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Draft Noise Analysis Report

**San Diego Correctional Facility
Building Replacement**

P06-074W²

LOG NO. 93-19-006SS

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Prepared for:

The County of San Diego

&

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EXECUTIVE SUMMARY

The proposed San Diego Correctional Facility project would construct two detention facility buildings in two phases on a 36.96-acre tract in the Otay Mesa community of unincorporated San Diego County.

All noise-sensitive areas on the project site would be exposed to offsite traffic noise levels less than 60 dBA CNEL, in compliance with the Noise Element of the General Plan.

Project operation noise levels at project property lines adjacent to areas designated for Heavy Industrial use would be below 62.5 dBA Leq during daytime hours of 7:00 a.m. to 10:00 p.m. and below 60 dBA Leq during nighttime hours of 10:00 p.m. to 7:00 a.m., in compliance with the Noise Ordinance. Project operation noise levels at project property lines adjacent to areas designated for Conservation / Limited Use would be below 55 dBA Leq during daytime hours of 7:00 a.m. to 10:00 p.m. and below 52.5 dBA Leq during nighttime hours of 10:00 p.m. to 7:00 a.m. in compliance with the Noise Ordinance. Project operation noise levels at offsite boundaries between areas designated for Heavy Industrial use and areas designated for Conservation / Limited Use would be below 67.5 dBA Leq during daytime hours of 7:00 a.m. to 10:00 p.m. and below 65 dBA Leq during nighttime hours of 10:00 p.m. to 7:00 a.m., in compliance with the Noise Ordinance. Project operation noise levels would be below 60 dBA Leq at the noise-sensitive avian habitat, in compliance with the County limit.

Project construction noise levels would be below 75 dBA Leq (8-hour) at the project property lines, in compliance with the Noise Ordinance. Project construction noise levels would be below 60 dBA Leq at the noise-sensitive avian habitat, in compliance with the County limit.

No significant impacts were identified. The methodology and findings of this analysis are discussed in the following pages.

1.0 INTRODUCTION

This report assesses potential noise impacts associated with the proposed revised San Diego Correctional Facility in Otay Mesa, California (Figure 1).

1.1 Project Description

CURRENT PROPOSAL 3301-06-074-02 (P06-074W²)

The project is a modification to Major Use Permit 3301 06-074-01(P06-074-W¹). The project consists of modifying the building from a six-building campus-style layout to two larger buildings. The project site is located at the northeast corner of Calzada de la Fuente and Alta Road in the East Otay Mesa Specific Planning Area. The Specific Plan is part of the Otay Subregional Planning area, within the unincorporated San Diego County. The site is subject to the 'Village' General Plan Regional Category; the Land Use Designation is 'East Otay Mesa Specific Plan' area. Zoning for the site is S88 Specific Plan area. Access would be provided by a driveway connecting to Calzada de la Fuente. The project would be provided sewer service by the East Otay Mesa Sanitation District and would obtain imported water from the Otay Water District. No extension of sewer or water utilities will be required.

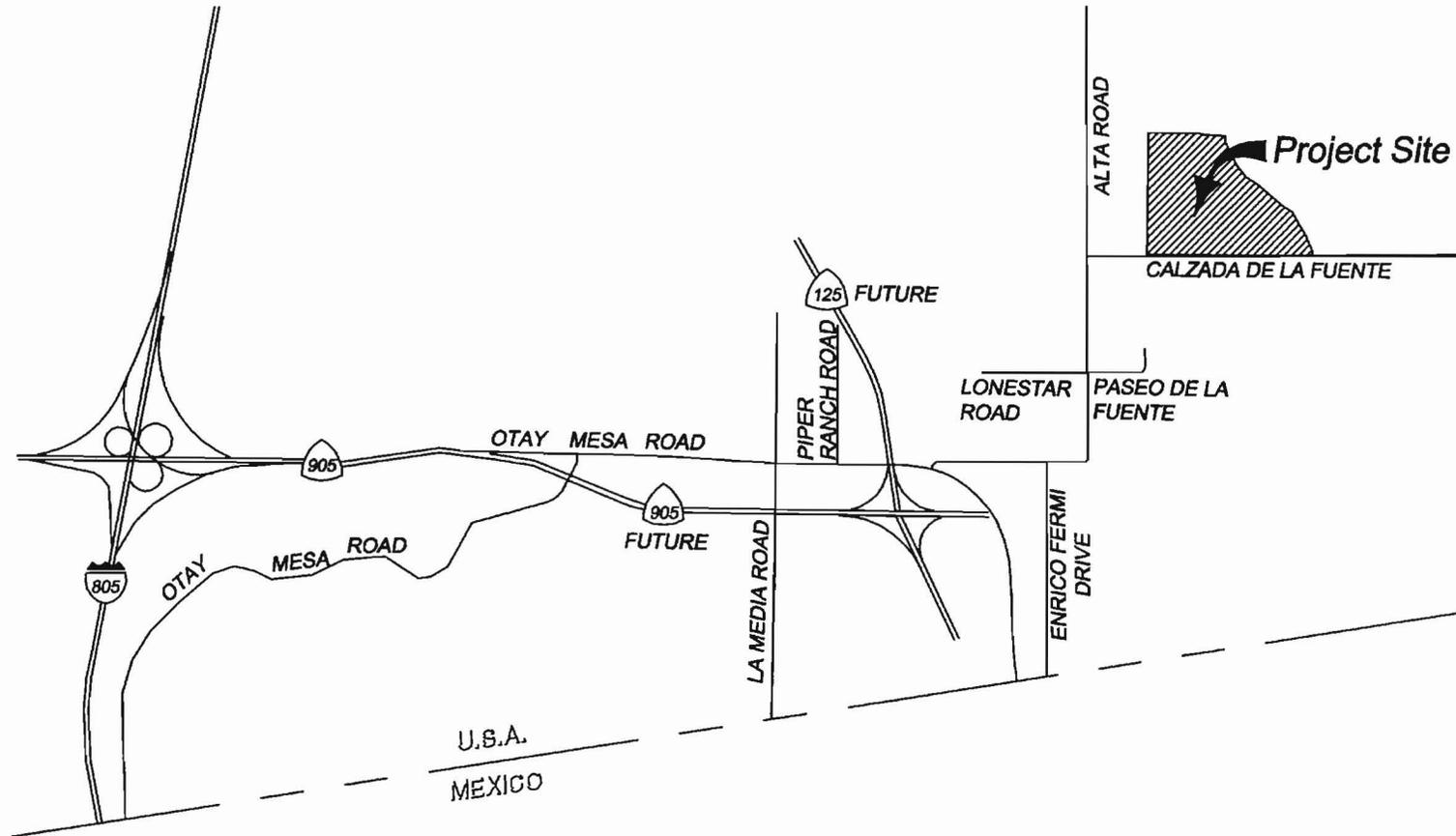
The proposed project is to modify Major Use Permit 3301 06-074-01 (P06-074W¹) to change the campus-type building style to two large buildings totaling 512,982 square feet to be developed in two phases. Phase I is proposed at 357,045 square feet and includes a 1,492 (1,216 male, 244 female and 32 mental health) bed detention facility plus a 76-bed segregated area, associated support buildings and 476 parking spaces, which includes 414 cars, 50 vans and 12 buses. Ancillary support services such as food service, medical, maintenance, laundry, chapel, gymnasium, dining, contact visitation, classrooms, staff support, warehouse, ICE offices and EOIR courtrooms and offices are also to be completed in Phase I. Walled and partially covered outdoor recreation areas totaling 24,000 square feet are in addition to the building area. Phase II is proposed at 155,937 square feet and would increase capacity by 1,408 beds plus a 128-bed segregation area along with 102 additional parking spaces. Walled and partially covered outdoor recreation of 24,000 square feet is also included in Phase II.

The maximum proposed building height for these facilities is 38 feet. The facility would operate on a 24-hour per day / 7 days per week basis with a total staff of 448 persons at build-out. The perimeter footprint including road and fences for Phase I will be expanded for Phase II. Facility design incorporates state-of-the-art security technology with perimeter intrusion detection systems and use of closed circuit television throughout the interior and exterior of the premises. Perimeter road and double perimeter fence systems are patrolled around the clock.

The project site has been completely graded by a previously approved grading permit. No changes are proposed to the off-site improvements already approved by 3301 06-074-01.



Not to Scale



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HISTORY (P06-074W¹ - Approved by the Planning Commission November 10, 2010)

MUP 06-074W¹ was a Major Use Permit Modification to modify the previously approved Major Use Permit (MUP 06-074) for a secure detention facility. MUP 06-074 was approved by the Planning Commission on April 10, 2009 but the facility was not constructed. The main purpose of the Major Use Permit Modification is to move the location of the facility approximately 400 feet away from the previously approved site. Other changes include the relocation of the parking lot, an increase in capacity by 20 beds, minor changes to the layout of the buildings, and additional design features to accommodate the new location. While the previously approved site was 40 acres, the current site is 37 acres.

Construction of the 408,522 square foot facility will occur in two phases. Phase 1 is proposed at 312,285 square feet and would include four buildings to accommodate 1,448 beds and several other buildings for ancillary support services. Phase 2 is proposed at 90,237 square feet and would increase the number of beds to 2,132 beds housed in two more detention buildings. Both phases include walled and partially covered outdoor recreation areas in addition to the proposed buildings.

Weekday activities would include arrivals and departures by employees and legal counsel in the mornings and regularly scheduled delivery supplies to operate the facility. Visitors would be permitted Saturday and Sundays between 8:00 a.m. and 4:00 p.m. An average of 175 inmates per hour would be allowed into secure outdoor areas between the hours of 7 a.m. and 11 a.m. and again from 12:30 p.m. to 6 p.m., 7 days per week. The project would be located on a previously graded site.

COMPARISON OF THE APPROVED USE PERMIT AND THE PROPOSED MODIFICATION

Approved project 3301 06-074-01 (P06-074W¹)

| Phase I | | Phase II | | Totals |
|----------------------|----------|----------------------|--------|---------|
| # of Buildings | 4 | # of Buildings | 2 | 6 |
| Square Footage | 318,285* | Square Footage | 90,237 | 408,522 |
| Parking | 526 | Parking | - | 526 |
| Number of Beds | 1,448 | Number of Beds | 684 | 2,132 |
| Number of Employees | | Number of Employees | | |
| Total Square Footage | - | Total Square Footage | - | 408,522 |
| Recreation Area | | Recreation Area | | |
| Building Coverage | | Building Coverage | | |
| Floor Area Ratio | | Floor Area Ratio | | |

* Includes 182,634 – Housing
 11,563 – Administration building
 124,088 – Operations building

Proposed modification 3301 06-074-02 (P06-074W²) to the above approved Major Use Permit

| Phase I | | Phase II | | Totals |
|------------------------|---------|-------------------------|---------|----------|
| # of Buildings | 1 | # of Buildings | 1 | 2 |
| Square Footage (build) | 357,045 | Square Footage (build.) | 155,937 | 512,982 |
| Parking | 476 | Parking | 102 | 578 |
| Number of Beds | 1,492* | Number of Beds | 1,408** | 2,900*** |
| Number of Employees | | Number of Employees | | 448 |
| Recreation Area | 24,000 | Recreation Area | 24,000 | 48,000 |
| Building Coverage | 0.22 | Building Coverage | 0.10 | 0.32 |
| Floor Area Ratio | 0.22 | Floor Area Ratio | 0.10 | 0.32 |
| Total Square Footage | - | Total Square Footage | - | 512,982 |

* Includes 1,216 male, 244 female and 32 mental health beds, plus a 76-bed segregation area
 ** Includes 1,408 beds plus 128 bed segregation area
 *** Maximum number of persons would not exceed 2,900.
 At times, some inmates would be relocated to the segregation area; their bed in the main facility would remain open until their return.

1.2 Environmental Noise Background

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and that interferes with or disrupts normal activities. The human environment is characterized by a certain consistent noise level which varies by location and is termed ambient noise. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, perceived importance of the noise and its appropriateness in the setting, time of day and type of activity during which the noise occurs, and sensitivity of the individual.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air, and are sensed by the human ear. Sound is generally characterized by several variables, including frequency and intensity. Frequency describes the sound's pitch and is measured in cycles per second, or hertz (Hz), whereas intensity describes the sound's loudness and is measured in decibels (dB). Decibels are measured using a logarithmic scale. A sound level of 0 dB is approximately the threshold of human hearing. Normal speech has a sound level of approximately 60 dB. Sound levels above about 120 dB begin to be felt inside the human ear as discomfort and eventually as pain at still higher levels. The minimum change in the sound level of individual events that an average human ear can detect is about 3 dB. The average person perceives a change in sound level of about 10 dB as a doubling (or halving) of the sound's loudness; this relation holds true for sounds of any loudness. Sound levels of typical noise sources and environments are provided in Table 1.

Table 1. Sound Levels of Typical Noise Sources and Noise Environments

| Noise Source (at Given Distance) | Noise Environment | A-Weighted Sound Level | Human Judgment of Noise Loudness (Relative to Reference Loudness of 70 Decibels*) |
|---------------------------------------------------------------------------------------|--------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------------------|
| Military Jet Takeoff with Afterburner (50 ft) | Carrier Flight Deck | 140 Decibels | 128 times as loud |
| Civil Defense Siren (100 ft) | | 130 | 64 times as loud |
| Commercial Jet Take-off (200 ft) | | 120 | 32 times as loud Threshold of Pain |
| Pile Driver (50 ft) | Rock Music Concert Inside Subway Station (New York) | 110 | 16 times as loud |
| Ambulance Siren (100 ft) Newspaper Press (5 ft) Gas Lawn Mower (3 ft) | | 100 | 8 times as loud Very Loud |
| Food Blender (3 ft) Propeller Plane Flyover (1,000 ft) Diesel Truck (150 ft) | Boiler Room Printing Press Plant | 90 | 4 times as loud |
| Garbage Disposal (3 ft) | Noisy Urban Daytime | 80 | 2 times as loud |
| Passenger Car, 65 mph (25 ft) Living Room Stereo (15 ft) Vacuum Cleaner (10 ft) | Commercial Areas | 70 | Reference Loudness Moderately Loud |
| Normal Speech (5 ft) Air Conditioning Unit (100 ft) | Data Processing Center Department Store | 60 | 1/2 as loud |
| Light Traffic (100 ft) | Large Business Office Quiet Urban Daytime | 50 | 1/4 as loud |
| Bird Calls (distant) | Quiet Urban Nighttime | 40 | 1/8 as loud Quiet |
| Soft Whisper (5 ft) | Library and Bedroom at Night Quiet Rural Nighttime | 30 | 1/16 as loud |
| | Broadcast and Recording Studio | 20 | 1/32 as loud Just Audible |
| | | 0 | 1/64 as loud Threshold of Hearing |

Source: Compiled by Kimley-Horn and Associates, Inc.

Because of the logarithmic nature of the decibel unit, sound levels cannot be added or subtracted directly and are somewhat cumbersome to handle mathematically. A simple rule is useful, however, in dealing with sound levels. If a sound source generating a sound level is added to another sound source generating the same sound level, the resultant sound level increases by 3 dB, regardless of the initial sound level. Thus, for example, $60 \text{ dB} + 60 \text{ dB} = 63 \text{ dB}$, and $80 \text{ dB} + 80 \text{ dB} = 83 \text{ dB}$.

The normal human ear can detect sounds that range in frequency from about 20 Hz to 20,000 Hz. However, all sounds in this wide range of frequencies are not heard equally well by the human ear, which is most sensitive to frequencies in the range of 1,000 Hz to 4,000 Hz. This frequency dependence can be taken into account by applying a correction to each frequency range to approximate the human ear's sensitivity within each range. This is called A-weighting and is commonly used in measurements of community environmental noise. The A-weighted sound pressure level (abbreviated as dBA) is the sound level with the "A-weighting" frequency correction. In practice, the level of a noise source is conveniently measured using a sound level meter that includes a filter corresponding to the dBA curve.

Because community noise fluctuates over time, a single measure called the Equivalent Sound Level (L_{eq}) is often used to describe the time-varying character of community noise. The L_{eq} is the energy-averaged A-weighted sound level during a measured time interval. It is equal to the level of continuous steady sound containing the same total acoustical energy over the averaging time period as the actual time-varying sound. Additionally, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the L_{max} and L_{min} indicators, which represent the root-mean-square maximum and minimum noise levels obtained during the measurement interval. The L_{min} value obtained for a particular monitoring location is often called the "acoustic floor" for that location.

To describe the time-varying character of environmental noise, the statistical noise descriptors L_{10} , L_{50} , and L_{90} are commonly used. They are the noise levels equaled or exceeded during 10, 50, and 90 percent of a stated time, respectively. Sound levels associated with L_{10} typically describe transient or short-term events, whereas levels associated with L_{90} describe the steady-state (or most prevalent) noise conditions.

Another sound measure known as the Community Noise Equivalent Level (CNEL) is an adjusted average A-weighted sound level for a 24-hour day. It is calculated by adding a 5 dB adjustment to sound levels during evening hours (7:00 p.m. to 10:00 p.m.) and a 10 dB adjustment to sound levels during nighttime hours (10:00 p.m. to 7:00 a.m.). These adjustments compensate for the increased sensitivity to noise during the typically quieter evening and nighttime hours. CNEL is used by the State of California and County to evaluate land-use compatibility with regard to noise.

1.3 Applicable Noise Regulations and Standards

1.3.1 County of San Diego General Plan

The following is taken from the Noise Element of the County General Plan (County of San Diego 2011).

Noise exposure criteria are incorporated into land use planning to reduce future conflicts between noise and land use. This is achieved by specifying acceptable noise exposure ranges for various land uses throughout the County. The County uses the Noise Compatibility Guidelines listed in Table N-1 (Noise Compatibility Guidelines) to determine the compatibility of land use when evaluating proposed development projects.

The Noise Compatibility Guidelines indicate ranges of compatibility and are intended to be flexible enough to apply to a range of projects and environments. For example, a commercial project would be evaluated differently than a residential project in a rural area or a mixed-use project in a more densely developed area of the County.

A land use located in an area identified as “acceptable” indicates that standard construction methods would attenuate exterior noise to an acceptable indoor noise level and that people can carry out outdoor activities with minimal noise interference. Land uses that fall into the “conditionally acceptable” noise environment should have an acoustical study that considers the type of noise source, the sensitivity of the noise receptor, and the degree to which the noise source may interfere with sleep, speech, or other activities characteristic of the land use. For land uses indicated as “conditionally acceptable,” structures must be able to attenuate the exterior noise to the indoor noise level as indicated in the Noise Standards listed in Table N-2 (Noise Standards). For land uses where the exterior noise levels fall within the “unacceptable” range, new construction generally should not be undertaken.

Table N-1 Noise Compatibility Guidelines

| Land Use Category | | Exterior Noise Level (CNEL) | | | | | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----|----|----|----|----|
| | | 55 | 60 | 65 | 70 | 75 | 80 |
| A | Residential—single family residences, mobile homes, senior housing, convalescent homes | | | | | | |
| B | Residential—multi-family residences, mixed-use (commercial/residential) | | | | | | |
| C | Transient lodging—motels, hotels, resorts | | | | | | |
| D* | Schools, churches, hospitals, nursing homes, child care facilities | | | | | | |
| E* | Passive recreational parks, nature preserves, contemplative spaces, cemeteries | | | | | | |
| F* | Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation | | | | | | |
| G* | Office\professional, government, medical\dental, commercial, retail, laboratories | | | | | | |
| H* | Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance/repair | | | | | | |
|  | ACCEPTABLE—Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements. | | | | | | |
|  | CONDITIONALLY ACCEPTABLE—New construction or development should be undertaken only after a detailed noise analysis is conducted to determine if noise reduction measures are necessary to achieve acceptable levels for land use. Criteria for determining exterior and interior noise levels are listed in Table N-2, Noise Standards. If a project cannot mitigate noise to a level deemed Acceptable, the appropriate county decision-maker must determine that mitigation has been provided to the greatest extent practicable or that extraordinary circumstances exist. | | | | | | |
|  | UNACCEPTABLE—New construction or development shall not be undertaken. | | | | | | |

* Denotes facilities used for part of the day; therefore, an hourly standard would be used rather than CNEL (refer to Table N-2).

Table N-2 Noise Standards^{Note}

| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. The exterior noise level (as defined in Item 3) standard for Category A shall be 60 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL. |
| 2. The exterior noise level standard for Categories B and C shall be 65 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL. |
| 3. The exterior noise level standard for Categories D and G shall be 65 CNEL and the interior noise level standard shall be 50 dBA L_{eq} (one hour average). |
| 4. For single-family detached dwelling units, "exterior noise level" is defined as the noise level measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum net lot area: (i) for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet, (ii) for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area; (iii) for lots over 10 acres in area, the exterior area shall include 1 acre. |
| 5. For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas which are provided for private or group usable open space purposes. "Private Usable Open Space" is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior noise level standard shall be provided. "Group Usable Open Space" is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways. |
| 6. For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use. |
| 7. For noise sensitive land uses where people normally do not sleep at night, the exterior and interior noise standard may be measured using either CNEL or the one-hour average noise level determined at the loudest hour during the period when the facility is normally occupied. |
| 8. The exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library. |
| 9. For Categories E and F the exterior noise level standard shall not exceed the limit defined as "Acceptable" in Table N-1 or an equivalent one-hour noise standard. |

Note: Exterior Noise Level compatibility guidelines for Land Use Categories A-H are identified in Table N-1, Noise Compatibility Guidelines.

In addition, the County has adopted community noise control standards as part of the County's Noise Abatement and Control Ordinance (County Code of Regulatory Ordinances, Title 3, Division 6, Chapter 4) and provides guidance for implementation of the County's noise policies and ordinance in the County's California Environmental Quality Act (CEQA) Guidelines for Determining Significance for Noise. The Noise Ordinance defines limits for activities that generate excessive noise and sets noise level limits for land uses. The County's CEQA significance guidelines provide guidance on the use of the General Plan Noise Element and the County Noise Abatement and Control Ordinance when considering the environmental impact of noise exposure to high or excessive noise levels.

1.3.2 County of San Diego Noise Ordinance

Section 36.404: General Sound Level Limits states:

- (a) Except as provided in section 36.409 of this chapter, it shall be unlawful for any person to cause or allow the creation of any noise, which exceeds the one-hour average sound level limits in Table 36.404, when the one-hour average sound level is measured at the property line of the property on which the noise is produced or at any location on a property that is receiving the noise.

San Diego County Code Section 36.404, Sound Level Limits in Decibels (dBA)

| 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 a.m. to 10 p.m. 10 p.m. to 7 a.m. | 50 45 |
| (2) R-RO, R-C, R-M, S-86, V-5 and R-V and R-U with a density of 11 or more dwelling units per acre. | 7 a.m. to 10 p.m. 10 p.m. to 7 a.m. | 55 50 |
| (3) S-94, V-4 and all other commercial zones. | 7 a.m. to 10 p.m. 10 p.m. to 7 a.m. | 60 55 |
| (4) V1, V2 V1, V2 V1 V2 | 7 a.m. to 7 p.m. 7 p.m. to 10 p.m. 10 p.m. to 7 a.m. 10 p.m. to 7 a.m. | 60 55 55 50 |
| V3 | 7 a.m. to 10 p.m. 10 p.m. to 7 a.m. | 70 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) | | |

-
- (b) Where a noise study has been conducted and the noise mitigation measures recommended by that study have been made conditions of approval of a Major Use Permit, which authorizes the noise-generating use or activity and the decision making body approving the Major Use Permit determined that those noise mitigation measures reduce potential impacts to a level below significance, implementation and compliance with those noise mitigation measures shall constitute compliance with subsection (a) above.
 - (c) S88 zones are Specific Planning Areas which allow different uses. The sound level limits in Table 36.404 above that apply in an S88 zone depend on the use being made of the property. The limits in Table 36.404, subsection (1) apply to property with a residential, agricultural or civic use. The limits in subsection (3) apply to property with a commercial use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M50, M52, or M54 zone. The limits in subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M56 or M58 zone.
 - (d) If the measured ambient noise level exceeds the applicable limit in Table 36.404, the allowable one-hour average sound level shall be the one-hour average ambient noise level, plus three decibels. The ambient noise level shall be measured when the alleged noise violation source is not operating.
 - (e) 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. The one-hour average sound level limit applicable to extractive industries, however, including but not limited to borrow pits and mines, shall be 75 decibels at the property line regardless of the zone in which the extractive industry is located.
 - (f) 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 six feet from the boundary of the easement upon which the facility is located.

Section 36.409: Sound Level Limitations on Construction Equipment states:

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 eight-hour period, between 7 a.m. and 7 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.

1.3.3 State of California

California Code of Regulations, Title 24: Noise Insulation Standards requires an acoustical analysis for multifamily dwellings, hotels, motels, dormitories, long-term care facilities and dwellings other than detached single-family dwellings (i.e., noise sensitive interior areas) located in an area with exterior noise levels exceeding 60 dBA CNEL. The analysis must show that the proposed design would limit interior noise in habitable rooms to 45 dBA CNEL or below. This analysis must be provided to the County's Building Inspection Department.

The interior noise analysis should identify sound transmission loss requirements for building elements exposed to exterior noise levels exceeding 60 dBA CNEL. If the interior 45 dBA CNEL limit can be achieved only with the windows closed, the residence design must include mechanical ventilation that meets applicable Uniform Building Code (UBC) requirements. Worst-case noise levels, either existing or future, must be used. Future noise level predictions must be for a date at least 10 years from the time of the building permit application. The County has applied the 45 dBA CNEL limit to noise sensitive areas, such as sleeping areas in the facility.

1.3.4 Biological Resources

Diegan coastal sage scrub is a potential habitat for the federally threatened California gnatcatcher. Elevated noise levels can potentially mask the song of the California gnatcatcher, which is used to attract mates and to defend territories. The San Diego Association of Governments (SANDAG), in a 1990 study (SANDAG 1990), theoretically estimated that noise levels above 60 dBA Leq in least Bell's vireo breeding areas may impact the reproductive success of this species during their breeding season. The report conclusions were unclear as to the specific interval of the Leq; for the purpose of this analysis, the interval is considered to be one hour. The County of San Diego applies this criterion to the California gnatcatcher. Therefore, construction and operational noise is limited to an hourly noise level of 60 dBA Leq in areas with suitable and occupied Diegan coastal sage scrub during the California gnatcatcher breeding season of February 15 through August 31. The limit is applied at the boundary of and within the habitat.

1.4 Environmental Settings and Existing Conditions

1.4.1 Settings and Location

The project site is located on Calzada de la Fuente in the community of Otay Mesa, an unincorporated area of San Diego County, within the EOMBPSP. Zoning for the site and all adjacent properties is S88: Specific Plan. Surrounding land uses consist primarily of open area, with the Otay Mesa Generating Plant adjacent to the south. The Donovan State Prison is located approximately ½ mile to the northwest. The project site is currently rough graded but undeveloped.

1.4.2 Existing Noise Conditions

There are no onsite noise sources. The primary noise source in the project vicinity is vehicular traffic on Alta Road. Alta Road is currently a 2-lane Town Collector. The existing (2011) Average Daily Traffic (ADT) volume on Alta Road near the project site is 6,283 vehicles [Darnell & Associates, Inc. 2011]. The Calpine Power Plant, located to the south, is a secondary noise source. Calzada de la Fuente, with an existing ADT volume of 93 vehicles, generates a negligible amount of noise at the project site.

In addition, Brown Field and the Tijuana International Airport are near the project site. Brown Field is a general aviation airport in the City of San Diego approximately three miles west of the site. The site is located approximately 1.25 miles east of the Brown Field 60 dBA CNEL noise contour. The Tijuana International Airport is in Tijuana, Mexico approximately two miles southwest of the site. The primary runway at Tijuana International Airport is positioned roughly in an east-to-west direction. The site appears to be located well outside of the airport's 60 dBA CNEL contour. Aircraft used by the border patrol to fly above the project area also contribute to the existing noise environment. Airport noise is not a substantial factor at the project site.

Some land uses are considered sensitive to noise. Noise sensitive receptors are land uses associated with indoor and/or outdoor activities that may be subject to stress and/or significant interference from noise. They often include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, educational facilities and libraries. Industrial, commercial, agricultural and urban reserve land uses are generally not considered sensitive to ambient noise. There are no residential receptors or other noise sensitive receptors within ½ mile of the site.

1.5 Methodology and Equipment

1.5.1 Noise Measuring Methodology and Procedures

A noise measurement survey of the existing environment was conducted in the project area. Three ½-hour sound level measurements were conducted during peak traffic periods to quantify the ambient noise environment. The measurements were performed on Wednesday, November 11, 2009, between 3:30 p.m. and 5:15 p.m.

A Larson Davis Model 820 American National Standards Institute (ANSI) Type 1 Integrating Sound Level Meter was used as the data-collection device. The meter was mounted on a tripod roughly 5 feet above ground to simulate the average height of the human ear. The sound level meter was calibrated before and after the measurement period.

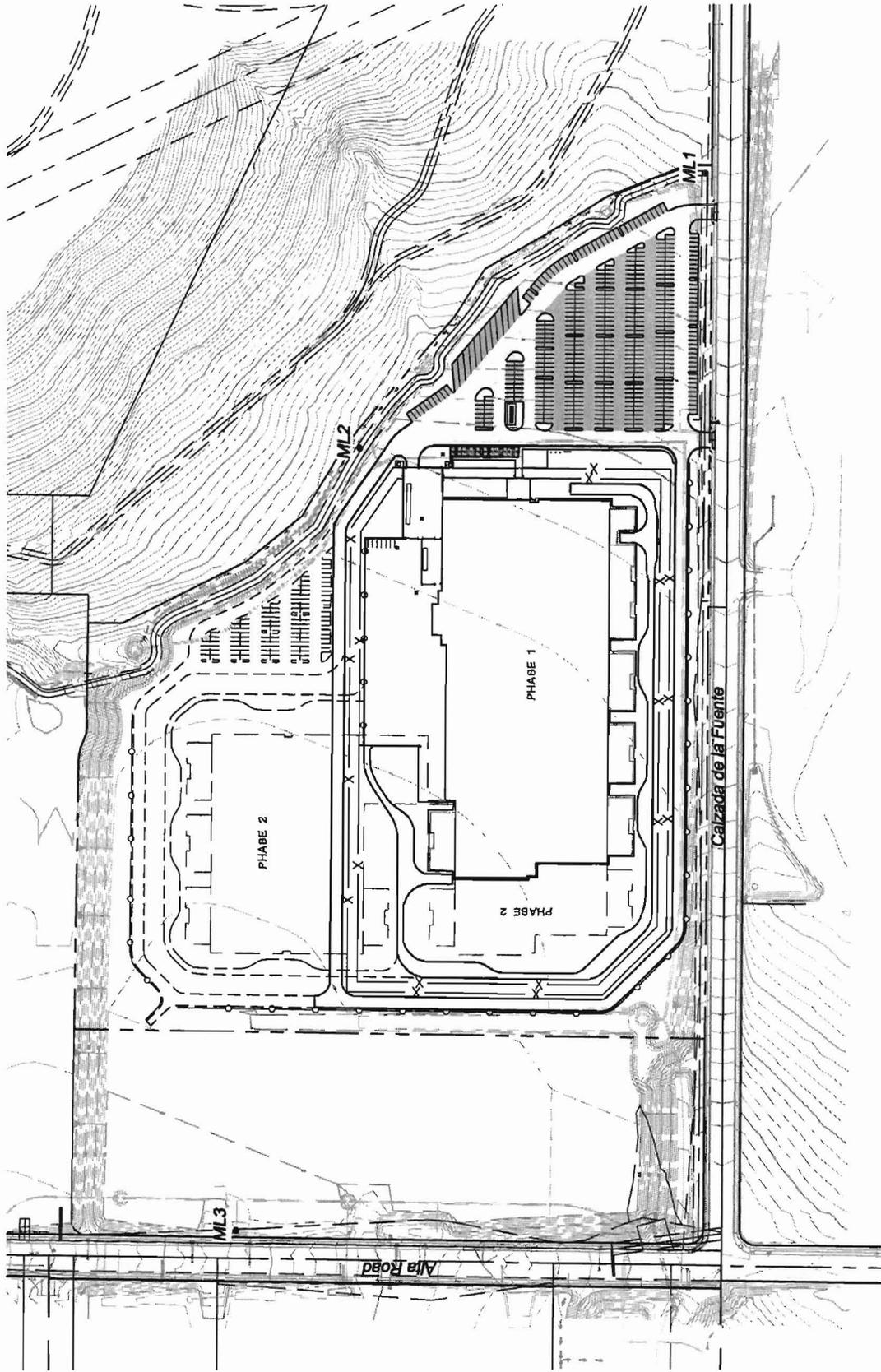
The measurement results are summarized in Table 2 and correspond to the locations depicted on Figure 2. Noise sources contributing to the noise environment during the measurement periods included vehicular traffic on Alta Road, an occasional vehicle on Calzada de la Fuente, the Calpine power plant to the south, and helicopter and light aircraft associated with Brown Field. Note that ML3 is not onsite, and is approximately 400 feet west of the project property line. The measurement was conducted at this location in the interest of calibrating the Alta Road roadway in the noise model.

Table 2. Sound Level Measurements (dBA)

| Site | Description | Date / Time | Leq | Lmin | Lmax | L10 | L50 | L90 | Traffic |
|------|----------------------|-----------------------------|------|------|------|------|------|------|----------------------------------------|
| ML1 | Calzada de la Fuente | 11/11/2009 15:30 – 16:00 | 55.0 | 52.2 | 65.0 | 56.1 | 54.7 | 53.3 | N/A |
| ML2 | Eastern trail | 11/11/2009 16:05 – 16:35 | 51.9 | 49.5 | 54.1 | 52.6 | 51.9 | 51.1 | N/A |
| ML3 | Alta Road | 11/11/2009 16:45 – 17:15 | 66.2 | 46.6 | 82.2 | 70.7 | 57.2 | 48.5 | NB: 35 cars, 3 MT SB: 87 cars, 1 HT |

Note:

MT = medium trucks, HT = heavy trucks



xx = Ground Floor
(xx) = Second Story
= REC YARD (TYP)

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and Associates, Inc.



Figure 2
Measurement Locations

1.5.2 Noise Modeling Software

The Federal Highway Association (FHWA) Traffic Noise Model (TNM) version 2.5 was used to calculate traffic noise levels. The modeling effort considered roadway alignments, estimated average vehicle speed, peak-hour traffic volume, vehicle mix, and intervening topography and structures. The model used a default ground type of "hard soil." The peak-hour traffic volume was assumed to be 10 percent of the ADT on each roadway. The model was calibrated using actual traffic counts and sound level measurements. Actual sound levels varied from projected sound levels by less than 1 dBA. The vehicular traffic calculations are summarized in Appendix A.

The Cadna/A Noise Prediction Model was used to estimate the project-generated hourly noise level at project property lines. Cadna/A is a Windows-based software program that predicts and assesses noise levels near noise sources. The model uses industry-accepted propagation algorithms and accepts sound power levels (in decibels re: 1 piconWatt) based on ISO 9613-2 standards. ISO 9613-2 is an internationally recognized standard that establishes a method for calculating the attenuation of sound during propagation outdoors, in order to predict the levels of environmental noise at a distance from a variety of sources. The method predicts the equivalent continuous A-weighted sound pressure level.

The project site configuration, including ground elevations and building heights, was imported into Cadna/A from the project CAD files. Because of the uncertainty associated with any computer model, the site operating parameters were designed to evaluate a worst-case condition. The receptors were generally placed five feet above ground level, but were placed three feet above ground level (nesting height) for avian receptors.

Cadna/A was also used to estimate construction noise levels. The primary noise sources (exhaust stacks) associated with the construction vehicles were assumed to be approximately 10 feet above ground level.

1.5.3 Noise Calculations

Acoustical calculations were performed to estimate the sound level from point sources. Sound from a point source generally decays at a rate of six dBA per doubling of distance from the source. This is a logarithmic relationship describing the acoustical spreading of a pure, undisturbed spherical wave in air. The rule applies to the propagation of sound waves with no ground interaction. Sound levels were calculated using the formula

$$SPL_2 = SPL_1 - 20 \log \left(\frac{d_2}{d_1} \right) \quad \text{where}$$

| | | |
|---------|---|----------------------|
| SPL_1 | = | known sound level, |
| SPL_2 | = | desired sound level, |
| d_1 | = | known distance, and |
| d_2 | = | desired distance. |

2.0 NOISE SENSITIVE LAND USES

2.1 Guidelines for the Determination of Significance

Project implementation will result in the exposure of any on- or off-site, existing, or reasonably foreseeable future NSLU to exterior or interior noise (including noise generated by the project, together with noise from roads [existing and planned Circulation Element roadways], railroads, airports, heliports, and all other noise sources) in excess of any of the following:

A. Exterior Locations:

- i. 60 dB (CNEL)[†]; or
- ii. An increase of 10 dB (CNEL) over pre-existing noise.

In the case of single-family residential detached NSLUs, exterior noise shall be measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum area:

- | | |
|-------------------------------------------------|---------------------|
| (1) Net lot area up to 4,000 square feet: | 400 square feet |
| (2) Net lot area 4,000 square feet to 10 acres: | 10% of net lot area |
| (3) Net lot area over 10 acres: | 1 acre |

For all other projects, exterior noise shall be measured at all exterior areas provided for group or private usable open space.

B. Interior Locations:

45 dB (CNEL) except for the following cases:

- i. Rooms which are usually occupied only a part of the day (schools, libraries, or similar facilities), the interior one-hour average sound level due to noise outside should not exceed 50 decibels (A).
- ii. Corridors, hallways, stairwells, closets, bathrooms, or any room with a volume less than 490 cubic feet.

[†] If any adopted community noise standard is more stringent than the exterior criterion of 60 decibels CNEL, the analysis of any related impacts due to this standard shall be considered a potential land use impact. The criteria listed in this document are still applicable in all environmental acoustical studies for compliance to CEQA.

2.2 Potential Noise Impacts

2.2.1 Onsite

2.2.1.1 Exterior – Proposed Usable Open Spaces

The project would include partially-covered recreation yards, which are outdoor usable open spaces, along the north and south sides of the Phase I and Phase II buildings. The project would not include any other outdoor usable open spaces. The Phase I and Phase II buildings are two-story structures, 38 feet in height.

Noise from vehicular traffic would continue to be the primary noise source in the future. By the year 2020 and the year 2030, traffic volumes near the project site would increase. In addition, Alta Road is planned as a 4-lane Collector. Calzada de la Fuente is currently a Light Collector, and is not planned to change. Traffic volume projections in the two future scenarios are shown in Table 3.

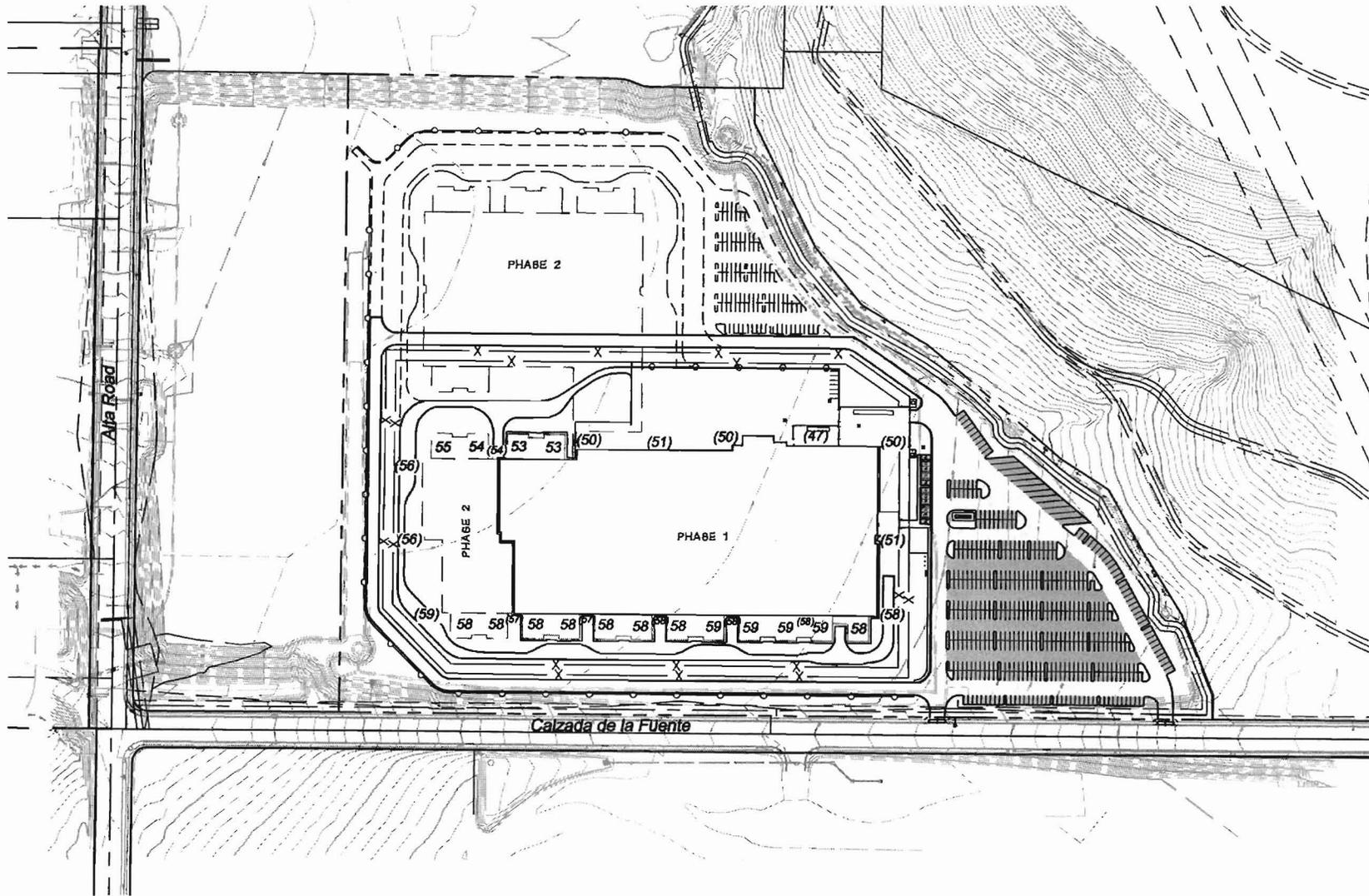
Table 3. Future Traffic Volume Projections

| Scenario | Roadway | ADT Volume | |
|---------------------------------------------------------|----------------------|----------------------------------|-----------------|
| Cumulative (2020) w/ SR-905 [Phases 1A & 1B] | Alta Road | 12,620 vehicles | |
| | Calzada de la Fuente | 4,780 vehicles | |
| Buildout (2030) w/ Proposed CCA Project (Phases 1-2) | Alta Road | North of Calzada de la Fuente | 14,900 vehicles |
| | | South of Calzada de la Fuente | 15,400 vehicles |
| | Calzada de la Fuente | 4,000 vehicles | |

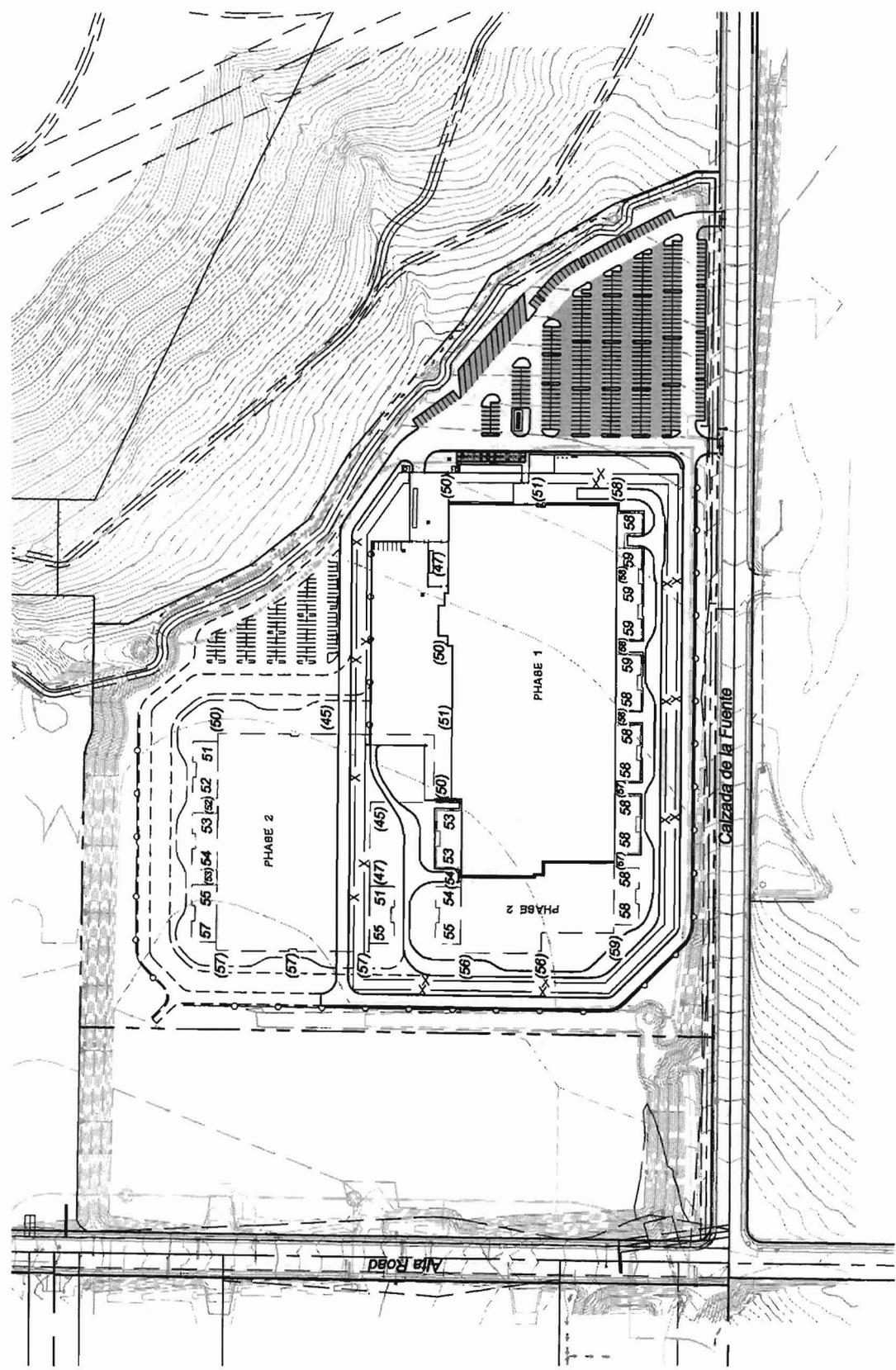
In the interest of a worst-case condition, the 2030 ADT for Alta Road and the 2020 ADT for Calzada de la Fuente was used in the future exterior traffic noise calculations. A traffic mix of 90/3/7 (cars / medium trucks / heavy trucks) was assumed for all road segments. Alta Road would have a speed limit of 55 miles per hour (mph), and Calzada de la Fuente would have a speed limit of 40 mph.

TNM was used to calculate future exterior traffic noise levels at the recreation yards. Calculations show that future exterior traffic noise levels at the proposed outdoor usable open spaces would range from below 45 dBA CNEL to approximately 58 dBA CNEL for Phase I and from below 45 dBA CNEL to approximately 58 dBA CNEL for Phase II, with the shielding effects of the project buildings. Refer to Figures 3 and 4 for further details. Because future exterior traffic noise levels at all outdoor usable open spaces in the project would be less than the standard set in the County General Plan, traffic noise impacts at outdoor usable open spaces are less than significant.

The future unmitigated 60 dBA CNEL noise contour was estimated using the project-specific TNM model. The location of this contour includes the combined effects of Alta Road and Calzada de la Fuente, and the effect of project grading. The site is generally flat, while the surrounding areas decrease in elevation from north to south. As a result, the northern portion of the site is in a 'cut' and the southern portion of the site is on a 'fill.' The contour is shown on Figure 5.



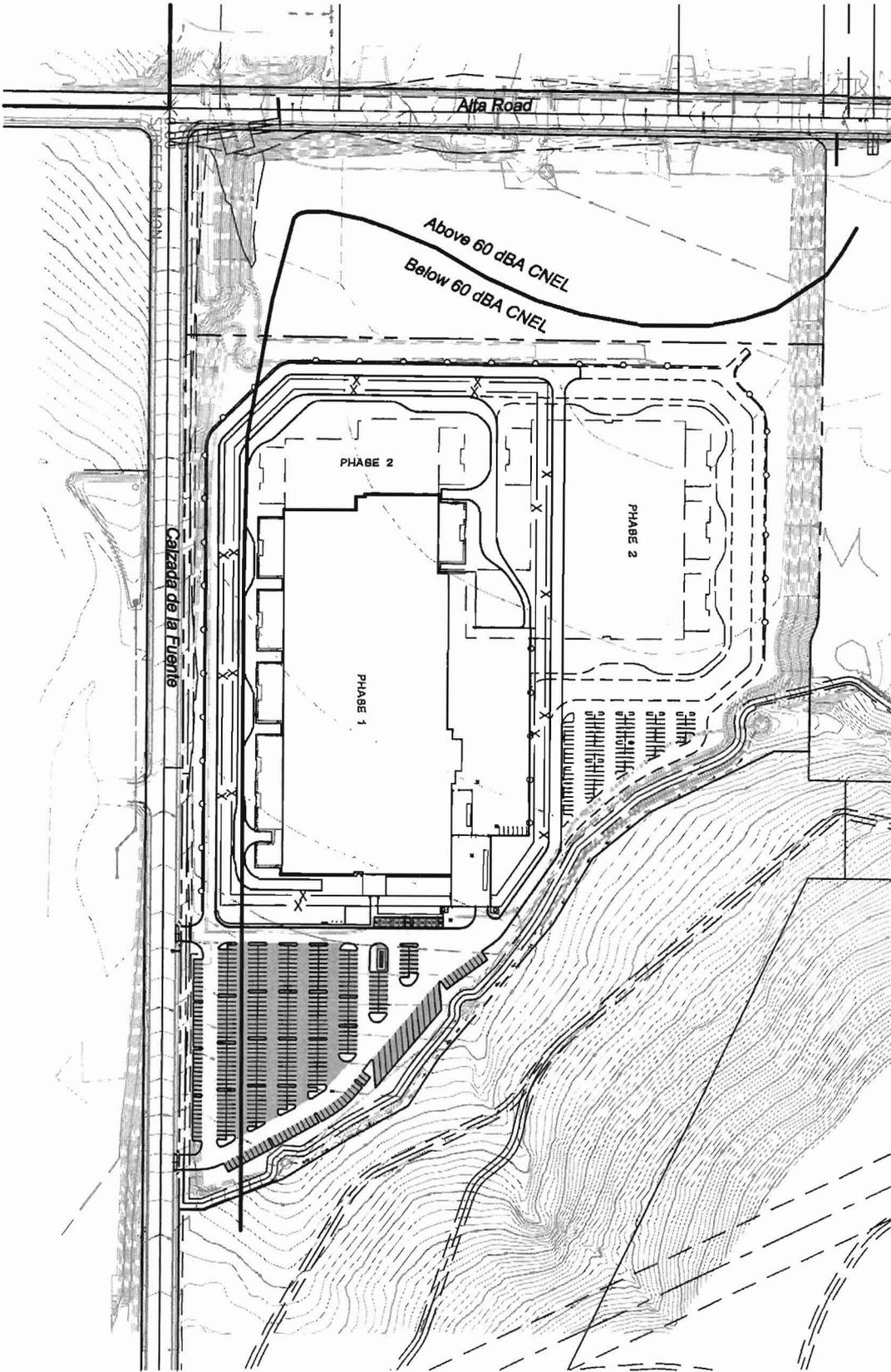
xx = Ground Floor
(xx) = Second Story
[Symbol] = REC YARD (TYP)



xx = Ground Floor
 (xx) = Second Story
 [] = REC YARD (TYP)



Figure 4
 Future Phase II Exterior Traffic Noise Levels (dBA CNEL)



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xx = Ground Floor
(xx) = Second Story

[Symbol] = REC YARD (TYP)

Figure 5
Future Unmitigated 60 dBA CNEL Traffic Noise Contour

2.2.1.2 Exterior – Generalized Noise Contours

The distances from the centerlines of the project roadways to the future noise contours, with no grading or intervening structures, are shown in Table 4. These distances assume the presence of the subject roadway only, and were estimated using a simplified TNM model with the parameters listed in Section 2.2.

Table 4. General Future Noise Contour Locations

| Roadway | Distance to Future Noise Contour (unmitigated) | | |
|----------------------|------------------------------------------------|-------------|-------------|
| | 70 dBA CNEL | 65 dBA CNEL | 60 dBA CNEL |
| Alta Road | 140 feet | 400 feet | 960 feet |
| Calzada de la Fuente | < 30 feet | 45 feet | 135 feet |

2.2.1.3 Interior

The project would include living units, which are considered multifamily dwellings. TNM was used to calculate future exterior traffic noise levels at building facades, for the purpose of assessing potential interior noise impacts. The floor height of the second story is 8 feet, 8 inches above the ground floor; therefore, the second-story receiver was placed at a height of 13 feet above ground.

Future exterior traffic noise levels at the proposed building façades would range from less than 45 dBA CNEL at the northern ground floor of the Phase II building to 59 dBA CNEL at the southern second-story façade of the Phase I building. Refer to Figures 3 and 4 for further details. Because projected future exterior traffic noise levels do not equal or exceed 60 dBA CNEL at any building façade, no interior noise analysis would be required. Interior noise impacts are less than significant.

2.2.1.4 Design Considerations and Mitigation Measures

Design considerations include the project grading as shown in Figures 2-6, and the locations of the project buildings and recreation yards. No mitigation measures were necessary.

2.2.2 Offsite

It is considered a significant direct impact when “new projects combine to generate more than double the existing sound energy of a documented noisy site.”

The project would generate additional traffic along existing roads in the area. A simplified TNM model was used to estimate project-generated noise increases from existing noise levels along roadways affected by the project. Roadway speeds were assumed to be 55 mph. Truck percentages were assumed to be 95% cars, 3% medium trucks, and 2% heavy trucks. Table 5 presents the results of modeling and the differences between existing conditions and existing-plus-project conditions.

Table 5. Noise Increases along Project Roadways

| Roadway | Segment | Existing ADT | Project (Phases 1 -2) ADT | Existing + Project ADT | Project-Generated Noise Increase |
|--------------------------------|---------------------------------------|--------------|---------------------------|------------------------|----------------------------------|
| Otay Mesa Road | Heritage Road – Cactus Road | 49,192 | 2,273 | 51,465 | < 1 dBA |
| | Cactus Road – Britannia Boulevard | 46,383 | 2,273 | 48,656 | < 1 dBA |
| | Britannia Boulevard – La Media Road | 20,025 | 2,273 | 22,298 | < 1 dBA |
| | La Media Road – Piper Ranch Road | 14,941 | 2,273 | 17,214 | < 1 dBA |
| | Piper Ranch Road – SR-125 | 14,132 | 2,273 | 16,405 | < 1 dBA |
| | SR-125 – Harvest Road | 14,068 | 2,540 | 16,608 | < 1 dBA |
| | Sanyo Avenue – Enrico Fermi Drive | 7,499 | 2,540 | 10,039 | 1 dBA |
| Enrico Fermi Drive – Alta Road | 6,651 | 2,674 | 9,325 | 2 dBA | |
| Alta Road | Otay Mesa Road – Lone Star Road | 6,410 | 2,674 | 9,084 | 2 dBA |
| | Lone Star Road – Calzada de la Fuente | 6,283 | 2,674 | 8,957 | 2 dBA |
| Calzada de la Fuente | East of Alta Road | 93 | 2,674 | 2,767 | 15 dBA |

Source: Damell & Associates, Inc. 2011

The project-generated traffic noise increase would range from less than 1 dBA to 2 dBA along all project roadways except Calzada de la Fuente, which would experience a noise increase of approximately 15 dBA. No project roadway is within ½ mile of a residential or other noise-sensitive land use. Project-generated offsite traffic noise impacts at noise-sensitive land uses are less than significant.

3.0 PROJECT-GENERATED AIRBORNE NOISE

3.1 Guidelines for the Determination of Significance

It shall be 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, exceeds the applicable limits on Table 36.404.

The project will generate airborne noise which, together with noise from all sources, will be in excess of either of the following:

- A. Non-Construction Noise: The limit specified in San Diego County Code Section 36.404, General Sound Level Limits, at the property line of the property on which the noise is produced or at any location on a property that is receiving the noise. Section 36.404 provides the following limits:

San Diego County Code Section 36.404, Sound Level Limits in Decibels (dBA)

| 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 a.m. to 10 p.m. | 50 |
| | 10 p.m. to 7 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 a.m. to 10 p.m. | 55 |
| | 10 p.m. to 7 a.m. | 50 |
| (3) S-94, V-4 and all other commercial zones. | 7 a.m. to 10 p.m. | 60 |
| | 10 p.m. to 7 a.m. | 55 |
| (4) V1, V2 V1, V2 V1 V2 | 7 a.m. to 7 p.m. | 60 |
| | 7 p.m. to 10 p.m. | 55 |
| | 10 p.m. to 7 a.m. | 55 |
| | 10 p.m. to 7 a.m. | 50 |
| V3 | 7 a.m. to 10 p.m. | 70 |
| | 10 p.m. to 7 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) | | |

- (a) If the measured ambient noise level exceeds the applicable limit stated above, the allowable one hour average sound level shall be the one-hour average ambient noise level, plus

three decibels. The ambient noise level shall be measured when the alleged noise violation source is not operating.

(b) 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 decibels at the property line regardless of the zone in which the extractive industry is actually located.

(c) S88 zones are Specific Planning Areas which allow for different uses. The sound level limits in Table 36.404 above that apply in an S88 zone depend on the use being made of the property. The limits in Table 36.404, subsection (1) apply to property with a residential, agricultural or civic use. The limits in subsection (3) apply to property with a commercial use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M50, M52 or M54 zone. The limits in subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M56 or M58 zone.

(d) 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 six feet from the boundary of the easement upon which the facility is located.

The project site and all adjacent properties are zoned S-88: Specific Plan, and are located in the East Otay Mesa Business Park Specific Plan (EOMBPSP) Area. The Land Use Element of the EOMBPSP, Figure 2.1-1: Land Use Plan designates the project site and all adjacent properties to the south and west as Heavy Industrial land use. The majority of the properties to the north and east are also designated as Heavy Industrial land use, but small portions near the northeast corner of the project property are designated Conservation / Limited Use.

The project does not conform to the Heavy Industrial land use description in the Land Use Regulations of the EOMBPSP. Table 3.1.1 of the EOMBPSP identifies permitted land uses, and references County Zoning Ordinance descriptions. The description of the Major Impact Services and Utilities land use type in County Zoning Ordinance Section 1350 includes "detention and correction institutions." Table 3.1.1 of the EOMBPSP indicates that the Major Impact Services and Utilities land use is considered a Civic Use Type. Therefore, the project would cause the "use being made of the property" to be Civic.

Chapter 3.1: Land Use Regulations of the EOMBPSP states:

Regarding noise measurements, uses in the Activity Node, District Commercial and Commercial Center shall comply with Section 6310.b [of the County Zoning Ordinance]; uses in the Technology Business Park shall comply with Section 6310.c; uses in the Light Industrial areas shall comply with Section 6310.d; uses in the Heavy and Mixed Industrial areas shall comply with Section 6310.e; and uses in the Rural Residential and Conservation / Limited Use areas shall comply with Section 6310.b.

Section 6310.e of the County Zoning Ordinance states:

The noise level limit for uses located in a zone subject to the M-58 Use Regulations other than within 400 feet of any boundary of a residential zone, shall be 80 decibels.

Section 6310.b of the County Zoning Ordinance states:

The noise level limit for uses located in a commercial zone shall be 60 decibels.

Because the EOMBSP and County Zoning Ordinance indicate that the project is a Civic land use, the limits in Section 36.404(a)(1) of the County Code apply to the project site. Because the EOMBSP indicates that all properties to the south and west and portions of the properties to the north and east are designated Heavy Industrial, the limits in Section 36.404(a)(6) apply to these properties. Because the EOMBSP indicates that commercial zoning regulations are applicable to Conservation / Limited Use areas, the limits in Section 36.404(a)(3) apply to the portions of the properties to the north and east designated Conservation / Limited Use.

The EOMBSP land use boundary line between Heavy Industrial and Conservation / Limited Use extends northwest and southeast from the northeast corner of the project property. Where not crossing the project property, this line represents the boundary between areas designated for Heavy Industrial use and Conservation / Limited Use.

Therefore, the property line noise level limits applicable to the project are:

- 62.5 dBA Leq during daytime hours of 7:00 a.m. to 10:00 p.m. at the south and west property lines and at the portions of the north and east property lines adjacent to areas designated for Heavy Industrial use,
- 60 dBA Leq during nighttime hours of 10:00 p.m. to 7:00 p.m. at the south and west property lines and at the portions of the north and east property lines adjacent to areas designated for Heavy Industrial use,
- 55 dBA Leq during daytime hours of 7:00 a.m. to 10:00 p.m. at the portions of the north and east property lines adjacent to areas designated for Conservation / Limited Use, and
- 52.5 dBA Leq during nighttime hours of 10:00 p.m. to 7:00 p.m. at the portions of the north and east property lines adjacent to areas designated for Conservation / Limited Use.
- 67.5 dBA Leq during daytime hours of 7:00 a.m. to 10:00 p.m. at the offsite boundary line between areas designated for Heavy Industrial use and areas designated for Conservation / Limited Use.
- 65 dBA Leq during nighttime hours of 10:00 p.m. to 7:00 a.m. at the offsite boundary line between areas designated for Heavy Industrial use and areas designated for Conservation / Limited Use.

The project is also subject to an operational noise limit of 60 dBA Leq at the Diegan coastal sage scrub California gnatcatcher habitat east of the project site, if suitable and occupied, during the breeding season of February 15 through August 31.

3.2 Potential Operational Noise Impacts (Non-Construction Noise)

Noise from operation of the proposed project would result from mechanical equipment, including ground-mounted and rooftop air handlers, generators, and transformers; onsite traffic, including parking lot traffic and delivery activities; and outdoor recreation areas. These sources are discussed below.

3.2.1 Mechanical Equipment

Air handlers would be located on the rooftops of both buildings. 27 air handlers would be located on the rooftop of the Phase 1 building, and 15 air handlers would be located on the rooftop of the Phase 2 building [HOK 2012]. A two-foot-high rooftop parapet wall would be installed at the perimeter of all buildings; however, these walls were not included in the analysis. The proposed air handlers and associated sound levels are shown in Table 6. The air handler locations and sound levels are shown in Appendix B.

Table 6. Air Handlers

| Model Number | Size | Sound Power Level | Quantity (Phase) | Units (ACU-) |
|--------------|--------|-------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trane YSC036 | 3-ton | 81 dBA | 1 (Phase 1) | A05 |
| Trane TSC120 | 10-ton | 87 dBA | 2 (Phase 1) | B01, B02 |
| Trane TCD180 | 15-ton | 92 dBA | 1 (Phase 1) | B06 |
| Trane TCD241 | 20-ton | 94 dBA | 1 (Phase 1) | A01 |
| Trane TCD300 | 25-ton | 94 dBA | 5 (Phase 1) 2 (Phase 2) | Phase 1: A03, B04, C01, C02, C04 Phase 2: A03 (similar) x2 |
| Trane TCD360 | 30-ton | 99 dBA | 1 (Phase 1) | B05 |
| Trane TCD420 | 35-ton | 99 dBA | 16 (Phase 1) 13 (Phase 2) | Phase 1: A02, A04, B03, B05, D01, D02, E01, E02, F01, F02, G01, G02, H01, H02, J01, J02 Phase 2: A02 (similar) x1 J01 (similar) x12 |
| Trane TCD600 | 50-ton | 100 dBA | 1 (Phase 1) | C03 |

Two emergency generators would be included in the project. The location for the generators is between the Phase 1 and Phase 2 building. Cummins model 1000DQFAD units, installed within Quiet Site II Second Stage enclosures. The enclosed generators produce approximately 107 dBA sound power level. The generators would be approximately 6-9 feet in height. The generator locations and sound levels are shown in Appendix B.

Two transformers would be included in the project. The location for the generators is between the Phase 1 and Phase 2 building. The transformers produce approximately 62 dBA at 10 feet. The transformers would be approximately 7 feet in height. The transformer locations and sound levels are shown in Appendix B.

A headworks system would be located near the northwest corner of the Phase I building, and would consist of a grinder and an Auger Monster. There are no acoustical specifications available from the manufacturers. The grinder motor at the entrance end would be approximately 15 feet below ground level, and the Auger Monster motor at the discharge end would be approximately 6 feet above ground level. The discharge of the Auger Monster drops into a dumpster. The grinder motor would be 5 HP, and the Auger Monster motor would be 2 HP. A typical 2-5 HP motor would produce approximately 103 dBA sound power level. The headworks system location and sound levels are shown in Appendix B.

3.2.2 Onsite Traffic

The project would include a parking lot with 526 spaces on the east side of the site. A worst-case condition of 2 vehicle events per parking space was assumed; this corresponds to a total of 1052 vehicles through the parking lot in one hour. It was assumed that all vehicles would be automobiles. An average speed of 10 mph was assumed. Using a finite-length roadway in TNM, it was estimated that 1052 vehicles at 10 mph would generate a noise level of approximately 56 dBA at 50 feet. This level was applied to a line source with multiple moving point sources in Cadna/A; the sound power level of an individual automobile was determined to be approximately 93 dBA. A line source with multiple moving point sources, at 93 dBA and 10 mph, was used in the Cadna/A model to represent the vehicles moving throughout the parking lot.

Food service deliveries would occur twice per week, between 7:30 a.m. and 3:00 p.m. One delivery would use a refrigerated 18-wheeler, and one delivery would use a small bread truck. UPS and FedEx would each have one delivery per day. Trash would be picked up once per week, between 6:30 a.m. and 7:30 a.m.; the container would be returned to the site after approximately 1.5 hours. All trash compactors would be located inside buildings. For onsite traffic, the potential worst-case hour would consist of one refrigerated truck, one bread truck, one UPS truck, one FedEx truck, and one trash truck.

3.2.3 Outdoor Recreation Areas

The primary noise source associated with outdoor recreation areas is typically basketball and conversation during daytime and evening hours. It is expected that up to 30 inmates would occupy one discrete outdoor recreation area at one time [DLR Group 2008]. Noise from outdoor recreation activity was treated as an area source in the analysis. The sound power level of the activity of one inmate in a recreational area was assumed to be 87 dBA [Probst 1994]. Based on this noise level, calculations were performed to estimate a source level for the maximum number of inmates allowed in each recreation area at any one time ($SWL = (87 + 10 \cdot \log(N))$ dBA), where N = number of inmates. This estimate is a worst-case scenario, grouping all inmates into one large group in a recreation area for a one-hour period. In this case, the resultant sound power level is approximately 102 dBA.

3.2.4 Bells/Alarms

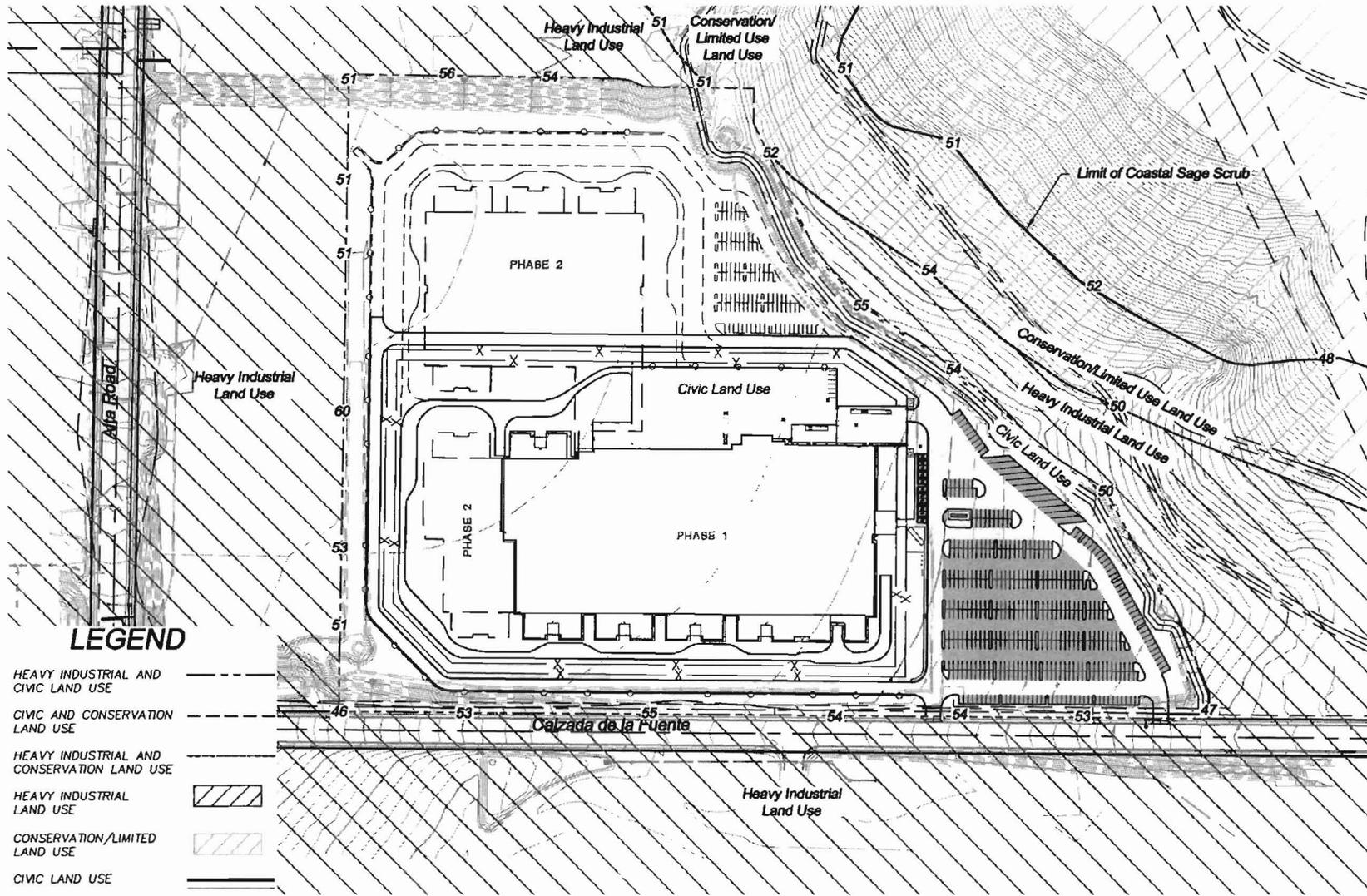
There are no outdoor Public Address systems or alarms associated with the facility except those mandated by the fire alarm systems.

3.2.5 Composite Noise Levels

Cadna/A was used to calculate composite project-generated hourly noise levels from all onsite noise sources. Results of these calculations are shown on Figure 6. Composite noise levels at project property lines adjacent to areas designated for Heavy Industrial use would range from approximately 47 dBA Leq to 60 dBA Leq, in compliance with the Noise Ordinance. Composite noise levels at project property lines adjacent to areas designated for Conservation / Limited Use would range from approximately 50 dBA Leq to 51.5 dBA Leq, in compliance with the Noise Ordinance. Composite noise levels at offsite boundaries between areas designated for Heavy Industrial use and areas designated for Conservation / Limited Use would be up to approximately 54 dBA Leq. Composite noise levels at the boundary of and within the coastal sage scrub area would be up to 52 dBA Leq. Noise impacts from onsite operation activities are less than significant.

3.2.6 Design Considerations

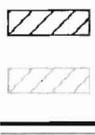
Design considerations include the layout of the project buildings, recreation yards, and mechanical equipment as shown in Appendix B. No mitigation measures were necessary.



Scale:
1" = 200'

LEGEND

- HEAVY INDUSTRIAL AND CIVIC LAND USE
- CIVIC AND CONSERVATION LAND USE
- HEAVY INDUSTRIAL AND CONSERVATION LAND USE
- HEAVY INDUSTRIAL LAND USE
- CONSERVATION/LIMITED LAND USE
- CIVIC LAND USE



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Figure 6
Project-Generated Noise Levels (dBA Leq)

3.3 Construction Activities

3.3.1 Guidelines for the Determination of Significance

Construction Noise: Noise generated by construction activities related to the project will exceed the standards listed in San Diego County Code Section 36.409, Sound Level Limitations on Construction Equipment.

Section 36.409 states:

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 eight-hour period, between 7 a.m. and 7 p.m., when measured at the boundary line of the property where the noise sources is located or on any occupied property where the noise is being received.

The project is also subject to a construction noise limit of 60 dBA Leq at the Diegan coastal sage scrub California gnatcatcher habitat east of the project site, if suitable and occupied, during the breeding season of February 15 through August 31.

3.4 Potential Noise Impacts

This project would implement conventional construction techniques and equipment. Standard equipment such as scrapers, graders, backhoes, loaders, tractors, cranes, and miscellaneous trucks would be used for construction of most project facilities. Grading of the site is currently nearly complete. Therefore, the primary noise from project construction would be from concrete trucks, loaders, and miscellaneous trucks and power tools used for building construction. Specialized construction activities such as pile driving and blasting are not anticipated for this project. No hauling or importing/exporting of dirt is expected. Construction activity and delivery of construction materials and equipment would be limited to the hours between 7:00 a.m. and 7:00 p.m., Monday through Saturday.

3.4.1 Potential Build-out Noise Conditions

Construction activities at the proposed site would result in a short-term, temporary increase in the ambient noise level. The increase in noise level would be primarily experienced close to the noise source. The magnitude of the impact would depend on the type of construction activity, noise level generated by various pieces of construction equipment, duration of the construction phase, and distance between the noise source and receiver. Sound levels of typical construction equipment range from approximately 65 dBA to 95 dBA at 50 feet from the source (U.S. Environmental Protection Agency [U.S. EPA] 1971).

A construction phasing plan has not been developed at this time; therefore, only a general estimate of construction noise levels can be provided. Acoustical calculations were performed to estimate construction sound levels at the closest occupied property. Noise from the construction equipment was considered an area source the size of the project site with eight moving point sources (pieces of equipment), each with a sound pressure level of 85 dBA at 50 feet. This is equivalent to a total sound power level of approximately 125 dBA, or 74.5 dBA per unit area.

3.4.2 Potential Noise Impact Identification

Construction activities would result in noise levels of approximately 62 dBA Leq to 68 dBA Leq at the project property lines. The closest occupied property is the power plant across Calzada de la Fuente to the south; this property is approximately on grade with the project site. Construction noise levels would be less than 75 dBA Leq (8 hours) at all property lines and all occupied properties, in compliance with the County Noise Ordinance. Construction noise impacts from the project are less than significant.

Cadna/A was used to estimate construction noise levels at the California gnatcatcher coastal sage scrub (CSS) habitat northeast of the site. The location of the habitat is shown on Figure 7 (REC Consultants, Inc.). The edge of the habitat is approximately 300 feet from the project property line near the eastern central portion of the site. Hourly construction noise levels would be as high as approximately 58 dBA Leq at the boundary of the habitat, in compliance with County limits. Construction noise impacts to biological resources are less than significant.

3.4.3 Design Considerations

No topographical features or other design considerations were considered in the calculations.

3.5 Conclusions

Unmitigated construction activities would generate noise levels less than 75 dBA Leq (8 hours) at the project property lines and at offsite occupied properties, and less than 60 dBA Leq at noise sensitive avian habitat. No noise impacts from construction activity would occur.

However, to minimize unnecessary annoyance from construction noise, the construction contractor should be required to comply with all provisions of the County Noise Ordinance (Section 36.409). The following construction noise control measures should be implemented:

- Limit construction activity and delivery of construction materials and equipment to the hours between 7:00 a.m. and 7:00 p.m., Monday through Saturday.
- Prohibit construction and delivery workers from arriving at the site prior to 7:00 a.m.
- Limit construction noise to 75 dBA Leq at the property line of the nearest occupied property.
- Keep construction equipment and vehicles in good repair and fitted with "manufacturer-recommended" mufflers.

4.0 SUMMARY OF PROJECT IMPACTS, MITIGATION, AND CONCLUSIONS

4.1 Project Features

The project would include the following noise-reducing features as design considerations:

- Placement of project buildings as shown on Figures 2-6.
- Placement of mechanical equipment as shown in Appendix B.
- Specification of mechanical equipment as shown in Appendix B.

These design considerations are necessary to demonstrate compliance with County noise standards.

4.2 Noise Sensitive Land Uses

Future exterior traffic noise levels would be less than 60 dBA CNEL at on-site usable open space areas and would be in compliance with the County Noise Element of the General Plan. No impacts were identified. No exterior mitigation measures are required.

Future exterior traffic noise levels would be less than 60 dBA CNEL at housing unit façades. No potential impacts were identified. No interior noise analysis would be required.

4.3 Project-Generated Airborne Noise

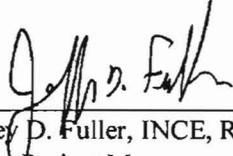
Operation of the project would generate less than 62.5 dBA Leq during daytime hours of 7:00 a.m. to 10:00 p.m. and less than 60 dBA Leq during nighttime hours of 10:00 p.m. to 7:00 a.m. at all property lines adjacent to areas designated for Heavy Industrial use. Operation of the project would generate less than 55 dBA Leq during daytime hours of 7:00 a.m. to 10:00 p.m. and less than 52.5 dBA Leq during nighttime hours of 10:00 p.m. to 7:00 a.m. at all property lines adjacent to areas designated for Conservation / Limited Use. Operation of the project would generate less than 67.5 dBA Leq during daytime hours of 7:00 a.m. to 10:00 p.m. and less than 65 dBA Leq during nighttime hours of 10:00 p.m. to 7:00 a.m. at all boundaries between areas designated for Heavy Industrial use and areas designated for Conservation / Limited Use. Therefore, the project would be in compliance with the County Noise Ordinance. Operation of the project would generate less than 60 dBA Leq at the noise-sensitive avian habitat, in compliance with the County limit. No impacts were identified. No mitigation is required.

Construction of the project would generate less than 75 dBA Leq (8-hour) at all project property lines and offsite occupied properties, and less than 60 dBA Leq at noise-sensitive avian habitat. No impacts were identified. No mitigation is required.

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6.0 LIST OF PREPARERS



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APPENDICES