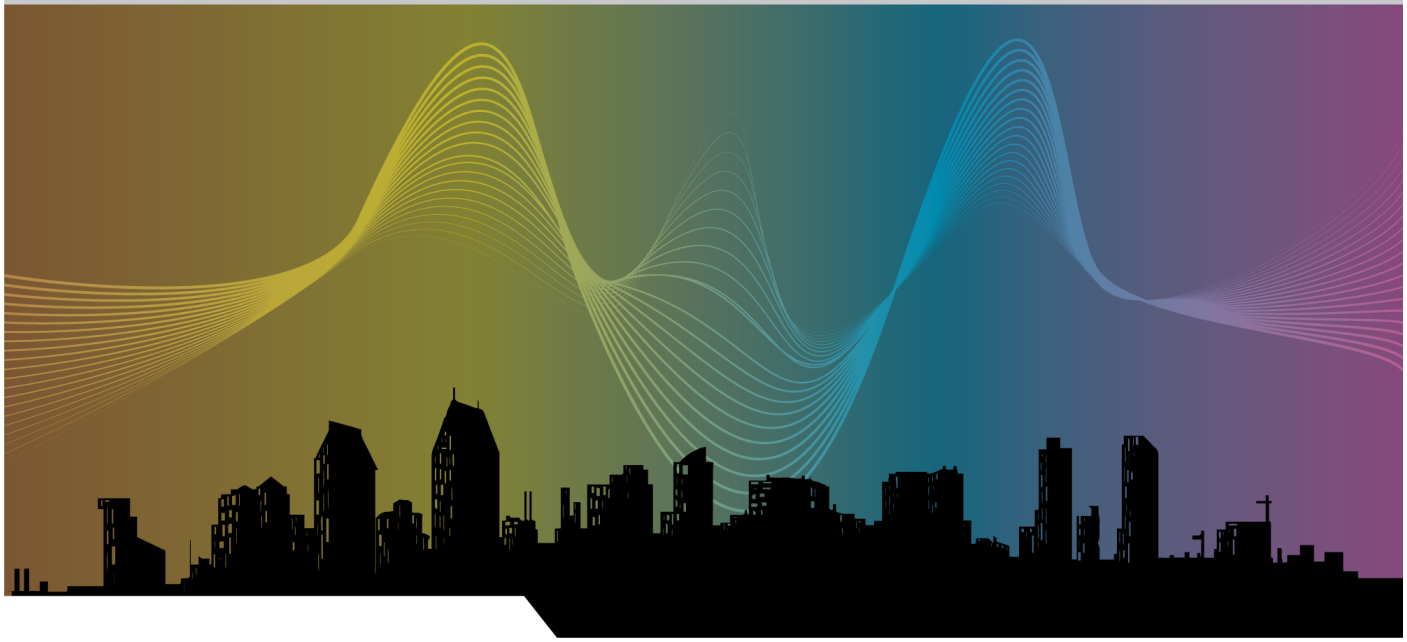
Exhibit D

Report #2019-003-B
Revised March 11, 2020



Noise Analysis

5005 Long Beach Boulevard Car Wash
Long Beach, California

Prepared for:
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1.0 Definitions

- **Noise** is undesired sound.
- **Sound** is defined as vibrations traveling through the air or another medium that can be heard when they reach the ear.
- **Decibel (dB)** is a unit used to measure the level of a sound by comparing it with a given reference level on a logarithmic scale. One decibel equals 10 times the common logarithm of the power ratio.
- "**A-Weighting**" is a frequency correction that correlates overall sound pressure levels with the frequency response of the human ear.
- **Lmax** is the highest sound pressure level during a measurement period.
- **L(N)** or L% is a statistical method of describing noise which accounts for variance in noise levels throughout a given measurement period. L(N) is a way of expressing the noise level exceeded for a percentage of time in a given measurement period. For example, since 5 minutes is 25% of 20 minutes, L(25) is the noise level that is equal to or exceeded for five minutes in a twenty-minute measurement period.

2.0 Introduction

This report addresses the potential noise impacts of the planned 5005 Long Beach Boulevard Car Wash on the adjacent properties. The car wash location is shown in Figure 1. The site plan is shown in Figure 2. Figure 3 depicts the project site on an aerial with the adjacent school shown. The facility is planning to use Motor City Air One blowers. Noise levels from the proposed car wash will be determined at the adjacent school. These noise levels will then be compared to the City of Long Beach Noise Ordinance limits.

3.0 Noise Standards

The project site is adjacent to the Dooley Elementary School to the north. Section 8.80.150 of the Long Beach Noise Ordinance specifies the City's exterior noise standards. Section 8.80.170 of the Noise Ordinance specifies the interior noise standards.

The criteria contained in the City's Noise Ordinance are given in terms of allowable noise levels for a given period of time at the affected property. It is our understanding that the City will require noise levels at the school playground to meet the exterior standards. The interior standards would apply at the school buildings. These standards are applied any time school is in session. The City of Long Beach Noise Ordinance limits are presented below in Table 1 and Table 2.

Figure 1 – Project Location

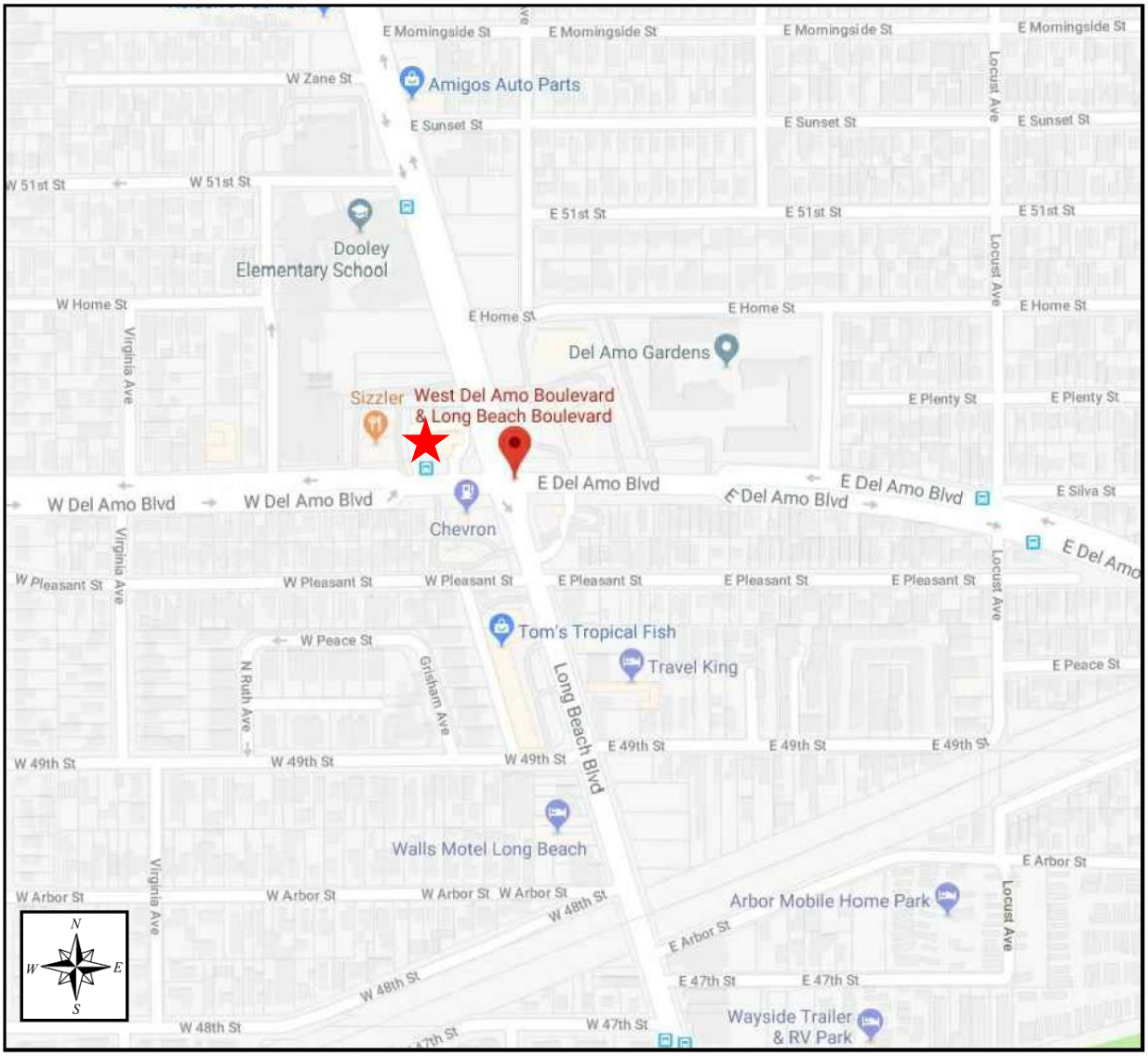


Figure 2 – Project Site Plan

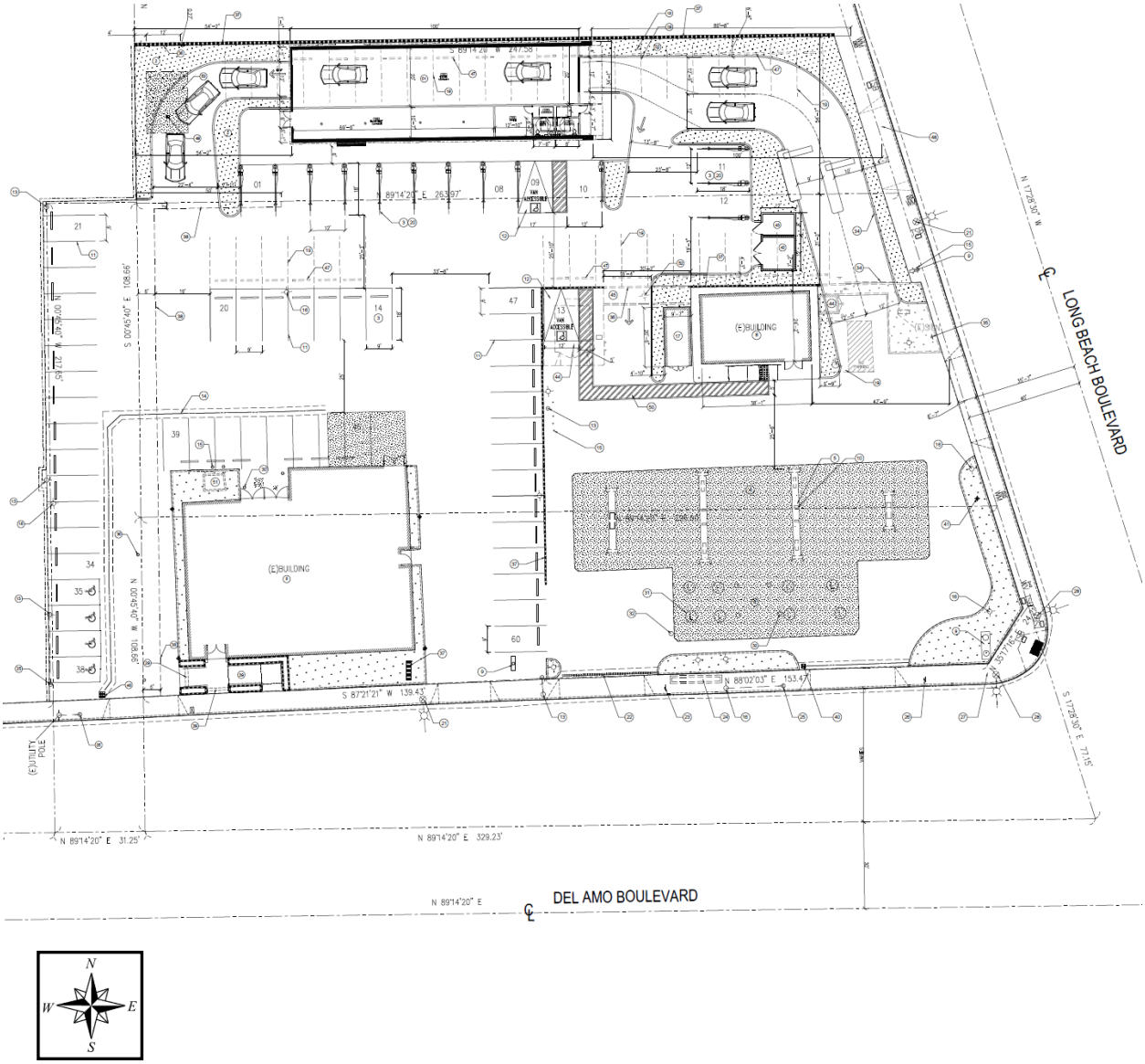


Figure 3 – Project Site Plan on Aerial

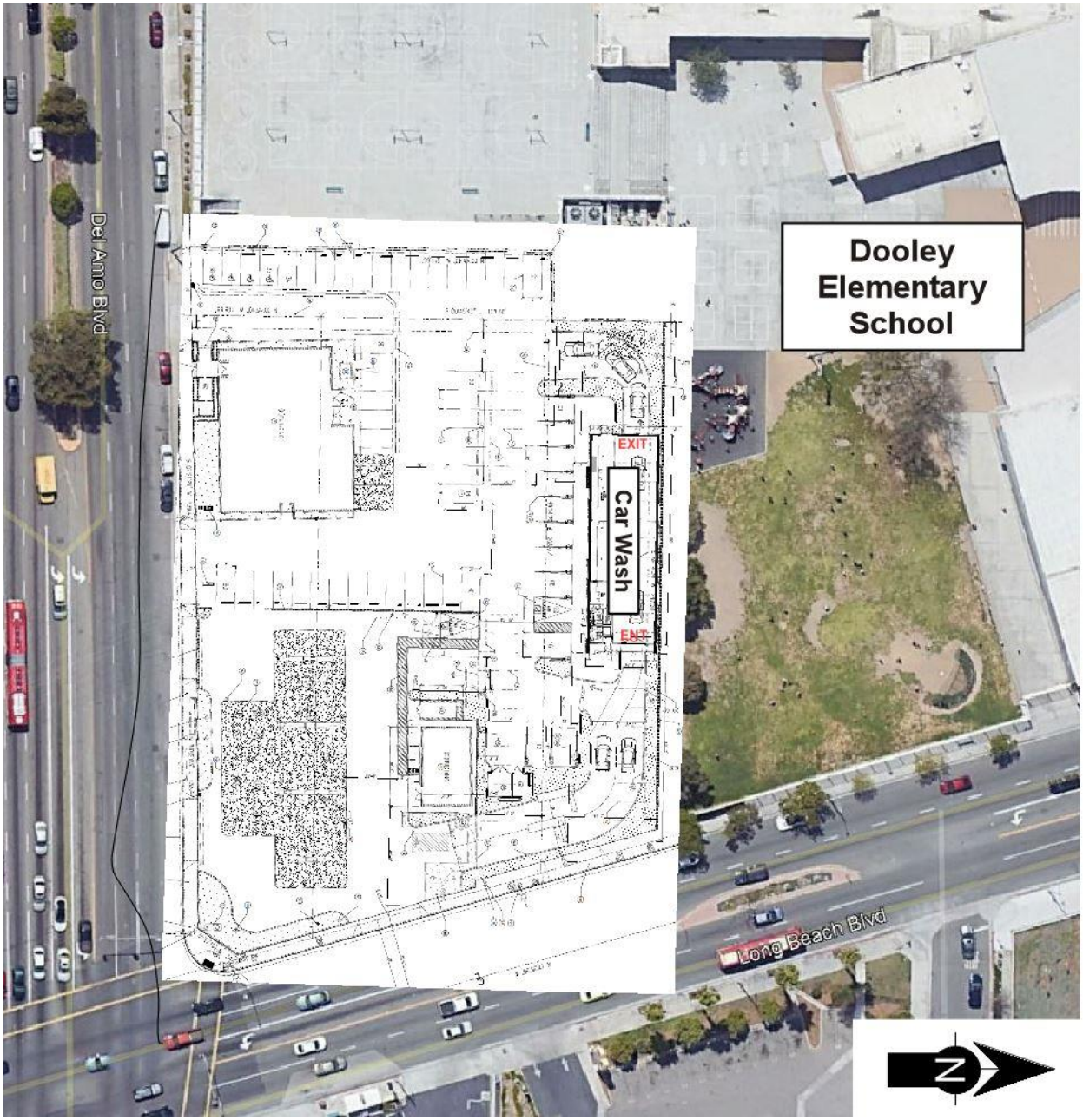


Table 1
CITY OF LONG BEACH
EXTERIOR NOISE ORDINANCE CRITERIA

Time Period	Lmax	L1.7	L8.3	L25	L50
During School Session	70	65	60	55	50

Table 2
CITY OF LONG BEACH
INTERIOR NOISE ORDINANCE CRITERIA

Time Period	Lmax	L1.7	L8.3
During School Session	55	50	45

The ordinance states that if the ambient conditions are louder than the ordinance limits, then the ambient conditions become the new ordinance limits.

5.0 Ambient Noise Levels

The ordinance states that if the measured ambient level already exceeds the allowable limit, then the ambient level becomes the limit. Ambient noise measurements were performed at a location representing the boundary between the car wash and the school. Since access to the school playground was not possible, measurements were conducted in the Sizzler parking lot, very close to the location of the exit end of the tunnel. A 9.5' masonry wall mitigates the traffic noise from Del Amo Boulevard. Therefore, traffic noise from Del Amo Boulevard was subtracted out, so the measured noise levels at this location represent the ambient noise levels from Long Beach Boulevard at the nearest playground area.

Three noise measurements were made for approximately thirty minutes each on February 28, 2020, at a normal receptor height of 5 feet above the ground. The measurements were performed during the daytime period, between 8:00 a.m. and 1:30 p.m. The measurements were made with a Brüel & Kjær Type 2270 Sound Level Meter, which was calibrated before and after the measurements. This noise measurement system meets the American National Standards Institute "Type 1" specifications, which is the most accurate type of sound level meter available for community noise measurements. The meter and calibrator have current certification traceable to the National Institute of Standards and Technology (NIST). The results of the ambient noise measurements are presented below in Table 3.

Table 3
AMBIENT NOISE MEASUREMENT RESULTS

Time Period	Lmax	L1.7	L8.3	L25	L50
8:10 to 8:40 a.m.	74.8	64.3	60.2	58.5	56.5
10:00 to 10:30 a.m.	80.4	65.9	60.2	58.0	56.5
1:00 to 1:30 p.m.	75.4	67.0	62.0	60.0	58.8
Adjusted (Lowest Measured Ambient)	74.8	N/A	60.2	58.0	56.5

The measured noise levels were caused by traffic on Long Beach Boulevard and by jet overflights.

The measured ambient traffic noise levels for some metrics (The Lmax, L8.3, L25, and L50) exceed the Noise Ordinance limits, so the Noise Ordinance limits for some metrics will be adjusted to these levels. To be conservative, for each metric, we have used the lowest measured ambient as the adjusted Noise Ordinance limit. The adjusted Noise Ordinance limits are shown below in Table 4.

Table 4
ADJUSTED EXTERIOR NOISE ORDINANCE CRITERIA

Location	Lmax	L1.7	L8.3	L25	L50
School Playground	74.8	65	60.2	58.0	56.5

6.0 Noise Exposure

The project calls for the construction of a car wash facility very similar to an existing car wash at 4294 University Parkway in San Bernardino, California. Noise measurements were conducted at this facility on February 11, 2019 to determine the noise levels expected at the Long Beach car wash site. The major noise-producing components are the blowers for the dryer section. This facility uses 11 Motor City Air One blowers. The blowers are set back approximately 21 feet from the exit end of the tunnel. The vacuum equipment is located in the equipment room. Therefore, noise from this source is not expected to be significant.

Using the Motor City Air One blowers, the noise levels would slightly exceed the City's Noise Ordinance limits. Therefore, the developer plans to use Aerodry Model A120 Blowers. Data provided by the manufacturer shows that these blowers are 6 dB quieter than the Motor City dryers. With this equipment, the noise levels from the car wash (including the effect of the existing 9.5' high wall) are projected to be 52.2 dBA at the nearest receptor at the school playground. To represent a worst-case scenario, the equipment was assumed to run continuously. Therefore, the noise level for all metrics would be 52.2 dBA. This meets the strictest adjusted limit of 56.5 dBA. To meet the exterior standards, the Aerodry equipment must be used. With the Aerodry equipment, no additional mitigation measures are required in order to meet the exterior noise standards. The remaining analysis is based on the use of Aerodry blowers.

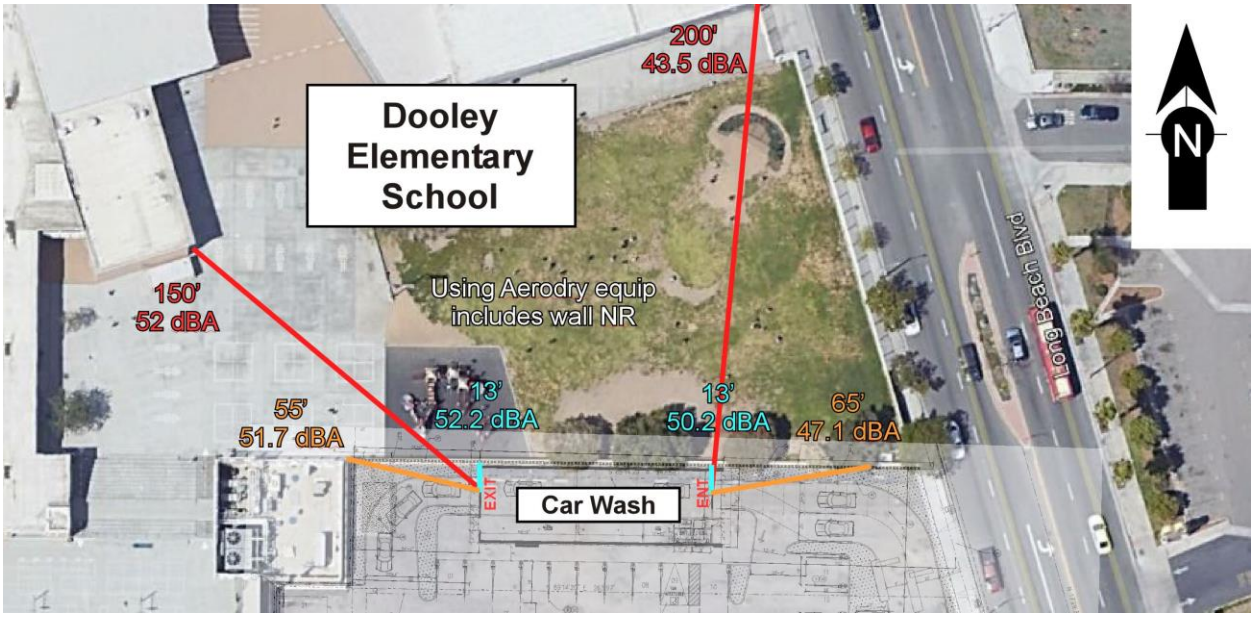
Two school buildings were analyzed, and these are shown in the Appendix. The nearest building is 150 feet to the northwest of the exit end of the tunnel, at an orientation of approximately 45 degrees off-axis to the tunnel. The measurements at the San Bernardino site showed that at this orientation, the sound level at a distance of 15 feet from the tunnel end would 83 dBA. Extrapolating this to a distance of 150 feet yields a noise level of 63 dBA. With 5 dBA of reduction provided by the existing masonry wall, the noise level at the building face would be 58 dBA. The Aerodry equipment is 6 dB quieter, so the resulting exterior noise level is projected to be 52 dBA.

Another building is 200 feet to the north of the entrance end of the tunnel, at an orientation of approximately 80 degrees off-axis to the tunnel. The measurements at the San Bernardino site showed that at this orientation, the sound level at a distance of 15 feet from the tunnel end was 71 dBA. Extrapolating this to a distance of 210 feet yields a noise level of 48 dBA. With 5 dBA of reduction provided by the existing masonry wall, the noise level at the building face would be 43 dBA. The Aerodry equipment is 6 dB quieter, so the resulting exterior noise level is projected to be 37 dBA.

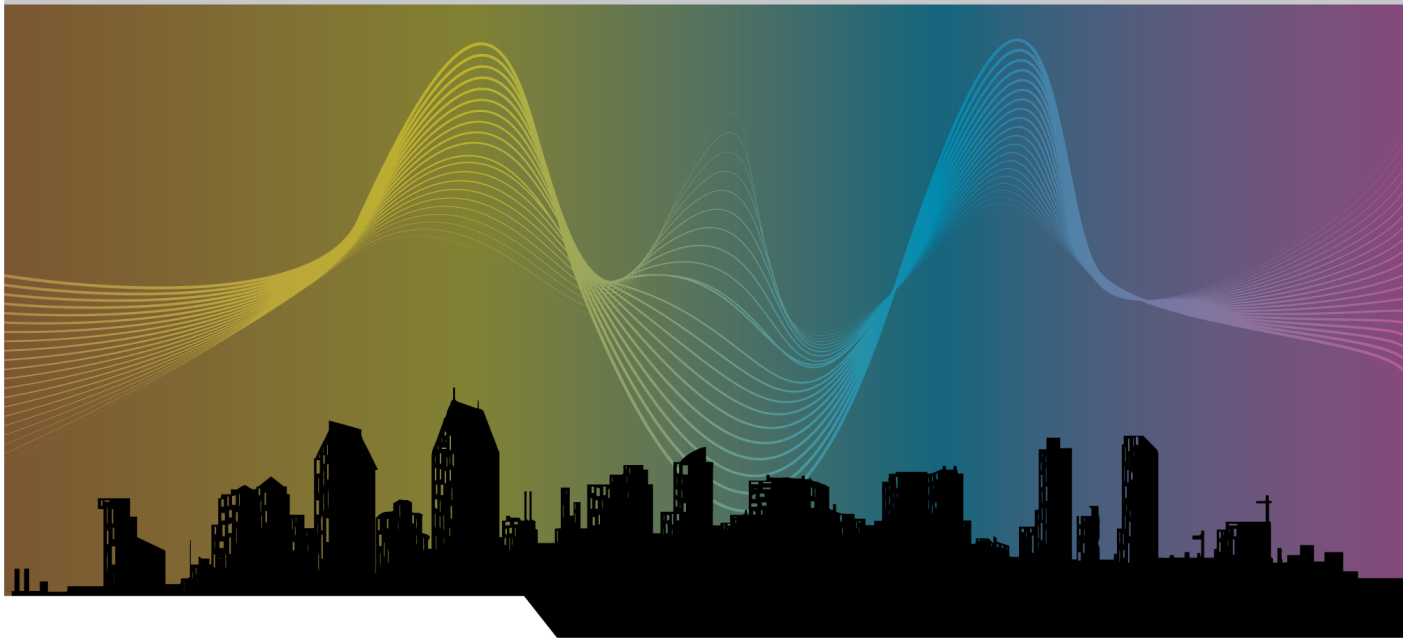
With windows open, the noise reduction of a typical building is at least 12 dBA. Therefore, the interior noise levels at these buildings are expected to be 40 dBA and 25 dBA, respectively. These levels meet the City's strictest (L8.3) noise standard of 45 dBA. Therefore, with the Aerodry Model A120 equipment, the 5005 Long Beach Boulevard car wash is projected to meet all the City's noise standards without any additional mitigation measures.

APPENDIX

RECEPTOR LOCATIONS
AND PROJECTED EXTERIOR NOISE LEVELS
(including effect of existing 9.5-foot-high masonry wall)



Report #219-5024 Task 3
June 30, 2020



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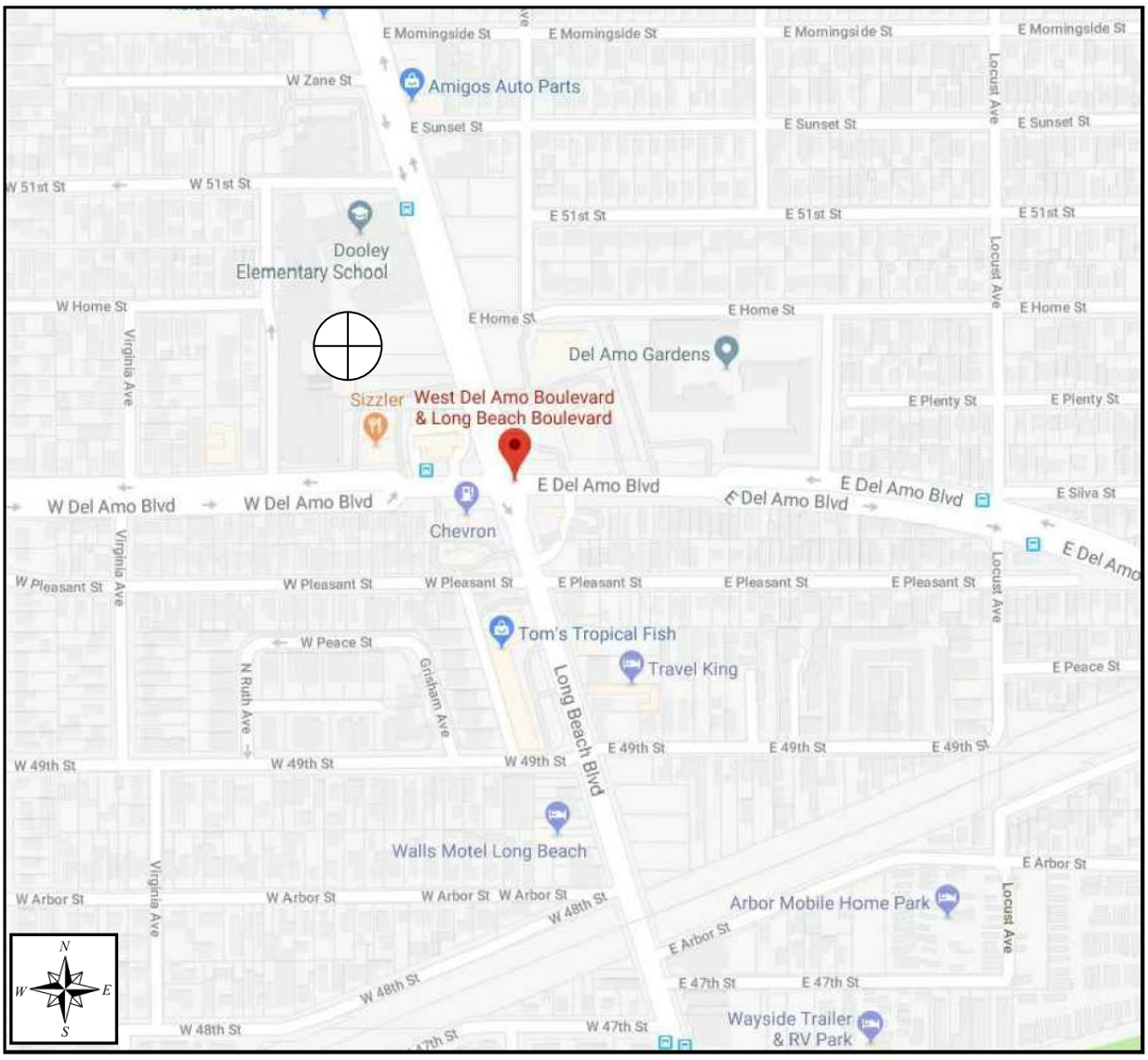
- **Decibel (dB)** is a unit used to measure the level of a sound by comparing it with a given reference level on a logarithmic scale. One decibel equals 10 times the common logarithm of the power ratio.
- **Time-Weighted** refers to the fact that noise occurring during certain time periods is given more significance because it occurs at times when people are more sensitive to noise.
- "**A-Weighting**" is a frequency correction that correlates overall sound pressure levels with the frequency response of the human ear.
- **A-Weighting** is a frequency correction that correlates overall sound pressure levels with the frequency response of the human ear.
- **L(N)** or L% is a statistical method of describing noise that accounts for fluctuating noise levels. L% is a way of expressing the noise level exceeded for a percentage of time during a given period. For example, since 5 minutes is 50% of 10 minutes, L50 is the noise level that is exceeded for five minutes in a ten-minute period.
- **Lmax** is the highest instantaneous sound pressure level during a specific time period.

2.0 Introduction

The purpose of this report is to address the potential construction noise impacts on existing noise sensitive uses in the vicinity of the planned *5005 Long Beach Boulevard Car Wash* project. The project is located in the City of Long Beach as shown in Figure 1. There are single-family homes located to the west of the project site, and Dooley Elementary School is located directly north of the project site. The site plan is shown in Figure 2.

Figure 1 – Project Location



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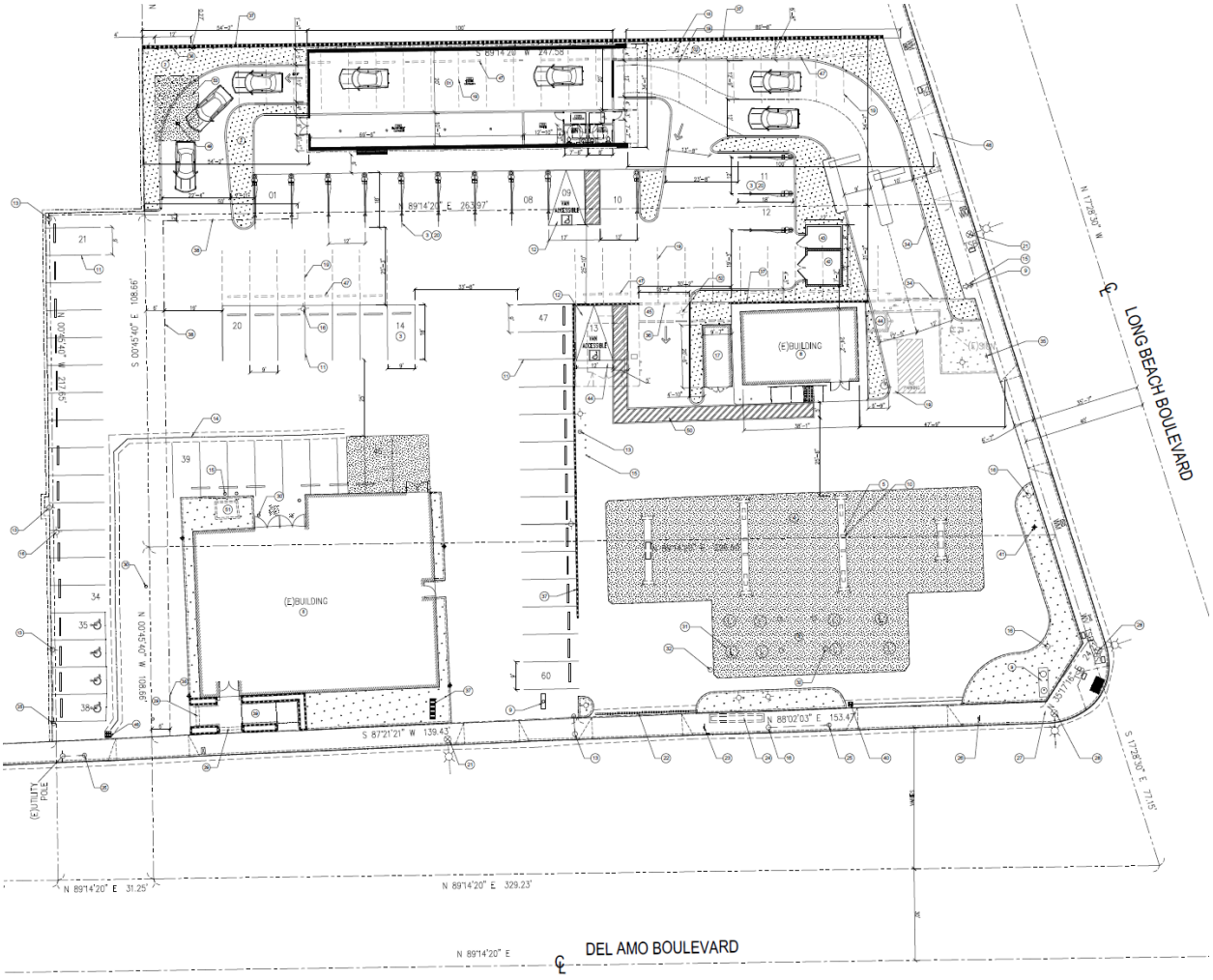
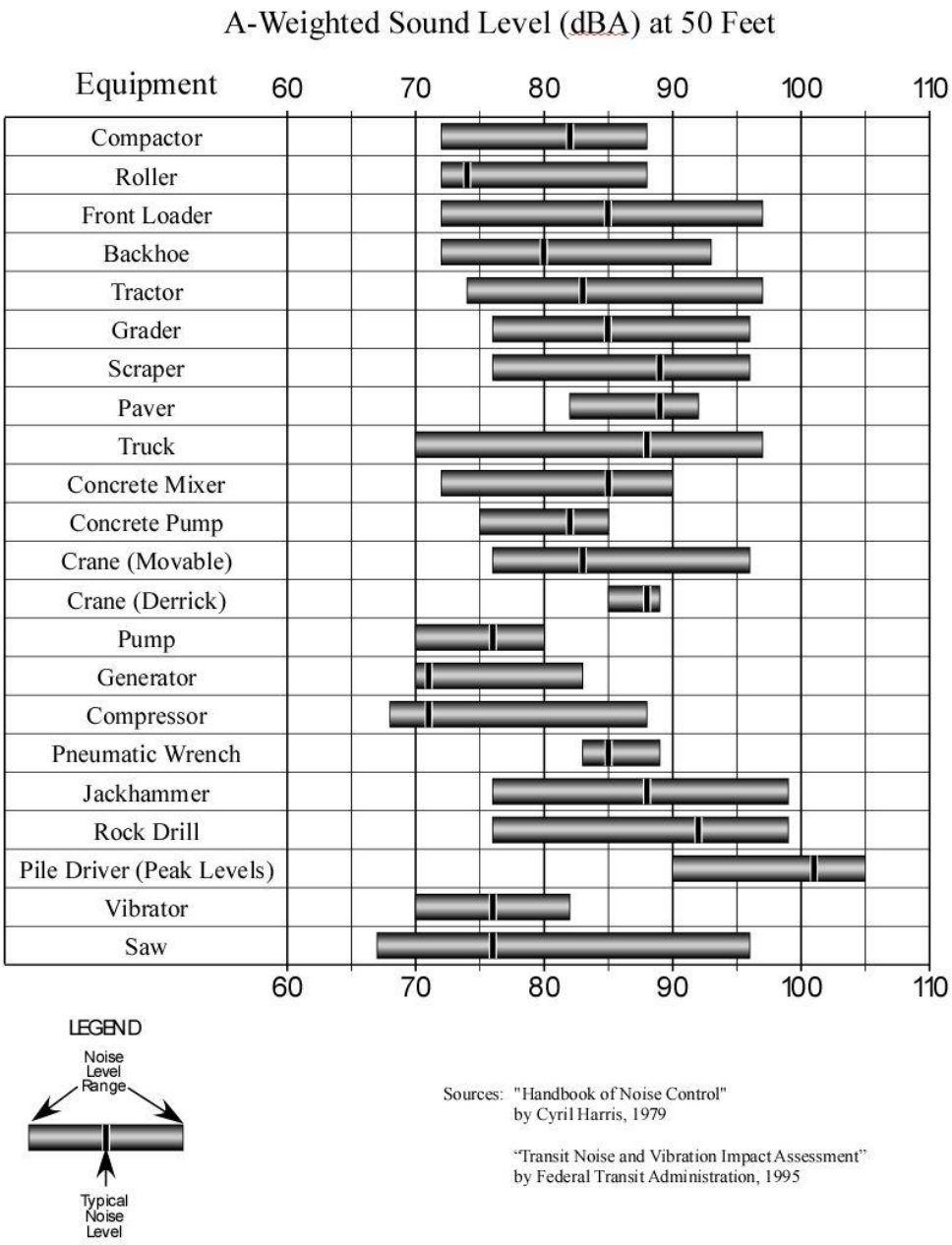


3.0 Construction Equipment Source Levels

Construction noise represents a short-term impact on neighborhood noise levels. Noise generated by construction equipment can reach high levels. The highest levels of noise will be generated during site preparation and grading when large pieces of heavy equipment are operated. The ranges of noise levels typically generated by various pieces of construction equipment are presented in Figure 3.

Figure 3 – Typical Construction Noise Levels



Note that these noise levels are based upon worst-case conditions. Typically, noise levels will be less. Noise measurements performed for other projects have shown that the noise levels generated by commonly used grading equipment (i.e., loaders, graders and trucks) generate noise levels that usually do not exceed the typical noise level shown within each range in Figure 3.

Jackhammers or pile drivers are not anticipated to be required during construction of the project. According to the developer, the following equipment is planned for use at the site:

Skid steers
Small Backhoe (15' reach)
Dump truck (10-wheel)
End dump
Concrete pump
Small crane

Of these, the quietest equipment is the backhoe, with a typical noise level of 80 dBA at a distance of 50 feet. The loudest is the dump truck, with a typical noise level of 88 dBA at a distance of 50 feet.

4.0 Noise Ordinance Limits

The City's Noise Ordinance Section 8.80.150, Table IV.I-1 requires that noise levels at outdoor residential areas (District 1) not exceed 50 dBA L50 during the daytime hours (7 a.m. to 10 p.m.) or 45 dBA L50 during nighttime hours (10 p.m. to 7 a.m.). Table IV.I-2 requires that interior noise levels be limited to 45 dBA L50 during daytime hours, and 35 dBA L50 at night.

The City's Noise Ordinance Section 8.80.150, Table IV.I-2 requires that noise impacting indoor school areas not exceed an L50 level of 45 dBA while school is in session.

5.0 Projected Noise Levels

Calculations show that at the nearest residential area to the west (at a distance of 225 feet from the nearest construction equipment location), the noise levels would range between 51 dBA and 59 dBA. This exceeds the City's noise Ordinance limits.

At the nearest school building to the north (at a distance of 158 feet from the nearest construction equipment location), the noise levels at the building face would range between 54 dBA and 62 dBA. Assuming a building noise reduction of 20 dB, indoor noise levels at this building are projected to range between 34 dBA and 42 dBA. This meets the City's noise limits.

6.0 Allowable Construction Hours

Construction of the project would result in noise levels in excess of the City's Noise Ordinance limits at the residential area to the west. However, the City's Noise Ordinance (Section 8.80.202) appears to allow construction to take place provided activities do not occur during specified days and hours. The construction time limits are stated as follows:

8.80.202 - Construction Activity – Noise Regulations

(A) *Weekdays and federal holidays.* No person shall operate or permit the operation of any tools or equipment used for construction, alteration, repair, remodeling, drilling, demolition or any other related building activity which produce loud or unusual noise which annoys or disturbs a reasonable person of normal sensitivity between the hours of 7 p.m. and 7 a.m. the following day on weekdays, except for emergency work authorized by the building official. For purposes of this section, a federal holiday shall be considered a weekday.

(B) *Saturdays.* No person shall operate or permit the operation of any tools or equipment used for construction, alteration, repair, remodeling, drilling, demolition or any other related building activity which produce loud or unusual noise which annoys or disturbs a reasonable person of normal sensitivity between the hours of 7 p.m. *(Friday)* and 9 a.m. on Saturday and after 6 p.m. on Saturday, except for emergency work authorized by the building official.

(C) *Sundays.* No person shall operate or permit the operation of any tools or equipment used for construction, alteration, repair, remodeling, drilling, demolition or any other related building activity at any time on Sunday, except for emergency work authorized by the building official or except for work authorized by permit issued by the noise control office.

The City's Noise Ordinance appears to allow construction on weekdays between 7 a.m. and 7 p.m., and on Saturdays between 9 a.m. and 6 p.m.

6.0 Recommendations

The following mitigation measures are best management practice and will help ensure that the noise impacts from construction activities are minimized.

- Limit the loudest construction activities, such as concrete breaking, jackhammering, pile driving, to the middle of the day when the sensitivity to such noises will be at its lowest.
- Use updated equipment which incorporates quiet technology and advanced muffler design.
- Update older equipment with either new equipment or incorporate new noise control features when possible.
- Maintain older equipment to minimize the level of noise from normal wear and tear that can cause excessive noise from the equipment.
- Use electrically powered construction equipment when practical.
- Restrict the use of equipment at the project boundaries when possible.
- Ensure that the equipment power is appropriate for the construction activity – neither overpowered or underpowered.
- Use temporary noise barriers around fixed noise sources such as pumps and compressors when necessary.
- Use on-site trailers, containers, aggregate as temporary barriers between a fixed construction noise source and the nearby residences.
- Locate fixed noise generating equipment (i.e. pumps, compressors) as far from the noise sensitive land uses as is practical.
- Limit the level and use of music generating devices (i.e. radios) on the project site.
- Consider the use of back up alarms which incorporate white noise or flashing lights.
- Haul truck deliveries and departures shall be subject to the same hours specified for construction equipment.
- Provide a phone number people can call should they have noise complaints. If complaints arise, initiate a construction noise monitoring plan to ensure the construction noise levels at the nearest noise sensitive land uses are compliance with the noise ordinance.