		
					1976.28	1879.85	476.00	476.00		
					2032.38	1866.17	471.10	471.10		
					2063.03	1845.64	467.42	467.42		
					2087.34	1811.85	465.98	465.98		
					2102.85	1771.69	465.01	465.01		
					2109.92	1733.07	463.78	463.78		
					2112.09	1365.78	453.09	453.09		
I-210 WB on ramp	0.00	r			2151.69	1365.85	452.99	452.99		
					2152.24	1446.58	454.64	454.64		
					2148.96	1692.24	462.32	462.32		
					2146.57	1760.23	464.44	464.44		
					2133.32	1803.02	465.54	465.54		
					2108.69	1846.80	466.48	466.48		
					2087.76	1867.60	467.61	467.61		
					2053.28	1891.68	470.65	470.65		
					1980.70	1911.85	475.94	475.94		
					1929.32	1907.89	476.97	476.97		
					1812.90	1894.20	484.08	484.08		
					1742.31	1886.38	489.97	489.97		
					1658.35	1888.45	488.12	488.12		
					1562.84	1924.66	487.39	487.39		

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
c1						48.13	89.90	460.00
						795.71	100.29	456.00
cRail						56.17	792.38	483.00
						266.72	648.55	480.00
						486.02	539.17	479.00
						802.01	407.22	477.00
						1105.19	312.82	470.00
						1446.99	198.52	460.00
						1805.20	83.13	455.00
cRail						48.36	847.07	483.00
						286.18	687.61	480.00
						500.43	580.57	479.00
						816.42	454.08	477.00
						1117.41	354.22	470.00
						1451.01	242.65	460.00
						1862.81	110.85	455.00
pad465				465.00		44.43	881.85	465.00
						164.67	795.99	465.00
						384.47	666.45	465.00
						505.05	604.43	465.00
						700.74	522.44	465.00
						741.74	509.69	465.00
						752.63	635.86	465.00
						743.67	1252.55	465.00
						48.29	1247.34	465.00
						44.43	881.85	465.00
pad455				455.00		1777.27	209.27	455.00
						1761.14	174.82	455.00
						804.05	481.43	455.00
						791.47	1252.77	455.00
						847.12	1249.35	455.00
						1548.59	528.59	455.00
						1709.11	362.87	455.00
						1755.56	306.87	455.00
						1797.67	251.31	455.00
						1777.27	209.27	455.00
channel						850.61	1249.53	452.00
						1061.47	1033.85	448.00
						1297.19	791.56	445.00
						1527.70	555.85	435.00
						1702.03	376.00	433.00
						1798.77	253.17	431.00
						1884.56	103.98	429.00
						1918.32	91.23	429.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1911.09	110.87	429.00
						1820.82	273.15	431.00
						1729.21	388.01	433.00
						1547.32	575.10	435.00
						1294.02	834.91	445.00
						1080.44	1052.87	448.00
						872.88	1259.34	452.00
						850.61	1249.53	452.00
c2						874.13	1265.40	465.00
						1406.57	724.06	452.00
						1543.02	725.44	453.00
						1543.02	957.67	454.00
						1698.41	958.02	454.00
						1696.23	1271.12	454.00
c3						3016.03	126.26	437.00
						2203.03	115.90	442.00
						2189.93	516.29	445.00
						1716.95	509.31	451.00
						1709.52	911.38	451.00
						2007.63	917.15	450.00
						1971.66	968.31	450.00
pad452				452.00		1766.34	968.55	452.00
						1919.49	965.82	452.00
						1980.75	1009.03	452.00
						1800.25	1239.30	452.00
						1765.25	1215.78	452.00
						1766.34	968.55	452.00
cHuntington						49.77	1271.03	473.00
						777.25	1277.59	473.00
						1063.93	1278.97	470.00
						1307.89	1279.66	465.00
						1513.25	1281.72	457.00
						1724.13	1283.79	454.00
						2152.19	1291.61	453.00
						2675.66	1295.11	451.00
cHuntington						50.32	1345.96	473.00
						777.79	1352.52	473.00
						1064.48	1353.90	470.00
						1308.43	1354.59	465.00
						1513.80	1356.66	457.00
						1717.02	1379.51	454.00
						2147.81	1385.14	453.00
						2673.47	1388.64	451.00
cEBoff						1091.94	1921.85	492.00
						1191.07	1841.90	488.00
						1262.06	1735.77	480.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1288.17	1592.78	474.00
						1287.04	1372.32	465.00
cEBoff						1131.01	1927.93	492.00
						1214.80	1861.08	488.00
						1293.38	1754.28	480.00
						1328.54	1611.88	474.00
						1327.85	1372.76	465.00
cEBon						1409.35	1375.34	458.00
						1351.11	1433.92	462.00
						1332.51	1504.90	467.00
						1340.99	1565.34	467.00
						1365.87	1606.37	467.00
						1433.97	1656.69	468.00
						1519.93	1659.73	470.00
						1586.79	1623.70	472.00
						1779.88	1448.11	477.00
cEBon						1424.88	1394.18	458.00
						1374.73	1441.28	462.00
						1355.85	1503.80	467.00
						1364.81	1556.52	467.00
						1386.69	1592.87	467.00
						1440.16	1630.48	468.00
						1514.27	1634.04	470.00
						1570.20	1603.95	472.00
						1762.47	1430.83	477.00
c4				476.00		316.06	1904.49	476.00
						71.20	1901.01	476.00
cWBon						2165.61	1395.54	453.00
						2160.39	1780.29	465.00
						2115.23	1874.08	467.00
						2068.70	1905.45	470.00
						1980.81	1931.99	476.00
						1742.13	1904.93	490.00
						1657.47	1903.15	488.00
						1595.23	1925.72	487.00
c5						1908.87	1886.26	476.00
						1854.16	1844.13	476.00
						1818.05	1768.63	478.00
						1839.39	1658.65	480.00
						1985.64	1440.39	478.00
						1885.89	1559.08	480.00
						1695.50	1762.06	481.00
						1535.19	1884.34	483.00
						1548.28	1918.47	487.00
						1649.20	1879.45	488.00
						1745.09	1869.87	490.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1908.87	1886.26	476.00
I210 EB						1202.17	1924.85	493.00
						1457.23	1758.72	483.00
						1581.31	1656.01	481.00
						1727.94	1505.00	480.00
cWBoff						2023.36	1450.16	478.00
						1870.16	1671.75	480.00
						1848.10	1753.44	478.00
						1879.47	1822.03	476.00
						1977.01	1857.18	476.00
						2048.14	1826.00	467.00
						2083.16	1768.00	465.00
						2091.36	1399.77	453.00
I210 EB						1915.52	1264.28	477.00
						2218.15	920.98	474.00
						2433.73	677.50	473.00
						2690.34	455.36	470.00
I210 EB						2154.69	1260.55	477.00
						2333.06	1015.43	474.00
						2539.33	776.32	473.00
						2691.68	630.18	470.00
cEBon						1794.25	1272.65	454.00
						2010.09	1042.05	464.00
						2222.45	834.03	474.00
						2384.41	683.01	473.00
cEBon						1833.90	1273.29	454.00
						2045.65	1063.73	464.00
						2238.25	864.56	474.00
						2383.25	720.66	473.00
SBUX pad				470.00		1403.48	1245.57	470.00
						1490.38	1244.05	470.00
						1492.55	1186.70	470.00
						1405.66	1188.00	470.00
						1403.27	1245.35	470.00
CFA pad				468.50		1560.55	1253.39	468.50
						1560.33	1167.37	468.50
						1669.17	1168.02	468.50
						1669.38	1249.26	468.50
						1560.98	1253.39	468.50

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

Date: 17 Mar 2021

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.30
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	M.	ID	Level Lr		Limit. Value		Land Use			Height		Coordinates		
			Day	Night	Day	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
F1			68.8	-67.1	0.0	0.0		x	Total	5.00	r	1416.80	1215.85	475.00
F2			73.9	-64.0	0.0	0.0		x	Total	5.00	r	1452.55	1240.78	475.00
F3			72.0	-67.2	0.0	0.0		x	Total	5.00	r	1482.28	1216.12	475.00
F4			63.5	-75.1	0.0	0.0		x	Total	5.00	r	1452.83	1192.15	475.00
F5			73.6	-69.2	0.0	0.0		x	Total	1.00	g	1452.51	1215.72	491.00
F6			68.2	-68.3	0.0	0.0		x	Total	5.00	r	1573.38	1209.96	473.50
F7			75.9	-63.7	0.0	0.0		x	Total	5.00	r	1615.02	1242.70	473.50
F8			75.8	-64.5	0.0	0.0		x	Total	5.00	r	1659.97	1210.50	473.50
F9			68.0	-71.7	0.0	0.0		x	Total	5.00	r	1614.74	1176.57	473.50
F10			75.2	-69.0	0.0	0.0		x	Total	1.00	g	1615.25	1208.87	489.50

Roads

Name	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflec	
			Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild
			(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)
Huntington WB			66.7	0.0	0.0			3563.0	0.0	0.0	3.0	0.0	0.0	35		3.05	0.0	1	0.0	0.0	
Huntington EB			66.7	0.0	0.0			3563.0	0.0	0.0	3.0	0.0	0.0	35		6.4	0.0	1	0.0	0.0	
I-210 WB			81.2	0.0	0.0			13195.0	0.0	0.0	6.1	0.0	0.0	65		14.94	0.0	1	0.0	0.0	
I-210 EB			81.2	0.0	0.0			13195.0	0.0	0.0	6.1	0.0	0.0	65		14.94	0.0	1	0.0	0.0	
I-210 EB off ramp			64.3	0.0	0.0			644.0	0.0	0.0	6.1	0.0	0.0	30		4.27	0.0	1	0.0	0.0	
I-210 EB on ramp from WB Huntington			58.5	0.0	0.0			155.0	0.0	0.0	6.1	0.0	0.0	40		4.27	0.0	1	0.0	0.0	
I-210 EB on ramp from EB Huntington			65.4	0.0	0.0			748.0	0.0	0.0	6.1	0.0	0.0	40		3.66	0.0	1	0.0	0.0	
I-210 WB off ramp			65.5	0.0	0.0			669.0	0.0	0.0	6.1	0.0	0.0	20		3.96	0.0	1	0.0	0.0	
I-210 WB on ramp			65.5	0.0	0.0			761.0	0.0	0.0	6.1	0.0	0.0	40		3.96	0.0	1	0.0	0.0	
Encino			57.2	0.0	0.0			176.0	0.0	0.0	3.0	0.0	0.0	25		5.49	0.0	1	0.0	0.0	

Geometry - Roads

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
Huntington WB	0.00	r			2652.82	1363.64	451.08	451.08		
					2188.27	1359.27	452.85	452.85		
					1825.20	1355.14	453.75	453.75		
					1313.46	1343.23	464.80	464.80		
					1133.20	1337.15	468.59	468.59		
					1002.89	1334.11	470.64	470.64		
					865.20	1332.38	472.08	472.08		
					777.07	1330.79	473.00	473.00		
					56.12	1319.50	473.00	473.00		
Huntington EB	0.00	r			54.62	1290.81	473.00	473.00		
					516.29	1299.06	473.00	473.00		
					755.69	1293.95	473.00	473.00		
					950.33	1300.23	471.19	471.19		
					1143.66	1301.13	468.37	468.37		
					1308.53	1303.06	464.98	464.98		
					1868.15	1310.16	453.66	453.66		
					2221.25	1312.11	452.73	452.73		
					2320.56	1314.03	452.35	452.35		
					2651.51	1319.68	451.09	451.09		
I-210 WB	0.00	r			2655.72	606.66	470.42	470.42		
					2549.01	709.27	472.21	472.21		
					2433.27	825.55	473.33	473.33		
					2373.08	896.41	473.63	473.63		
					2277.04	1017.07	474.37	474.37		
					2108.50	1220.09	476.64	476.64		
					1882.50	1495.34	478.60	478.60		
					1807.52	1578.78	480.17	480.17		

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
					1721.89	1669.91	480.62	480.62		
					1591.65	1787.56	481.90	481.90		
					1515.58	1848.31	482.97	482.97		
					1440.43	1902.77	486.69	486.69		
I-210 EB	0.00	r			1371.31	1863.83	487.22	487.22		
					1522.30	1756.96	482.30	482.30		
					1653.91	1638.39	480.70	480.70		
					1722.53	1566.72	480.24	480.24		
					1771.90	1515.80	479.83	479.83		
					1816.78	1469.43	477.67	477.67		
					2077.39	1156.26	476.07	476.07		
					2158.06	1052.15	475.15	475.15		
					2269.25	917.07	473.89	473.89		
					2407.38	754.63	473.23	473.23		
					2509.42	650.51	472.12	472.12		
					2597.33	569.15	471.09	471.09		
I-210 EB off ramp	0.00	r			1110.68	1923.83	491.96	491.96		
					1198.42	1855.57	488.23	488.23		
					1272.70	1753.28	480.59	480.59		
					1309.07	1643.13	475.56	475.56		
					1309.76	1565.90	472.60	472.60		
					1309.24	1348.70	464.97	464.97		
I-210 EB on ramp from WB Huntington	0.00	r			1732.84	1367.87	453.97	453.97		
					1496.42	1366.23	457.32	457.32		
					1452.64	1368.96	457.59	457.59		
					1418.51	1379.13	457.95	457.95		
					1385.75	1406.54	460.01	460.01		
					1357.83	1438.78	462.20	462.20		
					1347.62	1469.62	464.53	464.53		
					1341.00	1499.05	466.61	466.61		
					1347.03	1547.66	467.00	467.00		
					1357.03	1572.83	467.00	467.00		
					1372.88	1599.97	467.00	467.00		
					1398.95	1621.91	467.46	467.46		
					1438.04	1645.58	468.04	468.04		
					1465.84	1650.58	468.78	468.78		
					1511.01	1652.10	469.83	469.83		
					1544.90	1638.42	470.79	470.79		
					1578.99	1619.09	471.90	471.90		
					1643.30	1561.90	473.61	473.60		
					1763.62	1448.47	476.78	476.78		
					2083.51	1090.54	475.48	475.48		
I-210 EB on ramp from EB Huntington	0.00	r			1791.84	1298.15	453.84	453.84		
					1815.45	1271.08	454.08	454.08		
					2122.99	960.79	468.74	468.74		
					2239.31	847.73	473.96	473.96		

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		
					2328.95	758.09	473.34	473.34		
					2398.60	689.82	473.00	473.00		
					2525.30	570.20	469.61	469.61		
I-210 WB off ramp	0.00	r			2198.99	1153.30	475.90	475.90		
					2145.12	1240.61	476.82	476.82		
					1985.04	1471.57	478.24	478.24		
					1858.19	1651.84	479.89	479.89		
					1844.23	1673.91	479.71	479.71		
					1831.13	1725.97	478.73	478.73		
					1829.49	1760.45	478.05	478.05		
					1840.71	1797.67	477.09	477.09		
					1868.46	1834.56	476.00	476.00		
					1899.66	1859.60	476.00	476.00		
					1942.48	1876.70	476.00	476.00		
					1976.28	1879.85	476.00	476.00		
					2032.38	1866.17	471.10	471.10		
					2063.03	1845.64	467.42	467.42		
					2087.34	1811.85	465.98	465.98		
					2102.85	1771.69	465.01	465.01		
					2109.92	1733.07	463.78	463.78		
					2112.09	1365.78	453.09	453.09		
I-210 WB on ramp	0.00	r			2151.69	1365.85	452.99	452.99		
					2152.24	1446.58	454.64	454.64		
					2148.96	1692.24	462.32	462.32		
					2146.57	1760.23	464.44	464.44		
					2133.32	1803.02	465.54	465.54		
					2108.69	1846.80	466.48	466.48		
					2087.76	1867.60	467.61	467.61		
					2053.28	1891.68	470.65	470.65		
					1980.70	1911.85	475.94	475.94		
					1929.32	1907.89	476.97	476.97		
					1812.90	1894.20	484.08	484.08		
					1742.31	1886.38	489.97	489.97		
					1658.35	1888.45	488.12	488.12		
					1562.84	1924.66	487.39	487.39		
Encino	0.00	r			1723.98	1286.74	454.00	454.00		
					1725.39	1202.10	453.16	453.16		
					1726.69	1105.15	453.15	453.15		
					1730.08	957.04	452.74	452.74		
					1730.86	902.93	450.93	450.93		
					1733.62	720.74	450.93	450.93		
					1736.40	527.60	450.87	450.87		

Buildings

Name	M.	ID	RB	Residents	Absorption	Height	
						Begin	
						(ft)	
CFA Building	+			0		20.00	r
SBUX Building	+			0		20.00	r

Geometry - Buildings

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
CFA Building	+			0		20.00	r	1577.11	1229.67	488.50	468.50
								1578.92	1180.42	488.50	468.50
								1655.93	1180.64	488.50	468.50
								1654.19	1239.51	488.50	468.50
								1599.01	1239.40	488.50	468.50
								1598.79	1242.55	488.50	468.50
								1587.06	1242.66	488.50	468.50
								1587.71	1229.41	488.50	468.50
SBUX Building	+			0		20.00	r	1420.90	1217.50	490.00	470.00
								1421.30	1204.49	490.00	470.00
								1426.92	1204.50	490.00	470.00
								1426.73	1194.95	490.00	470.00
								1479.33	1195.05	490.00	470.00
								1479.20	1237.34	490.00	470.00
								1426.24	1237.07	490.00	470.00
								1426.18	1217.56	490.00	470.00

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
c1						48.13	89.90	460.00
						795.71	100.29	456.00
cRail						56.17	792.38	483.00
						266.72	648.55	480.00
						486.02	539.17	479.00
						802.01	407.22	477.00
						1105.19	312.82	470.00
						1446.99	198.52	460.00
						1805.20	83.13	455.00
cRail						48.36	847.07	483.00
						286.18	687.61	480.00
						500.43	580.57	479.00
						816.42	454.08	477.00
						1117.41	354.22	470.00
						1451.01	242.65	460.00
						1862.81	110.85	455.00
pad465				465.00		44.43	881.85	465.00
						164.67	795.99	465.00
						384.47	666.45	465.00
						505.05	604.43	465.00
						700.74	522.44	465.00
						741.74	509.69	465.00
						752.63	635.86	465.00
						743.67	1252.55	465.00
						48.29	1247.34	465.00
						44.43	881.85	465.00
pad455				455.00		1777.27	209.27	455.00
						1761.14	174.82	455.00
						804.05	481.43	455.00
						791.47	1252.77	455.00
						847.12	1249.35	455.00
						1548.59	528.59	455.00
						1709.11	362.87	455.00
						1755.56	306.87	455.00
						1797.67	251.31	455.00
						1777.27	209.27	455.00
channel						850.61	1249.53	452.00
						1061.47	1033.85	448.00
						1297.19	791.56	445.00
						1527.70	555.85	435.00
						1702.03	376.00	433.00
						1798.77	253.17	431.00
						1884.56	103.98	429.00
						1918.32	91.23	429.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1911.09	110.87	429.00
						1820.82	273.15	431.00
						1729.21	388.01	433.00
						1547.32	575.10	435.00
						1294.02	834.91	445.00
						1080.44	1052.87	448.00
						872.88	1259.34	452.00
						850.61	1249.53	452.00
c2						874.13	1265.40	465.00
						1406.57	724.06	452.00
						1543.02	725.44	453.00
						1543.02	957.67	454.00
						1698.41	958.02	454.00
						1696.23	1271.12	454.00
c3						3016.03	126.26	437.00
						2203.03	115.90	442.00
						2189.93	516.29	445.00
						1716.95	509.31	451.00
						1709.52	911.38	451.00
						2007.63	917.15	450.00
						1971.66	968.31	450.00
pad452				452.00		1766.34	968.55	452.00
						1919.49	965.82	452.00
						1980.75	1009.03	452.00
						1800.25	1239.30	452.00
						1765.25	1215.78	452.00
						1766.34	968.55	452.00
cHuntington						49.77	1271.03	473.00
						777.25	1277.59	473.00
						1063.93	1278.97	470.00
						1307.89	1279.66	465.00
						1513.25	1281.72	457.00
						1724.13	1283.79	454.00
						2152.19	1291.61	453.00
						2675.66	1295.11	451.00
cHuntington						50.32	1345.96	473.00
						777.79	1352.52	473.00
						1064.48	1353.90	470.00
						1308.43	1354.59	465.00
						1513.80	1356.66	457.00
						1717.02	1379.51	454.00
						2147.81	1385.14	453.00
						2673.47	1388.64	451.00
cEBoff						1091.94	1921.85	492.00
						1191.07	1841.90	488.00
						1262.06	1735.77	480.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1288.17	1592.78	474.00
						1287.04	1372.32	465.00
cEBoff						1131.01	1927.93	492.00
						1214.80	1861.08	488.00
						1293.38	1754.28	480.00
						1328.54	1611.88	474.00
						1327.85	1372.76	465.00
cEBon						1409.35	1375.34	458.00
						1351.11	1433.92	462.00
						1332.51	1504.90	467.00
						1340.99	1565.34	467.00
						1365.87	1606.37	467.00
						1433.97	1656.69	468.00
						1519.93	1659.73	470.00
						1586.79	1623.70	472.00
						1779.88	1448.11	477.00
cEBon						1424.88	1394.18	458.00
						1374.73	1441.28	462.00
						1355.85	1503.80	467.00
						1364.81	1556.52	467.00
						1386.69	1592.87	467.00
						1440.16	1630.48	468.00
						1514.27	1634.04	470.00
						1570.20	1603.95	472.00
						1762.47	1430.83	477.00
c4				476.00		316.06	1904.49	476.00
						71.20	1901.01	476.00
cWBon						2165.61	1395.54	453.00
						2160.39	1780.29	465.00
						2115.23	1874.08	467.00
						2068.70	1905.45	470.00
						1980.81	1931.99	476.00
						1742.13	1904.93	490.00
						1657.47	1903.15	488.00
						1595.23	1925.72	487.00
c5						1908.87	1886.26	476.00
						1854.16	1844.13	476.00
						1818.05	1768.63	478.00
						1839.39	1658.65	480.00
						1985.64	1440.39	478.00
						1885.89	1559.08	480.00
						1695.50	1762.06	481.00
						1535.19	1884.34	483.00
						1548.28	1918.47	487.00
						1649.20	1879.45	488.00
						1745.09	1869.87	490.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1908.87	1886.26	476.00
I210 EB						1202.17	1924.85	493.00
						1457.23	1758.72	483.00
						1581.31	1656.01	481.00
						1727.94	1505.00	480.00
cWBoff						2023.36	1450.16	478.00
						1870.16	1671.75	480.00
						1848.10	1753.44	478.00
						1879.47	1822.03	476.00
						1977.01	1857.18	476.00
						2048.14	1826.00	467.00
						2083.16	1768.00	465.00
						2091.36	1399.77	453.00
I210 EB						1915.52	1264.28	477.00
						2218.15	920.98	474.00
						2433.73	677.50	473.00
						2690.34	455.36	470.00
I210 EB						2154.69	1260.55	477.00
						2333.06	1015.43	474.00
						2539.33	776.32	473.00
						2691.68	630.18	470.00
cEBon						1794.25	1272.65	454.00
						2010.09	1042.05	464.00
						2222.45	834.03	474.00
						2384.41	683.01	473.00
cEBon						1833.90	1273.29	454.00
						2045.65	1063.73	464.00
						2238.25	864.56	474.00
						2383.25	720.66	473.00
SBUX pad				470.00		1403.48	1245.57	470.00
						1490.38	1244.05	470.00
						1492.55	1186.70	470.00
						1405.66	1188.00	470.00
						1403.27	1245.35	470.00
CFA pad				468.50		1560.55	1253.39	468.50
						1560.33	1167.37	468.50
						1669.17	1168.02	468.50
						1669.38	1249.26	468.50
						1560.98	1253.39	468.50

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 15 Jan 2021

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.30
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	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)
1-R1			51.2	50.0	60.0	0.0				5.00	r	1365.86	1001.17	467.34
1-R2			51.0	48.4	60.0	0.0				5.00	r	1564.95	900.95	458.39
1-R3			58.8	52.6	60.0	0.0				5.00	r	1751.52	1209.25	457.00
2-R1			51.9	50.4	60.0	0.0				15.00	r	1365.86	1001.17	477.34
2-R3			59.4	55.1	60.0	0.0				15.00	r	1751.52	1209.25	467.00
3-R1			52.1	50.6	60.0	0.0				25.00	r	1365.86	1001.17	487.34
3-R3			59.4	56.3	60.0	0.0				25.00	r	1751.52	1209.25	477.00

Point Sources

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		(ft)		(ft)	(ft)	(ft)
CFA AC1			93.5	93.5	93.5	Lw	AC2		0.0	0.0	0.0							0.0		(none)	4.50	g	1644.10	1206.05	493.00
CFA AC2			93.5	93.5	93.5	Lw	AC2		0.0	0.0	0.0							0.0		(none)	4.50	g	1643.94	1198.22	493.00
CFA AC3			90.5	90.5	90.5	Lw	AC1		0.0	0.0	0.0							0.0		(none)	4.00	g	1644.00	1190.73	492.50
SBUX AC1			93.5	93.5	93.5	Lw	AC2		0.0	0.0	0.0							0.0		(none)	4.50	g	1433.72	1202.04	494.50
SBUX AC2			93.5	93.5	93.5	Lw	AC2		0.0	0.0	0.0							0.0		(none)	4.50	g	1440.92	1201.84	494.50
SBUX DT			84.5	84.5	84.5	Lw	DT1		0.0	0.0	0.0							0.0	500	(none)	4.00	r	1491.05	1223.12	474.00
CFA DT1			84.5	84.5	84.5	Lw	DT1		0.0	0.0	0.0							0.0	500	(none)	4.00	r	1661.69	1146.49	471.02
CFA DT2			84.5	84.5	84.5	Lw	DT1		0.0	0.0	0.0							0.0	500	(none)	4.00	r	1675.08	1146.40	469.49

Line Sources

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Moving Pt. Src			
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night				Number			Sp
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night	(n
CFA Truck Route			90.8	-9.2	-9.2	64.7	-35.3	-35.3	PWL-Pt	RT		0.0	0.0	0.0							0.0		(none)	1.0	0.0	0.0	1
SBUX Truck Route			91.0	-9.0	-9.0	64.7	-35.3	-35.3	PWL-Pt	RT		0.0	0.0	0.0							0.0		(none)	1.0	0.0	0.0	1

Geometry - Line Sources

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
CFA Truck Route	6.00	r			1715.82	1307.39	460.10	454.10
					1718.20	1041.29	459.22	453.22
					1541.70	1040.95	465.78	459.78
					1541.70	1078.28	468.37	462.37
					1627.23	1078.62	468.34	462.34
					1626.56	1144.47	472.89	466.89
					1526.09	1143.11	472.90	466.90
					1526.09	1029.75	465.03	459.03
					1735.17	1031.78	458.75	452.75
					1733.81	1308.40	459.97	453.97
SBUX Truck Route	6.00	r			1715.82	1307.39	460.10	454.10
					1718.20	1041.29	459.22	453.22
					1481.13	1040.75	466.41	460.41
					1481.40	1119.95	471.31	465.31
					1418.36	1177.33	475.27	469.27
					1408.67	1167.09	475.04	469.04
					1465.78	1112.95	470.80	464.80
					1464.97	1030.24	466.84	460.84
					1526.09	1029.75	465.03	459.03
					1735.17	1031.78	458.75	452.75
					1733.81	1308.40	459.97	453.97

Buildings

Name	M.	ID	RB	Residents	Absorption	Height	
						Begin	
						(ft)	
CFA Building				0		20.00	r
SBUX Building				0		20.00	r

Geometry - Buildings

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
CFA Building				0		20.00	r	1577.11	1229.67	488.50	468.50
								1578.92	1180.42	488.50	468.50
								1655.93	1180.64	488.50	468.50
								1654.19	1239.51	488.50	468.50
								1599.01	1239.40	488.50	468.50
								1598.79	1242.55	488.50	468.50
								1587.06	1242.66	488.50	468.50
								1587.71	1229.41	488.50	468.50
SBUX Building				0		20.00	r	1420.90	1217.50	490.00	470.00
								1421.30	1204.49	490.00	470.00
								1426.92	1204.50	490.00	470.00
								1426.73	1194.95	490.00	470.00
								1479.33	1195.05	490.00	470.00
								1479.20	1237.34	490.00	470.00
								1426.24	1237.07	490.00	470.00
								1426.18	1217.56	490.00	470.00

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
c1						48.13	89.90	460.00
						795.71	100.29	456.00
cRail						56.17	792.38	483.00
						266.72	648.55	480.00
						486.02	539.17	479.00
						802.01	407.22	477.00
						1105.19	312.82	470.00
						1446.99	198.52	460.00
						1805.20	83.13	455.00
cRail						48.36	847.07	483.00
						286.18	687.61	480.00
						500.43	580.57	479.00
						816.42	454.08	477.00
						1117.41	354.22	470.00
						1451.01	242.65	460.00
						1862.81	110.85	455.00
pad465				465.00		44.43	881.85	465.00
						164.67	795.99	465.00
						384.47	666.45	465.00
						505.05	604.43	465.00
						700.74	522.44	465.00
						741.74	509.69	465.00
						752.63	635.86	465.00
						743.67	1252.55	465.00
						48.29	1247.34	465.00
						44.43	881.85	465.00
pad455				455.00		1777.27	209.27	455.00
						1761.14	174.82	455.00
						804.05	481.43	455.00
						791.47	1252.77	455.00
						847.12	1249.35	455.00
						1548.59	528.59	455.00
						1709.11	362.87	455.00
						1755.56	306.87	455.00
						1797.67	251.31	455.00
						1777.27	209.27	455.00
channel						850.61	1249.53	452.00
						1061.47	1033.85	448.00
						1297.19	791.56	445.00
						1527.70	555.85	435.00
						1702.03	376.00	433.00
						1798.77	253.17	431.00
						1884.56	103.98	429.00
						1918.32	91.23	429.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1911.09	110.87	429.00
						1820.82	273.15	431.00
						1729.21	388.01	433.00
						1547.32	575.10	435.00
						1294.02	834.91	445.00
						1080.44	1052.87	448.00
						872.88	1259.34	452.00
						850.61	1249.53	452.00
c2						874.13	1265.40	465.00
						1406.57	724.06	452.00
						1543.02	725.44	453.00
						1543.02	957.67	454.00
						1698.41	958.02	454.00
						1696.23	1261.58	454.00
c3						3016.03	126.26	437.00
						2203.03	115.90	442.00
						2189.93	516.29	445.00
						1716.95	509.31	451.00
						1709.52	911.38	451.00
						2007.63	917.15	450.00
						1971.66	968.31	450.00
pad452				452.00		1766.34	968.55	452.00
						1919.49	965.82	452.00
						1980.75	1009.03	452.00
						1800.25	1239.30	452.00
						1743.94	1228.82	452.00
						1766.34	968.55	452.00
cHuntington						49.77	1271.03	473.00
						777.25	1277.59	473.00
						1063.93	1278.97	470.00
						1307.89	1279.66	465.00
						1513.25	1281.72	457.00
						1724.13	1283.79	454.00
						2152.19	1291.61	453.00
						2675.66	1295.11	451.00
cHuntington						50.32	1345.96	473.00
						777.79	1352.52	473.00
						1064.48	1353.90	470.00
						1308.43	1354.59	465.00
						1513.80	1356.66	457.00
						1717.02	1379.51	454.00
						2147.81	1385.14	453.00
						2673.47	1388.64	451.00
cEBoff						1091.94	1921.85	492.00
						1191.07	1841.90	488.00
						1262.06	1735.77	480.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1288.17	1592.78	474.00
						1287.04	1372.32	465.00
cEBoff						1131.01	1927.93	492.00
						1214.80	1861.08	488.00
						1293.38	1754.28	480.00
						1328.54	1611.88	474.00
						1327.85	1372.76	465.00
cEBon						1409.35	1375.34	458.00
						1351.11	1433.92	462.00
						1332.51	1504.90	467.00
						1340.99	1565.34	467.00
						1365.87	1606.37	467.00
						1433.97	1656.69	468.00
						1519.93	1659.73	470.00
						1586.79	1623.70	472.00
						1779.88	1448.11	477.00
cEBon						1424.88	1394.18	458.00
						1374.73	1441.28	462.00
						1355.85	1503.80	467.00
						1364.81	1556.52	467.00
						1386.69	1592.87	467.00
						1440.16	1630.48	468.00
						1514.27	1634.04	470.00
						1570.20	1603.95	472.00
						1762.47	1430.83	477.00
c4				476.00		316.06	1904.49	476.00
						71.20	1901.01	476.00
cWBon						2165.61	1395.54	453.00
						2160.39	1780.29	465.00
						2115.23	1874.08	467.00
						2068.70	1905.45	470.00
						1980.81	1931.99	476.00
						1742.13	1904.93	490.00
						1657.47	1903.15	488.00
						1595.23	1925.72	487.00
c5						1908.87	1886.26	476.00
						1854.16	1844.13	476.00
						1818.05	1768.63	478.00
						1839.39	1658.65	480.00
						1985.64	1440.39	478.00
						1885.89	1559.08	480.00
						1695.50	1762.06	481.00
						1535.19	1884.34	483.00
						1548.28	1918.47	487.00
						1649.20	1879.45	488.00
						1745.09	1869.87	490.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1908.87	1886.26	476.00
I210 EB						1202.17	1924.85	493.00
						1457.23	1758.72	483.00
						1581.31	1656.01	481.00
						1727.94	1505.00	480.00
cWBoff						2023.36	1450.16	478.00
						1870.16	1671.75	480.00
						1848.10	1753.44	478.00
						1879.47	1822.03	476.00
						1977.01	1857.18	476.00
						2048.14	1826.00	467.00
						2083.16	1768.00	465.00
						2091.36	1399.77	453.00
I210 EB						1915.52	1264.28	477.00
						2218.15	920.98	474.00
						2433.73	677.50	473.00
						2690.34	455.36	470.00
I210 EB						2154.69	1260.55	477.00
						2333.06	1015.43	474.00
						2539.33	776.32	473.00
						2691.68	630.18	470.00
cEBon						1794.25	1272.65	454.00
						2010.09	1042.05	464.00
						2222.45	834.03	474.00
						2384.41	683.01	473.00
cEBon						1833.90	1273.29	454.00
						2045.65	1063.73	464.00
						2238.25	864.56	474.00
						2383.25	720.66	473.00
SBUX pad				470.00		1403.48	1245.57	470.00
						1490.38	1244.05	470.00
						1492.55	1186.70	470.00
						1405.66	1188.00	470.00
						1403.27	1245.35	470.00
CFA pad				468.50		1560.55	1253.39	468.50
						1560.33	1167.37	468.50
						1669.17	1168.02	468.50
						1669.38	1249.26	468.50
						1560.98	1253.39	468.50

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Lennox LGH150	AC1	Lw	A			75.0	81.0	87.0	85.0	80.0	74.0	70.0	90.5	95.6	Manufacturer
Lennox LGH210-300	AC2	Lw	A			79.0	84.0	88.0	89.0	85.0	82.0	73.0	93.5	98.8	Manufacturer
Drive-Through Intercom	DT1	Lw (c)	A					84.5					84.5	87.7	Manufacturer
Refrigerated Truck	RT	Lw (c)			115.2	109.2	104.2	105.2	104.2	101.2	96.2	90.2	108.6	117.1	Measurements

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 15 Oct 2020

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.30
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	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)
R1			56.6	-80.2	0.0	0.0		x	Total	5.00	r	1365.86	1001.17	463.32
R2			58.1	-80.2	0.0	0.0		x	Total	5.00	r	1564.95	900.95	458.39
R3			60.2	-80.2	0.0	0.0		x	Total	5.00	r	1751.52	1209.25	457.40

Point Sources

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		(ft)		(ft)	(ft)	(ft)
Dozer			105.6	105.6	105.6	Lw	S1		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	6.00	r	1548.82	1200.81	461.81
Excavator			100.6	100.6	100.6	Lw	S2		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	6.00	r	1548.82	1200.81	461.81
Tractor Loader			110.0	110.0	110.0	Lw	S8		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	6.00	r	1548.82	1200.81	461.81

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
c1						48.13	89.90	460.00
						795.71	100.29	456.00
cRail						56.17	792.38	483.00
						266.72	648.55	480.00
						486.02	539.17	479.00
						802.01	407.22	477.00
						1105.19	312.82	470.00
						1446.99	198.52	460.00
						1805.20	83.13	455.00
cRail						48.36	847.07	483.00
						286.18	687.61	480.00
						500.43	580.57	479.00
						816.42	454.08	477.00
						1117.41	354.22	470.00
						1451.01	242.65	460.00
						1862.81	110.85	455.00
pad465				465.00		44.43	881.85	465.00
						164.67	795.99	465.00
						384.47	666.45	465.00
						505.05	604.43	465.00
						700.74	522.44	465.00
						741.74	509.69	465.00
						752.63	635.86	465.00
						743.67	1252.55	465.00
						48.29	1247.34	465.00
						44.43	881.85	465.00
pad455				455.00		1777.27	209.27	455.00
						1761.14	174.82	455.00
						804.05	481.43	455.00
						791.47	1252.77	455.00
						847.12	1249.35	455.00
						1548.59	528.59	455.00
						1709.11	362.87	455.00
						1755.56	306.87	455.00
						1797.67	251.31	455.00
						1777.27	209.27	455.00
channel						850.61	1249.53	452.00
						1061.47	1033.85	448.00
						1297.19	791.56	445.00
						1527.70	555.85	435.00
						1702.03	376.00	433.00
						1798.77	253.17	431.00
						1884.56	103.98	429.00
						1918.32	91.23	429.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1911.09	110.87	429.00
						1820.82	273.15	431.00
						1729.21	388.01	433.00
						1547.32	575.10	435.00
						1294.02	834.91	445.00
						1080.44	1052.87	448.00
						872.88	1259.34	452.00
						850.61	1249.53	452.00
c2						874.13	1265.40	465.00
						1406.57	724.06	452.00
						1543.02	725.44	453.00
						1543.02	957.67	454.00
						1698.41	958.02	454.00
						1696.23	1261.58	454.00
c3						3016.03	126.26	437.00
						2203.03	115.90	442.00
						2189.93	516.29	445.00
						1716.95	509.31	451.00
						1709.52	911.38	451.00
						2007.63	917.15	450.00
						1971.66	968.31	450.00
pad452				452.00		1766.34	968.55	452.00
						1919.49	965.82	452.00
						1980.75	1009.03	452.00
						1800.25	1239.30	452.00
						1765.25	1215.78	452.00
						1766.34	968.55	452.00
cHuntington						49.77	1271.03	473.00
						777.25	1277.59	473.00
						1063.93	1278.97	470.00
						1307.89	1279.66	465.00
						1513.25	1281.72	457.00
						1724.13	1283.79	454.00
						2152.19	1291.61	453.00
						2675.66	1295.11	451.00
cHuntington						50.32	1345.96	473.00
						777.79	1352.52	473.00
						1064.48	1353.90	470.00
						1308.43	1354.59	465.00
						1513.80	1356.66	457.00
						1717.02	1379.51	454.00
						2147.81	1385.14	453.00
						2673.47	1388.64	451.00
cEBoff						1091.94	1921.85	492.00
						1191.07	1841.90	488.00
						1262.06	1735.77	480.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1288.17	1592.78	474.00
						1287.04	1372.32	465.00
cEBoff						1131.01	1927.93	492.00
						1214.80	1861.08	488.00
						1293.38	1754.28	480.00
						1328.54	1611.88	474.00
						1327.85	1372.76	465.00
cEBon						1409.35	1375.34	458.00
						1351.11	1433.92	462.00
						1332.51	1504.90	467.00
						1340.99	1565.34	467.00
						1365.87	1606.37	467.00
						1433.97	1656.69	468.00
						1519.93	1659.73	470.00
						1586.79	1623.70	472.00
						1779.88	1448.11	477.00
cEBon						1424.88	1394.18	458.00
						1374.73	1441.28	462.00
						1355.85	1503.80	467.00
						1364.81	1556.52	467.00
						1386.69	1592.87	467.00
						1440.16	1630.48	468.00
						1514.27	1634.04	470.00
						1570.20	1603.95	472.00
						1762.47	1430.83	477.00
c4				476.00		316.06	1904.49	476.00
						71.20	1901.01	476.00
cWBon						2165.61	1395.54	453.00
						2160.39	1780.29	465.00
						2115.23	1874.08	467.00
						2068.70	1905.45	470.00
						1980.81	1931.99	476.00
						1742.13	1904.93	490.00
						1657.47	1903.15	488.00
						1595.23	1925.72	487.00
c5						1908.87	1886.26	476.00
						1854.16	1844.13	476.00
						1818.05	1768.63	478.00
						1839.39	1658.65	480.00
						1985.64	1440.39	478.00
						1885.89	1559.08	480.00
						1695.50	1762.06	481.00
						1535.19	1884.34	483.00
						1548.28	1918.47	487.00
						1649.20	1879.45	488.00
						1745.09	1869.87	490.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1908.87	1886.26	476.00
I210 EB						1202.17	1924.85	493.00
						1457.23	1758.72	483.00
						1581.31	1656.01	481.00
						1727.94	1505.00	480.00
cWBoff						2023.36	1450.16	478.00
						1870.16	1671.75	480.00
						1848.10	1753.44	478.00
						1879.47	1822.03	476.00
						1977.01	1857.18	476.00
						2048.14	1826.00	467.00
						2083.16	1768.00	465.00
						2091.36	1399.77	453.00
I210 EB						1915.52	1264.28	477.00
						2218.15	920.98	474.00
						2433.73	677.50	473.00
						2690.34	455.36	470.00
I210 EB						2154.69	1260.55	477.00
						2333.06	1015.43	474.00
						2539.33	776.32	473.00
						2691.68	630.18	470.00
cEBon						1794.25	1272.65	454.00
						2010.09	1042.05	464.00
						2222.45	834.03	474.00
						2384.41	683.01	473.00
cEBon						1833.90	1273.29	454.00
						2045.65	1063.73	464.00
						2238.25	864.56	474.00
						2383.25	720.66	473.00

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Dozer(21 t)	S1	Lw (c)			104.0	110.0	104.0	103.0	100.0	98.0	92.0	88.0	105.6	112.8	DEFRA
Tracked Excavator (14 t)	S2	Lw (c)			105.0	101.0	99.0	98.0	95.0	93.0	89.0	81.0	100.6	108.1	DEFRA
Paver (18 t)	S3	Lw (c)			103.0	108.0	105.0	103.0	102.0	101.0	98.0	91.0	107.5	112.3	DEFRA
Reach Fork	S4	Lw (c)			116.0	110.0	100.0	98.0	95.0	93.0	87.0	78.0	101.5	117.2	DEFRA
Roller (22 t)	S5	Lw (c)			118.0	116.0	106.0	104.0	106.0	104.0	100.0	94.0	110.6	120.7	DEFRA
Skid Steer Loader	S6	Lw (c)			103.0	94.0	98.0	98.0	94.0	93.0	87.0	81.0	99.9	106.0	DEFRA
Skip Loader	S7	Lw (c)			118.0	113.0	108.0	109.0	104.0	101.0	95.0	88.0	110.0	120.1	DEFRA
Tractor Loader	S8	Lw (c)			118.0	113.0	108.0	109.0	104.0	101.0	95.0	88.0	110.0	120.1	DEFRA

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 15 Oct 2020

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.30
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	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)
R1			55.8	-80.2	0.0	0.0		x	Total	5.00	r	1365.86	1001.17	463.32
R2			57.4	-80.2	0.0	0.0		x	Total	5.00	r	1564.95	900.95	458.39
R3			59.4	-80.2	0.0	0.0		x	Total	5.00	r	1751.52	1209.25	457.40

Point Sources

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		(ft)		(ft)	(ft)	(ft)
Reach Fork			101.5	101.5	101.5	Lw	S4		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	6.00	r	1548.82	1200.81	461.81
Skid Steer			99.9	99.9	99.9	Lw	S6		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	6.00	r	1548.82	1200.81	461.81
Skip Loader			110.0	110.0	110.0	Lw	S7		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	6.00	r	1548.82	1200.81	461.81

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
c1						48.13	89.90	460.00
						795.71	100.29	456.00
cRail						56.17	792.38	483.00
						266.72	648.55	480.00
						486.02	539.17	479.00
						802.01	407.22	477.00
						1105.19	312.82	470.00
						1446.99	198.52	460.00
						1805.20	83.13	455.00
cRail						48.36	847.07	483.00
						286.18	687.61	480.00
						500.43	580.57	479.00
						816.42	454.08	477.00
						1117.41	354.22	470.00
						1451.01	242.65	460.00
						1862.81	110.85	455.00
pad465				465.00		44.43	881.85	465.00
						164.67	795.99	465.00
						384.47	666.45	465.00
						505.05	604.43	465.00
						700.74	522.44	465.00
						741.74	509.69	465.00
						752.63	635.86	465.00
						743.67	1252.55	465.00
						48.29	1247.34	465.00
						44.43	881.85	465.00
pad455				455.00		1777.27	209.27	455.00
						1761.14	174.82	455.00
						804.05	481.43	455.00
						791.47	1252.77	455.00
						847.12	1249.35	455.00
						1548.59	528.59	455.00
						1709.11	362.87	455.00
						1755.56	306.87	455.00
						1797.67	251.31	455.00
						1777.27	209.27	455.00
channel						850.61	1249.53	452.00
						1061.47	1033.85	448.00
						1297.19	791.56	445.00
						1527.70	555.85	435.00
						1702.03	376.00	433.00
						1798.77	253.17	431.00
						1884.56	103.98	429.00
						1918.32	91.23	429.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1911.09	110.87	429.00
						1820.82	273.15	431.00
						1729.21	388.01	433.00
						1547.32	575.10	435.00
						1294.02	834.91	445.00
						1080.44	1052.87	448.00
						872.88	1259.34	452.00
						850.61	1249.53	452.00
c2						874.13	1265.40	465.00
						1406.57	724.06	452.00
						1543.02	725.44	453.00
						1543.02	957.67	454.00
						1698.41	958.02	454.00
						1696.23	1261.58	454.00
c3						3016.03	126.26	437.00
						2203.03	115.90	442.00
						2189.93	516.29	445.00
						1716.95	509.31	451.00
						1709.52	911.38	451.00
						2007.63	917.15	450.00
						1971.66	968.31	450.00
pad452				452.00		1766.34	968.55	452.00
						1919.49	965.82	452.00
						1980.75	1009.03	452.00
						1800.25	1239.30	452.00
						1765.25	1215.78	452.00
						1766.34	968.55	452.00
cHuntington						49.77	1271.03	473.00
						777.25	1277.59	473.00
						1063.93	1278.97	470.00
						1307.89	1279.66	465.00
						1513.25	1281.72	457.00
						1724.13	1283.79	454.00
						2152.19	1291.61	453.00
						2675.66	1295.11	451.00
cHuntington						50.32	1345.96	473.00
						777.79	1352.52	473.00
						1064.48	1353.90	470.00
						1308.43	1354.59	465.00
						1513.80	1356.66	457.00
						1717.02	1379.51	454.00
						2147.81	1385.14	453.00
						2673.47	1388.64	451.00
cEBoff						1091.94	1921.85	492.00
						1191.07	1841.90	488.00
						1262.06	1735.77	480.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1288.17	1592.78	474.00
						1287.04	1372.32	465.00
cEBoff						1131.01	1927.93	492.00
						1214.80	1861.08	488.00
						1293.38	1754.28	480.00
						1328.54	1611.88	474.00
						1327.85	1372.76	465.00
cEBon						1409.35	1375.34	458.00
						1351.11	1433.92	462.00
						1332.51	1504.90	467.00
						1340.99	1565.34	467.00
						1365.87	1606.37	467.00
						1433.97	1656.69	468.00
						1519.93	1659.73	470.00
						1586.79	1623.70	472.00
						1779.88	1448.11	477.00
cEBon						1424.88	1394.18	458.00
						1374.73	1441.28	462.00
						1355.85	1503.80	467.00
						1364.81	1556.52	467.00
						1386.69	1592.87	467.00
						1440.16	1630.48	468.00
						1514.27	1634.04	470.00
						1570.20	1603.95	472.00
						1762.47	1430.83	477.00
c4				476.00		316.06	1904.49	476.00
						71.20	1901.01	476.00
cWBon						2165.61	1395.54	453.00
						2160.39	1780.29	465.00
						2115.23	1874.08	467.00
						2068.70	1905.45	470.00
						1980.81	1931.99	476.00
						1742.13	1904.93	490.00
						1657.47	1903.15	488.00
						1595.23	1925.72	487.00
c5						1908.87	1886.26	476.00
						1854.16	1844.13	476.00
						1818.05	1768.63	478.00
						1839.39	1658.65	480.00
						1985.64	1440.39	478.00
						1885.89	1559.08	480.00
						1695.50	1762.06	481.00
						1535.19	1884.34	483.00
						1548.28	1918.47	487.00
						1649.20	1879.45	488.00
						1745.09	1869.87	490.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1908.87	1886.26	476.00
I210 EB						1202.17	1924.85	493.00
						1457.23	1758.72	483.00
						1581.31	1656.01	481.00
						1727.94	1505.00	480.00
cWBoff						2023.36	1450.16	478.00
						1870.16	1671.75	480.00
						1848.10	1753.44	478.00
						1879.47	1822.03	476.00
						1977.01	1857.18	476.00
						2048.14	1826.00	467.00
						2083.16	1768.00	465.00
						2091.36	1399.77	453.00
I210 EB						1915.52	1264.28	477.00
						2218.15	920.98	474.00
						2433.73	677.50	473.00
						2690.34	455.36	470.00
I210 EB						2154.69	1260.55	477.00
						2333.06	1015.43	474.00
						2539.33	776.32	473.00
						2691.68	630.18	470.00
cEBon						1794.25	1272.65	454.00
						2010.09	1042.05	464.00
						2222.45	834.03	474.00
						2384.41	683.01	473.00
cEBon						1833.90	1273.29	454.00
						2045.65	1063.73	464.00
						2238.25	864.56	474.00
						2383.25	720.66	473.00

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Dozer(21 t)	S1	Lw (c)			104.0	110.0	104.0	103.0	100.0	98.0	92.0	88.0	105.6	112.8	DEFRA
Tracked Excavator (14 t)	S2	Lw (c)			105.0	101.0	99.0	98.0	95.0	93.0	89.0	81.0	100.6	108.1	DEFRA
Paver (18 t)	S3	Lw (c)			103.0	108.0	105.0	103.0	102.0	101.0	98.0	91.0	107.5	112.3	DEFRA
Reach Fork	S4	Lw (c)			116.0	110.0	100.0	98.0	95.0	93.0	87.0	78.0	101.5	117.2	DEFRA
Roller (22 t)	S5	Lw (c)			118.0	116.0	106.0	104.0	106.0	104.0	100.0	94.0	110.6	120.7	DEFRA
Skid Steer Loader	S6	Lw (c)			103.0	94.0	98.0	98.0	94.0	93.0	87.0	81.0	99.9	106.0	DEFRA
Skip Loader	S7	Lw (c)			118.0	113.0	108.0	109.0	104.0	101.0	95.0	88.0	110.0	120.1	DEFRA
Tractor Loader	S8	Lw (c)			118.0	113.0	108.0	109.0	104.0	101.0	95.0	88.0	110.0	120.1	DEFRA

Eilar Associates, Inc.
210 South Juniper Street, Suite 100
Escondido, California 92025-4230
Phone: (760) 738-5570
Date: 15 Oct 2020

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	1000.00
Min. Length of Section (#(Unit,LEN))	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	0
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.30
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	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)
R1			58.7	-80.2	0.0	0.0		x	Total	5.00	r	1365.86	1001.17	463.32
R2			60.1	-80.2	0.0	0.0		x	Total	5.00	r	1564.95	900.95	458.39
R3			62.0	-80.2	0.0	0.0		x	Total	5.00	r	1751.52	1209.25	457.40

Point Sources

Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night						X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		(ft)		(ft)	(ft)	(ft)
Paver			107.5	107.5	107.5	Lw	S3		0.0	0.0	0.0				30.00	0.00	0.00	0.0		(none)	6.00	r	1548.82	1200.81	461.81
Roller			110.6	110.6	110.6	Lw	S5		0.0	0.0	0.0				12.00	0.00	0.00	0.0		(none)	6.00	r	1548.82	1200.81	461.81
Skip Loader			110.0	110.0	110.0	Lw	S7		0.0	0.0	0.0				24.00	0.00	0.00	0.0		(none)	6.00	r	1548.82	1200.81	461.81

Terrain Contours

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
c1						48.13	89.90	460.00
						795.71	100.29	456.00
cRail						56.17	792.38	483.00
						266.72	648.55	480.00
						486.02	539.17	479.00
						802.01	407.22	477.00
						1105.19	312.82	470.00
						1446.99	198.52	460.00
						1805.20	83.13	455.00
cRail						48.36	847.07	483.00
						286.18	687.61	480.00
						500.43	580.57	479.00
						816.42	454.08	477.00
						1117.41	354.22	470.00
						1451.01	242.65	460.00
						1862.81	110.85	455.00
pad465				465.00		44.43	881.85	465.00
						164.67	795.99	465.00
						384.47	666.45	465.00
						505.05	604.43	465.00
						700.74	522.44	465.00
						741.74	509.69	465.00
						752.63	635.86	465.00
						743.67	1252.55	465.00
						48.29	1247.34	465.00
						44.43	881.85	465.00
pad455				455.00		1777.27	209.27	455.00
						1761.14	174.82	455.00
						804.05	481.43	455.00
						791.47	1252.77	455.00
						847.12	1249.35	455.00
						1548.59	528.59	455.00
						1709.11	362.87	455.00
						1755.56	306.87	455.00
						1797.67	251.31	455.00
						1777.27	209.27	455.00
channel						850.61	1249.53	452.00
						1061.47	1033.85	448.00
						1297.19	791.56	445.00
						1527.70	555.85	435.00
						1702.03	376.00	433.00
						1798.77	253.17	431.00
						1884.56	103.98	429.00
						1918.32	91.23	429.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1911.09	110.87	429.00
						1820.82	273.15	431.00
						1729.21	388.01	433.00
						1547.32	575.10	435.00
						1294.02	834.91	445.00
						1080.44	1052.87	448.00
						872.88	1259.34	452.00
						850.61	1249.53	452.00
c2						874.13	1265.40	465.00
						1406.57	724.06	452.00
						1543.02	725.44	453.00
						1543.02	957.67	454.00
						1698.41	958.02	454.00
						1696.23	1261.58	454.00
c3						3016.03	126.26	437.00
						2203.03	115.90	442.00
						2189.93	516.29	445.00
						1716.95	509.31	451.00
						1709.52	911.38	451.00
						2007.63	917.15	450.00
						1971.66	968.31	450.00
pad452				452.00		1766.34	968.55	452.00
						1919.49	965.82	452.00
						1980.75	1009.03	452.00
						1800.25	1239.30	452.00
						1765.25	1215.78	452.00
						1766.34	968.55	452.00
cHuntington						49.77	1271.03	473.00
						777.25	1277.59	473.00
						1063.93	1278.97	470.00
						1307.89	1279.66	465.00
						1513.25	1281.72	457.00
						1724.13	1283.79	454.00
						2152.19	1291.61	453.00
						2675.66	1295.11	451.00
cHuntington						50.32	1345.96	473.00
						777.79	1352.52	473.00
						1064.48	1353.90	470.00
						1308.43	1354.59	465.00
						1513.80	1356.66	457.00
						1717.02	1379.51	454.00
						2147.81	1385.14	453.00
						2673.47	1388.64	451.00
cEBoff						1091.94	1921.85	492.00
						1191.07	1841.90	488.00
						1262.06	1735.77	480.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1288.17	1592.78	474.00
						1287.04	1372.32	465.00
cEBoff						1131.01	1927.93	492.00
						1214.80	1861.08	488.00
						1293.38	1754.28	480.00
						1328.54	1611.88	474.00
						1327.85	1372.76	465.00
cEBon						1409.35	1375.34	458.00
						1351.11	1433.92	462.00
						1332.51	1504.90	467.00
						1340.99	1565.34	467.00
						1365.87	1606.37	467.00
						1433.97	1656.69	468.00
						1519.93	1659.73	470.00
						1586.79	1623.70	472.00
						1779.88	1448.11	477.00
cEBon						1424.88	1394.18	458.00
						1374.73	1441.28	462.00
						1355.85	1503.80	467.00
						1364.81	1556.52	467.00
						1386.69	1592.87	467.00
						1440.16	1630.48	468.00
						1514.27	1634.04	470.00
						1570.20	1603.95	472.00
						1762.47	1430.83	477.00
c4				476.00		316.06	1904.49	476.00
						71.20	1901.01	476.00
cWBon						2165.61	1395.54	453.00
						2160.39	1780.29	465.00
						2115.23	1874.08	467.00
						2068.70	1905.45	470.00
						1980.81	1931.99	476.00
						1742.13	1904.93	490.00
						1657.47	1903.15	488.00
						1595.23	1925.72	487.00
c5						1908.87	1886.26	476.00
						1854.16	1844.13	476.00
						1818.05	1768.63	478.00
						1839.39	1658.65	480.00
						1985.64	1440.39	478.00
						1885.89	1559.08	480.00
						1695.50	1762.06	481.00
						1535.19	1884.34	483.00
						1548.28	1918.47	487.00
						1649.20	1879.45	488.00
						1745.09	1869.87	490.00

Name	M.	ID	OnlyPts	Height		Coordinates		
				Begin	End	x	y	z
				(ft)	(ft)	(ft)	(ft)	(ft)
						1908.87	1886.26	476.00
I210 EB						1202.17	1924.85	493.00
						1457.23	1758.72	483.00
						1581.31	1656.01	481.00
						1727.94	1505.00	480.00
cWBoff						2023.36	1450.16	478.00
						1870.16	1671.75	480.00
						1848.10	1753.44	478.00
						1879.47	1822.03	476.00
						1977.01	1857.18	476.00
						2048.14	1826.00	467.00
						2083.16	1768.00	465.00
						2091.36	1399.77	453.00
I210 EB						1915.52	1264.28	477.00
						2218.15	920.98	474.00
						2433.73	677.50	473.00
						2690.34	455.36	470.00
I210 EB						2154.69	1260.55	477.00
						2333.06	1015.43	474.00
						2539.33	776.32	473.00
						2691.68	630.18	470.00
cEBon						1794.25	1272.65	454.00
						2010.09	1042.05	464.00
						2222.45	834.03	474.00
						2384.41	683.01	473.00
cEBon						1833.90	1273.29	454.00
						2045.65	1063.73	464.00
						2238.25	864.56	474.00
						2383.25	720.66	473.00

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Dozer(21 t)	S1	Lw (c)			104.0	110.0	104.0	103.0	100.0	98.0	92.0	88.0	105.6	112.8	DEFRA
Tracked Excavator (14 t)	S2	Lw (c)			105.0	101.0	99.0	98.0	95.0	93.0	89.0	81.0	100.6	108.1	DEFRA
Paver (18 t)	S3	Lw (c)			103.0	108.0	105.0	103.0	102.0	101.0	98.0	91.0	107.5	112.3	DEFRA
Reach Fork	S4	Lw (c)			116.0	110.0	100.0	98.0	95.0	93.0	87.0	78.0	101.5	117.2	DEFRA
Roller (22 t)	S5	Lw (c)			118.0	116.0	106.0	104.0	106.0	104.0	100.0	94.0	110.6	120.7	DEFRA
Skid Steer Loader	S6	Lw (c)			103.0	94.0	98.0	98.0	94.0	93.0	87.0	81.0	99.9	106.0	DEFRA
Skip Loader	S7	Lw (c)			118.0	113.0	108.0	109.0	104.0	101.0	95.0	88.0	110.0	120.1	DEFRA
Tractor Loader	S8	Lw (c)			118.0	113.0	108.0	109.0	104.0	101.0	95.0	88.0	110.0	120.1	DEFRA

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix F

Manufacturer Data Sheets

LGH

Energence® Rooftop Units
60 Hz

COMMERCIAL
PRODUCT SPECIFICATIONS

Bulletin No. 210555
February 2020
Supersedes January 2020

ENERGENCE™ Saving Energy with *Intelligence*

PRODIGY™ CONTROL SYSTEM

SMARTWIRE™ SYSTEM

Environ™ Coil System

MSAV™ MULTI-STAGE AIR VOLUME

Humiditrol

L Connection® NETWORK

ASHRAE 90.1 COMPLIANT

ENERGY STAR

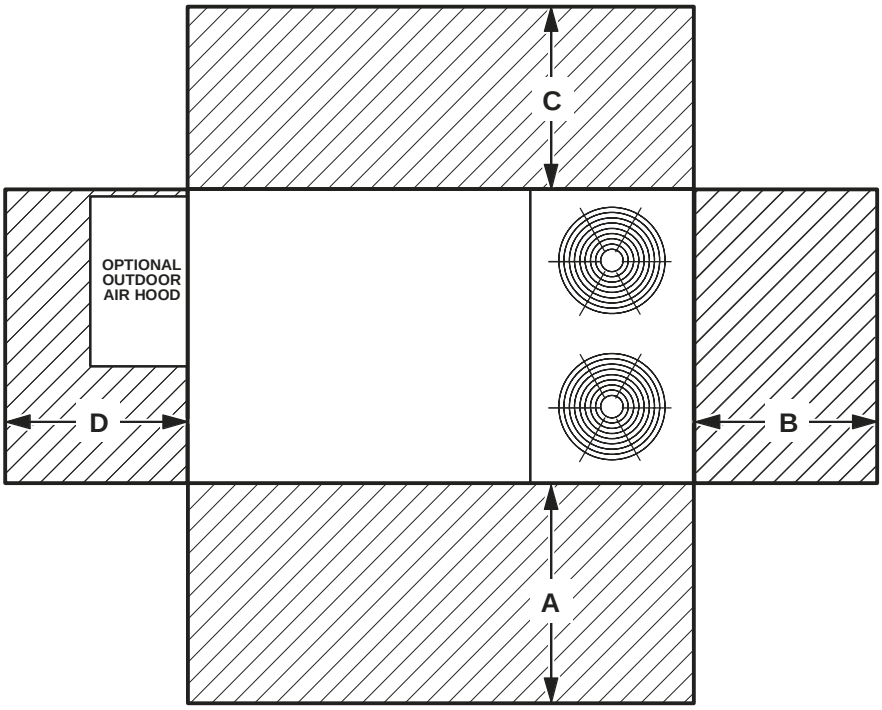
7.5 to 12.5 Tons
Net Cooling Capacity – 90,000 to 138,000 Btuh
Gas Input Heat Capacity – 130,000 to 240,000 Btuh

MODEL NUMBER IDENTIFICATION

L G H 120 H 4 B S 1 Y

- **Brand/Family**: L = Energence®
- **Unit Type**: G = Packaged Gas Heat w/ Electric Cooling
- **Major Design Sequence**: H = 1st Generation
- **Nominal Cooling Capacity - Tons**: 092 = 7.5 Tons; 102 = 8.5 Tons; 120 = 10 Tons; 150 = 12.5 Tons
- **Cooling Efficiency**: H = High Efficiency
- **Refrigerant Type**: 4 = R-410A
- **Blower Type**: B = Belt Drive, Constant Air Volume; M = MSAV® (Multi-Stage Air Volume), Belt Drive
- **Heating Type**: S = Standard Gas Heat, 2 Stage; M = Medium Gas Heat, 2 Stage; H = High Gas Heat, 2 Stage
- **Minor Design Sequence**: 1 = 1st Revision; 2 = 2nd Revision; 3 = 3rd Revision
- **Voltage**: Y = 208/230V-3 phase-60hz; G = 460V-3 phase-60hz; J = 575V-3 phase-60hz

UNIT CLEARANCES



[1] Unit Clearance	A		B		C		D		Top Clearance
	in.	mm	in.	mm	in.	mm	in.	mm	
Service Clearance	60	1524	36	914	36	934	60	1524	Unobstructed
Clearance to Combustibles	36	914	1	25	1	25	1	25	
Minimum Operation Clearance	36	914	36	914	36	914	36	914	

NOTE - Entire perimeter of unit base requires support when elevated above the mounting surface.

[1] Service Clearance - Required for removal of serviceable parts.
Clearance to Combustibles - Required clearance to combustible material.
Minimum Operation Clearance - Required clearance for proper unit operation.

OUTDOOR SOUND DATA

Unit Model Number	Octave Band Sound Power Levels dBA, re 10^{-12} Watts - Center Frequency - Hz							[1] Sound Rating Number (dBA)
	125	250	500	1000	2000	4000	8000	
092, 102 and 120	76	79	84	83	79	73	66	88
150	75	81	87	85	80	74	70	90

Note - The octave sound power data does not include tonal corrections.

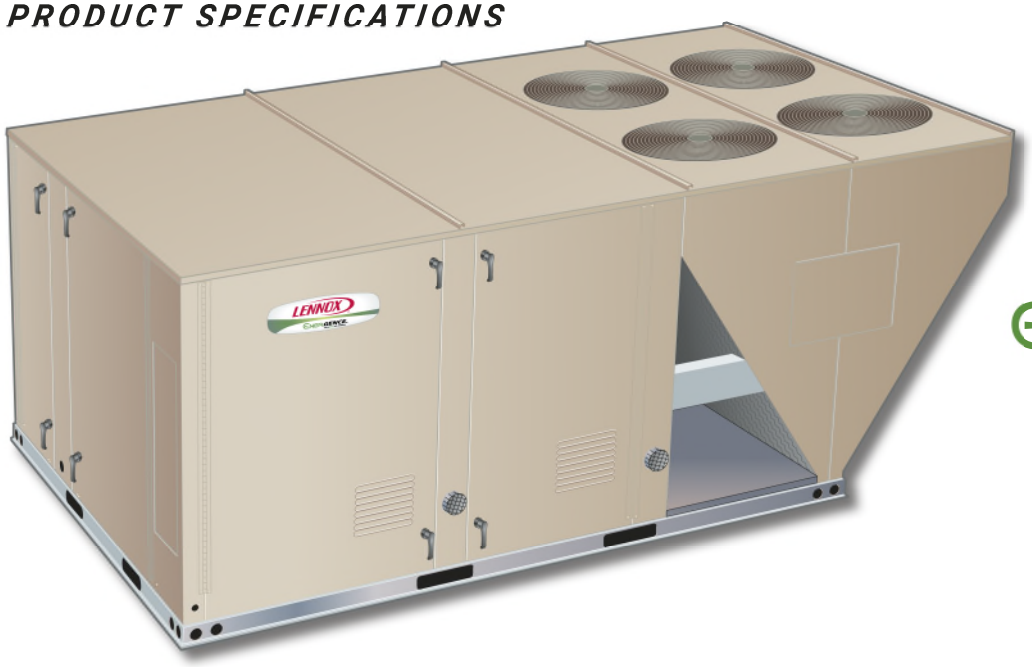
[1] Sound Rating Number according to AHRI Standard 370-2001 (includes pure tone penalty). Sound Rating Number is the overall A-Weighted Sound Power Level, (LWA), dBA (100 Hz to 10,000 Hz).

LGH

Energence® Rooftop Units
60 Hz

COMMERCIAL
PRODUCT SPECIFICATIONS

Bulletin No. 210557
June 2020
Supersedes February 2020



ENERGENCE™ Saving Energy with *Intelligence*

PRODIGY™ CONTROL SYSTEM
SMARTWIRE™ SYSTEM
Environ™ Coil System
MSAV™ MULTI-STAGE AIR VOLUME
Humiditrol
L Connection® NETWORK
ASHRAE 90.1 COMPLIANT
ENERGY STAR

13 to 25 Tons
Net Cooling Capacity - 148,000 to 270,000 Btuh
Gas Input Heat Capacity - 169,000 to 480,000 Btuh

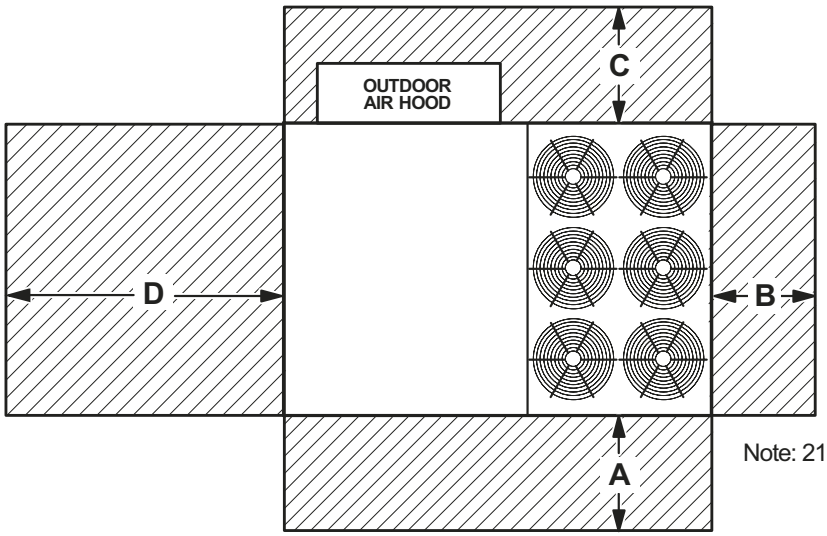
MODEL NUMBER IDENTIFICATION

L G H 240 H 4 B S 1 Y

- **Brand/Family**: Energence®
- **Unit Type**: G = Packaged Gas Heat w/ Electric Cooling
- **Major Design Sequence**: H = 1st Generation
- **Nominal Cooling Capacity - Tons**: 156 = 13 Tons; 180= 15 Tons; 210 = 17.5 Tons; 240 = 20 Tons; 300 = 25 Tons
- **Cooling Efficiency**: H = High Efficiency; S = Standard Efficiency
- **Refrigerant Type**: 4 = R-410A
- **Blower Type**: B = Belt Drive, Constant Air Volume; M = MSAV® (Multi-Stage Air Volume), Belt Drive; V = VAV (Variable Air Volume), Belt Drive
- **Heating Type**: L = Low Gas Heat, 1 Stage; S = Standard Gas Heat, 2 Stage; M = Medium Gas Heat, 2 Stage; H = High Gas Heat, 2 Stage
- **Minor Design Sequence**: 1 = 1st Revision; 2 = 2nd Revision; 3 = 3rd Revision
- **Voltage**: Y = 208/230V-3 phase-60hz; G = 460V-3 phase-60hz; J = 575V-3 phase-60hz

INSTALLATION CLEARANCES

Unit With Economizer



Note: 210-240-300 sizes shown

[1] Unit Clearance	A		B		C		D		Top Clearance
	in.	mm	in.	mm	in.	mm	in.	mm	
Service Clearance	60	1524	36	914	36	934	66	1676	Unobstructed
Clearance to Combustibles	36	914	1	25	1	25	1	25	
Minimum Operation Clearance	45	1143	36	914	36	914	41	1041	

NOTE - Entire perimeter of unit base requires support when elevated above the mounting surface.

[1] **Service Clearance** - Required for removal of serviceable parts.
Clearance to Combustibles - Required clearance to combustible material.
Minimum Operation Clearance - Required clearance for proper unit operation.

OUTDOOR SOUND DATA

Unit Model Number	Octave Band Sound Power Levels dBA, re 10^{-12} Watts - Center Frequency - Hz							[1] Sound Rating Number (dBA)
	125	250	500	1000	2000	4000	8000	
156	71	78	81	81	76	71	63	86
180	80	83	87	88	84	80	71	93
210, 240, 300	79	84	88	89	85	82	73	94

Note - The octave sound power data does not include tonal corrections.

[1] Sound Rating Number according to AHRI Standard 370-2001 (includes pure tone penalty). Sound Rating Number is the overall A-Weighted Sound Power Level, (LWA), dBA (100 Hz to 10,000 Hz).

HME

Customer Driven

Memo

Re: Drive-Thru Sound Pressure Levels From the Menu Board or Speaker Post

The sound pressure levels from the menu board or speaker post are as follows:

1. Sound pressure level (SPL) contours (A weighted) were measured on a typical HME SPP2 speaker post. The test condition was for pink noise set to 84 dBA at 1 foot in front of the speaker. All measurements were conducted outside with the speaker post placed 8 feet from a non-absorbing building wall and at an oblique angle to the wall. These measurements should not be construed to guarantee performance with any particular speaker post in any particular environment. They are typical results obtained under the conditions described above.

2. The SPL levels are presented for different distances from the speaker post:

Distance from the Speaker (Feet)	SPL (dBA)
1 foot	84 dBA
2 feet	78 dBA
4 feet	72 dBA
8 feet	66 dBA
16 feet	60 dBA
32 feet	54 dBA

3. The above levels are based on factory recommended operating levels, which are preset for HME components and represent the optimum level for drive-thru operations in the majority of the installations.

Also, HME incorporates automatic volume control (AVC) into many of our Systems. AVC will adjust the outbound volume based on the outdoor, ambient noise level. When ambient noise levels naturally decrease at night, AVC will reduce the outbound volume on the system. See below for example:

Distance from Outside Speaker	Decibel Level of standard system with 45 dB of outside noise without AVC	Decibel level of standard system with 45 dB of outside noise with AVC active
1 foot	84 dBA	60 dBA
2 feet	78 dBA	54 dBA
4 feet	72 dBA	48 dBA
8 feet	66 dBA	42 dBA
16 feet	60 dBA	36 dBA

If there are any further questions regarding this issue please contact HME customer service at 1-800-848-4468.

Thank you for your interest in HME's products.

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

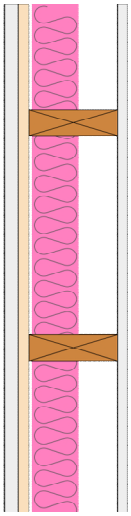
Appendix G

Sound Insulation Prediction Results

Sound Insulation Prediction (v9.0.20)

Margin of error is generally within STC ±3 dB
- Key No. 1866
Job Name:
Job No.: Initials:mouwenga
Date:8/26/2020
File Name:

Notes:



STC 38
OITC 30

Mass-air-mass resonant frequency = =45 Hz

Panel Size = 8.9 ft x 13.1 ft

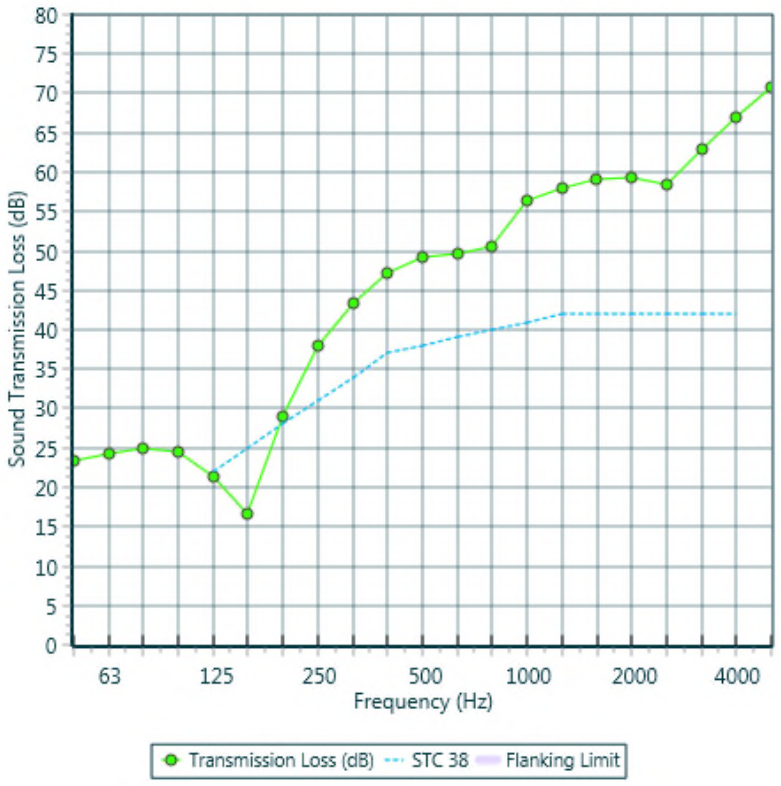
Partition surface mass = 14.4 lb/ft2

System description

Panel 1 : 1 x 0.87 in -Coat Plaster (sand:gypsum =3:1) + 1 x 0.6902 in Plywood

Frame: Timber stud (5.7 in x 1.8 in), Stud spacing 16 in ; Cavity Width 5.67 in , 1 x fiberglass (0.6 lb/ft3) Thickness 3.0 in
Panel 2 : 1 x 0.6299 in Type X Gypsum Board

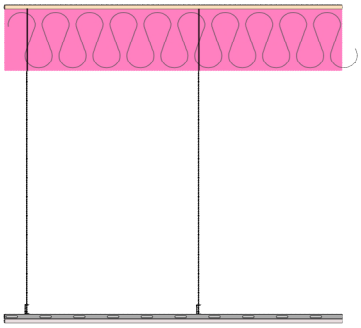
freq.(Hz)	TL(dB)	TL(dB)
50	23	
63	24	24
80	25	
100	25	
125	21	20
160	17	
200	29	
250	38	33
315	43	
400	47	
500	49	49
630	50	
800	51	
1000	56	54
1250	58	
1600	59	
2000	59	59
2500	58	
3150	63	
4000	67	66
5000	71	



Sound Insulation Prediction (v9.0.20)

Margin of error is generally within STC ±3 dB
- Key No. 1866
Job Name:
Job No.: Initials:
Date:8/26/2020
File Name:

Notes:



STC 49
OITC 39

Mass-air-mass resonant frequency = =29 Hz

Panel Size = 8.9 ft x 13.1 ft

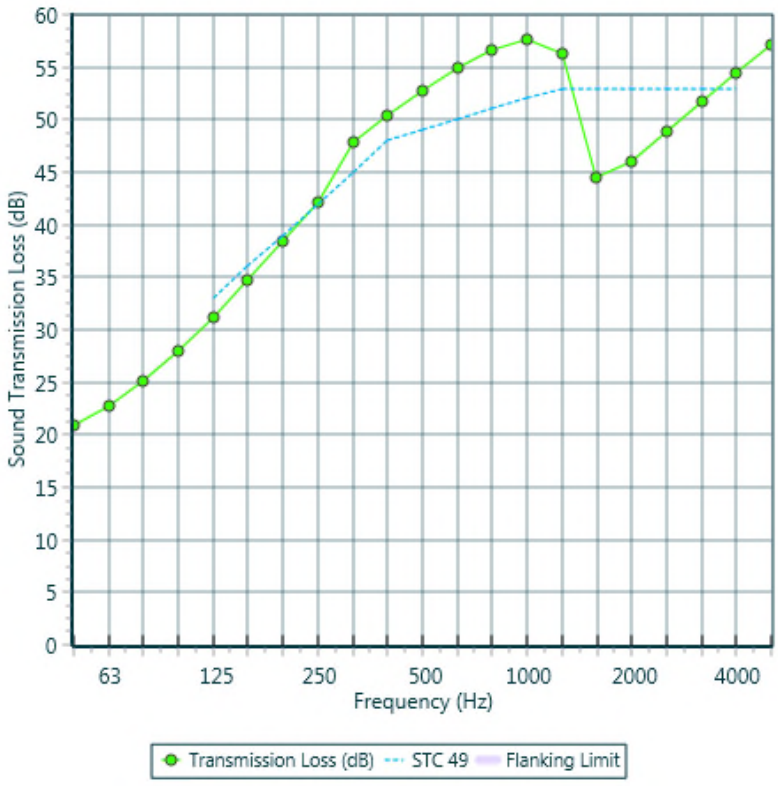
Partition surface mass = 3.65 lb/ft2

System description

Panel 1 : 1 x 0.63 in Plywood

Frame: Timber stud (48 in x 1.6 in), Stud spacing 24 in ; Cavity Width 48 in , 1 x fiberglass (1.4 lb/ft3) Thickness 9.5 in
Panel 2 : 1 x 0.6252 in Mineral fiber ceiling tile (Generic 0.8lbs/ft

freq.(Hz)	TL(dB)	TL(dB)
50	21	
63	23	23
80	25	
100	28	
125	31	30
160	35	
200	38	
250	42	41
315	48	
400	50	
500	53	52
630	55	
800	57	
1000	58	57
1250	56	
1600	45	
2000	46	46
2500	49	
3150	52	
4000	55	54
5000	57	



Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix H

Exterior-to-Interior Noise Analysis

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Building: Starbucks
Room Name: Cafe

Wall 1 of 3

Room Type : **Medium**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Fairly Absorptive Room
Room Absorption (Sabins) :	649	649	649	649	812	812	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**63.5**	**dBA**	46.8	52.3	54.8	58.8	58.8	52.8	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**63.5**	**dBA**	46.8	52.3	54.8	58.8	58.8	52.8	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Typical Exterior Wall	N	41	12	1	164.0	20	33	49	54	59	66
Window, Insulated Dual-Glazed (STC 25)	N	9.5	8	3	228.0	14	21	24	22	30	29
Single Pane Glass Door (STC 20)	N	10	10	1	100.0	12	19	21	19	27	26
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **22** ft **Overall Area:** **492** ft²
Volume: **10824** ft³
Number of Impacted Walls: **3**

Windows Open		
Interior Noise Level:	**45.1**	**dBA**
Windows Closed		
Interior Noise Level:	**45.1**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
46.8	52.3	54.8	58.8	58.8	52.8	: Exterior Wall Noise Exposure
14.6	21.9	24.6	22.6	30.6	29.6	: Transmission Loss
26.9	26.9	26.9	26.9	26.9	26.9	: Wall Surface Area Factor
28.1	28.1	28.1	28.1	29.1	29.1	: Absorption
31.0	29.2	29.0	35.0	26.0	21.0	: Noise Level
38.2	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
46.8	52.3	54.8	58.8	58.8	52.8	: Exterior Wall Noise Exposure
14.6	21.9	24.6	22.6	30.6	29.6	: Transmission Loss
26.9	26.9	26.9	26.9	26.9	26.9	: Wall Surface Area Factor
28.1	28.1	28.1	28.1	29.1	29.1	: Absorption
31.0	29.2	29.0	35.0	26.0	21.0	: Noise Level
38.2	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210 **Wall 2 of 3**
Project #: L200702
Building: Starbucks
Room Name: Cafe

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**72.0**	**dBA**	55.3	60.8	63.3	67.3	67.3	61.3	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**72.0**	**dBA**	55.3	60.8	63.3	67.3	67.3	61.3	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Typical Exterior Wall	N	20	12	1	40.0	20	33	49	54	59	66
Window, Insulated Dual-Glazed (STC 25)	N	17	10	1	170.0	14	21	24	22	30	29
Single Pane Glass Door (STC 20)	N	3	10	1	30.0	12	19	21	19	27	26
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **240** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.3	60.8	63.3	67.3	67.3	61.3	: Exterior Wall Noise Exposure
14.2	21.4	24.2	22.2	30.2	29.2	: Transmission Loss
23.8	23.8	23.8	23.8	23.8	23.8	: Wall Surface Area Factor
28.1	28.1	28.1	28.1	29.1	29.1	: Absorption
36.8	35.1	34.8	40.8	31.8	26.8	: Noise Level
44.0	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
55.3	60.8	63.3	67.3	67.3	61.3	: Exterior Wall Noise Exposure
14.2	21.4	24.2	22.2	30.2	29.2	: Transmission Loss
23.8	23.8	23.8	23.8	23.8	23.8	: Wall Surface Area Factor
28.1	28.1	28.1	28.1	29.1	29.1	: Absorption
36.8	35.1	34.8	40.8	31.8	26.8	: Noise Level
44.0	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210 **Wall 3 of 3**
Project #: L200702
Building: Starbucks
Room Name: Cafe

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**73.6**	**dBA**	56.9	62.4	64.9	68.9	68.9	62.9	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**73.6**	**dBA**	56.9	62.4	64.9	68.9	68.9	62.9	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 49 Typical Roof/Ceiling Assembly	N	41	22	1	902.0	30	41	52	57	46	54
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **902** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.9	62.4	64.9	68.9	68.9	62.9	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
29.6	29.6	29.6	29.6	29.6	29.6	: Wall Surface Area Factor
28.1	28.1	28.1	28.1	29.1	29.1	: Absorption
28.3	22.8	14.3	13.3	23.4	9.4	: Noise Level
30.6	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.9	62.4	64.9	68.9	68.9	62.9	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
29.6	29.6	29.6	29.6	29.6	29.6	: Wall Surface Area Factor
28.1	28.1	28.1	28.1	29.1	29.1	: Absorption
28.3	22.8	14.3	13.3	23.4	9.4	: Noise Level
30.6	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Building: Starbucks
Room Name: Backbar

Wall 1 of 3

Room Type : **Medium**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Fairly Absorptive Room
Room Absorption (Sabins) :	246	246	246	246	308	308	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**68.8**	**dBA**	52.1	57.6	60.1	64.1	64.1	58.1	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**68.8**	**dBA**	52.1	57.6	60.1	64.1	64.1	58.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Typical Exterior Wall	N	38	12	1	391.0	20	33	49	54	59	66
Window, Insulated Dual-Glazed (STC 25)	N	13	5	1	65.0	14	21	24	22	30	29
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **9** ft **Overall Area:** **456** ft^2
Volume: **4104** ft^3
Number of Impacted Walls: **3**

Windows Open
Interior Noise Level: **41.3** **dBA**

Windows Closed
Interior Noise Level: **41.3** **dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.1	57.6	60.1	64.1	64.1	58.1	: Exterior Wall Noise Exposure
18.5	28.1	32.4	30.4	38.4	37.5	: Transmission Loss
26.6	26.6	26.6	26.6	26.6	26.6	: Wall Surface Area Factor
23.9	23.9	23.9	23.9	24.9	24.9	: Absorption
36.3	32.2	30.4	36.3	27.4	22.4	: Noise Level

40.8 **dBA** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.1	57.6	60.1	64.1	64.1	58.1	: Exterior Wall Noise Exposure
18.5	28.1	32.4	30.4	38.4	37.5	: Transmission Loss
26.6	26.6	26.6	26.6	26.6	26.6	: Wall Surface Area Factor
23.9	23.9	23.9	23.9	24.9	24.9	: Absorption
36.3	32.2	30.4	36.3	27.4	22.4	: Noise Level

40.8 **dBA** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Wall 2 of 3
Project #: L200702
Building: Starbucks
Room Name: Backbar

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**63.5**	**dBA**	46.8	52.3	54.8	58.8	58.8	52.8	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**63.5**	**dBA**	46.8	52.3	54.8	58.8	58.8	52.8	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Typical Exterior Wall	N	10	12	1	120.0	20	33	49	54	59	66
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **120** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
46.8	52.3	54.8	58.8	58.8	52.8	: Exterior Wall Noise Exposure
20.0	33.0	49.0	54.0	59.0	66.0	: Transmission Loss
20.8	20.8	20.8	20.8	20.8	20.8	: Wall Surface Area Factor
23.9	23.9	23.9	23.9	24.9	24.9	: Absorption
23.7	16.2	2.7	1.7	-4.3	-17.3	: Noise Level
24.5	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
46.8	52.3	54.8	58.8	58.8	52.8	: Exterior Wall Noise Exposure
20.0	33.0	49.0	54.0	59.0	66.0	: Transmission Loss
20.8	20.8	20.8	20.8	20.8	20.8	: Wall Surface Area Factor
23.9	23.9	23.9	23.9	24.9	24.9	: Absorption
23.7	16.2	2.7	1.7	-4.3	-17.3	: Noise Level
24.5	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Wall 3 of 3
Project #: L200702
Building: Starbucks
Room Name: Backbar

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**73.6**	**dBA**	56.9	62.4	64.9	68.9	68.9	62.9	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**73.6**	**dBA**	56.9	62.4	64.9	68.9	68.9	62.9	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 49 Typical Roof/Ceiling Assembly	N	38	9	1	342.0	30	41	52	57	46	54
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: 342 ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.9	62.4	64.9	68.9	68.9	62.9	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
25.3	25.3	25.3	25.3	25.3	25.3	: Wall Surface Area Factor
23.9	23.9	23.9	23.9	24.9	24.9	: Absorption
28.3	22.8	14.3	13.3	23.4	9.4	: Noise Level
30.6	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.9	62.4	64.9	68.9	68.9	62.9	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
25.3	25.3	25.3	25.3	25.3	25.3	: Wall Surface Area Factor
23.9	23.9	23.9	23.9	24.9	24.9	: Absorption
28.3	22.8	14.3	13.3	23.4	9.4	: Noise Level
30.6	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Building: Starbucks
Room Name: Workroom / Storage

Wall 1 of 3

Room Type : **Medium**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Fairly Absorptive Room
Room Absorption (Sabins) :	341	341	341	341	426	426	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**73.9**	**dBA**	57.2	62.7	65.2	69.2	69.2	63.2	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**73.9**	**dBA**	57.2	62.7	65.2	69.2	69.2	63.2	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Typical Exterior Wall	N	43	12	1	451.0	20	33	49	54	59	66
Window, Insulated Dual-Glazed (STC 25)	N	13	5	1	65.0	14	21	24	22	30	29
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **11** ft

Overall Area: **516** ft²

Volume: **5676** ft³

Number of Impacted Walls: **3**

Windows Open		
Interior Noise Level:	**45.0**	**dBA**
Windows Closed		
Interior Noise Level:	**45.0**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
57.2	62.7	65.2	69.2	69.2	63.2	: Exterior Wall Noise Exposure
18.6	28.4	32.9	31.0	39.0	38.0	: Transmission Loss
27.1	27.1	27.1	27.1	27.1	27.1	: Wall Surface Area Factor
25.3	25.3	25.3	25.3	26.3	26.3	: Absorption
40.4	36.1	34.1	40.0	31.1	26.1	: Noise Level
44.7	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
57.2	62.7	65.2	69.2	69.2	63.2	: Exterior Wall Noise Exposure
18.6	28.4	32.9	31.0	39.0	38.0	: Transmission Loss
27.1	27.1	27.1	27.1	27.1	27.1	: Wall Surface Area Factor
25.3	25.3	25.3	25.3	26.3	26.3	: Absorption
40.4	36.1	34.1	40.0	31.1	26.1	: Noise Level
44.7	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210 **Wall 2 of 3**
Project #: L200702
Building: Starbucks
Room Name: Workroom / Storage

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**68.8**	**dBA**	52.1	57.6	60.1	64.1	64.1	58.1	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**68.8**	**dBA**	52.1	57.6	60.1	64.1	64.1	58.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Typical Exterior Wall	N	12	12	1	144.0	20	33	49	54	59	66
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: 144 ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.1	57.6	60.1	64.1	64.1	58.1	: Exterior Wall Noise Exposure
20.0	33.0	49.0	54.0	59.0	66.0	: Transmission Loss
21.6	21.6	21.6	21.6	21.6	21.6	: Wall Surface Area Factor
25.3	25.3	25.3	25.3	26.3	26.3	: Absorption
28.4	20.9	7.4	6.4	0.4	-12.6	: Noise Level
29.1	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
52.1	57.6	60.1	64.1	64.1	58.1	: Exterior Wall Noise Exposure
20.0	33.0	49.0	54.0	59.0	66.0	: Transmission Loss
21.6	21.6	21.6	21.6	21.6	21.6	: Wall Surface Area Factor
25.3	25.3	25.3	25.3	26.3	26.3	: Absorption
28.4	20.9	7.4	6.4	0.4	-12.6	: Noise Level
29.1	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210 **Wall 3 of 3**
Project #: L200702
Building: Starbucks
Room Name: Workroom / Storage

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**73.6**	**dBA**	56.9	62.4	64.9	68.9	68.9	62.9	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**73.6**	**dBA**	56.9	62.4	64.9	68.9	68.9	62.9	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 49 Typical Roof/Ceiling Assembly	N	43	11	1	473.0	30	41	52	57	46	54
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **473** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.9	62.4	64.9	68.9	68.9	62.9	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
26.7	26.7	26.7	26.7	26.7	26.7	: Wall Surface Area Factor
25.3	25.3	25.3	25.3	26.3	26.3	: Absorption
28.3	22.8	14.3	13.3	23.4	9.4	: Noise Level
30.6	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
56.9	62.4	64.9	68.9	68.9	62.9	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
26.7	26.7	26.7	26.7	26.7	26.7	: Wall Surface Area Factor
25.3	25.3	25.3	25.3	26.3	26.3	: Absorption
28.3	22.8	14.3	13.3	23.4	9.4	: Noise Level
30.6	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Building: Chick-fil-A
Room Name: Dining / Order / Serving

Room Type : **Medium**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Fairly Absorptive Room
Room Absorption (Sabins) :	1339	1339	1339	1339	1674	1674	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**68.0**	**dBA**	51.3	56.8	59.3	63.3	63.3	57.3	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**68.0**	**dBA**	51.3	56.8	59.3	63.3	63.3	57.3	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Typical Exterior Wall	N	60	12	1	399.5	20	33	49	54	59	66
Window, Insulated Dual-Glazed (STC 25)	N	10	8	3	240.0	14	21	24	22	30	29
Window, Insulated Dual-Glazed (STC 25)	N	6.5	8	1	52.0	14	21	24	22	30	29
Window, Insulated Dual-Glazed (STC 25)	N	3	2.5	1	7.5	14	21	24	22	30	29
Single Pane Glass Door (STC 20)	N	3	7	1	21.0	12	19	21	19	27	26
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **31** ft **Overall Area:** **720** ft²
Volume: **22320** ft³

Number of Impacted Walls: **3**

Windows Open		
Interior Noise Level:	**42.0**	**dBA**
Windows Closed		
Interior Noise Level:	**42.0**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
51.3	56.8	59.3	63.3	63.3	57.3	: Exterior Wall Noise Exposure
16.2	24.0	27.2	25.2	33.2	32.2	: Transmission Loss
28.6	28.6	28.6	28.6	28.6	28.6	: Wall Surface Area Factor
31.3	31.3	31.3	31.3	32.2	32.2	: Absorption
32.4	30.1	29.4	35.4	26.4	21.4	: Noise Level
38.8	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
51.3	56.8	59.3	63.3	63.3	57.3	: Exterior Wall Noise Exposure
16.2	24.0	27.2	25.2	33.2	32.2	: Transmission Loss
28.6	28.6	28.6	28.6	28.6	28.6	: Wall Surface Area Factor
31.3	31.3	31.3	31.3	32.2	32.2	: Absorption
32.4	30.1	29.4	35.4	26.4	21.4	: Noise Level
38.8	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210 **Wall 2 of 3**
Project #: L200702
Building: Chick-fil-A
Room Name: Dining / Order / Serving

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**68.2**	**dBA**	51.5	57.0	59.5	63.5	63.5	57.5	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**68.2**	**dBA**	51.5	57.0	59.5	63.5	63.5	57.5	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Typical Exterior Wall	N	49	12	1	345.4	20	33	49	54	59	66
Window, Insulated Dual-Glazed (STC 25)	N	10	8	2	160.0	14	21	24	22	30	29
Window, Insulated Dual-Glazed (STC 25)	N	3.2	8	1	25.6	14	21	24	22	30	29
Window, Insulated Dual-Glazed (STC 25)	N	3	2.5	2	15.0	14	21	24	22	30	29
Single Pane Glass Door (STC 20)	N	3	7	2	42.0	12	19	21	19	27	26
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **588** ft^2

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
51.5	57.0	59.5	63.5	63.5	57.5	: Exterior Wall Noise Exposure
16.2	24.1	27.1	25.2	33.1	32.2	: Transmission Loss
27.7	27.7	27.7	27.7	27.7	27.7	: Wall Surface Area Factor
31.3	31.3	31.3	31.3	32.2	32.2	: Absorption
31.7	29.3	28.8	34.8	25.8	20.8	: Noise Level
38.2	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
51.5	57.0	59.5	63.5	63.5	57.5	: Exterior Wall Noise Exposure
16.2	24.1	27.1	25.2	33.1	32.2	: Transmission Loss
27.7	27.7	27.7	27.7	27.7	27.7	: Wall Surface Area Factor
31.3	31.3	31.3	31.3	32.2	32.2	: Absorption
31.7	29.3	28.8	34.8	25.8	20.8	: Noise Level
38.2	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210 **Wall 3 of 3**
Project #: L200702
Building: Chick-fil-A
Room Name: Dining / Order / Serving

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**75.2**	**dBA**	58.5	64.0	66.5	70.5	70.5	64.5	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**75.2**	**dBA**	58.5	64.0	66.5	70.5	70.5	64.5	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 49 Typical Roof/Ceiling Assembly	N	60	31	1	1860.0	30	41	52	57	46	54
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **1860** ft^2

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
58.5	64.0	66.5	70.5	70.5	64.5	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
32.7	32.7	32.7	32.7	32.7	32.7	: Wall Surface Area Factor
31.3	31.3	31.3	31.3	32.2	32.2	: Absorption
29.9	24.4	15.9	14.9	25.0	11.0	: Noise Level
32.2	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
58.5	64.0	66.5	70.5	70.5	64.5	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
32.7	32.7	32.7	32.7	32.7	32.7	: Wall Surface Area Factor
31.3	31.3	31.3	31.3	32.2	32.2	: Absorption
29.9	24.4	15.9	14.9	25.0	11.0	: Noise Level
32.2	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Building: Chick-fil-A
Room Name: Dining / Order / Serving

Wall 1 of 3

Room Type : **Medium Soft**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.6	0.6	0.6	0.6	0.5	0.5	: Moderately Absorptive Room
Room Absorption (Sabins) :	248	248	248	248	298	298	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**75.9**	**dBA**	59.2	64.7	67.2	71.2	71.2	65.2	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**75.9**	**dBA**	59.2	64.7	67.2	71.2	71.2	65.2	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Typical Exterior Wall	N	23	12	1	221.0	20	33	49	54	59	66
Window, Insulated Dual-Glazed (STC 25)	N	11	5	1	55.0	14	21	24	22	30	29
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **11** ft **Overall Area:** **276** ft²
Volume: **3036** ft³

Number of Impacted Walls: **3**

Windows Open		
Interior Noise Level:	**49.1**	**dBA**
Windows Closed		
Interior Noise Level:	**49.1**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
59.2	64.7	67.2	71.2	71.2	65.2	: Exterior Wall Noise Exposure
18.0	27.0	31.0	29.0	37.0	36.0	: Transmission Loss
24.4	24.4	24.4	24.4	24.4	24.4	: Wall Surface Area Factor
23.9	23.9	23.9	23.9	24.7	24.7	: Absorption
41.7	38.1	36.7	42.7	33.9	28.9	: Noise Level
46.8	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
59.2	64.7	67.2	71.2	71.2	65.2	: Exterior Wall Noise Exposure
18.0	27.0	31.0	29.0	37.0	36.0	: Transmission Loss
24.4	24.4	24.4	24.4	24.4	24.4	: Wall Surface Area Factor
23.9	23.9	23.9	23.9	24.7	24.7	: Absorption
41.7	38.1	36.7	42.7	33.9	28.9	: Noise Level
46.8	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210 **Wall 2 of 3**
Project #: L200702
Building: Chick-fil-A
Room Name: Dining / Order / Serving

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**75.9**	**dBA**	59.2	64.7	67.2	71.2	71.2	65.2	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**75.9**	**dBA**	59.2	64.7	67.2	71.2	71.2	65.2	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Typical Exterior Wall	N	12.6	12	1	130.2	20	33	49	54	59	66
Single Pane Glass Door (STC 20)	N	3	7	1	21.0	12	19	21	19	27	26
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **151.2** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
59.2	64.7	67.2	71.2	71.2	65.2	: Exterior Wall Noise Exposure
17.6	26.6	29.5	27.6	35.6	34.6	: Transmission Loss
21.8	21.8	21.8	21.8	21.8	21.8	: Wall Surface Area Factor
23.9	23.9	23.9	23.9	24.7	24.7	: Absorption
39.5	35.9	35.5	41.5	32.7	27.7	: Noise Level
45.2	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
59.2	64.7	67.2	71.2	71.2	65.2	: Exterior Wall Noise Exposure
17.6	26.6	29.5	27.6	35.6	34.6	: Transmission Loss
21.8	21.8	21.8	21.8	21.8	21.8	: Wall Surface Area Factor
23.9	23.9	23.9	23.9	24.7	24.7	: Absorption
39.5	35.9	35.5	41.5	32.7	27.7	: Noise Level
45.2	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210 **Wall 3 of 3**
Project #: L200702
Building: Chick-fil-A
Room Name: Dining / Order / Serving

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**75.2**	**dBA**	58.5	64.0	66.5	70.5	70.5	64.5	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**75.2**	**dBA**	58.5	64.0	66.5	70.5	70.5	64.5	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 49 Typical Roof/Ceiling Assembly	N	21	13	1	273.0	30	41	52	57	46	54
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **273** ft^2

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
58.5	64.0	66.5	70.5	70.5	64.5	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
24.4	24.4	24.4	24.4	24.4	24.4	: Wall Surface Area Factor
23.9	23.9	23.9	23.9	24.7	24.7	: Absorption
28.9	23.4	14.9	13.9	24.1	10.1	: Noise Level
31.2	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
58.5	64.0	66.5	70.5	70.5	64.5	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
24.4	24.4	24.4	24.4	24.4	24.4	: Wall Surface Area Factor
23.9	23.9	23.9	23.9	24.7	24.7	: Absorption
28.9	23.4	14.9	13.9	24.1	10.1	: Noise Level
31.2	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Building: Chick-fil-A
Room Name: Kitchen

Wall 1 of 2

Room Type : **Medium Hard**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.8	0.8	0.8	0.8	0.7	0.7	: Fairly Absorptive Room
Room Absorption (Sabins) :	1077	1077	1077	1077	1346	1346	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**75.9**	**dBA**	59.2	64.7	67.2	71.2	71.2	65.2	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**75.9**	**dBA**	59.2	64.7	67.2	71.2	71.2	65.2	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Typical Exterior Wall	N	44	12	1	488.0	20	33	49	54	59	66
Window, Insulated Dual-Glazed (STC 25)	N	10	2	2	40.0	14	21	24	22	30	29
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **34** ft **Overall Area:** **528** ft²
Volume: **17952** ft³
Number of Impacted Walls: **2**

Windows Open		
Interior Noise Level:	**41.0**	**dBA**
Windows Closed		
Interior Noise Level:	**41.0**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
59.2	64.7	67.2	71.2	71.2	65.2	: Exterior Wall Noise Exposure
19.1	29.7	35.0	33.2	41.1	40.2	: Transmission Loss
27.2	27.2	27.2	27.2	27.2	27.2	: Wall Surface Area Factor
30.3	30.3	30.3	30.3	31.3	31.3	: Absorption
37.0	31.9	29.1	34.9	26.0	20.9	: Noise Level
40.4	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
59.2	64.7	67.2	71.2	71.2	65.2	: Exterior Wall Noise Exposure
19.1	29.7	35.0	33.2	41.1	40.2	: Transmission Loss
27.2	27.2	27.2	27.2	27.2	27.2	: Wall Surface Area Factor
30.3	30.3	30.3	30.3	31.3	31.3	: Absorption
37.0	31.9	29.1	34.9	26.0	20.9	: Noise Level
40.4	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Wall 2 of 2
Project #: L200702
Building: Chick-fil-A
Room Name: Kitchen

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**75.2**	**dBA**	58.5	64.0	66.5	70.5	70.5	64.5	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**75.2**	**dBA**	58.5	64.0	66.5	70.5	70.5	64.5	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 49 Typical Roof/Ceiling Assembly	N	44	34	1	1496.0	30	41	52	57	46	54
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: **1496** ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
58.5	64.0	66.5	70.5	70.5	64.5	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
31.7	31.7	31.7	31.7	31.7	31.7	: Wall Surface Area Factor
30.3	30.3	30.3	30.3	31.3	31.3	: Absorption
29.9	24.4	15.9	14.9	25.0	11.0	: Noise Level
32.2	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
58.5	64.0	66.5	70.5	70.5	64.5	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
31.7	31.7	31.7	31.7	31.7	31.7	: Wall Surface Area Factor
30.3	30.3	30.3	30.3	31.3	31.3	: Absorption
29.9	24.4	15.9	14.9	25.0	11.0	: Noise Level
32.2	**dBA**	WINDOWS CLOSED				

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Building: Chick-fil-A
Room Name: Service

Wall 1 of 2

Room Type : **Medium Soft**

	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Reverberation Time (sec) :	0.6	0.6	0.6	0.6	0.5	0.5	: Moderately Absorptive Room
Room Absorption (Sabins) :	118	118	118	118	141	141	

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**75.8**	**dBA**	59.1	64.6	67.1	71.1	71.1	65.1	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**75.8**	**dBA**	59.1	64.6	67.1	71.1	71.1	65.1	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 38 Typical Exterior Wall	N	10	12	1	79.2	20	33	49	54	59	66
Window, Insulated Dual-Glazed (STC 25)	N	4.3	2.5	1	10.8	14	21	24	22	30	29
1 3/4" Thick Solid Core Door	N	4.3	7	1	30.1	18	22	26	24	23	20
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Room Depth: **12** ft **Overall Area:** **120** ft^2

Volume: **1440** ft^3

Number of Impacted Walls: **2**

Windows Open Interior Noise Level:	**48.4**	**dBA**
Windows Closed Interior Noise Level:	**48.4**	**dBA**

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
59.1	64.6	67.1	71.1	71.1	65.1	: Exterior Wall Noise Exposure
18.5	25.8	30.0	28.1	28.7	25.8	: Transmission Loss
20.8	20.8	20.8	20.8	20.8	20.8	: Wall Surface Area Factor
20.7	20.7	20.7	20.7	21.5	21.5	: Absorption
40.7	38.9	37.2	43.1	41.7	38.6	: Noise Level

48.3 **dBA** WINDOWS OPEN

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
59.1	64.6	67.1	71.1	71.1	65.1	: Exterior Wall Noise Exposure
18.5	25.8	30.0	28.1	28.7	25.8	: Transmission Loss
20.8	20.8	20.8	20.8	20.8	20.8	: Wall Surface Area Factor
20.7	20.7	20.7	20.7	21.5	21.5	: Absorption
40.7	38.9	37.2	43.1	41.7	38.6	: Noise Level

48.3 **dBA** WINDOWS CLOSED

EXTERIOR TO INTERIOR NOISE REDUCTION ANALYSIS

Project Name: Chick-fil-A and Starbucks - Huntington and 210 **Wall 2 of 2**
Project #: L200702
Building: Chick-fil-A
Room Name: Service

		Noise Level		125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
Source 1:	**Traffic**	**75.2**	**dBA**	58.5	64.0	66.5	70.5	70.5	64.5	: Traffic Spectrum
Source 2:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 3:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Source 4:	**<N/A>**	**0.0**	**dBA**	0.0	0.0	0.0	0.0	0.0	0.0	
Overall:		**75.2**	**dBA**	58.5	64.0	66.5	70.5	70.5	64.5	: Effective Noise Spectrum

Assembly Type	Open	Width	Height	Qty	Total Area	125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz
STC 49 Typical Roof/Ceiling Assembly	N	10	12	1	120.0	30	41	52	57	46	54
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0
<N/A>	N	0	0	0	0.0	0	0	0	0	0	0

Overall Area: 120 ft²

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
58.5	64.0	66.5	70.5	70.5	64.5	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
20.8	20.8	20.8	20.8	20.8	20.8	: Wall Surface Area Factor
20.7	20.7	20.7	20.7	21.5	21.5	: Absorption
28.6	23.1	14.6	13.6	23.8	9.8	: Noise Level
30.9	**dBA**	WINDOWS OPEN				

125 Hz	250 Hz	500 Hz	1KHz	2KHz	4KHz	
58.5	64.0	66.5	70.5	70.5	64.5	: Exterior Wall Noise Exposure
30.0	41.0	52.0	57.0	46.0	54.0	: Transmission Loss
20.8	20.8	20.8	20.8	20.8	20.8	: Wall Surface Area Factor
20.7	20.7	20.7	20.7	21.5	21.5	: Absorption
28.6	23.1	14.6	13.6	23.8	9.8	: Noise Level
30.9	**dBA**	WINDOWS CLOSED				

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix I
Recommended Products

TECHNICAL DATA SHEET

Revision: August 7, 2018
Supersedes: November 13, 2015
Ref. #: 518327

DRAFT & ACOUSTICAL SOUND SEALANT

SC175

DESIGNED FOR USE ON SOUND-RATED WALL SYSTEMS

OSI SC175 Draft & Acoustical Sound Sealant is a non-flammable, latex-based sealant specially designed to reduce sound transmissions and drafts in all types of wall systems where a sound-rated assembly is required. Its primary function is to achieve and maintain the specific STC (Sound Transmission Class) value of the system designed. This paintable sealant remains flexible and adheres firmly to wood, metal studs, concrete, gypsum board and most other building materials. It is easy-to-use and cleans up easily with soap and water.

Available As:

Item #	Size	Color
1496542	28 fl oz (828 ml) cartridge	White

FEATURES & BENEFITS

- Designed for Use on Sound-Rated Wall Systems
- Reduces Draft & Sound Transmission
- Tested to UL 1479 and UL 2079 *****
- Tested to ASTM E84
- Stays Permanently Flexible
- VOC Compliant

RECOMMENDED FOR

- Developed primarily for commercial construction utilizing light weight cavity walls and floor systems
- Used for exposed and unexposed applications at perimeter joints, floor and ceiling runners, cutouts in gypsum board, veneer plaster systems and other areas where a sound rated assembly is required
- Sealant can also be applied or buttered around all electrical boxes and outlets, cold air returns, heating and air conditioning ducts and other utility equipment penetrating wall surfaces for increased acoustical performance
- Works well for sealing sill and base plates in residential construction and non-fire rated systems

LIMITATIONS

- SC175 must be applied in accordance with ASTM C919 (Standard Practice for Use of Sealants in Acoustical Applications
- Non-fire rated and fire rated systems. Refer to UL Fire Resistance Directory for testing details *****
- Not for use in underwater applications or permanent water immersion
- Do not use in applications requiring temperature resistance greater than 170°F
- Do not use on metals that will corrode
- Consult with manufacturer of adjoining materials for compatibility, including CPVC materials
- Not recommended for bonding two non-porous surfaces
- Not recommended for use with polyethylene, polypropylene, polytetrafluoroethylene (PTFE)/Teflon® or nylon

COVERAGE

For a 28 fl. oz. (825 ml) cartridge:	
▪ A 1/4” (6 mm) bead extrudes approximately 86 ft. (26 m)	▪ A 3/8” (9.5 mm) bead extrudes approximately 38 ft. (12 m)

TECHNICAL DATA

Typical Uncured Physical Properties:

Color:	White	**VOC Content:**	<1.0% by weight CARB 45 g/l SCAQMD rule 1168
Appearance:	Non-slumping paste		
Base:	Synthetic latex rubber	**Shelf Life:**	24 months from date of manufacture (unopened)
Odor:	Mild acrylic odor	**Lot Code Explanation**	**YYDDD** **YY=** Last two digits of year of manufacture **DDD=** Day of manufacture based on 365 days in a year
Specific Gravity:	1.59		
Flashpoint:	800.6° F (427°C)		
Freeze/Thaw Stability	3 Freeze/Thaw Cycles Unaffected by freezing once cured	**Example:**	18061 = 61st day of 2018 = March 2, 2018

Typical Application Properties:

Application Temperature:	Above 40°F (4°C)	
Open/Tooling Time	15 minutes*	
Tack-free Time:	30 minutes	
Cure Time:	2-7 days or longer*	* Cure time is dependent on temperature, humidity and depth of sealant applied
Sag or Slump:	0.10 inches	ASTM D2202

Typical Cured Performance Properties:

Color:	White	
Service Temperature:	-5°F (-21°C) to 170°F (77°C)	
Water Resistant:	Yes	
Paintable:	Yes, after 24 hours	
Surface Burning Characteristics:	Flame Spread Index: 0 Smoke Development: 0	ASTM E 84 Inorganic reinforced cement board
Sound Transmission Class:	Unsealed partition: STC = 15 Single bead of sealant used at top and bottom runners only – both sides of partition system: STC = 24 Single bead of sealant used at top, bottom and perimeter joints – both sides of system: STC = 45 Double Bead of Sealant used at top, bottom, and all perimeter edges - both sides of partition system: STC = 55	ASTM E 90
Low Temperature Flexibility After Artificial Weathering:	Pass with no cracking or adhesion loss	ASTM C734
Consistency Test:	300	ASTM D217
180° Peel Adhesion:		ASTM C794
Aluminum:	10.0 pli	7day cure @ 73°F & day cure @ 122°F
Wood:	8.0 pli	

TECHNICAL DATA SHEET

Revision: August 7, 2018
Supersedes: November 13, 2015
Ref. #: 518327

TECHNICAL DATA

Specifications:

UL File Number R39256

FILL, VOID OR CAVITY MATERIAL
FOR USE IN THROUGH-PENETRATION FIRESTOP
SYSTEMS & JOINT SYSTEMS
SEE UL FIRE RESISTANCE DIRECTORY
Control No. # R39256

Tested to or conforms to:

- **ASTM C834** – Standard Specification for Latex Sealants
- **ASTM E84, Class A** – Standard Test Method for Surface Burning Characteristics of Building Materials (Tested at UL under research project)
- **ASTM E90** – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
- **ASTM C919** – Standard Practice for Use of Sealants in Acoustical Applications
- **ASTM D217** – Standard Test Methods for Cone Penetration of Lubricating Grease
- *** UL 1479** (ASTM E814) – Standard for Fire Tests of Penetration Firestops
- *** UL 2079** (ASTM E1966) – Standard for Tests for Fire Resistance of Building Joint Systems
- GreenGuard® Certified

*** Refer to UL Fire Resistance Directory for design systems**

DIRECTIONS

Tools Typically Required:
Utility knife, caulking gun and tool to puncture inside seal of cartridge.

Safety Precautions:
Wear gloves.

Preparation:
The temperature of the product, the surfaces and the working area must be above 40°F (4°C). For best performance, apply sealant at 70°F (21°C). Ensure surfaces to be sealed are clean, dry, structurally sound and free of dust, grease, oil, and other foreign contaminants. Cut off tip of cartridge at a 45° angle to desired bead size (3/8" recommended). Puncture inside seal of cartridge.

Application:
Sealant should be applied as specified in the sound-rated system being installed (either wood or metal studs). Sealant must be applied in accordance with ASTM C 919. Maximum joint size should not exceed 5/8" (15.9 mm) width x ½" (12.7 mm) depth. If necessary, sealant can be painted as applicable to meet project requirements after 24 hours.

Bottom and Top Runners:
Apply a continuous 3/8" (9.5 mm) round bead of sealant on runners before setting gypsum board. Press gypsum board firmly into sealant, ensuring complete contact with adjacent materials. Fill joint on top runners to complete the seal. Repeat procedure for double-layer applications.

Cut-Outs and Perimeter Joints:
Backs of electrical boxes, pipes, duct systems and other types of utility equipment penetrating wall surfaces shall be buttered with sealant. Seal all joints at perimeter edges including abutting surfaces and corner joints.

For further application information, refer to ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications.

Clean-up:
Clean tools and uncured adhesive residue immediately with warm water and soap. Cured sealant may be carefully cut away with a sharp-edged tool.

STORAGE & DISPOSAL

DAMAGED BY FREEZING. Store in a cool, dry location at room temperature. For maximum shelf life store at 75°F (24°C). Take unwanted product to an approved household hazardous waste transfer facility. Hardened material may be disposed of with

LABEL PRECAUTIONS

CAUTION! Contains ethylene glycol, mineral spirits, and crystalline silica. May cause skin, eye and respiratory irritation. Avoid contact with eyes and skin. Avoid breathing vapors. Use with adequate ventilation. Do not swallow. FIRST AID: If swallowed do not induce vomiting, call a physician or Poison Control center immediately. For eye contact, flush with water for 15 minutes, call a physician. For skin contact, wash thoroughly with soap and water. **KEEP OUT OF REACH OF CHILDREN.**

WARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov.

Refer to the Safety Data Sheet (SDS) for further information.

LIMITED WARRANTY

This product is warranted to be free from defects in materials when used as directed. Henkel's sole obligation shall be, at its option, to replace or refund the purchase price of product proven to be defective. Henkel makes no other warranty, express or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE and will not be liable for consequential or incidental damages. This limited warranty gives you specific legal rights, which vary from state to state

DISCLAIMER

The information and recommendations contained herein are based on our research and are believed to be accurate, but no warranty, express or implied, is made or should be inferred. Henkel recommends purchasers/users should test the products to determine acceptable quality and suitability for the intended use. All adhesive/sealant applications should be tested under simulated or actual end use conditions to ensure the adhesive/sealant meets or exceeds all required project specifications. Since assembly conditions may be critical to adhesive/sealant performance, it is also recommended that testing be performed on specimens assembled under simulated or actual production conditions. Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

OSI Tougher than the Elements. For Professional Use Only. The Battle will be Fierce.
OSI works side by side with residential builders, contractors and remodeling professionals who use our products every day on their jobsites. OSI combines this deep understanding with the sophisticated global innovation and manufacturing excellence of Henkel to make the world's best professional-grade caulks, sealants and adhesives.

For Technical Assistance call: 1-800-624-7767 – Mon-Fri - 9:00a – 4:00p ET
www.ositough.com

OSI Brand is part of the Henkel family of brands. Founded in 1876, Henkel is a global leader in the consumer and industrial businesses. Henkel operates worldwide with leading brands and technologies in three business areas: Laundry & Home Care, Beauty Care and Adhesive Technologies.

Henkel Corporation - Professional & Consumer Adhesives Headquarters - Rocky Hill, CT 06067
www.henkelna.com

AC-20 FTR®

(Fire & Temperature Rated) Acoustical & Insulation Sealant

Specification Data Sheet

PECORA CORPORATION

BASIC USES

• AC-20 FTR® fire-rated systems are suitable for applications in schools, hospitals, churches, high-rise office buildings and hotels, prisons, sports arenas, and other public-use buildings to ensure a safe and orderly evacuation in the event of a fire.

2. MANUFACTURER

Pecora Corporation
165 Wambold Road
Harleysville, PA 19438
Phone: 215-723-6051
800-523-6688
Fax: 215-721-0286
Website: www.pecora.com

3. PRODUCT DESCRIPTION

AC-20 FTR® is a unique acrylic latex sealant that is UL® Classified in firestopping systems for expansion joints and through penetrations. When properly installed, these systems effectively contain fire, smoke, toxic fumes, and water within a given area surrounded by firewalls for a two, three, or four hour period, depending on the design specifications.

Other Uses: Excellent adhesive, flexibility and durability qualities make AC-20 FTR® ideal for insulating and weatherproofing around windows, doors, panels, siding, duct work, base plates, etc. It is compatible with all common building materials including specialties such as polystyrene, polyurethane, cork, vinyl, foamed and fibrous glass.

Used as an acoustical sealant, AC-20 FTR® reduces sound transmission in partition systems to achieve specific STC values by sealing spaces around cut-outs and at perimeters of partitions. The sealant cures to a tough rubber to form a long-lasting acoustical seal.

PACKAGING

• 30 fl. oz. (.887 liter) fiber cartridges
• 5-gallon (18.9 liter) pails

COLOR

• White, Beige-Gray
Special colors available in 250-gallon (946 liter) batches.

4. TECHNICAL DATA

Applicable Standards: ASTM C-834-86 specification for latex sealing compounds.

Fire Rated System: Two-hour Fire and Temperature Rated wall and floor joint systems up to 7" (178mm) wide and four-hour systems up to 4" wide can be designed with AC-20 FTR® in conjunction with Ultra Block fire blocking material in fire-rated walls and floors. Reference: ANSI/UL 263, ASTM E-119, NFPA No. 251.

UL CLASSIFIED

UNDERWRITERS LABORATORIES INC.® CLASSIFIED JOINT TREATMENT MATERIALS FIRE RESISTANCE CLASSIFICATION

DESIGNS J900H (FFS 0006) &U900 "O" (WWS 0010), J900Z (FFS 2002), U900Z-009 (WWS 2008), J900Z-007 (FFS 1010), U900Z-015 (WWS 1012)

AC-20 FTR® in conjunction with Ultra Block® achieves a 2-hour fire rating when sealing around steel or copper pipe and electrical metallic tubing or steel conduit in through penetration systems. Reference: ANSI/UL 1479, ASTM E-814.

FILL, VOID OR CAVITY MATERIALS CLASSIFIED BY UNDERWRITERS LABORATORIES INC. FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEM NO. CAJ 1093

In addition to its fire-blocking value, Ultra Block® is very efficient acoustically, having a noise reduction coefficient of .75 and sound transmission coefficient of .5 (Ultra Block® is a registered trademark of Backer Rod Mfg. and Supply Co., Denver, CO, USA.)

5. INSTALLATION

Surface Preparation: Surfaces must be free of all contamination. Sealant may be applied to damp, porous surfaces. No priming is required.

Application: Refer to Pecora Firestopping Manual 07270 and UL Fire Resistance Directory for installation details on fire-rated joint and through penetration systems. For insulating and weatherproofing purposes, fill all window, door, and panel perimeter joints using a resilient backer rod to control sealant depth to 1/2" (13mm) maximum. For best results, protect sealant from excessive low temperatures and apply above 40°F (4°C). For acoustical purposes, apply continuous

TYPICAL PHYSICAL PROPERTIES

Test Property	Value	Procedure
Modulus @ 100% (psi)	15-20	ASTM D412
Ultimate Tensile (psi)	30-40	ASTM D412
Ultimate Elongation (%)	400-500	ASTM D412
Movement Capability (%)	±7 1/2	ASTM D412
VOC Content	31 g/L	

beads of sealant to seal perimeters of all sound-rated partitions. Apply sealant in the angles formed by metal components or base-layer panels and abutting surfaces. Apply sealant around all openings formed for outlets; electrical, telephone, light fixtures, etc.

Tooling: Tool material flush with surfaces to allow for expected shrinkage and insure good contact and adhesion to the substrate.

Cleaning: Remove excess material with water or a damp cloth before it cures. Sealant may be painted within 30 minutes after application with a good grade of latex paint.

Shelf Life: AC-20 FTR® has a shelf life well in excess of one year when stored in unopened containers below 80° F (27°C).

Precautions: AC-20 FTR® is non-flammable, non-toxic, non-irritating and environmentally safe. However, do not take internally. Refer to Material Safety Data Sheet for additional information.

Ultra Block® is a non-carcinogenic processed continuous filament textile glass fiber that may cause skin, eye and respiratory irritation. When applying, wear long sleeves, gloves, cap, goggles or safety glasses and NIOSH/MSHA-approved dust respirator. After use bathe with soap and warm water. Wash clothes separately and rinse after use. Refer to Material Safety Data Sheet for additional information.

FOR PROFESSIONAL USE ONLY.
KEEP OUT OF THE REACH OF CHILDREN.

6. AVAILABILITY AND COST

Pecora products are available from our stocking distributors in all major cities. For the name and telephone number of your nearest representative call one of our locations listed below or visit our website at www.pecora.com.

7. WARRANTY

Pecora Corporation warrants its products to be free of defects. Under this warranty, we will provide, at no charge, replacement materials for, or refund the purchase price of, any product proven to be defective when installed in accordance with our published recommendations and in applications considered by us as suitable from this product. This warranty in lieu of any and all other warranties expressed or implied, and in no case will Pecora be liable for incidental or consequential damages.

8. MAINTENANCE

If the sealant is damaged and the bond is intact, cut out the damaged area and recaulk. No primer is required. If the bond has been affected, remove the sealant, clean and prepare the joint in accordance with instructions under "Installation".

9. TECHNICAL SERVICES

Pecora representatives are available to assist you in selecting an appropriate product and to provide on-site application instructions or to conduct jobsite inspections. For further assistance call our Technical Service Department at 800-523-6688.

ISO 9001:2000
KEMA CERTIFICATE
Accredited by ANSI-RAB NAP

PECORA CORPORATION
www.pecora.com
PEOPLE • PRODUCTS • PERFORMANCE

HARLEYSVILLE, PA
165 Wambold Road, Harleysville, PA 19438
Phone: 800-523-6688 • 215-723-6051 • FAX: 215-721-0286

DALLAS, TX
11501 Hillguard Road, Dallas, TX 75243
Phone: 800-233-9754 • 214-348-5313 • FAX: 214-348-5421

Eilar Associates, Inc.
Acoustical and Environmental Consulting Services

Appendix J

Project-Generated Traffic Noise Analysis and Results

EILAR ASSOCIATES, INC.
Acoustical and Environmental Consulting

Project-Generated Traffic Noise Impact Calculations

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Date: 3/17/2021

Intersection: Encino Avenue / Huntington Drive

AM Peak Hour Traffic

Approach	Existing		Project		Existing + Project	
	Volume	*Total*	*Volume*	*Total*	*Volume*	*Total*
North Right	29	64	34	34	63	98
North Straight	0		0		0	
North Left	5		0		5	
East Right	5	2685	0	133	5	2818
East Straight	1070		37		1107	
East Left	0		37		37	
South Right	0	0	0	37	0	37
South Straight	0		0		0	
South Left	0		0		0	
West Right	0	2729	0	130	0	2859
West Straight	1605		59		1664	
West Left	25		0		25	

Project Contribution	
North	**1.9**
East	**0.2**
South	**0.0**
West	**0.2**

Project-Generated Traffic Noise Impact Calculations

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Date: 3/17/2021

Intersection: Encino Avenue / Huntington Drive

PM Peak Hour Traffic

Approach	Existing		Project		Existing + Project	
	Volume	*Total*	*Volume*	*Total*	*Volume*	*Total*
North Right	27	118	31	31	58	149
North Straight	0		0		0	
North Left	9		0		9	
East Right	46	3110	0	103	46	3213
East Straight	1931		24		1955	
East Left	0		24		24	
South Right	0	0	0	24	0	24
South Straight	0		0		0	
South Left	0		0		0	
West Right	0	3118	0	110	0	3228
West Straight	1124		55		1179	
West Left	36		0		36	

Project Contribution	
North	**1.0**
East	**0.1**
South	**0.0**
West	**0.2**

EILAR ASSOCIATES, INC.
Acoustical and Environmental Consulting

Project-Generated Traffic Noise Impact Calculations

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Date: 3/17/2021

Intersection: I-210 Westbound Ramps / Huntington Drive

AM Peak Hour Traffic

Approach	Existing		Project		Existing + Project	
	Volume	*Total*	*Volume*	*Total*	*Volume*	*Total*
North Right	0	0	0	13	0	13
North Straight	0		0		0	
North Left	0		0		0	
East Right	0	2250	0	58	0	2308
East Straight	589		23		612	
East Left	32		0		32	
South Right	176	751	14	14	190	765
South Straight	0		0		0	
South Left	24		0		24	
West Right	519	2585	0	57	519	2642
West Straight	1453		21		1474	
West Left	0		13		13	

Project Contribution	
North	**0.0**
East	**0.1**
South	**0.1**
West	**0.1**

210 South Juniper Street, Suite 100, Escondido, California 92025 • Phone: 760-738-5570 • Fax: 760-738-5227 • info@eilarassociates.com

Project-Generated Traffic Noise Impact Calculations

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Date: 3/17/2021

Intersection: I-210 Westbound Ramps / Huntington Drive

PM Peak Hour Traffic

Approach	Existing		Project		Existing + Project	
	Volume	*Total*	*Volume*	*Total*	*Volume*	*Total*
North Right	0	0	0	11	0	11
North Straight	0		0		0	
North Left	0		0		0	
East Right	0	2542	0	41	0	2583
East Straight	1281		14		1295	
East Left	95		0		95	
South Right	376	1071	8	8	384	1079
South Straight	0		0		0	
South Left	103		0		103	
West Right	497	2671	0	44	497	2715
West Straight	790		19		809	
West Left	0		11		11	

Project Contribution	
North	**0.0**
East	**0.1**
South	**0.0**
West	**0.1**

EILAR ASSOCIATES, INC.
Acoustical and Environmental Consulting

Project-Generated Traffic Noise Impact Calculations

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Date: 3/17/2021

Intersection: Monterey Avenue / Huntington Drive

AM Peak Hour Traffic

Approach	Existing		Project		Existing + Project	
	Volume	*Total*	*Volume*	*Total*	*Volume*	*Total*
North Right	13	505	0	8	13	513
North Straight	163		0		163	
North Left	225		0		225	
East Right	33	2371	0	33	33	2404
East Straight	467		14		481	
East Left	26		0		26	
South Right	135	499	6	6	141	505
South Straight	58		0		58	
South Left	47		0		47	
West Right	70	2095	0	35	70	2130
West Straight	1485		13		1498	
West Left	13		8		21	

Project Contribution	
North	**0.1**
East	**0.1**
South	**0.1**
West	**0.1**

210 South Juniper Street, Suite 100, Escondido, California 92025 • Phone: 760-738-5570 • Fax: 760-738-5227 • info@eilarassociates.com

Project-Generated Traffic Noise Impact Calculations

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Date: 3/17/2021

Intersection: Monterey Avenue / Huntington Drive

PM Peak Hour Traffic

Approach	Existing		Project		Existing + Project	
	Volume	*Total*	*Volume*	*Total*	*Volume*	*Total*
North Right	20	608	0	11	20	619
North Straight	57		0		57	
North Left	119		0		119	
East Right	269	2559	0	41	269	2600
East Straight	1162		14		1176	
East Left	64		0		64	
South Right	93	470	8	8	101	478
South Straight	107		0		107	
South Left	75		0		75	
West Right	74	2219	0	44	74	2263
West Straight	852		19		871	
West Left	36		11		47	

Project Contribution	
North	**0.1**
East	**0.1**
South	**0.1**
West	**0.1**

EILAR ASSOCIATES, INC.
Acoustical and Environmental Consulting

Project-Generated Traffic Noise Impact Calculations

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Date: 3/17/2021

Intersection: Fifth Avenue / Huntington Drive

AM Peak Hour Traffic

Approach	Existing		Project		Existing + Project	
	Volume	*Total*	*Volume*	*Total*	*Volume*	*Total*
North Right	43	349	0	0	43	349
North Straight	16		0		16	
North Left	33		0		33	
East Right	58	2109	0	46	58	2155
East Straight	596		23		619	
East Left	52		0		52	
South Right	61	514	0	6	61	520
South Straight	27		0		27	
South Left	160		6		166	
West Right	198	2478	0	52	198	2530
West Straight	1309		23		1332	
West Left	172		0		172	

Project Contribution	
North	**0.0**
East	**0.1**
South	**0.1**
West	**0.1**

210 South Juniper Street, Suite 100, Escondido, California 92025 • Phone: 760-738-5570 • Fax: 760-738-5227 • info@eilarassociates.com

Project-Generated Traffic Noise Impact Calculations

Project Name: Chick-fil-A and Starbucks - Huntington and 210
Project #: L200702
Date: 3/17/2021

Intersection: Fifth Avenue / Huntington Drive

PM Peak Hour Traffic

Approach	Existing		Project		Existing + Project	
	Volume	*Total*	*Volume*	*Total*	*Volume*	*Total*
North Right	204	409	0	8	204	417
North Straight	47		0		47	
North Left	75		0		75	
East Right	21	2500	8	41	29	2541
East Straight	1464		19		1483	
East Left	75		0		75	
South Right	86	551	0	6	86	557
South Straight	16		0		16	
South Left	172		6		178	
West Right	155	2820	0	39	155	2859
West Straight	779		14		793	
West Left	46		0		46	

Project Contribution	
North	**0.1**
East	**0.1**
South	**0.0**
West	**0.1**