APPENDIX F
NOISE ANALYSIS

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Six Basins

NOISE IMPACT ANALYSIS
CITIES OF CLAREMONT, POMONA, LA VERNE, & UPLAND, & THE COUNTY OF LOS ANGELES
SIX BASINS WATERMASTER

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LIST OF ABBREVIATED TERMS

(1)	Reference
ANSI	American National Standards Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Six Basins
RMS	Root-mean-square
VdB	Vibration Decibels

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EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this program-level noise study to determine the noise exposure and the necessary noise mitigation measures, if any, for the proposed Six Basins ("Project"). The Project is generally located within the Cities of Claremont, Pomona, La Verne, and Upland, in addition to unincorporated County of Los Angeles, and the Six Basins include six interconnected groundwater basins located near the base of the San Gabriel Mountains. The Six Basins Watermaster is planning to construct and operate a series of projects in a coordinated manner to optimize water management activities in the Six Basins and increase the reliability of regional water supplies. The purpose of this noise analysis is to ensure that the proposed Project operational and construction activities at the facilities within the Project study area are compatible with the existing and future noise environment. Since the Six Basins Project is located throughout multiple jurisdictions, potential noise and vibration impacts will be experienced at receiver locations in various jurisdictions. Therefore, the potential noise and vibration impacts on the sensitive land uses in the Project study area are evaluated at a program level using standards established under each applicable jurisdiction.

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the noise sources from the Six Basins Project, this analysis estimates the Project-related operational noise levels at nearby sensitive receiver locations. The normal activities associated with the proposed Six Basins are anticipated to include enclosed well pump startup, air releases, and continuous pump activity, in addition to enclosed equipment exhaust activities. Based on a review of the Municipal Codes of each jurisdiction adjacent to the existing and proposed Project facilities, the Project-related operational noise activities are generally considered exempt from the noise standards since the Project noise sources are a part of a government-operated facility.

To determine the potential operational noise levels at adjacent sensitive receiver locations, the distance to the noise level contour for each jurisdiction's nighttime noise level standard was calculated for the enclosed well pump startup, air releases, and continuous pump activity, in addition to enclosed equipment exhaust activities. Since the nighttime noise level standards are lower than the daytime standards, and this analysis assumes continuous operation, this approach likely conservatively overstates potential Project operational noise levels.

Based on this program-level analysis, the Project's anticipated operational noise sources will generate unmitigated noise level contour boundaries which will largely be located within the boundaries of each facility. At receiver locations in the Cities of Claremont, Pomona, La Verne, and Upland, in addition to unincorporated County of Los Angeles, unmitigated well pump activity noise levels are shown to satisfy the nighttime noise level limits of 55dBA L_{25}, 50 dBA L_{50}, and 45 dBA L_{50}, respectively, with the additional noise attenuation provided by distance, screen and perimeter walls at some of the well sites and at adjacent residential receiver locations, in addition to the enclosures recommended in this report. A minimum of 5 dBA of barrier attenuation is assumed in this analysis since it is the minimum noise attenuation achievable by breaking the

line-of-sight to the receiver location, which is anticipated to be attained by screen and perimeter walls at some of the well sites and at adjacent residential receiver locations, the enclosures recommended in this report, and existing intervening structures. (1)

Moreover, this program-level analysis assumes all Project operational activity is occurring continuously to present a conservative approach, when, the Project operational activities will occur as needed and vary throughout the daytime and nighttime hours. Since Project operational noise levels are generally considered exempt from the noise standards and are anticipated to remain below the adjacent jurisdictions' Municipal Code noise level limits, the Project operational noise level impacts would be *less than significant*.

RECOMMENDED OPERATIONAL NOISE ABATEMENT MEASURES

The following operational noise abatement measures are recommended to further reduce the potential operational noise levels received at nearby sensitive receiver locations:

- New, or existing unenclosed, well pumps should be enclosed to further reduce operational noise levels at nearby sensitive receiver locations (e.g., residential homes). The location of any louvres or openings in the enclosure assembly would reduce the overall noise reduction of the enclosure, and therefore, shall be oriented away from nearby residential homes, if feasible. In addition, acoustically rated louvres and materials within the enclosure construction are recommended to further reduce the noise levels at the well pump source.
- All trucks transiting on-site in outdoor areas of the Project facilities should be operated with properly functioning and well-maintained mufflers.
- Maintain quality pavement conditions on the property that are free of vertical deflection (i.e., speed bumps) to minimize truck noise.
- Truck access gates and loading areas should have posted signs which state:
    1. Truck drivers shall turn off engines when not in use.
    2. No music or electronically reinforced speech from workers should be audible at noise-sensitive properties.

CONSTRUCTION NOISE ANALYSIS

Based on the worst-case stage of Project construction activities, identified in the *Air Quality Impact Analysis*, the noise-sensitive receivers surrounding the Project facilities may perceive short-term noise levels when certain activities occur near the property line of each facility. (2) The Six Basins construction noise analysis shows that sensitive receiver locations within 100 feet of Project construction activities would experience noise levels that could exceed the 65 dBA L_{eq} construction noise level threshold identified in this report. The 65 dBA L_{eq} construction noise level threshold is based on the Municipal Code standards of the Cities of Claremont, Pomona, La Verne, and Upland, in addition to unincorporated County of Los Angeles and is used in this program-level analysis to identify the 100-foot screening distance for focused construction noise analysis.

Based on reference construction noise level measurements collected by Urban Crossroads, Inc. of the construction activities anticipated to be required for Project construction, the highest noise level generating activity is expected to be well pump drilling. In addition, well pump drilling may occur over 24-hour periods for multiple days, and therefore, focused construction noise analysis based on detailed plans showing the location of potential well pump drilling is required to reduce Project construction noise levels at noise-sensitive receiver locations within 100 feet. With the construction noise mitigation measures identified in this report, Project construction noise levels would be reduced to *less than significant* impacts.

CONSTRUCTION VIBRATION ANALYSIS

Based on reference vibration levels provided by the Federal Transit Administration (FTA), drilling equipment and large mobile equipment (e.g., dozers, loaded trucks) represent the peak sources of vibration anticipated as part of Project construction activities. At screening distances ranging from 25 to 200 feet from Project construction activities, root-mean-square (RMS) vibration velocity levels are expected to range from 0.063 in/sec RMS at 25 feet to 0.003 in/sec RMS at 200 feet, as shown on Table 6-5.

The results of the program-level construction vibration analysis indicate that sensitive receiver locations within 25 feet of Project construction activities in the Cities of Claremont, Pomona, La Verne, and Upland are anticipated to experience vibration levels of up to 0.063 in/sec RMS and could potentially exceed the 0.05 in/sec RMS threshold. In addition, sensitive receiver locations within 50 feet of Project construction activities in unincorporated County of Los Angeles are anticipated to experience vibration levels ranging from 0.022 in/sec RMS at 50 feet to 0.063 in/sec RMS at 25 feet and could potentially exceed the 0.01 in/sec RMS threshold identified by the County of Los Angeles.

Therefore, Project construction vibration mitigation measures are required, as identified below, to provide focused analysis of individual activities and construction equipment once detailed construction plans are available for occupied sensitive receiver locations within the identified screening distances of Project construction activities, as outlined below. With the construction vibration mitigation measures identified in this report, Project construction noise levels would be reduced to *less than significant* impacts.

CONSTRUCTION NOISE AND VIBRATION MITIGATION MEASURES

The following mitigation measures are required to reduce noise and vibration levels produced by the construction equipment at nearby, occupied sensitive receiver locations.

- A focused construction noise and vibration mitigation plan shall be required if any or both of the following screening criteria are met:
    1. If Project construction activities would occur within 100 feet of occupied, sensitive receiver locations (e.g., residential, school, etc. uses);
        - A focused construction noise mitigation plan shall be required which evaluates whether Project construction noise levels would exceed the 65 dBA L_{eq} exterior noise level limit at occupied sensitive receiver locations, and the mitigation measures (if any) necessary to satisfy the 65 dBA L_{eq} exterior noise level limit.
            - Potential mitigation measures to reduce Project construction noise levels include, but are not limited to, temporary noise barriers, the use of alternative equipment, noise level monitoring, temporary relocation of residents, or a combination of the above.
    2. If high vibration-generating Project construction activities such as well drilling equipment, heavy mobile equipment (greater than 80,000 pounds), or large loaded trucks would be used:
        - Within 25 feet of occupied, sensitive receiver locations in the Cities of Claremont, Pomona, La Verne, and Upland; or
        - Within 50 feet of occupied, sensitive receiver locations in unincorporated County of Los Angeles.
            - A focused construction vibration mitigation plan shall be required which evaluates whether Project construction vibration levels would exceed the exterior vibration level limit at occupied sensitive receiver locations, specific to that jurisdiction's standards, and the mitigation measures (if any) necessary to satisfy the exterior vibration level limit.
                - Potential mitigation measures to reduce Project construction vibration levels include, but are not limited to, the use of alternative equipment, vibration level monitoring, temporary relocation of residents, or a combination of the above.
- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise-sensitive receivers nearest the Project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., the center of each site).
- The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Six Basins ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for this analysis, and evaluates the potential Project-related long-term operational and short-term construction noise impacts.

1.1 SITE LOCATION

The proposed Six Basins Project is generally located within the Cities of Claremont, Pomona, La Verne, and Upland, in addition to unincorporated County of Los Angeles, as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The Six Basins Watermaster Parties are proposing to rehabilitate, enhance, or construct a number of water projects in a coordinated manner to optimize conjunctive water management activities in the Six Basins to increase reliability and sustainability of regional water supplies. There are four goals for the Project: (1) enhance water supplies, (2) enhance basin management, (3) protect and enhance water quality and (4) equitably finance the Strategic Plan implementation. For the environmental evaluation of the Six Basins Project, *Proposed Projects to Optimize Conjunctive Water Management*, have been placed in four categories. The four categories are:

Project Category 1: Pump and treat groundwater in the Pomona Basin.

This category of projects consists of improvements to existing facilities in the Pomona Basin including: (1) increasing groundwater production at some existing wells; and (2) increasing treatment capacity at existing sites either through the construction of ion exchange (IX) or biological treatment facilities to remove Cr-6, nitrate and perchlorate; or expanding the existing air stripping facility or construct a granular activated carbon (GAC) facility to remove constituents.

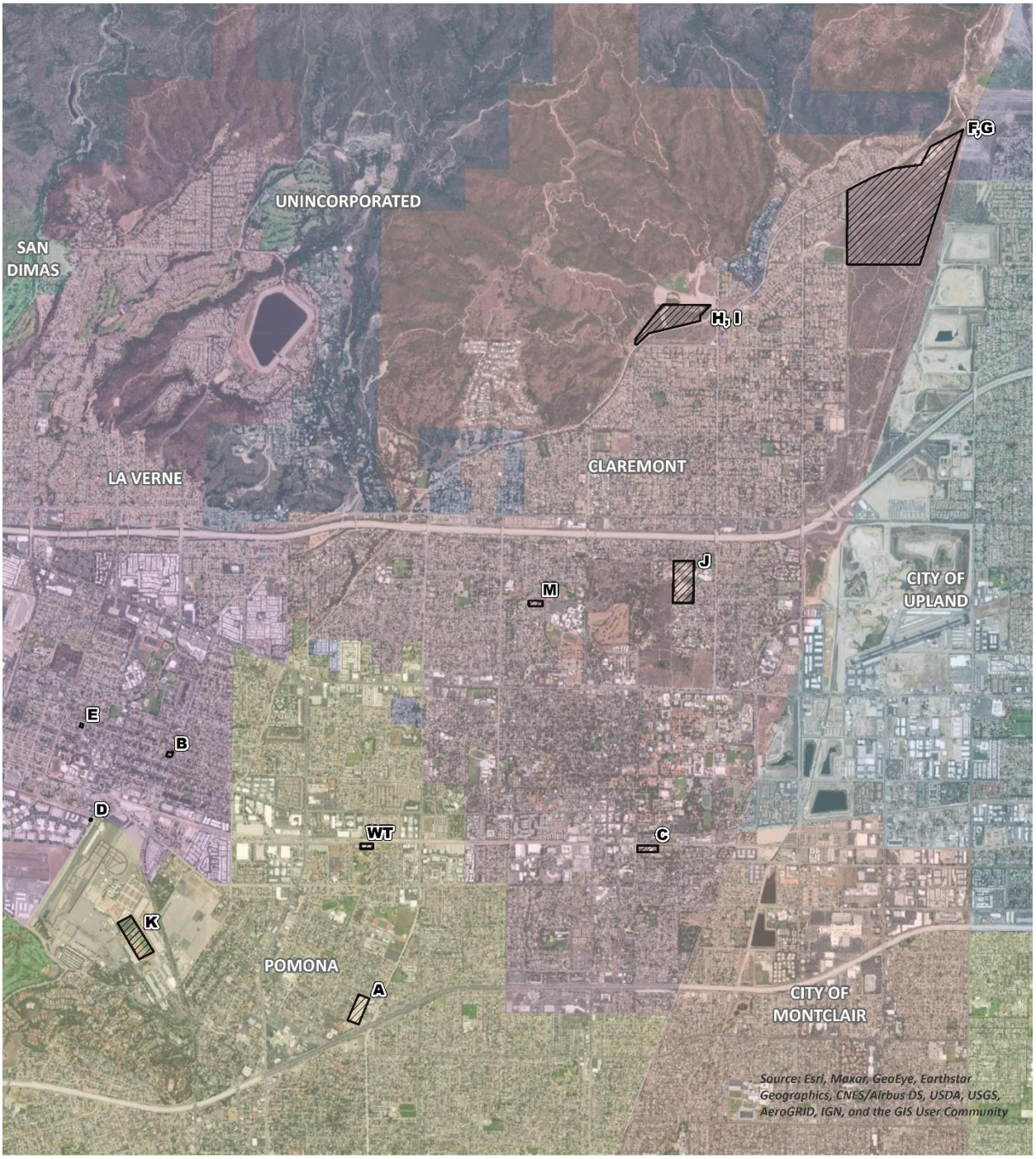
Project Category 2: Stormwater and Supplemental water Recharge Projects

This category of projects represents improvements that would be undertaken at the San Antonio Spreading Grounds and the Thompson Creek Spreading Grounds to enhance stormwater recharge and supplemental water recharge; enhance stormwater recharge at the Pedley Spreading Grounds; to create an area for the recharge of stormwater and supplemental water at the Los Angeles County Fairplex; and to identify opportunities for stormwater recharge through compliance with the Municipal Separate Storm Sewer System (MS-4).

More specifically, the San Antonio Spreading Grounds includes:

- 50 acres in area within a larger 90-acre area within the San Antonio Creek wash, west of the San Antonio Creek Channel, east of the power transmission lines, south of the existing LACFCD basins, and north of the extension of East Pomello Drive.

EXHIBIT 1-A: PROJECT LOCATION MAP



- 150-200 feet in depth (depending on groundwater level).
- Approximately 2.5 million tons of aggregate material will be excavated with typical aggregate mining equipment (dozers, scrapers) and hauled to a portable crusher within the excavation area.
- A total of approximately 20 million tons would be excavated over a five year period.
- Material is crushed on site and released onto a conveyor system. A typical system consists of a rubberized belt on a series of rollers within a frame that may range in size from 2-4 feet in width and between 2-4 feet above ground surface.
- Material would be conveyed to an active mining area between Holliday Pits 4 and 5. The material would be either stockpiled at that location of conveyed south to be processed at the Foothill Plant locate south of Baseline Road – no material is transported by haul truck.
- The crusher and conveyor system are portable and can be moved around the excavated area as mining lowers the level of the excavation area.
- Excavation activities at the SASG site could take up to 5 years to complete but could be completed in 2 years depending on the ultimate depth.
- No transport of excavated material would be hauled on surface streets through neighborhoods.

Project Category 3: Temporary Surplus Projects

Projects in this category include: 1) rehabilitating Pomona's P-20 wellhead treatment facility, 2) constructing new production wells and monitoring wells; and 3) construction of new underground pipelines to interconnect some sites.

Project Category 4: Monitoring programs in support of the Strategic Plan.

This category of projects consists of the research for and development of groundwater monitoring programs to support the design of new wells and treatment facilities (Project Categories 1 and 3) and provide groundwater production and water-level data to the Watermaster Parties, supporting well-siting investigations, and other support functions to monitor and develop new strategies and projects for conjunctive water use.

The *Proposed Projects to Optimize Conjunctive Water Management* included in the program-level Six Basins Project are listed on Table 1-1.

TABLE 1-1: PROPOSED PROJECTS TO OPTIMIZE CONJUNCTIVE WATER MANAGEMENT

PID[1]	Project Description
Pump and Treat[2]	
A	Increase Groundwater Production and Treatment Capacity at Reservoir 5 Treatment Facility
B	Increase Groundwater Production and Treatment Capacity at Lincoln/Mills Treatment Facility
C	Rehabilitate Del Monte 4 and Add Arsenic Treatment
D	Construct Durward 2 Well and a Wellhead Treatment Facility
E	Rehabilitate Old Baldy Well and Construct Wellhead Treatment Facility
Recharge Improvements	
F	Enhance Stormwater Recharge at the San Antonio Spreading Grounds
G[3]	Enhance Supplemental-Water Recharge at the SASG
H[4]	Enhance Stormwater Recharge at the Thompson Creek Spreading Grounds
I	Supplemental-Water Recharge at the TCSG
J[5]	Enhance Stormwater Recharge at the Pedley Spreading Grounds
K[6]	Recharge Stormwater and Supplemental Water at the LA County Fairplex
N	Enhance Stormwater Recharge through MS-4 Compliance
~~O[7]~~	~~Create a Conservation Pool Behind San Antonio Dam~~
Temporary Surplus	
L[8]	Construct Interconnections between water supply agencies
M[9]	Rehabilitate P-20 and a Wellhead Treatment Facility
P[10]	Construct New Production Wells

Source: Wildermuth Environmental, Inc., Final Strategic Plan for the Six Basins, November 2017, Table 6-2.

[1] Project Identification Number.

[2] Pump and Treat projects will be carried out at existing well sites and/or treatment facilities. No new site disturbance is anticipated through the physical expansion of a well site or treatment facility.

[3] Potential area of disturbance to expand the SASG is 50 acres to a depth of up to 150-200 feet. To recharge recycled water, a pipeline of up to 68,000 lineal feet would be constructed.

[4] Potential area of disturbance to expand the TCSG is 143 acres to a depth of up to 10 feet.

[5] Potential area of disturbance to expand the Pedley Spreading Grounds is 6 acres to a depth of up to 10 feet.

[6] Potential area of disturbance to create the new Fairplex water recharge facilities is 100 acres to a depth of up to 10 feet.

[7] Subsequent to the completion of the Draft Strategic Plan, the Watermaster Parties determined that this project was speculative at this time and is no longer being considered in conjunction with the other Strategic Plan projects.

[8] Pipe sizes ranging from 8" to 20" in diameter.

[9] See note No. 2 above.

[10] Construction of new production wells is assumed to disturb up to 0.5 acre per well site (includes well site and site access).

2 FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: 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 (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (3) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 100 feet, which can cause serious discomfort. (4) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The Six Basins Watermaster relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (3)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receptor is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (1)

2.3.3 ATMOSPHERIC EFFECTS

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (3)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby resident. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (1)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor concept. In general, noise control measures can be applied to these three elements.

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receptor. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (1)

2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (5)

2.8 VIBRATION

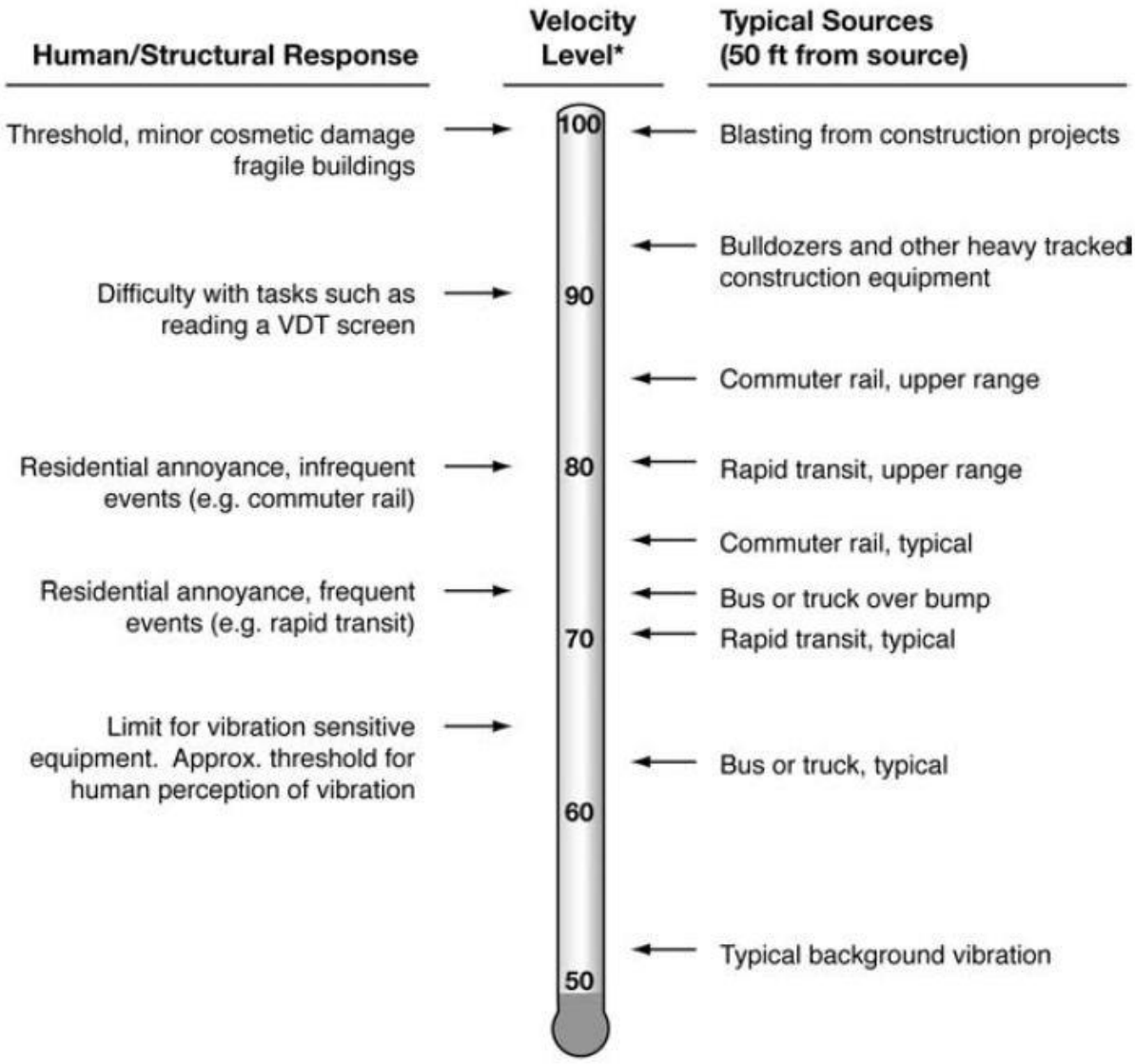
Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (6), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment.

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general

threshold where minor damage can occur in fragile buildings. Exhibit 2-B illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-B: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



** RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Source: Federal Transit Administration (FTA) Transit Noise Impact and Vibration Assessment.

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3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Six Basins Project, operational source noise such as the expected enclosed well pump startup, air releases, and continuous pump activity, in addition to enclosed equipment exhaust activities are typically evaluated against standards established under a jurisdiction's Municipal Code.

Since Project operational activities have the potential to generate noise levels at sensitive receiver locations in multiple jurisdictions, this analysis evaluates potential impacts based on each jurisdiction's respective exterior Municipal Code noise level standards, where applicable.

Table 3-1 shows the Municipal Code exterior noise level limits of each jurisdiction, which are used in this program-level noise study to determine potential impacts.

TABLE 3-1: OPERATIONAL NOISE LEVEL STANDARDS

Jurisdiction	Land Use	Time Period	Exterior Noise Level Standards[1]					
			L_{50} (30 mins)	L_{25} (15 mins)	L_{17} (10 mins)	L_{8} (5 mins)	L_{2} (1 min)	L_{max} (<1 min)
Claremont[2]	Residential (Noise Zone I)	7:00 a.m. to 10:00 p.m.	-	60	65	74	-	75
		10:00 p.m. to 7:00 a.m.	-	55	60	69	-	70
Pomona[3]	Single-Family Residential (Zone I)	7:00 a.m. to 10:00 p.m.	60	65	-	70	75	80
		10:00 p.m. to 7:00 a.m.	50	55	-	60	65	70
	Multi-Family Residential (Zone II)	7:00 a.m. to 10:00 p.m.	65	70	-	75	80	85
		10:00 p.m. to 7:00 a.m.	50	55	-	60	65	70
La Verne[4] (County of L.A.)	Residential	7:00 a.m. to 10:00 p.m.	50	55	-	70	65	70
		10:00 p.m. to 7:00 a.m.	45	50	-	65	60	65
Upland[5]	Residential	7:00 a.m. to 10:00 p.m.	50	55	-	60	65	70
		10:00 p.m. to 7:00 a.m.	45	50	-	55	60	65
County of L.A.[4]	Residential	7:00 a.m. to 10:00 p.m.	50	55	-	70	65	70
		10:00 p.m. to 7:00 a.m.	45	50	-	65	60	65

[1] L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The percent noise level is the level exceeded "n" percent of the time during the measurement period. L_{25} is the noise level exceeded 25% of the time.
[2] Source: City of Claremont Municipal Code, Chapter 16.154.
[3] Source: City of Pomona Municipal Code, Article VII - Noise and Vibration Control.
[4] Source: City of La Verne Municipal Code, Chapter 8.20 & County of Los Angeles Municipal Code, Section 12.08.390.
[5] Source: City of Upland Municipal Code, Section 9.40.040.

3.2 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with construction, most jurisdictions establish limits to the hours of permitted activity. To provide a quantifiable evaluation of potential noise level impacts due to Project construction, the Municipal Code standards for construction were reviewed for each jurisdiction. Table 3-2 below shows the available, quantified construction noise level limits of all three jurisdictions.

TABLE 3-2: CONSTRUCTION NOISE LEVEL STANDARDS

Jurisdiction	Municipal Code Section	Construction Noise Level Standard(s) at Noise-Sensitive Uses
Claremont	16.154.020(F)(4)	65 dBA L_{25}, 70 dBA L_{17}, 79 dBA L_8, 80 dBA L_{max}
Pomona	18-305(3)	65 dBA
La Verne	n/a	n/a
Upland	n/a	n/a
County of L.A.	12.08.440	75 dBA L_{eq} (Mobile Equipment)
Acceptable Construction Noise Level Threshold:		65 dBA L_{eq}

"n/a" = Jurisdiction's municipal code does not specify a construction noise level standard.

For the purposes of this analysis, a 65 dBA L_{eq} threshold is used to represent a single numerical threshold to assess the potential construction noise level impacts at nearby sensitive receivers. While the L_{25} describes the noise levels occurring 25 percent of the time, the L_{eq} accounts for the total energy (average) observed for the entire hour during construction activities. Therefore, based on the noise level standards shown on Table 3-2, an acceptable construction noise level threshold of 65 dBA L_{eq} is used in this report to evaluate noise levels generated by Project construction at the nearby sensitive land uses. Moreover, the 65 dBA L_{eq} is more conservative than the 75 dBA L_{eq} mobile equipment construction noise level standard identified by the County of Los Angeles.

3.3 CONSTRUCTION VIBRATION STANDARDS

To provide a quantifiable evaluation of potential vibration level impacts due to Project construction, the Municipal Code standards for construction were reviewed for each jurisdiction. Table 3-3 below shows the available, quantified construction vibration level limits of all three jurisdictions.

TABLE 3-3: CONSTRUCTION VIBRATION LEVEL STANDARDS

Jurisdiction	Municipal Code Section	Root-Mean-Square Velocity Standard (in/sec)
Claremont	16.154.020(J)	0.05
Pomona	18-309	0.05
La Verne	n/a	n/a
Upland	n/a	n/a
County of L.A.	12.08.350	0.01

"n/a" = Jurisdiction's municipal code does not specify a construction vibration level standard.

Based on the available vibration level standards shown on Table 3-3, an acceptable construction vibration level threshold of 0.05 in/sec RMS is used in this report to evaluate vibration levels generated by Project construction at the nearby sensitive land uses within the Cities of Claremont, Pomona, La Verne, and Upland, and the County of Los Angeles threshold of 0.01 in/sec RMS is used to determine potential impacts at receivers in unincorporated areas of the County of Los Angeles.

4 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 16 24-hour noise level measurements were taken at sensitive receiver locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 4-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, June 19th, and Thursday, June 20th, 2019. Appendix 4.1 includes study area photos.

4.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (7)

4.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent any part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (3) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (6)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (6) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby

sensitive receiver locations allows for a comparison of the before and after Project noise levels and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

4.3 NOISE MEASUREMENT RESULTS

The noise measurements presented in this report focus on the average or equivalent sound levels (L_{eq}) and the median noise levels (L_{50}) consistent with local Municipal Code standards. The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period.

Table 4-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 4.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with the arterial roadway network and existing stationary-source activities in the Project study area. The 24-hour existing noise level measurements shown on Table 4-1 present the existing ambient noise conditions.

TABLE 4-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

ID[1]	Closest PID	Date	City	Description	Energy Average Noise Level (dBA L_{eq})[2]		Average Median Noise Level (dBA L_{50})[2]		CNEL
					Daytime	Nighttime	Daytime	Nighttime	
L1-1	K	6/19/19	Pomona	Located on Midvale Drive, southwest of the Fairplex Project site, within an existing single-family residential neighborhood.	54.1	49.5	48.7	47.1	57.4
L1-2	K	6/19/19	Pomona	Located on Laredo Avenue, northeast of the Fairplex Project site, within an existing single-family residential neighborhood.	59.9	51.8	51.0	46.0	61.2
L2	WT	6/19/19	Pomona	Located on Roderick Avenue, east of the Palomares Park Project site, within an existing single-family residential neighborhood.	59.5	49.1	46.6	42.3	59.8
L3-1	A	6/19/19	Pomona	Located on Stocker Street, north of the Reservoir 5 Project site, within an existing single-family residential neighborhood.	61.3	54.3	52.5	49.1	63.9
L3-2	A	6/19/19	Pomona	Located on Royalty Drive, west of the Reservoir 5 Project site, within an existing single-family residential neighborhood.	58.5	55.5	54.7	51.9	63.1
L4	B	6/19/19	La Verne	Located on 6th Street, north of the Lincoln Mills Project site, within an existing single-family residential neighborhood.	57.2	51.8	51.7	46.8	59.9
L5-1	C	6/19/19	Claremont	Located on East Green Street, south of the Del Monte Project site, within an existing single-family residential neighborhood.	60.1	48.3	45.1	41.2	59.8
L5-2	C	6/19/19	Claremont	Located on Plunk Place, south of the Del Monte Project site, adjacent to Claremont Dog Park.	52.4	47.4	45.6	42.0	55.7

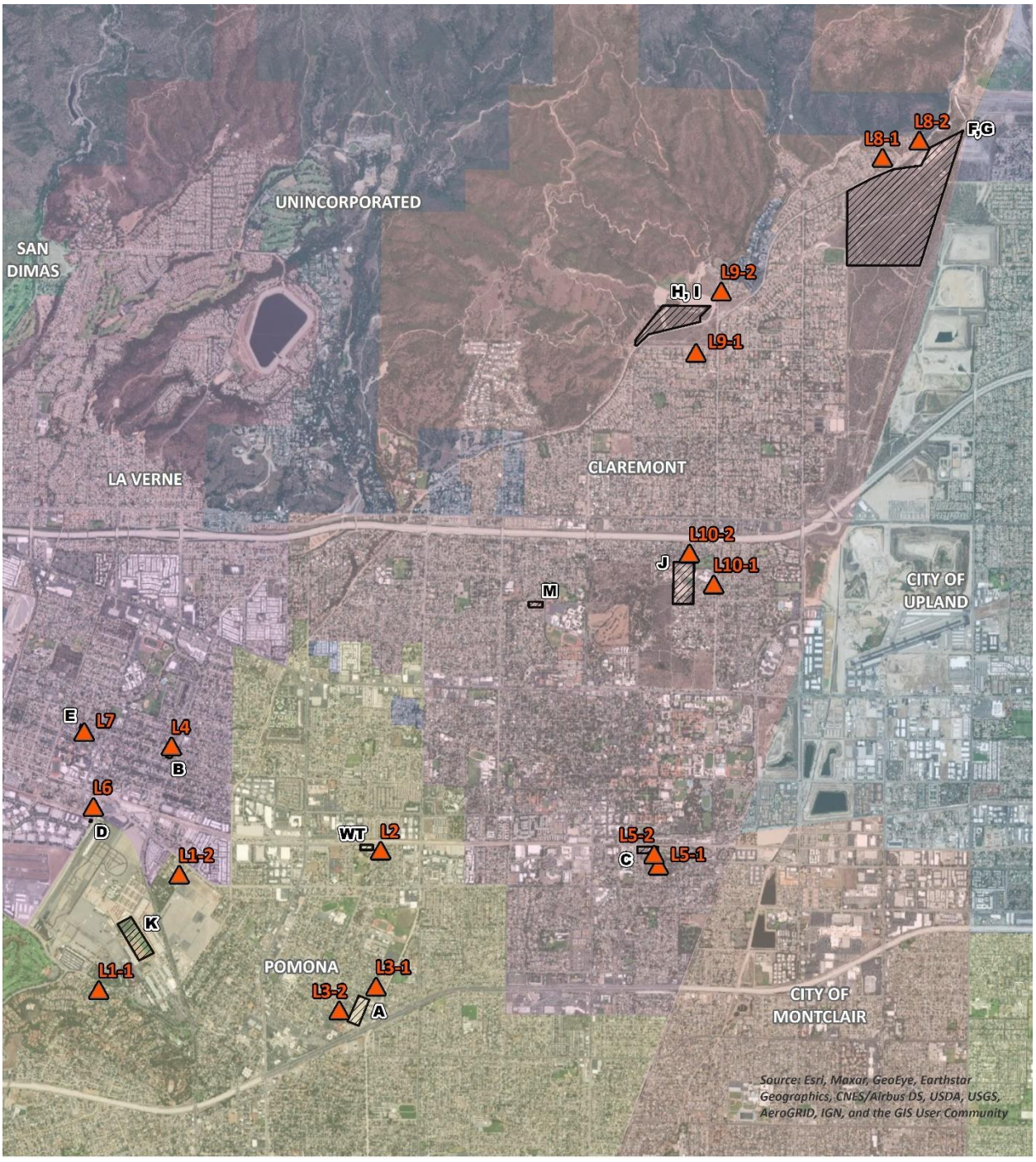
ID[1]	Closest PID	Date	City	Description	Energy Average Noise Level (dBA L_{eq})[2]		Average Median Noise Level (dBA L_{50})[2]		CNEL
					Daytime	Nighttime	Daytime	Nighttime	
L6	D	6/19/19	La Verne	Located on Walnut Street, north of the Durwood Project site, adjacent to existing single-family residential homes.	64.1	59.9	56.1	49.1	67.7
L7	E	6/19/19	La Verne	Located on 5th Street, south of the Old Baldy Project site, adjacent to existing single-family residential homes.	63.7	49.8	50.6	46.3	64.2
L8-1	F, G	6/20/19	Claremont	Located on Amundsen Branch, east of the San Antonio Wash Project site, within an existing single-family residential neighborhood.	47.4	40.0	40.8	37.3	48.9
L8-2	F, G	6/20/19	Claremont	Located on Fergus Falls, north of the San Antonio Wash Project Site, within an existing single-family residential neighborhood.	52.0	47.9	44.9	38.4	55.4
L9-1	H, I	6/20/19	Claremont	Located on Pennsylvania Avenue, south of the Thompson Creek SG Project site, within an existing single-family residential neighborhood.	55.2	43.6	43.3	39.6	55.0
L9-2	H, I	6/20/19	Claremont	Located on Adirondack Lane, northeast of the Thompson Creek SG Project site, within an existing single-family residential neighborhood.	53.8	43.8	44.6	38.6	54.2
L10-1	J	6/20/19	Claremont	Located on Chaparral Drive, east of the Pedley Project site, within an existing single-family residential neighborhood, near Chaparral Elementary School.	55.1	47.8	50.9	42.2	56.8
L10-2	J	6/20/19	Claremont	Located on Barrington Court, north of the Pedley Project site, within an existing single-family residential neighborhood, near Chaparral Park.	54.3	47.1	50.1	45.3	56.0

[1] See Exhibit 4-A for the noise level measurement locations.

[2] The long-term 24-hour measurement worksheets are included in Appendix 4.2.

"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.; "WT" = Potential Water Treatment Facility; "PID" = Project Identification Number.

EXHIBIT 4-A: NOISE MEASUREMENT LOCATIONS



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5 OPERATIONAL NOISE

This section analyzes the potential operational noise impacts due to the Project's stationary noise sources at off-site sensitive receiver locations.

5.1 OPERATIONAL REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, multiple reference noise level measurements were collected from similar types of activities to determine a conservative reference noise level for each activity and represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the highest reference noise level measurements shown on Table 5-1 used to estimate the Project operational noise impacts associated with enclosed well pump startup, air releases, and continuous pump activity, in addition to enclosed equipment exhaust activities.

TABLE 5-1: OPERATIONAL REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Duration (h:mm:ss)	Distance From Source (Feet)	Noise Source Height (Feet)	Noise Level (dBA L_{50})		Noise Level (dBA L_{25})	
				@ Ref. Distance	@ 50 Feet	@ Ref. Distance	@ 50 Feet
Well Pump Activities	***Highest Reference Noise Level @ 50 Feet:***				45.4		45.6
Well Pump Activity[1]	0:02:00	3'	5'	69.8	45.4	70.0	45.6
Well Pump Activity[2]	0:00:52	3'	5'	63.6	39.2	63.8	39.4
Well Pump Activity[3]	0:00:50	3'	3'	63.3	38.9	64.0	39.6
Well Pump Building[4]	0:01:00	3'	5'	58.8	34.4	60.2	35.8
Exhaust Activities	***Highest Reference Noise Level @ 50 Feet:***				47.7		47.9
Exhaust Vent[3]	0:00:25	5'	7'	67.7	47.7	67.9	47.9
Exhaust Louver[5]	0:00:30	5'	6'	66.8	46.8	67.7	47.7

[1] As measured by Urban Crossroads on 9/29/2015 at an existing Coachella Valley Water District well site located in the City of Palm Desert.
[2] As measured by Urban Crossroads on 9/29/2015 at an existing Coachella Valley Water District well site located in the City of Palm Desert.
[3] As measured by Urban Crossroads on 10/19/2016 at well site number 19 in the City of Coachella.
[4] As measured by Urban Crossroads on 10/19/2016 at well site number 17 in the City of Coachella.
[5] As measured by Urban Crossroads on 10/19/2016 at well site number 18 in the City of Coachella.

HIGHEST REFERENCE WELL PUMP ACTIVITY

A reference noise level measurement was taken on September 29th, 2015 by Urban Crossroads, Inc. at CVWD well site number 5676, located at 38-130 Portola Avenue in the City of Palm Desert and is used to describe the well pump activity expected at the Project facilities. The two-minute reference noise level measurement indicates that well pump activity generates noise levels of 45.4 dBA L_{50} at the uniform reference distance of 50 feet. Activities included in the reference noise level measurement were well pump startup, continuous pump activity, and an air release.

HIGHEST REFERENCE EXHAUST ACTIVITY

An exhaust vent reference noise level measurement was collected on October 19th, 2016, by Urban Crossroads, Inc. at well site number 18 in the City of Coachella and is used in this report to describe the highest reference noise level measurement for exhaust-related noise sources at Project facilities. The reference noise level measurement shows the noise levels exiting the exhaust vent approach 47.7 dBA L_{50} at the uniform reference distance of 50 feet. Activities included in the reference noise level measurement were well pump building exhaust noise, in addition to background well pump activities.

5.2 SENSITIVE RECEIVER LOCATIONS

Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses which are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, natural open space, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To determine the potential operational noise levels at adjacent sensitive receiver locations, the distance to the noise level contour for each jurisdiction's nighttime noise level standard is calculated for the enclosed well pump startup, air releases, and continuous pump activity, in addition to enclosed equipment exhaust activities.

5.3 OPERATIONAL NOISE LEVELS

Based upon the reference noise levels, previously discussed in Section 5.1, it is possible to estimate the distance from each Project-related operational noise activity to the noise level contour boundary of each jurisdiction's exterior noise level standards. The operational noise level calculations shown in this section account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. With geometric spreading, sound levels attenuate (or decrease) at a rate of 6 dB for each doubling of distance from a point source (e.g. well pumps and generators). It is important to note that the operational noise contour boundaries provided in this analysis do not account for any additional attenuation provided by existing barriers or topography at the adjacent receiver locations in the Project study area, and therefore, likely overstate Project operational noise levels.

Based on this program level analysis, the Project's anticipated operational noise sources will generate unmitigated noise level contour boundaries which will largely be located within the boundaries of each facility. At receiver locations in the City of Pomona, La Verne, Upland, and the County of Los Angeles, unmitigated well pump activity noise levels are shown to approach 45.4 dBA L_{50} at 50 feet, and enclosed equipment exhaust activity noise levels are shown to approach 47.7 dBA L_{50}. The City of Pomona, La Verne, Upland, and the County of Los Angeles identify nighttime noise level limits of 50 dBA L_{50} and 45 dBA L_{50}, respectively, and with the additional noise attenuation provided by distance, screen and perimeter walls at some of the well sites and at adjacent residential receiver locations, in addition to the enclosures recommended in this report, Project operational noise levels would be reduced by a minimum of 5 dBA to range from 40.4 dBA L_{50} to 42.7 dBA L_{50} at 50 feet.

At receiver locations in the City of Claremont, unmitigated well pump activity noise levels are shown to approach 45.6 dBA L_{25} at 50 feet, and enclosed equipment exhaust activity noise levels are shown to approach 47.9 dBA L_{25}. The City of Claremont identifies a nighttime noise level limit of 55 dBA L_{25}, and with the additional noise attenuation provided by distance, screen and perimeter walls at some of the well sites and at adjacent residential receiver locations, in addition to the enclosures recommended in this report, Project operational noise levels would be reduced by a minimum of 5 dBA to range from 40.6 dBA L_{50} to 42.9 dBA L_{50} at 50 feet. The 5 dBA of barrier attenuation assumed in this analysis is the minimum noise attenuation achievable by breaking the line-of-sight to the receiver location, which is anticipated to be attained by screen and perimeter walls at some of the well sites and at adjacent residential receiver locations, the enclosures recommended in this report, and existing intervening structures. (1)

Moreover, this program-level analysis assumes all Project operational activity is constantly occurring to present a conservative approach, when, the Project operational activities will occur as needed and vary throughout the daytime and nighttime hours. Since Project operational noise levels are generally considered exempt from the noise standards and are anticipated to remain below the adjacent jurisdictions' Municipal Code noise level limits, the Project operational noise level impacts would be *less than significant*.

TABLE 5-2: UNMITIGATED OPERATIONAL NOISE LEVELS

Highest Reference Noise Source	Unmitigated Reference Noise Level @ 50 Feet (dBA)[1]		Distance from Noise Source to Nighttime Noise Level Standard Contour[2]		
			dBA L_{25}	dBA L_{50}	
	L_{50}	L_{25}	Claremont (55 dBA L_{25})	Pomona (50 dBA L_{50})	La Verne, Upland, & County of L.A. (45 dBA L_{50})
Well Pump Activities	45.4	45.6	17'	29'	52'
Exhaust Activities	47.7	47.9	22'	38'	68'

[1] Highest reference noise level by activity type, as previously shown on Table 5-1.
[2] Estimated distance to the noise level contour boundary for each jurisdiction's nighttime noise level standard.

6 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from Project construction at off-site sensitive receiver locations.

6.1 CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 6-1 provides a summary of the construction reference noise level measurements. Since the reference noise levels were collected at varying distances, all construction noise level measurements presented on Table 6-1 have been adjusted to describe a common reference distance of 50 feet for comparison purposes.

The reference construction noise level measurements were selected based on the construction equipment list provided in the *Air Quality Impact Analysis.* (2)

TABLE 6-1: CONSTRUCTION REFERENCE NOISE LEVELS

ID	Noise Source	Duration (h:mm:ss)	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA L_{eq})	Reference Noise Levels @ 50 Feet (dBA L_{eq})[5]
1	Truck Pass-Bys & Dozer Activity[1]	0:01:15	30'	63.6	59.2
2	Dozer Activity[1]	0:01:00	30'	68.6	64.2
3	Well Pump Drilling[2]	1:00:00	100'	64.7	70.7
4	Non-Drilling Well Pump Construction Activity[3]	1:00:00	20'	70.8	62.8
5	Crane Activity[4]	0:01:08	60'	66.7	68.3

[1] As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.
[2] As measured on 11/8/2017 during 24-hour well drilling construction at the San Gabriel Valley Water Company Plant No. 1 facility.
[3] As measured on 5/4/2018 during well construction activities at the San Gabriel Valley Water Company Plant No. 1 facility.
[4] As measured by Urban Crossroads, Inc. on 5/18/2017 of crane movements and lifting activity in Costa Mesa.
[5] Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).

6.2 CONSTRUCTION NOISE LEVELS

Project construction activities are analyzed using the reference construction noise levels, previously shown on Table 6-1. Table 6-2 identifies the highest reference construction noise level used in this analysis to present a conservative approach. Based on the reference construction noise levels, the Project-related construction noise levels when the peak reference noise level is 70.7 dBA L_{eq} at a distance of 50 feet from primary construction activities.

TABLE 6-2: HIGHEST PROJECT CONSTRUCTION EQUIPMENT NOISE LEVELS AT 50 FEET

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Well Pump Drilling	70.7
Non-Drilling Well Pump Construction Activity	62.8
Crane Activity	68.3
Highest Reference Noise Level at 50 Feet:	70.7

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc. as previously shown on Table 6-1.

6.3 CONSTRUCTION NOISE LEVEL COMPLIANCE

The Six Basins construction noise analysis shows that sensitive receiver locations within 97 feet of the highest noise-generating Project construction activities would experience noise levels that could exceed the 65 dBA L_{eq} construction noise level threshold identified in this report, as shown on Table 6-3. The 65 dBA L_{eq} construction noise level threshold is based on the Municipal Code standards of jurisdictions identified in Section 3 and is used in this program-level analysis to identify the 97-foot, or 100-foot to be conservative, screening distance for focused construction noise analysis.

Based on reference construction noise level measurements collected by Urban Crossroads, Inc. of the construction activities anticipated to be required for Project construction, the highest noise level generating activity is expected to be well pump drilling. In addition, well pump drilling may occur over 24-hours for multiple days, and therefore, focused construction noise analysis based on detailed plans showing the location of potential well pump drilling is required to reduce Project construction noise levels at noise-sensitive receiver locations within 100 feet. With the construction noise mitigation measures identified in this report, Project construction noise levels would be reduced to *less than significant* impacts.

TABLE 6-3: FOCUSED CONSTRUCTION NOISE ANALYSIS SCREENING DISTANCE

Worst-Case Construction Activity	Highest Construction Noise Levels @ 50 Feet (dBA L_{eq})[1]	Distance to 65 dBA L_{eq} Noise Level Contour[2]
Grading & Well Drilling	70.7	97'

[1] Construction equipment noise levels as shown on Table 6-2.
[2] Estimated distance to the 65 dBA L_{eq} noise level contour.

6.4 CONSTRUCTION VIBRATION ASSESSMENT METHODOLOGY

This analysis focuses on the potential ground-borne vibration associated with construction activities. Construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) using the following vibration assessment methods defined by the FTA. (6) To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

TABLE 6-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089
Auger Drill	0.089

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

6.5 CONSTRUCTION VIBRATION LEVELS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to building, the vibration is usually short-term and is not of sufficient magnitude to cause building damage.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the FTA. Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading. Using the vibration source level of construction equipment provided on Table 6-4 and the

construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts.

Based on reference vibration levels provided by the FTA, drilling equipment and large mobile equipment (e.g., dozers, loaded trucks) represent the peak sources of vibration anticipated as part of Project construction activities. At screening distances ranging from 25 to 200 feet from Project construction activities, root-mean-square (RMS) vibration velocity levels are expected to range from 0.063 in/sec RMS at 25 feet to 0.003 in/sec RMS at 200 feet, as shown on Table 6-5.

The results of the program-level construction vibration analysis indicate that sensitive receiver locations within 25 feet of Project construction activities in the Cities of Claremont, Pomona, La Verne, and Upland are anticipated to experience vibration levels of up to 0.063 in/sec RMS and could potentially exceed the 0.05 in/sec RMS threshold. In addition, sensitive receiver locations within 50 feet of Project construction activities in unincorporated County of Los Angeles are anticipated to experience vibration levels ranging from 0.022 in/sec RMS at 50 feet to 0.063 in/sec RMS at 25 feet and could potentially exceed the 0.01 in/sec RMS threshold identified by the County of Los Angeles.

Therefore, Project construction vibration mitigation measures are required, as identified below, to provide focused analysis of individual activities and construction equipment once detailed construction plans are available for occupied sensitive receiver locations within the identified screening distances of Project construction activities, as outlined in the Executive Summary. With the construction vibration mitigation measures identified in this report, Project construction noise levels would be reduced to *less than significant* impacts.

TABLE 6-5: FOCUSED CONSTRUCTION VIBRATION ANALYSIS SCREENING DISTANCE

Distance to Const. Activity (Feet)	Receiver PPV Levels (in/sec)[1]						RMS Velocity Levels (in/sec)[2]	Thresholds		Threshold Exceeded?[3]	
	Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Auger Drilling	Peak Vibration (PPV)		Cities	County of L.A.	Cities	County of L.A.
25'	0.003	0.035	0.076	0.089	0.089	0.089	0.063	0.05	0.01	Yes	Yes
50'	0.001	0.012	0.027	0.031	0.031	0.031	0.022	0.05	0.01	No	Yes
100'	0.000	0.004	0.010	0.011	0.011	0.011	0.008	0.05	0.01	No	No
200'	0.000	0.002	0.003	0.004	0.004	0.004	0.003	0.05	0.01	No	No

[1] Based on the Vibration Source Levels of Construction Equipment included on Table 6-4.
[2] Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.
[3] Does the vibration level exceed the acceptable vibration threshold shown on Table 3-3?

7 REFERENCES

1. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
2. **Urban Crossroads, Inc.** *Six Basins Air Quality Impact Analysis.* July 2019.
3. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
4. **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. EPA/ONAC 550/9/74-004.
5. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
6. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* September 2018.
7. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*

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8 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Six Basins Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 584-3148.

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Principal
URBAN CROSSROADS, INC.
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blawson@urbanxroads.com

EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 4.1:

STUDY AREA PHOTOS

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JN:11676 Study Area Photos

L1-1 Northeast
34, 4' 51.340000", 117, 46' 9.980000"

L1-1 Northwest
34, 4' 51.650000", 117, 46' 9.740000"

L1-1 Southeast
34, 4' 51.360000", 117, 46' 9.980000"

L1-1 Southwest
34, 4' 51.370000", 117, 46' 9.930000"

L1-2 Northeast
34, 5' 27.630000", 117, 45' 40.430000"

L1-2 Northwest
34, 5' 27.530000", 117, 45' 40.400000"

JN:11676 Study Area Photos

L1-2 Southeast
34, 5' 27.580000", 117, 45' 40.370000"

L1-2 Southwest
34, 5' 27.540000", 117, 45' 40.370000"

L2 East
34, 5' 35.410000", 117, 44' 27.230000"

L2 North
34, 5' 35.360000", 117, 44' 27.230000"

L2 South
34, 5' 35.360000", 117, 44' 27.370000"

L2 West
34, 5' 35.360000", 117, 44' 27.290000"

L3-1 East
34, 4' 53.870000", 117, 44' 28.280000"

L3-1 North
34, 4' 53.900000", 117, 44' 28.220000"

L3-1 South
34, 4' 53.870000", 117, 44' 28.280000"

L3-1 West
34, 4' 53.880000", 117, 44' 28.220000"

L3-2 East
34, 4' 46.450000", 117, 44' 41.740000"

L3-2 North
34, 4' 46.500000", 117, 44' 41.540000"

L3-2 South
34, 4' 46.480000", 117, 44' 41.680000"

L3-2 West
34, 4' 46.430000", 117, 44' 41.630000"

L4 East
34, 6' 6.200000", 117, 45' 44.380000"

L4 North
34, 6' 6.240000", 117, 45' 44.410000"

L4 South
34, 6' 6.260000", 117, 45' 44.440000"

L4 West
34, 6' 6.160000", 117, 45' 44.410000"

L5-1 East
34, 5' 31.970000", 117, 42' 45.360000"

L5-1 North
34, 5' 31.950000", 117, 42' 45.360000"

L5-1 South
34, 5' 31.920000", 117, 42' 45.360000"

L5-1 West
34, 5' 31.950000", 117, 42' 45.340000"

L5-2 East
34, 5' 35.390000", 117, 42' 47.040000"

L5-2 North
34, 5' 35.370000", 117, 42' 47.070000"

JN:11676 Study Area Photos

L5-2 South
34, 5' 35.400000", 117, 42' 47.040000"

L5-2 West
34, 5' 35.360000", 117, 42' 46.980000"

L6 East
34, 5' 47.290000", 117, 46' 12.650000"

L6 North
34, 5' 47.360000", 117, 46' 12.620000"

L6 South
34, 5' 47.400000", 117, 46' 12.650000"

L6 West
34, 5' 47.370000", 117, 46' 12.620000"

L7 East
34, 6' 10.180000", 117, 46' 16.410000"

L7 North
34, 6' 10.180000", 117, 46' 16.490000"

L7 South
34, 6' 10.160000", 117, 46' 16.410000"

L7 West
34, 6' 10.200000", 117, 46' 16.460000"

L8-1 East
34, 9' 8.260000", 117, 41' 27.250000"

L8-1 North
34, 9' 8.440000", 117, 41' 26.980000"

JN:11676 Study Area Photos

L8-1 South
34, 9' 8.460000", 117, 41' 27.080000"

L8-1 West
34, 9' 8.480000", 117, 41' 27.000000"

L8-2 East
34, 9' 13.830000", 117, 41' 13.570000"

L8-2 North
34, 9' 13.850000", 117, 41' 13.490000"

L8-2 South
34, 9' 13.850000", 117, 41' 13.570000"

L8-2 West
34, 9' 13.830000", 117, 41' 13.570000"

L9-1 East
34, 8' 8.250000", 117, 42' 34.430000"

L9-1 North
34, 8' 8.300000", 117, 42' 34.270000"

L9-1 South
34, 8' 8.300000", 117, 42' 34.290000"

L9-1 West
34, 8' 8.340000", 117, 42' 34.270000"

L9-2 East
34, 8' 27.200000", 117, 42' 25.480000"

L9-2 North
34, 8' 27.180000", 117, 42' 25.340000"

JN:11676 Study Area Photos

L9-2 South
34, 8' 27.350000", 117, 42' 25.420000"

L9-2 West
34, 8' 27.310000", 117, 42' 25.420000"

L10-1 East
34, 6' 57.840000", 117, 42' 26.630000"

L10-1 North
34, 6' 57.820000", 117, 42' 26.600000"

L10-1 South
34, 6' 57.850000", 117, 42' 26.820000"

L10-1 West
34, 6' 57.760000", 117, 42' 26.690000"

JN:11676 Study Area Photos

L10-2 East
34, 7' 7.130000", 117, 42' 35.910000"

L10-2 North
34, 7' 7.200000", 117, 42' 35.860000"

L10-2 South
34, 7' 7.000000", 117, 42' 35.910000"

L10-2 West
34, 7' 7.200000", 117, 42' 35.750000"

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APPENDIX 4.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

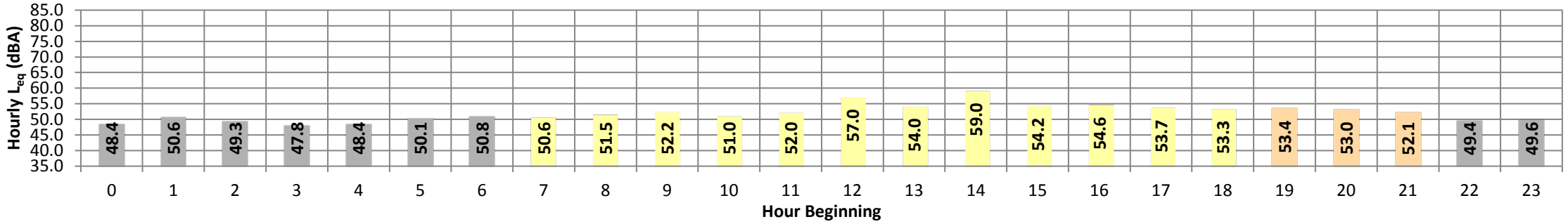
Date: Wednesday, June 19, 2019
Project: Six Basins

Location: L1-1 - Located on Midvale Drive, southwest of the Fairplex Project site, within an existing single-family residential neighborhood.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	48.4	63.1	46.3	57.0	53.0	49.0	48.0	48.0	46.0	46.0	46.0	46.0	48.4	10.0	58.4
	1	50.6	66.3	46.4	61.0	59.0	56.0	53.0	48.0	47.0	46.0	46.0	46.0	50.6	10.0	60.6
	2	49.3	72.4	46.4	56.0	52.0	49.0	49.0	48.0	48.0	46.0	46.0	46.0	49.3	10.0	59.3
	3	47.8	63.3	46.3	52.0	49.0	48.0	48.0	48.0	46.0	46.0	46.0	46.0	47.8	10.0	57.8
	4	48.4	64.5	46.3	56.0	53.0	50.0	49.0	48.0	47.0	46.0	46.0	46.0	48.4	10.0	58.4
	5	50.1	69.3	46.3	59.0	57.0	53.0	51.0	48.0	48.0	46.0	46.0	46.0	50.1	10.0	60.1
	6	50.8	73.6	46.3	61.0	58.0	54.0	52.0	48.0	47.0	46.0	46.0	46.0	50.8	10.0	60.8
Day	7	50.6	70.9	46.3	61.0	56.0	53.0	52.0	49.0	48.0	46.0	46.0	46.0	50.6	0.0	50.6
	8	51.5	70.0	46.3	59.0	57.0	55.0	54.0	51.0	49.0	46.0	46.0	46.0	51.5	0.0	51.5
	9	52.2	76.6	46.2	62.0	60.0	57.0	55.0	49.0	46.0	46.0	46.0	46.0	52.2	0.0	52.2
	10	51.0	75.7	43.4	61.0	58.0	53.0	52.0	48.0	47.0	46.0	46.0	44.0	51.0	0.0	51.0
	11	52.0	71.4	45.6	62.0	60.0	56.0	55.0	50.0	47.0	46.0	46.0	46.0	52.0	0.0	52.0
	12	57.0	82.4	46.4	67.0	65.0	61.0	59.0	54.0	51.0	48.0	48.0	47.0	57.0	0.0	57.0
	13	54.0	76.6	46.4	66.0	62.0	56.0	54.0	51.0	49.0	47.0	46.0	46.0	54.0	0.0	54.0
	14	59.0	77.6	46.4	70.0	68.0	63.0	61.0	57.0	53.0	48.0	48.0	46.0	59.0	0.0	59.0
	15	54.2	78.7	46.4	64.0	60.0	56.0	54.0	52.0	50.0	48.0	48.0	46.0	54.2	0.0	54.2
	16	54.6	80.3	46.3	64.0	61.0	57.0	55.0	52.0	50.0	48.0	47.0	46.0	54.6	0.0	54.6
	17	53.7	72.4	46.3	64.0	61.0	58.0	56.0	53.0	50.0	47.0	46.0	46.0	53.7	0.0	53.7
	18	53.3	75.7	46.4	64.0	61.0	57.0	55.0	51.0	48.0	46.0	46.0	46.0	53.3	0.0	53.3
Evening	19	53.4	74.9	46.3	64.0	62.0	59.0	56.0	50.0	48.0	46.0	46.0	46.0	53.4	5.0	58.4
	20	53.0	74.3	46.3	65.0	61.0	56.0	53.0	49.0	47.0	46.0	46.0	46.0	53.0	5.0	58.0
	21	52.1	75.2	46.4	63.0	61.0	55.0	52.0	48.0	48.0	46.0	46.0	46.0	52.1	5.0	57.1
Night	22	49.4	67.4	46.4	59.0	55.0	51.0	50.0	48.0	48.0	46.0	46.0	46.0	49.4	10.0	59.4
	23	49.6	68.5	46.3	60.0	57.0	51.0	49.0	48.0	47.0	46.0	46.0	46.0	49.6	10.0	59.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	50.6	70.0	43.4	59.0	56.0	53.0	52.0	48.0	46.0	46.0	46.0	44.0
	Max	59.0	82.4	46.4	70.0	68.0	63.0	61.0	57.0	53.0	48.0	48.0	47.0
Energy Average		54.3	Average:		63.7	60.8	56.8	55.2	51.4	49.0	46.8	46.6	45.9
Evening	Min	52.1	74.3	46.3	63.0	61.0	55.0	52.0	48.0	47.0	46.0	46.0	46.0
	Max	53.4	75.2	46.4	65.0	62.0	59.0	56.0	50.0	48.0	46.0	46.0	46.0
Energy Average		52.9	Average:		64.0	61.3	56.7	53.7	49.0	47.7	46.0	46.0	46.0
Night	Min	47.8	63.1	46.3	52.0	49.0	48.0	48.0	48.0	46.0	46.0	46.0	46.0
	Max	50.8	73.6	46.4	61.0	59.0	56.0	53.0	48.0	48.0	46.0	46.0	46.0
Energy Average		49.5	Average:		57.9	54.8	51.2	49.9	48.0	47.1	46.0	46.0	46.0

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
52.9	54.1	49.5

24-Hour CNEL (dBA)
57.4

24-Hour Noise Level Measurement Summary

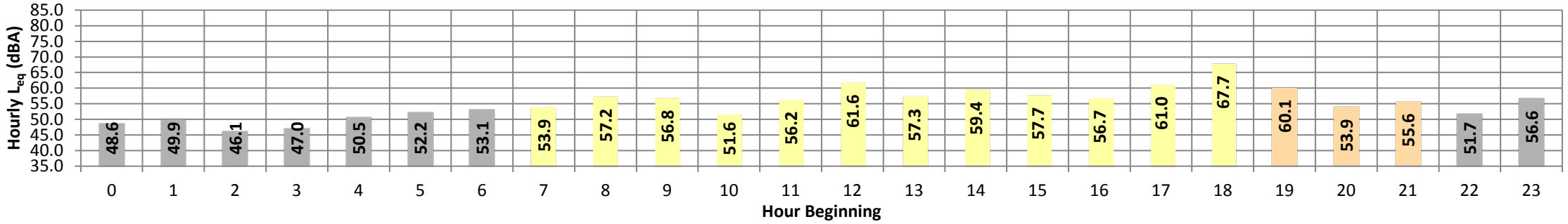
Date: Wednesday, June 19, 2019
Project: Six Basins

Location: L1-2 - Located on Laredo Avenue, northeast of the Fairplex Project site, within an existing single-family residential neighborhood.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	48.6	65.8	40.5	60.0	57.0	52.0	50.0	47.0	44.0	42.0	42.0	41.0	48.6	10.0	58.6
	1	49.9	64.3	38.8	61.0	60.0	57.0	54.0	46.0	43.0	40.0	40.0	40.0	49.9	10.0	59.9
	2	46.1	67.0	38.8	57.0	54.0	49.0	47.0	43.0	42.0	40.0	40.0	39.0	46.1	10.0	56.1
	3	47.0	70.0	40.1	56.0	52.0	49.0	48.0	45.0	43.0	41.0	40.0	40.0	47.0	10.0	57.0
	4	50.5	69.2	41.6	60.0	57.0	54.0	53.0	50.0	47.0	43.0	42.0	42.0	50.5	10.0	60.5
	5	52.2	69.1	43.2	59.0	58.0	56.0	55.0	52.0	50.0	46.0	45.0	44.0	52.2	10.0	62.2
	6	53.1	70.8	42.8	62.0	59.0	56.0	55.0	53.0	51.0	47.0	46.0	44.0	53.1	10.0	63.1
Day	7	53.9	74.2	40.8	65.0	62.0	57.0	56.0	52.0	50.0	45.0	44.0	42.0	53.9	0.0	53.9
	8	57.2	85.8	41.6	66.0	60.0	56.0	55.0	52.0	49.0	45.0	44.0	42.0	57.2	0.0	57.2
	9	56.8	83.3	41.6	67.0	63.0	57.0	55.0	52.0	49.0	45.0	44.0	42.0	56.8	0.0	56.8
	10	51.6	68.7	42.9	60.0	57.0	55.0	54.0	51.0	49.0	46.0	45.0	44.0	51.6	0.0	51.6
	11	56.2	83.0	43.4	65.0	62.0	59.0	58.0	54.0	51.0	46.9	45.0	44.0	56.2	0.0	56.2
	12	61.6	83.8	45.9	75.0	72.0	66.0	63.0	54.0	51.0	49.0	48.0	47.0	61.6	0.0	61.6
	13	57.3	83.7	46.4	67.0	64.0	59.0	56.0	53.0	51.0	49.0	48.0	47.0	57.3	0.0	57.3
	14	59.4	83.0	47.6	71.0	67.0	63.0	60.0	55.0	53.0	50.0	49.0	48.0	59.4	0.0	59.4
	15	57.7	80.4	47.8	67.0	65.0	61.0	60.0	56.0	54.0	50.0	50.0	48.0	57.7	0.0	57.7
	16	56.7	82.5	47.1	66.0	63.0	59.0	57.0	54.0	52.0	50.0	49.0	48.0	56.7	0.0	56.7
	17	61.0	91.0	47.3	67.0	65.0	62.0	60.0	55.0	53.0	50.0	49.0	48.0	61.0	0.0	61.0
	18	67.7	89.6	47.0	81.0	78.0	73.0	69.0	57.0	53.0	50.0	49.0	48.0	67.7	0.0	67.7
Evening	19	60.1	84.5	45.3	71.0	66.0	62.0	59.0	54.0	51.0	48.0	47.0	46.0	60.1	5.0	65.1
	20	53.9	77.8	44.3	63.0	61.0	57.0	55.0	52.0	50.0	47.0	46.0	46.0	53.9	5.0	58.9
	21	55.6	80.3	44.8	65.0	62.0	57.0	55.0	51.0	49.0	46.0	46.0	45.0	55.6	5.0	60.6
Night	22	51.7	70.1	44.7	61.0	59.0	55.0	54.0	50.0	48.0	46.0	46.0	45.0	51.7	10.0	61.7
	23	56.6	82.0	42.4	66.0	61.0	54.0	52.0	48.0	46.0	44.0	43.0	42.0	56.6	10.0	66.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	51.6	68.7	40.8	60.0	57.0	55.0	54.0	51.0	49.0	45.0	44.0	42.0
	Max	67.7	91.0	47.8	81.0	78.0	73.0	69.0	57.0	54.0	50.0	50.0	48.0
Energy Average		60.3	Average:		68.1	64.8	60.6	58.6	53.8	51.3	48.0	47.0	45.7
Evening	Min	53.9	77.8	44.3	63.0	61.0	57.0	55.0	51.0	49.0	46.0	46.0	45.0
	Max	60.1	84.5	45.3	71.0	66.0	62.0	59.0	54.0	51.0	48.0	47.0	46.0
Energy Average		57.4	Average:		66.3	63.0	58.7	56.3	52.3	50.0	47.0	46.3	45.7
Night	Min	46.1	64.3	38.8	56.0	52.0	49.0	47.0	43.0	42.0	40.0	40.0	39.0
	Max	56.6	82.0	44.7	66.0	61.0	57.0	55.0	53.0	51.0	47.0	46.0	45.0
Energy Average		51.8	Average:		60.2	57.4	53.6	52.0	48.2	46.0	43.2	42.7	41.9

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
58.2	59.9	51.8

24-Hour CNEL (dBA)
61.2

24-Hour Noise Level Measurement Summary

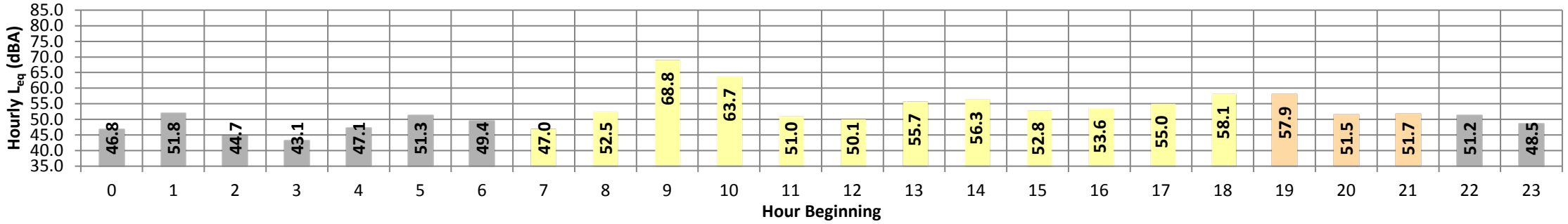
Date: Wednesday, June 19, 2019
Project: Six Basins

Location: L2 - Located on Roderick Avenue, east of the Palomares Park Project site, within an existing single-family residential neighborhood.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	46.8	65.2	40.1	59.0	55.0	49.0	48.0	43.0	42.0	40.0	40.0	40.0	46.8	10.0	56.8
	1	51.8	66.6	38.7	64.0	62.0	60.0	57.0	45.0	41.0	39.0	38.0	38.0	51.8	10.0	61.8
	2	44.7	66.4	38.4	57.0	49.0	43.0	42.0	40.0	39.0	38.0	38.0	38.0	44.7	10.0	54.7
	3	43.1	64.8	38.7	51.0	48.0	43.0	42.0	40.0	40.0	38.0	38.0	38.0	43.1	10.0	53.1
	4	47.1	67.6	38.6	58.0	54.0	50.0	48.0	44.0	41.0	39.0	38.0	38.0	47.1	10.0	57.1
	5	51.3	70.3	38.8	62.0	61.0	57.0	55.0	48.0	45.0	41.0	40.0	40.0	51.3	10.0	61.3
	6	49.4	72.4	39.2	59.0	58.0	54.0	52.0	46.0	44.0	41.0	40.0	40.0	49.4	10.0	59.4
Day	7	47.0	68.7	38.7	59.0	56.0	51.0	49.0	43.0	41.0	40.0	39.0	38.0	47.0	0.0	47.0
	8	52.5	79.7	38.8	63.0	62.0	57.0	54.0	46.0	43.0	41.0	40.0	40.0	52.5	0.0	52.5
	9	68.8	86.5	38.8	82.0	80.0	76.0	74.0	52.0	45.0	41.0	40.0	40.0	68.8	0.0	68.8
	10	63.7	84.8	40.6	78.0	75.0	64.0	60.0	49.0	46.0	42.0	42.0	41.0	63.7	0.0	63.7
	11	51.0	71.7	40.5	62.0	60.0	56.0	54.0	47.0	44.0	42.0	41.0	41.0	51.0	0.0	51.0
	12	50.1	69.8	41.5	61.0	59.0	55.0	53.0	47.0	44.0	42.0	42.0	41.0	50.1	0.0	50.1
	13	55.7	80.3	44.8	68.0	64.0	59.0	55.0	49.0	48.0	46.0	45.0	45.0	55.7	0.0	55.7
	14	56.3	79.7	44.6	70.0	67.0	59.0	56.0	51.0	48.0	46.0	45.0	45.0	56.3	0.0	56.3
	15	52.8	75.8	44.6	61.0	59.0	56.0	54.0	50.0	48.0	46.0	45.0	45.0	52.8	0.0	52.8
	16	53.6	70.9	44.9	62.0	60.0	59.0	58.0	53.0	50.0	47.0	46.0	45.0	53.6	0.0	53.6
	17	55.0	76.0	44.6	64.0	62.0	60.0	59.0	54.0	50.0	46.0	46.0	45.0	55.0	0.0	55.0
	18	58.1	85.4	44.7	69.0	65.0	59.0	58.0	51.0	48.0	46.0	46.0	45.0	58.1	0.0	58.1
Evening	19	57.9	86.4	45.7	65.0	63.0	60.0	58.0	52.0	49.0	47.0	47.0	46.0	57.9	5.0	62.9
	20	51.5	71.2	44.8	61.0	59.0	56.0	54.0	50.0	48.0	46.0	46.0	45.0	51.5	5.0	56.5
	21	51.7	70.1	43.5	63.0	60.0	57.0	54.0	48.0	47.0	45.0	45.0	44.0	51.7	5.0	56.7
Night	22	51.2	74.4	42.6	60.0	58.0	56.0	54.0	47.0	45.0	43.0	43.0	42.0	51.2	10.0	61.2
	23	48.5	66.2	40.5	60.0	57.0	52.0	49.0	45.0	44.0	41.0	41.0	40.0	48.5	10.0	58.5

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	47.0	68.7	38.7	59.0	56.0	51.0	49.0	43.0	41.0	40.0	39.0	38.0
	Max	68.8	86.5	44.9	82.0	80.0	76.0	74.0	54.0	50.0	47.0	46.0	45.0
Energy Average		60.2	Average:		66.6	64.1	59.3	57.0	49.3	46.3	43.8	43.1	42.6
Evening	Min	51.5	70.1	43.5	61.0	59.0	56.0	54.0	48.0	47.0	45.0	45.0	44.0
	Max	57.9	86.4	45.7	65.0	63.0	60.0	58.0	52.0	49.0	47.0	47.0	46.0
Energy Average		54.8	Average:		63.0	60.7	57.7	55.3	50.0	48.0	46.0	46.0	45.0
Night	Min	43.1	64.8	38.4	51.0	48.0	43.0	42.0	40.0	39.0	38.0	38.0	38.0
	Max	51.8	74.4	42.6	64.0	62.0	60.0	57.0	48.0	45.0	43.0	43.0	42.0
Energy Average		49.1	Average:		58.9	55.8	51.6	49.7	44.2	42.3	40.0	39.6	39.3

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
57.7	**59.5**	**49.1**

24-Hour CNEL (dBA)

59.8

24-Hour Noise Level Measurement Summary

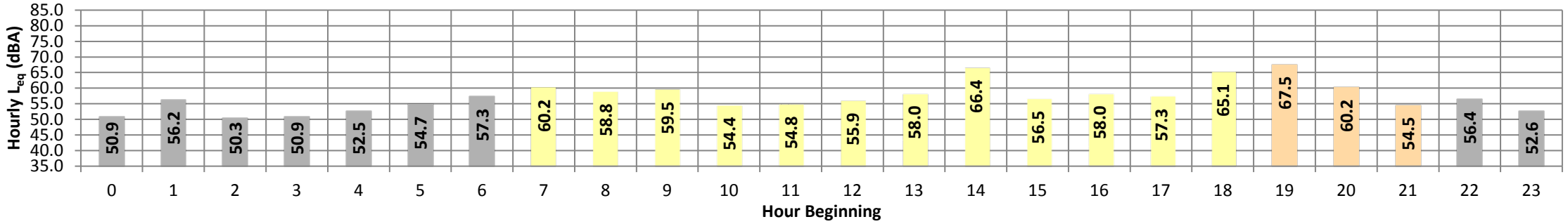
Date: Wednesday, June 19, 2019
Project: Six Basins

Location: L3-1 - Located on Stocker Street, north of the Reservoir 5 Project site, within existing single-family residential neighborhood.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	50.9	69.1	43.9	62.0	60.0	54.0	52.0	49.0	47.0	45.0	45.0	44.0	50.9	10.0	60.9
	1	56.2	79.9	43.8	67.0	65.0	62.0	59.0	50.0	48.0	45.0	45.0	44.0	56.2	10.0	66.2
	2	50.3	70.2	42.2	62.0	58.0	52.0	51.0	48.0	47.0	45.0	44.0	43.0	50.3	10.0	60.3
	3	50.9	70.8	44.4	58.0	55.0	52.0	52.0	50.0	48.0	46.0	46.0	45.0	50.9	10.0	60.9
	4	52.5	70.6	45.9	62.0	59.0	55.0	53.0	51.0	50.0	48.0	47.0	46.0	52.5	10.0	62.5
	5	54.7	72.2	47.9	65.0	63.0	59.0	57.0	53.0	51.0	49.0	49.0	48.0	54.7	10.0	64.7
	6	57.3	75.5	47.5	68.0	66.0	63.0	60.0	55.0	52.0	50.0	49.0	48.0	57.3	10.0	67.3
Day	7	60.2	88.6	47.4	70.0	67.0	63.0	60.0	54.0	52.0	49.0	49.0	48.0	60.2	0.0	60.2
	8	58.8	87.7	45.6	65.0	61.0	58.0	55.0	52.0	50.0	47.0	47.0	46.0	58.8	0.0	58.8
	9	59.5	89.6	45.5	65.0	62.0	59.0	57.0	52.0	50.0	48.0	47.0	46.0	59.5	0.0	59.5
	10	54.4	79.2	45.3	64.0	61.0	58.0	55.0	51.0	49.0	47.0	46.0	46.0	54.4	0.0	54.4
	11	54.8	76.1	44.8	65.0	62.0	59.0	57.0	52.0	49.0	47.0	47.0	45.0	54.8	0.0	54.8
	12	55.9	78.5	46.3	66.0	63.0	59.0	57.0	54.0	52.0	48.0	48.0	47.0	55.9	0.0	55.9
	13	58.0	75.9	47.4	68.0	66.0	63.0	61.0	56.0	53.0	50.0	50.0	49.0	58.0	0.0	58.0
	14	66.4	93.6	48.5	76.0	70.0	65.0	63.0	55.0	53.0	50.0	50.0	49.0	66.4	0.0	66.4
	15	56.5	75.6	48.3	65.0	63.0	60.0	58.0	55.0	54.0	51.0	50.0	49.0	56.5	0.0	56.5
	16	58.0	75.3	48.6	68.0	66.0	63.0	61.0	56.0	54.0	51.0	50.0	50.0	58.0	0.0	58.0
	17	57.3	80.9	48.8	66.0	64.0	62.0	60.0	56.0	53.0	51.0	50.0	49.0	57.3	0.0	57.3
	18	65.1	90.1	50.4	75.0	68.0	64.0	62.0	57.0	55.0	53.0	52.0	51.0	65.1	0.0	65.1
Evening	19	67.5	88.6	52.2	80.0	77.0	73.0	71.0	60.0	57.0	54.0	54.0	53.0	67.5	5.0	72.5
	20	60.2	82.3	50.5	71.0	67.0	63.0	61.0	56.0	54.0	52.0	52.0	51.0	60.2	5.0	65.2
	21	54.5	70.6	48.3	63.0	61.0	59.0	57.0	53.0	52.0	50.0	49.0	49.0	54.5	5.0	59.5
Night	22	56.4	77.3	46.9	68.0	63.0	60.0	58.0	52.0	50.0	48.0	48.0	47.0	56.4	10.0	66.4
	23	52.6	73.8	44.8	64.0	61.0	57.0	54.0	50.0	49.0	46.0	46.0	45.0	52.6	10.0	62.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	54.4	75.3	44.8	64.0	61.0	58.0	55.0	51.0	49.0	47.0	46.0	45.0
	Max	66.4	93.6	50.4	76.0	70.0	65.0	63.0	57.0	55.0	53.0	52.0	51.0
Energy Average		60.5	Average:		67.8	64.4	61.1	58.8	54.2	52.0	49.3	48.8	47.9
Evening	Min	54.5	70.6	48.3	63.0	61.0	59.0	57.0	53.0	52.0	50.0	49.0	49.0
	Max	67.5	88.6	52.2	80.0	77.0	73.0	71.0	60.0	57.0	54.0	54.0	53.0
Energy Average		63.7	Average:		71.3	68.3	65.0	63.0	56.3	54.3	52.0	51.7	51.0
Night	Min	50.3	69.1	42.2	58.0	55.0	52.0	51.0	48.0	47.0	45.0	44.0	43.0
	Max	57.3	79.9	47.9	68.0	66.0	63.0	60.0	55.0	52.0	50.0	49.0	48.0
Energy Average		54.3	Average:		64.0	61.1	57.1	55.1	50.9	49.1	46.9	46.6	45.6

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
59.8	61.3	54.3

24-Hour CNEL (dBA)
63.9

24-Hour Noise Level Measurement Summary

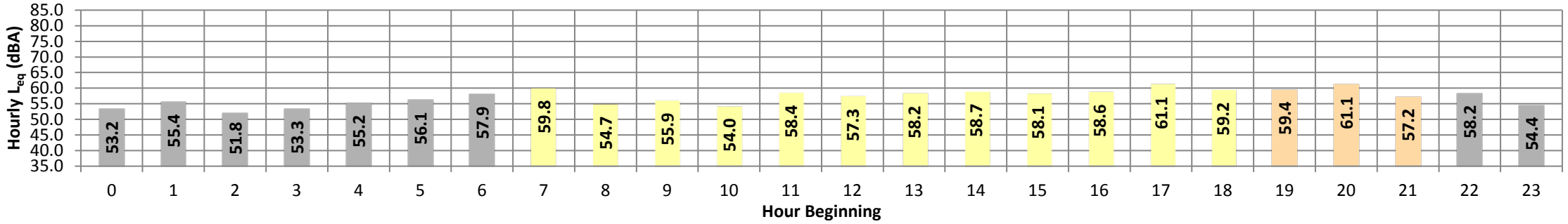
Date: Wednesday, June 19, 2019
Project: Six Basins

Location: L3-2 - Located on Royalty Drive, west of the Reservoir 5 Project site, within an existing single-family residential neighborhood.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	53.2	71.6	45.6	65.0	62.0	56.0	53.0	51.0	50.0	48.0	48.0	47.0	53.2	10.0	63.2
	1	55.4	71.8	45.8	66.0	64.0	61.0	58.0	53.0	51.0	48.0	48.0	47.0	55.4	10.0	65.4
	2	51.8	70.6	44.0	62.0	58.0	54.0	53.0	50.0	49.0	47.0	46.0	45.0	51.8	10.0	61.8
	3	53.3	67.0	47.3	59.0	57.0	55.0	55.0	53.0	52.0	49.0	49.0	48.0	53.3	10.0	63.3
	4	55.2	71.8	49.9	62.0	61.0	57.0	56.0	55.0	54.0	52.0	51.0	50.0	55.2	10.0	65.2
	5	56.1	73.9	49.7	65.0	63.0	61.0	59.0	55.0	53.0	51.0	51.0	50.0	56.1	10.0	66.1
	6	57.9	82.9	49.1	66.0	64.0	62.0	60.0	55.0	53.0	50.0	50.0	49.0	57.9	10.0	67.9
Day	7	59.8	86.7	49.7	68.0	64.0	61.0	59.0	55.0	54.0	52.0	51.0	50.0	59.8	0.0	59.8
	8	54.7	73.4	45.1	64.0	62.0	60.0	58.0	53.0	51.0	48.0	47.0	45.0	54.7	0.0	54.7
	9	55.9	73.0	45.7	65.0	63.0	61.0	60.0	55.0	52.0	49.0	48.0	47.0	55.9	0.0	55.9
	10	54.0	71.4	45.6	64.0	63.0	60.0	58.0	51.0	49.0	47.0	46.0	46.0	54.0	0.0	54.0
	11	58.4	80.2	45.8	67.0	65.0	63.0	61.0	58.0	53.0	48.0	47.0	46.0	58.4	0.0	58.4
	12	57.3	73.4	47.8	66.0	65.0	62.0	60.0	56.0	55.0	51.0	50.0	49.0	57.3	0.0	57.3
	13	58.2	73.3	48.9	65.0	64.0	62.0	61.0	58.0	56.0	53.0	52.0	50.0	58.2	0.0	58.2
	14	58.7	77.2	49.0	67.0	65.0	63.0	61.0	57.0	56.0	53.0	52.0	51.0	58.7	0.0	58.7
	15	58.1	71.7	51.6	65.0	64.0	62.0	61.0	58.0	56.0	54.0	53.0	52.0	58.1	0.0	58.1
	16	58.6	71.3	50.0	66.0	65.0	63.0	62.0	58.0	56.0	54.0	54.0	52.0	58.6	0.0	58.6
	17	61.1	86.2	52.3	71.0	68.0	64.0	63.0	58.0	56.0	54.0	53.0	53.0	61.1	0.0	61.1
	18	59.2	78.1	53.4	66.0	65.0	62.0	61.0	58.0	57.0	55.0	55.0	54.0	59.2	0.0	59.2
Evening	19	59.4	74.9	54.1	66.0	65.0	63.0	62.0	59.0	58.0	56.0	55.0	54.0	59.4	5.0	64.4
	20	61.1	80.6	53.3	71.0	69.0	66.0	65.0	59.0	57.0	55.0	55.0	54.0	61.1	5.0	66.1
	21	57.2	73.9	50.6	65.0	64.0	61.0	59.0	56.0	55.0	53.0	52.0	52.0	57.2	5.0	62.2
Night	22	58.2	74.6	48.9	69.0	66.0	63.0	61.0	55.0	54.0	51.0	51.0	50.0	58.2	10.0	68.2
	23	54.4	72.9	45.6	64.0	63.0	59.0	56.0	52.0	51.0	48.0	48.0	46.0	54.4	10.0	64.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	54.0	71.3	45.1	64.0	62.0	60.0	58.0	51.0	49.0	47.0	46.0	45.0
	Max	61.1	86.7	53.4	71.0	68.0	64.0	63.0	58.0	57.0	55.0	55.0	54.0
Energy Average		58.2	Average:		66.2	64.4	61.9	60.4	56.3	54.3	51.5	50.7	49.6
Evening	Min	57.2	73.9	50.6	65.0	64.0	61.0	59.0	56.0	55.0	53.0	52.0	52.0
	Max	61.1	80.6	54.1	71.0	69.0	66.0	65.0	59.0	58.0	56.0	55.0	54.0
Energy Average		59.5	Average:		67.3	66.0	63.3	62.0	58.0	56.7	54.7	54.0	53.3
Night	Min	51.8	67.0	44.0	59.0	57.0	54.0	53.0	50.0	49.0	47.0	46.0	45.0
	Max	58.2	82.9	49.9	69.0	66.0	63.0	61.0	55.0	54.0	52.0	51.0	50.0
Energy Average		55.5	Average:		64.2	62.0	58.7	56.8	53.2	51.9	49.3	49.1	48.0

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
57.6	58.5	55.5

24-Hour CNEL (dBA)
63.1

24-Hour Noise Level Measurement Summary

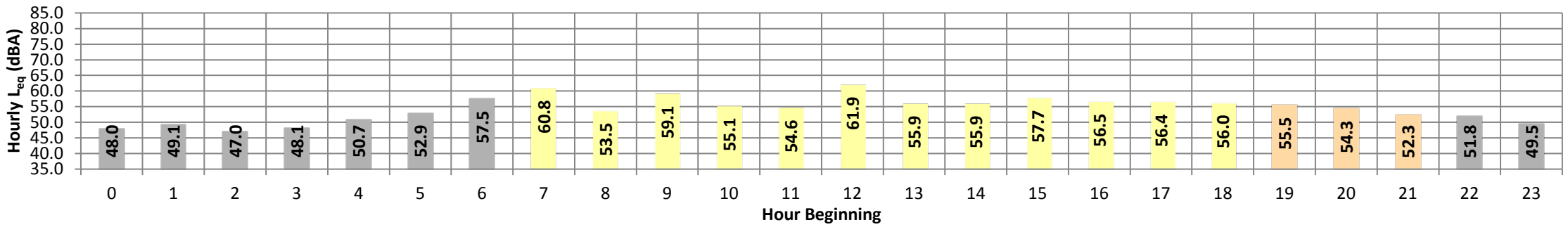
Date: Wednesday, June 19, 2019
Project: Six Basins

Location: L4 - Located on 6th Street, north of the Lincoln Mills Project site, within an existing single-family residential neighborhood.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	48.0	68.0	43.5	56.0	54.0	52.0	51.0	47.0	45.0	44.0	44.0	44.0	48.0	10.0	58.0
	1	49.1	61.9	43.4	57.0	56.0	54.0	53.0	48.0	45.0	44.0	43.0	43.0	49.1	10.0	59.1
	2	47.0	64.5	43.3	56.0	54.0	51.0	49.0	45.0	44.0	43.0	43.0	43.0	47.0	10.0	57.0
	3	48.1	68.7	43.5	57.0	55.0	52.0	50.0	46.0	44.0	44.0	43.0	43.0	48.1	10.0	58.1
	4	50.7	68.1	44.1	59.0	57.0	54.0	53.0	51.0	47.0	44.0	44.0	44.0	50.7	10.0	60.7
	5	52.9	71.6	44.7	61.0	58.0	56.0	55.0	52.0	50.0	47.0	46.0	45.0	52.9	10.0	62.9
	6	57.5	84.8	44.0	67.0	64.0	58.0	56.0	53.0	50.0	46.0	45.0	44.0	57.5	10.0	67.5
Day	7	60.8	84.5	45.3	70.0	69.0	68.0	66.0	54.0	52.0	48.0	47.0	45.0	60.8	0.0	60.8
	8	53.5	73.4	44.2	63.0	60.0	56.0	55.0	52.0	50.0	46.0	46.0	44.0	53.5	0.0	53.5
	9	59.1	86.5	43.5	67.0	64.0	59.0	57.0	53.0	51.0	46.0	45.0	44.0	59.1	0.0	59.1
	10	55.1	79.4	45.0	64.0	61.0	57.0	56.0	53.0	51.0	47.0	47.0	45.0	55.1	0.0	55.1
	11	54.6	76.2	44.4	64.0	61.0	57.0	55.0	52.0	51.0	47.0	46.0	45.0	54.6	0.0	54.6
	12	61.9	88.5	43.5	73.0	70.0	65.0	59.0	53.0	51.0	47.0	46.0	45.0	61.9	0.0	61.9
	13	55.9	77.4	46.9	65.0	63.0	59.0	58.0	55.0	53.0	50.0	49.0	48.0	55.9	0.0	55.9
	14	55.9	78.8	47.2	64.0	62.0	59.0	57.0	55.0	53.0	50.0	49.0	48.0	55.9	0.0	55.9
	15	57.7	85.8	46.5	67.0	65.0	60.0	58.0	55.0	53.0	50.0	49.0	48.0	57.7	0.0	57.7
	16	56.5	75.5	47.1	67.0	64.0	60.0	58.0	55.0	53.0	50.0	49.0	48.0	56.5	0.0	56.5
	17	56.4	78.2	47.4	66.0	63.0	60.0	58.0	54.0	53.0	50.0	49.0	48.0	56.4	0.0	56.4
	18	56.0	74.1	46.8	66.0	64.0	61.0	58.0	54.0	53.0	50.0	49.0	48.0	56.0	0.0	56.0
Evening	19	55.5	77.7	46.5	66.0	63.0	58.0	57.0	53.0	51.0	48.0	47.0	47.0	55.5	5.0	60.5
	20	54.3	75.7	45.8	64.0	61.0	57.0	56.0	53.0	51.0	48.0	47.0	47.0	54.3	5.0	59.3
	21	52.3	70.9	45.7	61.0	58.0	56.0	54.0	51.0	50.0	47.0	46.0	46.0	52.3	5.0	57.3
Night	22	51.8	72.0	45.6	61.0	58.0	54.0	53.0	50.0	49.0	46.0	46.0	46.0	51.8	10.0	61.8
	23	49.5	67.9	44.4	57.0	55.0	53.0	52.0	49.0	47.0	45.0	45.0	44.0	49.5	10.0	59.5

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	53.5	73.4	43.5	63.0	60.0	56.0	55.0	52.0	50.0	46.0	45.0	44.0
	Max	61.9	88.5	47.4	73.0	70.0	68.0	66.0	55.0	53.0	50.0	49.0	48.0
Energy Average		57.7	Average:		66.3	63.8	60.1	57.9	53.8	52.0	48.4	47.6	46.3
Evening	Min	52.3	70.9	45.7	61.0	58.0	56.0	54.0	51.0	50.0	47.0	46.0	46.0
	Max	55.5	77.7	46.5	66.0	63.0	58.0	57.0	53.0	51.0	48.0	47.0	47.0
Energy Average		54.2	Average:		63.7	60.7	57.0	55.7	52.3	50.7	47.7	46.7	46.7
Night	Min	47.0	61.9	43.3	56.0	54.0	51.0	49.0	45.0	44.0	43.0	43.0	43.0
	Max	57.5	84.8	45.6	67.0	64.0	58.0	56.0	53.0	50.0	47.0	46.0	46.0
Energy Average		51.8	Average:		59.0	56.8	53.8	52.4	49.0	46.8	44.8	44.3	44.0

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
55.8	**57.2**	**51.8**

24-Hour CNEL (dBA)

59.9

24-Hour Noise Level Measurement Summary

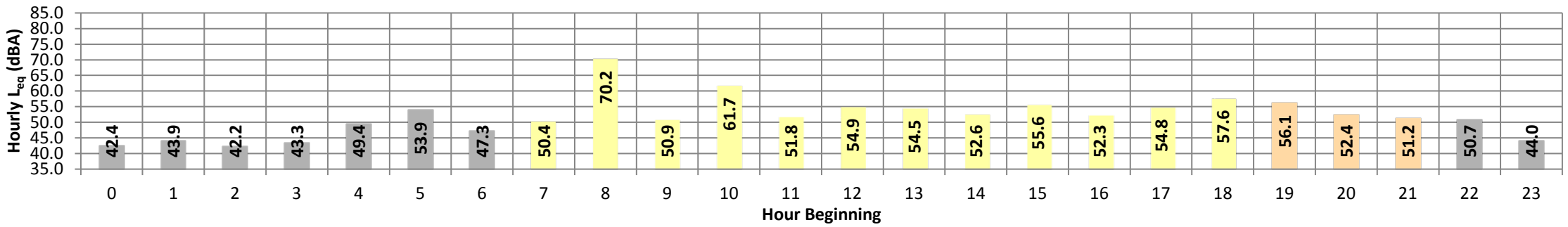
Date: Wednesday, June 19, 2019
Project: Six Basins

Location: L5-1 - Located on East Green Street, south of the Del Monte Project site, within an existing single-family residential neighborhood.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	42.4	63.3	37.8	50.0	48.0	45.0	44.0	41.0	40.0	39.0	38.0	37.0	42.4	10.0	52.4
	1	43.9	57.4	37.7	53.0	52.0	50.0	48.0	41.0	39.0	38.0	37.0	37.0	43.9	10.0	53.9
	2	42.2	66.9	37.8	51.0	47.0	43.0	41.0	41.0	39.0	39.0	38.0	37.0	42.2	10.0	52.2
	3	43.3	65.7	39.0	52.0	47.0	43.0	42.0	40.0	39.0	39.0	39.0	39.0	43.3	10.0	53.3
	4	49.4	70.0	39.4	61.0	56.0	52.0	50.0	47.0	42.0	39.0	39.0	39.0	49.4	10.0	59.4
	5	53.9	79.0	39.8	65.0	62.0	57.0	54.0	49.0	45.0	41.0	40.0	40.0	53.9	10.0	63.9
	6	47.3	67.7	39.4	58.0	54.0	50.0	48.0	45.0	43.0	40.0	39.0	39.0	47.3	10.0	57.3
Day	7	50.4	75.0	39.4	62.0	59.0	53.0	51.0	46.0	43.0	40.0	40.0	39.0	50.4	0.0	50.4
	8	70.2	99.0	39.2	80.0	74.0	66.0	61.0	50.0	45.0	41.0	40.0	39.0	70.2	0.0	70.2
	9	50.9	71.7	39.6	63.0	60.0	55.0	52.0	47.0	45.0	41.0	40.0	40.0	50.9	0.0	50.9
	10	61.7	90.1	40.4	68.0	63.0	58.0	55.0	47.0	44.0	42.0	41.0	41.0	61.7	0.0	61.7
	11	51.8	73.1	40.0	64.0	62.0	57.0	54.0	46.0	43.0	40.0	40.0	40.0	51.8	0.0	51.8
	12	54.9	80.5	39.5	67.0	63.0	58.0	55.0	47.0	44.0	41.0	40.0	40.0	54.9	0.0	54.9
	13	54.5	76.3	42.6	66.0	63.0	59.0	57.0	51.0	47.0	44.0	44.0	43.0	54.5	0.0	54.5
	14	52.6	72.4	43.1	65.0	62.0	57.0	54.0	49.0	46.0	44.0	44.0	43.0	52.6	0.0	52.6
	15	55.6	83.6	42.6	66.0	64.0	59.0	57.0	50.0	47.0	44.0	44.0	43.0	55.6	0.0	55.6
	16	52.3	71.0	42.9	64.0	62.0	57.0	54.0	48.0	46.0	44.0	44.0	43.0	52.3	0.0	52.3
	17	54.8	77.2	42.5	66.0	63.0	59.0	56.0	50.0	46.0	44.0	44.0	43.0	54.8	0.0	54.8
	18	57.6	80.1	43.5	68.0	64.0	61.0	58.1	51.0	47.0	44.0	44.0	43.0	57.6	0.0	57.6
Evening	19	56.1	82.7	42.4	67.0	64.0	60.0	58.0	49.0	46.0	43.0	43.0	42.0	56.1	5.0	61.1
	20	52.4	80.9	41.7	62.0	59.0	54.0	51.0	46.0	45.0	43.0	42.0	42.0	52.4	5.0	57.4
	21	51.2	75.6	40.7	63.0	60.0	54.0	51.0	46.0	43.0	42.0	41.0	41.0	51.2	5.0	56.2
Night	22	50.7	72.9	40.0	63.0	58.0	51.0	49.0	45.0	43.0	41.0	41.0	40.0	50.7	10.0	60.7
	23	44.0	68.5	39.3	49.0	47.0	45.0	43.0	42.0	41.0	40.0	39.0	39.0	44.0	10.0	54.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	50.4	71.0	39.2	62.0	59.0	53.0	51.0	46.0	43.0	40.0	40.0	39.0
	Max	70.2	99.0	43.5	80.0	74.0	66.0	61.0	51.0	47.0	44.0	44.0	43.0
Energy Average		60.8	Average:		66.6	63.3	58.3	55.3	48.5	45.3	42.4	42.1	41.4
Evening	Min	51.2	75.6	40.7	62.0	59.0	54.0	51.0	46.0	43.0	42.0	41.0	41.0
	Max	56.1	82.7	42.4	67.0	64.0	60.0	58.0	49.0	46.0	43.0	43.0	42.0
Energy Average		53.8	Average:		64.0	61.0	56.0	53.3	47.0	44.7	42.7	42.0	41.7
Night	Min	42.2	57.4	37.7	49.0	47.0	43.0	41.0	40.0	39.0	38.0	37.0	37.0
	Max	53.9	79.0	40.0	65.0	62.0	57.0	54.0	49.0	45.0	41.0	41.0	40.0
Energy Average		48.3	Average:		55.8	52.3	48.4	46.6	43.4	41.2	39.6	38.9	38.6

L_{eq} (dBA)

24-Hour	Daytime	Nighttime
58.2	60.1	48.3

24-Hour CNEL (dBA)

59.8

24-Hour Noise Level Measurement Summary

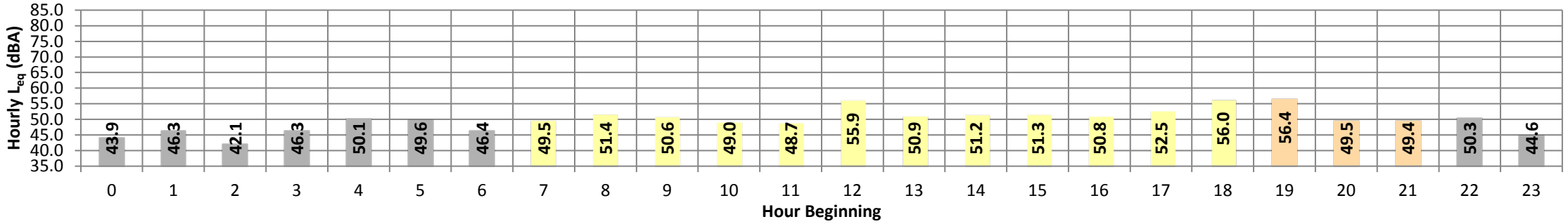
Date: Wednesday, June 19, 2019
Project: Six Basins

Location: L5-2 - Located on Plunk Place, south of the Del Monte Project site, adjacent to Claremont Dog Park.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	43.9	57.7	39.0	52.0	50.0	48.0	46.0	43.0	42.0	40.0	39.0	39.0	43.9	10.0	53.9
	1	46.3	61.3	39.0	56.0	55.0	53.0	50.0	44.0	42.0	39.0	39.0	39.0	46.3	10.0	56.3
	2	42.1	58.2	39.0	50.0	48.0	44.0	43.0	41.0	40.0	39.0	39.0	39.0	42.1	10.0	52.1
	3	46.3	74.3	39.1	50.0	47.0	43.0	42.0	41.0	40.0	39.0	39.0	39.0	46.3	10.0	56.3
	4	50.1	76.3	39.1	61.0	51.0	49.0	47.0	43.0	41.0	40.0	39.0	39.0	50.1	10.0	60.1
	5	49.6	72.3	39.5	62.0	55.0	50.0	48.0	45.0	43.0	41.0	41.0	40.0	49.6	10.0	59.6
	6	46.4	64.4	39.1	58.0	53.0	50.0	48.0	45.0	42.0	40.0	39.0	39.0	46.4	10.0	56.4
Day	7	49.5	76.2	39.1	57.0	53.0	48.0	47.0	44.0	42.0	40.0	39.0	39.0	49.5	0.0	49.5
	8	51.4	75.0	39.2	64.0	59.0	53.0	51.0	46.0	44.0	41.0	41.0	40.0	51.4	0.0	51.4
	9	50.6	71.7	40.0	63.0	58.0	53.0	51.0	45.0	43.0	41.0	41.0	40.0	50.6	0.0	50.6
	10	49.0	73.3	40.9	59.0	57.0	53.0	50.0	46.0	44.0	42.0	42.0	41.0	49.0	0.0	49.0
	11	48.7	71.5	40.6	60.0	57.0	52.0	50.0	46.0	43.0	42.0	41.0	41.0	48.7	0.0	48.7
	12	55.9	85.3	40.9	62.0	58.0	53.0	51.0	47.0	44.0	42.0	42.0	41.0	55.9	0.0	55.9
	13	50.9	73.6	43.5	61.0	59.0	55.0	53.0	49.0	47.0	45.0	45.0	44.0	50.9	0.0	50.9
	14	51.2	71.1	43.7	61.0	58.0	53.0	52.0	49.0	47.0	45.0	45.0	44.0	51.2	0.0	51.2
	15	51.3	75.9	43.2	59.0	55.0	53.0	52.0	49.0	47.0	45.0	44.0	44.0	51.3	0.0	51.3
	16	50.8	74.7	43.2	60.0	56.0	53.0	51.0	48.0	47.0	45.0	45.0	44.0	50.8	0.0	50.8
	17	52.5	74.7	43.8	62.0	60.0	56.0	55.0	50.0	48.0	45.0	45.0	44.0	52.5	0.0	52.5
	18	56.0	76.6	43.5	69.0	66.0	58.0	55.0	50.0	48.0	45.0	45.0	44.0	56.0	0.0	56.0
Evening	19	56.4	78.1	43.6	69.0	65.0	60.0	57.0	51.0	48.0	45.0	45.0	44.0	56.4	5.0	61.4
	20	49.5	67.8	44.1	58.0	56.0	53.0	51.0	48.0	47.0	45.0	45.0	44.0	49.5	5.0	54.5
	21	49.4	66.8	42.9	61.0	57.0	53.0	51.0	47.0	45.0	44.0	44.0	43.0	49.4	5.0	54.4
Night	22	50.3	72.0	41.9	62.0	57.0	52.0	50.0	47.0	45.0	44.0	43.0	42.0	50.3	10.0	60.3
	23	44.6	58.5	39.2	51.0	49.0	47.0	46.0	44.0	43.0	41.0	41.0	40.0	44.6	10.0	54.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	48.7	71.1	39.1	57.0	53.0	48.0	47.0	44.0	42.0	40.0	39.0	39.0
	Max	56.0	85.3	43.8	69.0	66.0	58.0	55.0	50.0	48.0	45.0	45.0	44.0
Energy Average		52.2	Average:		61.4	58.0	53.3	51.5	47.4	45.3	43.2	42.9	42.2
Evening	Min	49.4	66.8	42.9	58.0	56.0	53.0	51.0	47.0	45.0	44.0	44.0	43.0
	Max	56.4	78.1	44.1	69.0	65.0	60.0	57.0	51.0	48.0	45.0	45.0	44.0
Energy Average		53.1	Average:		62.7	59.3	55.3	53.0	48.7	46.7	44.7	44.7	43.7
Night	Min	42.1	57.7	39.0	50.0	47.0	43.0	42.0	41.0	40.0	39.0	39.0	39.0
	Max	50.3	76.3	41.9	62.0	57.0	53.0	50.0	47.0	45.0	44.0	43.0	42.0
Energy Average		47.4	Average:		55.8	51.7	48.4	46.7	43.7	42.0	40.3	39.9	39.6

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
51.1	52.4	47.4
24-Hour CNEL (dBA)		
55.7		

24-Hour Noise Level Measurement Summary

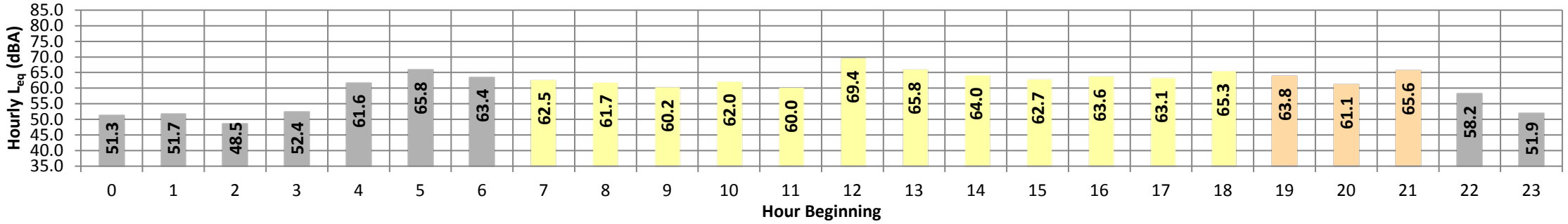
Date: Wednesday, June 19, 2019
Project: Six Basins

Location: L6 - Located on Walnut Street, north of the Durwood Project site, adjacent to existing single-family residential homes.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	51.3	72.6	43.1	61.0	58.0	56.0	54.0	49.0	47.0	45.0	44.0	43.0	51.3	10.0	61.3
	1	51.7	76.4	40.9	60.0	58.0	56.0	54.0	49.0	45.0	42.0	41.0	41.0	51.7	10.0	61.7
	2	48.5	71.7	40.1	57.0	56.0	53.0	50.0	46.0	44.0	41.0	41.0	40.0	48.5	10.0	58.5
	3	52.4	73.4	40.5	64.0	61.0	57.0	55.0	48.0	46.0	43.0	42.0	41.0	52.4	10.0	62.4
	4	61.6	88.4	43.0	70.0	68.0	63.0	61.0	56.0	51.0	46.0	46.0	45.0	61.6	10.0	71.6
	5	65.8	95.1	46.0	73.0	69.0	66.0	64.0	59.0	54.0	49.0	48.0	47.0	65.8	10.0	75.8
	6	63.4	88.1	45.4	74.0	70.0	66.0	64.0	60.0	57.0	50.0	48.0	47.0	63.4	10.0	73.4
Day	7	62.5	86.0	46.6	73.0	70.0	66.0	64.0	60.0	57.0	51.0	50.0	48.0	62.5	0.0	62.5
	8	61.7	87.5	45.4	70.0	68.0	64.0	63.0	59.0	56.0	50.0	48.0	46.0	61.7	0.0	61.7
	9	60.2	82.3	45.9	69.0	67.0	65.0	63.0	59.0	55.0	50.0	49.0	47.0	60.2	0.0	60.2
	10	62.0	86.6	46.3	71.0	69.0	66.0	65.0	60.0	56.0	50.0	49.0	48.0	62.0	0.0	62.0
	11	60.0	84.3	46.6	69.0	67.0	64.0	63.0	58.0	55.0	50.0	49.0	48.0	60.0	0.0	60.0
	12	69.4	92.2	46.4	82.0	78.0	73.0	72.0	65.0	58.0	52.0	50.0	48.0	69.4	0.0	69.4
	13	65.8	87.9	46.9	77.0	75.0	72.0	68.0	59.0	56.0	51.0	50.0	48.0	65.8	0.0	65.8
	14	64.0	92.0	48.2	73.0	70.0	65.0	63.0	59.0	56.0	52.0	51.0	49.0	64.0	0.0	64.0
	15	62.7	85.2	49.1	73.0	70.0	66.0	65.0	61.0	58.0	53.0	52.0	50.0	62.7	0.0	62.7
	16	63.6	86.1	50.3	74.0	71.0	67.0	66.0	61.0	58.0	54.0	53.0	51.0	63.6	0.0	63.6
	17	63.1	84.6	48.7	74.0	71.0	67.0	66.0	61.0	58.0	53.0	52.0	51.0	63.1	0.0	63.1
	18	65.3	94.7	48.4	75.0	71.0	66.0	64.0	59.0	56.0	52.0	51.0	49.0	65.3	0.0	65.3
Evening	19	63.8	88.0	48.3	75.0	70.0	65.0	63.0	58.0	55.0	51.0	50.0	49.0	63.8	5.0	68.8
	20	61.1	84.9	47.8	72.0	69.0	64.0	62.0	58.0	55.0	50.0	50.0	49.0	61.1	5.0	66.1
	21	65.6	95.2	45.2	71.0	67.0	62.0	59.0	55.0	52.0	48.0	47.0	46.0	65.6	5.0	70.6
Night	22	58.2	85.6	44.8	68.0	65.0	60.0	58.0	54.0	50.0	47.0	47.0	45.0	58.2	10.0	68.2
	23	51.9	69.9	43.1	61.0	59.0	57.0	55.0	51.0	48.0	46.0	45.0	43.0	51.9	10.0	61.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	60.0	82.3	45.4	69.0	67.0	64.0	63.0	58.0	55.0	50.0	48.0	46.0
	Max	69.4	94.7	50.3	82.0	78.0	73.0	72.0	65.0	58.0	54.0	53.0	51.0
Energy Average		64.2	Average:		73.3	70.6	66.8	65.2	60.1	56.6	51.5	50.3	48.6
Evening	Min	61.1	84.9	45.2	71.0	67.0	62.0	59.0	55.0	52.0	48.0	47.0	46.0
	Max	65.6	95.2	48.3	75.0	70.0	65.0	63.0	58.0	55.0	51.0	50.0	49.0
Energy Average		63.9	Average:		72.7	68.7	63.7	61.3	57.0	54.0	49.7	49.0	48.0
Night	Min	48.5	69.9	40.1	57.0	56.0	53.0	50.0	46.0	44.0	41.0	41.0	40.0
	Max	65.8	95.1	46.0	74.0	70.0	66.0	64.0	60.0	57.0	50.0	48.0	47.0
Energy Average		59.9	Average:		65.3	62.7	59.3	57.2	52.4	49.1	45.4	44.7	43.6

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
63.0	**64.1**	**59.9**

24-Hour CNEL (dBA)

67.7

24-Hour Noise Level Measurement Summary

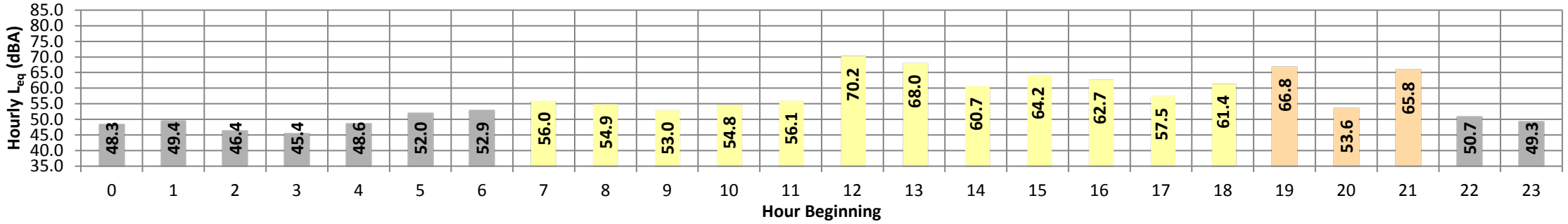
Date: Wednesday, June 19, 2019
Project: Six Basins

Location: L7 - Located on 5th Street, south of the Old Baldy Project site, adjacent to existing single-family residential homes.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	48.3	63.9	43.0	57.0	55.0	51.0	50.0	47.0	46.0	45.0	44.0	43.0	48.3	10.0	58.3
	1	49.4	61.8	43.3	58.0	57.0	55.0	53.0	48.0	46.0	44.0	44.0	43.0	49.4	10.0	59.4
	2	46.4	60.4	41.9	57.0	54.0	49.0	47.0	45.0	44.0	43.0	43.0	42.0	46.4	10.0	56.4
	3	45.4	64.3	42.0	52.0	48.0	46.0	46.0	44.0	44.0	43.0	43.0	42.0	45.4	10.0	55.4
	4	48.6	71.7	42.8	58.0	56.0	51.0	49.0	46.0	45.0	44.0	43.0	43.0	48.6	10.0	58.6
	5	52.0	70.1	44.3	62.0	59.0	55.0	54.0	51.0	49.0	46.0	46.0	45.0	52.0	10.0	62.0
	6	52.9	71.7	43.6	63.0	61.0	57.0	55.0	51.0	48.0	46.0	45.0	44.0	52.9	10.0	62.9
Day	7	56.0	78.4	43.6	66.0	63.0	59.0	56.0	51.0	49.0	45.0	45.0	44.0	56.0	0.0	56.0
	8	54.9	75.9	42.9	65.0	63.0	60.0	58.0	52.0	49.0	45.0	44.0	43.0	54.9	0.0	54.9
	9	53.0	71.8	42.8	63.0	61.0	58.0	56.0	51.0	47.0	44.0	44.0	43.0	53.0	0.0	53.0
	10	54.8	76.4	43.3	66.0	63.0	58.0	56.0	51.0	47.0	45.0	44.0	44.0	54.8	0.0	54.8
	11	56.1	82.2	44.0	65.0	63.0	59.0	57.0	51.0	48.0	45.0	45.0	45.0	56.1	0.0	56.1
	12	70.2	95.7	44.6	82.0	77.0	73.0	70.0	56.0	51.0	47.0	46.0	46.0	70.2	0.0	70.2
	13	68.0	92.8	46.3	80.0	76.0	73.0	71.0	56.0	51.0	48.0	47.0	47.0	68.0	0.0	68.0
	14	60.7	82.0	48.2	71.0	69.0	67.0	65.0	59.0	55.0	50.0	50.0	49.0	60.7	0.0	60.7
	15	64.2	90.9	48.2	73.0	69.0	66.0	64.0	60.0	55.0	50.0	50.0	49.0	64.2	0.0	64.2
	16	62.7	89.8	47.4	68.0	65.0	62.0	60.0	55.0	52.0	49.0	49.0	48.0	62.7	0.0	62.7
	17	57.5	75.9	48.0	68.0	65.0	62.0	60.0	56.0	53.0	50.0	49.0	48.0	57.5	0.0	57.5
	18	61.4	86.1	47.1	68.0	65.0	61.0	59.0	54.0	52.0	49.0	49.0	48.0	61.4	0.0	61.4
Evening	19	66.8	94.2	46.0	77.0	69.0	62.0	59.0	54.0	51.0	48.0	48.0	47.0	66.8	5.0	71.8
	20	53.6	73.1	46.1	64.0	62.0	58.0	56.0	52.0	50.0	48.0	47.0	46.0	53.6	5.0	58.6
	21	65.8	95.6	45.0	64.0	59.0	56.0	55.0	51.0	49.0	47.0	46.0	46.0	65.8	5.0	70.8
Night	22	50.7	70.0	44.5	59.0	58.0	54.0	52.0	49.0	48.0	46.0	45.0	45.0	50.7	10.0	60.7
	23	49.3	68.9	44.0	58.0	56.0	52.0	50.0	48.0	47.0	45.0	45.0	44.0	49.3	10.0	59.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	53.0	71.8	42.8	63.0	61.0	58.0	56.0	51.0	47.0	44.0	44.0	43.0
	Max	70.2	95.7	48.2	82.0	77.0	73.0	71.0	60.0	55.0	50.0	50.0	49.0
Energy Average		63.4	Average:		69.6	66.6	63.2	61.0	54.3	50.8	47.3	46.8	46.2
Evening	Min	53.6	73.1	45.0	64.0	59.0	56.0	55.0	51.0	49.0	47.0	46.0	46.0
	Max	66.8	95.6	46.1	77.0	69.0	62.0	59.0	54.0	51.0	48.0	48.0	47.0
Energy Average		64.7	Average:		68.3	63.3	58.7	56.7	52.3	50.0	47.7	47.0	46.3
Night	Min	45.4	60.4	41.9	52.0	48.0	46.0	46.0	44.0	44.0	43.0	43.0	42.0
	Max	52.9	71.7	44.5	63.0	61.0	57.0	55.0	51.0	49.0	46.0	46.0	45.0
Energy Average		49.8	Average:		58.2	56.0	52.2	50.7	47.7	46.3	44.7	44.2	43.4

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
61.7	**63.7**	**49.8**

24-Hour CNEL (dBA)

64.2

24-Hour Noise Level Measurement Summary

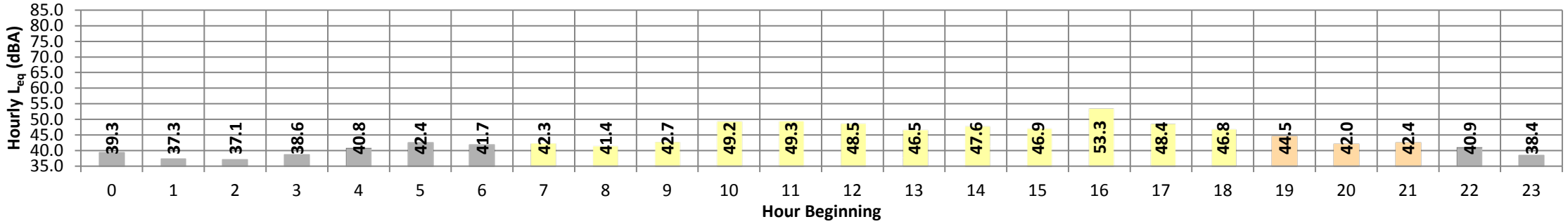
Date: Thursday, June 20, 2019
Project: Six Basins

Location: L8-1 - Located on Amundsen Branch, east of the San Antonio Wash Project site, within an existing single-family residential neighborhood.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	39.3	62.9	36.2	46.0	44.0	42.0	40.0	36.0	36.0	36.0	36.0	36.0	39.3	10.0	49.3
	1	37.3	50.8	36.2	42.0	40.0	39.0	37.0	36.0	36.0	36.0	36.0	36.0	37.3	10.0	47.3
	2	37.1	46.7	36.2	41.0	39.0	38.0	36.0	36.0	36.0	36.0	36.0	36.0	37.1	10.0	47.1
	3	38.6	59.9	36.2	43.0	42.0	40.0	40.0	39.0	36.0	36.0	36.0	36.0	38.6	10.0	48.6
	4	40.8	58.0	38.7	47.0	45.0	43.0	42.0	40.0	39.0	39.0	39.0	39.0	40.8	10.0	50.8
	5	42.4	66.8	36.2	50.0	47.0	45.0	43.0	41.0	39.0	39.0	38.0	37.0	42.4	10.0	52.4
	6	41.7	57.7	36.2	50.0	48.0	45.0	44.0	41.0	40.0	39.0	38.0	37.0	41.7	10.0	51.7
Day	7	42.3	61.6	38.8	50.0	48.0	45.0	44.0	42.0	40.0	39.0	39.0	39.0	42.3	0.0	42.3
	8	41.4	60.9	36.2	49.0	47.0	45.0	44.0	41.0	39.0	38.0	37.0	36.0	41.4	0.0	41.4
	9	42.7	58.7	36.2	51.0	49.0	47.0	46.0	42.0	39.0	37.0	36.0	36.0	42.7	0.0	42.7
	10	49.2	73.8	36.2	57.0	53.0	50.0	48.0	44.0	41.0	39.0	38.0	36.0	49.2	0.0	49.2
	11	49.3	60.0	36.2	57.0	56.0	55.0	54.0	50.0	42.0	39.0	38.0	36.0	49.3	0.0	49.3
	12	48.5	69.4	36.2	59.0	58.0	56.0	53.0	44.0	41.0	38.0	37.0	36.0	48.5	0.0	48.5
	13	46.5	59.8	36.2	55.0	54.0	51.0	50.0	46.0	43.0	39.0	39.0	38.0	46.5	0.0	46.5
	14	47.6	68.7	36.2	57.0	53.0	52.0	49.0	44.0	41.0	39.0	39.0	38.0	47.6	0.0	47.6
	15	46.9	68.0	38.2	59.0	54.0	48.0	46.0	42.0	41.0	39.0	39.0	39.0	46.9	0.0	46.9
	16	53.3	70.5	39.0	67.0	63.0	59.0	54.0	47.0	45.0	40.0	40.0	39.0	53.3	0.0	53.3
	17	48.4	72.5	38.3	58.0	54.0	50.0	48.0	44.0	41.0	39.0	39.0	39.0	48.4	0.0	48.4
	18	46.8	65.2	37.8	59.0	56.0	52.0	49.0	43.0	41.0	39.0	39.0	39.0	46.8	0.0	46.8
Evening	19	44.5	63.0	38.0	56.0	53.0	49.0	47.0	42.0	40.0	39.0	39.0	38.0	44.5	5.0	49.5
	20	42.0	60.6	36.2	51.0	49.0	46.0	44.0	40.0	39.0	38.0	37.0	36.0	42.0	5.0	47.0
	21	42.4	63.9	36.2	52.0	48.0	43.0	42.0	39.0	39.0	38.0	37.0	36.0	42.4	5.0	47.4
Night	22	40.9	60.5	36.2	51.0	48.0	44.0	43.0	39.0	38.0	36.0	36.0	36.0	40.9	10.0	50.9
	23	38.4	50.0	36.2	43.0	42.0	41.0	40.0	38.0	36.0	36.0	36.0	36.0	38.4	10.0	48.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	41.4	58.7	36.2	49.0	47.0	45.0	44.0	41.0	39.0	37.0	36.0	36.0
	Max	53.3	73.8	39.0	67.0	63.0	59.0	54.0	50.0	45.0	40.0	40.0	39.0
Energy Average		48.1	Average:		56.5	53.8	50.8	48.8	44.1	41.2	38.8	38.3	37.6
Evening	Min	42.0	60.6	36.2	51.0	48.0	43.0	42.0	39.0	39.0	38.0	37.0	36.0
	Max	44.5	63.9	38.0	56.0	53.0	49.0	47.0	42.0	40.0	39.0	39.0	38.0
Energy Average		43.1	Average:		53.0	50.0	46.0	44.3	40.3	39.3	38.3	37.7	36.7
Night	Min	37.1	46.7	36.2	41.0	39.0	38.0	36.0	36.0	36.0	36.0	36.0	36.0
	Max	42.4	66.8	38.7	51.0	48.0	45.0	44.0	41.0	40.0	39.0	39.0	39.0
Energy Average		40.0	Average:		45.9	43.9	41.9	40.6	38.4	37.3	37.0	36.8	36.6

L_{eq} (dBA)		
24-Hour	*Daytime*	*Nighttime*
45.8	**47.4**	**40.0**

24-Hour CNEL (dBA)

48.9

24-Hour Noise Level Measurement Summary

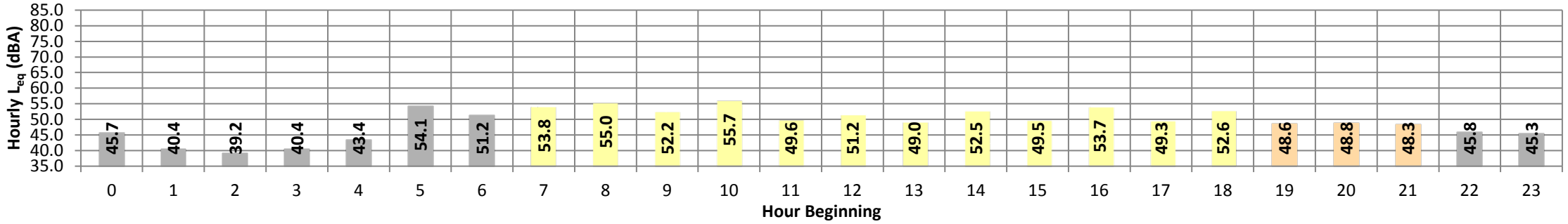
Date: Thursday, June 20, 2019
Project: Six Basins

Location: L8-2 - Located on Fergus Falls, north of the San Antonio Wash Project Site, within an existing single-family residential neighborhood.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	45.7	71.1	36.3	55.0	53.0	51.0	47.1	40.0	36.0	36.0	36.0	36.0	45.7	10.0	55.7
	1	40.4	59.6	36.3	51.0	48.0	43.0	41.0	38.0	36.0	36.0	36.0	36.0	40.4	10.0	50.4
	2	39.2	56.9	36.3	48.0	45.0	41.0	39.0	38.0	36.0	36.0	36.0	36.0	39.2	10.0	49.2
	3	40.4	66.0	36.3	46.0	43.0	40.0	39.0	39.0	37.0	36.0	36.0	36.0	40.4	10.0	50.4
	4	43.4	72.4	36.3	49.0	47.0	44.0	42.0	39.0	39.0	39.0	39.0	37.0	43.4	10.0	53.4
	5	54.1	79.6	36.3	65.0	63.0	57.0	54.0	49.0	44.0	39.0	39.0	36.0	54.1	10.0	64.1
	6	51.2	78.8	36.3	59.0	55.0	52.0	50.0	45.0	41.0	39.0	39.0	39.0	51.2	10.0	61.2
Day	7	53.8	78.5	39.3	65.0	62.0	57.0	54.0	47.0	43.0	39.0	39.0	39.0	53.8	0.0	53.8
	8	55.0	80.4	39.1	66.0	61.0	58.0	57.0	53.0	45.0	39.0	39.0	39.0	55.0	0.0	55.0
	9	52.2	62.9	47.4	58.0	57.0	56.0	56.0	53.0	49.0	48.0	47.0	47.0	52.2	0.0	52.2
	10	55.7	70.5	48.3	66.0	63.0	61.0	59.0	54.0	51.0	49.0	48.0	48.0	55.7	0.0	55.7
	11	49.6	57.7	48.1	51.0	51.0	50.0	50.0	49.0	49.0	48.0	48.0	48.0	49.6	0.0	49.6
	12	51.2	64.9	48.3	56.0	56.0	54.0	53.0	51.0	50.0	49.0	49.0	48.0	51.2	0.0	51.2
	13	49.0	72.1	38.8	60.0	56.0	52.0	50.0	46.0	43.0	40.0	39.0	39.0	49.0	0.0	49.0
	14	52.5	77.8	39.2	65.0	60.0	54.0	52.0	47.0	43.0	40.0	39.0	39.0	52.5	0.0	52.5
	15	49.5	69.4	39.2	62.0	58.0	53.0	51.0	46.0	43.0	41.0	40.0	39.0	49.5	0.0	49.5
	16	53.7	72.7	39.3	67.0	65.0	58.0	55.0	49.0	45.0	42.0	41.0	41.0	53.7	0.0	53.7
	17	49.3	72.7	39.3	58.0	55.0	52.0	51.0	47.0	44.0	42.0	41.0	41.0	49.3	0.0	49.3
	18	52.6	76.3	39.0	66.0	62.0	55.0	52.0	46.0	43.0	39.0	39.0	39.0	52.6	0.0	52.6
Evening	19	48.6	69.2	39.3	59.0	56.0	53.0	51.0	46.0	43.0	40.0	39.0	39.0	48.6	5.0	53.6
	20	48.8	73.4	39.3	60.0	54.0	51.0	49.0	45.0	42.0	40.0	40.0	39.0	48.8	5.0	53.8
	21	48.3	71.7	39.1	60.0	57.0	52.0	50.0	44.0	41.0	39.0	39.0	39.0	48.3	5.0	53.3
Night	22	45.8	70.9	36.3	55.0	52.0	49.0	47.0	42.0	39.0	36.0	36.0	36.0	45.8	10.0	55.8
	23	45.3	63.4	36.3	55.0	55.0	53.0	48.0	41.0	38.0	36.0	36.0	36.0	45.3	10.0	55.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	49.0	57.7	38.8	51.0	51.0	50.0	50.0	46.0	43.0	39.0	39.0	39.0
	Max	55.7	80.4	48.3	67.0	65.0	61.0	59.0	54.0	51.0	49.0	49.0	48.0
Energy Average		52.6	Average:		61.7	58.8	55.0	53.3	49.0	45.7	43.0	42.4	42.3
Evening	Min	48.3	69.2	39.1	59.0	54.0	51.0	49.0	44.0	41.0	39.0	39.0	39.0
	Max	48.8	73.4	39.3	60.0	57.0	53.0	51.0	46.0	43.0	40.0	40.0	39.0
Energy Average		48.6	Average:		59.7	55.7	52.0	50.0	45.0	42.0	39.7	39.3	39.0
Night	Min	39.2	56.9	36.3	46.0	43.0	40.0	39.0	38.0	36.0	36.0	36.0	36.0
	Max	54.1	79.6	36.3	65.0	63.0	57.0	54.0	49.0	44.0	39.0	39.0	39.0
Energy Average		47.9	Average:		53.7	51.2	47.8	45.2	41.2	38.4	37.0	37.0	36.4

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
50.9	**52.0**	**47.9**

24-Hour CNEL (dBA)

55.4

24-Hour Noise Level Measurement Summary

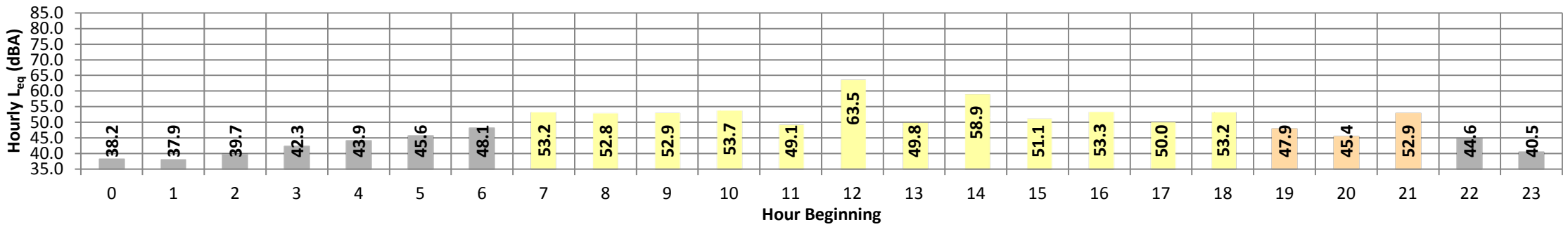
Date: Thursday, June 20, 2019
Project: Six Basins

Location: L9-1 - Located on Pennsylvania Avenue, south of the Thompson Creek SG Project site, within an existing single-family residential neighborhood.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	38.2	49.4	37.3	43.0	42.0	40.0	39.0	38.0	37.0	37.0	37.0	37.0	38.2	10.0	48.2
	1	37.9	44.4	36.7	40.0	40.0	39.0	39.0	37.0	37.0	37.0	37.0	37.0	37.9	10.0	47.9
	2	39.7	47.4	37.6	42.0	41.0	41.0	40.0	40.0	39.0	39.0	38.0	37.0	39.7	10.0	49.7
	3	42.3	60.6	39.3	46.0	45.0	44.0	44.0	43.0	41.0	39.0	39.0	39.0	42.3	10.0	52.3
	4	43.9	70.5	39.3	49.0	46.0	43.0	43.0	41.0	41.0	39.0	39.0	39.0	43.9	10.0	53.9
	5	45.6	72.3	38.9	49.0	45.0	43.0	42.0	40.0	40.0	39.0	39.0	39.0	45.6	10.0	55.6
	6	48.1	74.8	37.6	58.0	52.0	46.0	44.0	42.0	40.0	39.0	39.0	37.0	48.1	10.0	58.1
Day	7	53.2	83.3	37.5	61.0	55.0	48.0	46.0	42.0	41.0	37.0	37.0	37.0	53.2	0.0	53.2
	8	52.8	72.3	37.5	66.0	64.0	58.0	53.0	48.0	43.0	37.0	37.0	37.0	52.8	0.0	52.8
	9	52.9	80.6	37.5	64.0	61.0	54.0	50.0	44.0	40.0	37.0	37.0	37.0	52.9	0.0	52.9
	10	53.7	77.4	37.5	66.0	63.0	58.0	54.0	48.0	44.0	39.0	39.0	37.0	53.7	0.0	53.7
	11	49.1	69.6	37.5	63.0	60.0	52.0	48.0	42.0	39.0	37.0	37.0	37.0	49.1	0.0	49.1
	12	63.5	87.9	39.3	76.0	74.0	71.0	68.0	45.0	42.0	40.0	40.0	39.0	63.5	0.0	63.5
	13	49.8	71.2	40.4	61.0	58.0	53.0	51.0	47.0	45.0	41.0	41.0	40.0	49.8	0.0	49.8
	14	58.9	87.9	40.8	66.0	63.0	57.0	53.0	50.0	47.0	43.0	42.0	41.0	58.9	0.0	58.9
	15	51.1	69.5	40.4	63.0	60.0	56.0	53.0	48.0	45.0	42.0	42.0	41.0	51.1	0.0	51.1
	16	53.3	73.0	41.4	65.0	63.0	58.0	55.0	50.0	47.0	44.0	43.0	42.0	53.3	0.0	53.3
	17	50.0	69.0	40.6	61.0	57.0	52.0	51.0	48.0	46.0	43.0	42.0	41.0	50.0	0.0	50.0
	18	53.2	78.2	39.4	64.0	60.0	53.0	50.0	46.0	44.0	42.0	41.0	40.0	53.2	0.0	53.2
Evening	19	47.9	69.7	39.7	59.0	55.0	50.0	47.0	44.0	43.0	41.0	41.0	40.0	47.9	5.0	52.9
	20	45.4	65.9	40.4	55.0	50.0	46.0	45.0	43.0	43.0	41.0	41.0	40.0	45.4	5.0	50.4
	21	52.9	78.9	39.3	63.0	54.0	46.0	44.0	43.0	41.0	40.0	40.0	39.0	52.9	5.0	57.9
Night	22	44.6	66.6	37.7	51.0	49.0	46.0	44.0	43.0	42.0	39.0	39.0	39.0	44.6	10.0	54.6
	23	40.5	61.4	37.4	44.0	43.0	43.0	42.0	40.0	39.0	37.0	37.0	37.0	40.5	10.0	50.5

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	49.1	69.0	37.5	61.0	55.0	48.0	46.0	42.0	39.0	37.0	37.0	37.0
	Max	63.5	87.9	41.4	76.0	74.0	71.0	68.0	50.0	47.0	44.0	43.0	42.0
Energy Average		55.9	Average:		64.7	61.5	55.8	52.7	46.5	43.6	40.2	39.8	39.1
Evening	Min	45.4	65.9	39.3	55.0	50.0	46.0	44.0	43.0	41.0	40.0	40.0	39.0
	Max	52.9	78.9	40.4	63.0	55.0	50.0	47.0	44.0	43.0	41.0	41.0	40.0
Energy Average		49.9	Average:		59.0	53.0	47.3	45.3	43.3	42.3	40.7	40.7	39.7
Night	Min	37.9	44.4	36.7	40.0	40.0	39.0	39.0	37.0	37.0	37.0	37.0	37.0
	Max	48.1	74.8	39.3	58.0	52.0	46.0	44.0	43.0	42.0	39.0	39.0	39.0
Energy Average		43.6	Average:		46.9	44.8	42.8	41.9	40.4	39.6	38.3	38.2	37.9

L_{eq} (dBA)		
24-Hour	*Daytime*	*Nighttime*
53.3	**55.2**	**43.6**

24-Hour CNEL (dBA)
55.0

24-Hour Noise Level Measurement Summary

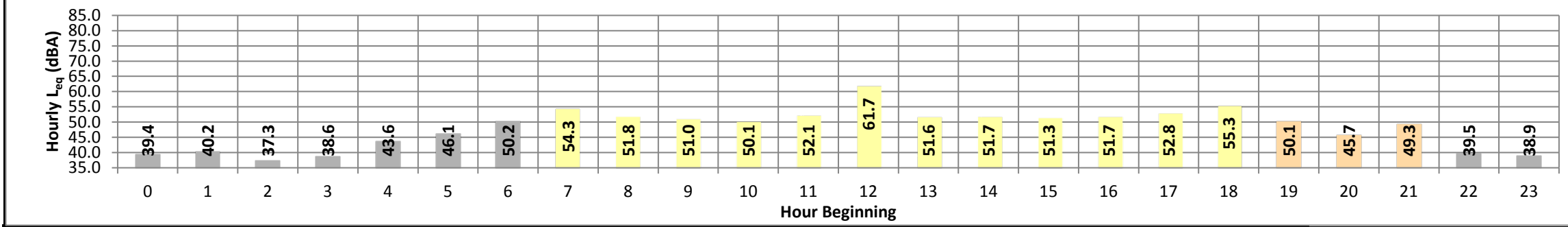
Date: Thursday, June 20, 2019
Project: Six Basins

Location: L9-2 - Located on Adirondack Lane, northeast of the Thompson Creek SG Project site, within an existing single-family residential neighborhood.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	39.4	49.2	35.7	45.0	44.0	43.0	42.0	40.0	38.0	35.0	35.0	35.0	39.4	10.0	49.4
	1	40.2	58.7	35.7	46.0	45.0	44.0	43.0	40.0	38.0	35.0	35.0	35.0	40.2	10.0	50.2
	2	37.3	46.2	35.7	40.0	38.0	38.0	38.0	36.0	35.0	35.0	35.0	35.0	37.3	10.0	47.3
	3	38.6	57.9	35.7	44.0	42.0	40.0	39.0	38.0	38.0	38.0	37.0	35.0	38.6	10.0	48.6
	4	43.6	72.1	38.6	50.0	46.0	42.0	40.0	40.0	38.0	38.0	38.0	38.0	43.6	10.0	53.6
	5	46.1	66.1	38.7	57.0	53.0	49.0	48.0	44.0	42.0	39.0	38.0	38.0	46.1	10.0	56.1
	6	50.2	69.3	38.7	60.0	57.5	54.5	53.5	49.5	45.0	40.0	39.0	39.0	50.2	10.0	60.2
Day	7	54.3	72.4	38.7	63.0	62.0	60.0	59.0	55.0	48.0	41.0	40.0	40.0	54.3	0.0	54.3
	8	51.8	73.1	35.7	62.0	60.0	57.0	55.0	50.0	45.0	38.0	38.0	36.0	51.8	0.0	51.8
	9	51.0	71.5	35.7	61.0	59.0	56.0	54.5	49.0	44.5	38.0	37.0	35.5	51.0	0.0	51.0
	10	50.1	69.8	35.7	60.0	58.0	55.0	54.0	48.0	44.0	38.0	36.0	35.0	50.1	0.0	50.1
	11	52.1	72.0	35.7	63.0	61.0	58.0	56.0	50.0	43.0	38.0	37.0	35.0	52.1	0.0	52.1
	12	61.7	87.5	35.7	75.0	74.0	68.0	57.0	48.0	41.0	38.0	38.0	38.0	61.7	0.0	61.7
	13	51.6	72.3	38.7	63.0	59.0	56.0	54.0	50.0	46.0	41.0	40.0	38.0	51.6	0.0	51.6
	14	51.7	76.5	38.6	62.0	58.0	54.0	52.0	48.0	45.0	40.0	40.0	38.0	51.7	0.0	51.7
	15	51.3	69.3	39.3	60.0	58.0	56.0	55.0	51.0	47.0	42.0	41.0	40.0	51.3	0.0	51.3
	16	51.7	69.0	38.7	60.0	59.0	57.0	55.0	51.0	48.0	43.0	42.0	41.0	51.7	0.0	51.7
	17	52.8	76.6	40.4	62.0	59.0	56.0	54.0	51.0	47.0	42.0	42.0	41.0	52.8	0.0	52.8
	18	55.3	78.2	38.7	67.0	62.0	57.0	55.0	51.0	48.0	41.0	40.0	39.0	55.3	0.0	55.3
Evening	19	50.1	71.1	38.7	61.0	59.0	55.0	53.0	47.0	44.0	40.0	40.0	38.0	50.1	5.0	55.1
	20	45.7	69.3	38.7	56.0	53.0	48.0	46.0	42.0	40.0	38.0	38.0	38.0	45.7	5.0	50.7
	21	49.3	73.6	38.4	64.0	56.0	47.0	44.0	40.0	38.0	38.0	38.0	38.0	49.3	5.0	54.3
Night	22	39.5	54.5	35.7	48.0	46.0	42.0	41.0	38.0	38.0	35.0	35.0	35.0	39.5	10.0	49.5
	23	38.9	60.6	35.7	46.0	42.0	39.0	38.0	38.0	35.0	35.0	35.0	35.0	38.9	10.0	48.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	50.1	69.0	35.7	60.0	58.0	54.0	52.0	48.0	41.0	38.0	36.0	35.0
	Max	61.7	87.5	40.4	75.0	74.0	68.0	59.0	55.0	48.0	43.0	42.0	41.0
Energy Average		54.5	Average:		63.2	60.8	57.5	55.0	50.2	45.5	40.0	39.3	38.0
Evening	Min	45.7	69.3	38.4	56.0	53.0	47.0	44.0	40.0	38.0	38.0	38.0	38.0
	Max	50.1	73.6	38.7	64.0	59.0	55.0	53.0	47.0	44.0	40.0	40.0	38.0
Energy Average		48.7	Average:		60.3	56.0	50.0	47.7	43.0	40.7	38.7	38.7	38.0
Night	Min	37.3	46.2	35.7	40.0	38.0	38.0	38.0	36.0	35.0	35.0	35.0	35.0
	Max	50.2	72.1	38.7	60.0	57.5	54.5	53.5	49.5	45.0	40.0	39.0	39.0
Energy Average		43.8	Average:		48.4	45.9	43.5	42.5	40.4	38.6	36.7	36.3	36.1

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
52.0	53.8	43.8

24-Hour CNEL (dBA)
54.2

24-Hour Noise Level Measurement Summary

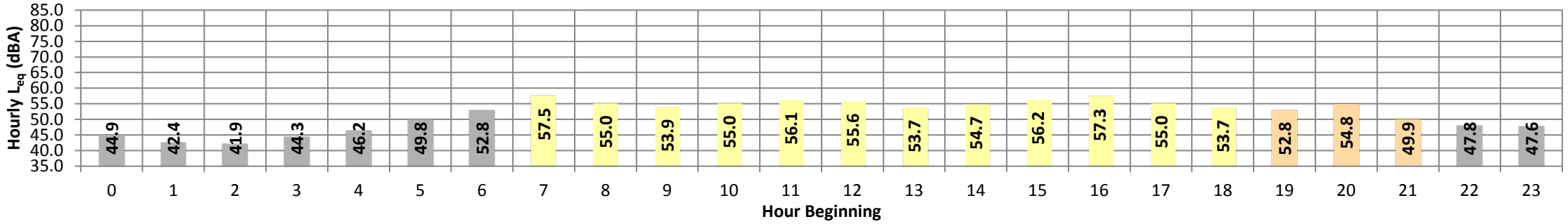
Date: Thursday, June 20, 2019
Project: Six Basins

Location: L10-1 - Located on Chaparral Drive, east of the Pedley Project site, within an existing single-family residential neighborhood, near Chaparral Elementary School.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	44.9	61.1	38.8	55.0	54.0	50.0	46.0	42.0	41.0	40.0	39.0	38.0	44.9	10.0	54.9
	1	42.4	67.3	35.9	52.0	47.0	42.0	41.0	40.0	39.0	38.0	38.0	36.0	42.4	10.0	52.4
	2	41.9	62.2	35.9	52.0	47.0	42.0	41.0	40.0	39.0	38.0	38.0	36.0	41.9	10.0	51.9
	3	44.3	68.1	38.8	55.0	51.0	45.0	43.0	41.0	40.0	39.0	38.0	38.0	44.3	10.0	54.3
	4	46.2	65.2	40.6	56.0	54.0	50.0	47.0	44.0	43.0	42.0	41.0	41.0	46.2	10.0	56.2
	5	49.8	66.7	41.7	60.0	59.0	56.0	53.0	46.0	44.0	42.0	42.0	42.0	49.8	10.0	59.8
	6	52.8	72.2	41.9	63.0	61.0	58.0	57.0	51.0	45.0	43.0	43.0	42.0	52.8	10.0	62.8
Day	7	57.5	82.4	42.8	67.0	63.0	61.0	59.0	55.0	50.0	44.0	44.0	43.0	57.5	0.0	57.5
	8	55.0	68.3	43.5	63.0	62.0	60.0	59.0	56.0	51.0	45.0	45.0	44.0	55.0	0.0	55.0
	9	53.9	70.4	41.8	62.0	60.0	59.0	58.0	54.0	50.0	44.0	43.0	42.0	53.9	0.0	53.9
	10	55.0	71.8	43.5	64.0	62.0	59.0	58.0	55.0	51.0	46.0	46.0	44.0	55.0	0.0	55.0
	11	56.1	78.5	45.8	65.0	62.0	60.0	58.0	55.0	52.0	48.0	47.0	46.0	56.1	0.0	56.1
	12	55.6	78.4	44.6	64.0	62.0	60.0	58.0	55.0	51.0	47.0	46.0	45.0	55.6	0.0	55.6
	13	53.7	71.5	45.5	62.0	60.0	58.0	57.0	54.0	51.0	47.0	46.0	46.0	53.7	0.0	53.7
	14	54.7	72.0	45.6	64.0	62.0	59.0	57.0	54.0	51.0	48.0	47.0	46.0	54.7	0.0	54.7
	15	56.2	81.5	46.8	62.0	60.0	58.0	57.0	54.0	52.0	49.0	48.0	47.0	56.2	0.0	56.2
	16	57.3	81.3	48.3	66.0	63.0	60.0	59.0	56.0	54.0	50.0	50.0	49.0	57.3	0.0	57.3
	17	55.0	75.3	46.8	62.0	60.0	58.0	57.0	55.0	53.0	50.0	49.0	48.0	55.0	0.0	55.0
	18	53.7	76.7	47.1	61.0	59.0	57.0	56.0	53.0	51.0	49.0	48.0	47.0	53.7	0.0	53.7
Evening	19	52.8	73.7	45.7	60.0	58.0	56.0	55.0	53.0	50.0	47.0	47.0	46.0	52.8	5.0	57.8
	20	54.8	79.7	45.9	62.0	59.0	56.0	55.0	52.0	50.0	48.0	47.0	47.0	54.8	5.0	59.8
	21	49.9	63.8	43.6	57.0	56.0	54.0	53.0	49.0	47.0	45.0	45.0	44.0	49.9	5.0	54.9
Night	22	47.8	67.2	42.4	55.0	54.0	52.0	50.0	47.0	45.0	43.0	43.0	42.0	47.8	10.0	57.8
	23	47.6	67.6	39.3	58.0	55.0	51.0	49.0	45.0	44.0	42.0	41.0	40.0	47.6	10.0	57.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	53.7	68.3	41.8	61.0	59.0	57.0	56.0	53.0	50.0	44.0	43.0	42.0
	Max	57.5	82.4	48.3	67.0	63.0	61.0	59.0	56.0	54.0	50.0	50.0	49.0
Energy Average		55.5	Average:		63.5	61.3	59.1	57.8	54.7	51.4	47.3	46.6	45.6
Evening	Min	49.9	63.8	43.6	57.0	56.0	54.0	53.0	49.0	47.0	45.0	45.0	44.0
	Max	54.8	79.7	45.9	62.0	59.0	56.0	55.0	53.0	50.0	48.0	47.0	47.0
Energy Average		52.9	Average:		59.7	57.7	55.3	54.3	51.3	49.0	46.7	46.3	45.7
Night	Min	41.9	61.1	35.9	52.0	47.0	42.0	41.0	40.0	39.0	38.0	38.0	36.0
	Max	52.8	72.2	42.4	63.0	61.0	58.0	57.0	51.0	45.0	43.0	43.0	42.0
Energy Average		47.8	Average:		56.2	53.6	49.6	47.4	44.0	42.2	40.8	40.3	39.4

L_{eq} (dBA)		
24-Hour	*Daytime*	*Nighttime*
53.5	**55.1**	**47.8**

24-Hour CNEL (dBA)
56.8

24-Hour Noise Level Measurement Summary

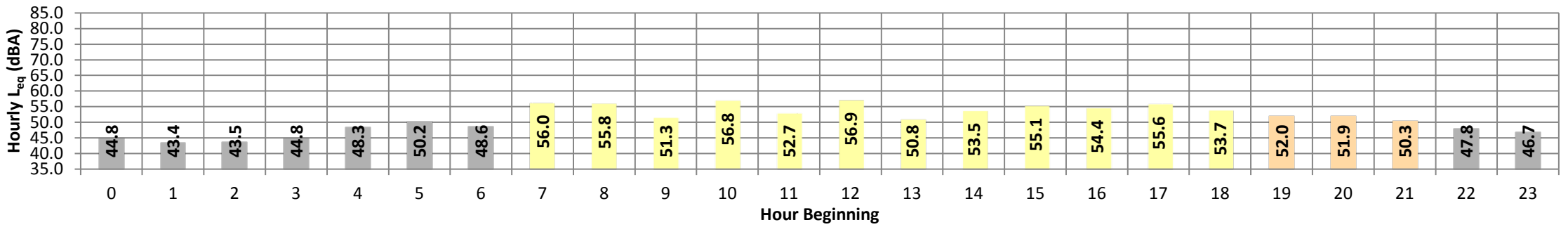
Date: Thursday, June 20, 2019
Project: Six Basins

Location: L10-2 - Located on Barrington Court, north of the Pedley Project site, within an existing single-family residential neighborhood, near Chaparral Park.

Meter: Piccolo I

JN: 11676
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	44.8	60.9	41.3	49.0	47.0	46.0	46.0	44.0	44.0	42.0	42.0	41.0	44.8	10.0	54.8
	1	43.4	52.8	40.1	46.0	46.0	45.0	45.0	43.0	43.0	41.0	41.0	41.0	43.4	10.0	53.4
	2	43.5	54.8	40.1	47.0	46.0	45.0	45.0	44.0	43.0	41.0	41.0	40.0	43.5	10.0	53.5
	3	44.8	51.3	41.3	48.0	47.0	47.0	46.0	45.0	44.0	42.0	42.0	41.0	44.8	10.0	54.8
	4	48.3	59.6	43.6	53.0	52.0	51.0	50.0	48.0	47.0	45.0	45.0	44.0	48.3	10.0	58.3
	5	50.2	71.0	44.7	59.0	56.0	51.0	50.0	49.0	48.0	46.0	46.0	45.0	50.2	10.0	60.2
	6	48.6	62.4	45.1	56.0	53.0	50.0	49.0	48.0	47.0	46.0	46.0	45.0	48.6	10.0	58.6
Day	7	56.0	81.7	45.6	68.0	63.0	58.0	55.0	50.0	48.0	47.0	47.0	46.0	56.0	0.0	56.0
	8	55.8	85.6	45.8	62.0	58.0	56.0	54.0	51.0	49.0	47.0	47.0	46.0	55.8	0.0	55.8
	9	51.3	67.3	45.3	60.0	58.0	55.0	54.0	50.0	49.0	47.0	47.0	46.0	51.3	0.0	51.3
	10	56.8	86.9	45.4	62.0	59.0	56.0	54.0	52.0	50.0	47.0	47.0	46.0	56.8	0.0	56.8
	11	52.7	76.1	45.8	60.0	58.0	55.0	54.0	52.0	50.0	48.0	48.0	47.0	52.7	0.0	52.7
	12	56.9	84.2	44.7	65.0	61.0	56.0	54.0	50.0	49.0	47.0	46.0	45.0	56.9	0.0	56.9
	13	50.8	69.0	45.7	58.0	56.0	54.0	53.0	50.0	49.0	47.0	47.0	46.0	50.8	0.0	50.8
	14	53.5	72.3	45.8	64.0	61.0	57.0	55.0	51.0	50.0	48.0	47.0	46.0	53.5	0.0	53.5
	15	55.1	83.3	47.7	60.0	58.0	56.0	55.0	52.0	51.0	49.0	49.0	48.0	55.1	0.0	55.1
	16	54.4	72.6	49.5	62.0	60.0	57.0	56.0	53.0	52.0	51.0	50.0	50.0	54.4	0.0	54.4
	17	55.6	81.1	49.1	60.0	59.0	57.0	56.0	54.0	53.0	51.0	50.0	49.0	55.6	0.0	55.6
	18	53.7	68.5	48.3	62.0	59.0	57.0	55.0	53.0	52.0	50.0	50.0	49.0	53.7	0.0	53.7
Evening	19	52.0	66.5	47.5	58.0	57.0	56.0	55.0	52.0	50.0	48.0	48.0	48.0	52.0	5.0	57.0
	20	51.9	68.5	47.0	60.0	59.0	55.0	53.0	51.0	50.0	49.0	48.0	48.0	51.9	5.0	56.9
	21	50.3	66.5	45.7	56.0	55.0	52.0	51.0	50.0	49.0	47.0	47.0	46.0	50.3	5.0	55.3
Night	22	47.8	63.1	43.8	55.0	52.0	49.0	49.0	47.0	46.0	45.0	45.0	44.0	47.8	10.0	57.8
	23	46.7	61.5	42.4	53.0	50.0	48.0	48.0	46.0	46.0	44.0	44.0	43.0	46.7	10.0	56.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	50.8	67.3	44.7	58.0	56.0	54.0	53.0	50.0	48.0	47.0	46.0	45.0
	Max	56.9	86.9	49.5	68.0	63.0	58.0	56.0	54.0	53.0	51.0	50.0	50.0
Energy Average		54.8	Average:		61.9	59.2	56.2	54.6	51.5	50.2	48.3	47.9	47.0
Evening	Min	50.3	66.5	45.7	56.0	55.0	52.0	51.0	50.0	49.0	47.0	47.0	46.0
	Max	52.0	68.5	47.5	60.0	59.0	56.0	55.0	52.0	50.0	49.0	48.0	48.0
Energy Average		51.5	Average:		58.0	57.0	54.3	53.0	51.0	49.7	48.0	47.7	47.3
Night	Min	43.4	51.3	40.1	46.0	46.0	45.0	45.0	43.0	43.0	41.0	41.0	40.0
	Max	50.2	71.0	45.1	59.0	56.0	51.0	50.0	49.0	48.0	46.0	46.0	45.0
Energy Average		47.1	Average:		51.8	49.9	48.0	47.6	46.0	45.3	43.6	43.6	42.7

L_{eq} (dBA)		
24-Hour	*Daytime*	*Nighttime*
52.7	**54.3**	**47.1**

24-Hour CNEL (dBA)

56.0