

Public Storage Facility Expansion

Noise Impact Analysis

May 11, 2015

Prepared for:
Public Storage
701 Western Avenue
Glendale, CA 91201-2349

Prepared by:
HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

Noise Impact Analysis
Public Storage Facility Expansion

1247 Sweetwater Road
Spring Valley, CA 91977

Prepared for:

Public Storage
701 Western Avenue
Glendale, CA 91201-2349

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
San Diego, CA 91942

May 11 2015

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
	EXECUTIVE SUMMARY	1
1.0	INTRODUCTION	1
1.1	Project Location.....	1
1.2	Project Description	1
1.3	Analyzed Receptors.....	1
1.4	Noise and Sound Level Descriptors and Terminology.....	2
1.4.1	Descriptors	2
1.4.2	Terminology.....	2
1.5	County of San Diego Municipal Code - Noise Ordinance	3
2.0	ENVIRONMENTAL SETTING	6
2.1	Site Land Use.....	6
2.2	Adjacent Land Uses.....	6
2.3	Existing Noise Levels.....	6
2.4	Future Noise Environment Sources	7
3.0	STUDY METHODS, EQUIPMENT, AND PROCEDURES	7
3.1	Equipment and Procedures	7
3.2	Noise Modeling Software	7
3.3	Summary of Site-Specific Features Used in CADNA Noise Model.....	7
4.0	OPERATIONAL NOISE IMPACTS	8
4.1	Significance Thresholds	8
4.2	Project-related Noise Sources.....	8
4.3	Calculated Construction/Demolition Noise.....	9
4.4	Calculated Operational Noise Impacts	9
4.5	Required Project Features.....	10
5.0	MITIGATION	10
6.0	CONCLUSIONS	10
7.0	QUALIFICATIONS	11
8.0	CERTIFICATION	12

TABLE OF CONTENTS (cont.)

LIST OF APPENDICES

- A Detailed Site Plan
- B County of San Diego Zoning Map

LIST OF FIGURES

<u>No.</u>	<u>Title</u>	<u>Follows Page</u>
1	Regional Location Map	2
2	Aerial Photograph	2
3	Detailed Site Plan.....	2
4	Noise Contours and Receivers	10

LIST OF TABLES

<u>No.</u>	<u>Title</u>	<u>Page</u>
1	County of San Diego Municipal Code Exterior Sound Level Limits	4
2	County of San Diego Maximum Sound Levels (Impulsive)	6
3	Summary of Site Features Included in the CADNA Exterior Model	8
4	Carrier 38HDR060 Condenser Noise	9
5	Calculated Noise Impacts at Potential Exterior Receptor Locations with All Site Equipment Operating.....	10

EXECUTIVE SUMMARY

This noise impact analysis is submitted to satisfy the following County of San Diego (County) noise requirements for the proposed Public Storage facility expansion site (hereafter referred to as the “Project” or the “proposed Project”):

1. Assess noise impacts from on-site Project-related noise sources;
2. Determine whether mitigation is necessary and feasible to reduce property line exterior noise impacts to below 50 dBA (A-weighted decibels) (numeric mean of residential [45 dBA] and commercial [55 dBA] at the closest residential property line), in compliance with the County’s nighttime property-line noise limit.

The existing Public Storage facility is located at 1247 Sweetwater Road. A new structure is proposed to be constructed at 1164 Coughatta Lane, which is adjacent to the west lot of the storage facility. A single-family residence (to be demolished) is located on the site. The facility and Project site lies within the Spring Valley Community Plan area in San Diego County. The site’s Assessor’s Parcel Numbers (APNs) are 578-172-4900 and -3900 (existing facility), 578-172-1800 (vacant), and 578-172-1800 (residence).

The proposed Project consists of a new three-story mini-warehouse self-storage building to be constructed adjacent to an existing three-story self-storage building. Access to the site would be from the existing two driveways on Sweetwater Road and through an existing security gate. Parking would be provided between the existing and new buildings. The existing office would remain and be used for both buildings, with no on-site residential use (i.e., for an on-site manager). All storage spaces in the new building will be accessible only from the inside of the building, which also requires security card access. The site would connect to and extend the existing perimeter 6 foot high Concrete Masonry Unit (CMU) wall the length of the north residential boundary with the new building.

The area just north of the site is zoned and developed with single-family residential. The area to the east is commercial and is occupied by a large roofing and building supply distributor (much of the business is an open lot). The south side appears to be a single-family residence (in commercial zoning), and appears to be used as commercial.

Project site is zoned Commercial (C-36).with adjacent single-family residential; therefore, the operational noise level limit is 50 dBA from 10 p.m. to 7 a.m.

Project-related noise sources would include the building air conditioners as well as the on-site parking that serves as loading/unloading areas. No other significant noise sources or public outdoor public address (PA) systems were noted at the site.

The site is essentially level and at or near the final grade. No major heavy equipment utilization is anticipated other than the brief demolition of the on-site residence, to be accompanied by the normal excavation of the foundation and utilities. No impulsive noise sources are anticipated during the Project construction.

The estimated equipment noise levels at all of the existing residential locations (R1-R4) range between 25.9 dBA L_{EQ} and 42.6 dBA L_{EQ} , which is within the County's nighttime noise limit at the site boundary (50 dBA L_{EQ} for commercial adjacent) established by the County's noise ordinance shown in Table 1. Planning assumes the installation of the 6-foot-high (minimum height) CMU fence along the northern residential property line.

The proposed Project would be in compliance with the County of San Diego's exterior and interior noise level limits, with the required Project features. No mitigation is required.

The Project's noise impacts would be in compliance with the County of San Diego Noise Ordinance at the property-line exterior locations. No mitigation would be required.

1.0 INTRODUCTION

This noise impact analysis is submitted to satisfy the following County of San Diego (County) noise requirements for the proposed Public Storage facilities expansion site (hereafter referred to as the “Project” or the “proposed Project”):

1. Assess noise impacts from on-site Project-related noise sources;
2. Determine whether mitigation is necessary and feasible to reduce property line exterior noise impacts to below 50 dBA (A-weighted decibels) (numeric mean of residential [45 dBA] and commercial [55 dBA] at the closest residential property line), in compliance with the County’s nighttime property-line noise limit.

1.1 PROJECT LOCATION

The existing Public Storage facility is located at 1247 Sweetwater Road, with the adjacent lot to the east (1164 Coughatta Lane) proposed to be developed with a new storage facility structure. Both sites are within the Spring Valley Community Plan area and include the following Assessor’s Parcel Numbers (APN’s): (1) 578-172-4900 and -3900 (existing facility); (2) 578-172-1800 (proposed structure); and 578-172-1800 (with single-family residence). Refer to Figures 1 and 2 for a regional location map and aerial photograph of the Project site and vicinity, respectively.

1.2 PROJECT DESCRIPTION

The proposed Project consists of constructing a new three-story mini-warehouse self-storage building adjacent to an existing three-story self-storage building. Access to the site would be from the existing two driveways on Sweetwater Road and through an existing security gate. Parking would be provided between the existing and new buildings. The existing office would remain and be used for both buildings, with no on-site residential use (i.e., for an on-site manager). All storage spaces in the new building would be accessible only from the inside of the building, which also requires security card access. The new building would be approximately 124,560 square feet (SF) and would include approximately 896 storage units. The applicant is proposing to occupy the neighboring lots to the east, after demolition of the existing wood-frame house, to accommodate for this Public Storage expansion.

The site would connect to and extend the existing perimeter 6-foot-high Concrete Masonry Unit (CMU) wall along the north property line with residential adjacent the new building.

Refer to the detailed site plan shown in both Figure 3 and Appendix A for additional Project details.

1.3 ANALYZED RECEPTORS

Noise impact information for the property lines at the north, east, south, and west locations closest to the installation are provided in the following analysis.

1.4 NOISE AND SOUND LEVEL DESCRIPTORS AND TERMINOLOGY

1.4.1 Descriptors

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ} , with a specified duration. The Community Noise Equivalent Level (CNEL) is a 24-hour average, where noise levels during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dB weighting, and sound levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dB weighting. This is similar to the Day-Night sound level (L_{DN}), which is a 24-hour average with an added 10 dB weighting on the same nighttime hours but no added weighting on the evening hours. Sound levels expressed in CNEL are always based on dBA. These metrics are used to express noise levels for both measurement and municipal regulations, as well as for land use guidelines and enforcement of noise ordinances.

Noise emission data are often provided based on the industry standard format of sound power (noted by S_{WL}), which is the total acoustic power radiated from a given sound source as related to a reference power level. Sound power differs from sound pressure (if notation is needed, the abbreviation is S_{PL}), which measures the fluctuations in air pressure caused by the presence of sound waves and is generally the format that describes noise levels as heard by the receiver. Sound pressure is the actual noise experienced by a human or registered by a sound level instrument. When sound pressure is used to describe a noise source, it must specify the distance from the noise source to provide complete information. Sound power is a specialized analytical method to provide information without the distance requirement, but it may be used to calculate the sound pressure at any desired distance.

1.4.2 Terminology

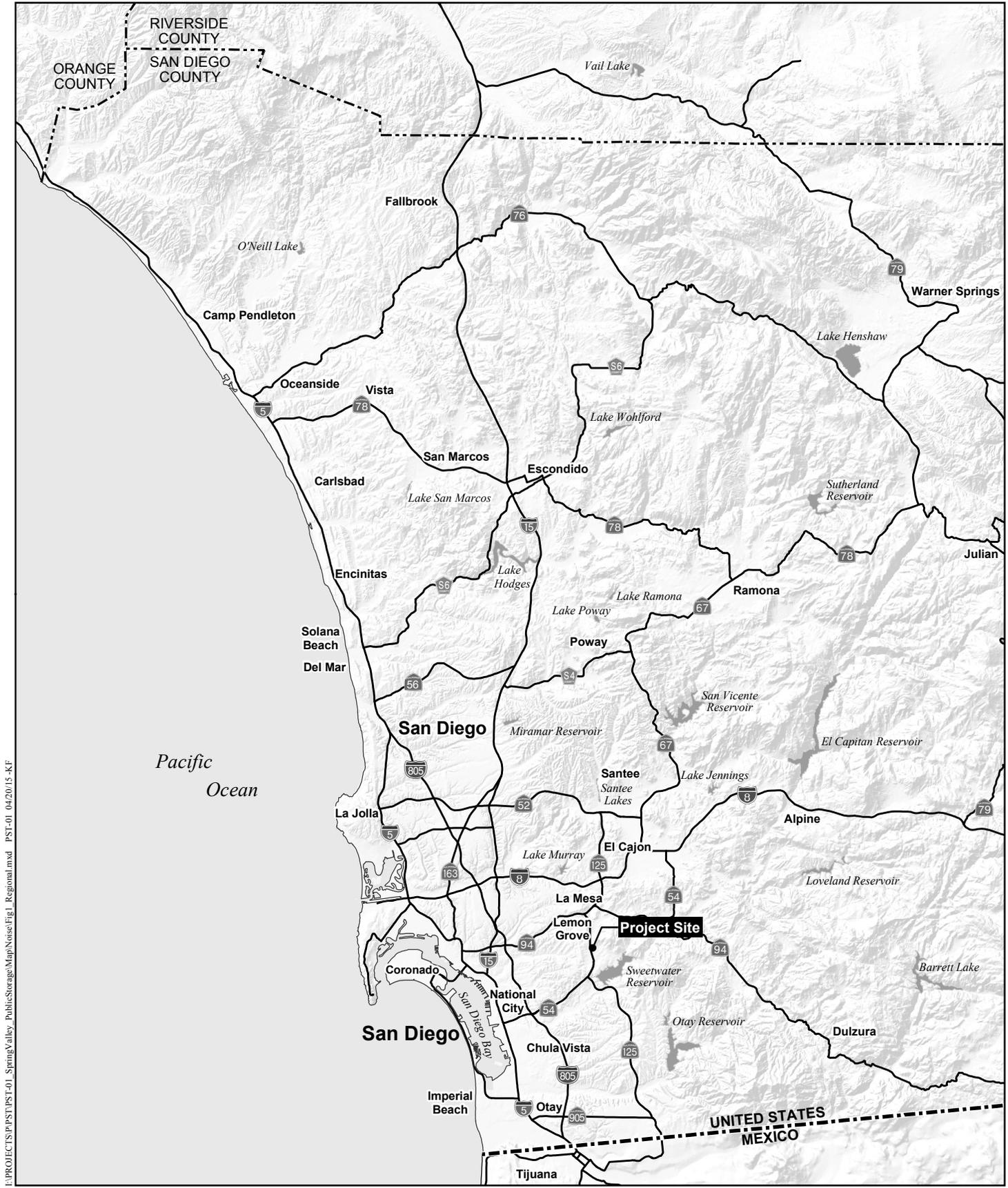
Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

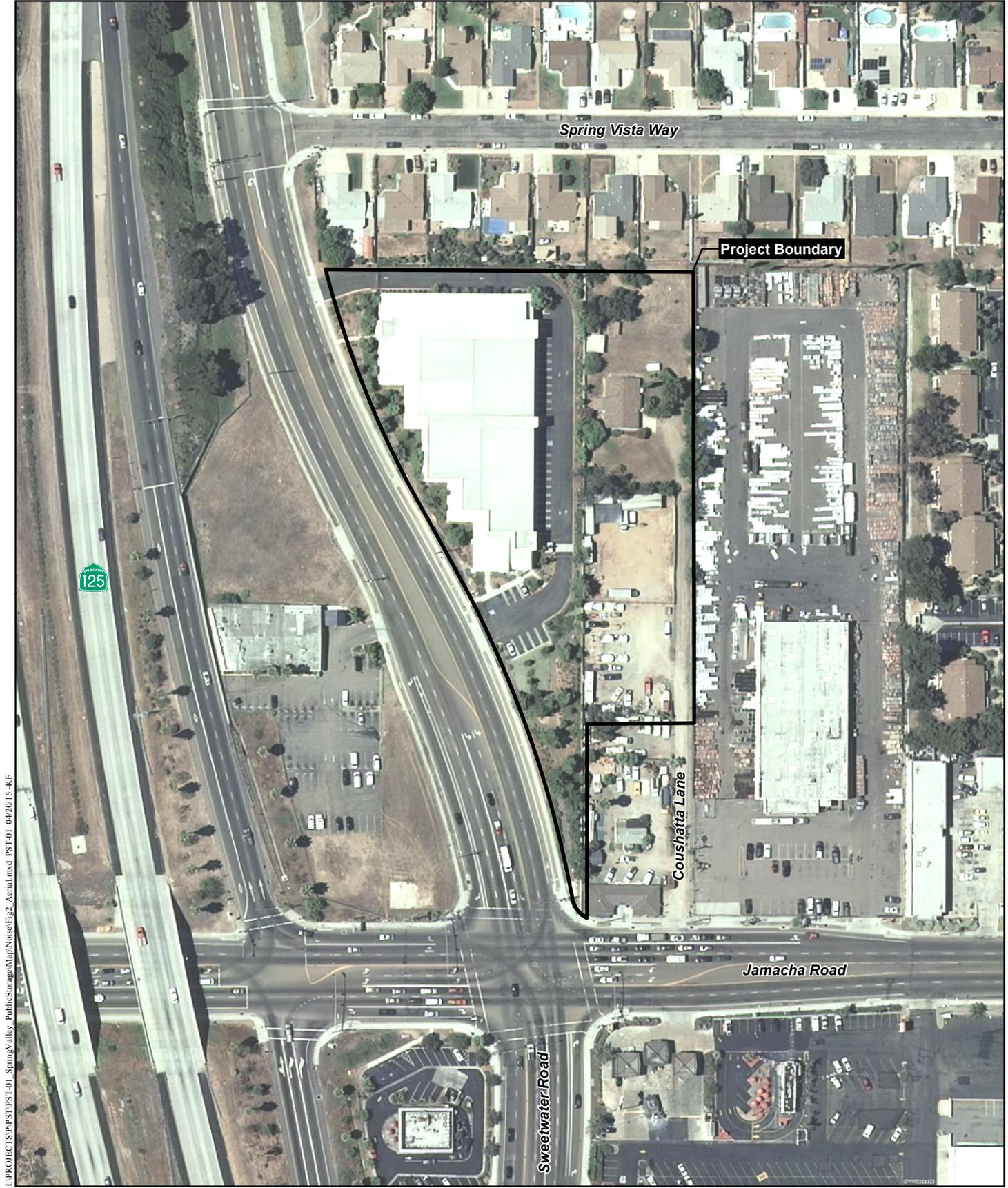
Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz).



I:\PROJECTS\PM\ST\PST-01_SpringValley_PublicStorage\Map\Noise\Fig_1_Regional.mxd PST-01_04/20/15_KF

Regional Location Map

SPRING VALLEY PUBLIC STORAGE



I:\PROJECTS\PM\ST\PMST-01_SpringValley_PublicStorage\Map\Noise\Fig2_Aerial.mxd PST-01_04/20/15-KF

Aerial Photograph

SPRING VALLEY PUBLIC STORAGE

I:\PROJECTS\SP\STP\STP01_SpringValley_PublicStorageMap\Noise\Fig3_DetailedSitePlan.mxd PST=01_04/20/15_KLF



JAMACHA ROAD

PROJECT INFORMATION

Project Address (New) 1164 Coushatta Lane, Spring Valley, CA 91977
 APN 578-172-1800 (southern)
 578-172-1700 (northern)
 Site Area: 1.42 Acres
 Project Address (Existing) 1247 Sweetwater Rd., Spring Valley, CA 91977
 APN 578-172-3900
 Site Area: 2.48 Acres
 Zone: C36 - General Commercial
 CUP Required: Yes- Major Mod to existing CUP
 Building Setbacks:
 Street 50'- not applicable to new site (interior site)
 Side 5' @ residential
 Side 0' @ interior
 Rear 15'
 Building Height 35'
 Maximum Site Coverage: none
 Occupancy: S-1 Mini Warehouse
 Construction Type: II-B Proposed 3 story building fully sprinkler

BUILDING AREA CALCULATIONS

Existing Buildings:	Total (3) stories	112,733 s.f.
	Total Existing units	827
Proposed New Building:	Total (3) stories	124,560 s.f.
	Total new units	896
	Total s.f	237,293 s.f
	Total units	1723

PARKING ANALYSIS

Parking required per code: .015 parking spaces per storage unit

(E) Units	827 x .015 = 12.41 sp
(N) Units	896 x .015 = 13.44 sp
Total required	25.85 sp
Total provided	73.00 sp

GENERAL NOTES

1. Property owner: Public Storage
701 Western Ave, Glendale, CA
2. Existing electrical service is underground
3. See conceptual utility plan, sheet 8 for easements and utilities

Source: KSP Studio Architecture and Engineering, 2015

High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz (or 20 kHz).

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this wide range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of dB. The threshold of hearing for the human ear is about 0 dB, which corresponds to 20 mPa.

Addition of Decibels

Because decibels are logarithmic units, S_{PL} cannot be added or subtracted through ordinary arithmetic methods. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than from one source under the same conditions. For example, if one automobile produces an S_{PL} of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Similarly, three sources of equal loudness together under the decibel scale would produce a sound level 5 dB louder than one source.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels, when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. It is widely accepted, however, that people begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness.

Impulsive Noise

Noise that has strong short-term duration (pulse), such as blasting, pile driving, or a hydraulic impactor that uses an engine-driven large cylindrical hammer (breaker) to break up rock or concrete, is known as impulsive noise.

1.5 COUNTY OF SAN DIEGO MUNICIPAL CODE - NOISE ORDINANCE

Sections 36.401 through 36.423 of the San Diego County Municipal Code discuss applicable County noise requirements. The purpose of the Noise Ordinance is to regulate noise in the unincorporated area of the County to promote the public health, comfort, and convenience of the County's inhabitants and its visitors.

The Noise Ordinance sets limits pertaining to the generation of exterior noise. It is unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level at any point on or beyond the boundaries of the property will exceed the applicable limits in Table 1, which is Table 1-3 of the *County of San Diego Municipal Code Exterior Sound Level Limits*.

Table 1* COUNTY OF SAN DIEGO MUNICIPAL CODE EXTERIOR SOUND LEVEL LIMITS		
Zone	Time	One-Hour Average Sound Level Limits (dBA)
(1) R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-90, S-92 and R-V and R-U with a density of less than 11 dwelling units per acre.	7:00 a.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
(2) R-RO, R-C, R-M, S-86, V5 and R-V and R-U with a density of 11 or more dwelling units per acre.	7:00 a.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	50
(3) S-94, V4 and all other commercial zones.	7:00 a.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	55
(4) V1, V2	7:00 a.m. to 7:00 p.m.	60
V1, V2	7:00 p.m. to 10:00 p.m.	55
V1	10:00 p.m. to 7:00 a.m.	55
V2	10:00 p.m. to 7:00 a.m.	50
V3	7:00 a.m. to 10:00 p.m.	70
	10:00 p.m. to 7:00 a.m.	65
(5) M-50, M-52 and M-54	Anytime	70
(6) S-82, M-56 and M-58	Anytime	75
(7) S-88 (see subsection (c) below)	-	-

Source: County of San Diego Municipal Code Section 36.404.

*This is Table 1-3 of *County of San Diego Municipal Code Exterior Sound Level Limits*.

Zoning Code Definitions: R-S = Single-Family Residential; R-D = Duplex Residential; R-R = Rural Residential; R-MH = Mobile home Residential; A-70 = Limited Agriculture; A-72 = General Agriculture; S-80 = Open Space; S-90 = Holding Area; S-92 = General Rural; S-94 = Transportation and Utility Corridor; R-V = Variable-Family Residential; R-RO = ; R-C = Residential-Commercial; R-M = Multi-Family Residential; S-86 = Parking; R-U = Urban Residential; V1, V2, V3, V4, and V5 = Village Designations; M-50 = Basic Industrial; M-52 = Limited Industrial; M-54 = General Impact Industrial; S-82 = Extractive Use; M-56 = Mixed Industrial; M-58 = High-Impact Industrial; S-88 = Specific Plan

- If the measured ambient level exceeds the applicable limit noted above, the allowable one-hour average sound level shall be the ambient noise level, plus 3 dB. The ambient noise level shall be measured when the alleged noise violation source is not operating.
- The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones; provided however, that the one-hour average sound level limit applicable to extractive industries, including but not limited to borrow pits and mines, shall be 75 dB at the property line regardless of the zone which the extractive industry is actually located.
- S-88 zones are Specific Planning Areas which allow for different uses. The sound level limits in above that apply in an S-88 zone depend on the use being made of the property. The limits in Table 1 above, subsection (1) apply to property with a residential, agricultural, or civic use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M-50, M-52, or M-54 zone. The limits in subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M-56 or M-58 zone.
- A fixed-location public utility distribution or transmission facility located on or adjacent to a property line shall be subject to the sound level limits of this section, measured at or beyond 6 feet from the boundary of the easement upon which the facility is located.

Section 36.409, Construction Noise

Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 decibels for an 8-hour period, between 7:00 a.m. and 7:00 p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

Section 36.410, Impulsive Noise

Section 36.410 provides additional limitation on construction equipment beyond Section 36.404 pertaining to impulsive noise. Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 2—which is Table 1-4, *County of San Diego Maximum Sound Levels (Impulsive)*—when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period.

Table 2* COUNTY OF SAN DIEGO MAXIMUM SOUND LEVELS (IMPULSIVE)	
Occupied Property Use	Decibels (dBA) L_{MAX}
Residential, village zoning or civic use	82
Agricultural, commercial or industrial use	85

Source: County of San Diego Municipal Code Section 36.410

*County Table 1-4

The minimum measurement period for any measurements is one hour. During the measurement period, a measurement must be conducted every minute from a fixed location on an occupied property. The measurements must measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will be deemed that the maximum sound level was exceeded during that minute.

2.0 ENVIRONMENTAL SETTING

Ground topography on the site is nearly level with no significant topographical shielding near the planned site.

2.1 SITE LAND USE

The Project site area is developed with a Public Storage warehouse and a single-family residence. The site is zoned Commercial (C-36).

2.2 ADJACENT LAND USES

The area just to the north of the site is zoned for and developed with single-family residential use. The area to the east is commercial and includes a large roofing and building supply distributor (much of it consisting of an open lot). The south side appears to be a single-family residence (in commercial zoning), probably used for commercial space. The property line is analyzed based on its commercial zoning.

For a County of San Diego zoning map, see Appendix B.

2.3 EXISTING NOISE LEVELS

An on-site inspection was conducted at 1:10 p.m. on Friday, November 21, 2014. A 15-minute ambient noise measurement was made adjacent to the proposed building in the existing parking lot, with a measured noise level of 54.4 dBA L_{EQ}. During the ambient noise measurement, there was no measurable breeze, the humidity was moderate, and the temperature was in the lower 70s degrees Fahrenheit. (Additional discussion of noise measurement methodology provided

below in Section 3.0). The primary source of ambient noise was from traffic on the three nearby streets – Sweetwater Road, the South Bay Freeway (State Route 125), and Jamacha Road.

2.4 FUTURE NOISE ENVIRONMENT SOURCES

The surrounding area has large undeveloped areas zoned for both residential and commercial use. It is reasonable to anticipate increased noise in the area from both residential and commercial land use, as well as potential in-fill development. No specific information is currently available regarding the planned or potential development of future noise sources. This increase in both commercial and residential use in the area is reflected in the 2008 San Diego Association of Governments (SANDAG) traffic volume data for Sweetwater Road is 17,600 Average Daily Trips (ADT) by the site, while the 2050 traffic volume forecast for this roadway is 19,400 ADT.

3.0 STUDY METHODS, EQUIPMENT, AND PROCEDURES

3.1 EQUIPMENT AND PROCEDURES

On-site noise levels were recorded using a sound level meter conforming to the American National Standards Institute (ANSI) specifications for sound level meters (ANSI SI.4-1983, R2001). The meter was field-calibrated immediately prior to the noise measurement to ensure accuracy, with all instruments maintained with National Bureau of Standards traceable calibration, per the manufacturers' standards.

3.2 NOISE MODELING SOFTWARE

Modeling of the non-traffic outdoor noise environment was accomplished using Computer-Aided Noise Abatement (CADNA) Version 3.5. This model predicts noise impacts in a wide variety of conditions. CADNA assists in the calculation, presentation, assessment, and mitigation of noise exposure. It allows for the consideration of effects from a variety of variables, including noise source, intervening structures, and topography in estimating sound levels at a particular location.

3.3 SUMMARY OF SITE-SPECIFIC FEATURES USED IN CADNA NOISE MODEL

Existing and proposed features at the Project site that were included in the CADNA noise prediction model are listed in Table 3. These are considered to be the only on-site permanent features that would affect the noise propagation of the existing and proposed noise sources to the adjacent property lines.

Table 3 SUMMARY OF SITE FEATURES INCLUDED IN THE CADNA EXTERIOR MODEL	
Description	Height
Topography	Varies from approximately 285 feet up to 305 feet (above mean sea level)
Existing and Proposed Buildings	35 feet
North Property Line CMU Wall	6 feet

4.0 OPERATIONAL NOISE IMPACTS

4.1 SIGNIFICANCE THRESHOLDS

As described in Sections 2.1 and 2.2, the proposed Project site is zoned commercial with adjacent single-family residential zoning/development; therefore, the operational noise level limit is 50 dBA from 10 p.m. to 7 a.m.

4.2 PROJECT-RELATED NOISE SOURCES

Project-related noise sources would include the building heating/air conditioning and ventilation (HVAC) facilities and the on-site parking that serves as loading/unloading areas. No other significant noise sources, such as public outdoor PA systems, were noted at the site.

The on-site parking is between the buildings and, therefore, predominately shielded from nearby properties (excluding the northern end). The northern end is farthest from the entrance doors and unlikely to have significant use during low utilization nighttime hours. Therefore, no analysis of the building parking lots is provided.

The existing and proposed HVAC equipment would generate noise during operation. The existing (and assumed for the proposed facility) HVAC units are Carrier 38QR060 split-system heat pumps; associated noise data is not known to be available in public documents. The units are noted as making as little as 68 dBA on the manufacturer’s website. An alternate unit in the same approximate noise level and similar configuration and size is used for analysis – a Carrier 38HDR060. Table 4, below, shows the level of noise generated at various frequencies.

Table 4 CARRIER 38HDR060 CONDENSER NOISE							
Noise Levels in Decibels ¹ (dB) Measured at Octave Frequencies in Hertz (hz)							Overall Noise Level in A-weighted Scale (dBA)
125 Hz	250 Hz	500 Hz	1 KHz	2 KHz	4 KHz	8 KHz	
63.0	61.5	64.0	66.5	66.0	64.5	55.5	72.0

¹ Sound Power Levels (S_{WL}).

4.3 CALCULATED CONSTRUCTION/DEMOLITION NOISE

The site is essentially level and at or near the final grade. No major heavy equipment utilization is anticipated other than the brief demolition of the on-site residence and excavation of the normal foundation and utilities.

Specifically, the existing residence is a lightweight (wood-frame) structure on slab or pier foundation, with proposed demolition to utilize either an excavator or loader for only a few hours to fully demolish the structure after the interior is manually torn apart and scrap materials loaded for transportation off site.

Proposed facility construction may require a small dozer to over-excavate the building pad area and then re-fill and compact the site. The Project site has a long, narrow layout, with only a narrow strip adjacent to the northern residences. Therefore, neither a dozer nor an excavator (operated at separate times) is likely to be close to any of the northern residences for more than an hour—or a maximum of two hours—during any given day of work. The Federal Highway Administration Road Noise Construction Model (RCNM) lists an excavator as 80.7 dBA L_{EQ} at 50 feet. Based on a 40 percent hourly operation time at 30 feet for two hours of an 8-hour day, this would result in a noise level of 75.1 dBA L_{EQ} (75.1 is a worst-case number and within a round off of the 75.0 allowable limit), which would comply with the County 75 dBA L_{EQ} 8-hour noise limit.

No impulsive noise sources are anticipated in the Project construction.

4.4 CALCULATED OPERATIONAL NOISE IMPACTS

Table 5 provides the calculated noise levels at four receiver locations (north, east, south, and west) for the operational HVAC noise, based on an assumed worst-case 50 percent hourly operation time for the existing 11 HVAC units (with eight units on the east side of the building facing into the parking area, and three on the north side of the building, facing the adjacent residences). The new building planning also assumes 11 new HVAC units in a similar configuration as the existing units. The receiver locations and noise contours are shown on Figure 4.

As shown in Table 5, the estimated HVAC equipment noise levels at all of the existing residential locations (R1-R4) range between 25.9 dBA L_{EQ} and 42.6 dBA L_{EQ}, which is within

the County’s nighttime noise limit at the site boundary (50 dBA L_{EQ} for commercial adjacent residential) established by the County’s noise ordinance shown in Table 1.

Table 5 CALCULATED NOISE IMPACTS AT POTENTIAL EXTERIOR RECEPTOR LOCATIONS WITH ALL SITE EQUIPMENT OPERATING		
Receiver	Location	Proposed Equipment Noise (dBA L_{EQ})
R1	North Property Line	32.0
R2	East Property Line	25.9
R3	South Property Line	42.6
R4	West Property Line	40.6

4.5 REQUIRED PROJECT FEATURES

The required Project feature is a minimum 6-foot-tall CMU constructed at the northern property line.

5.0 MITIGATION

With incorporation of the required Project features noted above in Section 4.5, the proposed Project would be in compliance with the County of San Diego’s exterior and interior noise level limits. Accordingly, no mitigation would be required.

6.0 CONCLUSIONS

The Project’s noise levels would be in compliance with the County of San Diego Noise Ordinance. As a result, no mitigation would be required.

This analysis is based upon a current worst-case scenario of noise generated from anticipated, typical HVAC units. Substitution of equipment with higher noise emission levels may alter the conclusions of this study.

These conclusions and recommendations are based on the most up-to-date, Project-related information available. However, noise characteristics of mechanical equipment may vary for specific installations. Verification of compliance with County noise regulations can be provided,



I:\PROJECTS\PM\ST\PST-01_SpringValley_PublicStorage\Map\Noise\Fig4_NoiseContours.mxd PST-01_04/20/15-KF

Noise Contours and Receivers

SPRING VALLEY PUBLIC STORAGE

if desired, by conducting a noise survey consisting of sound level measurements at or close to the nearest receiver locations in each direction, after the Project is built and in operation. This is best accomplished in the late night or very early morning hours while the equipment is in full operation and other ambient noise sources are minimized. If any additional sound attenuation is found to be necessary, it can be specified at that time.

7.0 QUALIFICATIONS

Mr. Terry is a senior acoustical consultant for HELIX Environmental Planning, Inc. with nearly 30 years of experience in engineering and mechanical systems. His specialized experience in acoustical and mechanical engineering includes evaluating noise from various sources including engines, compressors, generators, chillers, pump stations, turbines, presses, manufacturing equipment, and air handling systems, as well as providing recommendations (including design elements) for noise control solutions to achieve satisfactory noise levels. Mr. Terry has analyzed several power plant or public utility projects involving evaluation and control of noise from mechanical equipment. Mr. Terry's responsibilities include research, computer modeling, analysis, and noise monitoring. Other projects have focused on noise control within industrial, commercial, or residential projects, and have ranged from equipment noise reduction to building modification or design enhancement.

Mr. Terry oversees report preparation, noise control design, testing of prototype solutions, project management, and client support. He has served as an Industry Expert in General Acoustics, Nuisance Noise and Vibration Control, and Building Construction Practices at numerous public hearings and workshops, including Planning Commissions, County Councils, and Boards of Supervisors. He has provided expert witness court testimony and depositions on many cases in litigation involving noise and vibration issues. Clients have included engineers and architects for various utilities, manufacturers, and water and sewer districts, including Pacific Bell, San Diego Gas & Electric, PG&E Dispersed Generating Systems, Callaway Golf, Verizon, Cingular, Nextel, SBC, AT&T, Sprint, several water districts, and a number of large law firms.

Affiliations

Acoustical Society of America
Institute for Noise Control Engineering
California Association of Environmental Professionals
San Diego Forensic Consultants Association

Education

B.S., Mechanical Engineering, San Diego State University

8.0 CERTIFICATION

This report is based on the related project information received and measured noise levels, and represents a true and factual analysis of the acoustical impact issues associated with the proposed Public Storage Facility Expansion located at 1247 Sweetwater Road, Spring Valley, CA 91977. This report was prepared by Charles Terry.



Charles Terry

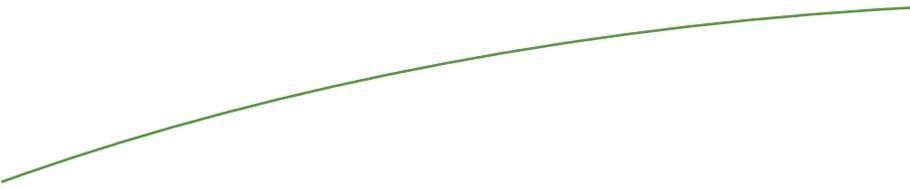
May 11, 2015

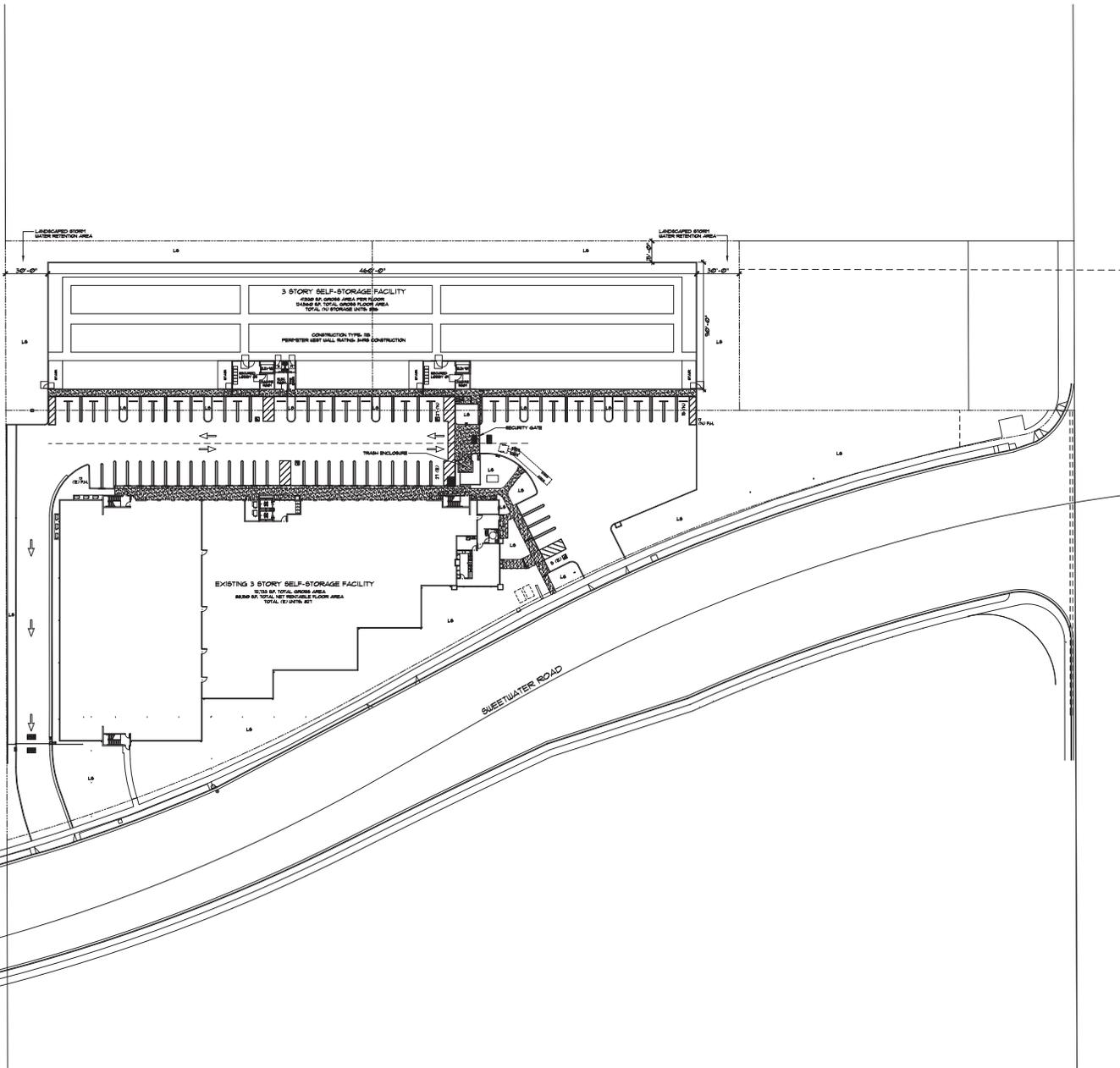
Date



Appendix A

DETAILED SITE PLAN





SITE INFORMATION

EXISTING PUBLIC STORAGE SITE:
 1247 SWEETWATER RD
 SPRING VALLEY, CA 91977
 APN: 578-172-3900
 2.48 AC
 38 PARKING SPACES EXISTING

NEW PROPERTIES:
 1144 COUSHATTA LANE
 SPRING VALLEY, CA 91977
 APN: 578-172-1800 (SOUTHERN)
 578-172-1700 (NORTHERN)
 1.42 AC

BUILDING AREA

EXISTING PUBLIC STORAGE SITE:
 112,733 SF BUILDING (3 STORIES)
 827 EXISTING STORAGE UNITS

PROPOSED BUILDING AREA FOR NEW PROPERTIES:
 124,560 SF BUILDING (3 STORIES)
 APPROXIMATELY 896 NEW STORAGE UNITS

PARKING CALCULATION

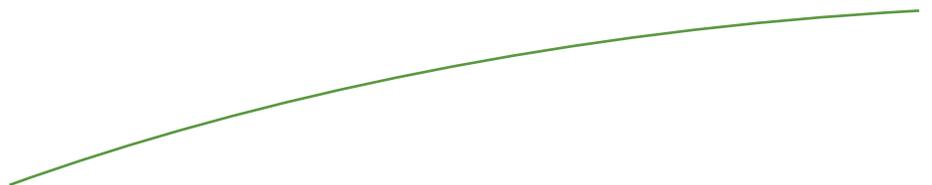
PARKING REQUIRED PER CODE: .015 PARKING SPACES PER STORAGE UNIT (NO APARTMENT)
 NUMBER OF STORAGE UNITS = 827 EXISTING + 894 NEW = 1721 TOTAL STORAGE UNITS
 1721 TOTAL UNITS X .015 SPACES/UNIT = 26 PARKING SPACES REQUIRED
 74 PARKING SPACES PROVIDED





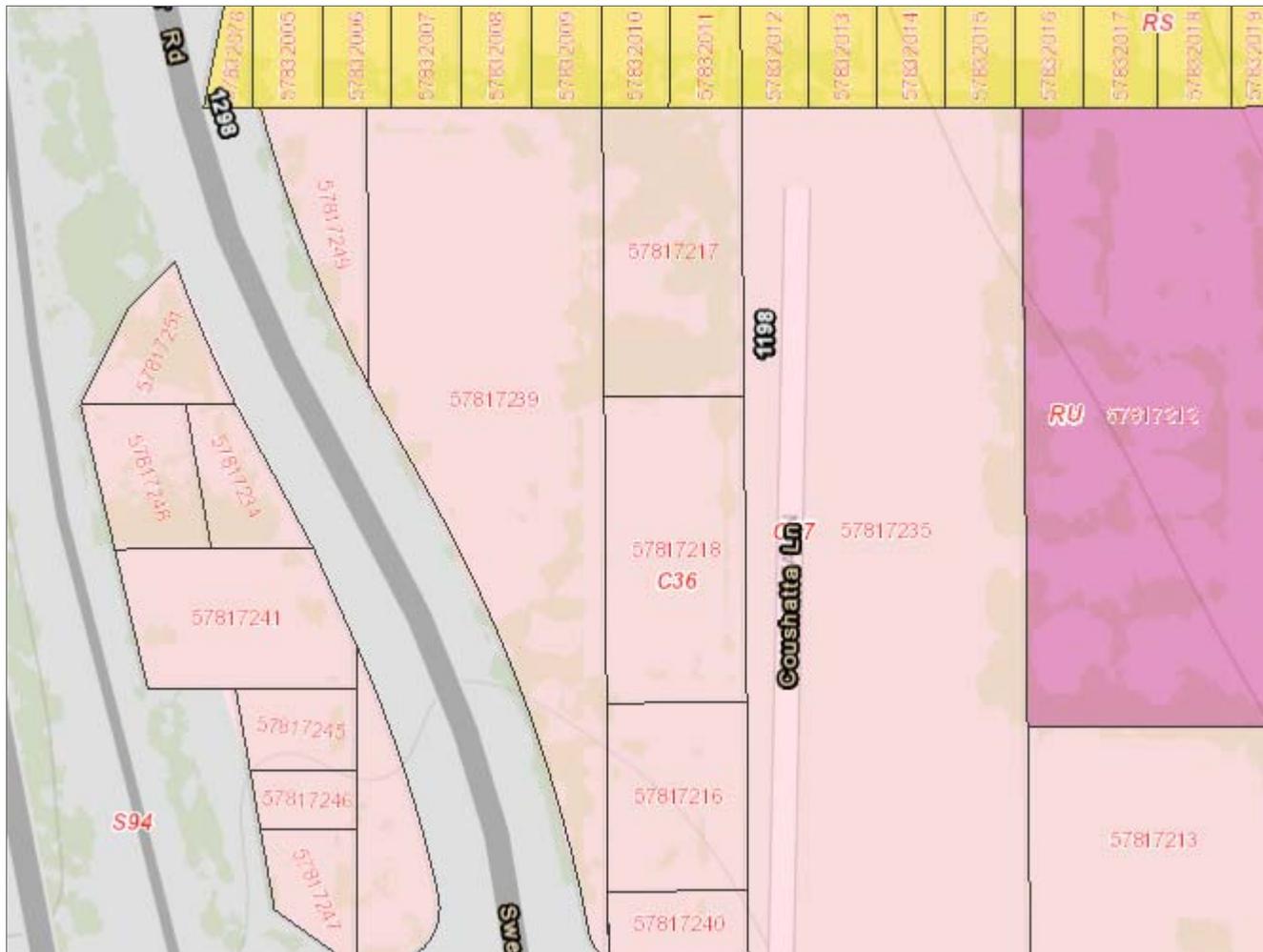
Appendix B

COUNTY OF SAN DIEGO ZONING MAP



County of San Diego - PDS - Zoning & Property Information - Simplified

Provides Zoning and General Plan information for parcels in the unincorporated County of San Diego - This map is easy to use



SANDAG, SanGIS, Cal-Atlas, Esri, HERE, DeLorme, Intermap, iPC, USGS, USDA, EPA | Esri, HERE