3Roots San Diego Project
Environmental Impact Report

SCH No. 2018041065; Project No. 587128

Appendix E

Acoustical Analysis Report

June 2019

3Roots San Diego Project

Acoustical Analysis Report

January 2019 | CAH-02.01

Prepared for:

Mesa Canyon Community Partners
16465 Via Esprillo, Suite 150
San Diego, CA 92127

Prepared by:

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

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ACRONYMS AND ABBREVIATIONS

ADT	average daily trips
AEOZ	Airport Environs Overlay Zone
ALUCP	Airport Land Use Compatibility Plan
ANSI	American National Standards Institute
BRT	Bus Rapid Transit
CAD	Computer Aided Design
CadnaA	Computer Aided Noise Abatement
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
CUP	Conditional Use Permit
dB	decibel
dBA	A-weighted decibel
EIR	Environmental Impact Report
EV	electric vehicle
HVAC	heating, ventilation, and air conditioning
Hz	Hertz
I-	Interstate
IOD	Irrevocable Offer of Dedication
kHz	kilohertz
L_{DN}	Day Night sound level
L_{EQ}	time-averaged noise level
MCAS	Marine Corps Air Station
mph	miles per hour
mPa	micro Pascal
MTS	Metropolitan Transit System
NSLU	noise sensitive land use
PA	Planning Area
PPV	peak particle velocity
SANDAG	San Diego Association of Governments
SPL	sound pressure level

ACRONYMS AND ABBREVIATIONS (cont.)

STC	Sound Transmission Class
S_{WL}	Sound Power Level
TIA	Traffic Impact Analysis
TNM	Traffic Noise Model
USDOT	U.S. Department of Transportation

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EXECUTIVE SUMMARY

This report presents an assessment of potential construction and operational noise impacts associated with the proposed 3Roots San Diego Project (project) located in the central portion of the Mira Mesa Community Plan area in the City of San Diego (City).

The proposed project includes approximately 260 acres of open space, 12.7 acres of multi-family residential (RM-3-9 zoning); 12.7 acres of non-residential (CC-2-4); 21.1 acres of residential small lot development (RX-1-2); 63.2 acres of multi-family residential (RM-2-6); and 45.7 acres of on-site roads and parkways.

The site is currently in the process of reclamation activities, defined to be demolition of structures, clearing, grubbing, remedial grading, mass grading, and creek grading. These post mining obligations are affiliated with CUP 89-0585 and were transferred with the property from Hanson Aggregates to Mesa Canyon Community Partners (MCCP). The project being analyzed would involve finish grading, wet utilities installation, dry utilities installation, street improvements, and building construction. The site is currently in the process of reclamation activities, defined to be demolition of structures, clearing, grubbing, remedial grading, mass grading, and creek grading.

Project construction noise would not result in noise levels above City Noise Ordinance construction noise thresholds to off-site and on-site noise sensitive land uses (NSLUs).

Vibration impacts from construction would not exceed thresholds for sensitive receptors.

Operational noise from the project's commercial area and sporting field activities would not exceed City Noise Ordinance thresholds at off-site NSLUs. Project-generated traffic would also result in less than significant noise impacts to off-site receptors. However, operational noise associated with live music performance and sports field public address systems at the planned community park may exceed City Noise Ordinance thresholds for on-site receivers. As mitigation, the use of public address systems would either be prohibited or designed and installed in a manner to limit noise levels at residential properties. In addition, operational noise from the commercial areas of Planning Area (PA-) 19 and PA-20 may exceed City Noise Ordinance thresholds at the multi-family residences of PA-12, 13, and 14 located to the north of the commercial area. As mitigation, a noise analysis would be performed prior to building permits to identify measures that would allow the commercial uses to comply with the City Noise Ordinance.

Within PA-12, 13, and 14, which are zoned RM-3-9, certain retail and office uses are allowed that may be placed on the first story of the proposed apartment buildings in these planning areas. Potential incompatible noise levels may occur from heating, ventilation, and air conditioning systems, other types of air movement systems, or other operational noise from the commercial uses. A noise analysis for mixed-use buildings would be performed to ensure that noise levels are compatible with City Noise Element standards.

Exterior noise from the combined traffic and airport noise (from Marine Corps Air Station [MCAS] Miramar) would exceed the City Noise Element guidelines for some of the project's single-family residences located off Carroll Canyon Road in the southeastern portion of the site and the residences located off Camino Santa Fe in the northwestern portion of the site. As a condition of approval, a 6-foot high sound wall shall be installed at the approximate locations shown on Figure 9. A 6-foot high sound

wall shall also be installed on the roof of single-family residences if the roof decks for the residences in PA-15, 16, 17, and 18 are used for the residential development's exterior use requirement. Some residences would still exceed 65 Community Noise Equivalent Level (CNEL) due to the combination of airport and vehicle noise, as no feasible techniques exist to reduce the aircraft noise contribution to the potential exterior areas as the aircraft noise comes from above. The City California Environmental Quality Act (CEQA) Significance Determination Thresholds states that potential exterior noise impacts from aircraft noise for projects within an Airport Environs Overlay Zone (AEOZ) would not constitute a significant environmental impact.

Interior noise levels from the combination of vehicle and bus traffic and aircraft noise may exceed the City Noise Element interior noise thresholds of 45 CNEL for residential uses and 50 CNEL for commercial uses. As a condition of approval, an exterior-to-interior noise reduction analysis shall be conducted to determine if the interior noise levels would comply with the applicable City thresholds. If predicted noise levels are found to be in excess of the applicable limit, the report shall identify architectural materials or techniques that could be included to reduce noise levels to the applicable limit.

Projects in the City proposing residential land uses within a 60 CNEL or greater airport noise contour would be required to record an avigation easement. This is due to the potential for interior noise levels to exceed 45 CNEL, which may occur if building façade noise levels exceed 60 CNEL. As the project's residences would be located in the 60 CNEL noise contour for MCAS Miramar, an avigation easement would be required as a condition of approval.

1.0 INTRODUCTION

1.1 PROJECT LOCATION AND BACKGROUND

The 3Roots San Diego Project (project) is a proposed community located on 413 acres in the central portion of the Mira Mesa Community Plan area in the City of San Diego (City) (Figure 1, *Regional Location*). The project site is located east of Camino Santa Fe, approximately halfway between Mira Mesa Boulevard and Miramar Road (Figure 2, *Project Location*). The property was formerly operated as a mining site (sand and gravel). The proposed project is the second phase of a multi-phased plan to convert reclaimed quarry land to planned development.

1.2 PROJECT DESCRIPTION

1.2.1 Development Concept and Summary

The proposed project includes; a 40-acre mixed-use defined in the Master Planned Development Permit as the "Community Collective," which would include 12.7 acres of multi-family residential (RM-3-9 zoning), which allows for limited mixed uses; 12.7 acres of commercial uses, including the proposed Mobility Hub (CC-2-4), parks, open space, and roadways; 21.1 acres of single-family residential (RX-1-2); 63.2 acres of single- and multi-family residential (RM-2-6); all connected by 45.7 acres of on-site roads and parkways (see Figure 3, *Proposed Site Plan)*. The project would also set aside approximately 250 acres of open space (including approximately 181 acres of natural open space, 38.7 acres of parks and trails, and approximately 37.5 acres of slopes, enhanced landscape, dedicated brush management zones, and water quality/retention basins).

1.2.2 CUP/Reclamation Plan Amendment

The project site has been an active aggregate mining operation and concrete processing plant since 1958. The City approved a Conditional Use Permit (CUP) for all mining and processing activities. The CUP has been modified throughout the life of the mine to adjust the boundaries of the resource extraction area. The latest CUP was approved on September 13, 1990 (CUP 89-0585). The CUP and associated Reclamation Plan and Environmental Impact Report (EIR) identified required backfilling and re-contouring to stabilize the slopes and prepare land for future development and required the restoration and enhancement of native habitats, including Carroll Canyon Creek.

Although active mining operations have ceased, an amended Reclamation Plan and CUP are necessary to address changes in the site conditions and the redevelopment plans since 1990, and to complete regulatory closure of the mined lands. The amendment would modify the Reclamation Plan boundary, adjust grade elevations to align with the proposed development, and revise the originally proposed road networks to match existing infrastructure and protect sensitive habitat.

1.2.3 SDG&E Facility Modifications

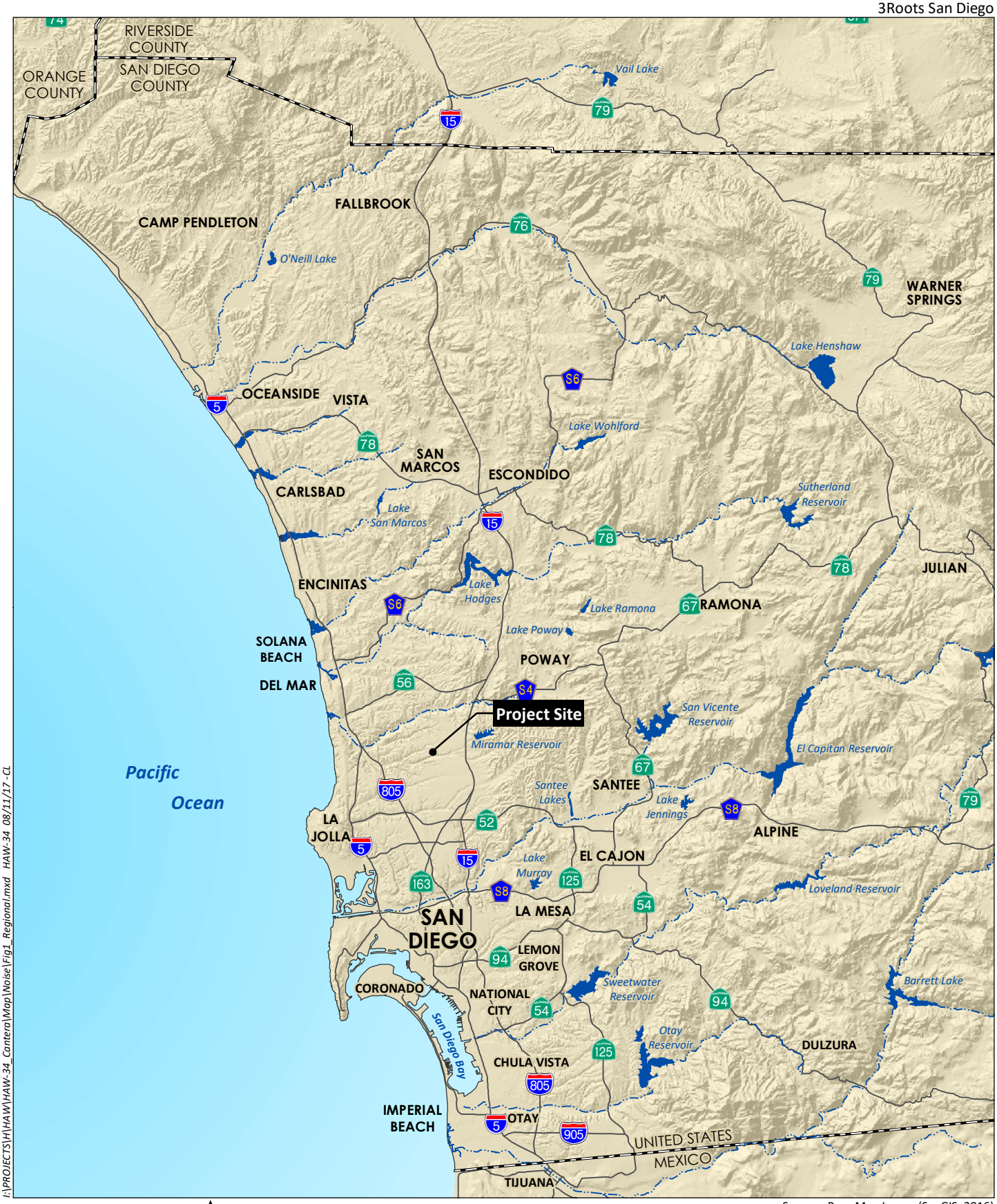
There are three SDG&E Facility Modifications required as a result of the project and all three are therefore analyzed as part of the project.

1. The existing overhead east-west double circuit 69kV system (TL6906 and TL677) would be converted to underground and relocated along the north side of Carroll Canyon Road. The proposed conversion would tie-in on the west to the existing transmission alignment in the current SDG&E easement west at Camino Santa Fe via a steel cable pole on the northeast corner of the intersection of Camino Santa Fe and Carroll Canyon Road. On the east, the proposed conversion would rise overhead via steel cable poles south of the creek (east of the existing Fenton substation site), extend north overhead within the open space, and tie-in to the existing transmission alignment on new terminal dead-end steel poles that would continue overhead east in the current SDG&E easement.

   The existing overhead east-west single circuit 69kV system (TL668) would be converted to underground and relocated along the north side of Carroll Canyon Road alongside the path of the double circuit 69kV system configuration. The proposed conversion would tie-in on the west to an existing north-south transmission alignment along the west side of Camino Santa Fe via a cable pole on the southwest corner of the intersection of Camino Santa Fe and Carroll Canyon Road. On the east, the proposed conversion would rise overhead via steel cable poles south of the creek (east of the existing Fenton substation site), extend north overhead within the open space, and tie-in to the existing transmission alignment on new terminal dead-end steel poles that would continue overhead east in the current SDG&E easement. The existing overhead east-west single circuit 69kV system (TL664) would be relocated to the south for approximately 900 feet and would be converted to underground along the south side of Carroll Canyon Road for approximately 400 feet. The proposed relocation will tie-in to the west to an existing north-south transmission alignment along Rehco Road (west of the existing 230kV north-south corridor) in the current SDG&E transmission easement and tie-in to a north-south transmission alignment along the west of Camino Santa Fe.

2. The existing overhead north-south double circuit 69kV system (TL668 and TL664) along the west of Camino Santa Fe would remain overhead with an approximately 500-foot realignment to remove the pole near the creek. The proposed realignment will tie-in to the north at the aforementioned east-west conversion proposed steel cable pole on the southwest corner of Camino Santa Fe and Carroll Canyon Road intersection and tie-in to the south with a pole replacement on the hillside in the current SDG&E transmission easement. To distribute electric service to the Project, SDG&E would convert and relocate the existing overhead 12kV system that is attached to the 69kV pole line as described above and converted to underground into the Carroll Canyon Road ROW. Electric distribution lines ultimately would be located underground within future the project ROWs and designated electricity corridors.

3. The existing SDG&E 69kV / 12kV Fenton Substation located within the project site would be decommissioned and removed by SDG&E. This would occur after all current SDG&E customers that obtain electric service from this substation have been removed from service by SDG&E. The decommissioning would include removal of all equipment such as: three-phase transformer, regulator, steel structures, circuit breakers, capacitors, fencing, oil containment structures, pads, pylons/piers, conduit packages, cable, etc. The decommissioning and demolition of this substation is not part of the Reclamation Plan Amendment and a replacement substation is not proposed as part of the project.



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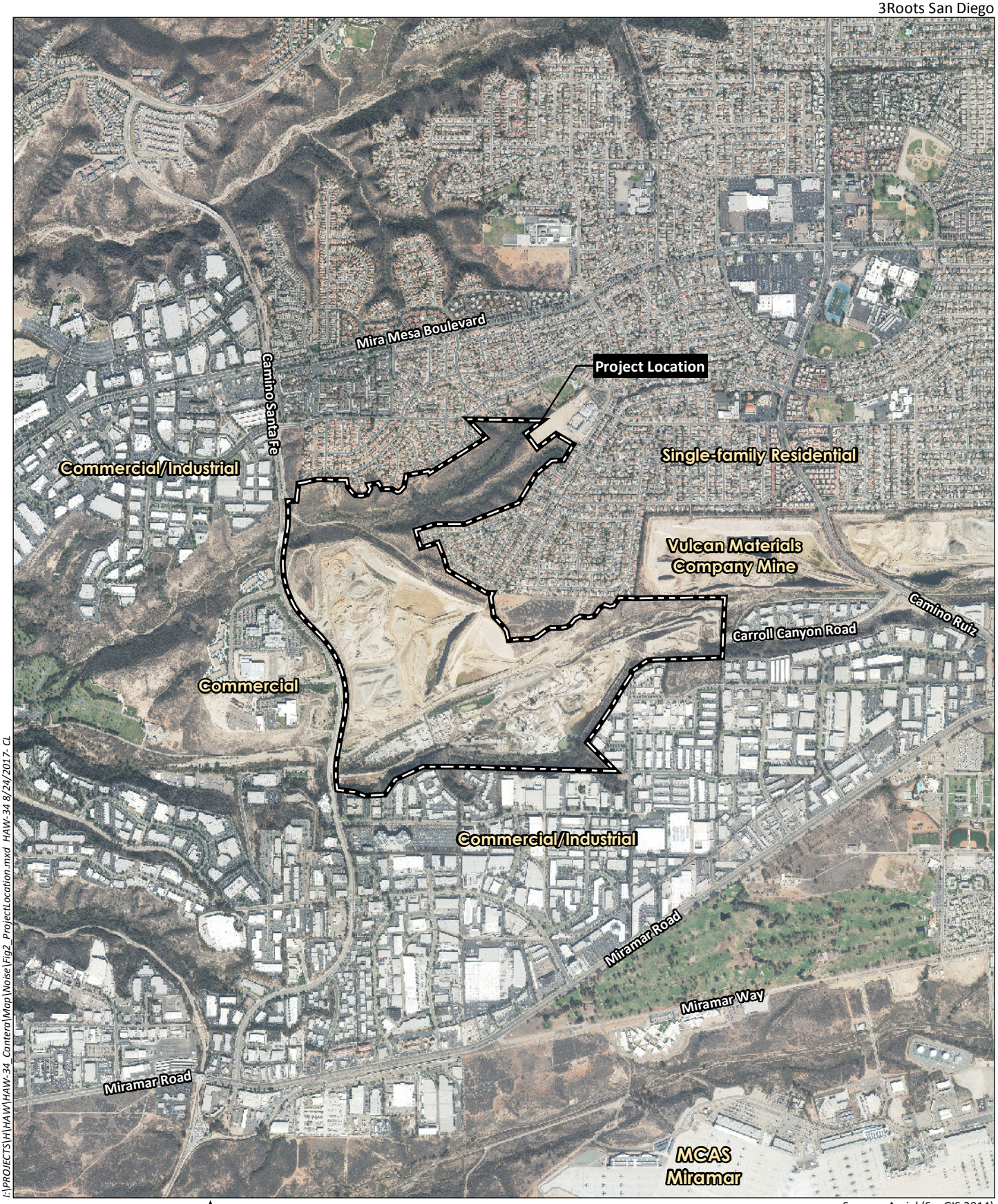
0 8 Miles

Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

Regional Location

Figure 1



0 2,000 Feet

Source: Aerial (SanGIS 2014)

HELIX Environmental Planning

Project Location

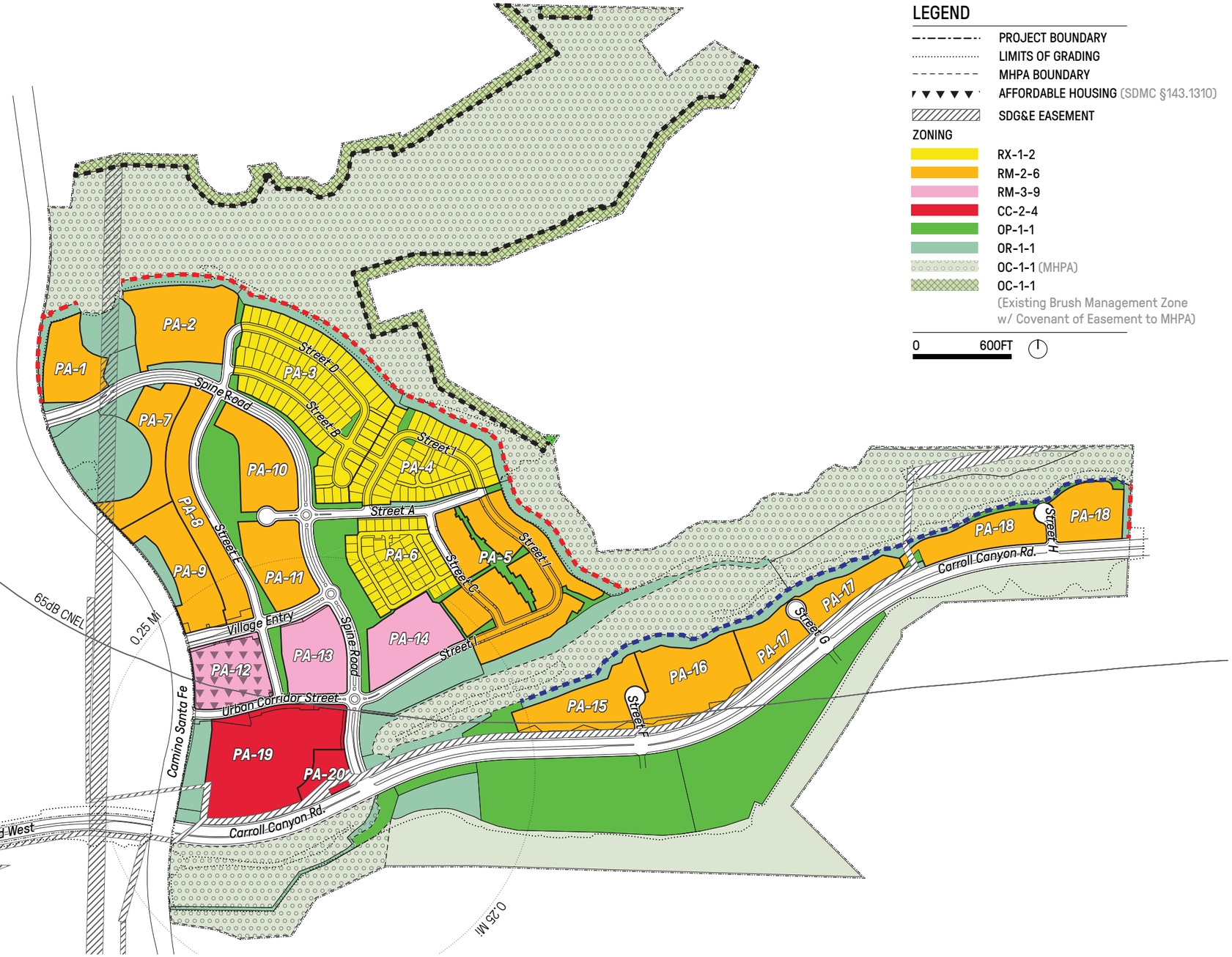
Figure 2

BMZ

EXISTING BMZ
Adjacent to offsite homes.
HOA maintained and owned. In MHPA.

PROPOSED BMZ 2
Adjacent to new proposed homes.
HOA maintained and owned. Outside MHPA.

PROPOSED BMZ 1
HOA maintained and owned. Outside MHPA.



LEGEND

PROJECT BOUNDARY
LIMITS OF GRADING
MHPA BOUNDARY
AFFORDABLE HOUSING (SDMC §143.1310)
SDG&E EASEMENT

ZONING

RX-1-2
RM-2-6
RM-3-9
CC-2-4
OP-1-1
OR-1-1
OC-1-1 (MHPA)
OC-1-1
(Existing Brush Management Zone
w/ Covenant of Easement to MHPA)

0 600FT

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Source: Placeworks 12/18

HELIX Environmental Planning

Proposed Site Plan

Figure 3

1.2.4 Residential Zoning

RX-1-2

The project includes a total 185 single family small lots zoned as RX-1-2, with homes ranging in size from 2,500 square feet to 3,600 square feet. Lot sizes would be a minimum of 3,000 square feet in these areas with a density of 5 to 10 dwelling units per acre. These single-family detached homes range between two and three stories with the maximum height of fifty feet. Roof decks on top of the third story of each residence could occur in RX-1-2 zoned Planning Areas (PA-) 4 and 6 (see Figure 3 for planning area locations).

RM-2-6

A total of 1,006 residential units are planned within the RM-2-6 zone as part of the proposed project. Units would include a mix of single-family detached and multi-family attached condos built on a common lot, that are two and three stories with a maximum height of 50 feet. As shown on Figure 3, many of the detached homes would be located on the periphery of the proposed community and the area to the north of Carroll Canyon Road across from the proposed community park. Most of the attached homes would be located in the central portion of the project along the western edge of the development footprint adjacent to Camino Santa Fe. Roof decks on top of the third story of each residence could occur in RM-2-6 zoned PA-2, 5, 9, 15, 16, 17, and 18 (see Figure 3 for planning area locations).

RM-3-9 (Community Collective)

The Community Collective would include 609 multi-family units on 12.7 acres designated as RM-3-9, which allows for maximum densities up to 73 dwelling units per acre. The contemplated product would range between 25 and 65 dwelling units per acre. Buildings would range from three to five stories high, with a maximum height of 65 feet. Parking would be included as surface lots on grade or provided in a structure within the residential parcel. PA-13 would include approximately 16,000 square feet of live-work and retail uses in the RM-3-9 product at the ground floor to activate the street character by introducing a commercial element. Roof decks on top of the third story of each residence could occur in RM-3-9 zoned PA-13 and PA-14 (see Figure 3 for planning area locations).

1.2.5 Commercial Zones

CC-2-4 (Commercial Community)

Mobility Hub

The Mobility Hub is proposed to be a centralized multi-modal node within the project. It would provide pick-up and drop-off staging areas for both public transportation systems (future potential bus service) as well as private multimodal transportation options such as employer shuttles and rideshare services. A bike repair, rental, and maintenance shop would also be included. Solar and non-solar electric vehicle (EV) charging stations would be provided in the Mobility Hub as well.

Commercial and Office Uses (Planning Areas 19 and 13)

Adjacent to the Mobility Hub, the commercial uses would provide services and entertainment options connecting with the residential neighborhoods via a pedestrian trail system. The CC-2-4 zone is a Commercial-Community zone. These zones accommodate community-serving commercial services, retail uses, and limited industrial uses of moderate intensity and small to medium scale, and the specific CC-2-4 designation is intended to accommodate development with a pedestrian orientation. The zone does not allow residential uses. Drive-throughs are allowed. Nightclubs and bars over 5,000 square feet in size are allowed with a CUP. The commercial area includes 160,000 square feet of retail and office (including the 16,000-square foot of live-work and retail uses described above in the RM-3-9 zone). Food and beverage offerings may include fast casual restaurants, quality dining, breweries, cafes, and on-site craft foods. Health and wellness components may include such options as pharmacy, on-site medical clinic, sports performance training, and boutique fitness studios. The 23,000-square foot office component may include a co-working concept and offer services such as shipping, printing, conference rooms, and tele-meeting options.

Pop-up Retail (Planning Area 19)

Pop-up retail uses, which are planned along the northern portion of PA-19, may be approved through a Temporary Use Permit (SDMC Section 123.0401). Potential pop-up retail uses include commercial and retail uses permitted in the CC-2-4 zone, including food, beverages, and groceries; sundries, pharmaceutical, and convenience sales; apparel and accessories; and eating and drinking establishments (Figure 4, *Conceptual Pop-Up Retail and Food Truck Locations*). Pop-up retail is generally identified as temporary or permanent retail structures under 800 square feet, including shipping containers, retrofitted vehicles for commerce, open air market kiosks, and other similar structures. PA-19 may also host farmers markets and food trucks, each of which would be subject to any necessary permits.

1.2.6 Parks and Trails

The proposed project would include a 25-acre community sports park as well as a collection of smaller neighborhood parks between 3 and 13 acres, mini parks ranging in size from approximately 1 to 3 acres, and pocket parks less than one acre, as well as a series of trails connecting the neighborhoods to the recreational amenities, open space, and residential and commercial communities (Figure 3). The community sports park would be located immediately south of Carroll Canyon Road and would be used as a sports complex for the community of Mira Mesa. The community park would include lit soccer fields, baseball fields, restrooms, an indoor recreation center, and a parking area with roughly 30 parking spaces per field, adhering to the City of San Diego Park and Recreation Design Guidelines. There would be night lighting associated with the use of the sports fields.

1.2.7 Open Space

Approximately 44 percent of the project site would be retained as natural open space (Figure 3). Over 140 acres are planned to be included in the City's Multi-habitat Planning Area (MHPA), which establishes the preserve system of the Multiple Species Conservation Program. The project includes updating the limits of reclamation for the site, conducting new technical studies such as vegetation mapping, and the restoration and realignment of a portion of Carroll Canyon Creek.

8.5.8 Community Collective

- 01 ART WALL
- 02 URBAN ART
- 03 URBAN ART/ON BUILDING WALL
- 04 URBAN ILLUMINATION
- 05 CELEBRATION SPACES
- 06 INTERACTIVE
- 07 FOOD TRUCK
- 08 POP-UP RETAIL

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Conceptual Pop-up Retail and Food Truck Locations

Figure 4

1.2.8 Circulation

The project would construct the on-site extension of Carroll Canyon Road, a main arterial facilitating a connection between Interstate (I-) 805 and I-15. The future on-site segment of Carroll Canyon Road would be a 6-lane Prime Arterial. As planned in the Mira Mesa Community Plan, Carroll Canyon Road is also proposed to extend off-site, west of Camino Santa Fe. This road segment is designed as a 4-lane Major and runs for approximately 2,017 linear feet, directly south of the existing Fenton Technology Center.

1.2.9 Access

The main entry points to the project site would be from Camino Santa Fe and Carroll Canyon Road. A collector arterial roadway (Spine Road) would intersect with both Carroll Canyon Road and Camino Santa Fe and would run through the project site from north to south. Two streets, which would intersect with Camino Santa Fe, would primarily be used for access to the Community Collective and intersect with Spine Road to create a modified grid system of roadways through the project. Several arterial roads would extend into the surrounding residential neighborhoods (Figure 3).

The project would set aside a 25-foot-wide right-of-way through an Irrevocable Offer of Dedication (IOD) that could be used as a bus rapid transit (BRT) route along the segment of Carroll Canyon Road, which runs through the project site. In addition to the IOD for the BRT lane, the applicant would provide the San Diego Association of Governments (SANDAG) with an IOD for an approximately 55-foot by 135-foot area to be used as a BRT stop. The Project would also include networks of sidewalks, pathways, plazas, public spaces, and bike lanes to facilitate pedestrian and bicycle circulation.

1.2.9.1 Project Phasing and Schedule

The project would be constructed in two phases. Phase 1 could begin in August 2019 (and be completed in 2021) at the northern portion of the project site and would include the construction of residential development eastward from Camino Santa Fe (PAs 1 through 14). Phase 2 is contingent upon receipt of regulatory approvals and is estimated to begin in February 2020. It would include the construction of residential development through the center of the project site and the commercial development in the Community Collective, including the completion of residential development to the proposed extension of Carroll Canyon Road (PA-15 through PA-20).

2.0 ENVIRONMENTAL SETTING

2.1 NOISE AND SOUND LEVEL DESCRIPTORS AND TERMINOLOGY

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 dBA weighting, and sound levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dBA weighting. This is similar to the Day Night sound level (L_{DN}), which is a 24-hour average with an added 10 dBA 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.

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 contribute to 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.

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). 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.

The amplitude of pressure waves generated by a sound source determines the loudness of that source. A logarithmic scale is used to describe sound pressure level (SPL) in terms of dBA units. The threshold of hearing for the human ear is about 0 dBA, which corresponds to 20 micro Pascals (mPa).

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dBA 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 dBA higher than one source under the same conditions.

2.2 NOISE AND VIBRATION SENSITIVE LAND USES

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise, such as residential dwellings, schools, transient lodging (hotels), hospitals, educational facilities, and libraries. Industrial and commercial land uses are generally not considered sensitive to noise. Off-site NSLUs in the project area include single-family residences to the north (see Figure 2). On-site NSLUs include multi- and single-family residential areas.

Land uses in which ground-borne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations (California Department of Transportation [Caltrans] 2013) are considered “vibration-sensitive.” The degree of sensitivity depends on the specific equipment that would be affected by the ground-borne vibration. In addition, excessive levels of ground-borne vibration of either a regular or an intermittent nature can result in annoyance to residential uses or schools. Off-site land uses in the project area that are subject to annoyance from vibration include the single-family residences to the north. On-site NSLUs include multi- and single-family residential areas.

2.3 REGULATORY FRAMEWORK

Applicable noise standards for the proposed project are codified in the following City regulations:

2.3.1 City of San Diego Municipal Code, Chapter 5, Article 9.5, Division 4, §59.5.0404 Construction Noise

(a) It shall be unlawful for any person, between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in Section 21.04 of the San Diego Municipal Code, with exception of Columbus Day and Washington's Birthday, or on Sundays, to erect, construct, demolish, excavate for, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise unless a permit has been applied for and granted beforehand by the Noise Abatement and Control Administrator. In granting such permit, the Administrator shall consider whether the construction noise in the vicinity of the proposed work site would be less objectionable at night than during the daytime because of different population densities or different neighboring activities; whether obstruction and interference with traffic particularly on streets of major importance, would be less objectionable at night than during the daytime; whether the type of work to be performed emits noises at such a low level as to not cause significant disturbances in the vicinity of the work site; the character and nature of the neighborhood of the proposed work site; whether great economic hardship would occur if the work were spread over a longer time; whether proposed night work is in the general public interest; and he shall prescribe such conditions, working times, types of construction equipment to be used, and permissible noise levels as he deems to be required in the public interest.

(b) Except as provided in subsection (c) hereof, it shall be unlawful for any person, including the City of San Diego, to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 dBA during the 12-hour period from 7:00 a.m. to 7:00 p.m.

(c) The provisions of subsection (b) of this section shall not apply to construction equipment used in connection with emergency work, provided the Administrator is notified within 48 hours after commencement of work.

2.3.2 City of San Diego Municipal Code, Chapter 5, Article 9.5, Division 4, §59.5.0401, Sound Level Limits

(a) It shall be unlawful for any person to cause noise by any means to the extent that the one-hour average sound level exceeds the applicable limit given in the following table (Table 1, *Applicable Noise Limits*), at any location in the City on or beyond the boundaries of the property on which the noise is produced. The noise subject to these limits is that part of the total noise at the specified location that is due solely to the action of said person.

Table 1
APPLICABLE NOISE LIMITS

Land Use Zone	Time of Day	One-hour Average Sound Level (dBA)
Single Family Residential	7:00 a.m. to 7:00 p.m.	50
	7:00 p.m. to 10:00 p.m.	45
	10:00 p.m. to 7:00 a.m.	40
Multi-Family Residential (up to a maximum density of 1/2000)	7:00 a.m. to 7:00 p.m.	55
	7:00 p.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
All other Residential	7:00 a.m. to 7:00 p.m.	60
	7:00 p.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	50
Commercial	7:00 a.m. to 7:00 p.m.	65
	7:00 p.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	60
Industrial or Agricultural	Anytime	75

Source: City of San Diego Municipal Code, Chapter 5, Article 9.5, Division 4, §59.5.0401, Sound Level Limits

(b) The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts. Permissible construction noise level limits shall be governed by Section 59.5.0404 of this article.

2.3.3 City of San Diego General Plan Noise Element

The City General Plan Noise Element (City 2008, amended in 2015) establishes noise compatibility guidelines for uses affected by traffic noise, as shown in Table 2, *City of San Diego Land Use Noise Compatibility Guidelines*. The conditionally compatible noise levels for project land uses are 65 CNEL for single-family residential, 70 CNEL for multi-family residential, and 75 CNEL for commercial-retail and for active and passive recreation (neighborhood and community parks). For outdoor uses at a conditionally compatible land use, feasible noise mitigation techniques should be analyzed and incorporated to reduce noise levels to make the outdoor activities acceptable. For indoor uses at a conditionally compatible land use, exterior noise must be attenuated to 45 CNEL for single- and multi-family residential and 50 CNEL for commercial-retail to be considered a compatible land use.

Table 2
CITY OF SAN DIEGO LAND USE NOISE COMPATIBILITY GUIDELINES[1]

Land Use Category	Exterior Noise Exposure (dBA CNEL)				
	<60	60-65	65-70	70-75	75+
Parks and Recreational					
Parks, Active and Passive Recreation					
Outdoor Spectator Sports, Golf Courses; Water Recreational Facilities; Indoor Recreation Facilities					
Agricultural					
Crop Raising & Farming; Community Gardens, Aquaculture, Dairies; Horticulture Nurseries & Greenhouses; Animal Raising, Maintain & Keeping; Commercial Stables					
Residential					
Single Dwelling Units; Mobile Homes		45			
Multiple Dwelling Units		45	45		
Institutional					
Hospitals; Nursing Facilities; Intermediate Care Facilities; K-12 Educational Facilities; Libraries; Museums; Child Care Facilities		45			
Other Educational Facilities including Vocational/Trade Schools and Colleges, and Universities)		45	45		
Cemeteries					
Retail Sales					
Building Supplies/Equipment; Groceries; Pets & Pet Supplies; Sundries, Pharmaceutical, & Convenience Sales; Apparel & Accessories			50	50	
Commercial Services					
Building Services; Business Support; Eating & Drinking; Financial Institutions; Maintenance & Repair; Personal Services; Assembly & Entertainment (includes public and religious assembly); Radio & Television Studios; Golf Course Support			50	50	
Visitor Accommodations		45	45	45	
Offices					
Business & Professional; Government; Medical, Dental & Health Practitioner; Regional & Corporate Headquarters			50	50	
Vehicle and Vehicular Equipment Sales and Services Use					
Vehicle Repair & Maintenance; Vehicle Sales & Rentals; Vehicle Equipment & Supplies Sales & Rentals; Vehicle Parking					
Wholesale, Distribution, Storage Use Category					
Equipment & Materials Storage Yards; Moving & Storage Facilities; Warehouse; Wholesale Distribution					
Industrial					
Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking & Transportation Terminals; Mining & Extractive Industries					
Research & Development				50	

	Compatible	Indoor Uses	Standard construction methods should attenuate exterior noise to an acceptable indoor noise level.
		Outdoor Uses	Activities associated with the land use may be carried out.
	Conditionally Compatible	Indoor Uses	Building structure must attenuate exterior noise to the indoor noise level indicated by the number (45 or 50) for occupied areas. Conditionally indicated by the number for occupied areas.
		Outdoor Uses	Feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable
	Incompatible	Indoor Uses	New construction should not be undertaken.
		Outdoor Uses	Severe noise interference makes outdoor activities unacceptable.

Source: City 2008 (as amended in 2015)

[1] Compatible noise levels and land use definitions reflect amendments to the City's General Plan approved in 2015.

2.3.4 MCAS Miramar-related Policies

The project site is near Marine Corps Air Station (MCAS) Miramar. According to Chapter 3.10 of the City General Plan EIR, the City implements adopted Airport Land Use Compatibility Plans (ALUCPs) with the Airport Environs Overlay Zone (AEOZ). The AEOZ boundaries use the 60 dB CNEL contours consistent with the MCAS Miramar ALUCP. In addition, the City General Plan EIR states that "where developments are conditionally allowed in areas above the 60 dB CNEL, the ALUCPs require avigation easements to ensure that future residential and other noise sensitive development surrounding airports are compatible for noise. Specifically for noise, avigation easements provide the airport operator the right to subject the property to noise associated with normal airport activity."

According to the City California Environmental Quality Act (CEQA) Significance Determination Thresholds (City 2016), if a project is proposed within the AEOZ as defined in Chapter 13, Article 2, Division 3 of the San Diego Municipal Code, the potential exterior noise impacts from aircraft noise would not constitute a significant environmental impact. Chapter 13, Article 2, Division 3 of the San Diego Municipal Code defines an AEOZ as an area within a noise contour zone of the San Diego International Airport; it is assumed for this analysis that the potential for exterior noise impacts from aircraft noise not constituting a significant environmental impact would also apply to the 60 CNEL noise contour for MCAS Miramar, as this contour is defined as an AEOZ in the City General Plan EIR. In addition, interior noise impacts would be regulated by the requirement for residential development within the AEOZ to reduce interior noise levels attributable to airport noise to 45 CNEL.

2.3.5 Federally Listed Biological Species

Some studies, such as that completed by the Bioacoustics Research Team (1997), have concluded that 60 dBA is a criterion to use as a starting point for passerine impacts until more specific research is done. Associated guidelines produced by the U.S. Fish and Wildlife Service require that project noise be limited to a level not to exceed 60 dBA L_{EQ} or, if the existing ambient noise level is above 60 dBA L_{EQ}, increase the ambient noise level by 3 dBA at the edge of occupied habitat during the avian species breeding season.

2.3.6 Caltrans Transportation and Construction Vibration Guidance Manual

The Caltrans' Transportation and Construction Vibration Guidance Manual (Caltrans 2013) defines criteria to determine vibration impacts from transportation projects in California. The criteria include limits for both human receptors and structures. Thresholds used in this report include subjecting vibration-sensitive land uses to construction-related ground-borne vibration that exceeds the "strongly perceptible" vibration annoyance potential criteria for human receptors of 0.1 inches per second peak particle velocity (PPV), and 0.5 inches per second PPV for damage to older residential structures for continuous/frequent intermittent construction sources (such as impact pile drivers, vibratory pile drivers, and vibratory compaction equipment).

2.4 EXISTING CONDITIONS

2.4.1 Surrounding Land Uses

Surrounding uses include single-family residential neighborhoods to the north and northeast, commercial offices to the west, industrial and commercial uses to the south and east, and the extractive industry (Vulcan Materials Company sand and gravel mine) to the east (see Figure 2).

2.4.2 Existing Noise Conditions

2.4.2.1 General Site Survey

Three long-term ambient noise measurements (L1 through L3) and two short-term, 15-minute traffic noise measurements (S1 and S2) were conducted during a site visit beginning on July 21, 2017. The long-term ambient noise measurements took place over an approximate 3.5-day period for L2 and a 4-day period for L1 and L3, beginning on the morning on Friday, July 21, 2017. For each measurement, a meter was placed at an approximate height of 5 feet and attached to a bush. Measurement L1 occurred in a central area of the mining site, where heavy truck traffic passes throughout the day towards the property exit. Measurement L2 occurred on the far east portion of the project site, in an area where on-site mining activities did not appear to be occurring. Measurement L3 occurred in the northern portion of the site; minor activities involving a backhoe and a piece of sand mining equipment where observed several hundred feet from the meter during meter placement and pick up. As shown in Figure 5, *Long-term Ambient Noise Measurement Results*, noise levels on site ranged from near 35 dBA L_{EQ} (one-hour) during the nighttime hours to 75 dBA L_{EQ} (one-hour) during the middle of the day. Higher noise level values during the day likely occurred due to existing mining site operations on the site. The south meter showed higher noise levels during this period due to its proximity to heavy trucks that entered and exited the site.

The short-term measurements focused on traffic values and their associated noise, which occurred near the current entrance to the mining site (Camino Santa Fe/Carroll Canyon Road intersection), and at the northwestern corner of the project site (near the Camino Santa Fe/Miratech Drive intersection). During the traffic noise measurement, start and end times were recorded and vehicle counts were made for cars, medium trucks (double-tires/two axles), and heavy trucks (three or more axles) for the corresponding road segments. The measurement time was sufficiently long for a representative traffic volume to occur and the noise level (L_{EQ}) to stabilize. The vehicle counts were then converted to one-hour equivalent volumes by applying an appropriate factor. The measured noise levels and related weather conditions for the short-term measurements are shown in Table 3, *Short-term Noise Measurement Results*. Traffic counts for the timed measurements and the one-hour equivalent volumes are shown in Table 4, *Measured Traffic Volumes and Vehicular Distribution*. See Appendix A, *On-site Noise Measurement Sheets*, for survey notes from the short-term measurements.

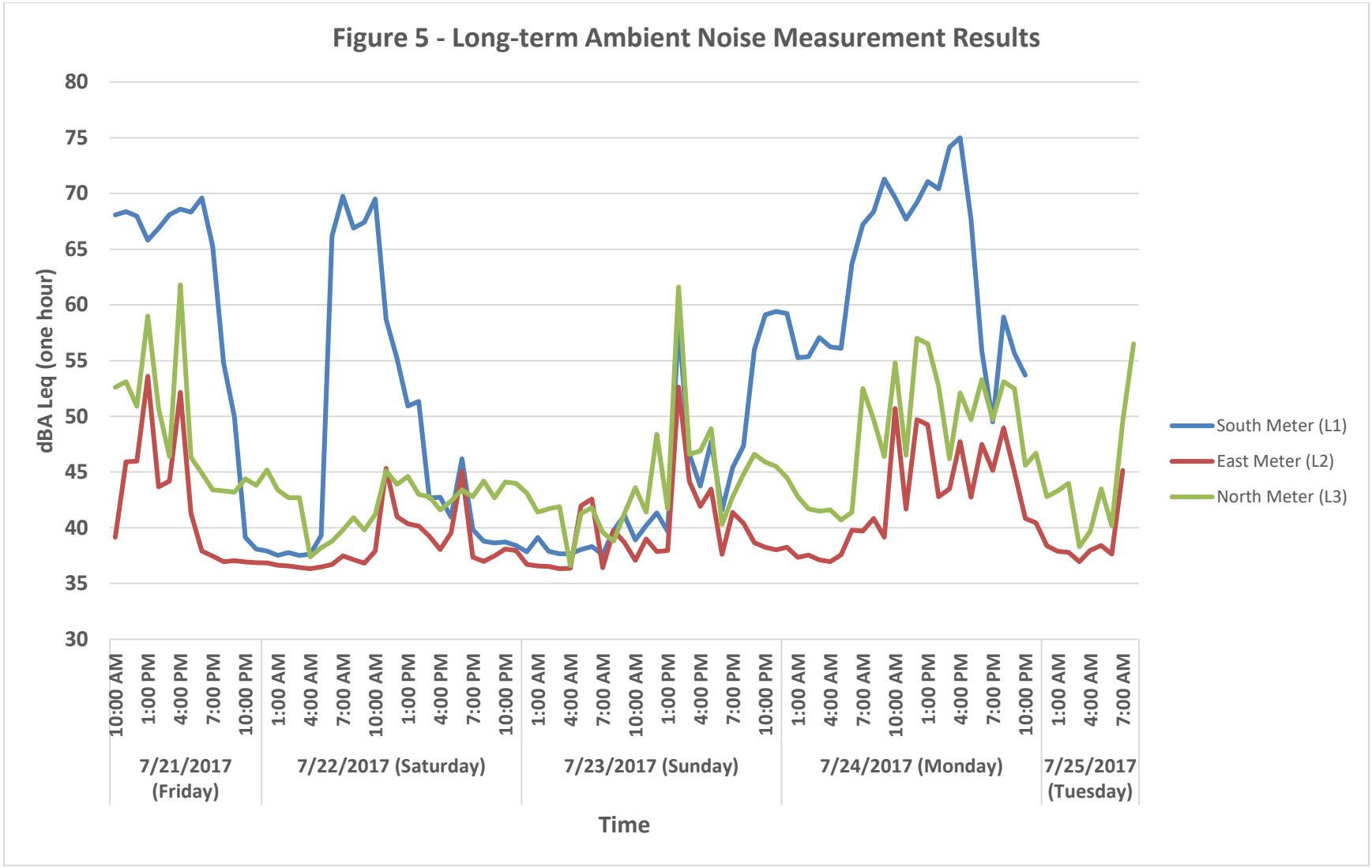
Figure 5 - Long-term Ambient Noise Measurement Results
dBA Leq (one hour)
80
75
70
65
60
55
50
45
40
35
30
10:00 AM
1:00 PM
4:00 PM
7:00 PM
10:00 PM
1:00 AM
4:00 AM
7:00 AM
10:00 AM
1:00 PM
4:00 PM
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4:00 PM
7:00 PM
10:00 PM
1:00 AM
4:00 AM
7:00 AM
7/21/2017 (Friday)
7/22/2017 (Saturday)
7/23/2017 (Sunday)
7/24/2017 (Monday)
7/25/2017 (Tuesday)
Time
South Meter (L1)
East Meter (L2)
North Meter (L3)

Table 3
SHORT-TERM NOISE MEASUREMENT RESULTS

Measurement	Location	Conditions	Time	dBA L_{EQ}	Notes
S1	Northeast corner of Camino Santa Fe and Carroll Canyon Road intersection (near project entrance; approximately 50 feet from roadway centerline)	71°F, 3 miles per hour (mph) wind, 77 percent humidity, slightly cloudy	8:36-8:51 a.m.	71.9	Heavy trucks exiting project site (turning left on to Camino Santa Fe); some engine idling at stoplight
S2	Approximately 200 feet south of Camino Santa Fe/Miratech Drive intersection (approximately 60 feet from roadway centerline)	71°F, 3 mph wind, 76 percent humidity, slightly cloudy	9:01-9:16 a.m.	68.1	Heavier traffic on southbound side of road. Active stoplight within several hundred feet, reducing vehicle speeds (average vehicle speed approximately 35 mph)

Table 4
MEASURED TRAFFIC VOLUMES AND VEHICULAR DISTRIBUTION

Roadway	Traffic	Autos	MT[1]	HT[2]
Camino Santa Fe (S1)	15-minute count	266	7	13
	One-hour Equivalent	1,064	28	52
	Percent	**93%**	**2%**	**5%**
Camino Santa Fe (S2)	15-minute count	250	3	3
	One-hour Equivalent	1,000	12	12
	Percent	**98%**	**1%**	**1%**

[1] MT=Medium Trucks (double tires/two axles)
[2] HT=Heavy Trucks (three or more axles)

3.0 ANALYSIS METHODOLOGY AND ASSUMPTIONS

3.1 METHODOLOGY AND EQUIPMENT

The following equipment was used to measure existing noise levels at the project site:

- Larson Davis System LxT Integrating Sound Level Meters
- Larson Davis Model CAL150 Calibrator
- Windscreen and tripod for the sound level meter
- Digital camera

Sound level meters ST1, ST2, L1, and L2 were field-calibrated immediately prior to the noise measurements to ensure accuracy. A calibration error on measurement L3 caused noise levels to be 10.6 dBA lower than the recorded amount; therefore, 10.6 dBA was added to each recorded measurement for L3. All measurements were made with a meter that conforms to the American

National Standards Institute (ANSI) specifications for sound level meters (ANSI SI.4 1983 R2001). All instruments were maintained with National Bureau of Standards traceable calibration per the manufacturers' standards.

Modeling of the exterior noise environment for this report was accomplished using two computer noise models: Computer Aided Noise Abatement (CadnaA) Version 2018 and Traffic Noise Model (TNM) version 2.5. CadnaA is a model-based computer program developed by DataKustik for predicting noise impacts in a wide variety of conditions. CadnaA assists in the calculation, presentation, assessment, and mitigation of noise exposure. It allows for the input of project related information, such as noise source data, barriers, structures, and topography to create a detailed CadnaA model, and uses the most up-to-date calculation standards to predict outdoor noise impacts. CadnaA traffic noise prediction is based on the data and methodology used in the TNM. TNM was released in February 2004 by the U.S. Department of Transportation (USDOT) and calculates the daytime average hourly L_{EQ} from three-dimensional model inputs and traffic data (Caltrans 2004). Computer Aided Design (CAD) plans provided by the project applicant were inputted into the models. Input variables included road alignment, elevation, lane configuration, area topography, existing and planned noise control features, projected traffic volumes, estimated truck composition percentages, and vehicle speeds.

The one-hour L_{EQ} noise level is calculated utilizing peak-hour traffic; peak-hour traffic volumes can be estimated based on the assumption that 10 percent of the average daily traffic would occur during a peak hour. The model-calculated one-hour L_{EQ} noise output is the equivalent to the CNEL (Caltrans 2009).

Project construction noise was analyzed using the Roadway Construction Noise Model (USDOT 2008), which utilizes estimates of sound levels from standard construction equipment.

3.2 ASSUMPTIONS

3.2.1 Construction

The project is anticipated to be constructed over two phases, Phase 1 could begin in August 2019 (and be completed in 2021) at the northern portion of the project site and would include the construction of residential development eastward from Camino Santa Fe (PAs 1 through 14). Phase 2 is contingent upon receipt of regulatory approvals and is estimated to begin in February 2020. It would include the construction of residential development through the center of the project site and the commercial development in the Community Collective, including the completion of residential development to the proposed extension of Carroll Canyon Road (PAs 15 through 20). Grading and installation of infrastructure would occur as needed throughout the construction schedule. Similar construction activities would be performed for each phase, including clearing and grubbing, remedial and mass excavation, finish grading, wet utilities installation, dry utilities installation, street improvements (including balancing/aggregate base, curb and gutter, asphalt paving, and concrete flatwork), and building construction (see Appendix B, *Site Development Schedule*, for detailed information).

As shown in Appendix B, construction activities would use a variety of construction equipment, including dozers, loaders, water trucks, graders, vibratory rollers, scrapers, and pavers. The most intensive construction noise would be during remedial and mass excavation activities of each phase, which would involve scrapers, dozers, graders, and water trucks. Approximately 252 acres of the 413-acre site would be graded.

According to the project's Traffic Impact Analysis (TIA; Michael Baker International 2018), the highest construction traffic would occur during concrete demolition with 230 average daily trips (ADT) from heavy trucks and employees.

3.2.2 Operation

The proposed operational noise sources for the commercial uses include heating, ventilation, and air conditioning (HVAC) systems, loading docks (back up alarms), trash compactors, music (e.g., from outdoor dining areas and breweries), public address system/loudspeaker noise (e.g., from food trucks and sports areas), potentially portable (or vehicle mounted) generators for the food trucks, and crowd noise (e.g., from outdoor dining areas, pop-up retail, and food trucks). The proposed residential operational noise sources would also include HVAC units. The proposed community park would generate noise from sporting competition activities, bandshells, and potentially from public address systems. In addition, each project land use would generate vehicular traffic that would increase noise levels on nearby roadways. Project land uses would also be subject to aircraft and bus noise.

The parks noise sources considered in this analysis are predominantly spontaneous and random and, therefore, the level and duration of these noise sources cannot be definitively quantified. Noise measurement data from activities at a similar existing facility and estimates based upon our professional experience have been used to approximate the potential noise levels.

3.2.2.1 Heating, Ventilation, and Air Conditioning Units

Specific HVAC planning information for the project, including unit types and locations, is not currently available. Analysis using a typical to larger-sized residential condenser mounted on ground level pads for the single-family residences and the rooftops for the multi-family residences provides a reasonable basis for analysis. The unit used in this analysis is a Carrier 38HDR060 split system condenser (see Appendix C, *Condenser Manufacturer's Specifications*). The manufacturer's noise data is provided below in Table 5, *Condenser Noise Data*.

Table 5
CONDENSER NOISE DATA

Source	Noise Levels in Decibels[1] (dB) Measures at Octave Frequencies									dBA L_{EQ}
	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Carrier 38HDR060 (Residential)	63.0	63.0	63.0	61.5	64.0	66.5	66.0	64.5	55.5	72.0
Carrier 38AQS016 (Commercial)	93.0	93.0	93.0	86.0	83.0	80.0	78.0	73.0	71.0	86.0

Source: Appendix C
[1] Sound Power Levels (S_{WL})
Hz = Hertz; kHz = kilohertz

3.2.2.2 Delivery Truck Operations

The loudest noise source from delivery truck operations would be backup alarms. Typical backup alarms generate noise of 97 dBA at four feet with a single frequency of 1,000 Hz. The specific alarm data used in this analysis are shown in Table 6, *Backup Alarm Noise Data*.

Table 6
BACKUP ALARM NOISE DATA

Source	Noise Levels in Decibels[1] (dB) Measures at Octave Frequencies									dBA L_{EQ}
	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Backup Alarm	12.7	12.7	12.7	12.7	12.7	109.7	12.7	12.7	12.7	109.7

Source: HELIX Environmental Planning, Inc. (HELIX) 2010
[1] Sound Power Levels (S_{WL})
Hz = Hertz; kHz = kilohertz

3.2.2.3 Trash Compactor

A trash compactor is a large hydraulic press with a containment bin that may be used at the commercial areas. The compactor is turned on causing a large hydraulic press to compact the waste in the bin. The machine runs a full cycle that typically lasts slightly over one minute and turns off automatically. Data used in this analysis are shown in Table 7, *Trash Compactor Noise Data*. As shown in Table 7, the continuous use of the compactor would generate 97.5 dBA L_{EQ} and the one minute per hour use would generate a Sound Power Level (S_{WL}) of 79.7 dBA L_{EQ}.

Table 7
TRASH COMPACTOR NOISE DATA

Source	Noise Levels in Decibels[1] (dB) Measures at Octave Frequencies									dBA L_{EQ}
	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Compactor Continuous	88.8	88.2	85.8	82.9	97.8	92.1	83.5	87.8	80.3	97.5
Compactor for One Minute per Hour	71.0	70.4	68.0	65.1	80.0	74.3	65.7	70.0	62.5	79.7

Source: HELIX 2010
[1] Sound Power Levels (S_{WL})
Hz = Hertz; kHz = kilohertz

3.2.2.4 Amplified Music

For amplified music in a casual outdoor environment (as opposed to a concert) setting, the sound volume cannot be distributed over a large area and would become self-limiting. If on-site music noise exceeds approximately 85 dBA L_{EQ}[1] noise level at 25 feet from the noise source, event participants within 25 to 35 feet of the performance area would not be able to carry on a conversation (normally between 60 and 65 dBA as discussed below) and would perceive the sound as too loud, which would

[1] 85 dBA L_{EQ} means that brief peaks may go as loud as 95 to 100 dBA.

tend to generate complaints. Therefore, a sound level of 85 dBA L_{EQ} noise level at 25 feet in front of the performance area is the maximum anticipated level for amplified music for a full hour.

3.2.2.5 Food Court/Truck

While modern gourmet food trucks that are anticipated to frequent the site offer a more intimate experience with the chef with communication in speaking voices, the use of a loudspeaker to call out completed orders was analyzed as a more conservative scenario. The reference noise level was based on an unannounced measurement that was made at a drive-through restaurant located in the City of Lemon Grove. The measurement was made during the busy noon-hour time period. The sound level meter was between 4 and 5 feet from the speaker at an approximate 4-foot elevation during the measurement. The actual order period was approximately 20 seconds in duration, which is considered slightly shorter than average. Traffic through the drive-thru lane was observed to be approximately one car every 1.5 minutes. The measured noise level was 86.4 dBA L_{EQ}. Some speaker systems such as the HME SPP2 Intercom system have internal volume regulation which is typically pre-set to 84 dBA at 1 foot. Other similar drive-in speaker systems have also been measured at approximately 75 dBA at 4 feet (similar to the HME system setup). A conservative evaluation is based on the loudest source measured of 86.4 dBA at 5 feet for 13.3 minutes per hour (equivalent to 20 seconds each 1.5 minutes for one hour).

Food trucks often use the vehicle engine, or a vehicle mounted or portable power generator, to provide power for interior and exterior lighting, cooking fans, and a public address system. Idling engines may create noise as low as 50 dBA at 20 feet to noise as high as 85 or 90 dBA at 20 feet for an inexpensive portable generator.

3.2.2.6 Sporting Events

Public Address Systems

Most organized sporting events require public address systems to provide information to the teams and viewers during the event. These systems typically include an amplifier system and speakers mounted on poles or posts around the sports field and in the viewing areas.

Noise levels for the public address systems may be as low as 85 dBA at 20 feet in front of a single speaker to as loud as 115 dBA at 50 feet in front of each of multiple speakers (large event facility). Similar to amplified music, a level of 85 dBA at 25 feet from a speaker is a normal/reasonable public address systems noise level to provide a clearly audible message without generating complaints, with an assumed four speakers (91 dBA at 25 feet for analysis) for five minutes of the hour.

Crowd Noise

A site visit during the Surf Cup on July 30, 2016 was performed to assess crowd noise levels from a sporting event, such as a tournament held at the sports park. No public address systems were in use at the fields. Noise from spectators, players, and coachers, and referees blowing whistles generated most of the noise. During a 15-minute measure period when multiple matches were in play, a noise level of 61.2 dBA L_{EQ} (15 minutes of hour) was measured at a distance of 200 feet from the center of the crowd, which was estimated at approximately 300 people.

3.2.2.7 Conversational Crowd Noise

With regard to conversational crowd noise (such as would be expected in association with outdoor dining areas and pop-up retail uses), the noise level generated by human speech ranges from 55 dBA to 65 dBA at a distance of 5 feet. Based on a conservative assumption of 300 people talking in a moderate to loud voice, the approximate average individual noise level would be 65 dBA at 3 feet with a general area noise level (everyone talking) of about 72 dBA for the area (full hour).

3.2.2.8 Children at Play Noise

Measurements were taken of children at playgrounds to provide reference data for modeling future noise levels in open play areas. These reference noise measurements were conducted at St. John's Lutheran Church and School, 26410 Columbia Street in the City of Hemet, California (HELIX 2008). Table 8, *Measured Representative Playground Noise Levels,* shows the average octave data information measured at the edge of the play areas.

Table 8
MEASURED REPRESENTATIVE PLAYGROUND NOISE LEVELS

	Noise Levels in Decibels[1] (dB) Measured at Octave Frequencies in Hertz (hz)									Overall Noise Level in A-weighted Scale (dBA)
	31.5 hz	63 hz	125 hz	250 hz	500 hz	1,000 hz	2,000 hz	4,000 hz	8,000 hz	
Preschool Play Area with 15 Pre-School Children	56.7	56.6	54.2	53.0	61.8	69.0	65.7	58.1	44.9	53.5
Athletic Field with 50 Grade School Children	56.7	56.6	54.2	53.0	61.8	69.0	65.7	58.1	44.9	71.6

Source: HELIX 2008

[1] Based on Sound Power Levels (S_{WL})

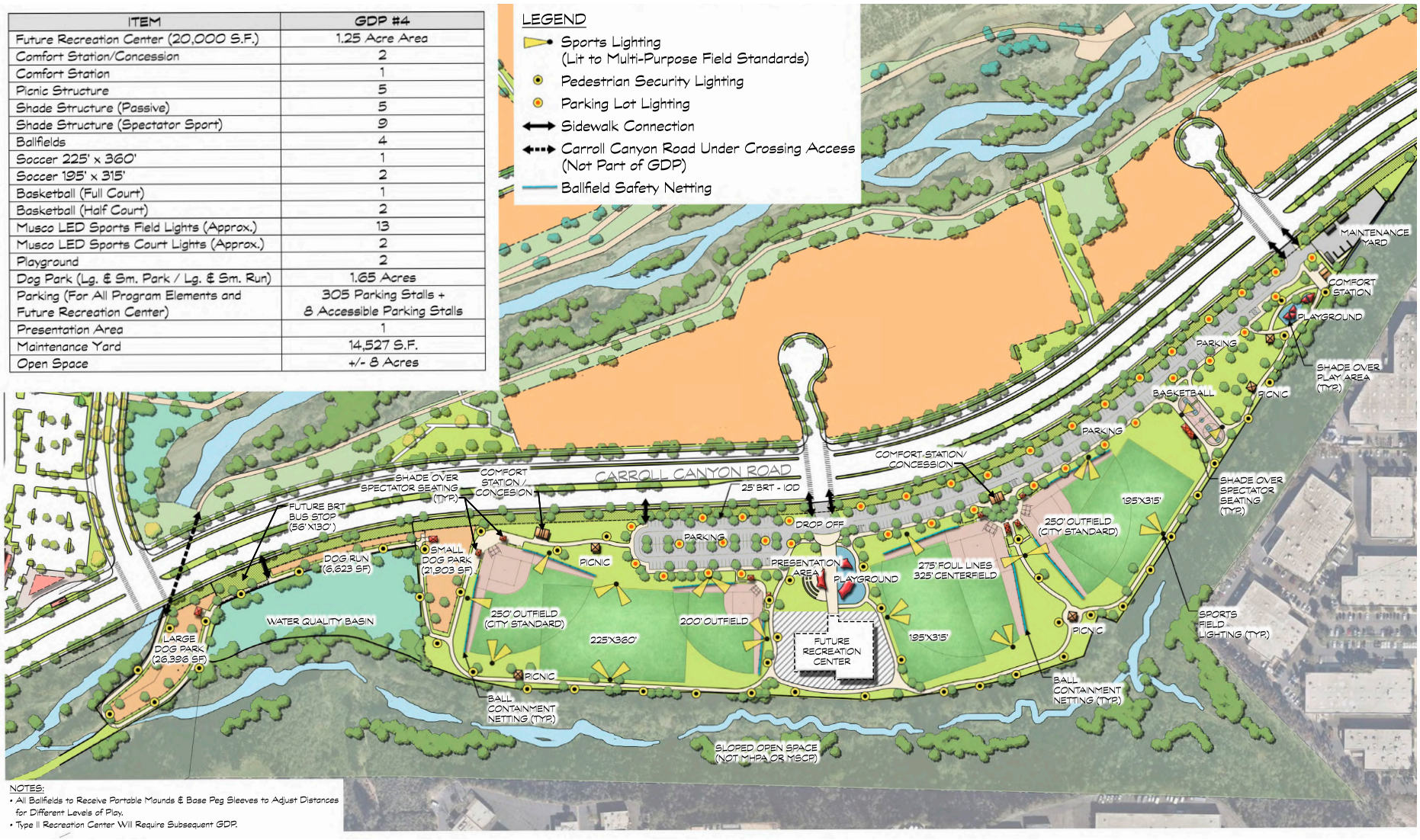
For the measured preschool play area, the measurement instrument was placed approximately 55 feet from the center of the playground. The preschool children were predominately clustered in an area sited approximately 32 feet from the instrument.

For the athletic field, the instrument was place approximately 145 feet from the center of the athletic field. A group of approximately 10 children was playing on a climbing tower approximately 35 feet from the instrument. A larger group of approximately 25 children was playing in an area approximately 80 to 90 feet from the instrument. The remaining approximately 15 children were scattered throughout the athletic field area.

3.2.2.9 Bandshell Noise

The presentation area shown in Figure 6, *Community Sports Park*, would also have a bandshell. Operating assumptions include non-amplified music and the use of stringed instruments only, with all use ending at 10:00 p.m. Use of drums, percussion, brass, or saxophones would not be allowed. Comparative noise levels for a variety of instruments are provided in Table 9, *Musical Instrument Noise*

ITEM	GDP #4
Future Recreation Center (20,000 S.F.)	1.25 Acre Area
Comfort Station/Concession	2
Comfort Station	1
Picnic Structure	5
Shade Structure (Passive)	5
Shade Structure (Spectator Sport)	9
Ballfields	4
Soccer 225' x 360'	1
Soccer 195' x 315'	2
Basketball (Full Court)	1
Basketball (Half Court)	2
Musco LED Sports Field Lights (Approx.)	13
Musco LED Sports Court Lights (Approx.)	2
Playground	2
Dog Park (Lg. & Sm. Park / Lg. & Sm. Run)	1.65 Acres
Parking (For All Program Elements and Future Recreation Center)	305 Parking Stalls + 8 Accessible Parking Stalls
Presentation Area	1
Maintenance Yard	14,527 S.F.
Open Space	+/- 8 Acres



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Source: RJM Design Group 10/2018

HELIX Environmental Planning

Community Sports Park

Figure 6

Levels at 50 Feet, below. Given breaks between songs and artist rest breaks, overall musical time periods are expected to average approximately 40 minutes per hour.

Table 9
MUSICAL INSTRUMENT NOISE LEVELS AT 50 FEET

Instrument	dBA
Acoustic Guitar	52.0
Violin	71.9
Trombone	89.9
Coronet	93.9
Tenor Sax	91.9
Snare Drum	87.9
Cymbal	99.9

Source: Etymotic Research Inc 2015

3.2.2.10 Dog Park

The loudest noise from the dog parks (all in the community park) would be from dogs barking. The noise level emanating from a dog park may vary widely depending on the dogs' temperament, activity level, breed, and number of dogs. A single dog bark would typically have a maximum noise level of approximately 85 dBA at about 5 feet.

Dogs would be able to move freely within their enclosed play areas and would be moving across the dog parks throughout their visit. The exact number of dogs and their barking patterns would vary during the day of week and hour of the day. A reasonably conservative assumption for the dog park on a given hour during a busy day would be 30 dogs in the park, each with 10 barking events (0.5 second) per hour per dog, for a total of 300 barking events per hour (150 seconds).

3.2.2.11 Basketball Court

Noise from a basketball court is typically from three sources: ball dribbling, the ball bouncing off the net back plate, and shouts and callouts on the court. The Noise Navigator™ Sound Level Database (1 Univ. of Michigan, Dept. of Environmental Health Science, Ann Arbor, MI; June 26, 2015; Version 1.8) reports a basketball game (non-professional) at 74 dBA at the edge of the court boundaries.

3.2.2.12 Transportation

Vehicular Traffic Volumes

The TIA for the project (Michael Baker International 2018) provides the Existing, Buildout Year 2025, and Horizon Year 2050 traffic volumes without and with the proposed project for surrounding street segments used in the on-site and off-site traffic noise analysis, as shown in Table 10*, Traffic Volumes with and without the Project*. Anticipated future traffic noise levels are based on these forecasted traffic volumes. A peak hour traffic volume of 10 percent of ADT was used for modeling.

Table 10
TRAFFIC VOLUMES WITH AND WITHOUT THE PROJECT

Roadway Segment	ADT					
	Existing	Existing + Project	Buildout Year 2025 (with Phase 1 Completed)	Buildout 2025 + Project	Horizon Year 2050	Horizon Year 2050 + Project
SEGMENTS USED IN OFF-SITE ANALYSIS						
Mira Mesa Boulevard						
Camino Santa Fe to Parkdale Avenue	57,801	61,994	63,382	59,824	61,659	62,222
Parkdale Avenue to Reagan Road	50,807	54,536	55,671	51,899	53,829	53,964
Miramar Road						
Camino Ruiz to Mitscher Way	59,889	62,469	66,304	68,433	63,086	65,487
Mitscher Way to Black Mountain Road	57,677	59,995	63,773	65,245	61,876	64,277
Camino Santa Fe						
Mira Mesa Boulevard to Flanders Drive	17,521	23,912	21,572	20,531	20,187	22,386
Camino Ruiz						
Reagan Road to Flanders Drive	21,879	22,725	23,141	28,450	27,417	28,182
Flanders Drive to Gold Coast Drive	21,689	22,414	22,934	27,711	26,680	27,445
Gold Coast Drive to Jade Coast Drive	20,750	21,234	21,930	26,272	25,293	26,299
SEGMENTS USED IN ON-SITE ANALYSIS						
Camino Santa Fe						
Flanders Drive to Miratech Drive	16,818	26,173	22,872	22,773	22,356	26,365
Miratech Drive to Summer Ridge Road	16,240	24,889	21,912	22,363	21,330	25,339
Summer Ridge Road to Carroll Canyon Road	17,070	25,881	23,673	25,922	25,156	32,236
Carroll Canyon Road to Trade Street	18,695	34,380	27,608	38,811	37,931	45,480
Carroll Canyon Road						
Camino Santa Fe to East Project Boundary[1]	N/A	N/A	N/A	24,184	39,276	43,876
East Project Boundary to Camino Ruiz	1,792	1,792	1,892	26,763	38,807	48,663

Source: Michael Baker International 2018
ADT = average daily trips
[1] The extension of Carroll Canyon Road from the east project boundary to Camino Santa Fe would be built by the project.

The posted speed limits for the analyzed roads are 40 miles per hour (mph) for Mira Mesa Boulevard, Miramar Road, and Camino Ruiz, and 50 mph for Camino Santa Fe. Site visit observations, shown in Table 4, revealed a relatively high amount of heavy trucks near the existing on-site mining site entrance due to heavy trucks leaving the mine, which would not be representative once the proposed project is built. Therefore, a more typical breakdown of 96 percent automobiles, 2 percent medium trucks, and 2 percent heavy trucks was used for modeling existing and future noise conditions in the vicinity of the project for all segments in both the off-site and on-site scenarios.

TNM software was used to calculate the noise contour distances for the off-site impacts (refer to Section 4.4.2). For the off-site impacts, segments located near industrial, commercial, or vacant land uses were not analyzed, as those land uses are not considered NSLUs. The on-site noise impact analysis did not include roadways located further away from the project, as traffic noise from those roadways would be negligible at the project site.

Dedicated Bus Lanes

The project will contribute to building the extension of Carroll Canyon Road from Camino Santa Fe eastwards to the eastern project boundary. This extension may include two dedicated BRT lanes, located

as the northernmost lanes of Carroll Canyon Road. Planning information for the future operation of the BRT is not currently available, and San Diego Metropolitan Transit System (MTS), the City, and SANDAG have not studied the alignment. However, in consultation with the City of San Diego, MTS, and SANDAG, the applicant was requested to include an area that could be used as on-site ROW for a potential BRT route along Carroll Canyon Road, so as not to preclude a potential BRT route in the future. Although the exact alignment of this future route not been identified and does not exist in approved SANDAG planning documents, and funding has not been identified, the project conservatively includes an IOD so as to not preclude this possible future action.

To analyze potential noise from a conceptual Carroll Canyon Road BRT, route information from MTS bus routes on nearby Mira Mesa Boulevard was used. During the evening rush hour, MTS Routes 110, 237, and 921 are active on Mira Mesa Boulevard. Route 110 has 30-minute headways in one direction; Route 237 (a "Rapid" BRT route) has 15-minute headways in each direction; and Route 921 has 30-minute headways in each direction (MTS 2017). This would equate to 14 bus trips on Mira Mesa Boulevard at the peak hour. These buses operate from approximately 5:00 a.m. to 9:00 p.m. Therefore, 14 trips were conservatively assumed for the Carroll Canyon Road BRT lanes for each hour from 5:00 a.m. to 9:00 p.m. The buses were assumed to travel at the speed limit of 50 mph.

Aircraft

The closest airport to the project site is MCAS Miramar, located approximately 1.5 miles to the south. The southernmost portion of the site is located within the 65 CNEL contour as shown on the Compatibility Policy Map: Noise MCAS Miramar Airport Land Use Compatibility Plan (ALUCP; Airport Land Use Commission 2008), which includes part of the community park, open space, and commercial area, and a small portion of multi-family residential zoning (see Figure 7, *MCAS Miramar Airport Noise Contours*). The small area of multi-family residential zoning in the southwest portion of PA-12 that is within the 65 CNEL contour would not contain residences (see Figure 8, *Project Zoning and Airport Noise Contours*), and is planned as a parking lot. The remaining portions of the site are within the 60 CNEL contour for the airport. For each receiver modeled, the airport noise levels were estimated based upon the receiver's position relative to the noise contours. For example, a receiver halfway in between the 60 and 65 CNEL contours was assumed to be subject an airport noise level of 62.5 CNEL, which was rounded up to 63 CNEL for the analysis.

4.0 IMPACTS

4.1 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE AND CONDITIONS OF APPROVAL

The following thresholds are based on the City Significance Determination Thresholds and Noise Ordinance, as applicable to the project.

A potentially significant noise impact would occur if the project would:

1. Result in temporary construction noise that exceeds:

    a. 75 dBA L_{EQ} (12 hour) at the property line of a residentially-zoned property from 7:00 a.m. to 7:00 p.m. (as identified in Section 59.0404 of the City's Municipal Code) or if non-emergency construction occurs during the 12-hour period from 7:00 p.m. to 7:00 a.m.; or

    b. 60 dBA L_{EQ} or an exceedance of the average ambient noise level by 3 dBA L_{EQ}, whichever is greater, at the edge of sensitive biological habitat during the breeding season. Please refer to the project's Biological Technical Report for more details (HELIX 2017).

2. Subject vibration-sensitive land uses to construction-related ground-borne vibration that exceeds the "strongly perceptible" vibration annoyance potential criteria for human receptors, as specified by Caltrans (2013), of 0.1 inches per second PPV, and 0.5 inches per second PPV for damage to older residential structures for continuous/frequent intermittent construction sources (such as impact pile drivers, vibratory pile drivers, and vibratory compaction equipment).

3. Result in a substantial permanent increase in existing ambient noise levels that:

    a. Exceeds the exterior noise limits specified by the Noise Ordinance as shown in Table 1; or

    b. Results in transportation-related noise levels that exceed the Conditionally Compatible limits specified by the Noise Element as shown in Table 2. If existing conditions are already above those limits, a significant increase would occur if the project generates a perceptible change (3 dBA) over existing conditions.

The following condition of approval would be required for all proposed new uses:

4. Projects shall not expose new development to noise levels at exterior use areas or interior areas in excess of the noise compatibility guidelines established in the City General Plan Noise Element. The conditionally compatible noise levels for project land uses are 65 CNEL for single-family residential, 70 CNEL for multi-family residential, and 75 CNEL for commercial-retail and for active and passive recreation. For outdoor uses at a conditionally compatible land use, feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable. For indoor uses at a conditionally compatible land use, exterior noise must be attenuated to 45 CNEL for single- and multi-family residential and 50 CNEL for commercial-retail to be considered a compatible land use.

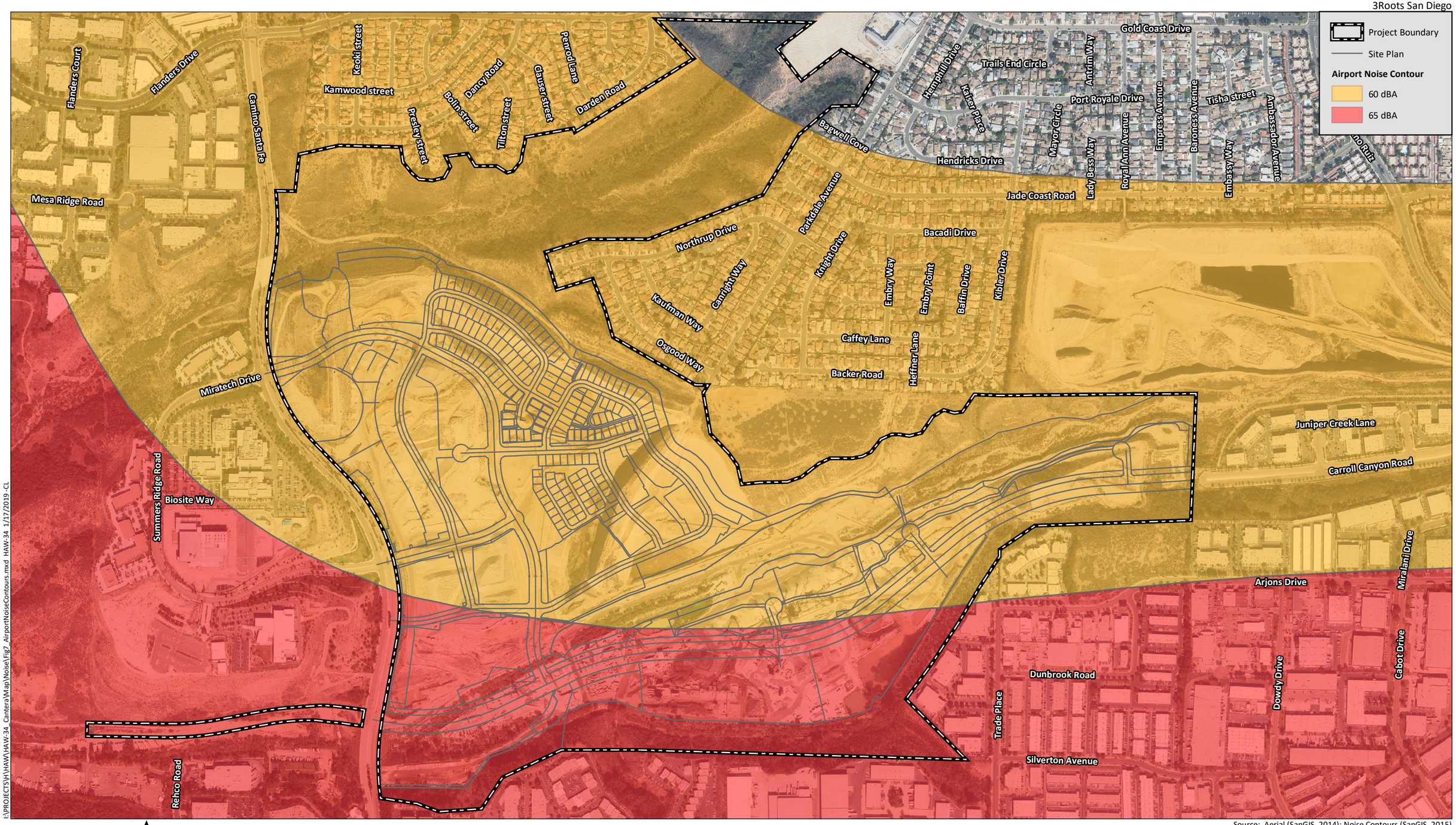
4.2 ISSUE 1: TEMPORARY INCREASE IN AMBIENT NOISE LEVELS

4.2.1 Construction Noise

4.2.1.1 Construction Equipment

The most substantial noise increases from construction activities that may affect off-site uses would occur during the remedial and mass excavation phase. As stated under Section 3.2.1, scrapers, dozers, graders, and water trucks would be in operation during this phase. Most remedial, mass excavation, or

3Roots San Diego



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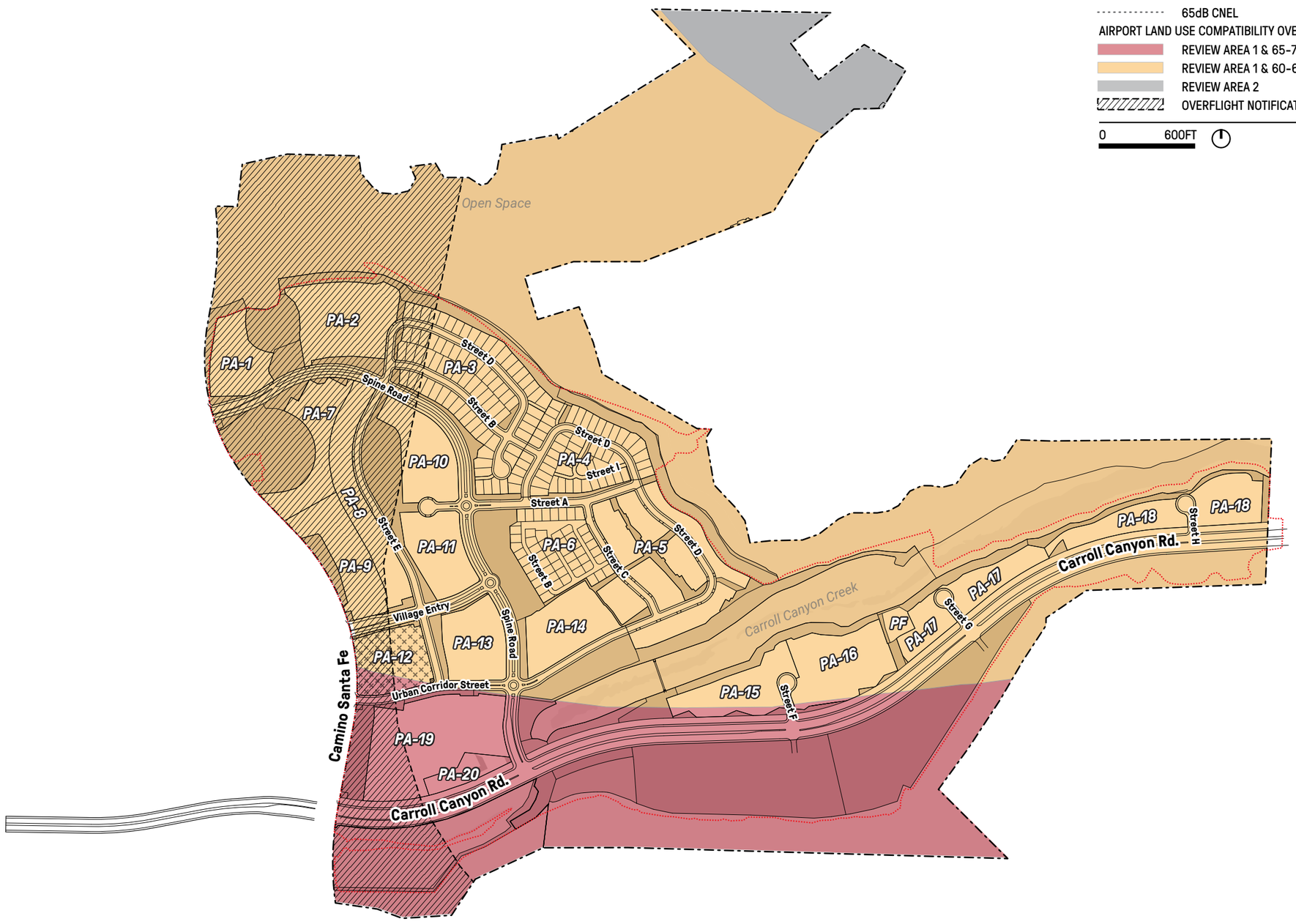
0 650 Feet

Source: Aerial (SanGIS, 2014); Noise Contours (SanGIS, 2015)

HELIX Environmental Planning

MCAS Miramar Airport Noise Contours

Figure 7



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HELIX Environmental Planning

Project Zoning and Airport Noise Contours

Figure 8

grading activities of the project would occur several hundred to several thousand feet from the nearest single-family residences to the north. However, some excavation and grading may occur as close as 75 feet to the single-family residences off Osgood Way. Over the course of a typical construction day, the equipment would be in motion on the project site and would average approximately 150 feet from the nearest NSLUs.

For modeling, it was assumed that a dozer, scraper, water truck, and grader would be in operation at 150 feet from the nearest NSLU. The dozer, scraper, and grader would be in operation for 40 percent a typical construction hour; the water truck would be in operation for 20 percent. It was conservatively assumed that these pieces of equipment would be in operation simultaneously at the same location. At a distance of 150 feet, these pieces of equipment would generate a noise level of 72 dBA L_{EQ} (12 hour). Therefore, use of construction equipment during the remedial and mass excavation phase would not exceed the City Noise Ordinance construction threshold of 75 dBA L_{EQ} (12-hour average). As other project construction activities would be expected to use less intensive equipment, project construction noise would be consistent with the City Noise Ordinance and would be less than significant.

Construction activities for Phase 2 may still be occurring when Phase 1 is open for occupation. Similar to construction to off-site uses, construction may occur as close as 75 feet to where occupation may occur but over the course of a day would average approximately 150 feet from the on-site NSLUs. Based upon preliminary construction scheduling, it is anticipated that the activities that typically generate the loudest noise, such as excavation and grading, would be completed for Phase 2 by the beginning of occupation. For this analysis, it is conservatively assumed that these louder activities would occur for Phase 2 while Phase 1 is being occupied. At a distance of 150 feet, a dozer, scraper, grader, and water truck operating during excavation and grading would generate a noise level of 72 dBA L_{EQ} (12 hour). Therefore, noise levels from project construction to occupied on-site project residences would not exceed the City Noise Ordinance construction threshold of 75 dBA L_{EQ} (12 hour). See Appendix D, *Construction Noise Model Outputs*, for model outputs.

Construction during the SDG&E relocation would occur at a farther distance to off-site residences than the distances analyzed above; therefore, impacts from the relocation would be less than significant.

4.2.1.2 Construction Traffic

Project construction traffic would likely be highest during concrete demolition, which would result in approximately 290 ADT, as described in Section 3.2.1. Exact routes the trucks would take is unknown at this time. The trucks would likely use the nearby major roadways, such as Mira Mesa Boulevard or Miramar Road. A general rule of thumb is that a doubling of ADT would cause a doubling in noise (a 3-dBA increase), which would be considered a significant increase. According to the project's TIA, these roadways currently have high levels of traffic, with between approximately 45,000 to 73,000 ADT for Miramar Road, and between approximately 37,000 to 58,000 ADT for Mira Mesa Boulevard (Michael Baker International 2018). The addition of 290 ADT from construction traffic to these existing roadways would increase area traffic by less than one percent, much lower than the amount needed to double ADT. Therefore, the increase in traffic from the project would have a minor impact on noise and impacts from construction traffic would be less than significant.

4.2.2 Mitigation Measures

Because impacts related to Issue 1 would be less than significant, no mitigation is required.

4.2.3 Significance of Impacts After Mitigation

Impacts would be less than significant without mitigation.

4.3 ISSUE 2: EXCESSIVE GROUNDBORNE VIBRATION

4.3.1 Impact Analysis

4.3.1.1 Construction Vibration

Construction activities known to generate excessive groundborne vibration, such as pile driving, would not be conducted by the project. A possible source of vibration during general project construction activities would be a vibratory roller, which may be used within 75 feet of the nearest off-site residence. A vibratory roller would create approximately 0.210 inch per second PPV at a distance of 25 feet (Caltrans 2013). A 0.210 inch per second PPV vibration level would equal 0.063 inch per second PPV at a distance of 75 feet.[2] This would be lower than what is considered a "strongly perceptible" impact for humans of 0.1 inches per second PPV, and the structural damage impact to older residential structures of 0.5 inches per second PPV. Therefore, although a vibratory roller may be perceptible to nearby human receptors, temporary impacts associated with the roller (and other potential equipment) would be less than significant.

4.3.1.2 Operational Vibration

The proposed land uses do not include equipment that would generate substantial vibration. Therefore, operational vibration impacts are less than significant.

4.3.2 Mitigation Measures

Because impacts related to Issue 2 would be less than significant, no mitigation is required.

4.3.3 Significance of Impacts After Mitigation

Impacts would be less than significant without mitigation.

4.4 ISSUE 3: PERMANENT INCREASE IN AMBIENT NOISE LEVELS

The anticipated primary project operational noise sources would include HVAC units, loading docks (back up alarms), trash compactors, music (e.g., from outdoor dining areas and breweries), public address system/loudspeaker noise (e.g., from food trucks), and crowd noise (e.g., from outdoor dining areas, pop-up retail, and food trucks) associated with the commercial area at PA-19 and PA-20; sports fields, playgrounds, and live music at the community park; and vehicular traffic.

[2] Equipment PPV = Reference PPV * $(25/D)^n$ (in/sec), where Reference PPV is PPV at 25 feet, D is distance from equipment to the receiver in feet, and n = 1.1 (the value related to the attenuation rate through the ground); formula from Caltrans 2013.

4.4.1 Operational Noise

Operational noise is required to comply with the City of San Diego noise ordinances as described in Table 1 at off-site (project to parcels adjacent the project) and on-site (within the project) property lines. The noise ordinance does not specify noise level restrictions for recreational uses within parks or open space. Therefore, planning for the Community Park as a noise source (for sports uses, bandshells, etc.) is based on the adjacent residential land use. The Community Park is adjacent to multi-family zoning. Multi-family zoning allows a noise source level for source to receiving area of 55 dBA L_{EQ} between 7:00 a.m. to 7:00 p.m., 50 dBA L_{EQ} between 7:00 p.m. to 10:00 p.m., and 45 dBA L_{EQ} between 10:00 p.m. to 7:00 a.m.

4.4.1.1 Operational Noise Impacts to Existing Off-site Receivers

The operational noise associated with the commercial uses would occur approximately 1,700 feet from the closest existing residences to the northeast of the project boundary along Osgood Way; therefore, noise from this source would be negligible at the nearest existing receivers and is not analyzed further in this section.

It was assumed that the project's single-family residential HVAC units would be a Carrier 38HDR060 split system (see Appendix C, *Condenser Manufacturer's Specifications*, for manufacturer's specifications). This unit typically generates a noise level of 56 dBA at a distance of 7 feet. Based on the site plan, the project's single-family residence nearest to an existing residential property line would be located in the northern portion of the site in PA-4, near the residences off Osgood Way, at a distance of approximately 250 feet. At this distance, the HVAC unit would generate a noise level of 25 dBA, which would be well below the City's nighttime allowable hourly limit of 40 dBA. In addition, larger HVAC units located on the rooftops of commercial or multi-family residential uses would be located over 1,000 feet away from off-site residential land uses and noise levels from the units would be negligible at these distances. Therefore, impacts from project HVAC units to existing receivers would be less than significant.

The proposed community park would be located approximately 1,100 feet from the nearest existing NSLUs (the single-family residences to the north off Osgood Way). The park would include a consolidated sports park that would generate noise from sporting events, including crowd, player, and referee noise and the potential use of public address systems. Typical noise generated by these types of activities would be greatly attenuated by a distance of 1,100 feet, and noise levels from these sources at the off-site residences would be less than the on-site impacts (discussed below). Therefore, impacts from sports fields to existing NSLUs would be less than significant.

4.4.1.2 Operational Noise Impacts to Proposed On-site Receivers

The following analysis assesses noise impacts to future proposed noise-sensitive receivers (residences) within the project site from operation of the planned community park (including the sports park and bandshell) as well as the project's planned commercial area. Distances described in the following sections reference the approximate central portion of the sports park areas and bandshell to the residential property lines.

Community Sports Park

Planned as a community park with sports fields (baseball, basketball, and open fields for soccer or other large field sports), the park also includes a presentation area (with a bandshell for live musical performances; refer to Figure 6), children's playgrounds, and multiple dog areas. The various park uses typically have an approximate conservative 350-foot separation distance across the proposed Carroll Canyon Road extension from the central area of each use to the residential property lines. Planning assumes a maximum of 30 spectators at sporting events.

A bandshell (with a minimum assumed 5 dBA reduction for the bandshell shielding) could generate noise levels ranging from a low of 28.5 dBA L_{EQ} for acoustic guitars to 48.1 dBA L_{EQ} for violins at a distance of 350 feet. Comparative noise levels for several different instruments are shown in Table 11, *Musical Instrument Noise Levels at Property Line*, below.

Table 11
MUSICAL INSTRUMENT NOISE LEVELS AT PROPERTY LINE
(350 FEET)

Instrument	dBA
Acoustic Guitar	28.5
Violin	48.1
Trombone	66.4
Coronet	70.7
Tenor Sax	64.3
Snare Drum	64.6
Cymbal	76.4
Small Brass Band	78.2

As discussed in Section 3.2.2.10, sound would not be amplified at the bandshell at the community sports park, and music would be restricted to the use of non-amplified stringed instruments. In addition, all use would end at 10:00 p.m. Therefore, noise generated from the bandshell within the presentation area would be below the City's property line noise limit, and impacts would be less than significant.

The sports fields with public address systems would generate an approximate noise level of 65.9 dBA L_{EQ} at 350 feet, which would potentially exceed the allowable ordinance levels at any time and is considered potentially significant. The several dog park areas and children's playground would generate noise levels less than 45 dBA L_{EQ} at 350 feet and are not considered significant.

Commercial Area

Exact locations of individual commercial noise-generating components or specific uses are unknown at this stage of planning. Conceptual pop-up shops may be placed at the northern edge of PA-19, as shown in Figure 4. This location is also assumed for potential food trucks. Other noise-producing operational sources, such as HVAC units, loading docks, trash compactors, music, and crowd noise may occur from buildings placed near this northern edge of the commercial area. Noise from operational sources at the commercial area may be in operation during the nighttime hours. This general location is across an internal street from the boundary of the project's multi-family residential uses to the north within PA-12, 13, and 14, an approximate distance of 100 feet to the closest potential homes in PA-13.

The applicable noise limits from the City Noise Ordinance at the boundary between a commercial zone and a multi-family residential zone would be 60 dBA from 7:00 a.m. to 7:00 p.m., 55 dBA from 7:00 p.m. to 10:00 p.m., and 52.5 dBA from 10:00 p.m. to 7:00 a.m. Based upon assumptions described in Section 3.2.2, the operational noise sources are estimated to generate the following noise levels at 100 feet:

- Commercial HVAC unit: 58.0 dBA L_{EQ}
- Loading dock (back up alarm): 69.0 dBA L_{EQ}
- Trash compactor: 53.7 dBA L_{EQ}
- Amplified Music: 74.3 dBA L_{EQ}
- Public Address System: 53.7 dBA L_{EQ}
- Conversational crowd noise: 58.0 dBA L_{EQ}

Although exact anticipated noise levels are unknown as exact details and locations of the operational noise sources are to be determined, given the potential for these sources to be located 100 feet from on-site multi-family residential uses and the example noise levels provided above, the noise levels may exceed the City Noise Ordinance limits. Therefore, impacts are conservatively assessed as potentially significant.

4.4.2 Off-site Transportation Noise

4.4.2.1 Exterior

TNM software was used to calculate the noise contour distances for off-site roadway segments in the project vicinity for the following scenarios: Existing, Existing + Project, Buildout Year 2025, Buildout Year 2025 + Project, Horizon Year 2050, and Horizon Year 2050 + Project. The off-site roadway modeling represents a conservative analysis that does not take into account topography or attenuation provided by existing structures. The results of this analysis for the CNEL at the nearest NSLU to the roadway segments are shown below in Table 12, *Off-site Traffic Noise Levels*. Additional analysis for the 70, 65, and 60 CNEL distances are provided in Appendix E, *Off-site Traffic Noise Levels*.

Table 12
OFF-SITE TRAFFIC NOISE LEVELS

Roadway Segment	Distance to Nearest NSLU (feet)[1]	NSLU Type	CNEL at Nearest NSLU								
			Existing			Buildout Year 2025			Horizon Year 2050		
			Existing	Existing + Project	Change in CNEL	Buildout Year 2025	Buildout Year 2025 + Project	Change in CNEL	Horizon Year 2050	Horizon Year 2050 + Project	Change in CNEL
Mira Mesa Boulevard											
Camino Santa Fe to Parkdale Avenue	75	SF/MF	72.1	72.4	0.3	72.5	72.3	-0.2[2]	72.4	72.4	0
Parkdale Avenue to Reagan Road	50	SF	73.7	74.0	0.3	74.1	73.8	-0.3[2]	74.0	74.0	0
Miramar Road											
Camino Ruiz to Mitscher Way	100	SF	70.8	70.9	0.1	71.2	71.3	0.1	71.0	71.1	0.1
Mitscher Way to Black Mountain Road	100	SF	70.6	70.8	0.2	71.0	71.1	0.1	70.9	71.1	0.2
Camino Santa Fe											
Mira Mesa Boulevard to Flanders Drive	100	MF	68.0	69.4	1.4	68.9	68.7	-0.2[2]	68.6	69.1	0.5
Camino Ruiz											
Reagan Road to Flanders Drive	50	SF/MF	71.5	71.6	0.1	71.7	72.6	0.9	72.4	72.5	0.1
Flanders Drive to Gold Coast Drive	50	MF	70.0	70.2	0.2	70.2	71.1	0.9	70.9	71.0	0.1
Gold Coast Drive to Jade Coast Drive	50	MF	69.8	69.9	0.1	70.1	70.8	0.7	70.7	70.9	0.2

[1] Distance measured from roadway centerline.

[2] The implementation of the project under the Buildout Year 2025 scenario would reduce noise levels along these segments, as the project would construct the Carroll Canyon Road extension, which would redistribute traffic from Mira Mesa Boulevard to the extension.

NSLU = Noise Sensitive Land Use; SF = Single-family Residential; MF = Multi-family Residential

A direct significant impact would occur if exterior useable spaces are exposed to noise levels that exceed the guidelines listed under Table 2, if those uses were not exposed to noise levels above the guidelines before the project. For the nearest NSLUs to the studied roadways, single-family and multi-family residential, the limit would be 65 and 70 CNEL, respectively. If noise levels under the Existing, Buildout Year 2025, or Horizon Year 2050 scenarios without the project already exceed the applicable significance thresholds, a significant impact would occur for the Existing + Project, Buildout Year 2025 + Project, or Horizon Year 2050 + Project scenarios if the project's contribution would be 3 CNEL or greater.

Table 12 displays noise levels both with and without the project. As shown, noise levels would exceed the applicable limits without the project along the analyzed roadway segments except for the Mira Mesa Boulevard to Flanders Drive segment of Camino Santa Fe, which is slightly below the 70 CNEL multi-family residential threshold for the non-project scenarios. For this segment, the project-added trips would not increase noise levels above 70 CNEL. For the segments that already exceed the applicable threshold, the project's contribution to traffic noise would not exceed 3 dBA CNEL. Therefore, direct exterior off-site transportation noise impacts would be less than significant.

4.4.2.2 Interior

For single- and multi-family residential land uses, the interior noise threshold is 45 CNEL. As typical architectural materials are expected to attenuate noise levels by 15 CNEL, if the project increases traffic noise levels above 60 CNEL at the building façades, a significant interior impact would occur. If noise levels under the Existing, Buildout Year 2025, or Horizon Year 2050 scenarios without the project already exceed 60 CNEL, a significant impact would occur for the Existing + Project, Buildout Year 2025 + Project, or Horizon Year 2050 scenarios if the project's contribution would be 3 CNEL or greater.

As shown in Table 12, noise levels without the project would exceed 60 CNEL. In the scenarios with the project, the increase in noise levels from project-added traffic would be less than 3 CNEL. Therefore, the project's off-site transportation noise would not cause significant direct impacts related to interior noise.

4.4.2.3 Cumulative

Exterior

The potential for a cumulative noise impact can occur when traffic from multiple projects combines to increase noise levels above thresholds. A significant cumulative exterior impact would occur if:

- Cumulative projects in combination with the proposed project result in the exposure of a single-family residential NSLU that is exposed to less than 65 CNEL in the Existing scenario to an exterior noise level of 65 CNEL or greater in the Horizon Year 2050 + Project scenario, or a multi-family residential NSLU that is exposed to less than 70 CNEL in the Existing scenario to an exterior noise level of 70 CNEL or greater in the Horizon Year 2050 + Project scenario; or

- If the NSLU is already exposed to noise levels above the applicable threshold under the Existing scenario, cumulative projects in combination with the proposed project cause an increase of at least 3 CNEL from the Existing scenario to the Horizon Year + Project scenario.

If a significant cumulative impact occurs, the City does not have a specific threshold to determine if the project's contribution would result in a cumulatively considerable increase. Therefore, the County of

San Diego's cumulatively considerable threshold of an increase in the CNEL level of more than 1 dBA is used in for this analysis (County 2009).

As shown in Table 13, *Cumulative Off-site Traffic Noise Levels*, noise levels would exceed the applicable threshold along the analyzed roadway segments except for the Mira Mesa Boulevard to Flanders Drive segment of Camino Santa Fe and the Gold Coast Drive to Jade Coast Drive segment of Camino Ruiz. For the segments that already exceed the applicable threshold, the contribution from cumulative projects in combination with the proposed project would not cause an increase in the CNEL level of at least 3 dBA. For the Mira Mesa Boulevard to Flanders Drive segment of Camino Santa Fe, the contribution from cumulative projects in combination with the proposed project would not increase noise levels above the 70 CNEL threshold.

For the Gold Coast Drive to Jade Coast Drive segment of Camino Ruiz, the contribution from cumulative projects in combination with the proposed project would increase noise levels above the 70 CNEL threshold. However, the project's contribution from the Horizon Year 2050 to Horizon Year 2050 + Project scenario would only be 0.2 dBA, which would be a negligible increase below the cumulatively considerable increase of more than 1 CNEL. Therefore, traffic-related exterior noise impacts from the project would not be cumulatively considerable.

Interior

A significant cumulative interior impact would occur if cumulative projects in combination with the proposed project meet the following conditions: (1) if the single- and multi-family residential NSLUs are exposed to interior noise levels below 45 CNEL, result in interior noise levels at the NSLUs in excess of 45 CNEL; or (2) if the NSLUs are already exposed to interior noise levels in excess of 45 CNEL, cause an increase of at least 3 CNEL from the Existing scenario to the Horizon Year 2050 + Project scenario. As typical architectural materials are expected to attenuate noise levels by 15 CNEL, interior noise levels would be 45 CNEL or greater if the noise levels at the building façades exceed 60 CNEL. All analyzed segments exceed 60 CNEL and therefore the NSLUs may be exposed to interior noise levels above 45 CNEL; however, the project in combination with cumulative projects would not cause an increase of 3 CNEL from the Existing scenario to the Horizon Year 2050 + Project scenario. Therefore, traffic-related interior noise impacts from the project would not be cumulatively considerable.

Table 13
CUMULATIVE OFF-SITE TRAFFIC NOISE LEVELS

Roadway Segment	Distance to Nearest NSLU (feet)[1]	NSLU Type	CNEL at Nearest NSLU						
			Existing	Horizon Year 2050	Horizon Year 2050 + Project	Change from Existing to Horizon Year 2050 + Project	Cumulative Impact?	Change from Horizon Year 2050 to Horizon Year 2050 + Project	Cumulatively Considerable Contribution?
Mira Mesa Boulevard									
Camino Santa Fe to Parkdale Avenue	75	SF/MF	72.1	72.4	72.4	0.3	No	0	No
Parkdale Avenue to Reagan Road	50	SF	73.7	74.0	74.0	0.3	No	0	No
Miramar Road									
Camino Ruiz to Mitscher Way	100	SF	70.8	71.0	71.1	0.3	No	0.1	No
Mitscher Way to Black Mountain Road	100	SF	70.6	70.9	71.1	0.5	No	0.2	No
Camino Santa Fe									
Mira Mesa Boulevard to Flanders Drive	100	MF	68.0	68.6	69.1	1.1	No	0.5	No
Camino Ruiz									
Reagan Road to Flanders Drive	50	SF/MF	71.5	72.4	72.5	1.0	No	0.1	No
Flanders Drive to Gold Coast Drive	50	MF	70.0	70.9	71.0	1.0	No	0.1	No
Gold Coast Drive to Jade Coast Drive	50	MF	69.8	70.7	70.9	1.1	**Yes**	0.2	No

[1] Distance measured from roadway centerline; the nearest NSLUs on the analyzed roadways are residential land uses.

Note: A significant cumulative exterior impact would occur if cumulative projects (including the proposed project) generate noise exterior levels at single-family residential NSLU to 65 CNEL or greater, or a multi-family residential NSLU to an exterior noise level of 70 CNEL or greater, or increase noise levels by 3 CNEL in areas that currently exceed those levels. A significant cumulative interior impact would occur if cumulative projects (including the proposed project) either: (1) result in interior noise levels at single-family and multi-family NSLUs in excess of 45 CNEL; or (2) if interior noise levels currently exceed 45 CNEL, cause an increase of at least 3 CNEL compared to existing conditions.

NSLU = Noise Sensitive Land Use; SF = Single-family Residential; MF = Multi-family Residential

4.4.3 Mitigation Measures

The following mitigation measures would be implemented to reduce operational noise impacts to below a level of significance:

NOI-1 **Community Park Sports Field Noise Reduction.** Noise levels from the community sports fields shall not exceed City of San Diego noise standards for multi-family housing at the property line. Prior to approval of the final plans, potential noise reduction measures include the following two options:

- Option 1: Prohibit public address systems.
- Option 2: Provide an installation plan to show noise reduction measures such as multiple speakers mounted on and in the bleachers with directional speakers pointing into the field area away from the residential areas with a programmable (lockable) system volume level limit. A final layout analysis shall be required to show compliance with the area for the planned hours of operations.

NOI-2 **Commercial Area Noise Analysis.** Prior to issuance of building permits, a noise analysis shall be completed to assess operational noise sources from the commercial area within PA-19 and PA-20 (including, but not limited to, HVAC units, loading docks [back up alarms], trash compactors, music [e.g., from outdoor dining areas and breweries], public address system noise [e.g., from food trucks], and conversational crowd noise [e.g., from outdoor dining areas, pop-up retail, and food trucks]) and their noise impacts to the nearby multi-family residences in PA-12, PA-13, and PA-14. Appropriate noise attenuation measures identified in the noise analysis shall be incorporated into the project design to ensure compliance with the City Noise Ordinance noise limits between a commercial zone (PA-19 and 20) and a multi-family residential zone (PA-12, 13, and 14) of 60 dBA from 7:00 a.m. to 7:00 p.m., 55 dBA from 7:00 p.m. to 10:00 p.m., and 52.5 dBA from 10:00 p.m. to 7:00 a.m. Methods for ensuring compliant interior noise levels may include, but not be limited to, the following:

- Install parapet walls around rooftop commercial HVAC units that are of a height above the top of the equipment or surround ground-mounted HVAC units with a commercial absorptive noise barrier system to break the line-of-sight;
- Orient loading docks and trash compactors so that they do not have a line-of-sight to the multi-family residences;
- Orient outdoor performance areas or exterior doors for venues playing amplified music so that they do not have a line-of-sight to residential areas;
- Prohibit loudspeakers and horns on food trucks;
- Prohibit the use of portable generators or continuously idling engines by food vendor trucks.

Once the project is constructed and in full operation, the developer shall conduct on-site noise measurements to verify that noise planning and attenuation measures identified in the noise analysis have mitigated project noise levels to be City Noise Ordinance limits.

4.4.4 Significance of Impacts After Mitigation

With implementation of Option 1 of mitigation measure NOI-1, which would restrict the use of a public address systems, sporting event noise would be less than 45 dBA L_{EQ} at all residential parcels, and impacts would be less than significant. If a public address system is required, an installation plan (included as Option 2 of mitigation measure NOI-1) would be required to show compliance for the sports fields with the 45 dBA L_{EQ} residential property line limit, which would ensure that impacts would be less than significant.

With implementation of NOI-2, noise levels from commercial area operational sources would comply with the City Noise Ordinance at the nearest boundary with adjacent multi-family residential development, and impacts would be less than significant.

4.5 ISSUE 4: NOISE LEVEL STANDARD COMPLIANCE FOR NEW USES

4.5.1 Operational Noise

4.5.1.1 Off-site Operational Noise

An existing extractive industry site, the Vulcan Materials Company sand and gravel mine, is located adjacent to the north of the most eastern portion of the project site. Single-family residences are proposed near this area, at a location approximately 250 feet south of the property line adjacent to the mine along Carroll Canyon Road in PA-18. From analysis of Google Earth imagery that was dated August 13, 2017, it appears that the Vulcan Materials Company uses dozers in the western area of the mining area. Materials are then placed on a conveyor belt that transports the materials eastwards, underneath Camino Ruiz, towards an operational center off Black Mountain Road where further processing equipment and heavy trucks are in operation (an approximate distance of 1.5 miles from the project site). Therefore, to determine noise impacts to the project site, a dozer was analyzed in operation at a conservative distance of 300 feet to the future single-family residences (the distance from the property line plus an additional 50 feet, as the off-site mining operations do not occur within this area). At this distance, a dozer would generate a noise level of 62.1 dBA L_{EQ}. Assuming operation of the dozer between 7 a.m. to 7 p.m., this would equate to a CNEL of 59.1. This noise level would be below the City Noise Element's conditionally compatible exterior noise level for single-family residences of 65 CNEL and interior noise level of 45 CNEL (assuming a 15-dBA reduction from traditional architectural materials). Therefore, noise levels for the proposed residences located near the Vulcan Material Company mine would be consistent with City standards.

4.5.1.2 Mixed-Use

Within PA-12, 13, and 14, which is an RM-3-9 zone, certain retail and office uses are allowed that may be placed on the ground floor of the proposed apartment buildings in these planning areas. Food trucks are also allowed in an RM-3-9 zone; however, the hours of operation are limited to between 6:00 a.m. and 10:00 p.m. These operational noise sources, located on the same parcel as residences within the RM-3-9 zone, could generate noise levels in exceedance of City Noise Element standards. Specifically, proposed commercial uses may generate noise that could expose proposed residences to levels above the City Noise Element standards, particularly where these uses occur adjacent to each other or are stacked with residential over commercial. Potential incompatible noise levels may occur from HVAC systems, other types of air movement systems, or other operational noise from the commercial uses.

Since building plans and specific uses/tenants have not yet been developed or identified, it is not possible to quantitatively analyze the potential noise compatibility issues at this stage of project design. However, there is potential for the residential uses next to or stacked on top of commercial to experience noise levels above the City Noise Element standards, and therefore noise levels may be inconsistent with City standards.

4.5.2 Transportation Noise

4.5.2.1 Exterior Noise Levels

As noted in Section 3.2.2.4, future traffic noise levels presented in this analysis are based on forecasted traffic volumes provided in the TIA (Michael Baker International 2018), BRT traffic, and aircraft noise levels (based upon the contours presented in the MCAS Miramar ALUCP). The aircraft noise levels are conservative estimates that do not account for building or topographical attenuation.

Exact locations for potential single- and multi-family residential and commercial ground-level exterior use areas (e.g., backyards and patios) are unknown at this time; therefore, receivers were placed at a height of 5 feet throughout the site to represent noise levels at potential exterior areas (Receivers EU1 through EU33; see Figure 9, *Receiver Locations*, for receiver locations). Locations for roof deck receivers (EU44 and EU45) were assumed at a height of 45 feet above ground level and were placed at the same location as the single-family receivers that had the highest combined noise levels nearest Carroll Canyon Road (EU23 and EU24). The project would also have exterior areas from the community park and multiple neighborhood parks (Receivers EU34 through EU43). Noise levels for these receivers were modeled and are shown in Table 14, *Future On-site Exterior Noise Levels*. Impacts are noted for locations where noise would potentially exceed conditionally compatible noise levels. The modeled receiver locations are identified on Figure 9.

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Source: Aerial (SanGIS, 2014); Site Plan (PDC 5/2018)

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Receiver Locations

Figure 9

Table 14
FUTURE ON-SITE EXTERIOR NOISE LEVELS

Receiver Number	Land Use Type/Location	Traffic Noise (CNEL)			Airport Noise (CNEL)	Combined Noise Levels (CNEL)	Impact?
		Vehicles	BRT	Combined Traffic Noise			
Exterior Analysis							
EU1	Multi-family	62	33	62	66	67	No
EU2	Multi-family	52	35	52	65	65	No
EU3	Multi-family	56	40	56	65	66	No
EU4	Multi-family	57	27	57	65	66	No
EU5	Multi-family	62	29	62	65	67	No
EU6	Multi-family	60	23	60	64	66	No
EU7	Multi-family	48	28	48	64	64	No
EU8	Single-family	64	12	64	64	67	**Yes**
EU9	Single-family	62	12	62	64	66	**Yes**
EU10	Single-family	49	18	49	63	63	No
EU11	Single-family	48	29	48	64	64	No
EU12	Single-family	57	40	57	64	65	No
EU13	Single-family	40	16	40	63	63	No
EU14	Single-family	44	26	44	63	63	No
EU15	Single-family	60	45	60	65	66	**Yes**
EU16	Single-family	56	41	56	65	66	**Yes**
EU17	Single-family	62	49	62	65	67	**Yes**
EU18	Single-family	63	50	63	65	67	**Yes**
EU19	Single-family	61	48	61	65	67	**Yes**
EU20	Single-family	63	49	63	65	67	**Yes**
EU21	Single-family	62	47	62	65	67	**Yes**
EU22	Single-family	55	40	55	64	65	No
EU23	Single-family	64	53	65	64	67	**Yes**
EU24	Single-family	65	56	65	64	68	**Yes**
EU25	Single-family	64	52	64	63	67	**Yes**
EU26	Single-family	60	47	60	63	65	No
EU27	Single-family	64	54	64	63	66	**Yes**
EU28	Single-family	65	54	65	63	67	**Yes**
EU29	Single-family	58	42	58	63	64	No
EU30	Single-family	65	53	66	63	67	**Yes**
EU31	Single-family	65	55	65	63	67	**Yes**
EU32	Commercial	65	53	65	67	69	No
EU33	Commercial	62	35	62	66	67	No
EU34	Neighborhood Park, near transit station	64	51	64	67	69	No
EU35	Neighborhood Park, near bridge	64	53	64	66	68	No
EU36	Neighborhood Park, north	49	14	49	64	64	No

Table 14 (cont.)
FUTURE ON-SITE EXTERIOR NOISE LEVELS

Receiver Number	Land Use Type/Location	Traffic Noise (CNEL)			Airport Noise (CNEL)	Combined Noise Levels (CNEL)	Impact?
		Vehicles	BRT	Combined Traffic Noise			
EU37	Neighborhood Park, near attached SF	55	23	55	64	64	No
EU38	Neighborhood Park	54	37	54	65	65	No
EU39	Community Park, west	67	44	67	67	70	No
EU40	Community Park, center-west	66	45	66	66	69	No
EU41	Community Park, center-east	65	44	65	66	69	No
EU42	Community Park, east	66	56	66	65	69	No
EU43	Community Park, east	68	45	68	65	70	No
EU44	Rooftop Deck (single-family)	68	56	68	64	70	**Yes**
EU45	Rooftop Deck (single-family)	69	56	69	64	70	**Yes**

Notes: Traffic noise levels based on traffic volumes provided in the TIA (Michael Baker International 2018); BRT noise levels based upon similar bus routes discussed in Section 3.2.2.4; airport noise levels from contours provided in the MCAS Miramar ALUCP (airport noise levels have been rounded to the nearest whole number; e.g., a receiver with a value of 64.5 CNEL has been rounded up to 65 CNEL, and a receiver with a value of 64.4 CNEL has been rounded down to 64 CNEL). See Figure 9 for receiver locations. Conditionally compatible exterior noise levels are 65 CNEL for single-family residential; 70 CNEL for multi-family residential; and 75 CNEL for commercial-retail and for active and passive recreation (neighborhood and community parks).

As shown in Table 14, the potential exterior areas for the proposed multi-family residential, commercial, and community and neighborhood park uses would not exceed the City's exterior noise level conditionally compatible standards from combined traffic noise, or from traffic noise combined with airport noise. The potential exterior areas of the proposed single-family residential uses would not exceed the exterior noise level conditionally compatible standards from traffic noise. However, traffic noise combined with airport noise may exceed 65 CNEL at the single-family residences located off Carroll Canyon Road in the southeastern portion of the site (represented by Receivers EU15 through EU21, EU23, EU24, EU25, EU27, EU28, EU30, and EU31), the residences located off Camino Santa Fe in the northwestern portion of the site (represented by Receivers EU8 and EU9), as well as for potential roof decks at PA-15, 16, 17, and 18 (represented by EU44 and EU45), if roof decks have a line-of-sight with Carroll Canyon Road and are considered part of the exterior use area for the project. Therefore, noise control would be implemented for these areas (see below under Section 4.5.3).

4.5.2.2 Interior Noise Levels

As traditional architectural materials are expected to attenuate noise levels by 15 CNEL, if noise levels exceed 60 CNEL at the project's single- and multi-family building façades or 65 CNEL at the commercial-building façades, interior noise levels may exceed the City Noise Element interior noise standards (45 CNEL for single- and multi-family residential; 50 CNEL for commercial) for each type of land use.

For the interior noise analysis, receivers were placed at potential building façades, at a height of 15 feet, in the same locations as the exterior receivers. As shown in Table 15, *Future On-site Interior Noise Levels,* building façade noise levels would exceed 60 CNEL at all analyzed single- and multi-family residential uses. This is mostly due to the airport noise contours, which exceed 60 CNEL for the entire site. In addition, the commercial land uses would exceed 65 CNEL due to the airport noise and proximity to roadways and the BRT lanes. Therefore, interior noise levels may exceed City Noise Element interior noise standards without additional architectural attenuation.

Table 15
FUTURE ON-SITE INTERIOR NOISE LEVELS

Receiver Number	Land Use Type/Location	Traffic Noise (CNEL)			Airport Noise (CNEL)	Combined Noise Levels (CNEL)	Impact?
		Vehicles	BRT	Combined Traffic Noise			
BF1	Multi-family	65	33	65	66	69	**Yes**
BF2	Multi-family	55	36	55	65	65	**Yes**
BF3	Multi-family	57	41	57	65	66	**Yes**
BF4	Multi-family	62	30	62	65	67	**Yes**
BF5	Multi-family	64	32	64	65	68	**Yes**
BF6	Multi-family	65	25	65	64	67	**Yes**
BF7	Multi-family	52	30	52	64	64	**Yes**
BF8	Single-family	66	11	66	64	68	**Yes**
BF9	Single-family	63	14	63	64	66	**Yes**
BF10	Single-family	51	18	51	63	63	**Yes**
BF11	Single-family	54	32	54	64	64	**Yes**
BF12	Single-family	57	41	57	64	65	**Yes**
BF13	Single-family	42	21	42	63	63	**Yes**
BF14	Single-family	44	26	44	63	63	**Yes**
BF15	Single-family	64	50	64	65	68	**Yes**
BF16	Single-family	59	44	59	65	65	**Yes**
BF17	Single-family	65	52	65	65	68	**Yes**
BF18	Single-family	65	52	65	65	68	**Yes**
BF19	Single-family	64	50	64	65	68	**Yes**
BF20	Single-family	66	52	66	65	68	**Yes**
BF21	Single-family	64	49	64	65	68	**Yes**
BF22	Single-family	59	43	59	64	65	**Yes**
BF23	Single-family	67	55	67	64	69	**Yes**
BF24	Single-family	68	57	68	64	69	**Yes**
BF25	Single-family	66	55	66	63	68	**Yes**
BF26	Single-family	62	48	62	63	66	**Yes**
BF27	Single-family	67	56	67	63	69	**Yes**

Table 15 (cont.)
FUTURE ON-SITE INTERIOR NOISE LEVELS

Receiver Number	Land Use Type/Location	Traffic Noise (CNEL)			Airport Noise (CNEL)	Combined Noise Levels (CNEL)	Impact?
		Vehicles	BRT	Combined Traffic Noise			
BF28	Single-family	67	55	67	63	69	**Yes**
BF29	Single-family	59	44	59	63	64	**Yes**
BF30	Single-family	68	56	68	63	69	**Yes**
BF31	Single-family	68	56	68	63	69	**Yes**
BF32	Commercial	68	55	68	67	70	**Yes**
BF33	Commercial	63	39	63	66	68	**Yes**

Notes: Traffic noise levels based on traffic volumes provided in the TIA (Michael Baker International 2018); BRT noise levels based upon similar bus routes discussed in Section 3.2.2.4; airport noise levels from contours provided in the MCAS Miramar ALUCP (airport noise levels have been rounded to the nearest whole number; e.g., a receiver with a value of 64.5 CNEL has been rounded up to 65 CNEL, and a receiver with a value of 64.4 CNEL has been rounded down to 64 CNEL). See Figure 9 for receiver locations. Conditionally compatible interior noise levels are 45 CNEL for single- and multi-family residential and 50 CNEL for commercial.

Projects in the City proposing residential land uses within a 60 CNEL or greater airport noise contour would be required to record an avigation easement. This is due to the potential for interior noise levels to exceed 45 CNEL, which as shown in Table 15 may occur as building façade noise levels would exceed 60 CNEL. As the Project's residences would be located in the 60 CNEL noise contour for MCAS Miramar, an avigation easement would be required as a condition of approval.

4.5.3 Conditions of Approval

The following conditions of approval would be required to ensure project consistency with the City Noise Ordinance and Noise Element:

NOI-3 **Noise Analysis for Mixed-use Buildings.** Prior to issuance of building permits, a noise analysis shall be completed to assess on-site noise sources and impacts to on-site residential uses from mixed-use buildings in PA-12, 13, and 14. Appropriate noise planning and attenuation measures identified in the noise analysis shall be incorporated into the project design to ensure compliance with the City Noise Element interior noise standards of 45 CNEL for multi-family residences and 50 CNEL for commercial uses, and exterior noise standards of 70 CNEL for multi-family residences and 75 CNEL for commercial uses. Potential noise planning and attenuation measures may include, but are not limited to, the following:

- Commercial air handling ducts shall not be routed in or adjacent to interior living space walls without specific plans to address isolation;
- Commercial HVAC systems shall not be mounted over interior living areas without specific plans to address isolation;
- Clusters of residential HVAC systems shall not be mounted directly over residential areas;
- Coolant or large water lines including HVAC water for commercial services shall not be routed in walls adjacent to living areas without specific plans to address isolation;

- Elevator shafts shall not be located directly adjacent to living quarters without specific plans to address isolation;

- Commercial spaces for nighttime entertainment shall not have a common floor ceiling to a living space;

- Limitations upon uses that would result in loud impact noise, such as gymnasiums, including limiting hours of operation during the early morning or late evening hours in areas directly below on-site residences;

- Limitations upon the use of amplified music systems associated with entertainment or gymnasiums such as prohibiting or limiting amplified music systems in areas directly below on-site residences;[3]

- If exterior use areas for residences (such as balconies) would exceed 70 CNEL, building plans shall incorporate sound control (such as STC-rated enclosures) into balcony design;

- To reduce noise transmission through floors between commercial and residential areas, noise-reducing materials such as soundproof subfloors, underlayments, and pads shall be used when installing flooring; and

- Commercial lease agreements shall include strict enforceable measures to control interior and exterior noise to limit impacts to residential areas.

Once the project is constructed and in full operation, interior noise measurements shall be conducted to verify that interior noise planning has mitigated project noise levels to ensure compliance with the City Noise Element standards.

NOI-4 **Ground-level On-Site Noise Barriers.** Noise levels at the ground-level exterior use areas of the single-family residences shall be reduced to 65 CNEL or below, where feasible (some areas may be unable to be reduced to 65 CNEL or below due to the combination of airport and vehicle noise). Noise reduction for on-site exterior noise impacts could be accomplished through on-site noise barriers (walls). For the single-family residential areas that are adjacent to the future Carroll Canyon Road extension (southeastern portion of the project site) and Camino Santa Fe (northwestern portion of the project site), a 6-foot high sound wall shall be installed at the approximate locations shown on Figure 10, *Ground-level Sound Wall Locations*.

The sound attenuation fence or wall must be solid. It can be constructed of masonry, wood, glass, plastic, fiberglass, steel, or a combination of those materials, as long as there are no cracks or gaps, through or below the wall. The wall can be made of composite wood with a solid lower section with a clear glass or plastic upper section to maintain views. Any seams or cracks must be filled or caulked. If wood is used, it can be tongue and groove and must be at least one inch total thickness or have a density of at least 3.5 pounds per square foot. Where architectural or aesthetic factors allow, glass or clear plastic ⅜ of an inch thick or thicker may be used on the upper portion, if it is desirable to preserve a view. Sheet metal of 18 gauge (minimum) may be used, if it meets the other criteria and is properly supported and stiffened so that it does not

[3] This excludes temporary outside amplification systems use for a short-term special event conducted with a separate City special event permit.

rattle or create noise itself from vibration or wind. Any door(s) or gate(s) must be designed with overlapping closures on the bottom and sides and meet the minimum specifications of the wall materials described above. The gate(s) may be of one-inch thick or better wood, solid-sheet metal of at least 18-gauge metal, or an exterior-grade solid-core steel door with prefabricated doorjambs.

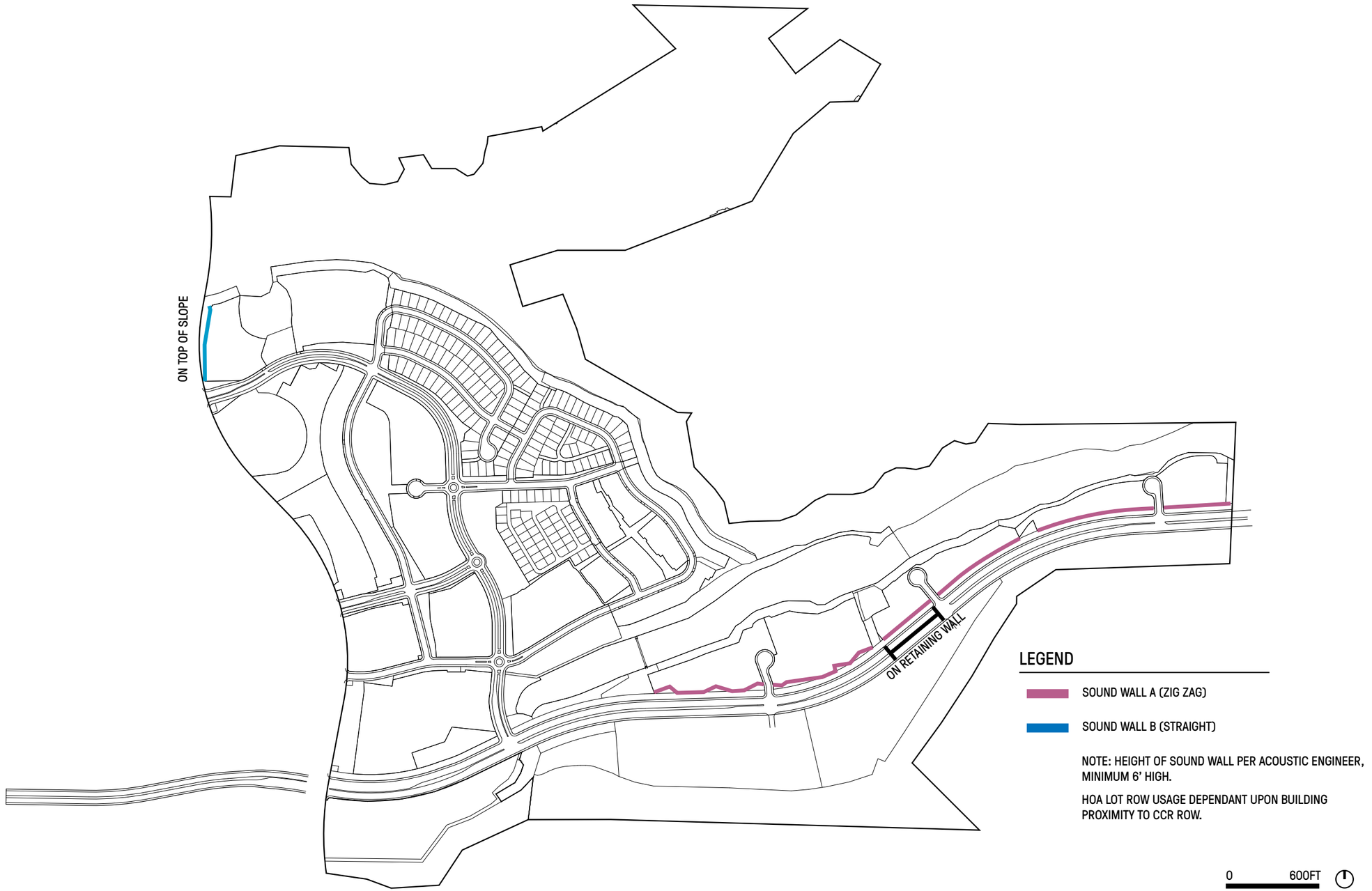
The backyard wall associated with each lot may be used as the sound wall, if the walls meet the noise specifications described above. The sound walls may be used in combination with a berm, if the combined height of the wall and berm are at least 6 feet high. The respective height of the wall and berm shall be denoted on project plans that include the sound wall/berm combination.

NOI-5 **Roof Deck On-Site Noise Barriers.** If the roof decks at PA-15, 16, 17, and 18 have a line-of-sight with Carroll Canyon Road and are used to meet the project's exterior use requirements, noise levels at these exterior use areas of the single-family residences shall be reduced to 65 CNEL or below (some areas may be unable to be reduced to 65 CNEL or below due to the combination of airport and vehicle noise). Noise reduction for the roof deck exterior noise impacts could be accomplished through on-site noise barriers (walls). A 6-foot high sound wall shall be installed where the roof deck faces the future Carroll Canyon Road extension.

The sound attenuation fence or wall must be solid. It can be constructed of masonry, wood, plastic, fiberglass, steel, or a combination of those materials, as long as there are no cracks or gaps, through or below the wall. The wall can be made of composite wood with a solid lower section with a clear glass or plastic upper section to maintain views. Any seams or cracks must be filled or caulked. If wood is used, it can be tongue and groove and must be at least one-inch total thickness or have a density of at least 3½ pounds per square foot. Where architectural or aesthetic factors allow, glass or clear plastic ⅜ of an inch thick or thicker may be used on the upper portion, if it is desirable to preserve a view. Sheet metal of 18 gauge (minimum) may be used, if it meets the other criteria and is properly supported and stiffened so that it does not rattle or create noise itself from vibration or wind. Any door(s) or gate(s) must be designed with overlapping closures on the bottom and sides and meet the minimum specifications of the wall materials described above. The gate(s) may be of one-inch thick or better wood, solid-sheet metal of at least 18-gauge metal, or an exterior-grade solid-core steel door with prefabricated doorjambs.

NOI-6 **Exterior-to-Interior Noise Level Limit.** For single- and multi-family residential units where exterior noise levels exceed 60 CNEL and for commercial uses where exterior noise levels exceed 65 CNEL, the project applicant shall coordinate with the project architects and other contractors to ensure compliance with the 45 CNEL interior noise level standard for single- and multi-family residential and 50 CNEL for commercial uses.

This will be achieved through additional exterior-to-interior noise analysis once specific building plan information is available. This analysis shall be conducted for the proposed single- and multi-family residences where exterior noise levels are expected to exceed 60 CNEL and for the proposed commercial areas where exterior noise levels are expected to exceed 65 CNEL to demonstrate that interior levels do not exceed the applicable City of San Diego Noise Element limit. The information in the analysis shall include wall heights and lengths, room volumes, window and door tables typical for a building plan, as well as information on any other openings in the building shell. With this specific building plan information, the analysis shall determine the



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Ground-Level Sound Wall Locations

Figure 10

predicted interior noise levels at the planned on-site buildings. If predicted noise levels are found to be in excess of the applicable limit, the report shall identify architectural materials or techniques that could be included to reduce noise levels to the applicable limit.

For uses that require up to a 25-dB reduction from exterior-to-interior noise levels, the following standard measures could be incorporated to provide the required noise control:

- Windows and sliding glass doors would be mounted in low air infiltration rate frames (0.5 cubic feet per minute or less, per ANSI specifications).
- Exterior doors would have a solid core with perimeter weather-stripping and threshold seals with a Sound Transmission Class (STC) rating of at least 31, with the potential for STC rating of 36 or higher if necessary.
- Exterior walls would include minimum of 5/8-inch of stucco or brick veneer over a minimum 1/2-inch plywood or OSB shear panel, R11 insulation and interior 5/8-inch gypsum board.
- Walls would have a STC rating of at least 46.
- Dual-paned windows would be installed with a STC rating of at least 31, with the potential for STC rating of 36 or higher if necessary.
- If exterior sliding glass doors are included, high-performance glazing would be installed with a minimum STC rating of 36.
- Air conditioning or mechanical ventilation systems would be installed to allow windows and doors to remain closed for extended intervals of time so that acceptable interior noise levels can be maintained. The mechanical ventilation system would meet the criteria of the International Building Code (Chapter 12, Section 1203.3 of the 2001 California Building Code).
- If the above recommendations cannot be implemented into the construction of the buildings, a more detailed analysis of interior and exterior noise levels would be conducted when floor plans and construction details are available to demonstrate compliance with the 45 CNEL interior standard for single and multi-family residential and 50 CNEL for commercial uses.

NOI-7 **Avigation Easement.** The Project Applicant shall record an avigation easement for MCAS Miramar for residences located within the 60 CNEL noise contour.

4.5.4 Policy Consistency After Implementation of Measures

With implementation of NOI-3, noise levels at the project's potential mixed-use buildings in PA-12, 13, and 14 would comply with City standards.

With implementation of NOI-4, noise levels would be reduced at the ground-level single-family residential exterior use area receivers, as shown in Table 16, *Future On-site Exterior Noise Levels with Sound Wall*. Receivers EU9, EU16, EU23, EU24, EU25, EU27, EU28, EU30, and EU31 would be reduced to 65 CNEL or below and would therefore be consistent with the City Noise Element.

Table 16
FUTURE ON-SITE EXTERIOR NOISE LEVELS WITH SOUND WALL

Receiver Number	Land Use Type/ Location	Combined Noise Levels without Sound Wall (CNEL)	Traffic Noise with Sound Wall (CNEL)			Airport Noise (CNEL)	Combined Noise Levels with Sound Wall (CNEL)
			Vehicles	BRT	Combined Traffic Noise		
EU8	Single-family	67	61	11	61	64	66
EU9	Single-family	66	58	12	58	64	65
EU15	Single-family	66	59	44	59	65	66
EU16	Single-family	66	56	38	56	65	65
EU17	Single-family	67	57	43	57	65	66
EU18	Single-family	67	57	44	57	65	66
EU19	Single-family	67	58	43	58	65	66
EU20	Single-family	67	58	44	59	65	66
EU21	Single-family	67	59	43	59	65	66
EU23	Single-family	67	60	47	60	64	65
EU24	Single-family	68	58	48	58	64	65
EU25	Single-family	67	58	48	58	63	65
EU27	Single-family	66	58	47	58	63	64
EU28	Single-family	67	57	45	58	63	64
EU30	Single-family	67	58	45	58	63	64
EU31	Single-family	67	59	48	60	63	65
EU44	Rooftop deck (single-family)	70	58	42	58	64	65
EU45	Rooftop deck (single-family)	70	57	41	57	64	65

Notes: Traffic noise levels based on traffic volumes provided in the TIA (Michael Baker International 2018); BRT noise levels based upon similar bus routes discussed in Section 3.2.2.4; airport noise levels from contours provided in the MCAS Miramar ALUCP (airport noise levels have been rounded to the nearest whole number; e.g., a receiver with a value of 64.5 CNEL has been rounded up to 65 CNEL, and a receiver with a value of 64.4 CNEL has been rounded down to 64 CNEL). See Figure 9 for receiver locations and Figure 10 for approximate ground-level sound wall locations.

Receivers EU8, EU15, EU17, and EU18 through EU21 would still exceed 65 CNEL. Although the sound wall reduced noise levels from traffic noise at these receivers, no feasible techniques exist to reduce aircraft noise to the potential exterior areas as the aircraft noise comes from above. As described under Section 2.3.4, the project is located under the 60 CNEL noise contour for MCAS Miramar, and therefore under the AEOZ for the airport. The City CEQA Significance Determination Thresholds states that potential exterior noise impacts from aircraft noise for projects within an AEOZ would not constitute a significant environmental impact. Therefore, although the exterior noise at these single-family residences exceeds City Noise Element standards, the project is considered acceptable with City standards.

With implementation of NOI-5, noise levels would be reduced at the roof deck single-family residential exterior use area receivers in PA-15, 16, 17, and 18 to 65 CNEL or below, as demonstrated by receivers EU44 and EU45 (located at the highest combined traffic and airport noise receivers).

With the implementation of NOI-6, potential interior noise levels at on-site NSLUs would be compatible with City Noise Element standards.

With the implementation of NOI-7, the project would be compatible with the MCAS Miramar ALUCP.

5.0 LIST OF PREPARERS

Bill Vosti	Acoustic Analyst
Charles Terry	Principal Acoustician
Joanne M. Dramko, AICP	Senior Technical Specialist, Quality Assurance Reviewer
Lance Unverzagt	Project Manager

6.0 REFERENCES

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Appendix A

On-site Noise Measurement Sheets

Site Survey

Job # 14Aw39	Project Name: 3 Roots		
Date: 7/25/17	Site #: —	Engineer: Bill	
Address: 9255 Camino Santa Fe			
Meter: Lxt	Serial #: 0001741	Calibrator: CAL50	Serial #: 3683

Notes: Heavy trucks exiting left on to Camino Santa Fe; engines idling at stoplight

Sketch:

Temp: 71°F	Wind Spd: 3 mph	Humidity: 77 %	
Start of Measurement: 8:36	End of Measurement: 8:51	71.9 dBA L_{EQ}	

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)
	6	12

Noise Measurement for Information Only

No Through Roadways

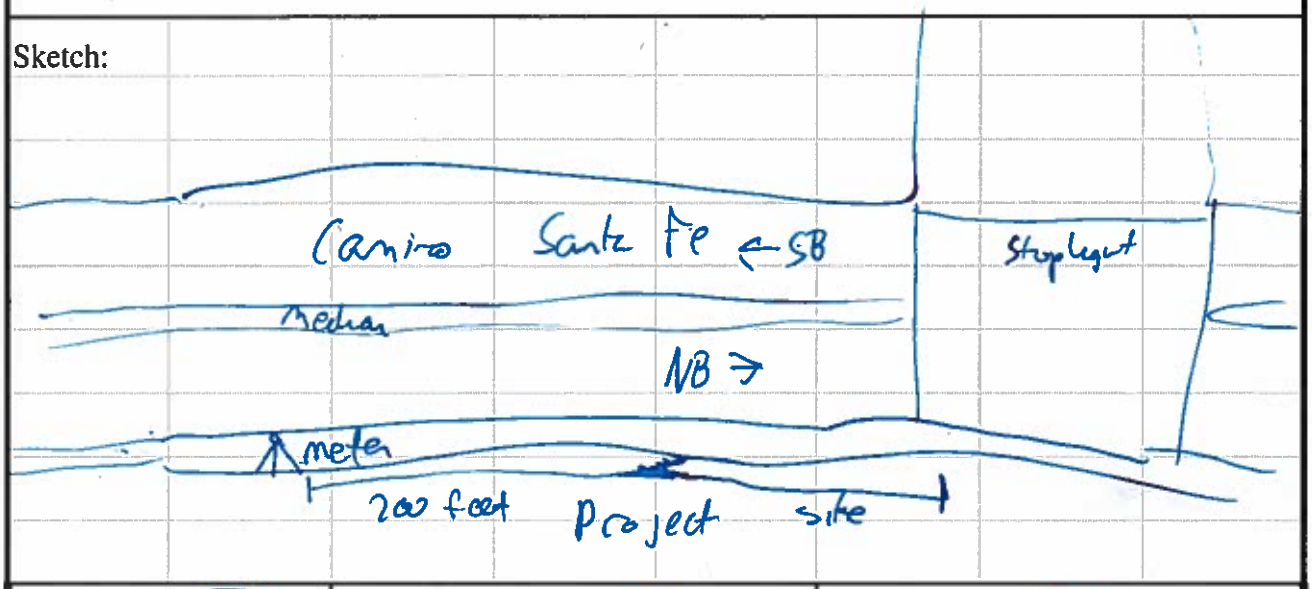
No Calibration Analysis Will Be Provided

Site Survey

Job # HAW-34	Project Name: 3 Roots		
Date: 7/25/17	Site #: —	Engineer: Bill V.	
Address: Near Camino Santa Fe / Summer Ridge Rd intersection			
Meter: LxT	Serial #: 0001741	Calibrator: CALISO	Serial #: 3686

Notes: Heavier traffic on Southbound (SB) side

Sketch:



Temp: 71	Wind Spd: 3	mph	Humidity: 76	%	
Start of Measurement: 9:01	End of Measurement: 9:16		68.1	dBA L_{EQ}	

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)
	III	III

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

Appendix B

Site Development Schedule

Carroll Canyon - "3Roots"

EIR 5.8.18 Technical Study Analysis

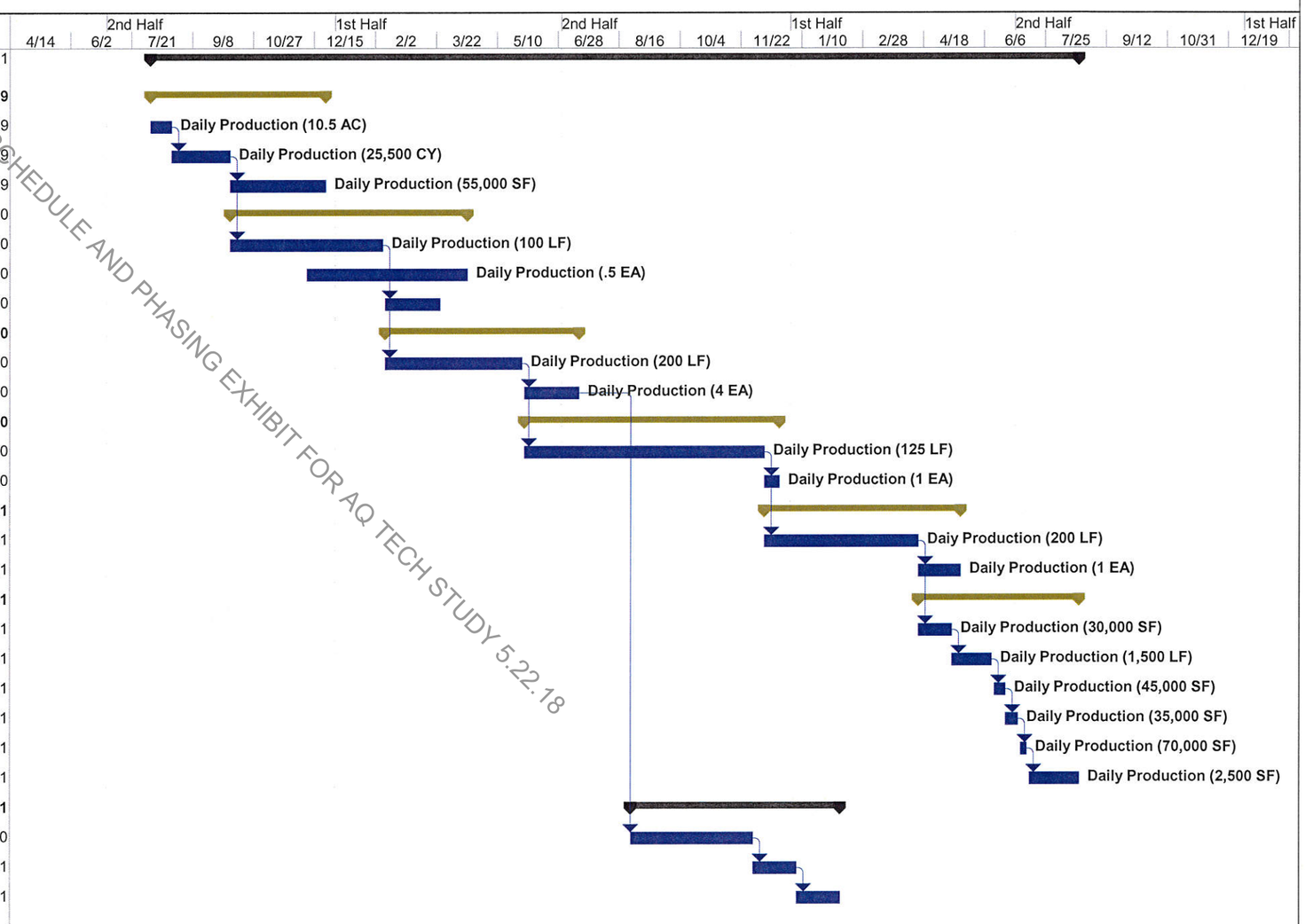
TIA Classification	TIA Class. Acres	TIA Class. Total Dus	TIA Class. Density		Type	Acres	PHASE 1	PHASE 2	TOTAL	AVG Density by Type
Single Family Detached	27.5	186	6.8		SFD	27.5	186	-	186	6.8
Multi Family	75.4	1,614	21.4		Det. Condo	26.6	252	97	349	13.12
					Attached	36.2	392	240	632	17.5
					Apartments	12.6	633	0	633	50.2
	102.9	1,800				102.9	1,463	337	1,800	17.5
Commercial	11.7				Commercial SF (interior + Exterior)		16,000	144,160	160,160	0.3

				Home Size								
PA	Product	Architect	Product	Range		AVG	Parcel Size	Dus		Density per Acre	Phase 1	Phase 2	Project Build Out
1	"Focus" - 2 Story Row Town	Woodley	Attached	1,306	1,599	1,508	3.50	**56**		16	56	-	56
2	New "Summa" - 3 Story Alley Load	Bassenian	Det. Condo	1,646	1,826	1,642	6.40	**78**		12	78	-	78
3	50' x 90' 2 Story	Bassenian	SFD	2,975	3,266	3,102	13.50	**79**		6	79	-	79
4	45' x 80' 2 and 3 Story	Starck	SFD	2,685	3,590	3,000	8.20	**54**		7	54	-	54
5	"Sur 33" - 3 Story Detached Condo	Woodley	Det. Condo	2,028	2,464	2,254	9.90	**143**		14	113	30	143
6	50' x 65' 2 and 3 Story	Bassenian	SFD	2,518	2,994	2,744	5.80	**53**		9	53	-	53
7	"Focus" - 2 Story Row Town	Woodley	Attached	1,306	1,599	1,508	4.30	**71**		17	71	-	71
8	Elevator Flats - 2 Story "Avante"	Woodley	Attached	1,582	1,789	1,702	5.40	**84**		16	84	-	84
9	"Social Garden" - 3Cluster Row Towns	Woodley	Attached	1,390	2,050	1,637	4.30	**97**		23	97	-	97
10	"Element" - 3 Story Detached Cluster	Starck	Det. Condo	1,775	2,253	2,006	4.50	**61**		14	61	-	61
11	Trio	Bassenian	Attached	1,209	1,554	1,433	4.10	**84**		20	84	-	84
15	"Social Garden" - 3Cluster Row Towns	Woodley	Attached	1,390	2,050	1,637	4.50	**76**		17	-	76	76
16	Elevator Flats - 2 Story "Avante"	Woodley	Attached	1,582	1,789	1,702	5.90	**80**		14	-	80	80
17	Trio	Bassenian	Attached	1,209	1,554	1,432	4.20	**84**		20	-	84	84
18	New "Summa" - 3 Story Alley Load	Bassenian	Det. Condo	1,646	1,826	1,642	5.80	**67**		12	-	67	67
						For Sale Subtotal	**90.3**	**1,167**		**13**	**830**	**337**	**1,167**
12	Affordable (10% Assumption) Walk Up	Bassenian Design Guidelines	Apartment			900	4.10	150		44	180	-	180
13	Type V Wrap 60 - Acre	Bassenian Design Guidelines	Apartment			800	4.10	267		65	267	-	267
14	Type II Walk Up 35 - Acre	Bassenian Design Guidelines	Apartment			900	4.40	186		42	186	-	186
						Apartment/Flexible Subtotal	**12.6**	**633**		**50**	**633**	**-**	**633**
						Residential Total	**102.90**	**1,800**		**17**	**1,463**	**337**	**1,800**

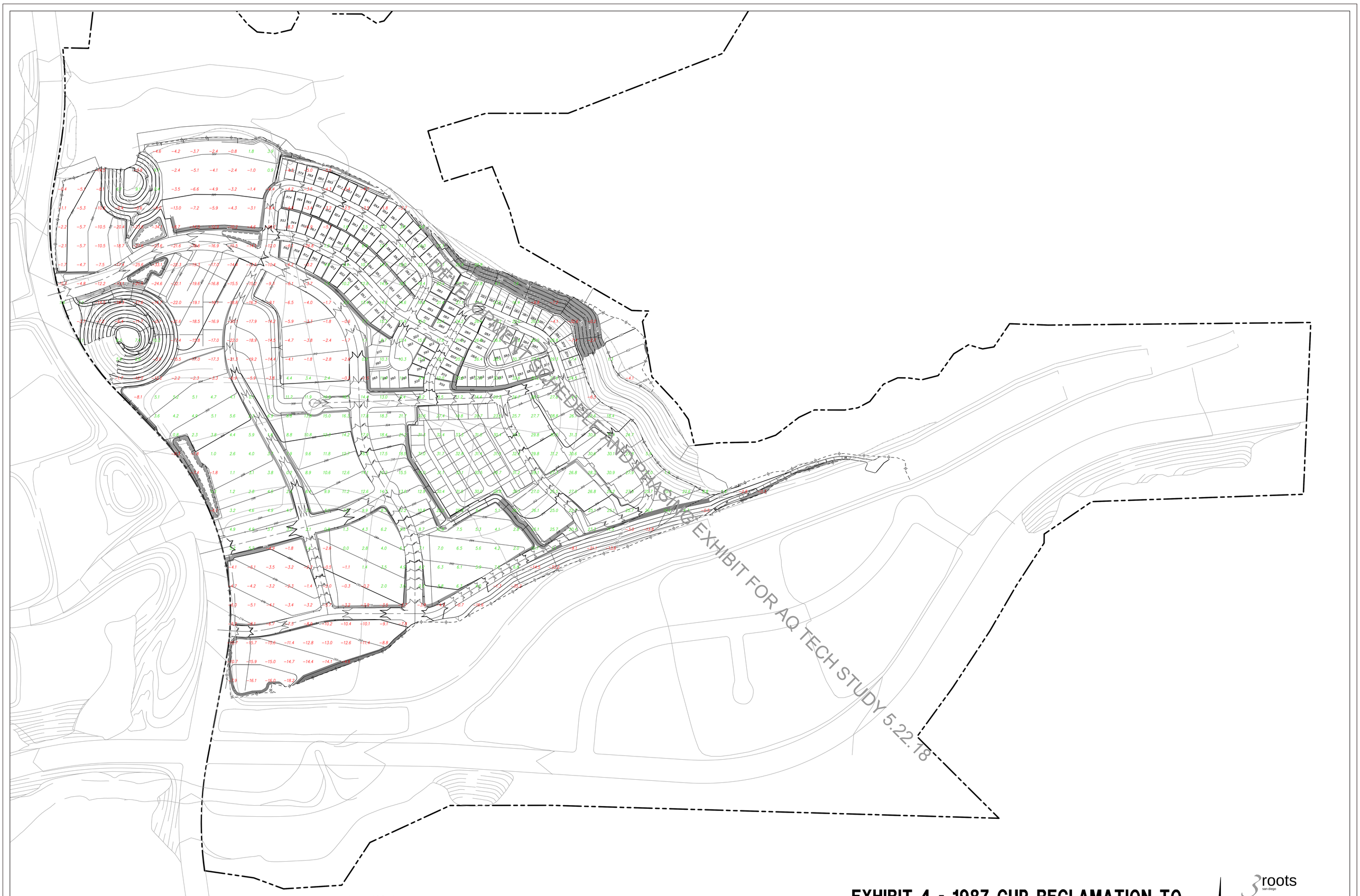
PA	Product	Parking Demand	# Parking Stalls	Lot Size	Interior Sellable SF	Exterior Sellable SF	Phase 1 SF	Phase 2 SF Total (Interior + Exterior)	Total SF Interior + Exterior
13	Ground Floor Retail or Live Work "Work" Component	Part of Apartment Garage		N/A	16,000	-	16,000	-	16,000
MU	Commercial		1,593	10.20	120,000	20,160	-	140,160	140,160
60%	Food and Beverage, Brewery, Fine Dining	17.0 Per 1,000	1,346		72,000	14,400	-	86,400	86,400
15%	Retail	6.5 Per 1,000	126		18,000	2,700	-	20,700	20,700
8%	Services	5.0 Per 1,000	48		9,600	-	-	9,600	9,600
17%	Co-Working	3.3 Per 1,000	72		20,400	3,060	-	23,460	23,460
MM	Bike Station, Waiting Area, Restrooms, Shade			1.50	4,000	-	-	4,000	4,000
			NON Residential Total	**11.70**	**140,000**	**20,160**	**16,000**	**144,160**	**160,160**

3 Roots
AQ / GHG
Site Development Schedule
Phase 1 / Schedule Based on 2 Crews

ID	Task Name	Duration	Start	Finish
1	**3 ROOTS / PH 1**	535 days	Mon 8/5/19	Fri 8/20/21
2	**Earthwork**	**101 days**	**Mon 8/5/19**	**Mon 12/23/19**
3	Clearing & Site Prep	13 days	Mon 8/5/19	Wed 8/21/19
4	Mass Excavation	33 days	Thu 8/22/19	Mon 10/7/19
5	Finish Grading	55 days	Tue 10/8/19	Mon 12/23/19
6	**Storm Drain**	137 days	Tue 10/8/19	Wed 4/15/20
7	RCP	89 days	Tue 10/8/19	Fri 2/7/20
8	Structures	93 days	Mon 12/9/19	Wed 4/15/20
9	Bio-Retention Basin	32 days	Mon 2/10/20	Tue 3/24/20
10	**Sewer**	**112 days**	**Mon 2/10/20**	**Tue 7/14/20**
11	Sewer Main	80 days	Mon 2/10/20	Fri 5/29/20
12	Manholes & Connections	32 days	Mon 6/1/20	Tue 7/14/20
13	**Water**	**147 days**	**Mon 6/1/20**	**Tue 12/22/20**
14	Potable Water Main	139 days	Mon 6/1/20	Thu 12/10/20
15	Connections	8 days	Fri 12/11/20	Tue 12/22/20
16	**Joint Trench Conduit & Structures**	**112 days**	**Fri 12/11/20**	**Mon 5/17/21**
17	Joint Trench & Concrete Products	88 days	Fri 12/11/20	Tue 4/13/21
18	Street Lights	24 days	Wed 4/14/21	Mon 5/17/21
19	**Surface Improvements**	**93 days**	**Wed 4/14/21**	**Fri 8/20/21**
20	Street Balancing, Clean Up Parkways & Grade Bench for Curb	19 days	Wed 4/14/21	Mon 5/10/21
21	String-line, Trim & Pour Curb (including Cure Time)	24 days	Tue 5/11/21	Fri 6/11/21
22	Finegrade Street / Backfill Curb	7 days	Mon 6/14/21	Tue 6/22/21
23	Place Class II Base	8 days	Wed 6/23/21	Fri 7/2/21
24	AC Paving	5 days	Mon 7/5/21	Fri 7/9/21
25	PCC Sidewalk	30 days	Mon 7/12/21	Fri 8/20/21
26	**Frontage & Intersections**	**120 days**	**Wed 8/26/20**	**Tue 2/9/21**
27	Camino Santa Fe Frontage Improvements	70 days	Wed 8/26/20	Tue 12/1/20
28	Intersection Camino Santa Fe & Summers Ridge Rd (Village Entry)	25 days	Wed 12/2/20	Tue 1/5/21
29	Intersection Camino Santa Fe & MiraTech Dr (Spine Road)	25 days	Wed 1/6/21	Tue 2/9/21



J T Kruer & Company
(Start Date 8-5-2019)



Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
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EXHIBIT 4 - 1987 CUP RECLAMATION TO PHASE 1 VTM
(2018-04-010)

N

0 75 150 300 450

GRAPHICAL SCALE
SCALE: 1" = 150'

3roots san diego

PROJECT DESIGN CONSULTANTS
Planning | Landscape Architecture | Engineering | Survey
701 B Street, Suite 800 San Diego, CA 92101
619.235.6471 Tel 619.234.0349 Fax

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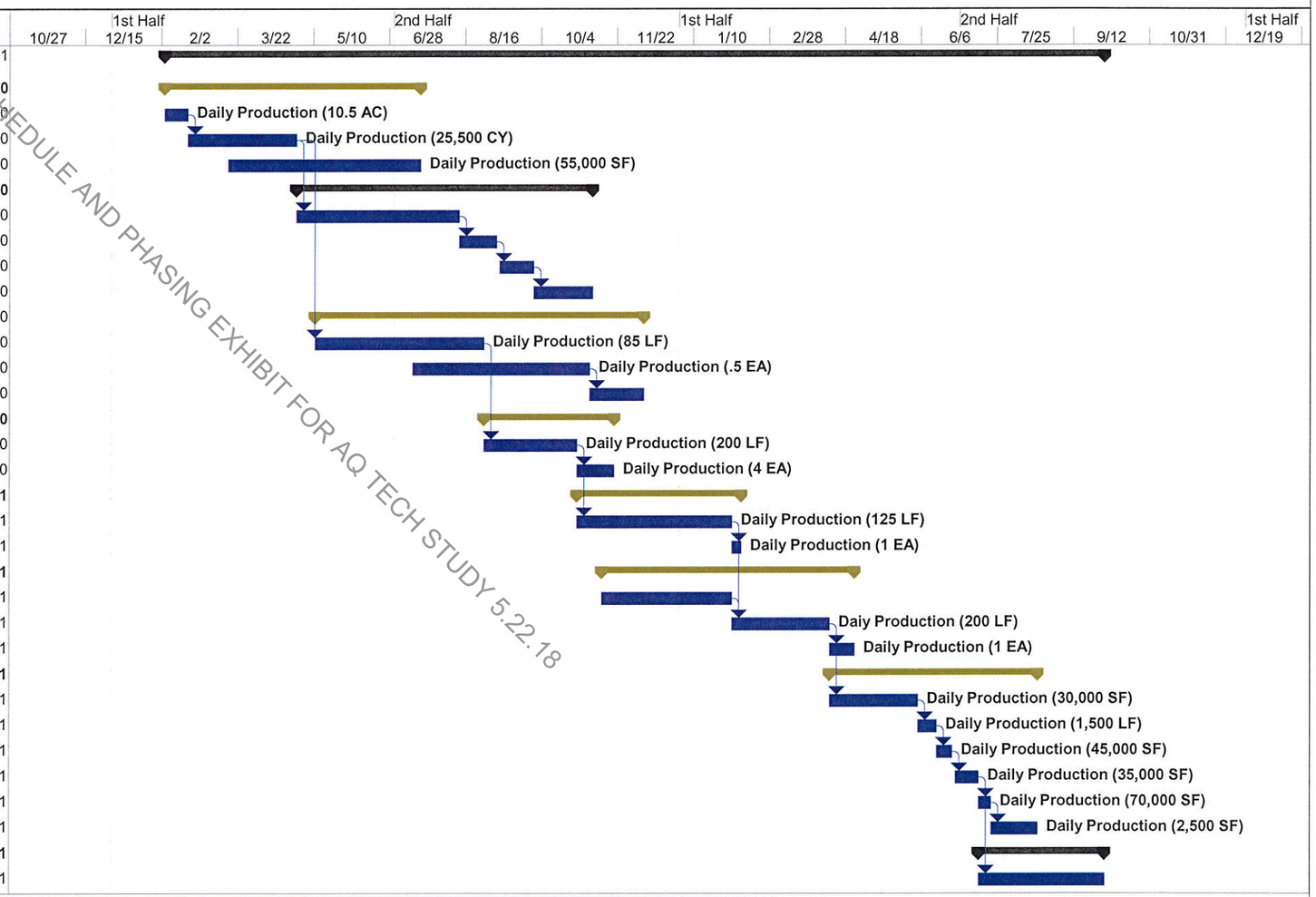
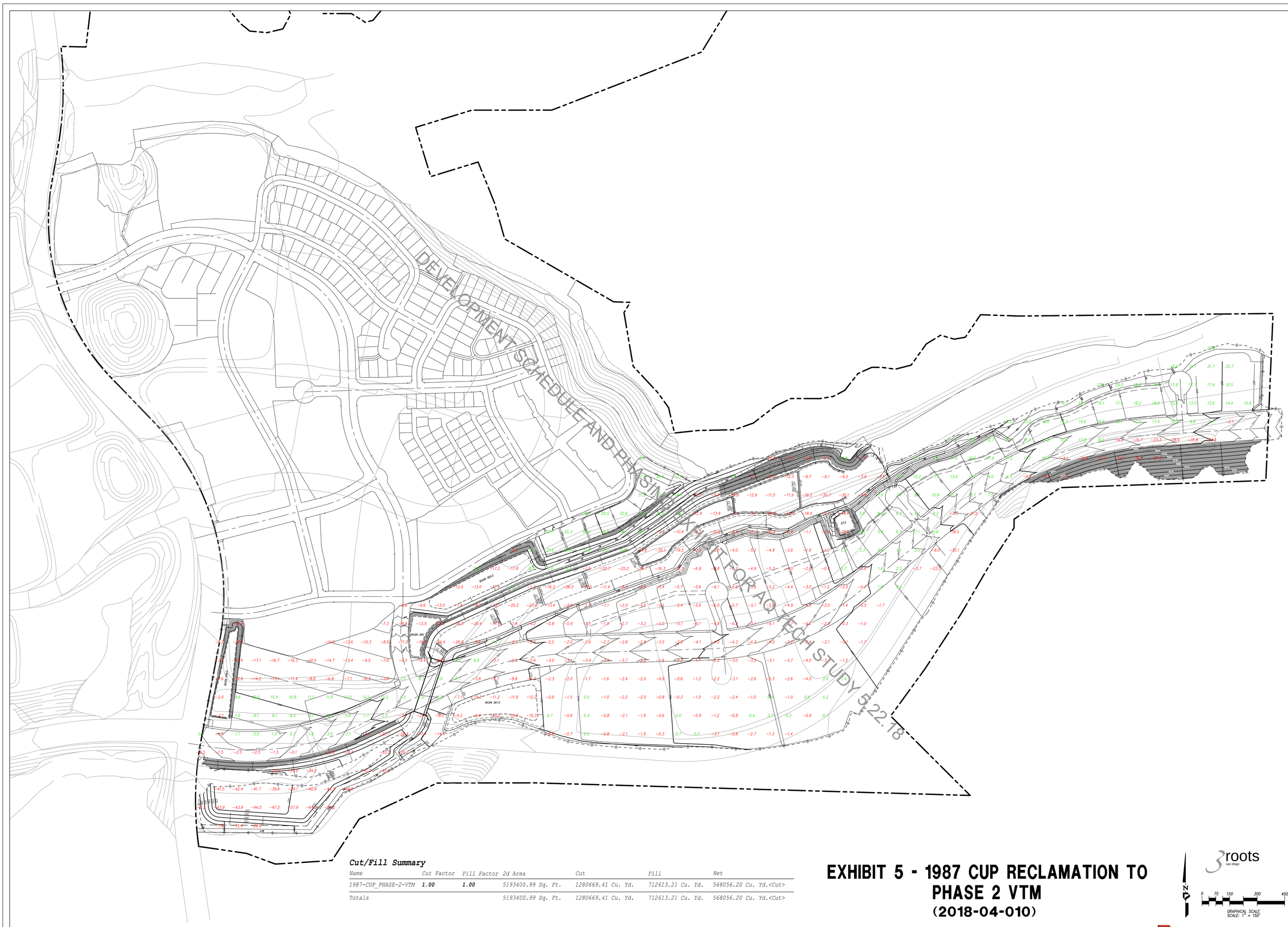
3 Roots
AQ / GHG
Site Development Schedule
Phase 2 / Schedule Based on 2 Crews

ID	Task Name	Duration	Start	Finish
1	**3 ROOTS / PH 2**	434 days	Tue 2/4/20	Fri 10/1/21
2	**Earthwork**	**119 days**	**Tue 2/4/20**	**Fri 7/17/20**
3	Clearing & Site Prep	11 days	Tue 2/4/20	Tue 2/18/20
4	Mass Excavation	50 days	Wed 2/19/20	Tue 4/28/20
5	Finish Grading	90 days	Mon 3/16/20	Fri 7/17/20
6	**Creek Improvements**	**137 days**	**Wed 4/29/20**	**Thu 11/5/20**
7	Arch Culvert Crossing (CCR)	75 days	Wed 4/29/20	Tue 8/11/20
8	Drop Structures	18 days	Wed 8/12/20	Fri 9/4/20
9	Install Casing for the 69 kv Underground / Pole Conversion	16 days	Mon 9/7/20	Mon 9/28/20
10	Pedestrian Bridge	28 days	Tue 9/29/20	Thu 11/5/20
11	**Storm Drain**	152 days	Mon 5/11/20	Tue 12/8/20
12	RCP	79 days	Mon 5/11/20	Thu 8/27/20
13	Structures	82 days	Mon 7/13/20	Tue 11/3/20
14	Bio-Retention Basin	25 days	Wed 11/4/20	Tue 12/8/20
15	**Sewer**	**60 days**	**Fri 8/28/20**	**Thu 11/19/20**
16	Sewer Main	42 days	Fri 8/28/20	Mon 10/26/20
17	Manholes & Connections	18 days	Tue 10/27/20	Thu 11/19/20
18	**Water**	**76 days**	**Tue 10/27/20**	**Tue 2/9/21**
19	Potable Water Main	72 days	Tue 10/27/20	Wed 2/3/21
20	Connections	4 days	Thu 2/4/21	Tue 2/9/21
21	**Joint Trench Conduit & Structures**	**117 days**	**Thu 11/12/20**	**Fri 4/23/21**
22	SDG&E Underground / Pole Conversion	60 days	Thu 11/12/20	Wed 2/3/21
23	Joint Trench & Concrete Products	45 days	Thu 2/4/21	Wed 4/7/21
24	Street Lights	12 days	Thu 4/8/21	Fri 4/23/21
25	**Surface Improvements**	**96 days**	**Thu 4/8/21**	**Thu 8/19/21**
26	Street Balancing, Clean Up Parkways & Grade Bench for Curb	41 days	Thu 4/8/21	Thu 6/3/21
27	String-line, Trim & Pour Curb (including Cure Time)	8 days	Fri 6/4/21	Tue 6/15/21
28	Finegrade Street / Backfill Curb	8 days	Wed 6/16/21	Fri 6/25/21
29	Place Class II Base	11 days	Mon 6/28/21	Mon 7/12/21
30	AC Paving	6 days	Tue 7/13/21	Tue 7/20/21
31	PCC Sidewalk	22 days	Wed 7/21/21	Thu 8/19/21
32	**Off Site Improvements**	**59 days**	**Tue 7/13/21**	**Fri 10/1/21**
33	Extention of Off-Site Carroll Canyon Road	59 days	Tue 7/13/21	Fri 10/1/21



J T Kruer & Company
(Start Date 2-4-2020)



Cut/Fill Summary

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EXHIBIT 5 - 1987 CUP RECLAMATION TO PHASE 2 VTM
(2018-04-010)

3roots san diego

N

0 75 150 300 450

GRAPHICAL SCALE
SCALE: 1" = 150'

PROJECT DESIGN CONSULTANTS
Planning | Landscape Architecture | Engineering | Survey
701 B Street, Suite 800 San Diego, CA 92101
619.235.6471 Tel 619.234.0349 Fax

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FIGURE 10-1 - WATER INFRASTRUCTURE

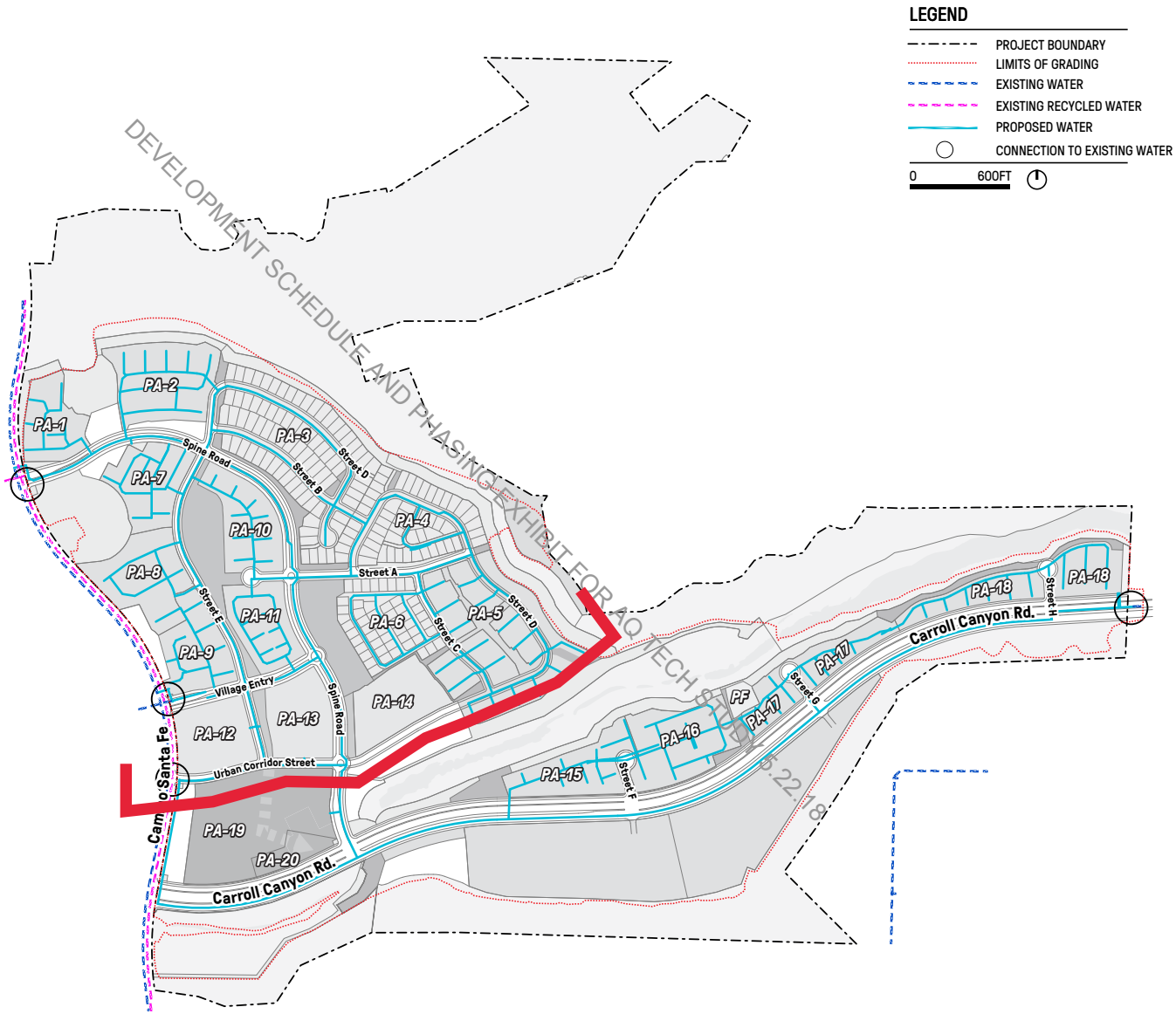


FIGURE 10-2 - SEWER INFRASTRUCTURE

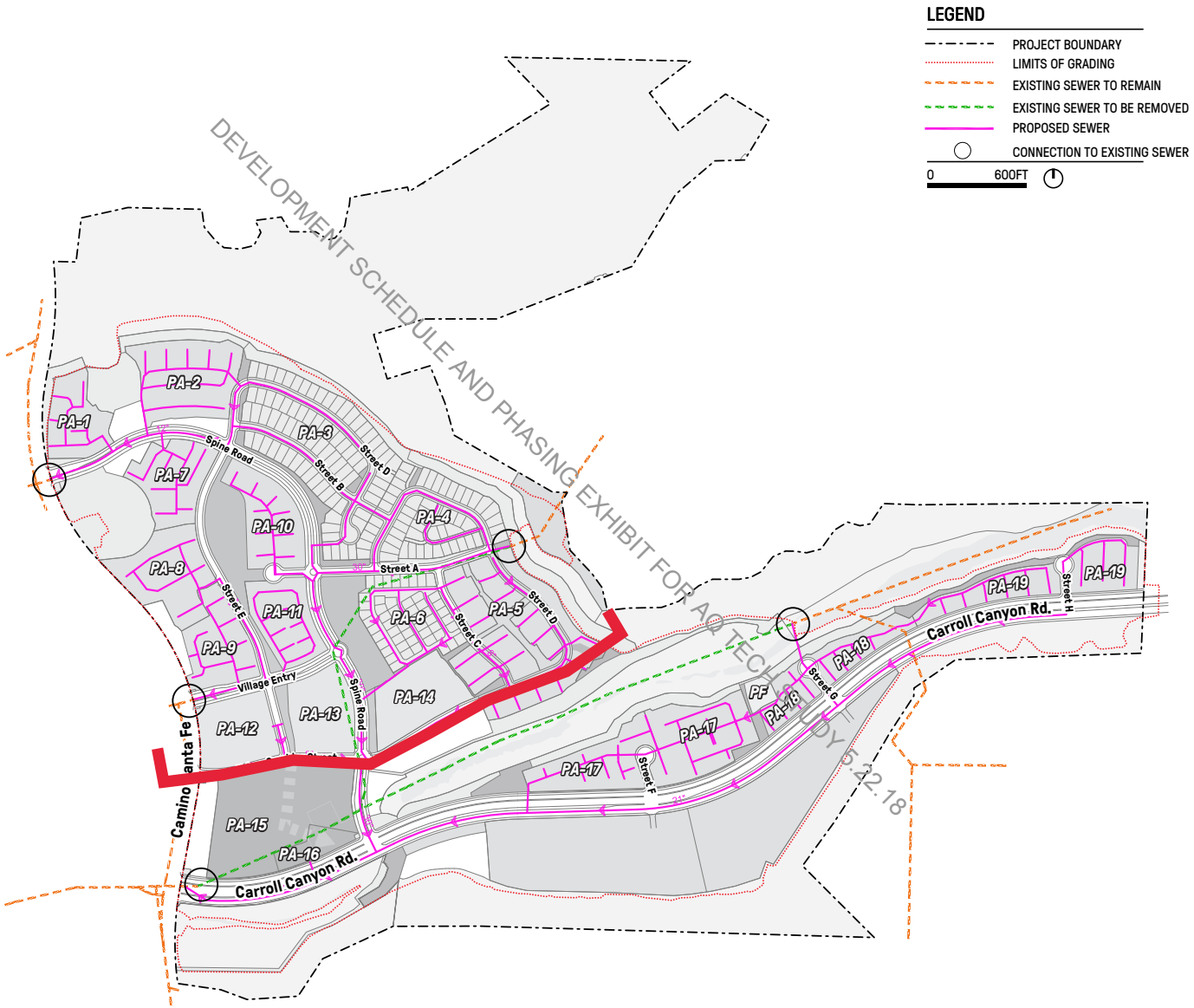


FIGURE 10-3 - STORMWATER INFRASTRUCTURE

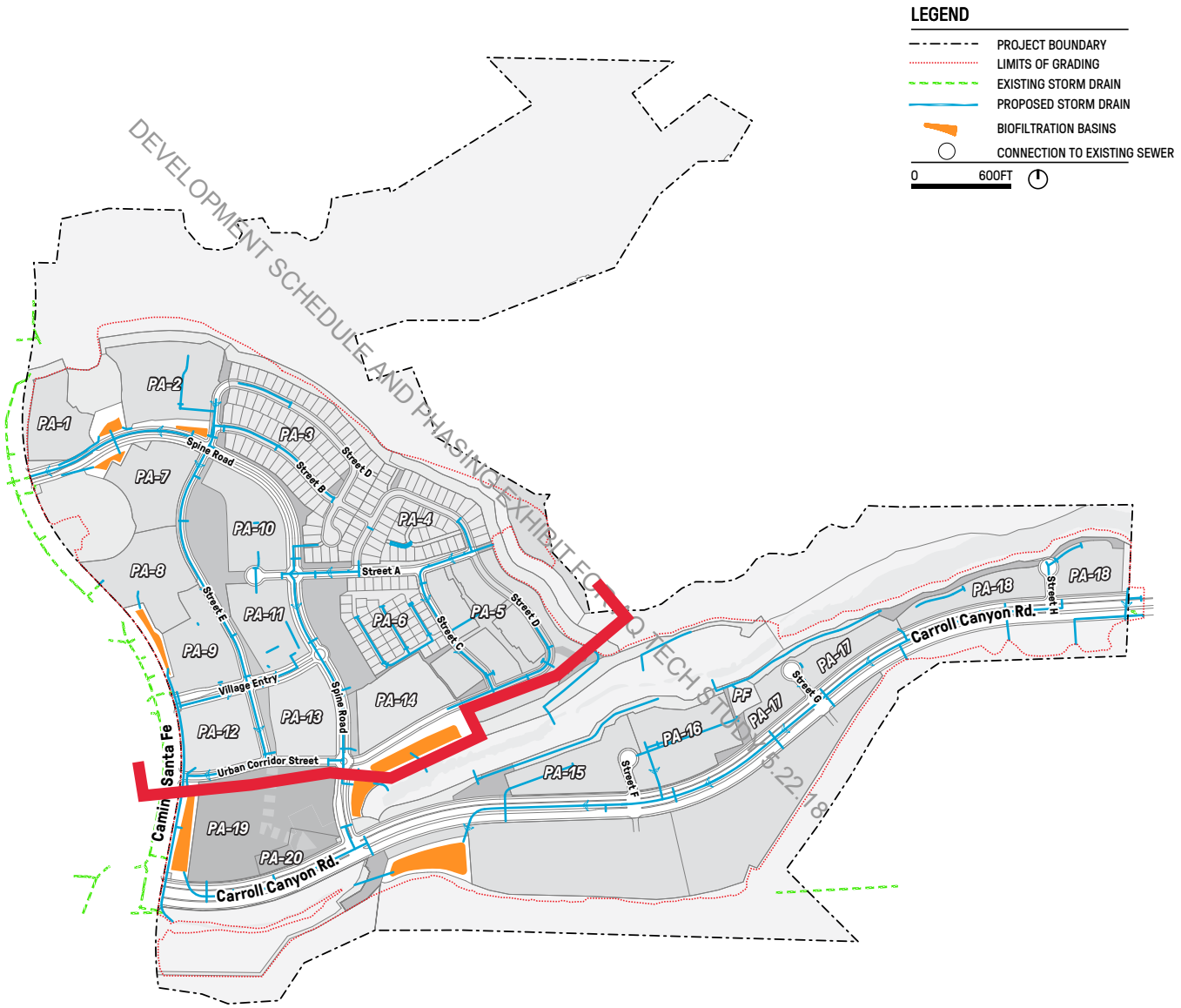
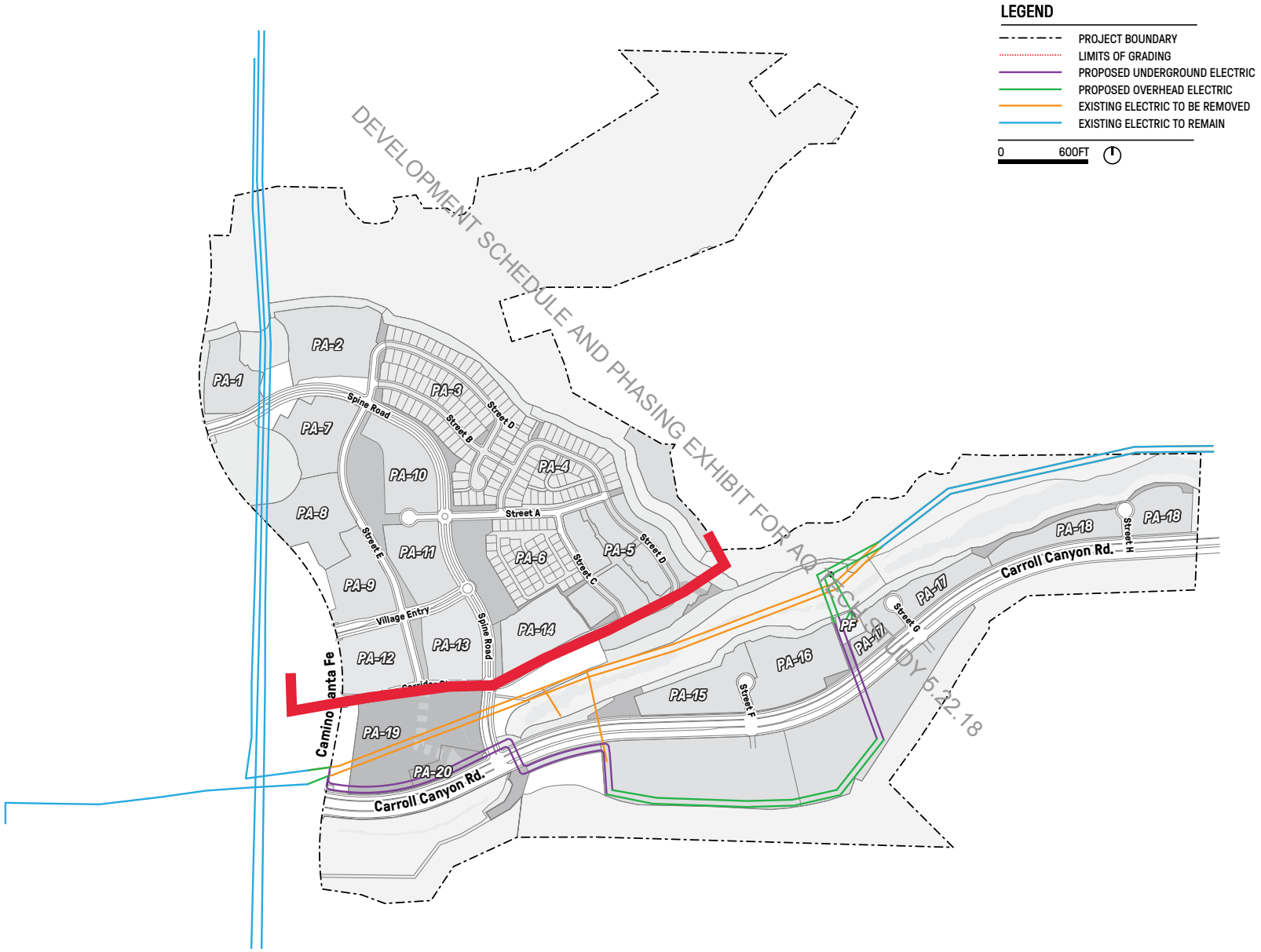


FIGURE 10-4 - DRY UTILITY INFRASTRUCTURE



3 Roots / City of San Diego, CA
Phase 1
Equipment / Labor Allocation Breakdown
Grading Operation
J.T. Kruer & Co.
5-20-18 / JTK

Start Date:	8/5/2019
Finish Date:	12/23/2019
Duration in Working Days:	101
Daily Hours of Operation:	8 Hrs / Day

Clear & Grub*	**Duration 13 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Cat D-8T Dozer	4
Cat 966M (Tier 3 / Stag IIIA) Loader	2
Ford F750 2000 Gallon Water Truck	1
Laborer	4
Foreman w/ Pick-up Truck	1
Total Pieces of Equipment:	7

Mass Excavation	**Duration 33 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Cat 657G Motor Scraper	8
Cat D-8T Dozer	3
Cat 834K Rubber Tire Dozer	2
Cat 12M3 Blade (Motor Grader)	1
Ford F750 2000 Gallon Water Truck	2
Foreman w/ Pick-up Truck	1
Grade Checker	2
Laborer	2
Total Pieces of Equipment:	17

Finish Grading	**Duration 55 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Cat D-8T Dozer	2
Cat 12M3 Blade (Motor Grader)	4
Ford F750 2000 Gallon Water Truck	1
Laborer	4
Total Pieces of Equipment:	7

*Note: One Operator should be counted for each piece of equipment listed. Laborers, Grade Checkers and Foremen are listed separately with each spread.

3 Roots / City of San Diego, CA
Phase 1 / 2 Crews
Equipment / Labor Allocation Breakdown
Wet Utility Installation
(Storm Drain, Water & Sewer)

J.T. Kruer & Co.

5-20-18 / JTK

Start Date:	10/8/2019
Finish Date:	12/22/2020
Duration in Working Days:	396
Daily Hours of Operation:	8 Hrs / Day

Wet Utilities - Pipe Installation & Structures*	**Duration 396 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Cat 330F Excavator	4
Cat 930M Loader	4
Cat 414E Skip Loader	4
Ford F750 2000 Gallon Water Truck	4
Foreman w/ Ford F150 Pick-up Truck	2
Pipe Layers & Laborers	20
Ford F350 Crew Truck	4
Carpenters	10
Laborer	6
Total Pieces of Equipment:	22

*Notes: Pipe, Manholes and Material Deliveries take place throughout the operation. One Operator should be counted for each piece of equipment listed. Laborers, Grade Checkers and Foremen are listed separately in each spread.

3 Roots / City of San Diego, CA
Phase 1 / 2 Crews
Equipment / Labor Allocation Breakdown
Dry Utility Installation
J.T. Kruer & Co.
5-20-18 / JTK

Start Date:	12/11/2020
Finish Date:	5/17/2021
Duration in Working Days:	112 Days
Daily Hours of Operation:	8 Hrs / Day

Dry Utilities - Joint Trech / Installation*	**Duration 112 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Cat 430 F2 Backhoe	4
Cat 930M Loader	4
Ford F750 2000 Gallon Water Truck	2
Ford F350 Crew Truck	2
Foreman w/ Ford F150 Pick-up Truck	1
Laborer	16
Total Pieces of Equipment:	13

*Notes: Conduit, Vaults and Material Deliveries throughout the operation. One Operator should be counted for each piece of equipment listed. Laborers, Grade Checkers and Foremen are listed separately in each spread.

3 Roots / City of San Diego, CA
Phase 1 / 2 Crews
Equipment / Labor Allocation Breakdown
Surface Improvements

J.T. Kruer & Co.

5-20-18 / JTK

Start Date:	4/14/2021
Finish Date:	8/20/2021
Duration in Working Days:	93 Days
Daily Hours of Operation:	8 Hrs / Day

Street Improvements - Balancing & Subgrade Prep		**Duration 26 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**	
Cat 12M3 Blade (Motor Grader)	4	
Cat 623K Scraper	4	
Cat 414E Skip Loader	2	
Cat CB7 Solid Drum Vibratory Roller	4	
Ford F750 2000 Gallon Water Truck	2	
Foreman w/ F150 Pick-up Truck	1	
Laborer	4	
Total Pieces of Equipment:	17	

Street Improvements - Curb & Gutter*		**Duration 24 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**	
Gomaco 3300 Curb Machine	2	
Foreman w/ Pick-up Truck	1	
Finishers	12	
Laborer	4	
Total Pieces of Equipment:	3	

Street Improvements - Base & Pave *		**Duration 13 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**	
Cat 12M3 Blade (Motor Grader)	4	
Cat AP655F Paving Machine	2	
Cat CB7 Solid Drum Vibratory Roller	4	
Foreman w/ Ford F150 Pick-up Truck	1	
Laborer	8	
Total Pieces of Equipment:	11	

Street Improvements - Concrete Flatwork*		**Duration 30 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**	
Cat 414E Skip Loader	4	
Foreman w/ Ford F150 Pick-up Truck	1	
Finishers	12	
Laborer	4	
Total Pieces of Equipment:	5	

*Notes: Material Deliveries of Aggregate Base and Asphalt will typically involve 15-20 trucks per day averaging 6 loads per day per truck. Concrete Deliveries will generally average 25 per day. One Operator should be counted for each piece of equipment listed. Laborers, Grade Checkers and Foremen are listed separately in each spread.

3 Roots / City of San Diego, CA
Phase 1 / 1 Crew
Equipment / Labor Allocation Breakdown
Frontage & Intersections

J.T. Kruer & Co.
5-20-18 / JTK

Start Date:	8/26/2020
Finish Date:	2/9/2021
Duration in Working Days:	120 Days
Daily Hours of Operation:	8 Hrs / Day

Camino Santa Fe Frontage Improvements		**Duration 70 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**	
Cat 12M3 Blade (Motor Grader)	2	
Cat 623K Scraper	2	
Cat 414E Skip Loader	1	
Cat CB7 Solid Drum Vibratory Roller	1	
Ford F750 2000 Gallon Water Truck	1	
Cat AP655F Paving Machine	1	
Gomaco 3300 Curb Machine	1	
Foreman w/ F150 Pick-up Truck	1	
Finishers	6	
Laborer	3	
Total Pieces of Equipment:	10	

Intersection Camino Santa Fe & Summers Ridge Road		**Duration 25 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**	
Cat 12M3 Blade (Motor Grader)	1	
Kenworth W900 Day Cab Truck / High-Side End Dump Trailer	2	
Cat 414E Skip Loader	1	
Cat CB7 Solid Drum Vibratory Roller	1	
Ford F750 2000 Gallon Water Truck	1	
Cat AP655F Paving Machine	1	
Gomaco 3300 Curb Machine	1	
Foreman w/ F150 Pick-up Truck	1	
Finishers	4	
Laborer	2	
Total Pieces of Equipment:	9	

Intersection Camino Santa Fe & Mira Tech Drive		**Duration 25 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**	
Cat 12M3 Blade (Motor Grader)	1	
Kenworth W900 Day Cab Truck / High-Side End Dump Trailer	2	
Cat 414E Skip Loader	1	
Cat CB7 Solid Drum Vibratory Roller	1	
Ford F750 2000 Gallon Water Truck	1	
Cat AP655F Paving Machine	1	
Gomaco 3300 Curb Machine	1	
Foreman w/ F150 Pick-up Truck	1	
Finishers	4	
Laborer	2	
Total Pieces of Equipment:	9	

*Notes: Material Deliveries of Aggregate Base and Asphalt will typically involve 10-15 trucks per day averaging 6 loads per day per truck. Concrete Deliveries will generally average 25 per day. One Operator should be counted for each piece of equipment listed. Laborers, Grade Checkers and Foremen are listed separately in each spread.

3 Roots / City of San Diego, CA
Phase 2 / 2 Crews
Equipment / Labor Allocation Breakdown
Grading Operation
J.T. Kruer & Co.
5-20-18 / JTK

Start Date:	2/4/2020
Finish Date:	7/17/2020
Duration in Working Days Grading:	119
Daily Hours of Operation:	8 Hrs / Day

Clear & Grub*	**Duration 11 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Cat D-8T Dozer	4
Cat 966M (Tier 3 / Stag IIIA) Loader	2
Ford F750 2000 Gallon Water Truck	1
Laborer	4
Foreman w/ Pick-up Truck	1
Total Pieces of Equipment:	7

Mass Excavation	**Duration 50 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Cat 657G Motor Scraper	8
Cat 773G (Tier 4) Rock Truck	3
Cat 834K Rubber Tire Dozer	2
Cat 12M3 Blade (Motor Grader)	1
Ford F750 2000 Gallon Water Truck	2
Foreman w/ Pick-up Truck	1
Grade Checker	2
Laborer	2
Total Pieces of Equipment:	17

Finish Grading	**Duration 90 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Cat D-8T Dozer	2
Cat 12M3 Blade (Motor Grader)	4
Ford F750 2000 Gallon Water Truck	1
Laborer	2
Total Pieces of Equipment:	7

*Note: One Operator should be counted for each piece of equipment listed. Laborers, Grade Checkers and Foremen are listed separately with each spread.

3 Roots / City of San Diego, CA
Phase 2
Equipment / Labor Allocation Breakdown
Creek Improvements

J.T. Kruer & Co.

5-20-18 / JTK

Start Date:	4/29/2020
Finish Date:	11/5/2020
Duration in Working Days:	137
Daily Hours of Operation:	8 Hrs / Day

Arch Culvert Crossing (Multi-Plate)	**Duration 75 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Cat 390F Excavator	2
Cat 986K Loader	1
Cat D8T Dozer	1
Ford F750 2000 Gallon Water Truck	1
Foreman w/ Ford F150 Pick-up Truck	1
Cat 745 Articulated Dump Truck	3
Ford F350 Crew Truck	1
Carpenters	4
Laborer	6
Total Pieces of Equipment:	10

Drop Structures	**Duration 18 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Cat 374L Excavator w/Grapple Claw	1
Cat 982M Loader	1
Ford F750 2000 Gallon Water Truck	1
Foreman w/ Ford F150 Pick-up Truck	1
Laborer	4
Total Pieces of Equipment:	4

Casing for 69 kv Pole Undergrounding	**Duration 16 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Cat 349L Excavator	1
Cat 930M Loader	2
Ford F750 2000 Gallon Water Truck	1
Foreman w/ Ford F150 Pick-up Truck	1
Pipe Layers & Laborers	4
Ford F350 Crew Truck	1
Carpenters	2
Total Pieces of Equipment:	6

Pedestrian Bridge	**Duration 28 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Grove RT 600E Rough Terrain Hydraulic Crane	**1**
Cat 330F Excavator	1
Cat 930M Loader	1
Ford F750 2000 Gallon Water Truck	1
Foreman w/ Ford F150 Pick-up Truck	1
Ford F350 Crew Truck	2
Carpenters	8
Laborer	2
Total Pieces of Equipment:	7

*Notes: Pipe, Manholes and Material Deliveries take place throughout the operation. One Operator should be counted for each piece of equipment listed. Laborers, Grade Checkers and Foremen are listed separately in each spread.

3 Roots / City of San Diego, CA
Phase 2 / 2 Crews
Equipment / Labor Allocation Breakdown
Wet Utility Installation
(Storm Drain, Warer & Sewer)

J.T. Kruer & Co.

5-20-18 / JTK

Start Date:	5/11/2020
Finish Date:	2/9/2021
Duration in Working Days:	288
Daily Hours of Operation:	8 Hrs / Day

Wet Utilities - Pipe Installation & Structures*	**Duration 288 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Cat 330F Excavator	4
Cat 930M Loader	4
Cat 414E Skip Loader	4
Ford F750 2000 Gallon Water Truck	4
Foreman w/ Ford F150 Pick-up Truck	2
Pipe Layers & Laborers	20
Ford F350 Crew Truck	4
Carpenters	10
Laborer	6
Total Pieces of Equipment:	22

*Notes: Pipe, Manholes and Material Deliveries take place throughout the operation. One Operator should be counted for each piece of equipment listed. Laborers, Grade Checkers and Foremen are listed separately in each spread.

3 Roots / City of San Diego, CA
Phase 2 / 2 Crews
Equipment / Labor Allocation Breakdown
Dry Utility Installation
J.T. Kruer & Co.
5-20-18 / JTK

Start Date:	11/12/2020
Finish Date:	4/23/2021
Duration in Working Days:	117
Daily Hours of Operation:	8 Hrs / Day

Dry Utilities - Joint Trech / Installation*	**Duration 117 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**
Cat 430 F2 Backhoe	4
Cat 930M Loader	4
Ford F750 2000 Gallon Water Truck	2
Ford F350 Crew Truck	2
Foreman w/ Ford F150 Pick-up Truck	1
Laborer	16
Total Pieces of Equipment:	13

*Notes: Conduit, Vaults and Material Deliveries throughout the operation. One Operator should be counted for each piece of equipment listed. Laborers, Grade Checkers and Foremen are listed separately in each spread.

3 Roots / City of San Diego, CA
Phase 2 / 2 Crews
Equipment / Labor Allocation Breakdown
Surface Improvements
J.T. Kruer & Co.
5-20-18 / JTK

Start Date:	4/8/2021
Finish Date:	8/19/2021
Duration in Working Days:	96 Days
Daily Hours of Operation:	8 Hrs / Day

Street Improvements - Balancing & Subgrade Prep		**Duration 49 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**	
Cat 12M3 Blade (Motor Grader)	2	
Cat 623K Scraper	2	
Cat 414E Skip Loader	1	
Cat CB7 Solid Drum Vibratory Roller	1	
Ford F750 2000 Gallon Water Truck	1	
Foreman w/ F150 Pick-up Truck	1	
Laborer	2	
Total Pieces of Equipment:	8	

Street Improvements - Curb & Gutter*		**Duration 8 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**	
Gomaco 3300 Curb Machine	1	
Foreman w/ Pick-up Truck	1	
Finishers	6	
Laborer	2	
Total Pieces of Equipment:	2	

Street Improvements - Base & Pave *		**Duration 17 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**	
Cat 12M3 Blade (Motor Grader)	2	
Cat AP655F Paving Machine	1	
Cat CB7 Solid Drum Vibratory Roller	1	
Foreman w/ Ford F150 Pick-up Truck	1	
Laborer	4	
Total Pieces of Equipment:	5	

Street Improvements - Concrete Flatwork*		**Duration 22 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**	
Cat 414E Skip Loader	2	
Foreman w/ Ford F150 Pick-up Truck	1	
Finishers	6	
Laborer	2	
Total Pieces of Equipment:	3	

*Notes: Material Deliveries of Aggregate Base and Asphalt will typically involve 15-20 trucks per day averaging 6 loads per day per truck. Concrete Deliveries will generally average 25 per day. One Operator should be counted for each piece of equipment listed. Laborers, Grade Checkers and Foremen are listed separately in each spread.

3 Roots / City of San Diego, CA
Phase 2 / 1 Crew
Equipment / Labor Allocation Breakdown
Carroll Canyon Road Extention
J.T. Kruer & Co.
5-20-18 / JTK

Start Date:	7/13/2021
Finish Date:	10/1/2021
Duration in Working Days:	59
Daily Hours of Operation:	8 Hrs / Day

Off-Site Carroll Canyon Road		**Duration 52 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**	
Cat 12M3 Blade (Motor Grader)	2	
Cat 623K Scraper	2	
Cat 414E Skip Loader	1	
Cat CB7 Solid Drum Vibratory Roller	1	
Ford F750 2000 Gallon Water Truck	1	
Cat AP655F Paving Machine	1	
Gomaco 3300 Curb Machine	1	
Foreman w/ F150 Pick-up Truck	1	
Finishers	6	
Laborer	3	
Total Pieces of Equipment:	10	

Import Excavation - OTR Trucks* (2,000 CY / Day)		**Duration 7 Days**
Caterpillar Equipment Model / Labor Type	**Quantity**	
Kenworth W900 Day Cab Truck / End Dump Trailer @ 14 CY EA / Total Approximately 13,426 Cy	12	
Cat 966G Loader	1	
Cat 834B Rubber Tire Dozer	1	
Cat 14G Blade (Motor Grader)	1	
Ford F750 2000 Gallon Water Truck	1	
Foreman w/ Pick-up Truck	1	
Laborer	1	
Total Pieces of Equipment:	18	
Total Trips:	929	

*Notes: Material Deliveries of Aggregate Base and Asphalt will typically involve 10-15 trucks per day averaging 6 loads per day per truck. Concrete Deliveries will generally average 25 per day. One Operator should be counted for each piece of equipment listed. Laborers, Grade Checkers and Foremen are listed separately in each spread.

Appendix C

Condenser Manufacturer's Specifications

ELECTRICAL DATA

38HDR UNIT SIZE	V–PH–Hz	VOLTAGE RANGE*		COMPRESSOR		OUTDOOR FAN MOTOR			MIN CKT AMPS	FUSE/ HACR BKR AMPS
		Min	Max	RLA	LRA	FLA	NEC Hp	kW Out		
018	208/230–1–60	187	253	9.0	48.0	0.80	0.125	0.09	12.1	20
024	208/230–1–60	187	253	12.8	58.3	0.80	0.125	0.09	16.8	25
030	208/230–1–60	187	253	14.1	73.0	1.45	0.25	0.19	19.1	30
036	208/230–1–60	187	253	14.1	77.0	1.45	0.25	0.19	19.1	30
	208/230–3–60	187	253	9.0	71.0	1.45	0.25	0.19	12.7	20
	460–3–60	414	506	5.6	38.0	0.80	0.25	0.19	7.8	15
048	208/230–1–60	187	253	21.8	117.0	1.45	0.25	0.19	28.7	50
	208/230–3–60	187	253	13.7	83.1	1.45	0.25	0.19	18.6	30
	460–3–60	414	506	6.2	41.0	0.80	0.25	0.19	8.6	15
060	208/230–1–60	187	253	26.4	134.0	1.45	0.25	0.19	34.5	60
	208/230–3–60	187	253	16.0	110.0	1.45	0.25	0.19	21.5	35
	460–3–60	414	506	7.8	52.0	0.80	0.25	0.19	10.6	15

* Permissible limits of the voltage range at which the unit will operate satisfactorily

FLA – Full Load Amps

HACR – Heating, Air Conditininng, Refrigeration

LRA – Locked Rotor Amps

NEC – National Electrical Code

RLA – Rated Load Amps (compressor)

NOTE: Control circuit is 24–V on all units and requires external power source. Copper wire must be used from service disconnect to unit. All motors/compressors contain internal overload protection.

SOUND LEVEL

Unit Size	Standard Rating (dB)	Typical Octave Band Spectrum (dBA) (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
018	68	52.0	57.5	60.5	63.5	60.5	57.5	46.5
024	69	57.5	61.5	63.0	61.0	60.0	56.0	45.0
030	72	56.5	63.0	65.0	66.0	64.0	62.5	57.0
036	72	65.0	61.5	63.5	65.0	64.5	61.0	54.5
048	72	58.5	61.0	64.0	67.5	66.0	64.0	57.0
060	72	63.0	61.5	64.0	66.5	66.0	64.5	55.5

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

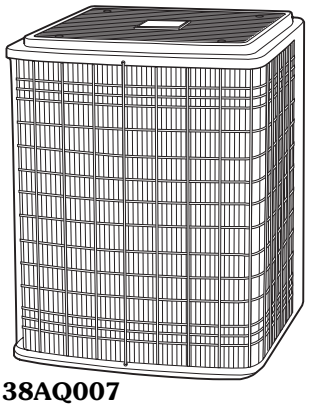
UNIT SIZE–VOLTAGE, SERIES	REQUIRED SUBCOOLING °F (°C)
018	12 (6.7)
024	12 (6.7)
030	12 (6.7)
036	12 (6.7)
048	12 (6.7)
060	12 (6.7)

Product Data

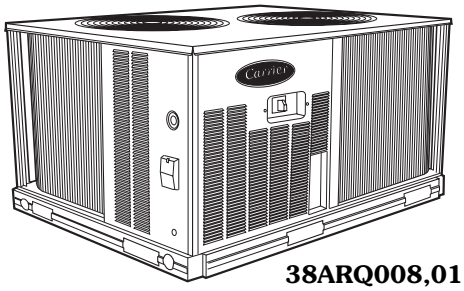
GEMINI™
38AQ007
38ARQ008,012
38AQS016
with 40RMQ008-028
Heat Pump Systems

6 to 25 Nominal Tons

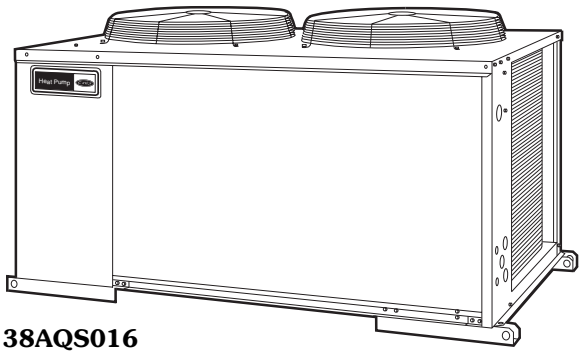
Carrier GEMINI SPLIT SYSTEMS



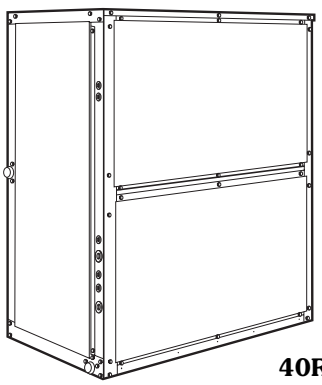
38AQ007



38ARQ008,012



38AQS016



40RMQ

ASHRAE 90.1 COMPLIANT

Gemini heat pump systems save energy and provide outstanding heating and cooling all year with:

- All-season comfort in any climate
- High energy savings capability
- Suitability for new construction or replacement

Features/Benefits

System indoor and outdoor sections offer outstanding performance in either the cooling or heating mode

Heat pump system energy savings opportunity

Electrical energy consumption is always a prime concern when selecting an air-conditioning system for a commercial application. An easy, effective way to save energy is to install a heat pump. When building plans call for a heat pump, consider a matched Carrier 38AQ,ARQ,AQS/40RMQ heat pump system. These systems not only offer highly efficient cooling, they also provide a clean, safe, efficient source of heat. In fact, they are capable of delivering more than 3 units of heat energy for each unit of electrical power consumed.

ARI* capacity ratings

OUTDOOR UNIT	INDOOR UNIT	COOLING			HEATING			
					Hi-Temp		Low-Temp	
		Net Capacity (Btuh)	EER	IPLV	Net Capacity (Btuh)	COP	Net Capacity (Btuh)	COP
38AQ007†	40RMQ008	75,000	10.3	N/A	71,000	3.2	39,500	2.0
38ARQ008†	40RMQ008	88,000	10.4	N/A	93,000	3.2	57,000	2.2
38ARQ012†	40RMQ012	105,000	10.1	N/A	100,000	3.2	67,000	2.2
38AQS016**	40RMQ016	174,000	9.0	11.3	172,000	3.1	100,000	2.1
38ARQ012 x2	40RMQ024	208,000	9.3	10.5	200,000	3.1	122.000	2.2
38AQS016 & 38ARQ012	40RMQ028	272,000	9.3	9.5	270,000	3.1	158,000	2.1

LEGEND

COP — Coefficient of performance = $\frac{\text{Btuh output}}{\text{Btuh input}}$ or

$\frac{\text{Btuh output}}{\text{Unit Power Input x 3.413}}$ (Based on ARI conditions)

EER — Energy Efficiency Ratio = $\frac{\text{Btuh}}{\text{Unit Power Input}}$ (Based on ARI conditions)

IPLV — Integrated Part-Load Value

*Air Conditioning & Refrigeration Institute.
†Energy Star compliant.
**Does not comply with ASHRAE 90.1 minimum efficiency requirement.

NOTES:
1. Standard ratings are net values, reflecting the effects of circulating fan heat. Supplementary electric heat is not included. Ratings are based on:

   Cooling Standard: 80 F db, 67 F wb (wet bulb) indoor entering-air temperature and 95 F db entering-air outdoor unit.

   Hi-Temp Heating Standard: 70 F db (dry bulb) indoor entering-air temperature and 47 F db/43 F wb entering-air outdoor unit.

   Lo-Temp Heating Standard: 70 F db indoor entering-air temperature and 17 F wb/15 F db entering-air outdoor unit.

   Unit combinations are rated in accordance with ARI standard 340-2000 as appropriate.
2. 38ARQ012 and 38AQS016 are connected to 40RMQ024,028 in duplex configurations.

SOUND POWER LEVELS (dB), 60 Hz

UNIT	OCTAVE BAND								
	63	125	250	500	1000	2000	4000	8000	dBA
38ARQ008	83.1	82.3	82.6	80.9	81.2	78.1	72.8	67.3	85.0
38ARQ012	88.7	82.3	82.6	81.2	81.2	79.2	73.8	67.8	86.0
38AQS016	N/A	93.0	86.0	83.0	80.0	78.0	73.0	71.0	86.0
40RMQ008	95.3	91.3	87.3	86.3	82.3	80.3	76.7	N/A	88.3
40RMQ012	99.0	95.0	91.0	90.0	86.0	84.0	80.0	N/A	92.0
40RMQ016	99.2	95.2	91.2	92.2	86.2	84.2	80.2	N/A	92.9
40RMQ024	102.6	98.6	94.6	95.6	89.6	87.6	83.6	N/A	96.4
40RMQ028	102.5	98.5	94.5	95.5	89.5	87.5	83.5	N/A	96.2

NOTES:
1. Estimated sound power levels, dB re 1 Picowatt.
2. 38ARQ and 38AQS data is based upon a limited amount of actual testing with the estimated sound power data being generated from this data in accordance with ARI standard 370 for large outdoor refrigerating and air-conditioning equipment.
3. 40RMQ data is based on the ASHRAE calculation approach from the ASHRAE handbook 1987 HVAC Systems & Applications, Chapter 52.
4. Since this data is estimated, the sound power levels should not be guaranteed or certified as being the actual sound power levels.
5. The acoustic center of the unit is located at the geometric center of the unit.

Appendix D

Construction Noise Model Outputs

Base

Equipment	dBA L_{MAX}	Percentage	Use Per Day	Ordinance Hour Day	L_{EQ} dBA (Daily)		Distance (ft)	L_{EQ} dBA (Daily)		Distance To (ft):	Distance
Noise Sum	83.6	N/A	N/A	N/A	81.5	#	150.0	71.9	#	75	105.4
Bulldozer	81.7	40%	8	12	76.0	#	150.0	66.4	#	75	55.8
Scraper	83.6	40%	8	12	77.9	#	150.0	68.3	#	75	69.5
Water Truck	80.0	20%	8	12	71.2	#	150.0	61.7	#	75	32.5
Grader	80.0	40%	8	12	74.3	#	150.0	64.7	#	75	45.9

Appendix E

Off-site Traffic Noise Levels

Appendix E
OFF-SITE TRAFFIC NOISE LEVELS

Table E-1
OFF-SITE TRAFFIC NOISE LEVELS

Roadway/Segment	Distance to Nearest NSLU	NSLU Type	Existing				Existing + Project				Buildout Year 2025				Buildout Year 2025 + Project				Horizon Year 2050				Horizon Year 2050 + Project			
			CNEL @ Nearest NSLU (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ Nearest NSLU (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ 100 ft. (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ Nearest NSLU (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ Nearest NSLU (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)	CNEL @ Nearest NSLU (dBA)	70 CNEL (ft.)	65 CNEL (ft.)	60 CNEL (ft.)
Mira Mesa Boulevard																										
Camino Santa Fe to Parkdale Avenue	75	SF/MF	72.1	112	270	570	72.4	117	280	585	72.5	120	287	600	72.3	115	275	580	72.4	117	280	590	72.4	118	285	590
Parkdale Avenue to Reagan Road	50	SF	73.7	101	245	525	74.0	106	260	550	74.1	108	263	555	73.8	101	250	530	74.0	105	258	540	74.0	106	257	545
Miramar Road																										
Camino Ruiz to Mitscher Way	100	SF	70.8	115	275	580	70.9	120	285	590	71.2	125	295	610	71.3	127	305	625	71.0	120	285	595	71.1	123	295	610
Mitscher Way to Black Mountain Road	100	SF	70.6	112	270	565	70.8	115	275	580	71	120	285	595	71.1	122	295	610	70.9	118	285	590	71.1	123	295	610
Camino Santa Fe																										
Mira Mesa Boulevard to Flanders Drive	100	MF	68.0	70	172	385	69.4	90	218	465	68.9	82	200	435	68.7	79	192	420	68.6	78	190	420	69.1	85	208	445
Camino Ruiz																										
Reagan Road to Flanders Drive	50	SF/MF	71.5	65	165	370	71.6	67	170	380	71.7	69	170	385	72.6	82	200	440	72.4	79	195	430	72.5	80	198	435
Flanders Drive to Gold Coast Drive	50	MF	70.0	50	127	305	70.2	52	132	310	70.2	52	135	315	71.1	62	155	360	70.9	58	150	350	71.0	60	155	355
Gold Coast Drive to Jade Coast Drive	50	MF	69.8	47	125	295	69.9	48	125	295	70.1	51	130	305	70.8	59	150	345	70.7	57	145	340	70.9	58	147	345

NSLU = Noise Sensitive Land Use; CNEL = Community Noise Equivalent Level; dBA = A-weighted decibels; SF = Single-family Residential; MF = Multi-family Residential

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