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Biological Technical Report for the Sun Ridge Vista RV/Mini Storage Project, San Diego, California

(PTS#534380**)**

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List of Abbreviations

BCME	Biological Construction Mitigation/Monitoring Exhibit
CDFW	California Department of Fish and Wildlife
City	City of San Diego
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
I-15	Interstate 15
MMC	Mitigation Monitoring Coordination
MSCP	Multiple Species Conservation Program
RV	recreational vehicle
RWQCB	Regional Water Quality Control Board
SR-56	State Route 56
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Society

1.0 Summary

The proposed Sun Ridge Vista RV/Mini Storage Project (project) would impact one sensitive vegetation community (non-native grassland) and impact a non-wetland/streambed channel. Mitigation for impacts to sensitive vegetation and non-wetland/streambed would compensate for the loss of these biological resources to a level below significance.

2.0 Introduction

This report describes the results of the biological resource survey conducted within the 10.02-acre project site. The project site is located in the northern part of the city of San Diego to the west of Interstate 15 (I-15) and south of State Route 56 (SR-56) (Figure 1). It occurs on the U.S. Geological Survey (USGS) Poway 7.5-minute quadrangle within Township 14S and Range 2W in an unsectioned portion of the Grant Boundary (Figure 2). Currently, the property is undeveloped with adjacent land uses being comprised of residential development to the west, SR-56 to the north, and I-15 to the south, and east (Figure 3).

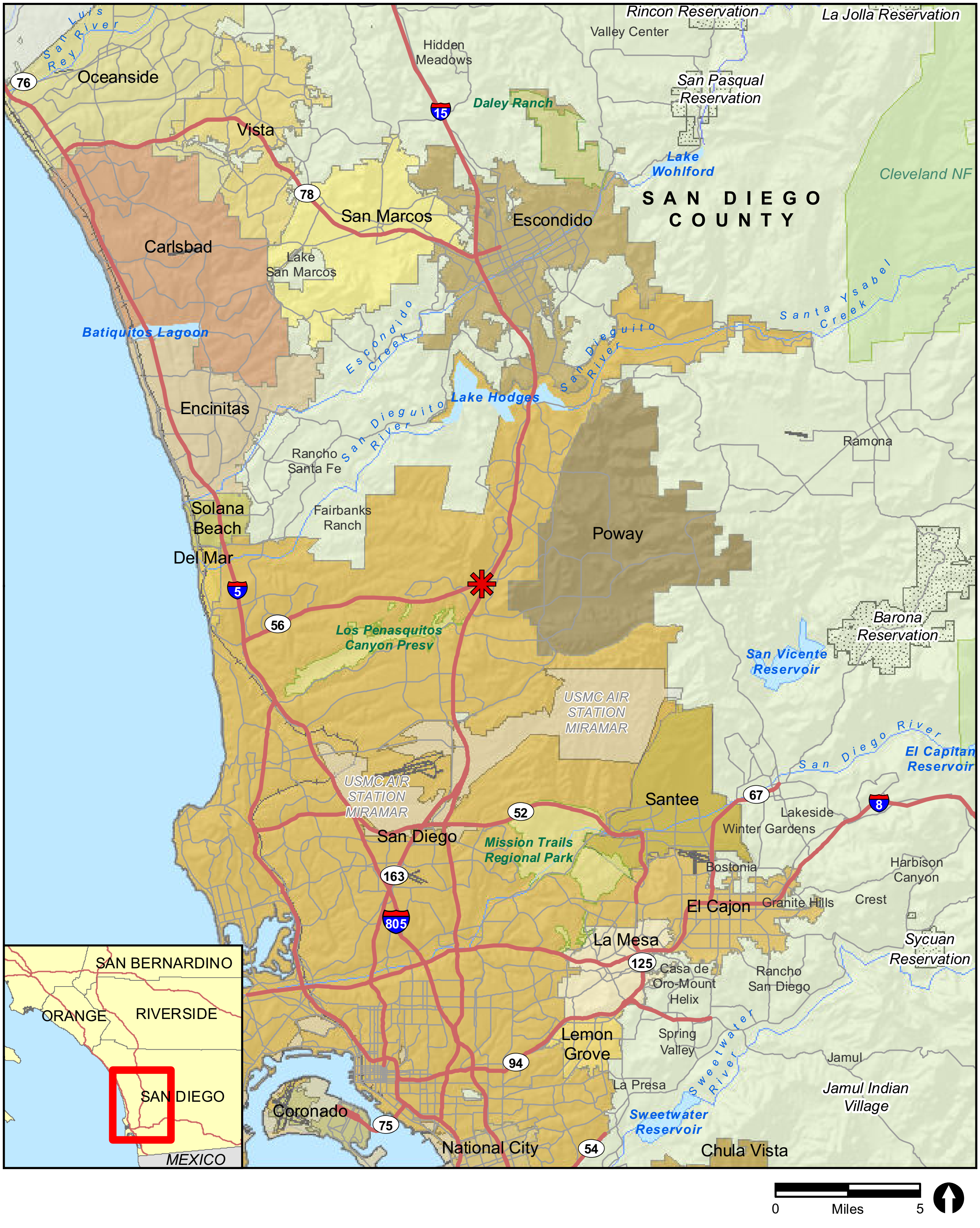
The project proposes a recreational vehicle (RV) storage and mini-warehouse facility on the site. The development would include 139,587 square feet of mini-storage and ancillary office space, 69 RV spaces, 27 parking spaces, site access improvements, and other infrastructure improvements. The mini-storage facility and ancillary office space would consist of four buildings in the central area of the site, while the RV parking would be provided along the eastern portion of the site. The site would be accessed from Azuaga Street via the Terra Vista development to the west.

This report provides the necessary biological data and background information required for an environmental analysis according to guidelines set forth in the City of San Diego (City) Multiple Species Conservation Program (MSCP) Subarea Plan (City of San Diego 1997) and the City Biology Guidelines (City of San Diego 2012).

3.0 Methods and Survey Limitations

A biological resource survey was conducted on July 28, 2017. The project site was surveyed on foot to document the flora and fauna that were apparent at the time of the site visit. Weather conditions during the survey went from overcast to clear skies and a temperature range from 75 to 79 degrees Fahrenheit with light winds of zero to five miles per hour.

Vegetation communities were mapped on a one-inch-equals-200-feet aerial photograph flown in June 2017. Vegetation community classifications follow Holland (1986) as modified by Oberbauer (1996). Prior to the field survey, a review of the species records from California Natural Diversity Database (CNDDB) reported within a one-mile buffer was conducted in order to help identify sensitive plant and wildlife species that may potentially occur within the survey area. All plant species observed on-site were noted, and plants that could not be identified in the field were identified later in the laboratory using taxonomic keys.



Project Location

FIGURE 1
Regional Location

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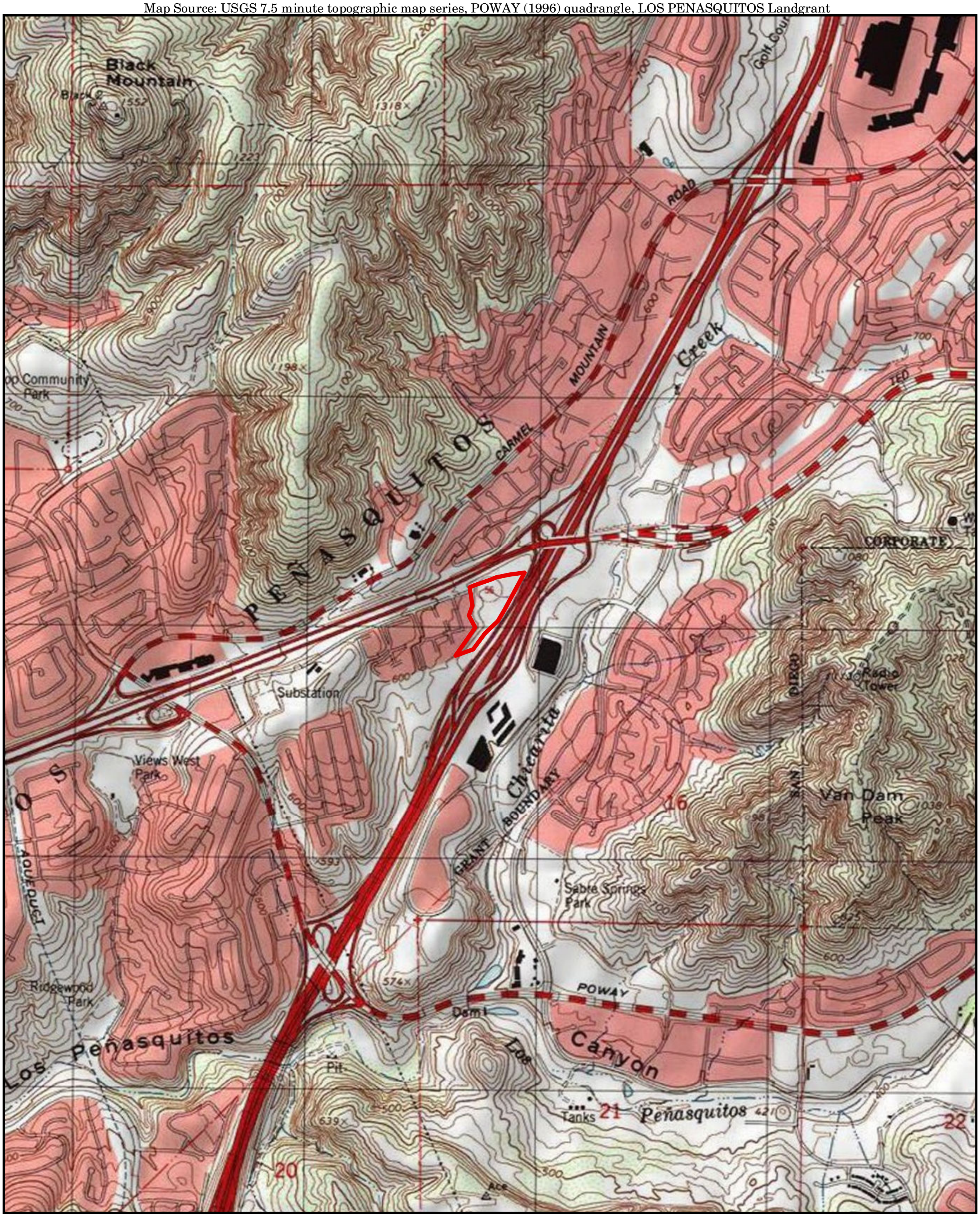
Map Source: USGS 7.5 minute topographic map series, POWAY (1996) quadrangle, LOS PENASQUITOS Landgrant



0 Feet 2,000

Project Boundary

FIGURE 2
Project Location on USGS Map

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Image Source: NearMaps (flown Feb 2018)

Project Boundary
City of San Diego MHPA

FIGURE 3

Project Location on Aerial Photograph and in Relation to the MHPA

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The survey included a directed search for sensitive plants that would have been apparent during the time of the survey. Limitations to the compilation of a comprehensive floral checklist were imposed by seasonal factors, such as blooming period. Biological surveys were conducted in the summer of 2017; therefore, some species may have been undetected at this time of year. Floral nomenclature for common plants follows the Jepson Online Interchange (University of California 2018), for ornamental plants Brenzel (2001), and for sensitive plants California Native Plant Society (CNPS; 2018).

Animal species observed directly or detected from calls, tracks, scat, nests, or other sign were noted. Surveys were conducted during the daytime. Zoological nomenclature for birds is in accordance with the American Ornithologists' Union Checklist (2016) and Unitt (2004); for mammals with Baker et al. (2003); and for reptiles with Crother (2008). Determination of the potential occurrence for listed, sensitive, or noteworthy species is based upon known ranges and habitat preferences for the species (Jennings and Hayes 1994; Unitt 2004; CNPS 2018; Reiser 2001), and species occurrence records from the CNDDB (State of California 2018a) and other sites in the vicinity of the survey area.

3.1 Physical Characteristics

The project site occurs at the terminus of a ridgeline where the SR-56 and I-15 meet at the northern end of the property. Elevations on-site range from 575 feet to 525 feet above mean sea level. An existing manufactured slope bounds the east and southern portion of the site. The northern portion of the site is higher than the central part, sloping downward to the lowest areas of the middle of the site where a man-made concrete drainage channel occurs. The drainage channel conveys storm water runoff from SR-56 and the site to a collection area adjacent to I-15 within the California Department of Transportation Right-of-Way.

Soils types transition from Diablo clay soils in the southern and central portion of the site to San Miguel-Exchequer rocky silt loams, Diablo-Olivenhain complex, and Escondido very fine sandy loam towards the north part of the site. Natural soil conditions have been altered where adjacent to existing development and freeways.

3.2 Biological Resources

The biological resources on the site have been effected by past land use. The site was graded sometime in the late 1970s. It was disturbed again in the late 1980s when the adjacent development occurred and with the widening of I-15 and construction of SR-56. Currently, the vegetation on the site is maintained by periodic mowing for fuel management purposes.

3.2.1 Vegetation Communities and Botanical Resources

Currently, the majority of the vegetation on the site is comprised of non-native grassland that appears to be mowed on at least an annual basis. A manufactured slope along the southern and eastern part of the site was built and landscaped with ornamental plant species as part of the existing residential development. Two small areas associated with storm drains support plant species adapted to mesic conditions (e.g., freshwater marsh, willow scrub, and mule fat scrub). The distribution of these vegetation types on the site are shown on Figure 4 and summarized in Table 1.

Table 1
Existing Vegetation Communities and Land Cover Types

Vegetation Communities/ Land Cover Types	Existing Acres	MSCP Tier
Non-native Grassland	6.55	III-B
Freshwater Marsh	0.04	Wetland
Willow Scrub	0.01	Wetland
Mule Fat Scrub	0.02	Wetland
Ornamental Plantings	3.40	IV
TOTAL	**10.02**	
MSCP = Multiple Species Conservation Program		

A total of 47 plant species were documented on the project site. The majority (32) of these species are non-native plants and only 15 native plant species persist on the property. A list of plant species observed on the site is provided in Attachment 1.

The non-native grassland habitat on the site supports a mixture of mostly non-native annual grass and herbaceous species. Dominant annual grasses observed include slender wild oat (*Avena barbata*), ripgut grass (*Bromus diandrus*), red brome (*Bromus madritensis*), and purple false brome (*Brachypodium distachyon*). Common non-native herbaceous species present in the grassland include black mustard (*Brassica nigra*), short-pod mustard (*Hirschfeldia incanca*), prickly lettuce (*Lactuca serriola*), and spotted spurge (*Euphorbia maculate*).

The existing manufactured slope adjacent to the off-site development predominately supports a dense stand of ornamental plantings comprised of vanilla-scented wattle (*Acacia redolens*). Scattered eucalyptus trees (*Eucalytpus* spp.), Peruvian pepper tree (*Schinus molle*), and salt cedar (*Tamarix rammosissima*) also occur on the slope.

The three areas dominated by plant species tolerant of mesic conditions include small patches of freshwater marsh, willow scrub, and mule fat scrub. The freshwater marsh area occurs near the southern end of the on-site drainage channel and supports a dense stand of pale spike rush (*Eleocharis macrostachya*) and alkali bulrush (*Bolboschoenus maritimus*), with small patches of broad-leaved cattail (*Typha latifolia*) and bristly ox-tongue (*Helminthotheca echioides*). The willow scrub patch occurs at the southern end of the on-site drainage where a few arroyo willows (*Salix lasiolepis*) have become established. The mule fat scrub occurs as a small patch at a storm drain outlet near the southeast corner of the site is comprised of mule fat shrubs (*Baccharis salcifola*), broad-leaved cattail, and a few salt cedar trees.

Image Source: NearMaps (flown Feb 2018)

0 Feet 200

Project Boundary
Concrete Channel

Vegetation Community

Mule Fat Scrub
Willow Scrub
Freshwater Marsh
Non-native Grassland
Ornamental Plantings

FIGURE 4

Existing Biological Resources

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3.2.2 Zoological Resources

The non-native grassland and ornamental plantings on the site support wildlife species that tolerate proximity to human development and freeway noise. A total of five invertebrate species, three reptile species, nine bird species, and two mammal species were observed or detected on the site. A complete list of wildlife species observed on the site is provided in Attachment 2.

3.2.3 Sensitive Biological Resources

Assessments for the potential occurrence of sensitive species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, and species occurrence records from other sites in the vicinity of the project site.

For purposes of this report, species will be considered sensitive if they are: (1) covered species under the City of San Diego MSCP; (2) listed by state or federal agencies as threatened or endangered or are proposed for listing (State of California 2018b, 2018c, 2017a, 2017b); or (3) on California Rare Plant Rank (CRPR) 1B (considered endangered throughout its range) or CRPR 2 (considered endangered in California but more common elsewhere) of the CNPS Inventory of Rare and Endangered Vascular Plants of California (2018). Noteworthy plant species are considered those on CRPR 3 (more information about the plant's distribution and rarity needed) and CRPR 4 (plants of limited distribution) of the CNPS Inventory (2018). Sensitive vegetation communities are those identified by Holland (1986) or identified by the City (2012).

City of San Diego Regulations: Sensitive biological resources are defined in the City of San Diego 2012 Biology Guidelines as:

> Lands included within the MHPA as identified in the MSCP Subarea Plan (City of San Diego 1997), and other lands outside of the MHPA that contain wetlands; vegetation communities classifiable as Tier I, II, IIIA and IIIB vegetation communities; habitat for rare, threatened, endangered species and their habitat; or narrow endemic species (City of San Diego 2012).

Multi-Habitat Planning Area (MHPA) lands are those that have been included within the City's MSCP Subarea Plan for habitat conservation. These lands have been determined to provide the necessary habitat quality, quantity, and connectivity to sustain the unique biodiversity of the San Diego region. MHPA lands are considered by the City to be a sensitive biological resource.

Jurisdictional Waters/Wetlands: All wetland and non-wetland waters of the U.S. are considered sensitive and fall under the jurisdiction of the U.S. Army Corps of Engineers (USACE). Waters of the State, including streambeds and associated riparian vegetation, fall under the jurisdiction of the California Department of Fish and Wildlife (CDFW) and Regional Water Quality Control Board (RWQCB).

Wetland within the city of San Diego are considered sensitive. The City defines wetlands as:

> Wetlands are areas which are characterized by any of the following conditions: (1) all areas persistently or periodically containing naturally occurring wetland vegetation communities characteristically dominated by hydrophytic vegetation; (2) areas that have hydric soils or wetland hydrology and lack naturally occurring wetland vegetation communities because human activities have removed the historic wetland vegetation; (3) areas lacking wetland vegetation communities, hydric soils, and wetland hydrology due to non-permitted filling of previously existing wetlands (City of San Diego 2012).

3.2.3.1 Sensitive Vegetation Communities

Four sensitive vegetation communities occur on the property; non-native grassland, freshwater marsh, mule fat scrub, and willow scrub. Non-native grassland is a Tier III-B habitat type under the City's MSCP Subarea Plan (City of San Diego 1997). The freshwater marsh, mule fat scrub, and willow scrub habitats are types of wetland which are sensitive under the City MSCP Subarea Plan (City of San Diego 1997) and also the resource agencies (USACE, CDFW, RWQCB).

3.2.3.2 Sensitive Plant Species

No sensitive plant species were observed on the property during the site visit. A search of the CNDDB showed that while a number of species have historical occurrences documented in the vicinity of the project site, only three of these species have a potential for occurrence on the site. These plants are typically associated with grasslands that occur with undisturbed native clay soils. Although the three species are observable only in the spring months and would not have been detected during the current survey, no further surveys are recommended as the native soils on the site have been lost due to past site disturbances. As discussed further below, these three sensitive plant species are ultimately not expected to occur on site due previous grading activities replacing the native soils with artificial fill and on-going brush management mowing conducted on the site. A list of sensitive plant species known from the vicinity of the project site along with a statement of their potential to occur on the property is presented in Attachment 3.

Varigated dudleya (*Dudleya variegata*) is a narrow endemic species covered under the MSCP that can occur in grassland habitat that is associated with clay soils. This perennial herbaceous plant sprouts from corm-like structures under the soil surface in mid-spring and flower in late spring. It is known to occur in clay soils or clay lenses within openings in chaparral, coastal sage scrub, grasslands, and vernal pool habitats. Known locations of this species documented in the CNDDB occur in undisturbed habitat within the Black Mountain Open Space Preserve to the west. This species has a low potential to occur on the site as the native topsoil was removed from the property in the late 1980s during the construction of the Interstate 15 and State Route 56 interchange. Prior to this freeway construction, the site was partially developed and perhaps farmed. The soils that remain on the site are shallow and rockier than the original soil. In addition, the site is mowed on an annual basis for fuel management purposes, further lowering the potential for occurrence.

San Diego thornmint (*Acanthomintha ilicifolia*) is a federal listed threatened species, state listed endangered species, and a narrow endemic species covered under the MSCP that can occur on clay soils in grassland habitats. This annual plant species generally occurs in in openings within chaparral, coastal sage scrub, and grassland where friable or broken clay soils occur. It grows in mid-spring and flowers in late spring. Known locations of this species documented in the CNDDB occur in undisturbed habitat to the south in Mira Mesa and Los Peñasquitos Canyon, and to the west in grassland above Lusardi Creek in La Jolla Valley. This species is not expected to occur on the site; the original soil profile was removed/disturbed in the late 1980s, as noted above under variegated dudleya. In addition, the site is mowed on an annual basis for fuel management purposes, further lowering the potential for occurrence.

Thread-leaved brodiaea (*Brodiaea filifolia*) is a federal listed threatened species, state listed endangered species and a species covered under the MSCP that can occur in cismontane woodland, coastal sage scrub, playas, grassland, and vernal pool habitats often associated with clay soils. This species sprouts from corms under the soil surface in the late winter, grows though spring, and flowers in later spring. Known locations of this species documented in the CNDDB occur in grassland habitat to the west in open space associated with the Heritage Bluffs development project, the Black Mountain Open Space Preserve, and La Jolla Valley. This species is not expected to occur on the site; the original soils and soil profile were removed in the late 1980s, as mentioned above under variegated dudleya. In addition, the site is mowed on an annual basis for fuel management purposes further lowering the potential for occurrence.

3.2.3.3 Sensitive Wildlife Species

No sensitive wildlife species were observed on the project site during the current survey. A search of the CNDDB showed that while a number of sensitive wildlife species have historical occurrences documented in the vicinity of the project site, only five of these species have a potential for occurrence on the site. Four of these species are known to occur in grassland habitats and one in mesic habitats. A list of sensitive wildlife species known from the vicinity of the project site along with a statement of their potential to occur on the property is presented in Attachment 4.

Three sensitive bird species have a potential for occurrence on the project site based on their occurrence in the vicinity. The Cooper's hawk (*Accipiter cooperii*) is an MSCP covered raptor species that can nest in trees and forage in grasslands found on the project site. However, given the proximity of the site to residential development and two freeways, the potential for this species to nest in the trees or forage in the grassland on site is low.

The southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) is an MSCP covered species that can occur in chaparral, coastal sage scrub, and grassland habitats. Known locations of this species documented in the CNDDB occur in undisturbed coastal sage scrub habitat to the south and east of the project site in Poway. This species is not expected to occur on the site due to the relatively small area of habitat in close proximity to residential development and two freeways.

The California horned lark (*Eremophila alpestris actia*) is on the California Department of Fish and Wildlife Watch List and is commonly found in grassland habitats. This species has a low potential to occur on the site due to habitat disturbance and proximity to development.

The western spadefoot (*Spea hammondii*) is an amphibian species considered a California species of Special Concern that has a low potential to occur within the freshwater marsh area on the site due to the small area of isolated marsh and proximity to development. Known locations of this species documented in the CNDDB occur in vernal pool habitat or areas near creeks to the east and south in Poway.

The red-diamond rattlesnake (*Crotalus ruber*) is a reptile species that is also a California species of Special Concern that has a low potential to occur within the grasslands on the site due to the level of disturbance and proximity to development.

3.2.3.4 Wetlands and Jurisdictional Waters

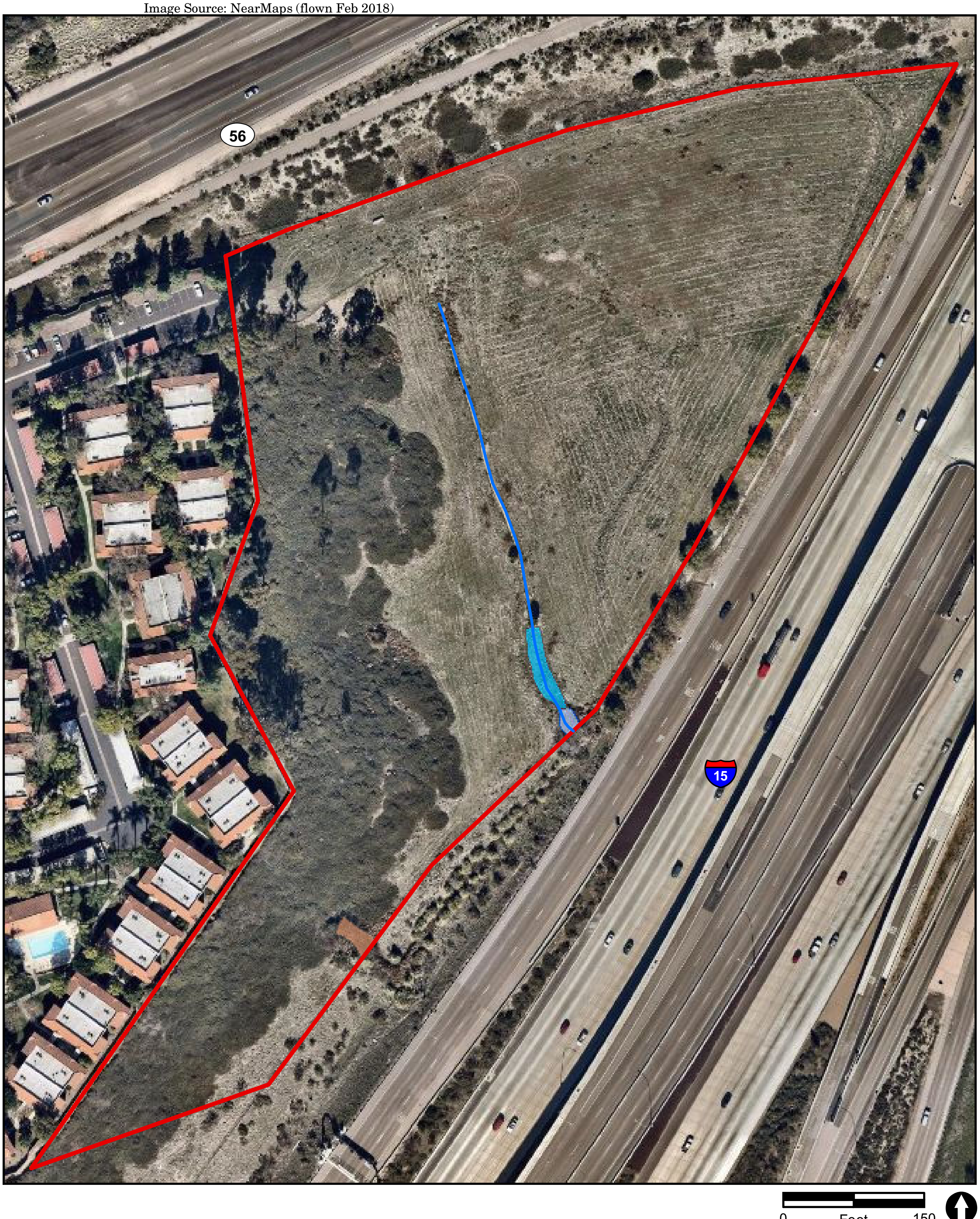
The freshwater marsh, mule fat scrub, and willow scrub areas on the project site are considered wetlands and sensitive resources by the USACE, CDFW, RWQCB, and City. These areas support plants that tolerate mesic conditions (hydrophytic vegetation), hydric soils, and the hydrology to support wetland vegetation. The location of the wetlands are shown on Figure 5 and summarized in Table 2.

Table 2
Summary of Wetlands and Jurisdictional Waters (acres)

Wetlands	Survey Area
Federal Wetland (USACE)	
Wetland	0.07
Non-wetland Water*	0.025
State Wetland (CDFW, RWQCB)	
Wetland	0.07
Streambed*	0.025
City of San Diego Wetland	
Wetland	0.07
*Concrete channel	

The freshwater marsh and willow scrub wetlands occur along the southern portion of the on-site drainage (see Figure 5). This drainage conveys storm water collected from SR-56 to the north in a concrete lined channel that drains south off-site into a drainage channel adjacent to I-15 in the California Department of Transportation Right-of-Way. The concrete channel begins at a storm drain outlet located approximately 130 feet inside the property and extends for about 477 feet to the southern end of the site. The last 120 feet of the channel has become buried in sediment that has spread the flows over a wider area and allowed wetland vegetation to become established. A different storm drain outlet that occurs near the southeast corner of the site conveys water from the adjacent developed area that supports a small stand of mule fat scrub (see Figure 5).

Image Source: NearMaps (flown Feb 2018)



Project Boundary

Non-wetland Water/Streambed

Wetlands

Mule Fat Scrub

Willow Scrub

Freshwater Marsh

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FIGURE 5

Location of Wetlands and Non-Wetland Waters/Streambed

The portion of the concrete channel upstream of the wetland area is considered a federal non-wetland water under the jurisdiction of the USACE, and a state streambed under the jurisdiction of CDFW and RWQCB.

3.2.3.5 Multi-Habitat Planning Area

The project site is not within or immediately adjacent to the MHPA. The nearest MHPA lands occur over 1,400 feet to the north of the property (see Figure 3).

4.0 Project Impact Analysis

The proposed project would impact one sensitive vegetation community; non-native grassland. A summary of the impacts to vegetation communities and land cover types is provided in Table 3 and shown on Figure 6. Impacts to non-native grassland would be considered significant and require mitigation.

Table 3
Proposed Impacts to Vegetation Communities and Land Cover Types

Vegetation Communities/ Land Cover Types	Impact	MSCP Tier	Impact
Non-native Grassland	6.55	III-B	5.55
Freshwater Marsh	0.04	Wetland	0.00
Willow Scrub	0.01	Wetland	0.00
Mule Fat Scrub	0.02	Wetland	0.00
Ornamental Plantings	3.40	IV	0.44
TOTAL	**10.02**		**5.99**

4.1 Sensitive Plants and Wildlife

As discussed in Section 3.2.3.2 above, sensitive plant species are not anticipated to occur on the project site considering the current site conditions (see Section 3.2.3.3). Thus, no impact to sensitive plants would occur.

Four sensitive wildlife species (Cooper's hawk, California horned lark, western spadefoot, and red-diamond rattlesnake) have a low potential to occur in the non-native grassland or freshwater marsh habitats on-site. None of these species has been observed or documented on the site. Thus, no impact to sensitive wildlife would occur.

4.2 Wetlands and Jurisdictional Waters

No federal, state, or City of San Diego wetland area would be impacted by the proposed project. The project would maintain a minimum 50-foot setback from the freshwater marsh wetland nearest the proposed development on the site to avoid any indirect impacts.

Image Source: Nearmap (flown September 2018)

Project Boundary
Limit of Disturbance
Concrete Channel

Vegetation Community
Mule Fat Scrub
Willow Scrub
Freshwater Marsh
Non-native Grassland
Ornamental Plantings

FIGURE 6

Impacts to Biological Resources

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This buffer distance is adequate given the relatively small area of wetland habitat and low functions and values of the wetlands. Wetland functions and values are low due to the lack of habitat structure as there is predominately only one vegetation layer dominated by herbaceous plants and not enough trees or shrubs to from additional vegetation structure.

The wetland is small in area, limiting its functions for nutrient uptake, retention of pollutants, ground water recharge, and short- or long-term water storage. Wildlife usage is also limited for the wetland area due to lack of complex habitat structure, isolation by development, and small area. The drainage course that conveys water to the wetland area is concrete lined and delivers primarily storm water runoff. This drainage course and wetland are isolated from connections to significant wetland/drainages off-site due to existing development (i.e., freeways, residential areas).

Impacts would occur to 0.025 acre (360 linear feet) of non-wetland waters/streambed (concrete channel) under the jurisdiction of the USACE, CDFW, and RWQCB. This impact would be considered significant and require the appropriate permits from these agencies and compensatory mitigation for impacts.

5.0 Mitigation and Monitoring Requirements

Mitigation for impacts to non-native grassland (outside of the MHPA) would be accomplished through the dedication of 2.78 acres of non-native grassland habitat located on parcels owned by Pardee Homes within the MHPA in the East Elliot area adjacent to the Weston project site.

Mitigation for impacts to the federal and state non-wetland water/streambed would be accomplished through the purchase of 0.09 acre of credits from the approved Brook Forest Mitigation Bank.

Mitigation for general impacts to biological resources would be incorporated via standard measures including general mitigation measures, biological protections during construction, (includes monitoring, preconstruction meetings, and development of a Biological Condition Monitoring Exhibit, etc.) as described below.

Mitigation During Construction – The following City standard mitigation would be included in the environmental document:

Biological Resource Protection During Construction

I. Prior to Construction

A. **Biologist Verification** – The owner/permittee shall provide a letter to the City's Mitigation Monitoring Coordination (MMC) section stating that a Project Biologist (Qualified Biologist) as defined in the City's Biological Guidelines (2012), has been retained to implement the project's biological monitoring program. The letter shall include the names and contact information of all persons involved in the biological monitoring of the project.

B. **Pre-construction Meeting** – The Qualified Biologist shall attend the pre-construction meeting, discuss the project's biological monitoring program, and arrange to perform any follow up mitigation measures and reporting including site-specific monitoring, restoration or revegetation, and additional fauna/flora surveys/salvage.

C. **Biological Documents** – The Qualified Biologist shall submit all required documentation to MMC verifying that any special mitigation reports including but not limited to, maps, plans, surveys, survey timelines, or buffers are completed or scheduled per City Biology Guidelines, MSCP, Environmentally Sensitive Lands Ordinance, project permit conditions; CEQA; endangered species acts; and/or other local, state, or federal requirements.

D. **Biological Construction Mitigation/Monitoring Exhibit (BCME)** – The Qualified Biologist shall present a BCME, which includes the biological documents in "C" above. In addition, include: restoration/revegetation plans, plant salvage/relocation requirements (e.g., coastal cactus wren plant salvage, burrowing owl exclusions, etc.), avian or other wildlife surveys/survey schedules (including Cooper's hawk, southern California rufous-crowned sparrow, and California horned lark), timing of surveys, wetland buffers, avian construction avoidance areas/noise buffers/ barriers, other impact avoidance areas, and any subsequent requirements determined by the Qualified Biologist and the City Assistant Deputy Director/MMC. The BCME shall include a site plan, written and graphic depiction of the project's biological mitigation/monitoring program, and a schedule. The BCME shall be approved by MMC and referenced in the construction documents.

E. **Resource Delineation** – Prior to construction activities, the Qualified Biologist shall supervise the placement of orange construction fencing or equivalent along the limits of disturbance adjacent to sensitive biological habitats and verify compliance with any other project conditions as shown on the BCME. This phase shall include flagging plant specimens and delimiting buffers to protect sensitive biological resources (e.g., habitats/flora and fauna species, including nesting birds) during construction. Appropriate steps/care should be taken to minimize attraction of nest predators to the site.

F. **Education** – Prior to commencement of construction activities, the Qualified Biologist shall meet with the owner/permittee or designee and the construction crew and conduct an on-site educational session regarding the need to avoid impacts outside of the approved construction area and to protect sensitive flora and fauna (e.g., explain the avian and wetland buffers, flag system for removal of invasive species or retention of sensitive plants, and clarify acceptable access routes/methods and staging areas, etc.).

II. During Construction

A. **Monitoring** – All construction (including access/staging areas) shall be restricted to areas previously identified, proposed for development/staging, or previously disturbed as shown on "Exhibit A" and/or the BCME. The Qualified Biologist shall monitor construction activities as needed to ensure that construction activities do not encroach into biologically sensitive areas, or cause other similar damage, and that the work plan has been amended to accommodate any sensitive species located during the preconstruction surveys. In addition, the Qualified Biologist shall document field activity via the Consultant Site Visit Record. The Consultant Site Visit Record shall be e-mailed to the MMC on the first day of monitoring, the first week of each month, the last day of monitoring, and immediately in the case of any undocumented condition or discovery.

B. **Subsequent Resource Identification** – The Qualified Biologist shall note/act to prevent any new disturbances to habitat, flora, and/or fauna on-site (e.g., flag plant specimens for avoidance during access, etc.). If active nests or other previously unknown sensitive resources are detected, all project activities that directly impact the resource shall be delayed until species specific local, state or federal regulations have been determined and applied by the Qualified Biologist.

III. Post-construction Measures

A. In the event that impacts exceed previously allowed amounts, additional impacts shall be mitigated in accordance with City Biology Guidelines, ESL, and MSCP, CEQA, and other applicable local, state and federal law. The Qualified Biologist shall submit a final BCME/report to the satisfaction of the City Assistant Deputy Director/MMC within 30 days of construction completion.

6.0 References Cited

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ATTACHMENTS

ATTACHMENT 1

Plant Species Observed

Attachment 1 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
ANGIOSPERMS: MONOCOTS			
ARECACEAE	**PALM FAMILY**		
Washingtonia robusta H. Wendl.	Mexican fan palm	NNG, M	I
ASPHODELACEAE	**ASPHODEL FAMILY**		
Asphodelus fistulosus L.	hollow-stem asphodel	NNG	I
CYPERACEAE	**SEDGE FAMILY**		
Bolboschoenus maritimus (L.) Palla ssp. *paludosus* (A. Nelson) T. Koyama [=*Scirpus maritimus*]	saltmarsh bulrush, alkali bulrush	FM	N
Eleocharis macrostachya Britton	pale spike-rush	FM	N
POACEAE (GRAMINEAE)	**GRASS FAMILY**		
Avena barbata Pott ex Link	slender wild oat	NNG	I
Brachypodium distachyon (L.) P. Beauv.	purple falsebrome	NNG	I
Bromus diandrus Roth	ripgut grass	NNG	I
Bromus madritensis L. ssp. *rubens* (L.) Husn.	red brome	NNG	I
Cortaderia selloana (Schult. & Schult. f.) Asch. & Graebn.	pampas grass	NNG	I
Cynodon dactylon (L.) Pers.	Bermuda grass	NNG	I
Pennisetum setaceum (Forssk.) Chiov.	crimson fountain grass	NNG	I
Polypogon monspeliensis (L.) Desf.	annual beard grass, rabbitfoot grass	M	I
Stipa [=*Nassella*] *pulchra* Hitchc.	purple needle grass	NNG	N
TYPHACEAE	**CATTAIL FAMILY**		
Typha angustifolia L.	narrow-leaved cattail	FM	N
ANGIOSPERMS: DICOTS			
ANACARDIACEAE	**SUMAC OR CASHEW FAMILY**		
Schinus molle L.	Peruvian pepper tree	H	I
APIACEAE (UMBELLIFERAE)	**CARROT FAMILY**		
Foeniculum vulgare Mill.	fennel	NNG	I
ASTERACEAE	**SUNFLOWER FAMILY**		
Ambrosia psilostachya DC.	western ragweed	M	N
Baccharis pilularis DC.	chaparral broom, coyote brush	NNG	N
Baccharis salicifolia (Ruiz & Pav.) Pers. ssp. *salicifolia*	mule fat, seep-willow	MFS	N
Centaurea solstitialis L.	yellow star-thistle	NNG	I
Cynara cardunculus L. ssp. *flavescens* Wiklund	cardoon, artichoke thistle	NNG	I

Attachment 1 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
Hazardia squarrosa (Hook. & Arn.) Greene	saw-toothed goldenbush	NNG	N
Helminthotheca [=*Picris*] *echioides* (L.) Holub	bristly ox-tongue	NNG, M	I
Heterotheca grandiflora Nutt.	telegraph weed	NNG	N
Lactuca serriola L.	prickly lettuce	NNG	I
Sonchus asper (L.) Hill ssp. *asper*	prickly sow thistle	NNG	I
Sonchus oleraceus L.	common sow thistle	NNG	I
BRASSICACEAE (CRUCIFERAE)	**MUSTARD FAMILY**		
Brassica nigra (L.) W.D.J. Koch	black mustard	NNG	I
Hirschfeldia incana (L.) Lagr.-Fossat	short-pod mustard	NNG	I
CHENOPODIACEAE	**GOOSEFOOT FAMILY**		
Atriplex lentiformis (Torr.) S. Watson	big saltbush	NNG	N
Atriplex semibaccata R. Br.	Australian saltbush	NNG	I
Salsola tragus L.	Russian thistle, tumbleweed	NNG	I
CONVOLVULACEAE	**MORNING-GLORY FAMILY**		
Convolvulus arvensis L.	bindweed, orchard morning-glory	NNG	I
EUPHORBIACEAE	**SPURGE FAMILY**		
Croton [=*Eremocarpus*] *setiger* Hook.	turkey-mullein, dove weed	NNG	N
Euphorbia [=*Chamaesyce*] *maculata* L.	spotted spurge	NNG	I
Ricinus communis L.	castor bean	M	I
FABACEAE (LEGUMINOSAE)	**LEGUME FAMILY**		
Acacia redolens Maslin	vanilla-scented wattle	H	I
Astragalus trichopodus (Nutt.) A. Gray var. *lonchus* (M.E. Jones) Barneby	ocean locoweed	NNG	N
GERANIACEAE	**GERANIUM FAMILY**		
Erodium botrys (Cav.) Bertol.	long-beak filaree	NNG	I
Erodium cicutarium (L.) L'Hér. ex Aiton	redstem filaree	NNG	I
MYRTACEAE	**MYRTLE FAMILY**		
Eucalyptus sp.	gum tree	H	I
MYRSINACEAE	**MYRSINE FAMILY**		
Lysimachia [=*Anagallis*] *arvensis* (L.) U. Manns & Anderb.	scarlet pimpernel	NNG	I
ONAGRACEAE	**EVENING-PRIMROSE FAMILY**		
Oenothera elata Kunth ssp. *hirsutissima* (S. Watson) W. Dietr.	great marsh evening-primrose	M	N

Attachment 1 Plant Species Observed			
Scientific Name	Common Name	Habitat	Origin
POLYGONACEAE	**BUCKWHEAT FAMILY**		
Rumex crispus L.	curly dock	NNG, M	I
ROSACEAE	**ROSE FAMILY**		
Heteromeles arbutifolia (Lindl.) M. Roem.	toyon, Christmas berry	H	N
SALICACEAE	**WILLOW FAMILY**		
Salix lasiolepis Benth.	arroyo willow	M	N
TAMARICACEAE	**TAMARISK FAMILY**		
Tamarix ramosissima Ledeb.	saltcedar	M	I

Notes: Scientific and common names were primarily derived from the Jepson Online Interchange (University of California 2016). In instances where common names were not provided in this resource, common names were obtained from Rebman and Simpson (2014). Additional common names were obtained from the USDA maintained database (USDA 2013) or the Sunset Western Garden Book (Brenzel 2001) for ornamental/horticultural plants. Common names denoted with * are from County of San Diego 2010.

HABITATS

NNG = Non-native grassland
H = Horticultural
FM = Freshwater marsh
MF = Mule fat scrub
M = Mesic areas and wetlands

ORIGIN

N = Native to locality
I = Introduced species from outside locality

ATTACHMENT 2

Wildlife Species Observed

Attachment 2 Wildlife Species Observed				
Scientific Name	Common Name	Occupied Habitat	On-Site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence
INVERTEBRATES (Nomenclature for spiders and insects from Evans 2008; for butterflies from San Diego Natural History Museum 2002)				
APIDAE	**HONEY BEES**			
Apis mellifera	honey bee (I)	G		O
FORMICIDAE	**ANTS**			
Linepithema humile	Argentine ant (I)	G		O
PIERIDAE	**WHITES & SULPHURS**			
Colias eurytheme	orange [=alfalfa] sulphur	G		O
Pieris rapae	cabbage white (I)	G		O
RIODINIDAE	**METALMARKS**			
Apodemia mormo virgulti	Behr's metalmark	G		O
REPTILES (Nomenclature from Crother 2008)				
PHRYNOSOMATIDAE	**SPINY LIZARDS**			
Sceloporus occidentalis	western fence lizard	G		O
Uta stansburiana	common side-blotched lizard	G		O
ANGUIDAE	**ALLIGATOR LIZARDS**			
Elgaria multicarinata webbii	San Diego alligator lizard	G		O
BIRDS (Nomenclature from American Ornithologists' Union 2016 and Unitt 2004)				
ACCIPITRIDAE	**HAWKS, KITES, & EAGLES**			
Buteo jamaicensis	red-tailed hawk	G	F / Y	O
COLUMBIDAE	**PIGEONS & DOVES**			
Zenaida macroura marginella	mourning dove	G	C / Y	O
TROCHILIDAE	**HUMMINGBIRDS**			
Calypte anna	Anna's hummingbird	G	C / Y	O
TYRANNIDAE	**TYRANT FLYCATCHERS**			
Sayornis nigricans semiatra	black phoebe	G	C / Y	O
Tyrannus verticalis	western kingbird	G	F / S	O

Attachment 2 Wildlife Species Observed				
Scientific Name	Common Name	Occupied Habitat	On-Site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence
CORVIDAE	**CROWS, JAYS, & MAGPIES**			
Corvus brachyrhynchos hesperis	American crow	G	C / Y	O
MIMIDAE	**MOCKINGBIRDS & THRASHERS**			
Mimus polyglottos polyglottos	northern mockingbird	G	C / Y	O
EMBERIZIDAE	**EMBERIZIDS**			
Melospiza melodia	song sparrow	G	C / Y	O
FRINGILLIDAE	**FINCHES**			
Haemorhous [=*Carpodacus*] *mexicanus frontalis*	house finch	G	C / Y	O
MAMMALS (Nomenclature from Baker et al. 2003)				
LEPORIDAE	**RABBITS & HARES**			
Sylvilagus bachmani	brush rabbit	G		O
GEOMYIDAE	**POCKET GOPHERS**	G		
Thomomys bottae	Botta's pocket gopher			B

(I) = Introduced species

HABITATS
G = Grassland

ABUNDANCE (birds only; based on Garrett and Dunn 1981)
C = Common to abundant; almost always encountered in proper habitat, usually in moderate to large numbers
F = Fairly common; usually encountered in proper habitat, generally not in large numbers

SEASONALITY (birds only)
S = Spring/summer resident; probable breeder on-site or in vicinity
Y = Year-round resident; probable breeder on-site or in vicinity

.

EVIDENCE OF OCCURRENCE
B = Burrow
O = Observed

ATTACHMENT 3

Sensitive Plant Species Observed or with the Potential for Occurrence

Attachment 3 Sensitive Plant Species Observed or with the Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
BRYOPHYTES						
SPHAEROCARPACEAE						
Geothallus tuberosus Campbell's liverwort	–/–	1B.1	–	Ephemeral liverwort; mesic coastal sage scrub, vernal pools; elevation below 2,000 feet. California endemic. Known from San Diego and Riverside counties. Recently reported from Camp Pendleton, likely extirpated elsewhere in urbanized San Diego County.	No	Low potential. No suitable habitat occurs on the site.
ANGIOSPERMS: DICOTS						
CHENOPODIACEAE GOOSEFOOT FAMILY						
Aphanisma blitoides aphanisma	–/–	1B.2	NE, MSCP	Annual herb; coastal bluff scrub, coastal sage scrub; sandy soils; blooms March–June; elevation less than 1,000 feet.	No	Low potential. No suitable habitat occurs on the site.
Atriplex coulteri Coulter's saltbush	–/–	1B.2	–	Perennial herb; coastal bluff scrub, coastal dunes, coastal sage scrub, valley and foothill grasslands; alkaline or clay soil; blooms March–October; elevation less than 1,500 feet.	No	Low potential. No suitable habitat occurs on the site.
APIACEAE CARROT FAMILY						
Eryngium aristulatum var. *parishii* San Diego button-celery	CE/FE	1B.1	NE, MSCP	Biennial/perennial herb; vernal pools, mesic areas of coastal sage scrub and grasslands, blooms April–June; elevation less than 2,000 feet. Known from San Diego and Riverside counties. Additional populations occur in Baja California, Mexico.	No	Low potential. No suitable habitat occurs on the site.

Attachment 3 Sensitive Plant Species Observed or with the Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
ASTERACEAE **SUNFLOWER FAMILY**						
Ambrosia pumila San Diego ambrosia	–/FE	1B.1	NE, MSCP	Perennial herb (rhizomatous); chaparral, coastal sage scrub, valley and foothill grasslands, creek beds, vernal pools, often in disturbed areas; blooms May–September; elevation less than 1,400 feet. Many occurrences extirpated in San Diego County.	No	Low potential. No suitable habitat occurs on the site.
Artemisia palmeri San Diego sagewort	–/–	4.2	–	Perennial deciduous shrub; coastal sage scrub, chaparral, riparian, mesic, sandy areas; blooms May–September; elevation less than 3,000 feet.	No	Low potential. No suitable habitat occurs on the site.
Baccharis vanessae Encinitas baccharis [=Encinitas coyote brush]	CE/FT	1B.1	NE, MSCP	Perennial deciduous shrub; chaparral; maritime; sandstone; blooms August–November; elevation less than 2,500 feet. San Diego County endemic. Known from fewer than 20 occurrences. Extirpated from Encinitas area.	No	Low potential. No suitable habitat occurs on the site.
Deinandra [=*Hemizonia*] *conjugens* Otay tarplant	CE/FT	1B.1	NE, MSCP	Annual herb; clayey soils of coastal scrub openings, valley and foothill grassland; blooms April–June, elevation less than 1,000 feet.	No	Low potential. No suitable habitat occurs on the site.
Grindelia hallii [=*hirsutula* var. *hallii*] San Diego gumplant	–/–	1B.2	–	Perennial herb; chaparral, lower montane coniferous forest, meadow, seep, valley and foothill grasslands; blooms July–October; elevation 600–5,800 feet. San Diego County endemic.	No	Low potential. No suitable habitat occurs on the site.
Isocoma menziesii var. *decumbens* decumbent goldenbush	–/–	1B.2	–	Perennial shrub; chaparral, coastal sage scrub; sandy soils, often in disturbed areas; blooms April–November; elevation less than 500 feet.	No	Low potential. No suitable habitat occurs on the site.
Iva hayesiana San Diego marsh-elder	–/–	2B.2	–	Perennial herb; marshes and swamps, playas, riparian areas; blooms April–September; elevation below 1,700 feet.	No	Low potential. Would have been detected if present.

Attachment 3 Sensitive Plant Species Observed or with the Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
BRASSICACEAE	**MUSTARD FAMILY**					
Lepidium virginicum var. *robinsonii* Robinson's peppergrass	–/–	4.3	–	Annual herb; coastal sage scrub, chaparral; blooms January–July; elevation less than 2,900 feet.	No	Low potential. No suitable habitat occurs on the site.
CACTACEAE	**CACTUS FAMILY**					
Cylindropuntia californica var. *californica* [=*Opuntia parryi* var. *serpentina*] snake cholla	–/–	1B.1	NE, MSCP	Perennial stem succulent; chaparral, coastal sage scrub; blooms April–May; elevation 100–500 feet.	No	Low potential. Would have been detected if present.
Ferocactus viridescens San Diego barrel cactus	–/–	2B.1	MSCP	Perennial stem succulent; chaparral, coastal sage scrub, valley and foothill grasslands, vernal pools; blooms May–June; elevation less than 1,500 feet.	No	Low potential. Would have been detected if present.
CRASSULACEAE	**STONECROP FAMILY**					
Dudleya brevifolia [=*D. blochmaniae* ssp. *brevifolia*] short-leaved dudleya [short-leaved live-forever]	CE/–	1B.1	NE, MSCP	Perennial herb; southern maritime chaparral, coastal sage scrub on Torrey sandstone; blooms in April; elevation less than 1,000 feet. San Diego County endemic. Known from fewer than five occurrences in the Del Mar and La Jolla areas.	No	Low potential. No suitable habitat occurs on the site.
Dudleya variegata variegated dudleya	–/–	1B.2	NE, MSCP	Perennial herb; openings in chaparral, coastal sage scrub, grasslands, vernal pools; blooms May–June; elevation less than 1,900 feet.	No	Low potential to occur on clay soils within the grassland habitat.
ERICACEAE	**HEATH FAMILY**					
Arctostaphylos glandulosa ssp. *crassifolia* Del Mar manzanita	–/FE	1B.1	MSCP	Perennial evergreen shrub; southern maritime chaparral; sandy soil; blooms December–April; elevation less than 1,200 feet.	No	Low potential. Would have been detected if present.

Attachment 3 Sensitive Plant Species Observed or with the Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
Comarostaphylis diversifolia ssp. *diversifolia* summer holly	–/–	1B.2	–	Perennial evergreen shrub; chaparral; blooms April–June; elevation 100–2,600 feet.	No	Low potential. Would have been detected if present.
FABACEAE **LEGUME FAMILY**						
Astragalus tener var. *titi* coastal dunes milkvetch	CE/FE	1B.1	NE, MSCP	Annual herb; coastal bluff scrub, coastal dunes, sandy soils, mesic coastal prairie; blooms March–May; elevation less than 200 feet. California endemic. Known from fewer than 10 occurrences in San Diego (presumed extirpated), Los Angeles (presumed extirpated), and Monterey counties.	No	Low potential. No suitable habitat occurs on the site.
FAGACEAE **OAK FAMILY**						
Quercus dumosa Nuttall's scrub oak	–/–	1B.1	–	Perennial evergreen shrub; closed-cone coniferous forest, coastal chaparral, coastal sage scrub; sandy and clay loam soils; blooms February–March; elevation less than 1,300 feet.	No	Low potential. Would have been detected if present.
LAMIACEAE **MINT FAMILY**						
Acanthomintha ilicifolia San Diego thornmint	CE/FT	1B.1	NE, MSCP	Annual herb; chaparral, coastal sage scrub, and grasslands; friable or broken clay soils; blooms April–June; elevation less than 3,200 feet.	No	Low potential to occur on clay soils within the grassland habitat.
Monardella viminea [=*Monardella linoides* ssp. *viminea*] willowy monardella	CE/FE	1B.1	MSCP	Perennial herb; closed-cone coniferous forest, chaparral, coastal sage scrub, riparian scrub, riparian woodlands, sandy seasonal dry washes; blooms June–August; elevation 160–740 feet. San Diego County endemic.	No	Low potential. Would have been detected if present.
Pogogyne abramsii San Diego mesa mint	CE/FE	1B.1	NE, MSCP	Annual herb; vernal pools; blooms April–July; elevation 300–700 feet. San Diego County endemic.	No	Low potential. No suitable habitat occurs on the site.

Attachment 3 Sensitive Plant Species Observed or with the Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
Pogogyne nudiuscula Otay mesa mint	CE/FE	1B.1	NE, MSCP	Annual herb; vernal pools; blooms May–July; elevation 300–820 feet. In California, known from approximately 10 occurrences in Otay Mesa in San Diego County. Additional populations occur in Baja California, Mexico.	No	Low potential. No suitable habitat occurs on the site.
POLEMONIACEAE PHLOX FAMILY						
Navarretia fossalis spreading navarretia [=prostrate navarretia]	–/FT	1B.1	NE, MSCP	Annual herb; vernal pools, marshes and swamps, chenopod scrub; blooms April–June; elevation 100–4,300 feet.	No	Low potential. No suitable habitat occurs on the site.
POLYGONACEAE BUCKWHEAT FAMILY						
Chorizanthe polygonoides var. *longispina* long-spined spineflower	–/–	1B.2	–	Annual herb; clay soils; openings in chaparral, coastal sage scrub, near vernal pools and montane meadows, April–July; elevation 100–5,000 feet.	No	Low potential. No suitable habitat occurs on the site.
RHAMNACEAE BUCKTHORN FAMILY						
Adolphia californica California adolphia	–/–	2B.1	–	Perennial deciduous shrub; Diegan coastal sage scrub and chaparral; clay soils; blooms December–May; elevation 100–2,500 feet.	No	Low potential. Would have been detected if present.
Ceanothus verrucosus wart-stemmed ceanothus	–/–	2B.2	MSCP	Perennial evergreen shrub; chaparral; blooms December–April; elevation less than 1,300 feet.	No	Low potential. Would have been detected if present.
ANGIOSPERMS: MONOCOTS						
AGAVACEAE AGAVE FAMILY						
Agave shawii var. *shawii* Shaw's agave	–/–	2B.1	NE, MSCP	Perennial leaf succulent; coastal bluff scrub, coastal sage scrub, maritime succulent scrub; blooms September–May; elevation less than 400 feet.	No	Low potential. Would have been detected if present.

Attachment 3 Sensitive Plant Species Observed or with the Potential for Occurrence						
Species' *Scientific Name* Common Name	State/Federal Status	CNPS Rank	City of San Diego	Habitat/ Preference/Requirements/ Blooming Period	Observed?	Basis for Determination of Occurrence Potential
POACEAE	**GRASS FAMILY**					
Orcuttia californica California Orcutt grass	CE/FE	1B.1	NE, MSCP	Annual herb; vernal pools; blooms April–August; elevation 50–2,200 feet.	No	Low potential. No suitable habitat occurs on the site.
Brodiaea filifolia thread-leaved brodiaea [=thread-leaf brodiaea]	CE/FT	1B.1	MSCP	Perennial herb (bulbiferous); cismontane woodland, coastal sage scrub, playas, valley and foothill grassland, vernal pools; often clay soils; blooms March–June; elevation less than 4,800 feet. California endemic. Known from San Diego, Riverside, Orange, Los Angeles, and San Bernardino counties.	No	Low potential to occur on clay soils within the grassland habitat.
Brodiaea orcuttii Orcutt's brodiaea	–/–	1B.1	MSCP	Perennial herb (bulbiferous); closed cone coniferous forest, chaparral, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay soil; blooms May–July; elevation less than 5,600 feet.	No	Low potential. No suitable habitat occurs on the site.

FEDERAL CANDIDATES AND LISTED PLANTS
FE = Federally listed endangered
FT = Federally listed threatened
FC = Federal candidate for listing as endangered or threatened

STATE LISTED PLANTS
CE = State listed endangered
CT = State listed threatened

CALIFORNIA NATIVE PLANT SOCIETY (CNPS): CALIFORNIA RARE PLANT RANKS (CRPR)
1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing.
2B = Species rare, threatened, or endangered in California but more common elsewhere. These species are eligible for state listing.
4 = A watch list of species of limited distribution. These species need to be monitored for changes in the status of their populations.
.1 = Species seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat).
.2 = Species fairly threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat).
.3 = Species not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known).

CITY OF SAN DIEGO
NE = Narrow endemic
MSCP = Multiple Species Conservation Program covered species

ATTACHMENT 4

Sensitive Wildlife Species Occurring or with the Potential to Occur

Attachment 4 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Species' Common Name/ Scientific Name	Listing Status	Habitat Preference/ Requirements	Detected On-Site?	Potential to Occur On-Site?	Basis for Determination of Occurrence Potential
INVERTEBRATES (Nomenclature from Eriksen and Belk 1999; San Diego Natural History Museum 2002)					
BRANCHINECTIDAE **FAIRY SHRIMP**					
San Diego fairy shrimp *Branchinecta sandiegonensis*	FE, MSCP, *	Vernal pools.	No	Low	Site lacks suitable vernal pool habitat.
STREPTOCEPHALIDAE **FAIRY SHRIMP**					
Riverside fairy shrimp *Streptocephalus woottoni*	FE, MSCP, *	Vernal pools.	No	Low	Site lacks suitable vernal pool habitat.
PELOBATIDAE **SPADEFOOT TOADS**					
Western spadefoot *Spea hammondii*	CSC	Vernal pools, floodplains, and alkali flats within areas of open vegetation.	No	Low	Mesic area not likley support this species due to isolation, small area, and proximity to development.
IGUANIDAE **IGUANID LIZARDS**					
Coast horned lizard *Phrynosoma blainvillii* [= *P. coronatum* coastal population]	CSC, MSCP, *	Chaparral, coastal sage scrub with fine, loose soil. Partially dependent on harvester ants for forage.	No	Low	Site lacks suitable soils and prey for this species.
SCINCIDAE **SKINKS**					
Coronado skink *Eumeces skiltonianus interparietalis*	CSC	Grasslands, open woodlands and forest, broken chaparral. Rocky habitats near streams.	No	Low	Site lacks suitable habitat for this species.
TEIIDAE **WHIPTAIL LIZARDS**					
Belding's orange-throated whiptail *Aspidoscelis hyperythra beldingi*	CSC, MSCP	Chaparral, coastal sage scrub with coarse sandy soils and scattered brush.	No	Low	Site lacks suitable habitat for this species.
COLUBRIDAE **COLUBRID SNAKES**					
Two-striped gartersnake *Thamnophis hammondii*	CSC, *	Permanent freshwater streams with rocky bottoms. Mesic areas.	No	Low	Site lacks large enough suitable habitat to support this species.

Attachment 4 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Species' Common Name/ Scientific Name	Listing Status	Habitat Preference/ Requirements	Detected On-Site?	Potential to Occur On-Site?	Basis for Determination of Occurrence Potential
CROTALIDAE RATTLESNAKES					
Red diamond rattlesnake *Crotalus ruber*	CSC	Desert scrub and riparian, coastal sage scrub, open chaparral, grassland, and agricultural fields.	No	Low	Grassland habitat unlikely to support this species due to level of disturbance and proximity to development.
BIRDS (Nomenclature from American Ornithologists' Union 2016 and Unitt 2004)					
ACCIPITRIDAE HAWKS, KITES, & EAGLES					
Cooper's hawk (nesting) *Accipiter cooperii*	WL, MSCP	Mature forest, open woodlands, wood edges, river groves. Parks and residential areas.	No	Low	Eucalyptus trees on site unlikely to provide nesting habitat for the species due to proximity to development and two existing freeways.
ALAUDIDAE LARKS					
California horned lark *Eremophila alpestris actia*	WL	Sandy shores, mesas, disturbed areas, grasslands, agricultural lands, sparse creosote bush scrub.	No	Low	Grasslands unlikely to support this species due to level of disturbance and proximity to development.
TROGLODYTIDAE WRENS					
Coastal cactus wren *Campylorhynchus brunneicapillus sandiegensis*	CSC, MSCP, *	Maritime succulent scrub, coastal sage scrub with *Opuntia* thickets. Rare localized resident.	No	Low	Site lacks suitable cactus thickets to support this species.
SYLVIIDAE GNATCATCHERS					
Coastal California gnatcatcher *Polioptila californica californica*	FT, CSC, MSCP	Coastal sage scrub, maritime succulent scrub. Resident.	No	Low	Site lacks suitable coastal sage scrub habitat to support this species.
TURDIDAE THRUSHES					
Western bluebird *Sialia mexicana occidentalis*	MSCP	Open woodlands, farmlands, orchards.	No	Low	Site lacks suitable coastal sage scrub habitat to support this species.

Attachment 4 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Species' Common Name/ Scientific Name	Listing Status	Habitat Preference/ Requirements	Detected On-Site?	Potential to Occur On-Site?	Basis for Determination of Occurrence Potential
EMBERIZIDAE **EMBERIZIDS**					
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	WL, MSCP	Coastal sage scrub, chaparral, grassland. Resident.	No	Low	Grasslands unlikely to support this species due to level of disturbance and proximity to development.
MAMMALS					
PHYLLOSTOMIDAE **NEW WORLD LEAF-NOSED BATS**					
Mexican long-tongued bat *Choeronycteris mexicana*	CSC	Sightings in San Diego County very rare. Migratory.	No	Low	Site lacks suitable habitat for this species.
VESPERTILIONIDAE **VESPER BATS**					
Townsend's western big-eared bat *Corynorhinus townsendii townsendii*	CSC	Caves, mines, buildings. Found in a variety of habitats, arid and mesic. Individual or colonial. Extremely sensitive to disturbance.	No	Low	Site lacks suitable habitat for this species.
MOLOSSIDAE **FREE-TAILED BATS**					
Western mastiff bat *Eumops perotis californicus*	CSC	Woodlands, rocky habitat, arid and semiarid lowlands, cliffs, crevices, buildings, tree hollows. Audible echolocation signal.	No	Low	Site lacks suitable habitat for this species.
Pocketed free-tailed bat *Nyctinomops femorosaccus*	CSC	Normally roost in crevice in rocks, slopes, cliffs. Lower elevations in San Diego and Imperial Counties. Colonial. Leave roosts well after dark.	No	Low	Site lacks suitable habitat for this species.

Attachment 4 Sensitive Wildlife Species Occurring or with the Potential to Occur					
Species' Common Name/ Scientific Name	Listing Status	Habitat Preference/ Requirements	Detected On-Site?	Potential to Occur On-Site?	Basis for Determination of Occurrence Potential
Big free-tailed bat *Nyctinomops macrotis*	CSC	Rugged, rocky terrain. Roost in crevices, buildings, caves, tree holes. Very rare in San Diego County. Colonial. Migratory.	No	Low	Site lacks suitable habitat for this species.
LEPORIDAE **RABBITS & HARES**					
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	CSC	Open areas of scrub, grasslands, agricultural fields.	No	Low	Grasslands are is too small to support this species.
MURIDAE **OLD WORLD MICE & RATS (I)**					
San Diego desert woodrat *Neotoma lepida intermedia*	CSC	Coastal sage scrub and chaparral.	No	Low	Site lacks suitable habitat for this species.

(I) = Introduced species

STATUS CODES

Listed/Proposed

FE = Listed as endangered by the federal government
FT = Listed as threatened by the federal government

Other

CSC = California Department of Fish and Wildlife species of special concern
WL = California Department of Fish and Wildlife watch list species
MSCP = City and County of San Diego Multiple Species Conservation Program covered species

8797 Rancho Penasquitos RV/Mini Storage Facility

San Diego County APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	4.03	1000sqft	0.09	4,031.00	0
Unrefrigerated Warehouse-No Rail	135.38	1000sqft	1.03	135,377.00	0
Parking Lot	4.13	Acre	4.13	179,902.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	457.25	**CH4 Intensity (lb/MWhr)**	0.018	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Energy intensity factors updated based on SDG&E renewable procurement
(457.25, 0.018, 0.004)

Land Use - 139,408 sf mini-storage, including 4,031 sf office, 5.25 acres

Construction Phase - Construction schedule from project applicant

Trips and VMT - No soil export
Project traffic report

Grading -

Architectural Coating - SDAPCD Rule 67.0.1

Vehicle Trips - 281 trips (2.08)

Area Coating - SDAPCD Rule 67.0.1

Energy Use -

Water And Wastewater - CalGreen 20% decrease in indoor water use (573, 013.6, 25,045,300)

Waste Mitigation -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100
tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	100
tblConstructionPhase	NumDays	230.00	115.00
tblConstructionPhase	NumDays	20.00	30.00
tblLandUse	LandUseSquareFeet	4,030.00	4,031.00
tblLandUse	LandUseSquareFeet	135,380.00	135,377.00

tblLandUse	LotAcreage	3.11	1.03
tblOffRoadEquipment	LoadFactor	0.48	0.48
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.018
tblProjectCharacteristics	CO2IntensityFactor	720.49	457.25
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	VendorTripNumber	52.00	20.00
tblTripsAndVMT	VendorTripNumber	52.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00
tblTripsAndVMT	WorkerTripNumber	134.00	20.00
tblTripsAndVMT	WorkerTripNumber	134.00	60.00
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblVehicleTrips	ST_TR	2.46	0.00
tblVehicleTrips	ST_TR	1.68	2.08
tblVehicleTrips	SU_TR	1.05	0.00
tblVehicleTrips	SU_TR	1.68	2.08
tblVehicleTrips	WD_TR	11.03	0.00
tblVehicleTrips	WD_TR	1.68	2.08
tblWater	IndoorWaterUseRate	716,267.00	573,013.60
tblWater	IndoorWaterUseRate	31,306,625.00	25,045,300.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	5.2206	55.8365	38.0832	0.0719	8.8860	2.6189	11.3117	3.6548	2.4628	5.8868	0.0000	7,063.3866	7,063.3866	1.9148	0.0000	7,097.7944
2020	2.0817	15.2920	16.0732	0.0289	0.3963	0.7606	1.1569	0.1067	0.7000	0.8066	0.0000	2,838.8723	2,838.8723	0.7458	0.0000	2,857.5169
Maximum	**5.2206**	**55.8365**	**38.0832**	**0.0719**	**8.8860**	**2.6189**	**11.3117**	**3.6548**	**2.4628**	**5.8868**	**0.0000**	**7,063.3866**	**7,063.3866**	**1.9148**	**0.0000**	**7,097.7944**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	5.2206	55.8365	38.0832	0.0719	8.8860	2.6189	11.3117	3.6548	2.4628	5.8868	0.0000	7,063.3866	7,063.3866	1.9148	0.0000	7,097.7944
2020	2.0817	15.2920	16.0732	0.0289	0.3963	0.7606	1.1569	0.1067	0.7000	0.8066	0.0000	2,838.8723	2,838.8723	0.7458	0.0000	2,857.5169
Maximum	**5.2206**	**55.8365**	**38.0832**	**0.0719**	**8.8860**	**2.6189**	**11.3117**	**3.6548**	**2.4628**	**5.8868**	**0.0000**	**7,063.3866**	**7,063.3866**	**1.9148**	**0.0000**	**7,097.7944**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.4605	1.4000e-004	0.0148	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0314	0.0314	8.0000e-005		0.0335
Energy	9.0800e-003	0.0826	0.0694	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003		99.1025	99.1025	1.9000e-003	1.8200e-003	99.6914
Mobile	0.5427	2.2459	6.4282	0.0214	1.7433	0.0205	1.7639	0.4660	0.0192	0.4852		2,166.7485	2,166.7485	0.1133		2,169.5813
Total	**4.0123**	**2.3287**	**6.5123**	**0.0219**	**1.7433**	**0.0268**	**1.7702**	**0.4660**	**0.0256**	**0.4916**		**2,265.8824**	**2,265.8824**	**0.1153**	**1.8200e-003**	**2,269.3063**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.4605	1.4000e-004	0.0148	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0314	0.0314	8.0000e-005		0.0335
Energy	9.0800e-003	0.0826	0.0694	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003		99.1025	99.1025	1.9000e-003	1.8200e-003	99.6914
Mobile	0.5427	2.2459	6.4282	0.0214	1.7433	0.0205	1.7639	0.4660	0.0192	0.4852		2,166.7485	2,166.7485	0.1133		2,169.5813
Total	**4.0123**	**2.3287**	**6.5123**	**0.0219**	**1.7433**	**0.0268**	**1.7702**	**0.4660**	**0.0256**	**0.4916**		**2,265.8824**	**2,265.8824**	**0.1153**	**1.8200e-003**	**2,269.3063**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Prep/Grading	Grading	1/1/2019	2/11/2019	5	30	
2	Foundations	Building Construction	2/12/2019	12/30/2019	5	230	
3	Vertical Construction	Building Construction	7/23/2019	12/30/2019	5	115	
4	Paving & Finish Site	Paving	12/31/2019	1/27/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 4.13

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Vertical Construction	Cranes	1	7.00	231	0.29
Vertical Construction	Forklifts	3	8.00	89	0.20
Site Prep/Grading	Excavators	1	8.00	158	0.38
Site Prep/Grading	Graders	1	8.00	187	0.41
Site Prep/Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Prep/Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Foundations	Cranes	1	7.00	231	0.29
Foundations	Forklifts	3	8.00	89	0.20
Foundations	Generator Sets	1	8.00	84	0.74
Foundations	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Foundations	Welders	1	8.00	46	0.45
Paving & Finish Site	Pavers	2	8.00	130	0.42
Paving & Finish Site	Paving Equipment	2	8.00	132	0.36
Paving & Finish Site	Rollers	2	8.00	80	0.38
Vertical Construction	Generator Sets	1	8.00	84	0.74
Vertical Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Vertical Construction	Welders	1	8.00	46	0.45
Site Prep/Grading	Scrapers	2	8.00	367	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Prep/Grading	8	16.00	12.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundations	9	20.00	20.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Vertical Construction	9	60.00	20.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving & Finish Site	6	40.00	10.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Prep/Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7216	54.3048	32.4969	0.0601		2.4144	2.4144		2.2213	2.2213		5,951.433 9	5,951.433 9	1.8830		5,998.508 2
Total	**4.7216**	**54.3048**	**32.4969**	**0.0601**	**8.6733**	**2.4144**	**11.0878**	**3.5965**	**2.2213**	**5.8178**		**5,951.433 9**	**5,951.433 9**	**1.8830**		**5,998.508 2**

3.2 Site Prep/Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0552	1.4879	0.3841	3.3100e-003	0.0812	0.0104	0.0916	0.0234	9.9000e-003	0.0333		355.2200	355.2200	0.0274		355.9056
Worker	0.0628	0.0438	0.4951	1.4000e-003	0.1314	9.4000e-004	0.1324	0.0349	8.6000e-004	0.0357		139.2319	139.2319	4.4500e-003		139.3431
Total	**0.1181**	**1.5317**	**0.8792**	**4.7100e-003**	**0.2127**	**0.0113**	**0.2240**	**0.0583**	**0.0108**	**0.0690**		**494.4519**	**494.4519**	**0.0319**		**495.2487**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7216	54.3048	32.4969	0.0601		2.4144	2.4144		2.2213	2.2213	0.0000	5,951.4339	5,951.4339	1.8830		5,998.5082
Total	**4.7216**	**54.3048**	**32.4969**	**0.0601**	**8.6733**	**2.4144**	**11.0878**	**3.5965**	**2.2213**	**5.8178**	**0.0000**	**5,951.4339**	**5,951.4339**	**1.8830**		**5,998.5082**

3.2 Site Prep/Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0552	1.4879	0.3841	3.3100e-003	0.0812	0.0104	0.0916	0.0234	9.9000e-003	0.0333		355.2200	355.2200	0.0274		355.9056
Worker	0.0628	0.0438	0.4951	1.4000e-003	0.1314	9.4000e-004	0.1324	0.0349	8.6000e-004	0.0357		139.2319	139.2319	4.4500e-003		139.3431
Total	**0.1181**	**1.5317**	**0.8792**	**4.7100e-003**	**0.2127**	**0.0113**	**0.2240**	**0.0583**	**0.0108**	**0.0690**		**494.4519**	**494.4519**	**0.0319**		**495.2487**

3.3 Foundations - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.580 2**	**2,591.580 2**	**0.6313**		**2,607.363 5**

3.3 Foundations - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0921	2.4798	0.6402	5.5200e-003	0.1354	0.0173	0.1526	0.0390	0.0165	0.0555		592.0333	592.0333	0.0457		593.1760
Worker	0.0785	0.0548	0.6188	1.7500e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		174.0399	174.0399	5.5600e-003		174.1789
Total	**0.1706**	**2.5346**	**1.2590**	**7.2700e-003**	**0.2997**	**0.0184**	**0.3181**	**0.0826**	**0.0176**	**0.1001**		**766.0732**	**766.0732**	**0.0513**		**767.3548**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.580 2**	**2,591.580 2**	**0.6313**		**2,607.363 5**

3.3 Foundations - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0921	2.4798	0.6402	5.5200e-003	0.1354	0.0173	0.1526	0.0390	0.0165	0.0555		592.0333	592.0333	0.0457		593.1760
Worker	0.0785	0.0548	0.6188	1.7500e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		174.0399	174.0399	5.5600e-003		174.1789
Total	**0.1706**	**2.5346**	**1.2590**	**7.2700e-003**	**0.2997**	**0.0184**	**0.3181**	**0.0826**	**0.0176**	**0.1001**		**766.0732**	**766.0732**	**0.0513**		**767.3548**

3.4 Vertical Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.580 2**	**2,591.580 2**	**0.6313**		**2,607.363 5**

3.4 Vertical Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0921	2.4798	0.6402	5.5200e-003	0.1354	0.0173	0.1526	0.0390	0.0165	0.0555		592.0333	592.0333	0.0457		593.1760
Worker	0.2356	0.1644	1.8565	5.2400e-003	0.4929	3.5100e-003	0.4964	0.1307	3.2400e-003	0.1340		522.1198	522.1198	0.0167		522.5366
Total	**0.3276**	**2.6442**	**2.4967**	**0.0108**	**0.6283**	**0.0208**	**0.6490**	**0.1697**	**0.0197**	**0.1895**		**1,114.1531**	**1,114.1531**	**0.0624**		**1,115.7126**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.4 Vertical Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0921	2.4798	0.6402	5.5200e-003	0.1354	0.0173	0.1526	0.0390	0.0165	0.0555		592.0333	592.0333	0.0457		593.1760
Worker	0.2356	0.1644	1.8565	5.2400e-003	0.4929	3.5100e-003	0.4964	0.1307	3.2400e-003	0.1340		522.1198	522.1198	0.0167		522.5366
Total	**0.3276**	**2.6442**	**2.4967**	**0.0108**	**0.6283**	**0.0208**	**0.6490**	**0.1697**	**0.0197**	**0.1895**		**1,114.1531**	**1,114.1531**	**0.0624**		**1,115.7126**

3.5 Paving & Finish Site - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.5410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9955**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 Paving & Finish Site - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0460	1.2399	0.3201	2.7600e-003	0.0677	8.6300e-003	0.0763	0.0195	8.2500e-003	0.0277		296.0166	296.0166	0.0229		296.5880
Worker	0.1571	0.1096	1.2377	3.4900e-003	0.3286	2.3400e-003	0.3309	0.0872	2.1600e-003	0.0893		348.0799	348.0799	0.0111		348.3577
Total	**0.2031**	**1.3495**	**1.5578**	**6.2500e-003**	**0.3963**	**0.0110**	**0.4073**	**0.1067**	**0.0104**	**0.1171**		**644.0965**	**644.0965**	**0.0340**		**644.9457**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.5410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9955**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 Paving & Finish Site - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0460	1.2399	0.3201	2.7600e-003	0.0677	8.6300e-003	0.0763	0.0195	8.2500e-003	0.0277		296.0166	296.0166	0.0229		296.5880
Worker	0.1571	0.1096	1.2377	3.4900e-003	0.3286	2.3400e-003	0.3309	0.0872	2.1600e-003	0.0893		348.0799	348.0799	0.0111		348.3577
Total	**0.2031**	**1.3495**	**1.5578**	**6.2500e-003**	**0.3963**	**0.0110**	**0.4073**	**0.1067**	**0.0104**	**0.1171**		**644.0965**	**644.0965**	**0.0340**		**644.9457**

3.5 Paving & Finish Site - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.5410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8976**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.5 Paving & Finish Site - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0374	1.1276	0.2873	2.7400e-003	0.0677	5.5200e-003	0.0732	0.0195	5.2800e-003	0.0248		294.0401	294.0401	0.0217		294.5824
Worker	0.1468	0.0989	1.1338	3.3800e-003	0.3286	2.3100e-003	0.3309	0.0872	2.1200e-003	0.0893		337.0988	337.0988	0.0101		337.3505
Total	**0.1842**	**1.2265**	**1.4211**	**6.1200e-003**	**0.3963**	**7.8300e-003**	**0.4041**	**0.1067**	**7.4000e-003**	**0.1140**		**631.1389**	**631.1389**	**0.0318**		**631.9328**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.5410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8976**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.5 Paving & Finish Site - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0374	1.1276	0.2873	2.7400e-003	0.0677	5.5200e-003	0.0732	0.0195	5.2800e-003	0.0248		294.0401	294.0401	0.0217		294.5824
Worker	0.1468	0.0989	1.1338	3.3800e-003	0.3286	2.3100e-003	0.3309	0.0872	2.1200e-003	0.0893		337.0988	337.0988	0.0101		337.3505
Total	**0.1842**	**1.2265**	**1.4211**	**6.1200e-003**	**0.3963**	**7.8300e-003**	**0.4041**	**0.1067**	**7.4000e-003**	**0.1140**		**631.1389**	**631.1389**	**0.0318**		**631.9328**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5427	2.2459	6.4282	0.0214	1.7433	0.0205	1.7639	0.4660	0.0192	0.4852		2,166.7485	2,166.7485	0.1133		2,169.5813
Unmitigated	0.5427	2.2459	6.4282	0.0214	1.7433	0.0205	1.7639	0.4660	0.0192	0.4852		2,166.7485	2,166.7485	0.1133		2,169.5813

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	281.59	281.59	281.59	822,106	822,106
Total	281.59	281.59	281.59	822,106	822,106

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Parking Lot	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Unrefrigerated Warehouse-No Rail	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	9.0800e-003	0.0826	0.0694	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003		99.1025	99.1025	1.9000e-003	1.8200e-003	99.6914
NaturalGas Unmitigated	9.0800e-003	0.0826	0.0694	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003		99.1025	99.1025	1.9000e-003	1.8200e-003	99.6914

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	222.975	2.4000e-003	0.0219	0.0184	1.3000e-004		1.6600e-003	1.6600e-003		1.6600e-003	1.6600e-003		26.2324	26.2324	5.0000e-004	4.8000e-004	26.3882
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	619.396	6.6800e-003	0.0607	0.0510	3.6000e-004		4.6200e-003	4.6200e-003		4.6200e-003	4.6200e-003		72.8701	72.8701	1.4000e-003	1.3400e-003	73.3032
Total		**9.0800e-003**	**0.0826**	**0.0694**	**4.9000e-004**		**6.2800e-003**	**6.2800e-003**		**6.2800e-003**	**6.2800e-003**		**99.1025**	**99.1025**	**1.9000e-003**	**1.8200e-003**	**99.6914**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.222975	2.4000e-003	0.0219	0.0184	1.3000e-004		1.6600e-003	1.6600e-003		1.6600e-003	1.6600e-003		26.2324	26.2324	5.0000e-004	4.8000e-004	26.3882
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.619396	6.6800e-003	0.0607	0.0510	3.6000e-004		4.6200e-003	4.6200e-003		4.6200e-003	4.6200e-003		72.8701	72.8701	1.4000e-003	1.3400e-003	73.3032
Total		**9.0800e-003**	**0.0826**	**0.0694**	**4.9000e-004**		**6.2800e-003**	**6.2800e-003**		**6.2800e-003**	**6.2800e-003**		**99.1025**	**99.1025**	**1.9000e-003**	**1.8200e-003**	**99.6914**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.4605	1.4000e-004	0.0148	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0314	0.0314	8.0000e-005		0.0335
Unmitigated	3.4605	1.4000e-004	0.0148	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0314	0.0314	8.0000e-005		0.0335

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4120					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.0471					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.3900e-003	1.4000e-004	0.0148	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0314	0.0314	8.0000e-005		0.0335
Total	**3.4605**	**1.4000e-004**	**0.0148**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0314**	**0.0314**	**8.0000e-005**		**0.0335**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4120					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.0471					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.3900e-003	1.4000e-004	0.0148	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0314	0.0314	8.0000e-005		0.0335
Total	**3.4605**	**1.4000e-004**	**0.0148**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0314**	**0.0314**	**8.0000e-005**		**0.0335**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

8797 Rancho Penasquitos RV/Mini Storage Facility

San Diego County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	4.03	1000sqft	0.09	4,031.00	0
Unrefrigerated Warehouse-No Rail	135.38	1000sqft	1.03	135,377.00	0
Parking Lot	4.13	Acre	4.13	179,902.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	457.25	**CH4 Intensity (lb/MWhr)**	0.018	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Energy intensity factors updated based on SDG&E renewable procurement
(457.25, 0.018, 0.004)

Land Use - 139,408 sf mini-storage, including 4,031 sf office, 5.25 acres

Construction Phase - Construction schedule from project applicant

Trips and VMT - No soil export
Project traffic report

Grading -

Architectural Coating - SDAPCD Rule 67.0.1

Vehicle Trips - 281 trips (2.08)

Area Coating - SDAPCD Rule 67.0.1

Energy Use -

Water And Wastewater - CalGreen 20% decrease in indoor water use (573, 013.6, 25,045,300)

Waste Mitigation -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100
tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	100
tblConstructionPhase	NumDays	230.00	115.00
tblConstructionPhase	NumDays	20.00	30.00
tblLandUse	LandUseSquareFeet	4,030.00	4,031.00
tblLandUse	LandUseSquareFeet	135,380.00	135,377.00

tblLandUse	LotAcreage	3.11	1.03
tblOffRoadEquipment	LoadFactor	0.48	0.48
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.018
tblProjectCharacteristics	CO2IntensityFactor	720.49	457.25
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblTripsAndVMT	VendorTripNumber	0.00	12.00
tblTripsAndVMT	VendorTripNumber	52.00	20.00
tblTripsAndVMT	VendorTripNumber	52.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00
tblTripsAndVMT	WorkerTripNumber	134.00	20.00
tblTripsAndVMT	WorkerTripNumber	134.00	60.00
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblVehicleTrips	ST_TR	2.46	0.00
tblVehicleTrips	ST_TR	1.68	2.08
tblVehicleTrips	SU_TR	1.05	0.00
tblVehicleTrips	SU_TR	1.68	2.08
tblVehicleTrips	WD_TR	11.03	0.00
tblVehicleTrips	WD_TR	1.68	2.08
tblWater	IndoorWaterUseRate	716,267.00	573,013.60
tblWater	IndoorWaterUseRate	31,306,625.00	25,045,300.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	5.2696	55.8431	38.0863	0.0711	8.8860	2.6195	11.3119	3.6548	2.4633	5.8870	0.0000	6,990.6923	6,990.6923	1.9164	0.0000	7,025.2174
2020	2.1030	15.3033	16.0399	0.0287	0.3963	0.7607	1.1570	0.1067	0.7001	0.8067	0.0000	2,810.6484	2,810.6484	0.7466	0.0000	2,829.3135
Maximum	**5.2696**	**55.8431**	**38.0863**	**0.0711**	**8.8860**	**2.6195**	**11.3119**	**3.6548**	**2.4633**	**5.8870**	**0.0000**	**6,990.6923**	**6,990.6923**	**1.9164**	**0.0000**	**7,025.2174**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	5.2696	55.8431	38.0863	0.0711	8.8860	2.6195	11.3119	3.6548	2.4633	5.8870	0.0000	6,990.6923	6,990.6923	1.9164	0.0000	7,025.2174
2020	2.1030	15.3033	16.0399	0.0287	0.3963	0.7607	1.1570	0.1067	0.7001	0.8067	0.0000	2,810.6484	2,810.6484	0.7466	0.0000	2,829.3135
Maximum	**5.2696**	**55.8431**	**38.0863**	**0.0711**	**8.8860**	**2.6195**	**11.3119**	**3.6548**	**2.4633**	**5.8870**	**0.0000**	**6,990.6923**	**6,990.6923**	**1.9164**	**0.0000**	**7,025.2174**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.4605	1.4000e-004	0.0148	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0314	0.0314	8.0000e-005		0.0335
Energy	9.0800e-003	0.0826	0.0694	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003		99.1025	99.1025	1.9000e-003	1.8200e-003	99.6914
Mobile	0.5282	2.3165	6.3187	0.0203	1.7433	0.0206	1.7640	0.4660	0.0194	0.4854		2,054.6935	2,054.6935	0.1135		2,057.5318
Total	**3.9978**	**2.3993**	**6.4028**	**0.0208**	**1.7433**	**0.0270**	**1.7703**	**0.4660**	**0.0257**	**0.4917**		**2,153.8274**	**2,153.8274**	**0.1155**	**1.8200e-003**	**2,157.2567**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.4605	1.4000e-004	0.0148	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0314	0.0314	8.0000e-005		0.0335
Energy	9.0800e-003	0.0826	0.0694	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003		99.1025	99.1025	1.9000e-003	1.8200e-003	99.6914
Mobile	0.5282	2.3165	6.3187	0.0203	1.7433	0.0206	1.7640	0.4660	0.0194	0.4854		2,054.6935	2,054.6935	0.1135		2,057.5318
Total	**3.9978**	**2.3993**	**6.4028**	**0.0208**	**1.7433**	**0.0270**	**1.7703**	**0.4660**	**0.0257**	**0.4917**		**2,153.8274**	**2,153.8274**	**0.1155**	**1.8200e-003**	**2,157.2567**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Prep/Grading	Grading	1/1/2019	2/11/2019	5	30	
2	Foundations	Building Construction	2/12/2019	12/30/2019	5	230	
3	Vertical Construction	Building Construction	7/23/2019	12/30/2019	5	115	
4	Paving & Finish Site	Paving	12/31/2019	1/27/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 4.13

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Vertical Construction	Cranes	1	7.00	231	0.29
Vertical Construction	Forklifts	3	8.00	89	0.20
Site Prep/Grading	Excavators	1	8.00	158	0.38
Site Prep/Grading	Graders	1	8.00	187	0.41
Site Prep/Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Prep/Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Foundations	Cranes	1	7.00	231	0.29
Foundations	Forklifts	3	8.00	89	0.20
Foundations	Generator Sets	1	8.00	84	0.74
Foundations	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Foundations	Welders	1	8.00	46	0.45
Paving & Finish Site	Pavers	2	8.00	130	0.42
Paving & Finish Site	Paving Equipment	2	8.00	132	0.36
Paving & Finish Site	Rollers	2	8.00	80	0.38
Vertical Construction	Generator Sets	1	8.00	84	0.74
Vertical Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Vertical Construction	Welders	1	8.00	46	0.45
Site Prep/Grading	Scrapers	2	8.00	367	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Prep/Grading	8	16.00	12.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundations	9	20.00	20.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Vertical Construction	9	60.00	20.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving & Finish Site	6	40.00	10.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Prep/Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7216	54.3048	32.4969	0.0601		2.4144	2.4144		2.2213	2.2213		5,951.4339	5,951.4339	1.8830		5,998.5082
Total	**4.7216**	**54.3048**	**32.4969**	**0.0601**	**8.6733**	**2.4144**	**11.0878**	**3.5965**	**2.2213**	**5.8178**		**5,951.4339**	**5,951.4339**	**1.8830**		**5,998.5082**

3.2 Site Prep/Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0576	1.4891	0.4259	3.2300e-003	0.0812	0.0105	0.0918	0.0234	0.0101	0.0335		346.2003	346.2003	0.0292		346.9297
Worker	0.0711	0.0492	0.4678	1.3100e-003	0.1314	9.4000e-004	0.1324	0.0349	8.6000e-004	0.0357		130.7062	130.7062	4.2200e-003		130.8116
Total	**0.1287**	**1.5383**	**0.8937**	**4.5400e-003**	**0.2127**	**0.0115**	**0.2241**	**0.0583**	**0.0109**	**0.0692**		**476.9065**	**476.9065**	**0.0334**		**477.7413**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7216	54.3048	32.4969	0.0601		2.4144	2.4144		2.2213	2.2213	0.0000	5,951.4339	5,951.4339	1.8830		5,998.5082
Total	**4.7216**	**54.3048**	**32.4969**	**0.0601**	**8.6733**	**2.4144**	**11.0878**	**3.5965**	**2.2213**	**5.8178**	**0.0000**	**5,951.4339**	**5,951.4339**	**1.8830**		**5,998.5082**

3.2 Site Prep/Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0576	1.4891	0.4259	3.2300e-003	0.0812	0.0105	0.0918	0.0234	0.0101	0.0335		346.2003	346.2003	0.0292		346.9297
Worker	0.0711	0.0492	0.4678	1.3100e-003	0.1314	9.4000e-004	0.1324	0.0349	8.6000e-004	0.0357		130.7062	130.7062	4.2200e-003		130.8116
Total	**0.1287**	**1.5383**	**0.8937**	**4.5400e-003**	**0.2127**	**0.0115**	**0.2241**	**0.0583**	**0.0109**	**0.0692**		**476.9065**	**476.9065**	**0.0334**		**477.7413**

3.3 Foundations - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.580 2	2,591.580 2	0.6313		2,607.363 5
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.580 2**	**2,591.580 2**	**0.6313**		**2,607.363 5**

3.3 Foundations - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0960	2.4818	0.7098	5.3800e-003	0.1354	0.0176	0.1530	0.0390	0.0168	0.0558		577.0005	577.0005	0.0486		578.2161
Worker	0.0888	0.0616	0.5848	1.6400e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		163.3828	163.3828	5.2700e-003		163.5146
Total	**0.1848**	**2.5433**	**1.2946**	**7.0200e-003**	**0.2997**	**0.0187**	**0.3184**	**0.0826**	**0.0179**	**0.1004**		**740.3833**	**740.3833**	**0.0539**		**741.7307**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.3 Foundations - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0960	2.4818	0.7098	5.3800e-003	0.1354	0.0176	0.1530	0.0390	0.0168	0.0558		577.0005	577.0005	0.0486		578.2161
Worker	0.0888	0.0616	0.5848	1.6400e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		163.3828	163.3828	5.2700e-003		163.5146
Total	**0.1848**	**2.5433**	**1.2946**	**7.0200e-003**	**0.2997**	**0.0187**	**0.3184**	**0.0826**	**0.0179**	**0.1004**		**740.3833**	**740.3833**	**0.0539**		**741.7307**

3.4 Vertical Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.4 Vertical Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0960	2.4818	0.7098	5.3800e-003	0.1354	0.0176	0.1530	0.0390	0.0168	0.0558		577.0005	577.0005	0.0486		578.2161
Worker	0.2665	0.1847	1.7544	4.9200e-003	0.4929	3.5100e-003	0.4964	0.1307	3.2400e-003	0.1340		490.1483	490.1483	0.0158		490.5436
Total	**0.3625**	**2.6664**	**2.4642**	**0.0103**	**0.6283**	**0.0211**	**0.6494**	**0.1697**	**0.0200**	**0.1897**		**1,067.1488**	**1,067.1488**	**0.0644**		**1,068.7598**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.4 Vertical Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0960	2.4818	0.7098	5.3800e-003	0.1354	0.0176	0.1530	0.0390	0.0168	0.0558		577.0005	577.0005	0.0486		578.2161
Worker	0.2665	0.1847	1.7544	4.9200e-003	0.4929	3.5100e-003	0.4964	0.1307	3.2400e-003	0.1340		490.1483	490.1483	0.0158		490.5436
Total	**0.3625**	**2.6664**	**2.4642**	**0.0103**	**0.6283**	**0.0211**	**0.6494**	**0.1697**	**0.0200**	**0.1897**		**1,067.1488**	**1,067.1488**	**0.0644**		**1,068.7598**

3.5 Paving & Finish Site - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586		2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.5410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9955**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**		**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 Paving & Finish Site - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0480	1.2409	0.3549	2.6900e-003	0.0677	8.7800e-003	0.0765	0.0195	8.4000e-003	0.0279		288.5003	288.5003	0.0243		289.1081
Worker	0.1776	0.1231	1.1696	3.2800e-003	0.3286	2.3400e-003	0.3309	0.0872	2.1600e-003	0.0893		326.7655	326.7655	0.0105		327.0291
Total	**0.2256**	**1.3640**	**1.5245**	**5.9700e-003**	**0.3963**	**0.0111**	**0.4074**	**0.1067**	**0.0106**	**0.1172**		**615.2658**	**615.2658**	**0.0349**		**616.1372**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4544	15.2441	14.6648	0.0228		0.8246	0.8246		0.7586	0.7586	0.0000	2,257.0025	2,257.0025	0.7141		2,274.8548
Paving	0.5410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9955**	**15.2441**	**14.6648**	**0.0228**		**0.8246**	**0.8246**		**0.7586**	**0.7586**	**0.0000**	**2,257.0025**	**2,257.0025**	**0.7141**		**2,274.8548**

3.5 Paving & Finish Site - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0480	1.2409	0.3549	2.6900e-003	0.0677	8.7800e-003	0.0765	0.0195	8.4000e-003	0.0279		288.5003	288.5003	0.0243		289.1081
Worker	0.1776	0.1231	1.1696	3.2800e-003	0.3286	2.3400e-003	0.3309	0.0872	2.1600e-003	0.0893		326.7655	326.7655	0.0105		327.0291
Total	**0.2256**	**1.3640**	**1.5245**	**5.9700e-003**	**0.3963**	**0.0111**	**0.4074**	**0.1067**	**0.0106**	**0.1172**		**615.2658**	**615.2658**	**0.0349**		**616.1372**

3.5 Paving & Finish Site - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.5410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8976**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.5 Paving & Finish Site - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0391	1.1267	0.3188	2.6700e-003	0.0677	5.6200e-003	0.0733	0.0195	5.3800e-003	0.0249		286.4622	286.4622	0.0231		287.0385
Worker	0.1662	0.1110	1.0690	3.1800e-003	0.3286	2.3100e-003	0.3309	0.0872	2.1200e-003	0.0893		316.4528	316.4528	9.5300e-003		316.6910
Total	**0.2054**	**1.2377**	**1.3878**	**5.8500e-003**	**0.3963**	**7.9300e-003**	**0.4042**	**0.1067**	**7.5000e-003**	**0.1141**		**602.9150**	**602.9150**	**0.0326**		**603.7295**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.5410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8976**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.5 Paving & Finish Site - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0391	1.1267	0.3188	2.6700e-003	0.0677	5.6200e-003	0.0733	0.0195	5.3800e-003	0.0249		286.4622	286.4622	0.0231		287.0385
Worker	0.1662	0.1110	1.0690	3.1800e-003	0.3286	2.3100e-003	0.3309	0.0872	2.1200e-003	0.0893		316.4528	316.4528	9.5300e-003		316.6910
Total	**0.2054**	**1.2377**	**1.3878**	**5.8500e-003**	**0.3963**	**7.9300e-003**	**0.4042**	**0.1067**	**7.5000e-003**	**0.1141**		**602.9150**	**602.9150**	**0.0326**		**603.7295**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5282	2.3165	6.3187	0.0203	1.7433	0.0206	1.7640	0.4660	0.0194	0.4854		2,054.6935	2,054.6935	0.1135		2,057.5318
Unmitigated	0.5282	2.3165	6.3187	0.0203	1.7433	0.0206	1.7640	0.4660	0.0194	0.4854		2,054.6935	2,054.6935	0.1135		2,057.5318

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	281.59	281.59	281.59	822,106	822,106
Total	281.59	281.59	281.59	822,106	822,106

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Parking Lot	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Unrefrigerated Warehouse-No Rail	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	9.0800e-003	0.0826	0.0694	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003		99.1025	99.1025	1.9000e-003	1.8200e-003	99.6914
NaturalGas Unmitigated	9.0800e-003	0.0826	0.0694	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003		99.1025	99.1025	1.9000e-003	1.8200e-003	99.6914

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	222.975	2.4000e-003	0.0219	0.0184	1.3000e-004		1.6600e-003	1.6600e-003		1.6600e-003	1.6600e-003		26.2324	26.2324	5.0000e-004	4.8000e-004	26.3882
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	619.396	6.6800e-003	0.0607	0.0510	3.6000e-004		4.6200e-003	4.6200e-003		4.6200e-003	4.6200e-003		72.8701	72.8701	1.4000e-003	1.3400e-003	73.3032
Total		**9.0800e-003**	**0.0826**	**0.0694**	**4.9000e-004**		**6.2800e-003**	**6.2800e-003**		**6.2800e-003**	**6.2800e-003**		**99.1025**	**99.1025**	**1.9000e-003**	**1.8200e-003**	**99.6914**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.222975	2.4000e-003	0.0219	0.0184	1.3000e-004		1.6600e-003	1.6600e-003		1.6600e-003	1.6600e-003		26.2324	26.2324	5.0000e-004	4.8000e-004	26.3882
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.619396	6.6800e-003	0.0607	0.0510	3.6000e-004		4.6200e-003	4.6200e-003		4.6200e-003	4.6200e-003		72.8701	72.8701	1.4000e-003	1.3400e-003	73.3032
Total		**9.0800e-003**	**0.0826**	**0.0694**	**4.9000e-004**		**6.2800e-003**	**6.2800e-003**		**6.2800e-003**	**6.2800e-003**		**99.1025**	**99.1025**	**1.9000e-003**	**1.8200e-003**	**99.6914**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.4605	1.4000e-004	0.0148	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0314	0.0314	8.0000e-005		0.0335
Unmitigated	3.4605	1.4000e-004	0.0148	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0314	0.0314	8.0000e-005		0.0335

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4120					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.0471					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.3900e-003	1.4000e-004	0.0148	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0314	0.0314	8.0000e-005		0.0335
Total	**3.4605**	**1.4000e-004**	**0.0148**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0314**	**0.0314**	**8.0000e-005**		**0.0335**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.4120					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.0471					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.3900e-003	1.4000e-004	0.0148	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0314	0.0314	8.0000e-005		0.0335
Total	**3.4605**	**1.4000e-004**	**0.0148**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0314**	**0.0314**	**8.0000e-005**		**0.0335**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

RECON

An Employee-Owned Company

October 16, 2018

Ms. Martha Blake
Development Project Manager
City of San Diego Development Services Department
1222 First Avenue, MS 301
San Diego, CA 92101

Reference: Recommendation to remove the Cultural Resources Mitigation Monitoring Requirement for Project Grading for the Sun Ridge Vista RV/Mini Storage Project, San Diego, California (RECON Number 8797)

Dear Ms. Blake:

This letter summarizes the recommendation to remove the requirement for cultural resources monitoring from the Mitigation, Monitoring, and Reporting Program for the Sun Ridge Vista RV/Mini Storage Project (project), located in the community of Rancho Peñasquitos, in the city of San Diego, California. Geologic testing performed by GEOCON, Inc. in September 2018, subsequent to the RECON cultural resources survey of August 2017 revealed that the entire project site has been heavily disturbed by the deposition of fill across the property and associated ground surface disturbance. Because of this new information, the potential for subsurface cultural resources is too low to require cultural resources monitoring during grading for the project.

The project is located in the southwest corner of the intersection of Interstate 15 (I-15) and State Route 56/Ted Williams Parkway (SR-56), with I-15 forming the northern boundary of the site and SR-56 the southeastern boundary (Figures 1–3). A large multi-family development forms the western boundary of the site.

Background

The July 2017 record search performed for the cultural resources survey indicated that there are 21 cultural resources within a one-mile radius of the project parcel, but no prehistoric or historic cultural resources are recorded on or adjacent to the project. Recorded sites include 16 prehistoric sites/isolates and four historic sites. The two closest recorded archaeological sites are CA-SDI-25,552 and CA-SDI-6937, both approximately 600 feet away from the project. CA-SDI-25,552 is a Late Prehistoric site consisting of a number of bedrock milling features with artifacts, located to the southeast of the project. CA-SDI-6937 is a Late Prehistoric quartz quarry east of the project. Both sites have been destroyed by development.

A series of air photographs dating from between 1953 and 1967 (Nationwide Environmental Title Research, LLC 1999–2018) were reviewed prior to the survey to determine if any impacts had occurred to the property in the past. In a 1980 air photograph, the northeastern half of the site has been scraped/graded to some extent and the area is being used as a staging/storage area. The southwestern half of the site appears not to have been disturbed. In a 1989 air photograph, the southwestern edge of the site has been scraped/graded to some extent, probably as part of the I-15/SR-56 interchange. Sometime between 1996 and 2002, the concrete drainage in the center of the site was installed. Although the ground surface had obviously been disturbed, the depth of disturbance could not be accurately determined from the photographs.

The August 23, 2017 cultural resources survey found no prehistoric or historic cultural resources on the property. Observation of the ground surface confirmed at least part of the property had been disturbed Broken volcanic bedrock, ranging in size from gravel to large angular cobbles, covered much of the ground surface, evidence of the past grading/scraping. There was also gravel along the low ridge and some scattered small concrete chunks. In addition, the central portion of the property had been disturbed by the construction of the drain. Because the depth of disturbance could not be determined with the information available, RECON determined that the prudent course to mitigate for potential subsurface cultural resources was to recommend all grading be monitored by a qualified archaeologist and a Native American monitor.

Subsequent to the cultural resources survey, a geologic testing program was conducted by GEOCON Inc. for the project. Monitoring took place September 4 and 18, 2018. Geologic testing consisted of 17 trenches and five borings (Figure 4). Trenches were located predominantly along the perimeter and central portion of the proposed development area. Trenches averaged between 12 and 16 feet in length and 8 to 18 feet in depth. Most were excavated into decomposing volcanic bedrock. The three borings were approximately 30 inches in diameter and went down between 13 and 20 feet.

Geologic test trenching determined that all of the project property is covered by undocumented fill varying in depth. Maximum fill depths of between 8 and 20 feet occur on the man-made slope in the western side of the property and in the mostly flat areas adjacent to the wetland. Depths of fill on the ridge and slope in the northern half of the property vary between three and 18 feet with the average between 5 and 7 feet. Fill consisted primarily of sandy to clayey silts and silty clays. The fill contains cobbles, fragments of sandstone, siltstone, claystone, and metavolcanic rock. This mix of fill materials suggests the fill is from areas west of the project where Stadium Conglomerate, Mission Valley Formation and Friars Formation are mapped (GEOCON Inc. 2018).

Patches of dark brown clay representing the original ground surface and A horizon soils were found in a few of the trenches on the ridge slope. However, this soil horizon was disturbed or absent over much of the property. On the top of the ridge, the shallow fill sat upon weathered metavolcanic rock, and there was no indication of dark brown clay. A horizon soils are those soils that would potentially contain cultural resources. The absence or disturbance of a continuous ground surface or A horizon indicates the extent of disturbance probably resulting from a combination of scraping and depositing of the fill soils over the property.

Conclusions

No significant prehistoric or historic cultural resources have been previously recorded within or immediately adjacent to the project area. Also, no new historic or prehistoric cultural resources were found during the RECON 2017 survey of the project area. No cultural resources were observed during the monitoring of the GEOCON geologic testing in September 2018. Geologic test trenching showed there is substantial subsurface disturbance from undocumented fill being dumped on the property in the past. The geologic test trenches also indicted that the original ground surface and the A horizon soils are absent or heavily disturbed. This new information on the lack of potential for subsurface cultural resources to be present on the project, received after RECON's 2017 survey, prompts RECON to revise its recommendations in the RECON 2017 cultural resources survey report that recommended cultural resource and Native American monitoring for all ground-disturbing activities. Based on the new information provided in the GEOCON report, RECON recommends no additional cultural resources work for the Sun Ridge Vista RV/Mini Storage Project.

Sincerely,

Harry J. Price

Harry J. Price
Project Archaeologist

HJP:jg

References Cited

GEOCON Incorporated.
2018 Geotechnical Investigation RV/Mini Storage Facility PEN 173, San Diego, California. Unpublished manuscript on file a RECON Environmental.

Nationwide Environmental Title Research LLC
2018 Historic Aerials. Available at http://www.historicaerials.com/. Accessed on November 17, 2015.

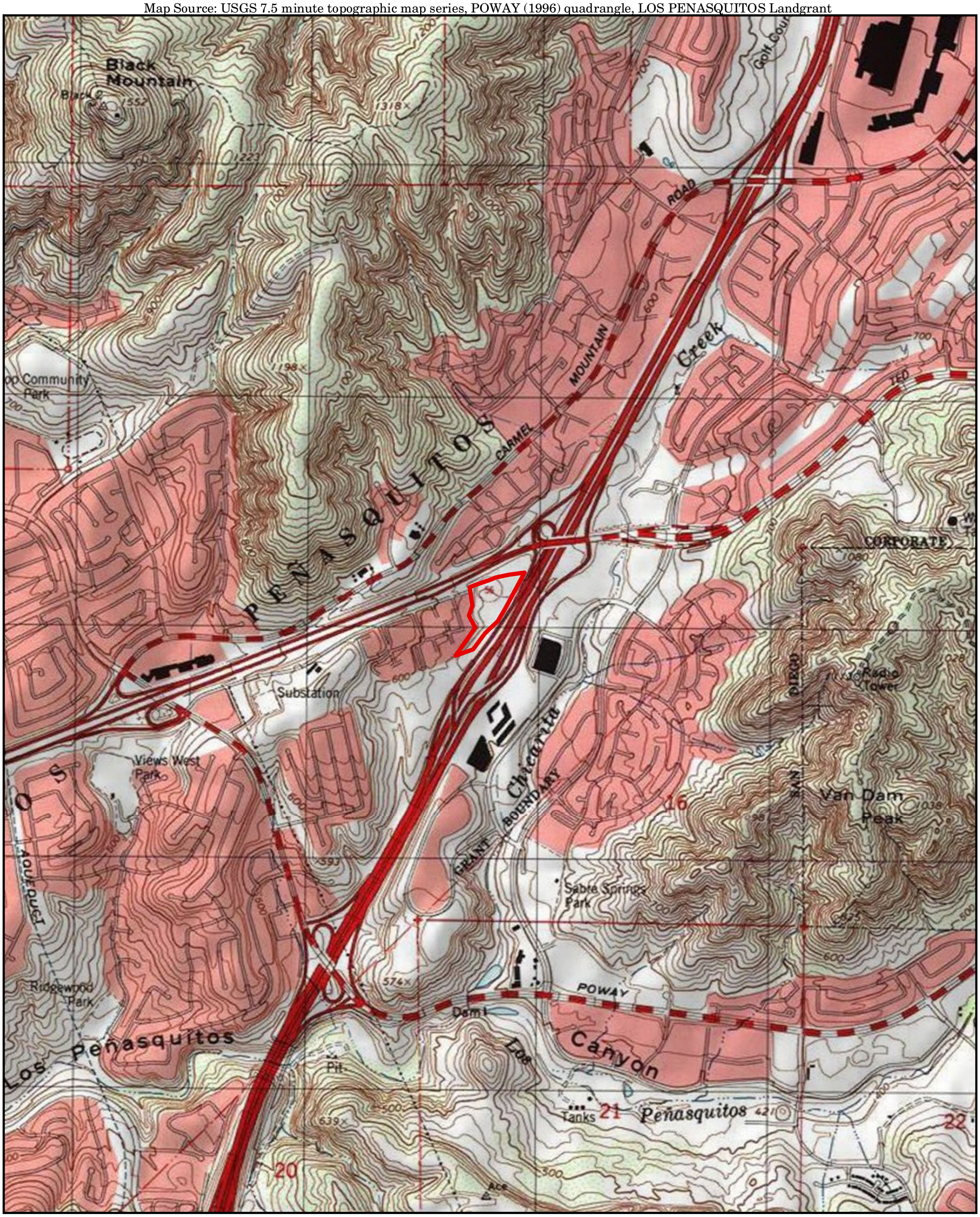
Project Location

FIGURE 1
Regional Location

RECON

M:\JOBS5\8797\common_gis\fig1.mxd 8/25/2017 sab

Map Source: USGS 7.5 minute topographic map series, POWAY (1996) quadrangle, LOS PENASQUITOS Landgrant



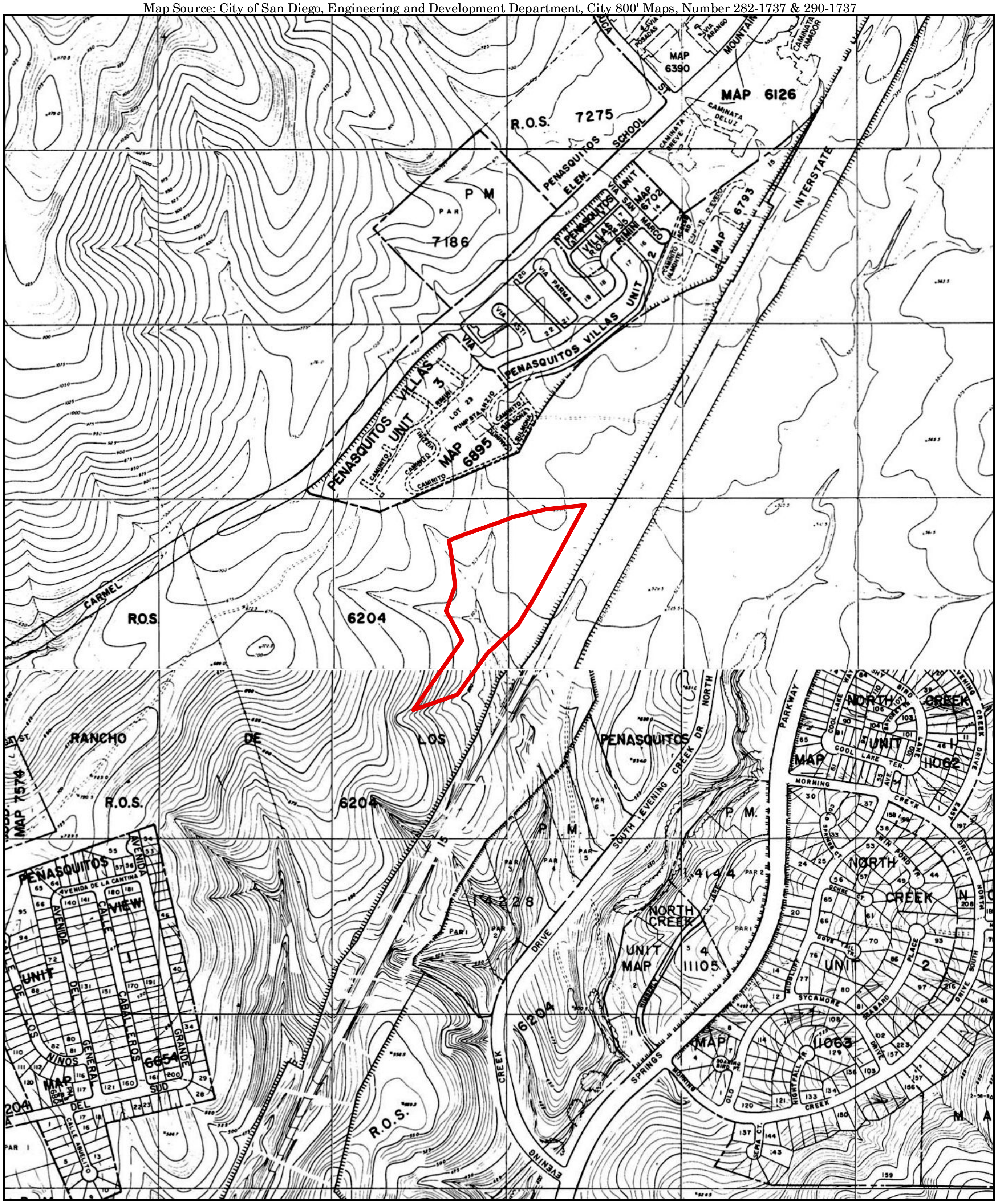
Project Boundary

FIGURE 2
Project Location on USGS Map

RECON

M:\JOBS5\8797\common_gis\fig2.mxd 8/25/2017 sab

Map Source: City of San Diego, Engineering and Development Department, City 800' Maps, Number 282-1737 & 290-1737



0 Feet 800

Project Boundary

FIGURE 3
Project Location on City 800' Map

RECON

M:\JOBS5\8797\common_gis\fig3.mxd 8/25/2017 sab

Map Source: GeoCon, Inc.

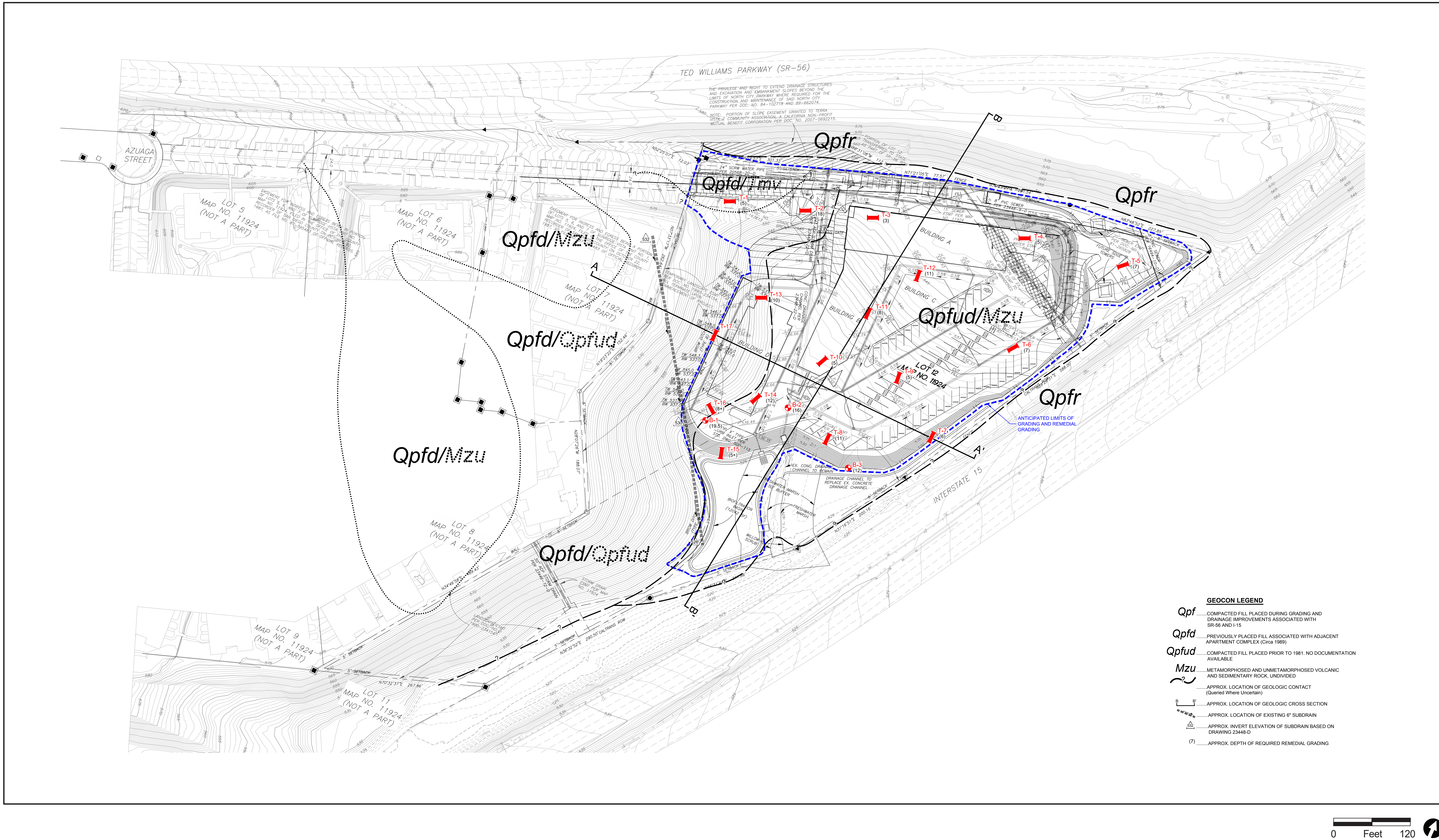


FIGURE 4

Locations of Geologic Testing Trenches, Borings, and Access Routes

RECON

M:\JOBS5\8797\arc\graphics\fig4.ai 10/01/2018 sab

DRAINAGE STUDY
FOR
Penasquitos RV & Mini Storage

PTS No. 534380, PDP 21 80790
January 2019

Prepared By:
LEPPERT ENGINEERING CORPORATION
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JOHN D. LEPPERT
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STATE OF CALIFORNIA

By: John D. Leppert, RCE 26283
Exp. 3/31/20

1/23/2019
Date

Table of Contents

Exhibits

Appendices

Drainage Study
Penasquitos RV & Mini Storage
August 2018

Purpose

The purpose of this drainage study is to estimate the quantity of storm water runoff from the proposed development of the Penasquitos RV & Mini Storage site. All water quality analysis will be accomplished in the SWQMP for this proposed development. The proposed stormdrain capacity will be analyzed as a part of the final engineering on the project.

Project Location

The proposed project is located at the south west corner of SR 56 and Interstate 15 within the Poway Hydrologic Area (Hydrologic Sub-area 906.20) of the Peñasquitos Hydrologic unit. (see Exhibit A).

Project Description

The project proposes multiple buildings to provide self storage units, and additional onsite surface parking for vehicle and RV storage. Additional support infrastructure including stormwater treatment facilities, drainage pipes and channels and re-routing of existing utilities are also included in the proposed project.

Method of Calculation

This study calculates the total runoff from the site using the guidelines set forth in the City of San Diego's Drainage Design Manual, dated April 2017 (see Appendix II – Design Runoff: City of San Diego Drainage Design Manual). The specific method used is the Rational Formula for watersheds under 0.5 square miles(see Appendix I – Rational Method: City of San Diego Drainage Design Manual). A 100 year storm event was used for the analysis. Per the City of San Diego Drainage Design Manual, for tributary areas less than one square mile the storm drain system shall be designed so that the combination of storm drain system capacity and overflow will be able to carry the 100-year frequency storm without damage to or flooding of adjacent existing buildings or potential building sites, and Type D soil shall be used for all areas (see Appendix III– Runoff Coefficients: City of San Diego Drainage Design Manual).

Autodesk Storm and Sanitary Analysis was used for the storm analysis. Autodesk Storm and Sanitary Analysis is a link-node based model that performs hydrology, hydraulic, and water quality analysis of storm water and wastewater drainage systems, including sewage treatment plants and water quality control devices. A link represents a hydraulic element (i.e., a pipe, channel, pump, standpipe, culvert, or weir) that transports flow and constituents. A node can represent the junction of two or more links, a storm drain catch basin inlet, the location of a flow or pollutant input into the system, or a storage element (such as a detention pond, retention pond, settling pond, or lake).

Drainage basin boundaries, flow patterns, and topographic elevations are shown on the drainage basin maps located in the map pockets (see Exhibit B – Existing Condition Drainage Basin Map & Exhibit D – Proposed Condition Basin Map).

Existing Condition

The existing condition analyses a total of three basins as shown on Exhibit B, representing the site area and one adjacent site contributing run-on to the project site. There is also an additional existing offsite flow from SR-56 to the north of the project site that discharges onsite via a storm drain pipe to a concrete drainage channel. This flow is quantified on 23448-22-D and input in the analysis at Jun-01 as shown thereon. See Appendix – V for a copy of the referenced plan sheet. .

Sub-basin A:
The adjacent Multi-family development to the west drains a portion of the parking lot onto the project site, where it joins the offsite runon from SR 56. These flows continue across the property in a southeasterly direction within a PCC lined channel (channel is shown as vegetated on 23448-D however actual condition of the channel is that it is lined). A site runoff coefficient of 0.70 was chosen corresponding to a "multi-unit" land use. (see Appendix III)

Sub-basin B:
The portion of the site west of the channel is a previously graded area with vegetated cover that drains to the PCC channel crossing the site. A site runoff coefficient of 0.45 for an undeveloped or rural land use was used for this basin.

Sub-basin C:
The portion of the site east of the channel is a previously graded area with vegetated cover that drains to the PCC channel crossing the site. A site runoff coefficient of 0.45 for an undeveloped or rural land use was used for this basin.

Time of Concentration and runoff calculations for each subbasin are tabulated below:

Basin	Acres	C	Length (ft)	Upper Elev. (ft)	Lower Elev. (ft)	Slope (%)	Tc (min)	Intensity (in/hr)	Q_{100} (cfs)
A	2.0	0.70	1023	615	545	6.8%	12.1	2.90	4.34
B	3.5	0.45	525	575	523	9.9%	12.5	2.86	4.82
C	3.9	0.45	675	550	523	4.0%	19.2	2.31	4.41

*Offsite flow of 28.9 CFS input as a baseline flow for the conveyance system

Intensity values were determined using the City of San Diego Drainage Design Manual Rainfall Intensity Duration Frequency Curves (see Appendix IV). The values represented on the curves is input into Autodesk SSA and the appropriate intensity is interpolated as necessary by the program.

The results of the analysis are included as Exhibit C. The peak runoff at Out-01 is 40.30 CFS based on the existing land uses and site conditions.

Proposed Condition

The proposed condition analysis analyzes three basins as shown on Exhibit D, representing the same areas as in the existing condition.

The PCC channel will be removed and the storm drain pipe will be extended to the southerly property line where it will discharge via an energy dissipater to the remaining section of the existing concrete drainage channel, which discharges to the existing wetland. The proposed on-site drainage system will maintain the existing drainage patterns.

Sub-basin A:
The total area representing this basin is reduced slightly due to installing a trench drain to re-direct this run-on into the proposed piped drainage system. A site runoff coefficient of 0.70 was chosen corresponding to a "multi-unit" land use. (see Appendix III)

Sub-basin B:
The portion of the site west of the developed area will be regraded and routed in a brow ditch around the development. This area will be preserved as open space, covenant of easement and for permanent stormwater treatment BMPs so a site runoff coefficient of 0.45 for an undeveloped land use, was chosen. Since this area has a reasonable expectation of never being developed this coefficient is appropriate.

Sub-basin C:
The developed portion of the site will flow in a private on-site system, approximately as shown. A site runoff coefficient of 0.85 for a commercial land use, was chosen, which represents a site imperviousness of 80%. The actual site imperviousness for the developed area is ~73% so this coefficient is appropriate.

Time of Concentration and runoff calculations for each subbasin are tabulated below:

Basin	Acres	C	Length (ft)	Upper Elev. (ft)	Lower Elev. (ft)	Slope (%)	Tc (min)	Intensity (in/hr)	Q_{100} (cfs)
A	1.8	0.70	820	615	565	6.1%	11.3	2.98	4.02
B	3.1	0.45	570	565	523	7.4%	14.4	2.90	4.04
C	4.6	0.85	825	545	523	2.7%	9.3	3.24	13.46

*Offsite flow of 28.9 CFS input as a baseline flow for the conveyance system

The results of the analysis are included as Exhibit E. The peak runoff at Out-01 is 34.62 CFS based on the existing land uses and site conditions.

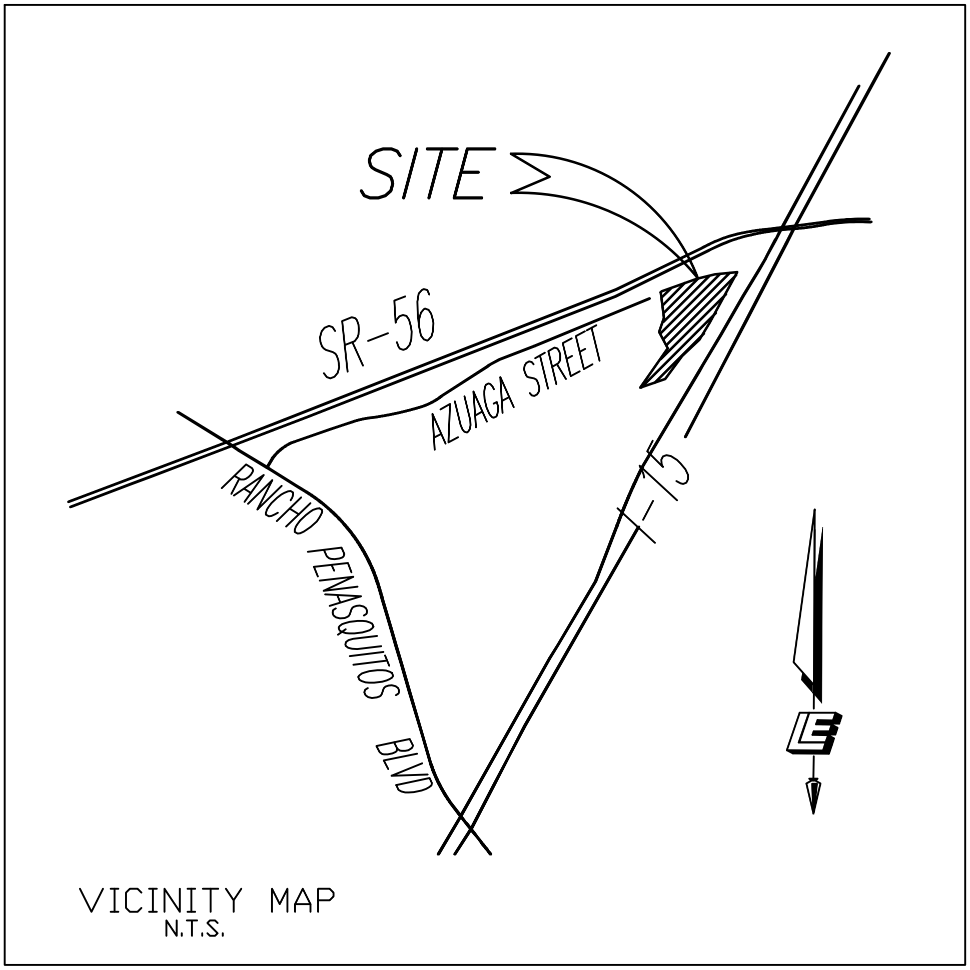
Conclusions

As compared to the existing condition, the proposed project decreases the peak runoff from the site. This is due to increased travel time for the runoff as it enters the provided bio-filtration ponding. The peak flow of 40.30 CFS existing decreases to 34.62 CFS proposed; a decrease of 5.68 CFS.

There is no anticipated negative impact to adjacent properties as a result of this project since the runoff total has been decreased. The project does propose impacts to the onsite PCC channel that will require mitigation the requires a 401/404 permit.

EXHIBIT "A" – Location Map

EXHIBIT 'A'



ASSESSOR'S PARCEL NUMBER:

315-570-07-00

LEGAL DESCRIPTION:

LOT 12 OF SUN RIDGE VISTA UNIT NO. 1, IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 11924, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, OCTOBER 22, 1987.

SITE ADDRESS:

SOUTHWEST CORNER OF SR-56 AND I-15
SAN DIEGO, CALIFORNIA 92129

EXHIBIT “B” – Existing Condition Drainage Basin Map

NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION
6				12			
5				11			
4				10			
3				9			
2				8			
1	03/08/2018	MFD	ORIGINAL	7			

Leppert Engineering
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5190 Governor Drive, Suite 205, San Diego, Ca. 92122-2848
Phone: (858) 597-2001 Fax: (858) 597-2009

APPROVED BY ENGINEER OF WORK

REGISTRATION R C E 26283

FILE CODE PN 06.03-11.91

DATE

PREPARATION AND REVISION LOG

PENASQUITOS RV AND MINI STORAGE

EXISTING DRAINAGE MAP

EXHIBIT “C” – Existing Condition SSA Analysis Results

Project Description

File Name	SSA Analysis - Existing.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	User-Defined
Link Routing Method	Kinematic Wave
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Sep 04, 2015	00:00:00
End Analysis On	Sep 05, 2015	00:00:00
Start Reporting On	Sep 04, 2015	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins	3
Nodes	3
Junctions	2
Outfalls	1
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links	2
Channels	2
Pipes	0
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	100 year(s)

Subbasin Summary

Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
A	2.00	0.7000	0.63	0.44	0.88	4.34	0 00:12:06
B	3.50	0.4500	0.64	0.29	1.00	4.82	0 00:12:30
C	3.90	0.4500	0.80	0.36	1.41	4.41	0 00:19:12

Node Summary

Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
Jun-01	Junction	550.82	552.32	0.00	0.00	33.24	551.11	0.00	1.21	0 00:00	0.00	0.00
Jun-02	Junction	527.45	528.95	0.00	0.00	40.88	527.93	0.00	1.02	0 00:00	0.00	0.00
Out-01	Outfall	523.00				40.30	523.47					

Link Summary

Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	Reported Condition
				(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)		(min)	
Link-01	Channel	Jun-01	Jun-02	200.00	550.82	527.45	11.6900	18.000	0.0300	33.18	2704.87	0.01	4.65	0.29	0.19	0.00	
Link-02	Channel	Jun-02	Out-01	372.00	527.45	523.00	1.2000	18.000	0.0300	40.30	865.45	0.05	2.09	0.47	0.32	0.00	

Junction Input

Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)
Jun-01	550.82	552.32	1.50	0.00	-552.32	0.00
Jun-02	527.45	528.95	1.50	0.00	-528.95	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	Jun-01	33.24	33.24	551.11	0.29	0.00	1.21	551.09	0.27	0 00:12	0 00:00	0.00	0.00
2	Jun-02	40.88	7.70	527.93	0.48	0.00	1.02	527.87	0.42	0 00:12	0 00:00	0.00	0.00

Channel Input

Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate
Link-01	200.00	550.82	0.00	527.45	0.00	23.37	11.6900	Trapezoidal	1.5	258.1	0.0300	0.2000	0.6000	0.0000	0.00	No
Link-02	372.00	527.45	0.00	523.00	0.00	4.45	1.2000	Trapezoidal	1.5	258.1	0.0300	0.2000	0.6000	0.0000	0.00	No

Channel Results

Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
Link-01	33.18	0 00:12	2704.87	0.01	4.65	0.72	0.29	0.19	0.00		
Link-02	40.30	0 00:15	865.45	0.05	2.09	2.97	0.47	0.32	0.00		

EXHIBIT “D” – Proposed Condition Drainage Basin Map

NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION
6				12			
5				11			
4				10			
3				9			
2	01/22/2019	MFD	REVISED SITE PLAN	8			
1	03/08/2018	MFD	ORIGINAL	7			

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APPROVED BY ENGINEER OF WORK

REGISTRATION R C E 26283

FILE CODE PN 06.03-11.91

DATE

PREPARATION AND REVISION LOG

PENASQUITOS RV AND MINI STORAGE

PROPOSED DRAINAGE MAP

EXHIBIT “E” – Proposed Condition SSA Analysis

Project Description

File Name .... SSA Analysis - Proposed.SPF

Project Options

Flow Units .... CFS
Elevation Type .... Elevation
Hydrology Method .... Rational
Time of Concentration (TOC) Method .... User-Defined
Link Routing Method .... Kinematic Wave
Enable Overflow Ponding at Nodes .... YES
Skip Steady State Analysis Time Periods .... YES

Analysis Options

Start Analysis On	Sep 04, 2015	00:00:00
End Analysis On	Sep 05, 2015	00:00:00
Start Reporting On	Sep 04, 2015	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins	3
Nodes	6
Junctions	4
Outfalls	1
Flow Diversions	0
Inlets	0
Storage Nodes	1
Links	6
Channels	2
Pipes	2
Pumps	0
Orifices	1
Weirs	1
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period.. 100 year(s)

Subbasin Summary

Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
A	1.80	0.7000	0.60	0.42	0.76	4.02	0 00:11:18
B	3.10	0.4500	0.69	0.31	0.96	4.04	0 00:14:24
C	4.60	0.8500	0.54	0.46	2.09	13.46	0 00:09:18

Node Summary

Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
Jun-01	Junction	550.82	552.32	0.00	0.00	32.92	551.79	0.00	1.03	0 00:00	0.00	0.00
Jun-02	Junction	532.00	537.00	0.00	0.00	32.90	537.00	0.00	0.00	0 00:11	4.79	1440.00
Jun-03	Junction	526.00	530.00	0.00	0.00	34.56	527.86	0.00	2.14	0 00:00	0.00	0.00
Jun-04	Junction	530.00	532.00	0.00	0.00	4.04	530.41	0.00	1.59	0 00:00	0.00	0.00
Out-01	Outfall	523.00				34.62	523.65					
Stor-01	Storage Node	525.00	526.00		12042.00	13.46	525.62				0.00	0.00

Link Summary

Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Diameter or Height (in)	Manning's Roughness	Peak Flow (cfs)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Reported Condition
Link-01	Pipe	Jun-01	Jun-02	200.00	550.82	532.00	9.4100	24.000	0.0130	32.90	69.40	0.47	21.80	0.97	0.48	0.00	Calculated
Link-02	Pipe	Jun-02	Jun-03	372.00	532.00	525.00	1.8800	24.000	0.0130	31.09	28.73	1.08	10.04	1.93	0.96	0.00	> CAPACITY
Link-03	Channel	Jun-03	Out-01	160.00	525.00	523.00	1.2500	12.000	0.0300	34.55	71.84	0.48	4.68	0.65	0.65	0.00	
Link-04	Channel	Jun-04	Jun-03	200.00	530.00	526.00	2.0000	12.000	0.0300	3.96	24.93	0.16	3.49	0.40	0.40	0.00	
Orifice-01	Orifice	Stor-01	Out-01		525.00	523.00		2.000		0.08							
Weir-02	Weir	Stor-01	Out-01		525.00	523.00				0.00							

Junction Input

Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)
Jun-01	550.82	552.32	1.50	0.00	-552.32	0.00
Jun-02	532.00	537.00	5.00	0.00	-537.00	0.00
Jun-03	526.00	530.00	4.00	0.00	-530.00	0.00
Jun-04	530.00	532.00	2.00	0.00	-532.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	Jun-01	32.92	32.92	551.79	0.97	0.00	1.03	551.72	0.90	0 00:11	0 00:00	0.00	0.00
2	Jun-02	32.90	0.00	537.00	5.00	0.00	0.00	537.00	5.00	0 00:00	0 00:11	4.79	1440.00
3	Jun-03	34.56	0.00	527.86	1.86	0.00	2.14	527.65	1.65	0 00:12	0 00:00	0.00	0.00
4	Jun-04	4.04	4.04	530.41	0.41	0.00	1.59	530.01	0.01	0 00:14	0 00:00	0.00	0.00

Channel Input

Element ID	Length	Inlet Invert Elevation	Inlet Invert Offset	Outlet Invert Elevation	Outlet Invert Offset	Total Drop	Average Slope	Shape	Height	Width	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow	Flap Gate
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(%)		(ft)	(ft)					(cfs)	
Link-03	160.00	525.00	-1.00	523.00	0.00	2.00	1.2500	Trapezoidal	1.0	14.0	0.0300	0.5000	0.5000	0.0000	0.00	No
Link-04	200.00	530.00	0.00	526.00	0.00	4.00	2.0000	Trapezoidal	1.0	8.0	0.0300	0.5000	0.5000	0.0000	0.00	No

Channel Results

Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
Link-03	34.55	0 00:15	71.84	0.48	4.68	0.57	0.65	0.65	0.00		
Link-04	3.96	0 00:15	24.93	0.16	3.49	0.96	0.40	0.40	0.00		

Pipe Input

Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate	No. of Barrels
Link-01	200.00	550.82	0.00	532.00	0.00	18.82	9.4100	CIRCULAR	24	0.0130	0.2000	0.6000	0.0000	0.00	No	1
Link-02	372.00	532.00	0.00	525.00	-1.00	7.00	1.8800	CIRCULAR	24	0.0130	0.2000	0.6000	0.0000	0.00	No	1

Pipe Results

Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
Link-01	32.90	0 00:11	69.40	0.47	21.80	0.15	0.97	0.48	0.00		Calculated
Link-02	31.09	0 00:11	28.73	1.08	10.04	0.62	1.93	0.96	0.00		> CAPACITY

APPENDIX I – Rational Method: City of San Diego Drainage Design Manual

Appendix A

Rational Method and Modified Rational Method

A.1. Rational Method (RM)

The Rational Method (RM) is a mathematical formula used to determine the maximum runoff rate from a given rainfall. It has particular application in urban storm drainage where it is used to estimate peak runoff rates from small urban and rural watersheds for the design of storm drains and drainage structures. The RM is recommended for analyzing the runoff response from drainage areas for watersheds less than 0.5 square miles. It should not be used in instances where there is a junction of independent drainage systems or for drainage areas greater than approximately 0.5 square mile in size. In these instances, the Modified Rational Method (MRM) should be used for junctions of independent drainage systems in watersheds up to approximately 1 square mile in size (see Section A.2); or the NRCS Hydrologic Method should be used for watersheds greater than approximately 1 square mile in size (see Appendix B).

A.1.1. Rational Method Formula

The RM formula estimates the peak rate of runoff at any location in a watershed as a function of the drainage area (A), runoff coefficient (C), and rainfall intensity (I) for a duration equal to the time of concentration (T_c), which is the time required for water to flow from the most remote point of the basin to the location being analyzed. The RM formula is expressed in Equation A-1.

Equation A-1. RM Formula Expression

$$Q = C\ I\ A$$

where:

Q	=	peak discharge, in cubic feet per second (cfs)
C	=	runoff coefficient expressed as that percentage of rainfall which becomes surface runoff (no units); Refer to Appendix A.1.2
I	=	average rainfall intensity for a storm duration equal to the time of concetrnatation (T_c) of the contributing draiange area, in inches per hour; Refer to Appendix A.1.3 and Appendix A.1.4
A	=	drainage area contributing to the design location, in acres

APPENDIX II – Design Runoff: City of San Diego Drainage Design Manual

2. For all drainage channels and storm water conveyance systems, which will convey drainage from a tributary area equal to or greater than one (1) square mile, the runoff criteria, shall be based upon a 100-year frequency storm.
3. For tributary areas under one (1) square mile:
   a. The storm water conveyance system shall be designed so that the combination of storm drain system capacity and overflow (streets and gutter) will be able to carry the 100-year frequency storm without damage to or flooding of adjacent existing buildings or potential building sites.
   b. The runoff criteria for the underground storm drain system shall be based upon a 50-year frequency storm.

2.3. Soil Type

For storm drain, culverts, channels, and all associated structures, Type D soil shall be used for all areas.

2.4. Other Requirements

1. Design runoff for drainage and flood control facilities within the City shall be based upon full development of the watershed area in accordance with the land uses shown on the City of San Diego, Progress Guide and General Plan.
2. When determining criteria for floodplain management and flood proofing, design runoff within the City shall be based upon existing conditions in accordance with the City Floodplain Management Requirements and FEMA Regulations.
3. Under City requirements, the minimum elevation of the finished, first floor elevation of any building is 2 feet above the 100-year frequency flood elevation.

2.5. Water Quality Considerations

Requirements for hydrologic studies specific to the design of pollution prevention controls and hydromodification management controls are detailed in the Storm Water Standards. Where the Storm Water Standards specify modifications to the guidelines stated herein on discharge flow methods, design storm frequency, or soil type, the modifications shall supersede these but only for the purposes stated in the Storm Water Standards. Where the Storm Water Standards does not specify a modification, the guidance found here in Chapter 2 shall apply.

APPENDIX III – Runoff Coefficients: City of San Diego Drainage Design Manual

Table A-1. Runoff Coefficients for Rational Method

Land Use	Runoff Coefficient (C)
	Soil Type [1]
Residential:	
Single Family	0.55
Multi-Units	0.70
Mobile Homes	0.65
Rural (lots greater than ½ acre)	0.45
Commercial [2]	
80% Impervious	0.85
Industrial [2]	
90% Impervious	0.95

Note:
[1] Type D soil to be used for all areas.
[2] Where actual conditions deviate significantly from the tabulated imperviousness values of 80% or 90%, the values given for coefficient C, may be revised by multiplying 80% or 90% by the ratio of actual imperviousness to the tabulated imperviousness. However, in case shall the final coefficient be less than 0.50. For example: Consider commercial property on D soil.

Actual imperviousness = 50%
Tabulated imperviousness = 80%
Revised C = (50/80) x 0.85 = 0.53

The values in Table A–1 are typical for urban areas. However, if the basin contains rural or agricultural land use, parks, golf courses, or other types of nonurban land use that are expected to be permanent, the appropriate value should be selected based upon the soil and cover and approved by the City.

A.1.3. Rainfall Intensity

The rainfall intensity (I) is the rainfall in inches per hour (in/hr.) for a duration equal to the T_C for a selected storm frequency. Once a particular storm frequency has been selected for design and a T_C calculated for the drainage area, the rainfall intensity can be determined from the Intensity-Duration-Frequency Design Chart (Figure A-1).

APPENDIX IV – Rainfall Intensity-Duration-Frequency Curves: City of San Diego Drainage Design Manual

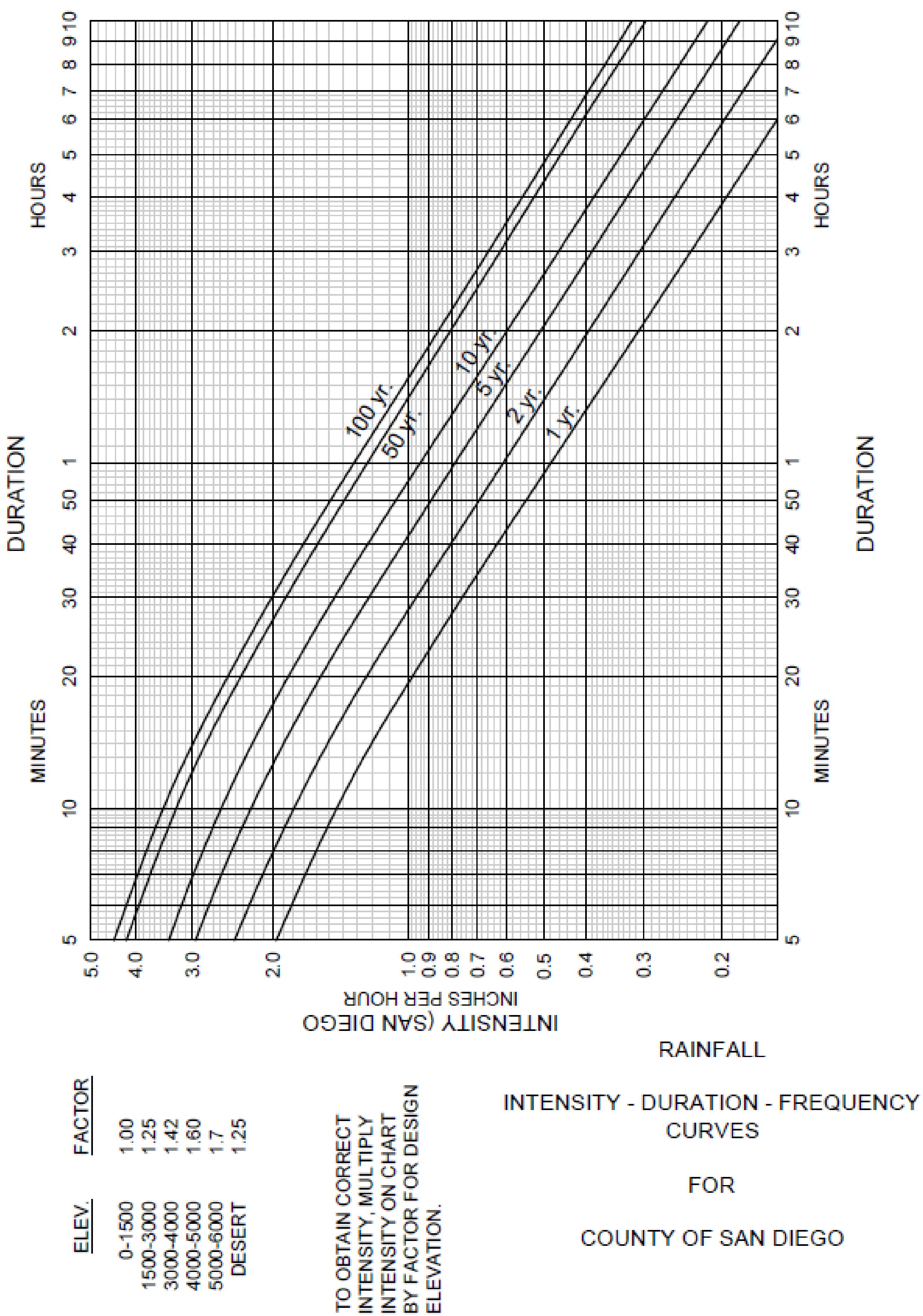
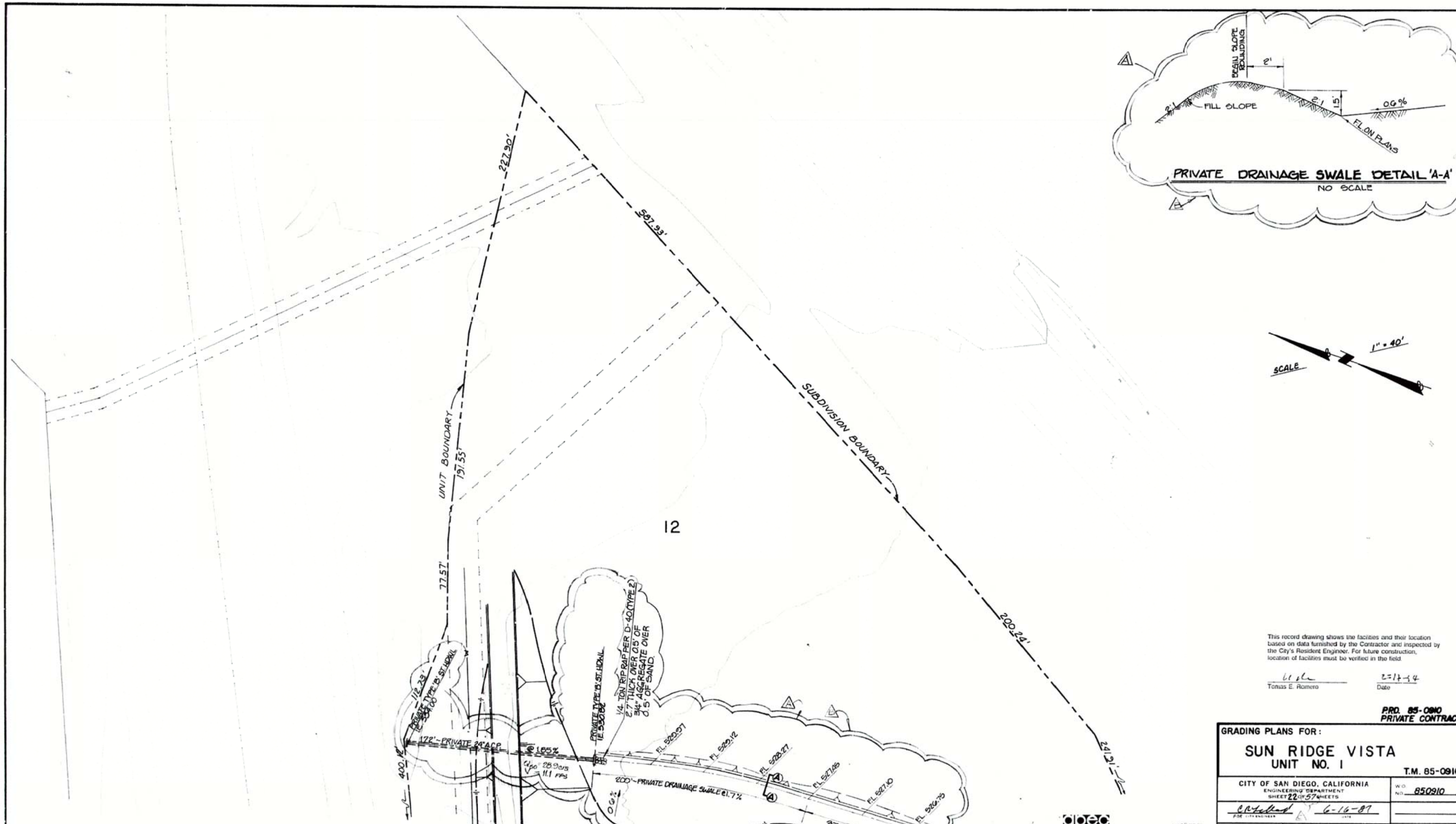


Figure A-1. Intensity-Duration-Frequency Design Chart

APPENDIX V – Existing Improvement Plan



UNAUTHORIZED CHANGES & USES

CAUTION: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

California Council of Civil Engineers & Land Surveyors

Construction contractor agrees that in accordance with generally accepted construction practices, construction contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property; that this requirement shall be made to apply continuously and not be limited to normal working hours, and construction contractor further agrees to defend, indemnify and hold design professional harmless from any and all liability, real or alleged, in connection with the performance of work on this project, excepting liability arising from the sole negligence of design professional.

California Council of Civil Engineers & Land Surveyors

BENCH MARK:

CITY OF SAN DIEGO BENCH
NBP INTERSECTION RANCHO
PENASQUITOS BLVD. AND
AZUAGA STREET
ELEV.: 556.124 MSL

apec

TOM T. PANTICH R.C.E. 25900 DATE
Associated Professional Engineering Corporation
2341 Fifth Avenue San Diego CA 92101-1610
(619) 239-7501

This record drawing shows the facilities and their location based on data furnished by the Contractor and inspected by the City's Resident Engineer. For future construction, location of facilities must be verified in the field.

Tomas E. Romero — Date 2-17-94

PRD. 85-0910
PRIVATE CONTRACT

GRADING PLANS FOR:

SUN RIDGE VISTA
UNIT NO. 1

T.M. 85-0910

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING DEPARTMENT
SHEET 22 OF 57 SHEETS

W.O. NO. 850910

FOR CITY ENGINEER — 6-16-87 DATE

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL				
A CHANGE	APEC		7-20-?	
B CHANGE	APEC		3/?/?	
AS-BUILT C	APEC		3-16-9?	

CONTRACTOR: ? DATE STARTED: 10-27-87
INSPECTOR: R.D. ARGENTO, M. GRAHAM DATE COMPLETED: 12-3-93

CONTROL CERTIFICATION

288-1737
LAMBERT COORDINATES

23448-22-D

A CHANGE - CHANGED DRAINAGE TO A PRIVATE DRAINAGE SWALE, DELETED EASEMENT, REVISED SWALE DETAIL.

B CHANGE - ADDED 24" STORM DRAIN, DRAINAGE DITCH & DRAINAGE EASEMENT

2314

"AS-BUILT"

Photogrammetry by PHOTO GEODETIC CORPORATION
Consulting Photogrammetric Engineers
San Diego, California

Historical Resources Survey Report for the Sun Ridge Vista RV/Mini Storage Project, San Diego, California

Prepared for
Pardee Homes
13400 Sabre Springs Parkway, Suite 200
San Diego, CA 92128

Prepared by
RECON Environmental, Inc.
1927 Fifth Avenue
San Diego, CA 92101
P 619.308.9333

RECON Number 8797
January 15, 2019

Harry J. Price, Archaeologist

ARCHAEOLOGICAL RESOURCE REPORT FORM

I. PROJECT DESCRIPTION AND LOCATION

The Sun Ridge Vista RV/Mini Storage Project (project) is located in the Peñasquitos community of the city of San Diego (Figure 1). Its Assessor's Parcel Number is 315-570-0700. The project proposes a recreational vehicle (RV) storage and mini-warehouse facility on the 9.04-acre site. The development would include 139,587 square-feet of mini-storage, 69 RV spaces, 27 parking spaces, site access improvements, and other infrastructure improvements. The mini-storage facility would consist of four buildings in the central area of the site, while the RV parking would be provided along the eastern portion of the site. The site would be accessed from Azuaga Street via the Terra Vista development to the west. The Rancho Peñasquitos Community Plan designates the site as "Recreational Vehicle/ Mini-Storage Facility" but the site is currently zoned as RS-1-13. The project proposes a rezone to IL-2-1 to make the zoning consistent with the Community Plan designation.

The project is located in the southwest corner of the intersection of Interstate 15 (I-15) and State Route 56/Ted Williams Parkway (SR-56), with Interstate 15 forming the northern boundary of the site and SR-56 the southeastern boundary. A large multi-family development forms the western boundary of the site. The community of Sabre Springs is to the southwest, which includes both commercial and residential development. To the west and north are residential developments and Black Mountain Open Space Park (owned by the City of San Diego).

The project site is on the U.S. Geological Survey Poway 7.5-minute quadrangle, Township 14S, Range 2W, in an unsectioned portion of the Los Peñasquitos Rancho land grant (Figure 2). It is on map numbers 282-1737 and 290-1737 of the City 800-scale map series (Figure 3).

II. SETTING

Natural Environment (Past and Present)

The project is located on the west side of the Chicarita Creek drainage, on the slopes of a west-to-east trending ridgeline. Elevations on site range from 575 feet to 525 feet above mean sea level. The western end of the site is a moderately steep slope, made steeper by fill from the development of the multi-family development immediately west of the site. A ramp has been built up in the northwest corner of the site to allow vehicle access from the development to the west. This ramp grades into a low ridge running close the northern boundary of the property. The majority of the site slopes gently to the southeast. There is a concrete-lined drainage ditch running north to south through the approximate center of the site and a second, much smaller, concrete drain in the southwest edge of the site. Chicarita Creek is approximately 350 meters to the southeast of the site, and Peñasquitos Creek is approximately 2,000 meters to the south.

Currently, the vegetation on-site comprises primarily non-native grassland that appears to be mowed on at least an annual basis. A manufactured slope along the southern and eastern sides of the site is landscaped with ornamental plant species as part of the existing residential development. Two small areas associated with concrete drainage that traverse the site support plant species adapted to mesic conditions (e.g., freshwater marsh, willow scrub, and mule fat scrub).

Soils types transition from Diablo clay soils in the southern and central portion of the site to San Miguel–Exchequer rocky silt loams, Diablo–Olivenhain complex, and Escondido very fine sandy loam towards the north part of the site. Natural soil conditions have been altered where adjacent to existing development and freeways. (U.S. Department of Agriculture 1973). These soils formed in a mixed cobbly and gravelly alluvium.

Prior to development, a southerly-trending drainage ran along the western edge of the site, with feeder branches to the west and northwest. This drainage has been completely filled by the fill used to create the pad for the multi-family development. In a series of air photographs dating from between 1953 and 1967 (Nationwide Environmental Title Research, LLC 1999–2018) the slopes of the drainage appear to have been originally covered with coastal sage scrub vegetation, and the gentle slopes to the east appear as grasslands. Both the coastal sage scrub and grasslands appear to be grazed to some extent. In a 1980 air photograph the northeastern half of the site has been scraped/graded to some extent and the area is being used as a staging/storage area. The southwestern half of the site appears not to have been disturbed. In a 1989 air photograph, the southwestern edge of the site has been scraped/graded to some extent, probably as part of the I-15/SR-56 interchange. Sometime between 1996 and 2002, the concrete drainage in the center of the site was installed.

Ethnography/History

The prehistoric cultural sequence in San Diego County is generally conceived as comprising three basic periods: the Paleoindian, dated between about 11,500 and 8,500 years ago and manifested by the artifacts of the San Dieguito Complex; the Archaic, lasting from about 8,500 to 1,500 years ago (A.D. 500) and manifested by the cobble and core technology of the La Jolla Complex; and the Late Prehistoric, lasting from about 1,500 years ago to historic contact (i.e., A.D. 500 to 1769) and represented by the Cuyamaca Complex. This latest complex is marked by the appearance of ceramics, small arrow points, and cremation burial practices.

The Paleoindian Period in San Diego County is most closely associated with the San Dieguito Complex, as identified by Rogers (1938, 1939, 1945). The San Dieguito assemblage consists of well-made scraper planes, choppers, scraping tools, crescentics, elongated bifacial knives, and leaf-shaped points. The San Dieguito Complex is thought to represent an early emphasis on hunting (Warren et al. 1993:III-33).

The Archaic Period in coastal San Diego County is represented by the La Jolla Complex, a local manifestation of the widespread Millingstone Horizon. This period brings an apparent shift toward a more generalized economy and an increased emphasis on seed resources, small game, and shellfish. The local cultural manifestations of the Archaic Period are called the La Jolla Complex along the coast and the Pauma Complex inland. Pauma Complex sites lack the shell that dominates many La Jollan sites. Along with an economic focus on gathering plant resources, the settlement system appears to have been more sedentary. The La Jollan assemblage is dominated by rough, cobble-based choppers and scrapers, and slab and basin metates. Elko series projectile points appeared by about 3,500 years ago. Large deposits of marine shell at coastal sites argue for the importance of shellfish gathering to the coastal Archaic economy.

Near the coast and in the Peninsular Mountains beginning approximately 1,500 years ago, patterns began to emerge which suggest the ethnohistoric Kumeyaay. The Late Prehistoric Period is characterized by higher population densities and elaborations in social, political, and technological systems. Economic systems diversify and intensify during this period, with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive, but effective technological innovations. The late prehistoric archaeology of the San Diego coast and foothills is characterized by the

Cuyamaca Complex. It is primarily known from the work of D. L. True at Cuyamaca Rancho State Park (True 1970). The Cuyamaca Complex is characterized by the presence of steatite tools and pendants, Tizon Brownware pottery, ceramic figurines reminiscent of Hohokam styles, ceramic "Yuman bow pipes," ceramic rattles, miniature pottery, various cobble-based tools (e.g., scrapers, choppers, hammerstones), bone awls, manos and metates, mortars and pestles, and Desert Side-Notched (more common) and Cottonwood Series projectile points.

Ethnohistory

The Kumeyaay (also known as Kamia, Ipai, Tipai, and Diegueño) occupied the southern two-thirds of San Diego County. The Kumeyaay lived in semi-sedentary, politically autonomous villages or rancherias. Settlement system typically consisted of two or more seasonal villages with temporary camps radiating away from these central places (Cline 1984a and 1984b). Their economic system consisted of hunting and gathering, with a focus on small game, acorns, grass seeds, and other plant resources. The most basic social and economic unit was the patrilocal extended family. A wide range of tools was made of locally available and imported materials. A simple shoulder-height bow was utilized for hunting. Numerous other flaked stone tools were made including scrapers, choppers, flake-based cutting tools, and biface knives. Preferred stone types were locally available metavolcanics, cherts, and quartz. Obsidian was imported from the deserts to the north and east. Ground stone objects include mortars, manos, metates, and pestles typically made of locally available fine-grained granite. Both portable and bedrock types are known. The Kumeyaay made fine baskets using either coiled or twined construction. The Kumeyaay also made pottery, utilizing the paddle-and-anvil technique. Most were a plain brown utility ware called Tizon Brown ware, but some were decorated (Meighan 1954; May 1976, 1978).

Spanish/Mexican/American Periods

The Spanish Period (1769–1821) represents a time of European exploration and settlement. Military and naval forces along with a religious contingent founded the San Diego Presidio, the pueblo of San Diego, and the San Diego Mission in 1769 (Rolle 1998). The mission system used forced Native American labor and introduced horses, cattle, other agricultural goods, and implements. Native American culture in the coastal strip of California rapidly deteriorated despite repeated attempts to revolt against the Spanish invaders (Cook 1976). One of the hallmarks of the Spanish colonial scheme was the rancho system. In an attempt to encourage settlement and development of the colonies, large land grants were made to meritorious or well-connected individuals.

In 1821, Mexico declared its independence from Spain. During the Mexican Period (1822–1848), the mission system was secularized by the Mexican government and these lands allowed for the dramatic expansion of the rancho system. The southern California economy became increasingly based on cattle ranching.

The project site was part of the Los Peñasquitos Rancho, awarded to Captain Francisco Maria Ruiz for meritorious service in 1823 (Pourade 1969). Los Peñasquitos Rancho comprised 8,486 acres, stretching from Soledad Canyon, near the Pacific Ocean, to just east of the Peñasquitos Creek drainage. Captain Ruiz built an adobe near Soledad Canyon and raised cattle on the rancho but lived in Old Town. He transferred ownership of the rancho to Don Francisco Maria Alvarado, a prominent member of the San Diego community, in 1837 (Pourade 1969). Don Alvarado lived on the rancho, continuing to raise cattle. Ownership then passed to Captain George Johnson through his marriage to Don Francisco's daughter, Tomasa (Pourade 1969).

The Mexican period ended when Mexico signed the Treaty of Guadalupe Hidalgo on February 2, 1848, concluding the Mexican-American War (1846–1848; Rolle 1998). Just prior to the signing of the Treaty of Guadalupe Hidalgo, gold was discovered in the northern California Sierra-Nevada foothills, the news was published on March 15, 1848, and the California Gold Rush began. The great influx of Americans and Europeans eliminated many remaining vestiges of Native American culture.

The next significant owner of Los Peñasquitos Rancho was J. S. Taylor, who purchased the rancho in 1883. Taylor imported Durham cattle to improve the stock on the rancho and constructed a new ranch house approximately 4.5 miles east of the original adobe, at the site of an existing one-room adobe structure. The new ranch house was U-shaped, with the open end facing east. Eventually a barn, well house, two water storage ponds, and small outbuildings were added. A new ranch house was built about 0.5 mile east of the main house in about 1900. Cattle continued to be raised on the rancho property until the late 1970s. Approximately 3,700 acres of the original rancho, which includes the three ranch house sites, are now a San Diego County open space park.

The American homestead system encouraged settlement beyond the coastal plain into areas where Indians had retreated to avoid the worst of Spanish and Mexican influences (Carrico 1987; Cook 1976). A rural community cultural pattern existed in San Diego County from approximately 1870 to 1930. These communities were composed of an aggregate of people who lived on scattered farmsteads tied together through a common school district, church, post office, and country store (Hector and Van Wormer 1986; Pourade 1963).

III. AREA OF POTENTIAL EFFECT (APE)

The Area of Potential Impact, which consists of the proposed impact area of approximately 10.2 acres, is shown on Figure 4.

IV. STUDY METHODS

The cultural resources survey included both an archival search and an on-site foot survey of the property. A records search with a one-mile radius buffer was requested in July 2017 from the South Coastal Information Center (SCIC) at San Diego State University in order to determine if previously recorded prehistoric or historic cultural resources occur on the property. Historic aerial photographs were also checked in order to see past development within and near the project area. A letter was sent to the Native American Heritage Commission (NAHC) on September 6, 2017, and a reply was received on September 11, 2017. The NAHC record search was negative for Native American cultural resources in the project area. The NAHC reply letter is included in the attachments.

The field survey was conducted on August 23, 2017, by archaeologist Harry Price from RECON and Native American representative Gabe Kitchen Jr. from Red Tail Monitoring and Research. Field inspection was conducted on foot in overcast conditions with diffuse natural daylight. The survey area consisted of the entire project property except for the artificial fill slope on the western edge of the site. Transect spacing averaged 12 meters. When present, burrow backdirt piles were examined for evidence of cultural material.

V. RESULTS OF STUDY

Record Search

A total of 26 prehistoric and historic resources are listed at the SCIC within one mile of the project. No prehistoric or historic cultural resources are recorded within the boundary of the project property. The closest recorded site is CA-SDI-6838, a prehistoric site mapped approximately 165 meters southeast of the project. The site consisted of one core, one tool, and two flakes. The site was recorded in 1977 and the artifacts were collected at that time. A survey in 1981 found no evidence of the site. The second closest site is CA-SDI-8719, a prehistoric site consisting of two bedrock milling features. Each feature consisted of two slicks. These two sites have been destroyed during the construction of the I-15/SR-56 intersection.

A large habitation site, CA-SDI-6669 is approximately 275 meters east of the project, on both sides of Chicarita Creek. The Archaic Period/Late Prehistoric/Contact period site, measuring approximately 275 by 400 meters, was first recorded by Malcom Rodgers and later re-recorded in 1978 by Carol Walker and Jay Hatley. The site was tested in 1983 and a data recovery program was conducted in 1984, which included backhoe trenching and the excavation of 112 units. The site consisted of nine loci (A–I) with midden, numerous bedrock milling features, and one burial. Artifacts included lithic and bone tools, milling implements, ceramic fragments, flakes, animal bone and shell, and fire-affected rock. The record search maps are included as Confidential Appendix 1.

Survey Results

The project site is currently undeveloped. As noted above, the western 20–40 meters of the site consists of a moderately steep slope predominately composed of fill (Photograph 1). Vegetation on this slope is non-native low-growing acacia. Ground visibility on the slope is less than five percent, and there were no paths through the acacia. Because of these conditions, the slope was not surveyed.

The majority of the site slopes gently to the east and south, with a slight ridge running roughly west to east close to the northern boundary (Photographs 2 and 3). The slopes are covered in low non-native weeds that had been mowed sometime this year. Ground visibility varied between approximately 60 percent to below 10 percent (Photograph 4). There are scattered patches of almost bare ground along the ridge. Broken volcanic rock, ranging in size from gravel to large angular cobbles, covers much of the ground surface, evidence of the past grading/scraping. There is also gravel along the low ridge and some scattered small concrete chunks.

Vegetation along the southern half of the drainage ditch is denser; a result of the water persistently overflowing the ditch (Photograph 5). Ground visibility was below 10 percent in this area, especially adjacent to the parcel boundary where willows have grown. Dense willows also obscure the ground surface around the small drainage on the southwest edge of the property (Photograph 6). This area has been heavily disturbed by the construction of the drain.

No prehistoric or historic cultural material was found during the survey of the project site, and no prehistoric or historic cultural resources were previously recorded on the site. This may be a result of the extensive surface disturbance, although while such disturbance displaces surface materials and can cover some, it seldom completely obscures them.

VI. RECOMMENDATIONS

The cultural resource investigations summarized herein satisfy the study and documentation requirements identified by City of San Diego Development Services staff and are consistent with the goals and policies of the City of San Diego as published in the Land Development Manual. As such, the efforts to identify and document historical resources in the APE for the proposed project reveal the following two conclusions: (1) that the proposed project will have no impact on known prehistoric cultural resources and (2) that the proposed project will not impact known historically significant resources.

No significant prehistoric or historic cultural resources have been previously recorded within or immediately adjacent to the project area. No new historic or prehistoric cultural resources were found during the survey of the project area. Based on record search and field survey results, implementation of the proposed project will result in no impacts to known significant historical resources as defined by the City of San Diego. However, the project site is within the Chicarita Creek drainage and close to known significant prehistoric cultural resources; CA-SDI-6669 is approximately 275 meters east of the project. The lower portions of the gentle slopes on the property are areas of potential alluvial deposition. Given this, and the presence of subsurface deposits in recorded prehistoric sites in the vicinity of the project, implementation of the proposed project does have the potential to encounter buried archaeological deposits during construction. Because of this, RECON has recommended that all ground-disturbing work be monitored by a qualified archaeologist and a Native American observer. If previously unknown prehistoric or historic resources are found during ground-disturbing operations, the monitors will redirect or halt construction in the area of the discovery until the resources can be evaluated by a qualified archaeologist and, if significant, a treatment plan will be implemented to ensure that impacts are reduced to a level below significance.

VII. SOURCES CONSULTED	DATE
National Register of Historic Places ☑	Month and Year: August 2017
California Register of Historical Resources ☑	Month and Year: August 2017
City of San Diego Historical Resources Register ☑	Month and Year: August 2017
Archaeological/Historical Site Records: South Coastal Information Center ☑	Month and Year: August 2017
Other Sources Consulted: Native American Heritage Commission	Month and Year: September 2017

VIII. CERTIFICATION

Preparer: Harry J. Price	Title: Principal Investigator
Signature: Harry J. Price	Date: January 15, 2019

IX. ATTACHMENTS

Bibliography
Attached.

National Archaeological Data Base Information
Attached

Maps (include all of the following maps.)

Figure 1: Project Location
Figure 2: USGS Quadrangle
Figure 3: City of San Diego 800' scale
Figure 4: Aerial Photograph of Project Site

Photographs
Photograph 1: Looking West at Slope Occupying Western End of the Project Site
Photograph 2: View Looking Southeast towards Center of Project Site
Photograph 3: Looking Southwest along the Southern Boundary of the Project
Photograph 4: Typical Ground Cover
Photograph 5: Vegetation Cover along the Southern Portion of the Drainage Ditch
Photograph 6: Small Southwestern Drainage

NAHC Response Letter and Contact Letters

Personnel Qualifications (Include resumes if not already on file with the City.)
Resumes are already on file with the City.

X. CONFIDENTIAL APPENDICES (Bound separately)

Record Search Results
Maps from July 2017 record search results from South Coastal Information Center (under separate cover).

New or updated historical resource records
None.

BIBLIOGRAPHY

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1973 Soil Survey, San Diego Area, California. Soil Conservation Service and Forest Service. Roy H. Bowman, ed. San Diego. December.

Warren, Claude N., Gretchen Siegler, and Frank Dittner
1993 Paleoindian and Early Archaic Periods. In Historic Properties Background Study for the City of San Diego Clean Waste Program. On file with Mooney and Associates.

NATIONAL ARCHAEOLOGICAL DATA BASE INFORMATION

Authors:	Harry J. Price
Consulting Firm:	RECON Environmental 1927 Fifth Avenue San Diego, CA 92101-2358
Report Date:	January 15, 2019
Report Title:	Historical Resources Survey Report for Sun Ridge Vista RV/Mini Storage Project, San Diego, California
Prepared for:	Pardee Homes 13400 Sabre Springs Parkway, Suite 200 San Diego, CA 92128
Contract Number:	RECON 8797
USGS Quadrangle Map:	Poway, CA Quadrangle, 1996
Keywords:	Negative Survey, Peñasquitos

ABSTRACT

The Sun Ridge Vista RV/Mini Storage Project (project) is located in the Peñasquitos community of the city of San Diego. Its Assessor's Parcel Number is 315-570-0700. The project proposes a recreational vehicle (RV) storage and mini-warehouse facility on the 9.04-acre site. The project is located in the southwest corner of the intersection of Interstate 15 and State Route 56/Ted Williams Parkway, with Interstate 15 forming the northern boundary of the site and State Route 56 the southeastern boundary. The project site is on the U.S. Geological Survey Poway 7.5 Minute quadrangle, Township 14S, Range 2W, in an un-sectioned portion of the Los Peñasquitos Rancho land grant. A total of 26 prehistoric and historic resources are listed at the South Coastal Information Center within one mile of the project. No prehistoric or historic cultural resources are recorded within the boundary of the project property. The field survey was conducted on August 23, 2017, by archaeologist Harry Price from RECON and Native American representative Gabe Kitchen Jr. from Red Tail Monitoring and Research. No prehistoric or historic cultural material was found during the survey of the project site. No prehistoric or historic cultural resources had been previously recorded on the site.

Project Location

FIGURE 1
Regional Location

RECON

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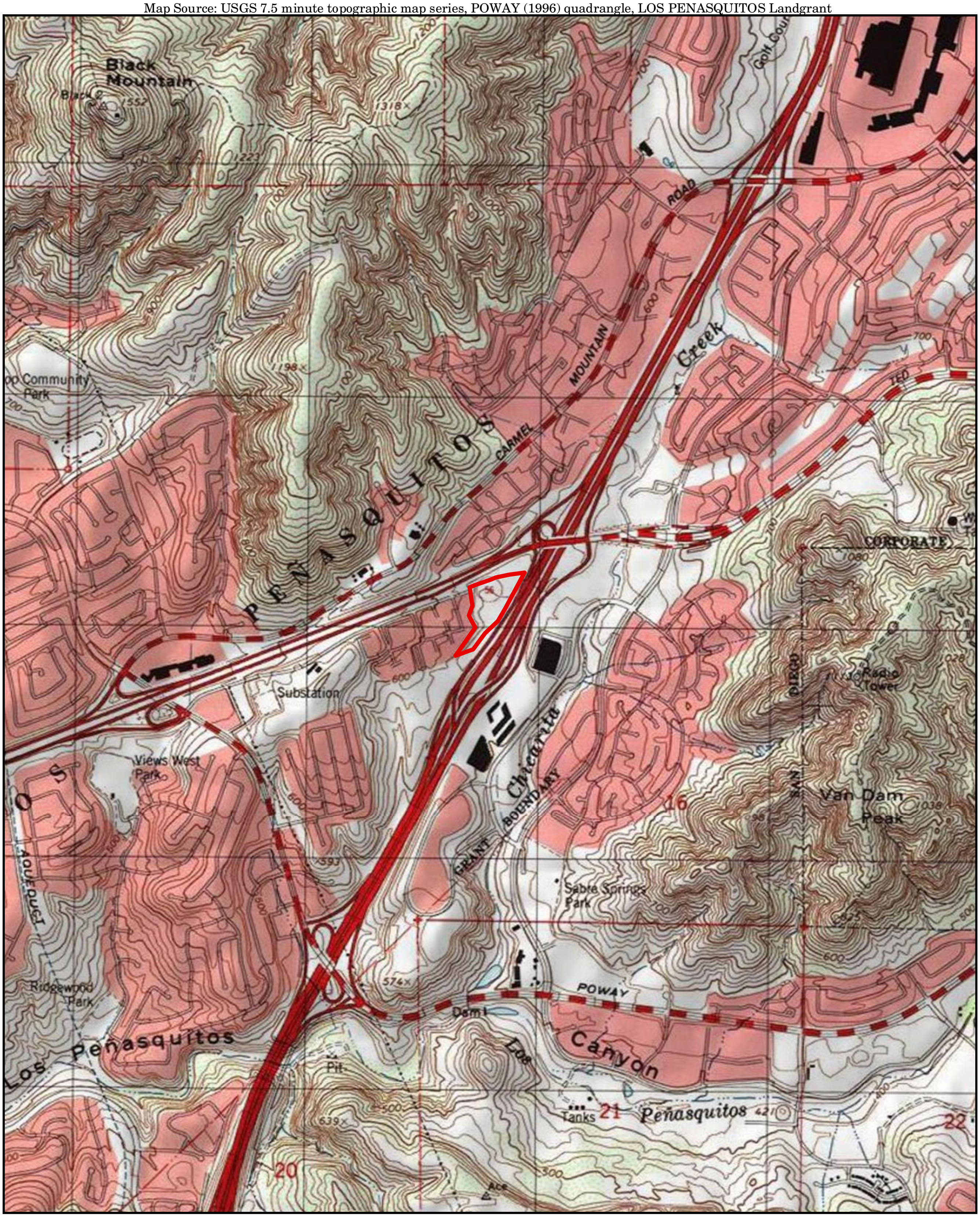
Map Source: USGS 7.5 minute topographic map series, POWAY (1996) quadrangle, LOS PENASQUITOS Landgrant



Project Boundary

FIGURE 2
Project Location on USGS Map

RECON

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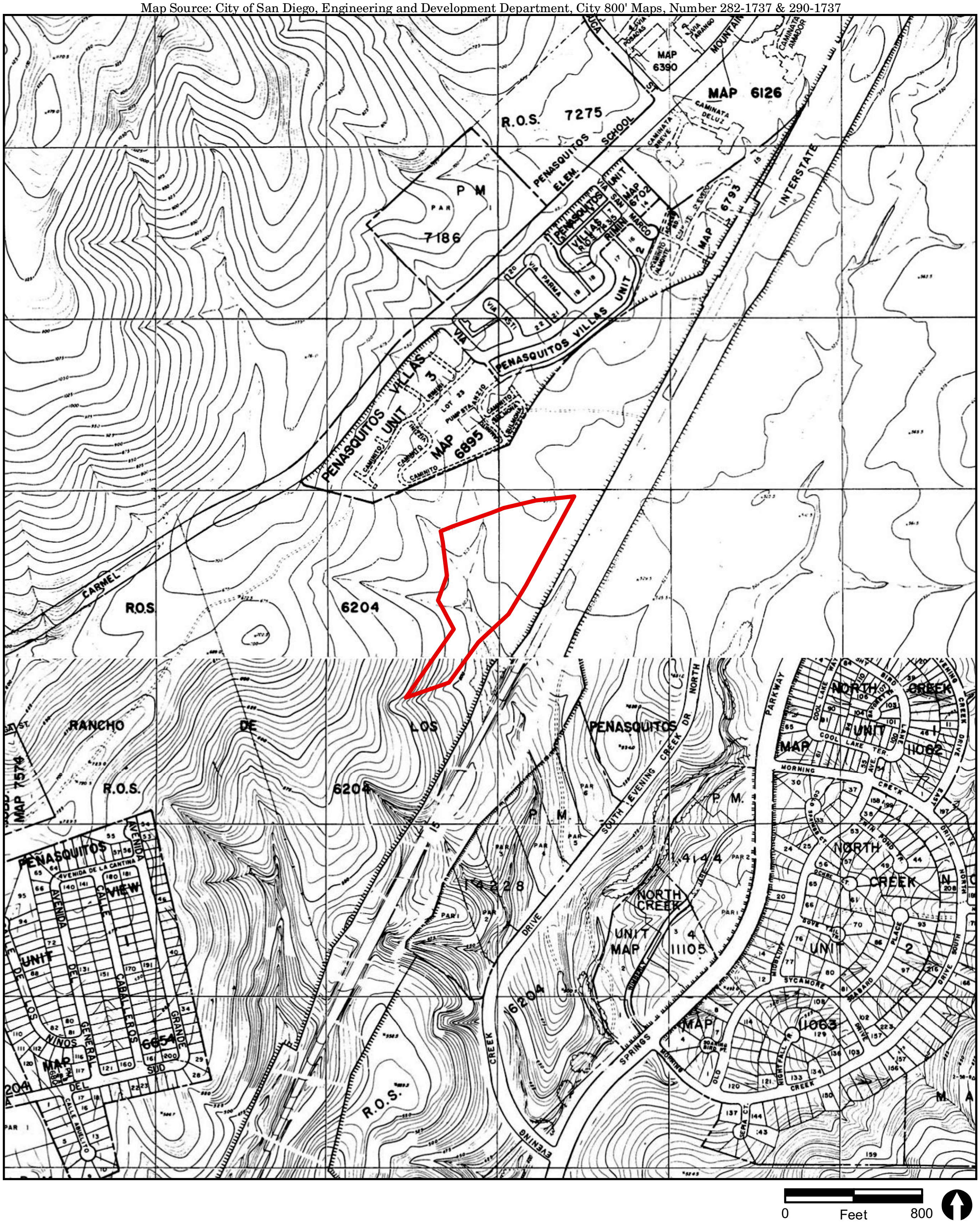
Map Source: City of San Diego, Engineering and Development Department, City 800' Maps, Number 282-1737 & 290-1737



Project Boundary

FIGURE 3
Project Location on City 800' Map

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Image Source: NearMaps (flown Nov 2017)

FIGURE 4
Project Location on Aerial Photograph

RECON

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PHOTOGRAPH 1
Looking West at Slope Occupying Western End of the Project Site

PHOTOGRAPH 2
View Looking Southeast Towards Center of Project Site

PHOTOGRAPH 3
Looking Southwest along the Southern Boundary of the Project

PHOTOGRAPH 4
Typical Ground Cover

PHOTOGRAPH 5
Vegetation Cover along the Southern Portion of the Drainage Ditch

PHOTOGRAPH 6
Small Southwestern Drainage

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710

September 11, 2017

Harry Price
RECON Environmental, Inc.

Sent by E-mail: hprice@reconenvironmental.com

RE: Proposed Pen 173 (RECON #8797) Project, City of San Diego; Poway USGS Quadrangle, San Diego County, California

Dear Mr. Price:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.

Attached is a list of tribes culturally affiliated to the project area. I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

Native American Heritage Commission
Native American Contact List
San Diego County
9/11/2017

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This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Pen 173 Project, San Diego County.

Native American Heritage Commission
Native American Contact List
San Diego County
9/11/2017

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Pen 173 Project, San Diego County.

Map Source: Sillman Wright Architects

DESIGN STATEMENT:

THE PRIMARY GOAL OF THE LANDSCAPE DESIGN IS TO BLEND AND COMPLIMENT THE EXISTING NATIVE PLANTING IN THE AREA. NATIVE LOW FUEL VOLUME SPECIES WILL BE USE TO RE-VEGETATE THE GRADED SLOPES. THE TREATMENT FOR THE INTERIOR SHALL PRIMARILY BE SITE AND SLOPE TREES AND GROUNDCOVER, SUITABLE FOR SCREENING, FIRE-RESISTENT, AND COMPLIMENT THE BUILDING ARCHITECTURE.

LANDSCAPE DESIGN OBJECTIVES:

1. PLANT MATERIALS SPECIFIED FOR USE ON THIS PROJECT WILL BE FROM THE PALETTE OF PLANTS KNOWN TO PERFORM WELL IN THIS CLIMATIC ZONE AND AMENDED SOIL TYPE.
2. THE PALETTE OF LANDSCAPE PLANT MATERIALS WILL PROVIDE VARIATIONS OF FOLIAGE, BARK, AND FLOWER FORM, TEXTURE, AND COLOR. THESE VARIATIONS WILL BE USED TO BLEND IN WITH EXISTING SURROUNDING LANDSCAPE TREATMENTS ESPECIALLY AT PERIMETER SLOPES.
3. LANDSCAPE PLANTING AREAS WILL BE GRADED TO ASSURE POSITIVE SURFACE DRAINAGE.
4. ONSITE SOILS WILL BE AMENDED TO COMPLY WITH THE RECOMMENDATION OF A CERTIFIED SOILS TESTING LABORATORY.
5. ALL SLOPE ASPECTS 2:1 OR STEEPER SHALL RECEIVE JUTE MATTING (OR PER THE RECOMENDATION BY THE GEO-TECHNICAL ENGINEER).

GRADING NOTES:

1. PERMANENT REVEGETATION - ALL GRADED, DISTURBED, OR ERODED AREAS THAT WILL NOT BE PERMANENTLY PAVED OR COVERED BY STRUCTURES SHALL BE PERMANENTLY REVEGETATED AND IRRIGATED AS SHOWN IN TABLE 142-04F AND IN ACCORDANCE WITH THE STANDARDS IN THE LAND DEVELOPMENT MANUAL

2. TEMPORARY REVEGETATION - GRADED, DISTURBED, OR ERODED AREAS THAT WILL NOT BE PERMANENTLY PAVED, COVERED BY STRUCTURE, OR PLANTED FOR A PERIOD OVER 90 CALENDAR DAYS SHALL BE TEMPORARILY REVEGETATED WITH A NON-IRRIGATED HYDROSEED MIX, GROUND COVER, OR EQUIVALENT MATERIAL. TEMPORARY IRRIGATION SYSTEMS MAY BE USED TO ESTABLISH THE VEGETATION.

3. ALL REQUIRED REVEGETATION AND EROSION CONTROL SHALL BE COMPLETED WITHIN 90 CALENDAR DAYS OF THE COMPLETION OF GRADING OR DISTURBANCE.

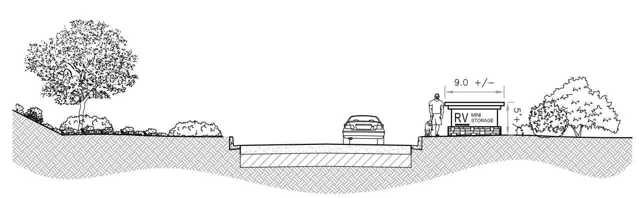
4. INTERIM BINDER NOTE: GRADED, DISTURBED OR ERODED AREAS TO BE TREATED WITH A NON-IRRIGATED HYDROSEED MIX AND INTERIM BINDER / TACKIFIER AS NEEDED BETWEEN APRIL 2ND AND AUGUST 31ST FOR DUST-EROSION CONTROL WITH SUBSEQUENT APPLICATION OF HYDROSEED MIX DURING THE RAINY SEASON BETWEEN OCTOBER 1ST AND APRIL 1ST.

MAINTENANCE NOTE:

ALL REQUIRED COMMON LANDSCAPE AREAS SHALL BE MAINTAINED BY THE OWNER. THE LANDSCAPE AREAS SHALL BE MAINTAINED FREE OF DEBRIS AND LITTER AND ALL PLANT MATERIAL SHALL BE MAINTAINED IN A HEALTHY GROWING CONDITION. DISEASED OR DEAD PLANT MATERIAL SHALL BE SATISFACTORILY TREATED OR REPLACED PER THE CONDITIONS OF THE PERMIT.

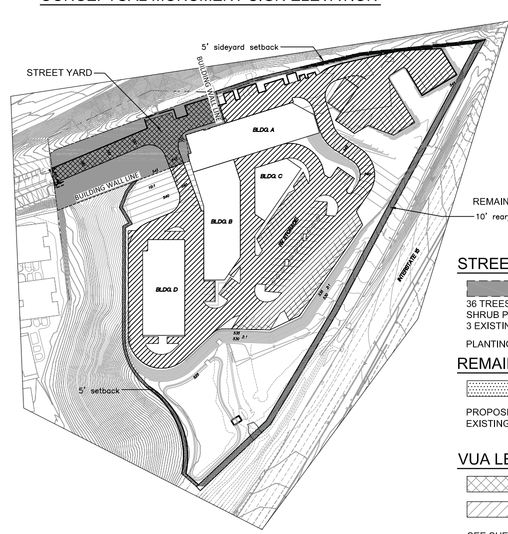
MINIMUM TREE SEPARATION DISTANCE:

TRAFFIC SIGNAL, STOP SIGN	20 FEET
UDERGROUND UTILITY LINES	5 FEET
ABOVE GROUND UTILITY STRUCTURES	10 FEET
DRIVEWAYS	10 FEET
INTERSECTIONS	25 FEET
SEWERS	10 FEET



CONCEPTUAL MONUMENT SIGN ELEVATION

NTS



IRRIGATION:

ORNAMENTAL LANDSCAPE AREAS WILL BE SERVED BY A PERMANENT, AUTOMATIC MULTIPLE- VALVE IRRIGATION SYSTEM. THIS SYSTEM WILL USE LOW PRECIPITATION HEADS, SEGREGATED BASED ON PLANT MATERIAL TYPE AND ASPECT, AND BE DESIGNED TO MINIMIZE OVERSPRAY ONTO ANY NATIVE AREAS, HARDSCAPE SURFACE. RECYCLED WATER MAY BE USED, IF AVAILABLE.
PERMANENT IRRIGATION WILL BE PROVIDED FOR THE REQUIRED STREET TREES AND INTERIOR SLOPES PER THE PLANT LEGEND SHEET.
TEMPORARY IRRIGATION WILL BE PROVIDED FOR THE PERIMETER SLOPES TO REVEGETATE AND STABILIZE THE SLOPES FOR EROSION CONTROL.
PROPOSED IRRIGATION SYSTEMS WILL USE AN APPROVED RAIN SENSOR SHUTOFF DEVICE..

NOTES:

1. ALL LANDSCAPE AND IRRIGATION SHALL CONFORM TO THE CITY OF SAN DIEGO LANDSCAPE REGULATIONS AND CITY OF SAN DIEGO LAND DEVELOPMENT MANUAL LANDSCAPE STANDARDS AND ALL REGIONAL STANDARDS FOR LANDSCAPE INSTALLATION AND MAINTENANCE.
2. NO IMPROVEMENTS, INCLUDING ENHANCED PAVING, IRRIGATION AND LANDSCAPING, SHALL BE INSTALLED IN OR OVER ANY EASEMENT PRIOR TO THE APPLICANT OBTAINING AN ENCROACHMENT MAINTENANCE AND REMOVAL AGREEMENT.
3. PERMANENT MONUMENT SIGNAGE MAYBE PROPOSED BY THE DEVELOPER.
4. MINIMUM 24-INCH BOX SIZE STREET TREES SHALL BE INSTALLED IN THE PUBLIC RIGHT-OF-WAY. TREE PLANTING AREAS SHALL HAVE A MINIMUM 40 SQUARE FEET OF AIR-AND-WATER, PERMEABLE AREA.
5. INSTALL ALL APPROVED LANDSCAPE AND OBTAIN ALL REQUIRED LANDSCAPE INSPECTION FORMS. COPIES OF THESE APPROVED DOCUMENTS MUST BE SUBMITTED TO THE CITY.
6. IMPROVEMENTS SUCH AS DRIVEWAYS, UTILITIES, DRAINS, AND WATER/SEWER LATERALS SHALL BE DESIGNED SO AS NOT TO PROHIBIT THE PLACEMENT OF STREET TREES, ALL TO THE SATISFACTION OF THE CITY.
7. TREE ROOT BARRIERS SHALL BE INSTALLED WHERE TREES ARE PLACED WITHIN 5 FEET OF PUBLIC IMPROVEMENTS INCLUDING WALKS, CURBS, OR STREET PAVEMENT OR WHERE NEW PUBLIC IMPROVEMENTS ARE PLACED ADJACENT TO EXISTING TREES. ROOT BARRIERS WHICH WRAP AROUND THE ROOT BALL ARE NOT PERMITTED
8. MULCH: ALL REQUIRED PLANTING AREAS SHALL BE COVERED WITH MULCH TO A MINIMUM DEPTH OF 3 INCHES, EXCLUDING SLOPES REQUIRING REVEGETATION AND AREAS PLANTED WITH GROUND COVER. ALL EXPOSED SOIL AREAS WITHOUT VEGETATION SHALL ALSO BE MULCHED TO THIS MINIMUM DEPTH.
9. NO TREES OR SHRUBS EXCEEDING THREE FEET IN HEIGHT AT MATURITY MAY BE LOCATED WITHIN TEN FEET OF ANY SEWER FACILITIES.

DEVELOPER INSTALLED LANDSCAPE AREAS

RE-VEGETATED SLOPES	25,382 SF or (.58 Acres)
INTERIORPLANTING/SLOPES AREAS	74,874 SF or (1.72 Acres)
WATER QUALITY BASIN	17,403 SF or (.40 Acres)
FRESHWATER MARSH	12,396 SF or (.28 Acres)

STREET YARD

	PROVIDED
STREET YARD AREA	29,752 SF
36 TREES 27 (75%) 24" box + 9 (15 g) =540+90=	630
SHRUB PLANTING AVERAGE 9,438 SF/3' O.C.	1,048
3 EXISTING TREES 20" 50+18"X 25=	500
	2,178
PLANTING AREA PROVIDED=	9,438 S.F.

REMAINING YARD

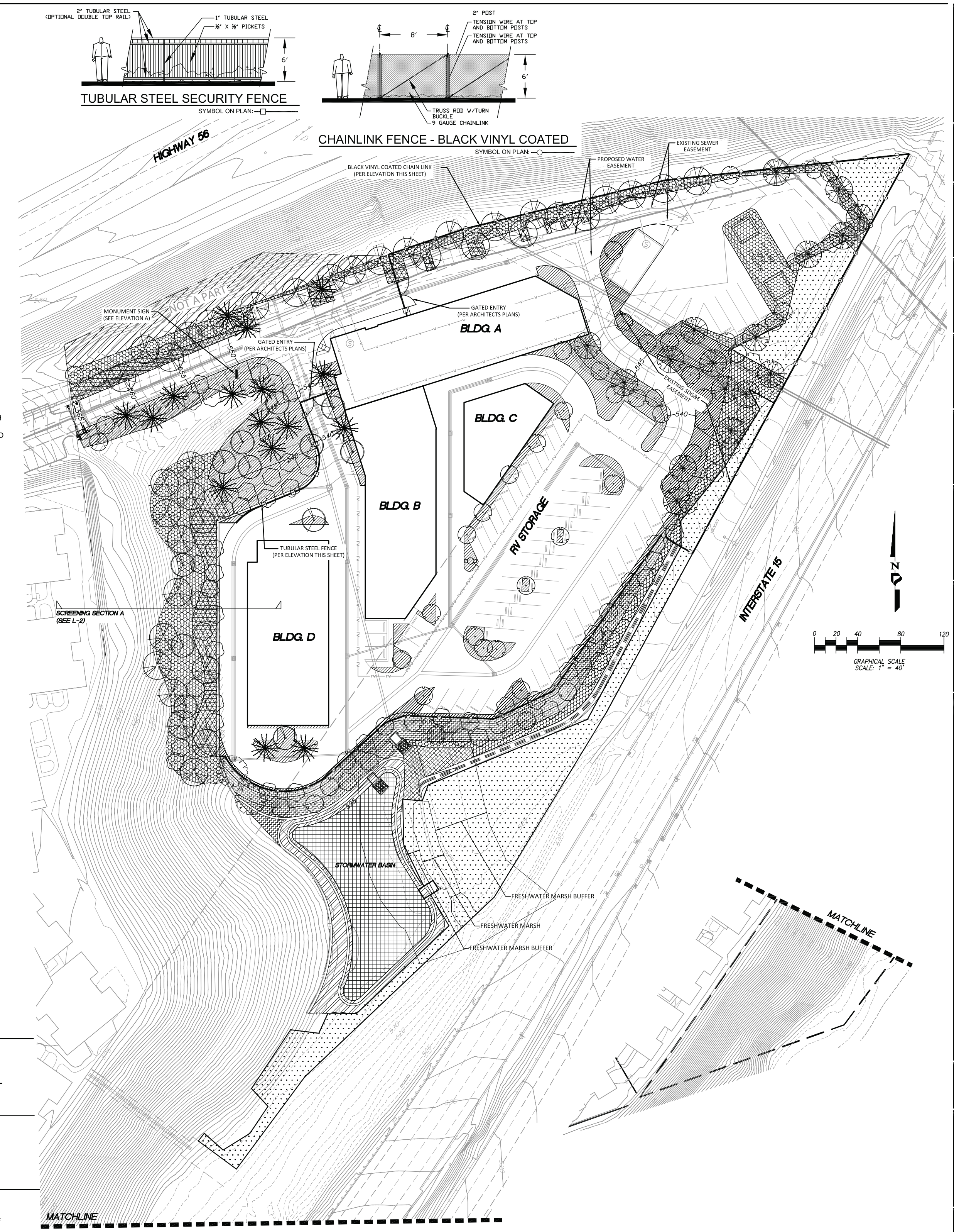
REMAINING YARD AREA 12,112 SF

PROPOSED SHRUB PLANTING : 2,755 SF / 4' O.C. = 239 PTS
EXISTING PLANTING: 9,357 SF / 5' O.C. = 1,728 PTS

VUA LEGEND

INSIDE STREET YARD VUA	11,988 SF
OUTSIDE STREET YARD VUA	108,666 SF

SEE SHEET L-2 FOR FORM DS-005 & 007 CALCULATIONS



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CLIENT

PardeeHomes
13400 Sabre Springs Parkway
San Diego, CA 92128
Tel.(858)794-2500, Fax(858)794-2599

CONSULTANTS

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

PROJECT:

PEN 173
RANCHO PENASQUITOS
RV / MINI-STORAGE FACILITY

LOT 12 OF SUN RIDGE VISTA,
UNIT NO.1 MAP 1924

REGISTRATION STAMP

ISSUE

REGISTERED LANDSCAPE ARCHITECT
JON JAY BECKER # 2542
Signature
Date
STATE OF CALIFORNIA
EXPIRES 7/31/19

Mark	Date	Description
1	06/04/2018	REVISION 1
2	07/20/2018	REVISION 2 CYCLE 10 RESP
3	01/18/2019	REVISION 3

SCALE:
DESIGNER PROJECT NO.: 17046
DRAWN BY:
CHECKED BY:
KEY PLAN

DESIGN ITERATION
01.18.2019

SHEET TITLE
CONCEPTUAL LANDSCAPE PLAN

SHEET NUMBER (SHEET 6 OF 16)
L-1

Landscape Plan

Sun Ridge Vista RV/Mini Storage/Project No. 534380

City of San Diego Development Services Department

FIGURE No. 5a

Map Source: Sillman Wright Architects

REVEGETATION PLANTING LEGEND

NATURALIZED AND TRANSITIONAL AREAS WILL STABILIZE THE SLOPES WITH DEEP ROOTING TREES, SHRUBS, GROUNDCOVER AND HYDROSEED. THE PROPOSED PLANTING IS TO BLEND INTO THE SURROUNDING HABITAT. THE RE-VEGETATION SPECIES SHALL BE SELECTED FROM THIS PALETTE OR APPROVED EQUAL.

SCREENING REVEGETATION PLANTING LEGEND - OWNER MAINTAINED (TEMP. IRRIGATED)

THE NATURALIZED STREETSCAPE AREAS ARE TO BE PLANTED WITH NATIVE OR NATURALIZED SPECIES TO BE SUSTANABLE WITH MINIMAL SUPPLIMENTAL WATER. SELECTION TO BE IN CONFORMANCE WITH THE LANDSCAPE ORDINANCE AND STREET TREE SELECTION GUIDE.

NATURALIZED REVEGETATION SCREEN TREES, EVERGREEN, ROUND HEAD, SHADE TREE - 50% 24" BOX OR LARGER, 50% 15 GAL -TREES IN VEHICULAR USE AREAS (VUA) SHALL BE 24" BOXES IN SIZE.

		MATURE HEIGHT & SPREAD
PINUS TORREYANA	TORREY PINE	20'-40' x 15'-25'
PLATANUS RACEMOSA	CALIFORNIA SYCAMORE	40'-80' x 30'-50'
QUERCUS AGRIFOLIA	COAST LIVE OAK	25'-65' x 30'-50'
QUERCUS KELLOGGII	CALIFORNIA BLACK OAK	25'-40' x 35'-40'

SDG&E REVEGETATION TREES, EVERGREEN, ROUND HEAD, SHADE TREE - 50% 24" BOX OR LARGER, 50% 15 GAL -TREES IN VEHICULAR USE AREAS (VUA) SHALL BE 24" BOXES IN SIZE.

CASSIA LEPTOPHYLLA	GOLDEN MEDALLION TREE	20'-40' x 15'-25'
CERCIS OCCIDENTALLIS	WESTERN REDBUD	40'-80' x 30'-50'
ERIOBOTRYA DEFLEXA	BRONZE LOQUAT	25'-65' x 30'-50'
LAGERSTROMIA INDICA	CRAPE MYRTLE	25'-40' x 35'-40'
RHUS LANCEA	AFRICAN SUMAC	20'-30' x 25'-35'

EVERGREEN SCREENING SHRUB - 80% 1-GALLON, 20% 5 GALLON-3'-5' o.c.
ONLY SHRUBS OF 3' IN HEIGHT OR LESS WILL BE USED IN THE PARKWAY VISIBILITY TRIANGLE

CALYCANTHUS OCCIDENTALIS	SPICE BUSH	8' x 8'
HETEROMELES ARBUTIFOLIA	TOYON	15' x 15'
PLUMBAGO AURICULATA	CAPE PLUMBAGO	8' x 10'
RHUS INTEGRIFOLIA	LEMONADE BERRY	20' x 20'
RHUS OVATA	SUGAR BUSH	8' X 8'

PERIMETER SLOPES (TEMPORARILY IRRIGATED)

THE PERIMETER SLOPE AREAS ARE TO BE PLANTED WITH CONTAINER MATERIAL IN CONFORMANCE WITH THE GRADING ORDINANCE THE SLOPES ARE TO BE HYDRO-SEEDED WITH A MIX OF NATIVE PLANT MATERIAL FOR SOIL EROSION PURPOSES.
50% OF SEED MIX TO BE PLANT MATERIAL THAT IS 24" OR LESS.

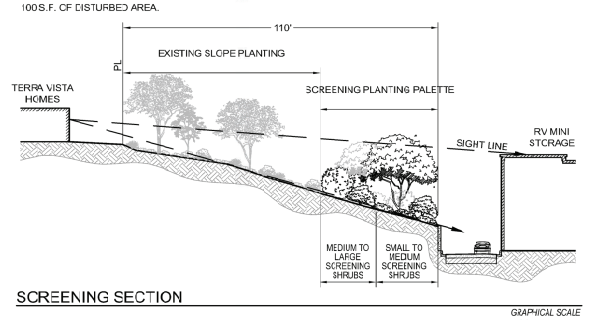
POTENTIAL SCREENING SPECIES FOR SLOPES-50% 1 GAL., 50% 5 GAL.

PLANT MATERIAL	COMMON NAME	FORM FUNCTION	MATURE HEIGHT & SPREAD
ADOLPHIA CALIFORNICA	SPINESHRUB	FRAGRANT FLOWERS, EROSION CONTROL	4' x 6'
COMAROSTAPHYLIS DIVERSIFOLIA	SUMMER HOLLY	EVERGREEN, WHITE ACCENT FLOWERS	6-10' x 8'
ENCELIA CALIFORNICA	COAST SUNFLOWER	YELLOW ACCENT FLOWERS, FAST GROWER	1-3' x 4'
ERIODICTYON TRICHOCALYX	SMOOTH LEAF YERBA SANTA	EVERGREEN, WHITE ACCENT FLOWERS	3-5' x 3-6'
ERIOPHYLLUM CONFERTIFLORUM	GOLDEN-YARROW	SUB-SHRUB, ORANGE-YELLOW FLOWERS	1-3' x 1.5'
ESCHSCHOLZIA CALIFORNICA	CALIFORNIA POPPY	SUB-SHRUB, ORANGE-YELLOW FLOWERS	1-3' x 3'
GNAPHALIUM CALIFORNICUM	CALIFORNIA PEARLY EVERLASTING	FRAGRANT EVERGREEN WHITE FLOWERS	3' x 3'
HAZARDIA SQUARROSA	COMMON HAZARDIA	SHRUB, YELLOW FLOWERS	1-2' x 2-3'
HETEROMELES ARBUTIFOLIA	TOYON	LARGE EVERGREEN SHRUB, SHOWY RED BERRIES	8-15 x 15'
LOTUS SCOPARIUS	DEER WEED	FAST GROWING PERENNIAL, YELLOW FLOWERS	2-3' x 3'
MALOSMA LAURINA	LAURAL SUMAC	EVERGREEN SHRUB, RAPID GROWTH	8-15' x 12'+
MINULUS AURANTIACUS PUNICEUS	RED MONKEYFLOWER	SUBSHRUB, CRIMSON TO BRICK-RED FLOWERS	2' x 3'
NEMOPHILA MENZIESII	BABY BLUE EYES	ANNUAL, BLUE FLOWERS	1' x 1.5'
QUERCUS AGRIFOLIA	COAST LIVE OAK	EVERGREEN TREE, SPREADING CROWN	20-40' x 35'+
QUERCUS DUMOSA	NUTTALL'S SCRUB OAK	LARGE EVERGREEN SHRUB, GOOD SOIL BINDER	3-10' x 15'
RHUS INTEGRIFOLIA	LEMONADE BERRY	EVERGREEN SHRUB, SLOPE STABILIZER	5-15' x 10'+
SALVIA APIANA	WHITE SAGE	SUB SHRUB, AROMATIC WHITE LEAVES & FLOWERS	3-5' x 5'
SALVIA LEUCOPHYLLA	PURPLE SAGE	MEDIUM SHRUB, PINKISH PURPLE FLOWERS	3-4' x 4-6'

COASTAL SAGE SCRUB HYDROSEED MIX FOR SLOPES

PLANT MATERIAL	COMMON NAME	FORM FUNCTION	MATURE HEIGHT & SPREAD	LB/AC	% PURITY/ GERMINATION RECOMMENDED
ARTEMESIA CALIFORNICA	COASTAL SAGEBRUSH	AROMATIC SHRUB, EROSION CONTROL, FAST GROWING	3-4' x 2-3'	2	15 / 50
ENCELIA CALIFORNICA	COAST SUNFLOWER	SUB-SHRUB, YELLOW FLOWERS, FAST GROWER	3 x 4'	4	40 / 60
ERIOGONUM FASCICULATUM	CALIFORNIA BUCKWHEAT	PERENNIAL, PINK-WHITE FLOWERS, FAST GROWER	3-4' x 4'	6	10 / 65
ERIOPHYLLUM CONFERTIFLORUM	GOLDEN YARROW	HERBACEOUS SUB-SHRUB, ORANGE-YELLOW FLOWERS	2' x 3'	3	30 / 60
ESCHSCHOLZIA CALIFORNICA	CALIFORNIA POPPY	SUB-SHRUB, YELLOW FLOWERS, FAST GROWER	3 x 3'	1	98 / 75
LOTUS SCOPARIUS	DEERWEED	PERENNIAL, NUMEROUS YELLOW FLOWERS FAST GROWER	2-3' x 3'	6	90 / 60
LUPINUS BICOLOR	PYGMY-LEAF LUPINE	SMALL ANNUAL, BLUE FLOWER, REVEGETATION	1' x 1.5'	4	98 / 80
LUPINUS NANUS	SKY LUPINE	SMALL ANNUAL, BLUE FLOWER, GROUNDCOVER	1.5' x 3'	4	98 / 85
MIMULUS AURANTIACUS PUNICEUS	RED MONKEYFLOWER	SUB-SHRUB, CRIMSON TO BRICK-RED FLOWERS	2' x 3'	2	2 / 55
SALVIA MELLIFERA	BLACK SAGE	SUB-SHRUB, AROMATIC, FLOWERS BLUE, LILAC OR WHITE	3-5' x 6'+	1	70 / 50
NASSELLA PULCHRA	PURPLE NEEDLE GRASS	PERENNIAL BUNCHGRASS, PURPLE SEED HEADS	2' x 2'	8	90 / 60

NOTE: CONTAINER STOCK ARE TO BE PLACED AT A MINIMUM RATE OF ONE PLANT PER 100 S.F. OF DISTURBED AREA.



SCREENING SECTION

GRAPHICAL SCALE
SCALE: 1" = 20'

INTERIOR SLOPES AND SITE PLANTING LEGEND OWNER MAINTAINED (PERMANENTLY IRRIGATED)

THE FACILITY GROUNDS ARE TO BE PLANTED WITH A MIX OF EVERGREEN AND SEASONALLY CHANGING SHADE TREES. ACCENT TREES ARE LOCATED AT INTERSECTIONS AND HIGHLY VISIBLE AREAS WITH COLORFUL SHRUBS. TRANSITIONAL EDGES TO OPEN SPACE SHOULD HAVE DROUGHT TOLERANT, AND ORNAMENTAL OF TREES, SHRUBS, AND NATURALIZED DROUGHT TOLERANT GRASSES.

POTENTIAL SCREENING PLANT MATERIAL — MATURE HEIGHT & SPREAD

SITE TREES - EVERGREEN SHADE TREE - 25% 24" BOX OR LARGER 75% 15 GAL

ARBUTUS MARINA	MARINA MADRONE	35' x 30'
ERIOBOTRYA DEFLXA	BRONZE LOQUAT	20' x 20'
GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	30' x 30'
METROSIDEROS EXCELSA	NEW ZEALAND CHRISTMAS TREE	40' x 40'
RHUS LANCEA	AFRICAN SUMAC	30' x 25'
TRISTANIA LAURINA	ELEGANT BRISBANE	35' x 30'

SITE SCREENING TREES - EVERGREEN SHADE TREE - 25% 24" BOX OR LARGER 75% 15 GAL

DODONAEA VISCOSA 'PURPUREA'	PURPLE HOPSEED	10' x 15'
GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	30' x 20'
MYRICA CALIFORNICA	PACIFIC WAX MYRTLE	30' x 20'
PODOCARPUS MACROPHYLLUS	YEW PINE	20' x 8'
RHUS LANCEA	AFRICAN SUMAC	25' x 30'

SDG&E SITE TREES - EVERGREEN SHADE TREE - 100% 15 GAL OR LARGER- TREES IN VEHICULAR USE AREAS (VUA) SHALL BE 24" BOXES IN SIZE.

CASSIA LEPTOPHYLLA	GOLDEN MEDALLION TREE	20' x 15'
CERCIS OCCIDENTALLIS	WESTERN REDBUD	15' x 10'
ERIOBOTRYA DEFLEXA	BRONZE LOQUAT	20' x 15'
LAGERSTROMIA INDICA	CRAPE MYRTLE	20' x 15'
RHUS LANCEA	AFRICAN SUMAC	25' x 30'

SDG&E SITE SCREENING TREES - EVERGREEN SHADE TREE - 100% 15 GAL OR LARGER

DODONAEA VISCOSA 'PURPUREA'	PURPLE HOPBUSH	12' x 8'
PITTOSPORUM PHILLYRAEOIDES	WILLOW PITTOSPORUM	25' x 15'

SMALL / MEDIUM EVERGREEN FLOWERING SHRUB - 80% 1-GALLON, 20% 5 GALLON-3'-5' o.c.
ONLY SHRUBS OF 3' IN HEIGHT OR LESS WILL BE USED IN THE VISIBILITY TRIANGLE AREAS

ABELIA GRANDIFLORA	GLOSSY ABELIA	4' x 4'
CEANOTHUS SP.	WILD LILAC	3' x 3'
CISTUS PURPUREUS	ORCHID ROCKROSE	4' x 5'
ESCALLONIA 'NEWPORT DWARF'	ESCALLONIA	3' x 4'
GREVILLEA 'NOELLII	GREVILLEA	4' x 5'
LEUCOPHYLLUM FRUITICOSUM	TEXAS RANGER	4' x 5'
SALVIA GREGGII	AUTUMN SAGE	4' x 4'

GROUNDCOVERS - 65% 1-GALLON, 35% FLATS-3'-5 o.c.

BACCHARIS PILULARIS 'Twin Peaks'	Twin Peaks BACCHARIS	3' x 6'
CALANDRINIA SPECTABILIS	ROCK PURSLANE	1.5' x 4'
EPILOBIUM CANUM	CALIFORNIA FUCHSIA	3' x 4'
HEMEROCALLIS HYBRIDA	ESCALLONIA	3' x 4'
LANTANA SPP.	DAYLILY	1.5' x 2'
TRACHELOSPERMUM JAPONICUM	LANTANA	1.5' x 5'
	STAR JASMINE	2' x 5'

LARGE / MEDIUM SCREENING EVERGREEN SHRUB - 80% 1-GALLON, 20% 5 GALLON-3'-5' o.c.
ONLY SHRUBS OF 3' IN HEIGHT OR LESS WILL BE USED IN THE VISIBILITY TRIANGLE AREAS

ACACIA REDOLENS	PROSTRATE ACCACIA	4' x 8'
HETEROMELIS ARBUTIFOLIA	TOYON	10' x 10'
ELEAGNUS PUNGENS	SILVERBERRY	8' x 8'
LIGUSTRUM JAPONICUM 'TEXANUM'	PRIVET	10' x 10'
MALOSMA LAURINA	LAUREL SUMAC	10' x 10'
PLUMBAGO AURICULATA	CAPE PLUMBAGO	10' x 10'
RHUS INTEGRIFOLIA	LEMONAID BERRY	8' x 12'
THEVETIA PERUVIANA	YELLOW OLEANDER	12' x 12'
XYLOSMA CONGESTUM	SHINY XYLOSMA	15' x 15'

SMALL / MEDIUM SCREENING EVERGREEN FLOWERING SHRUB - 80% 1-GALLON, 20% 5 GALLON-3'-5' o.c.
ONLY SHRUBS OF 3' IN HEIGHT OR LESS WILL BE USED IN THE VISIBILITY TRIANGLE AREAS

ACACIA REDOLENS	PROSTRATE ACACIA	4' X 8'
ARTEMISIA CALIFORNICA	CALIFORNIA SAGEBRUSH	4' x 4'
CEANOTHUS SP.	WILD LILAC	3' x 3'
CISTUS PURPUREUS	ORCHID ROCKROSE	4' x 5'
SALVIA MELIFERIA	BLACK SAGE	3' x 4'
LEUCOPHYLLUM FRUTICOSUM	TEXAS RANGER	4' x 5'
WESTRINGIA FRUTICOSA	COAST ROSEMARY	4' x 5'

NOTE: GRADED PAD HYDROSEED - WILDFLOWER (NON-IRRIGATED)

Temporary Pad Hydro-seed will be applied with a tackfier to the graded pad as part of the grading plan permit set.

BASIC EROSION CONTROL MIX (CONTACT S&S SEEDS 805.684.0436)

		Lbs/Ac.	Purity %
BROMUS CARINATUS "CUCAMONGA"	Cucamonga Brome	20	85
TRIFOLIUM WILLDENOVII	Tomcat Clover	4	85
VULPIA MICROSTACHYS	Small Fescue	8	85

STORM WATER QUALITY BASIN (TEMPORARILY IRRIGATED)

BASINS TO BE LINED WITH 18" MEDIUM DEPTH.

STORM WATER BASIN (BOTTOM)

PLANT MATERIAL	COMMON NAME	FORM FUNCTION	SIZE	
CAREX PRAEGRACILLIS	CALIFORNIA FIELD SEDGE	UPRIGHT, SPREADING	LINERS	1.5' x 1.5'
CAREX SUBFUSCA	RUSTY SEDGE	UPRIGHT, SPREADING	LINERS	1.5' x 1.5'
JUNCUS MEXICANUS	MEXICAN RUSH	UPRIGHT, SPREADING	1G / LINERS	0.5' x 0.5'
JUNCUS PATENS	CALIFORNIA GRAY RUSH	UPRIGHT, SPREADING	LINERS	1' x 2'
LEYMUS CONDENSATUS 'CANYON PRINCE'	CANYON PRINCE WILD RYE	CLUMPING, WEEPING	LINERS	1.5' x 1.5'
SCIRPUS CENUUS	LOW BULLRUSH	LUSH GREEN, CLUMPING	LINERS	1' X 1'

STORM WATER BASIN (TOP & SIDE SLOPES)

PLANT MATERIAL	COMMON NAME	FORM FUNCTION	SIZE	
ACHILLEA MILLEFOLIUM	YARROW	FRAGRANT, UPRIGHT, SPREADING	LINERS	1' x 2'
ANEMOPSIS CALIFORNICA	YERBAMENZA	FRAGRANT, UPRIGHT, SPREADING	LINERS	.75' x .75'
BACCHARIS P. PIGEON POINT	DWARF COYOTE BUSH	WHITE FLOWER, SILVER FOLIAGE	LINERS	3' x 3'
CAREX PRAEGRACILLIS	CALIFORNIA FIELD SEDGE	UPRIGHT, SPREADING	LINERS	1.5' x 1.5'
CAREX SUBFUSCA	RUSTY SEDGE	UPRIGHT, SPREADING	LINERS	1.5' x 1.5'
IVA HAYESIANA	POVERTY WEED	FRAGRANT, SPREADING	1G	1' x 2.5'
JUNCUS MEXICANUS	MEXICAN RUSH	UPRIGHT, SPREADING	1G / LINERS	1' x 2'
JUNCUS PATENS	CALIFORNIA GRAY RUSH	UPRIGHT, SPREADING	LINERS	1' x 2
LEYMUS CONDENSATUS 'CANYON PRINCE'	CANYON PRINCE WILD RYE	CLUMPING, WEEPING	LINERS	1.5' x 1.5'
MAHONIA NEVINII	NEVINS BARBERRY	FRAGRANT, MOUNDING, ROUNDED	LINERS	4' x 5'
MIMULUS CARDINALIS	SCARLET MONKEY FLOWER	UPRIGHT, ORANGE-RED FLOWER	1G	2' x 2'
SISYRINCHIUM BELLUM	BLUE-EYED GRASS	UPRIGHT, PURPLISH-BLUE FLOWER	LINERS	1' X 1'

VEGETATED SWALE

PLANT MATERIAL	COMMON NAME	FORM FUNCTION	SIZE	
CAREX PRAEGRACILLIS	CALIFORNIA FIELD SEDGE	UPRIGHT, SPREADING	LINERS	1.5' x 1.5'
CAREX SUBFUSCA	RUSTY SEDGE	UPRIGHT, SPREADING	LINERS	1.5' x 1.5'
JUNCUS MEXICANUS	MEXICAN RUSH	UPRIGHT, SPREADING	1G / LINERS	0.5' x 0.5'
JUNCUS PATENS	CALIFORNIA GRAY RUSH	UPRIGHT, SPREADING	LINERS	1' x 2'
SCIRPUS CENUUS	LOW BULLRUSH	LUSH GREEN, CLUMPING	LINERS	1' X 1'

FRESH WATER MARSH BUFFER PLANTING

FRESH WATER MARSH MIX - 00% 1-GALLON, 100% FLATS-3'-5' o.c.

BOLBOSCHOENUS MARITIMUS SSP. PALUDOSUS [=SCIRPUS MARITIMUS] -	SALTMARSH BULRUSH	1.5' x 4'
ELEOCHARIS MACROSTACHYA -	PALE SPIKE RUSH	1' x 2.5'
TYPHA ANGUSTIFOLIA -	NARROW-LEAVED CATTAIL	3' x 4'
AMBROSIA PSILOSTACHYA -	WESTERN RAGWEED	1.5' x 2.5'
OENOTHERA ELATA SSP. HIRSUTISSIMA -	GREAT MARSH EVENING-PRIMROSE	1.5' x 4'

EXISTING PLANTING TO REMAIN

EXISTING PLANTING TO REMAIN PER COVENANT OF EASEMENT

WATER CALCULATIONS

RV MINI STORAGE - MAWA / ETWU

Irrigation Point of Connection (P.O.C.) # 1

A	B	C	D	E	F	G	H	I	J
Controller #	Hydrozone#	Valve Circuit #	Irrigation Method (Code)	Plant Factor (average) (PF)	Hydrozone Area (sf) (HA)	% of Total Landscaped Area	PF x HA	IE	PF x HA / E
A	EXT SLOPES	1	MP ROTATOR	0.3	25,382	18.9%	7,614.6	0.75	10,152.8
	INT PLANTING/SLOPES	2	DRIP	0.4	74,874	55.6%	29,949.6	0.9	33,277.3
	WATER QUALITY BASIN	3	MP ROTATOR	0.5	17,403	12.9%	8,701.5	0.75	11,602.0
	MARSHBUFFER	4	MP ROTATOR	0.5	12,396	9.2%	518.0	0.75	609.4
	TREES	5	BUBBLER	0.5	4,560	3.4%	518.0	0.85	609.4
				SLA	0	0.0%	0.0	1.0	0.0
				TOTAL	134,615	100.0%			56,251.0

Maximum Applied Water Allowance (MAWA)

MAWA Formula: [Eto](0.62)[(0.45 x LA) +(0.55x SLA)]

Maximum Applied Water Allowance = 1915436.8 gallons per year

Estimated Total Water Use (ETWU)

ETWA Formula: (ETo)(0.62)[(PFxHA)/IE+SLA]
ETWU Formula: (Eto)(0.62 (Total of Column J)

Estimated total Water Use = 1778655.3 gallons per year

Eto =	51.0
LA =	134,615.0
SLA =	0.0

Percentage Allowance Used: 92.86%

MAWA - ETWU = (gallons) 136,781.6

Efficiency = 0.84

NET CANOPY OF TREE GAIN:

MOST OF THE EXISTING SITE IS VOID OF TREE CANOPY COVER. THE PROPOSED LANDSCAPE PLAN WILL PROVIDE TREES AS A SCREEN AROUND THE PERIMETER AS WELL AS PROVIDE SHADE IN THE VEHICULAR USE AREAS. THE PROJECT WILL PROVIDE 150+ TREES IN VARIOUS SIZES AND SPECIES. THE OVERALL TREE CANOPY COUNT IS AN INCREASE OF 150+ FOR THE SITE AND WORKING TOWARD THE GOALS OF THE CITY'S CLIMATE ACTION PLAN.

City of San Diego Development Services, 1222 First Ave., MS-501, San Diego, CA 92101-4154, (619) 446-5000

Landscape Calculations Worksheet — Vehicular Use Areas (VUA)

Provide the following information on the Landscape Plans. The Landscape Calculations determine the planting area and points required by the Landscape Regulations, Chapter 14, Article 2, Division 4 of the Land Development Code.

One tree (minimum 24-inch box size) is required within 30 ft. of each parking space. (If palm trees are used, one palm (minimum 8 ft. brown trunk height) is required within 15 ft of each parking space.)

Landscape Calculations Worksheet — Industrial Development in All Zones except RM and C

Provide the following information on the Landscape Plans. The Landscape Calculations determine the planting area and points required by the Landscape Regulations, Chapter 14, Article 2, Division 4 of the Land Development Code

STREET YARD [142.0404]

Page 2 of 3 — City of San Diego • Development Services Department • Industrial Development in All Zones Except RM and C

FACADE PLANTING AREA, alternate compliance (A) [142.0405(d)(2)(A)]

Planting Area Required	Planting Area Provided

7515 Metropolitan Drive, Suite 400
San Diego, CA 92108
Tel: (619) 294-7515
Fax: (619) 294-7592
www.sillmanwright.com

CLIENT:

PardeeHomes
13400 Sabre Springs Parkway
San Diego, CA 92128
Tel.(858)794-2500, Fax(858)794-2599

CONSULTANTS

PROJECT DESIGN CONSULTANTS
Planning | Landscape Architecture | Engineering | Survey

PROJECT:

PEN 173
RANCHO PENASQUITOS
RV / MINI-STORAGE FACILITY
LOT 12 OF SUN RIDGE VISTA, UNIT NO.1 MAP 1924

REGISTRATION STAMP

ISSUE

EXPIRES 7/31/19

Mark	Date	Description
1	06/04/2018	REVISION 1
2	07/20/2018	REVISION 2 CYCLE 10 RESP
3	01/18/2019	REVISION 3

SCALE:
DESIGNER PROJECT NO.: 17046
DRAWN BY:
CHECKED BY:
KEY PLAN

DESIGNITERATION
01.18.2019

SHEET TITLE
CONCEPTUAL LANDSCAPE LEGEND

SHEET NUMBER (SHEET 7 OF 16)
L-2

Landscape Plan

Sun Ridge Vista RV/Mini Storage/Project No. 534380

City of San Diego Development Services Department

FIGURE No. 5b

RECON

An Employee-Owned Company

March 7, 2019

Ms. Martha Blake
Development Services Department
City of San Diego
1222 First Avenue
San Diego, CA 92101

Reference: Noise Analysis for the Sun Ridge Vista RV/Mini Storage Project (RECON Number 8797)

Dear Ms. Blake:

RECON Environmental, Inc. (RECON) has evaluated the future noise levels at the proposed Sun Ridge Vista RV/Mini Storage Project (project) site in the Rancho Peñasquitos Community Planning Area. As detailed below, the project was assessed in the 1992 Rancho Peñasquitos Community Plan Update EIR (1992 EIR; City of San Diego 1992a). Based on the following analysis, there is no evidence that the proposed project would result in additional noise impacts beyond those anticipated and identified in the 1992 EIR.

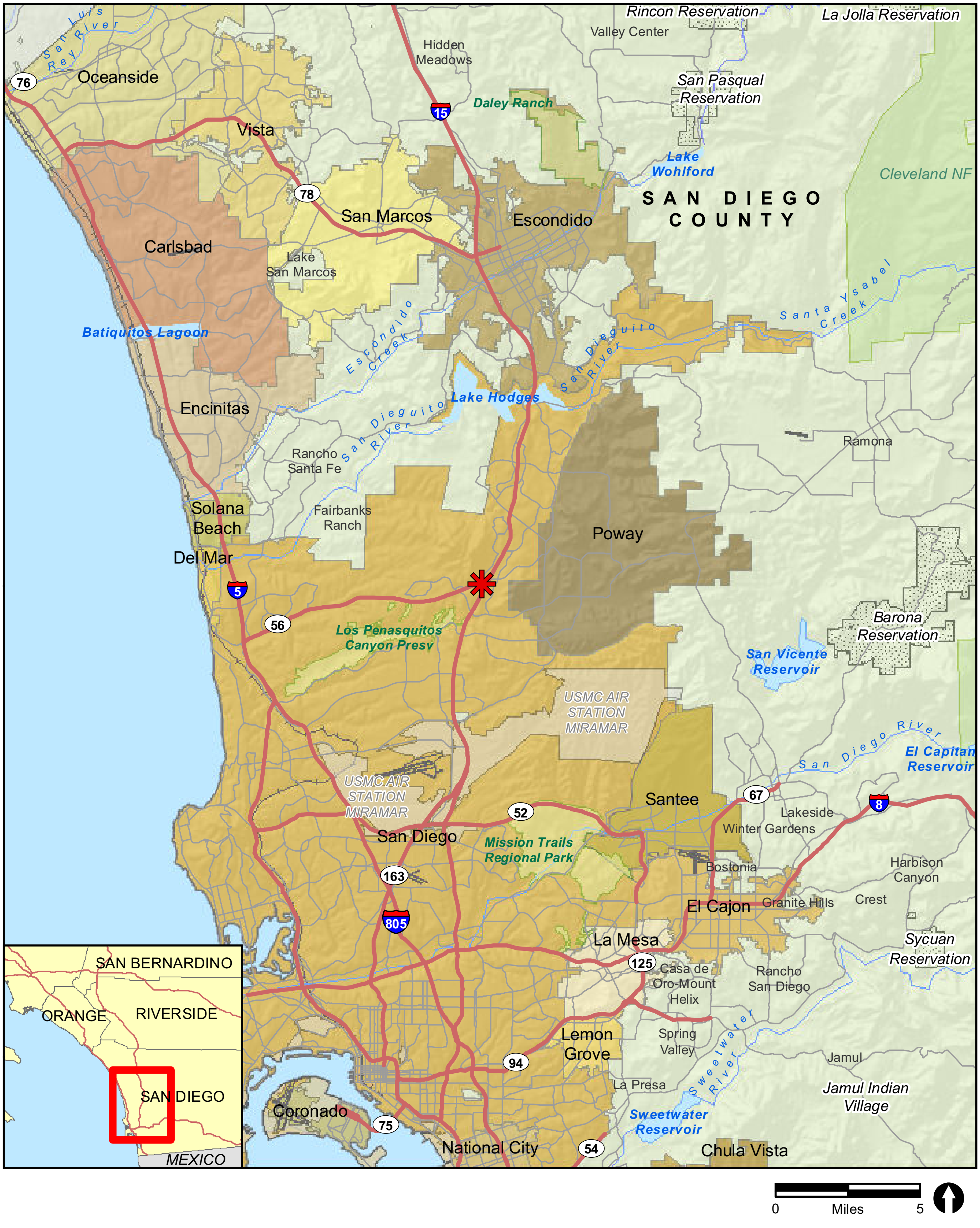
Project Description

The project site is located in the northern part of the City of San Diego to the west of Interstate 15 (I-15) and south of State Route 56 (Figure 1). It occurs on the U.S. Geological Survey (USGS) Poway 7.5-minute quadrangle within Township 14S and Range 2W in an unsectioned portion of the Grant Boundary (Figure 2). Currently, the property is undeveloped with adjacent land uses being comprised of residential development to the west, State Route 56 to the north, and I-15 to the south, and east (Figure 3).

The project proposes a recreational vehicle (RV) storage and mini-warehouse facility on the site. The development would include 139,587 square feet of mini-storage and ancillary office space, 69 RV spaces, 27 parking spaces, site access improvements, and other infrastructure improvements. The mini-storage facility would consist of four buildings in the central area of the site, while the RV parking would be provided along the eastern portion of the site. The site would be accessed from Azuaga Street via the Terra Vista development to the west. The site plan is shown in Figure 4.

Background Information

The Community Plan Update included a new Industrial Element that identified the project site as a location for a future RV storage/mini-warehouse lot. The site was identified as a 10.23-acre parcel and was noted to be "heavily disturbed due to previous use as a construction yard." The site access was identified to be through the adjacent multi-family development. The Community Plan included 10 recommendations for the future development. In summary, the RV storage was recommended to include approximately 200 spaces, and it was recommended that equivalent open space be provided to replace the open space easement to be vacated.



Project Location

FIGURE 1
Regional Location

RECON

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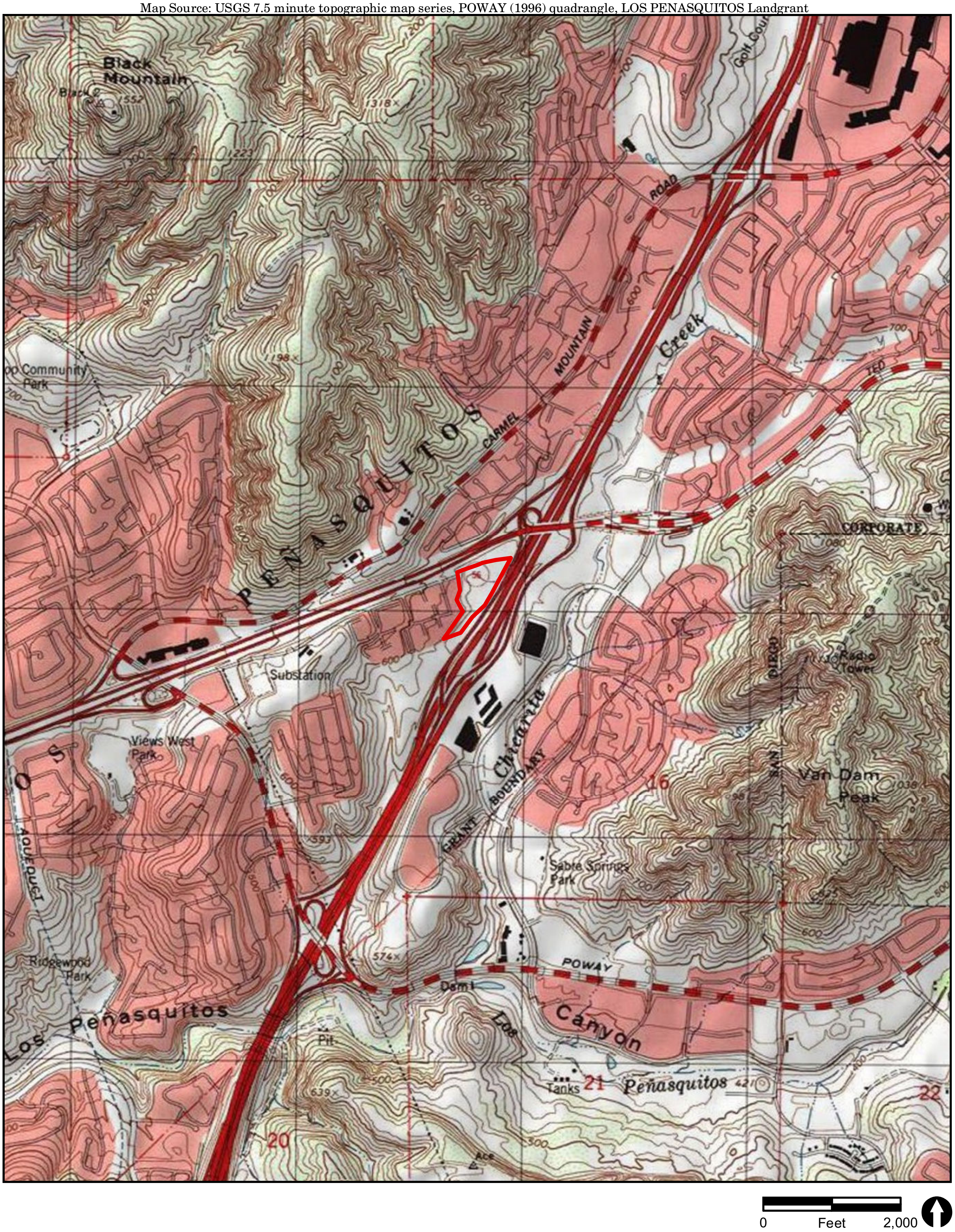
Map Source: USGS 7.5 minute topographic map series, POWAY (1996) quadrangle, LOS PENASQUITOS Landgrant



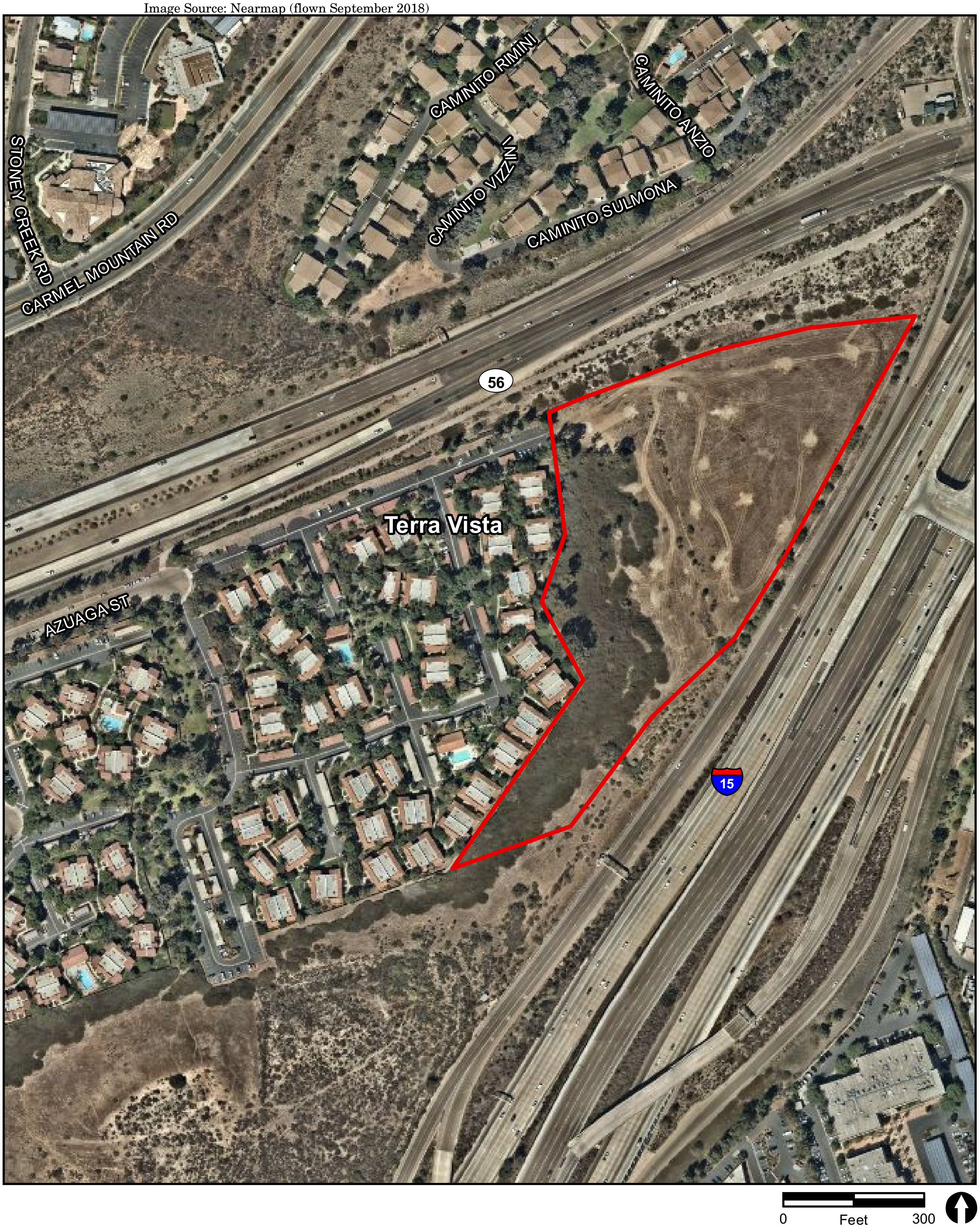
Project Boundary

FIGURE 2
Project Location on USGS Map

RECON

M:\JOBS5\8797\common_gis\fig2.mxd 8/25/2017 sab

Image Source: Nearmap (flown September 2018)



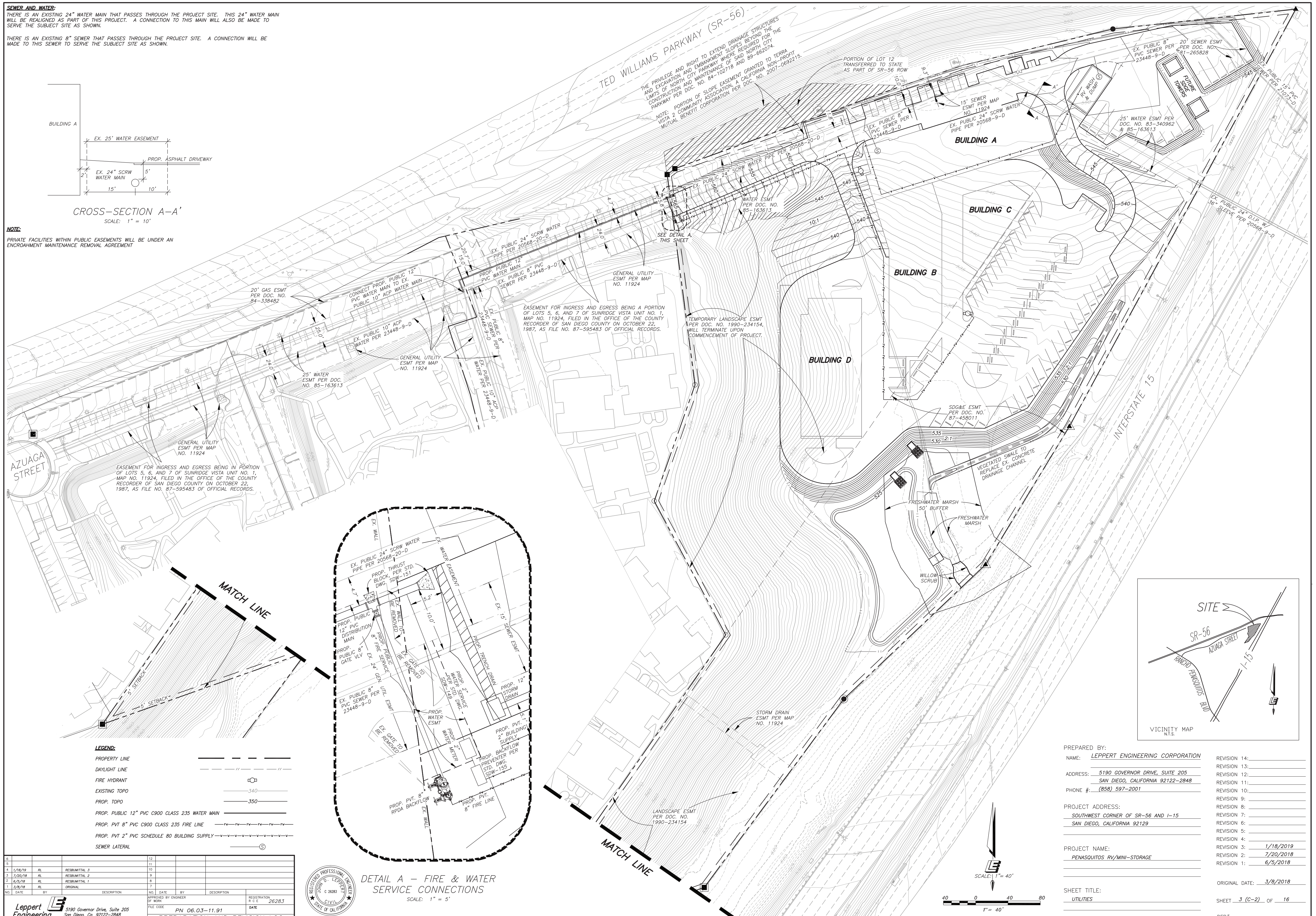
Project Boundary

FIGURE 3
Project Location on Aerial Photograph

RECON

M:\JOBS5\8797\common_gis\fig3_nos.mxd 11/1/2018 fmm

Map Source: Leppert Engineering



RECON

FIGURE 4
Site Plan

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The 1992 EIR determined that implementation of the land use plan would not have a significant impact on the acoustical environment in the community. All of the roadway segments within the planning area that were expected to produce noise levels in excess of 60 A-weighted decibels [dB(A)] would be at least four-lane major roads, and no homes would front directly along these roadways. In addition, the 1992 EIR stated that where the major roads were adjacent to single-family residential neighborhoods, large building setbacks or barriers such as berms and walls would be constructed to reduce exterior noise levels. The 1992 EIR determined that all street segments within the plan area that may produce exterior noise levels in excess of 65 dB(A) would be greater than 50 feet away from any exterior living area; as such, no significant impact associated with traffic noise was anticipated.

In regards to noise generated by aircraft operations at Marine Corps Air Station Miramar, the 1992 EIR stated that the entire community plan area is outside of the 65 dB(A) noise contour for the air field. Thus, noise impacts associated with aircraft was determined to be less than significant.

Regulations and Applicable Standards

Noise levels from construction activities and on-site noise sources are regulated by the City of San Diego's (City's) Noise Abatement and Control Ordinance.

Construction Noise

Section 59.5.0404 of the City's Noise Abatement and Control Ordinance states that:

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. . . .

B. . . . 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 decibels during the 12-hour period from 7:00 a.m. to 7:00 p.m.

Construction would be restricted to between the hours of 7:00 a.m. and 7:00 p.m. and construction noise levels may not exceed a 12-hour equivalent noise level [dB(A) $L_{eq(12)}$] of 75 dB(A) $L_{eq(12)}$ as assessed at or beyond the property line of a property zoned residential.

On-site Generated Noise

Section 59.5.0401 of the City's Noise Abatement and Control Ordinance states that:

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.

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.

The applicable noise limits of the City's Noise Abatement and Control Ordinance are summarized in Table 1.

Table 1 Applicable Noise Level Limits		
Land Use	Time of Day	One-hour Average Sound Level [dB(A) L_{eq}]
Single-family Residential	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	50 45 40
Multi-family Residential (up to a maximum density of 1 unit/2,000 square feet)	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	55 50 45
All other Residential	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	60 55 50
Commercial	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 60 60
Industrial or Agricultural	Anytime	75
SOURCE: City of San Diego Noise Abatement and Control Ordinance Section 59.5.0401. dB(A) L_{eq} = A-weighted decibels equivalent noise level		

Analysis

The project would generate noise from construction activities, on-site heating, ventilation, and air conditioning (HVAC) equipment, and increased traffic that would have the potential to exceed property line noise level limits established in the City's Noise Abatement and Control Ordinance. While the project would not generate traffic beyond what was analyzed in the 1992 EIR and would, therefore, would not result in an increase in ambient noise levels in the Community Plan area, traffic related noise could result from project access to the site because traffic would be required to use the driveway associated with the Terra Vista multi-family development at the end of Azuaga Street.

To determine noise impacts associated with construction, HVAC equipment, and vehicle access, property line noise levels generated by the project were assessed. Construction and HVAC noise levels were modeled using the SoundPLAN noise model (NAVCON 2015).

Existing Ambient Noise Levels

Existing noise levels at the project site were measured on January 16, 2018, using one Larson-Davis LxT Sound Expert Sound Level Meters, serial number 3828. The following parameters were used:

Filter:	A-weighted
Response:	Slow
Time History Period:	5 seconds

The meter was calibrated before and after the measurement. The meter was set 5 feet above the ground. The measurement was located near the north central portion of the project site. The main noise source on the project site is vehicle traffic on I-15. Noise levels were measured for 15 minutes. The average measured noise level was 67.6 dB(A) L_{eq}. Noise measurement data is contained in Attachment 1.

Construction

Construction would be restricted to between the hours of 7:00 a.m. and 7:00 p.m. and pursuant to current regulations, construction noise levels may not exceed a 12 dB(A) $L_{eq(12)}$ of 75 dB(A) $L_{eq(12)}$ as assessed at or beyond the property line of a property zoned residential. There are residential uses located west of the project site.

Project construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading, building construction, loading, unloading, and placing materials and paving. Diesel engine-driven trucks also would bring materials to the site and remove the soils from excavation. During excavation, grading, and paving operations, equipment moves to different locations and goes through varying load cycles, and there are breaks for the operators and for non-equipment tasks, such as measurement. Although maximum noise levels may be 80 to 90 dB(A) at a distance of 50 feet during most construction activities, hourly average noise levels from the grading phase of construction would be 83 dB(A) L_{eq} at 50 feet from the center of construction activity when assessing the loudest pieces of equipment working simultaneously.

Construction noise is considered a point source and would attenuate at approximately 6 dB(A) for every doubling of distance. Average hourly noise levels due to simultaneous activity would be 83 dB(A) L_{eq} at 50 feet. To reflect the nature of grading and construction activities, equipment was modeled as an area source distributed over the project footprint. The total sound energy of the area source was modeled with all pieces of equipment operating simultaneously. Noise levels were modeled at a series of 10 receivers located at the adjacent residential. The results are summarized in Table 2. Modeled receiver locations and construction noise contours are shown in Figure 5. SoundPLAN data is contained in Attachment 2. As shown, construction noise levels would not exceed 75 dB(A) L_{eq} at the adjacent residential uses, therefore, impacts would be less than significant.

Table 2
Construction Noise Levels

Receiver	Construction Noise Level [dB(A) L_{eq}]
1	67
2	67
3	65
4	64
5	64
6	64
7	62
8	59
9	57
10	55

dB(A) L_{eq} = A-weighted decibels equivalent noise level

<u>HVAC Equipment</u>

The project site is located adjacent to multi-family residential uses. As shown in Table 1, the most restrictive limit at the property lines of multi-family uses is 45 dB(A) L_{eq}.

The project would include roof-mounted HVAC units above the office portion of the Building A. All other storage space would not include heating or air conditioning. Property line noise levels due to HVAC equipment were calculated assuming the typical capacity of 1 ton per 340 square feet of large office building space. Based on this ratio, the 4,031 square feet of office space would require a capacity of 12 tons. Based on review of manufacturer specifications for a sample unit (Trane Mode T/YSCE120ED), a representative noise level for a 6-ton unit would be a sound power level of 85 dB. Noise specifications are contained in Attachment 3. Two 6-ton units were modeled on the roof of Building A above the proposed office space. The units were modeled at full capacity.

Modeled receivers and HVAC noise contours are shown in Figure 6. Modeled data is included in Attachment 4. Future projected noise levels are summarized in Table 3. As shown, HVAC noise levels would not exceed the City's Noise Abatement and Control Ordinance noise level limit of 45 dB(A) L_{eq} at the property line. Impacts due to on-site generated noise would be less than significant.

Image Source: Nearmap (flown September 2018)

Project Boundary
Receivers

Construction Noise Contours

60 dB(A) Leq
65 dB(A) Leq
70 dB(A) Leq
75 dB(A) Leq

0 Feet 200

RECON

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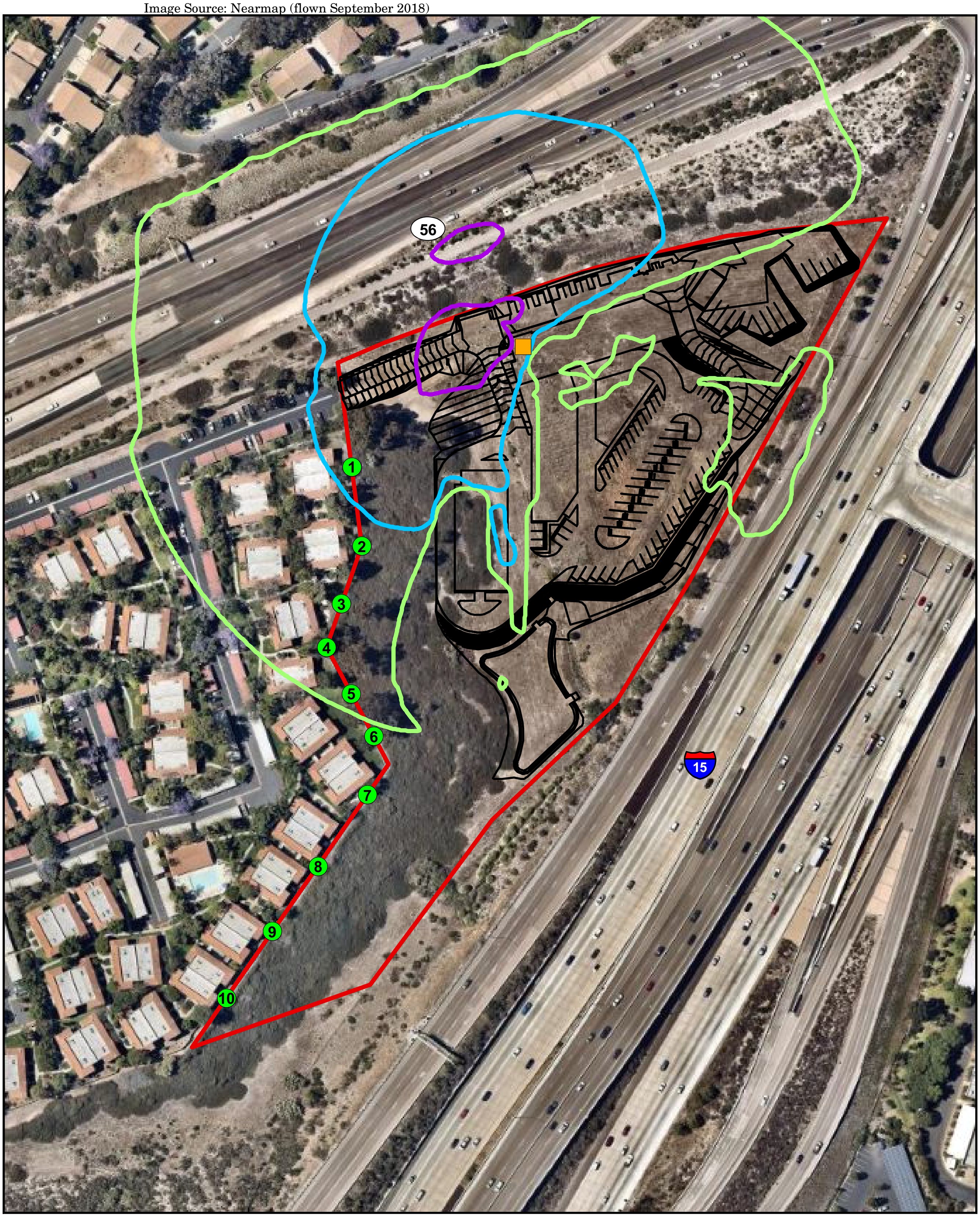
FIGURE 5
Construction Noise Contours

Image Source: Nearmap (flown September 2018)



Project Boundary
Site Plan
Receivers
HVAC

HVAC Noise Contours
30 dB(A) Leq
35 dB(A) Leq
40 dB(A) Leq

0 Feet 200

RECON

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FIGURE 6

HVAC Noise Contours

Table 3 HVAC Noise Levels	
Receiver	HVAC Noise Level [dB(A) L_{eq}]
1	34
2	34
3	32
4	31
5	30
6	30
7	29
8	27
9	26
10	25
dB(A) L_{eq} = A-weighted decibels equivalent noise level	

<u>Site Access</u>

Site access would be through the adjacent Terra Vista multi-family complex. The project would result in additional vehicles using the northern driveway/parking access road at the end of Azuaga Street. Based on the San Diego Association of Governments trip generation rate for storage uses of two trips per 1,000 square feet (San Diego Association of Governments 2002), the storage facility portion of the project would generate 280 daily trips. Additionally, the project would include 69 RV storage spaces that would generate approximately 2 trips per RV for a total of 282 trips. Traffic noise was modeled using the Federal Highway Administration Traffic Noise Prediction Model algorithms and reference levels. Traffic was modeled at a speed of 15 miles per hour. Based on these parameters, the peak hour noise level at the multi-family building located closest to the access road (50 feet) would be 44 dB(A) L_{eq} (Attachment 5). The measured ambient noise level in the vicinity is 67.6 dB(A) L_{eq}. Noise generated by vehicles accessing the project site would not result in a measurable increase in existing ambient noise levels, and would not generate noise that exceeds the City's compatibility standards. Thus, impacts would be less than significant.

Therefore, based on the foregoing analysis and information, there is no evidence that the proposed project requires a major change to the EIR. The project would not create any new significant impacts, nor would a substantial increase in the severity of impacts from that described in the EIR result.

If you have any questions, please contact me at jfleming@reconenvironmental.com or at (619) 308-9333, ext. 177.

Sincerely,

Jessica Fleming

Jessica Fleming
Noise Specialist

JLF:jg

References Cited

Navcon Engineering, Inc.
2015 SoundPLAN Essential version 3.0.

San Diego Association of Governments
2002 (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region. April 2002.

San Diego, City of
1992a Rancho Peñasquitos Community Plan Update Environmental Impact Report.

1992b Rancho Peñasquitos Community Plan Update.

ATTACHMENTS

ATTACHMENT 1

Noise Measurement Data

Summary			
Filename	LxT_Data.006		
Serial Number	3828		
Model	SoundExpert™ LxT		
Firmware Version	2.302		
User			
Location			
Job Description			
Note			
Measurement Description			
Start	2018/06/21 15:22:32		
Stop	2018/06/21 15:37:41		
Duration	0:15:09.2		
Run Time	0:15:09.2		
Pause	0:00:00.0		
Pre Calibration	2018/06/21 15:19:26		
Post Calibration	None		
Calibration Deviation	---		
Overall Settings			
RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamp	PRMLxT1L		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/1 and 1/3		
OBA Freq. Weighting	A Weighting		
OBA Max Spectrum	At Lmax		
Overload	121.7 dB		
	A	**C**	**Z**
Under Range Peak	**78.0**	75.0	80.0 dB
Under Range Limit	**27.0**	25.8	33.0 dB
Noise Floor	16.7	16.7	22.8 dB
Results			
LAeq	67.6 dB		
LAE	97.2 dB		
EA	579.490 µPa²h		
LApeak (max)	2018/06/21 15:31:56	94.2 dB	
LASmax	2018/06/21 15:31:57	76.0 dB	
LASmin	2018/06/21 15:32:11	62.6 dB	
SEA	-99.9 dB		
LAS > 85.0 dB (Exceedence Counts / Duration)	0	0.0 s	
LAS > 115.0 dB (Exceedence Counts / Duration)	0	0.0 s	
LApeak > 135.0 dB (Exceedence Counts / Duration)	0	0.0 s	
LApeak > 137.0 dB (Exceedence Counts / Duration)	0	0.0 s	
LApeak > 140.0 dB (Exceedence Counts / Duration)	0	0.0 s	

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**	**LNight 22:00-07:00**
	67.6	67.6	-99.9	67.6	67.6	-99.9	-99.9

LCeq	73.7 dB
LAeq	67.6 dB
LCeq - LAeq	6.1 dB
LAIeq	68.3 dB
LAeq	67.6 dB
LAIeq - LAeq	0.7 dB
# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	0
OBA Overload Duration	0.0 s
Statistics	
LAS5.00	70.0 dB
LAS10.00	69.4 dB
LAS33.30	67.9 dB
LAS50.00	67.2 dB
LAS66.60	66.6 dB
LAS90.00	65.0 dB

ATTACHMENT 2

SoundPLAN Data – Construction

Source name	Reference	Level	Corrections		
		Leq1	Kwall	CI	CT
		dB(A)	dB(A)	dB(A)	dB(A)
Construction	Unit	117	-	-	-

No.	Coordinates X	Y	Floor	Height	Limit Leq1	Level w/o NP Leq1	Level w. NP Leq1	Difference Leq1	Conflict Leq1
	in meter			m	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1	490704.97	3647132.84	1.Fl	177.67	75	67.2	0	-67.2	-
2	490709.76	3647098.63	1.Fl	177.59	75	67.1	0	-67.1	-
3	490701.12	3647073.51	1.Fl	177.10	75	65.0	0	-65.0	-
4	490694.65	3647054.70	1.Fl	177.23	75	63.6	0	-63.6	-
5	490705.48	3647034.79	1.Fl	177.06	75	64.2	0	-64.2	-
6	490715.48	3647016.41	1.Fl	176.49	75	64.0	0	-64.0	-
7	490712.94	3646991.07	1.Fl	176.48	75	61.5	0	-61.5	-
8	490691.70	3646960.02	1.Fl	176.51	75	58.5	0	-58.5	-
9	490672.26	3646931.60	1.Fl	176.49	75	56.6	0	-56.6	-
10	490652.50	3646902.71	1.Fl	176.53	75	55.1	0	-55.1	-

ATTACHMENT 3

HVAC Noise Specifications

Table 6. Standard motor & low static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
5	WSC060ED	AK44x3/4"	N/A	720	791	861	931	1002	1072
6	WSC072ED	AK56x1"	N/A	558	612	665	718	772	825
7½	WSC090ED	AK57x1"	N/A	688	737	787	837	887	N/A
10	WSC120ED	AK105X1"	N/A	724	776	828	880	932	984

Note: Factory set at 3 turns open.

Table 7. Standard motor & high static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
6	WSC072ED	AK56x1"	N/A	968	1018	1068	1118	1169	1219
7½	WSC090ED	AK57x1"	1053	1091	1129	1166	1204	1242	N/A
10	WSC120ED	AK105X1"	1110	1159	1209	1258	1308	1357	N/A

Note: Factory set at 3 turns open.

Table 8. Oversized motor & high static drive accessory sheave/fan speed (rpm)

Tons	Unit Model Number	Fan Sheave	6 Turns Open	5 Turns Open	4 Turns Open	3 Turns Open	2 Turns Open	1 Turn Open	Closed
7½	WSC090ED	AK85x1"	1186	1249	1311	1373	1436	N/A	N/A

Note: Factory set at 3 turns open.

Table 9. Outdoor sound power level—dB (ref. 10—2 W)

Tons	Unit Model Number	Octave Center Frequency								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5	T/YSC060ED	84	91	79	77	74	71	68	63	80
6	T/YSC072ED	83	90	86	82	79	75	70	63	85
7½	T/YSC090ED	83	90	86	83	80	75	71	64	85
8.5	T/YSC102ED	83	89	84	81	77	72	69	62	83
10	T/YSC120ED	83	86	80	77	73	69	66	60	79

Note: Tests follow ARI270-95.

Table 10. Outdoor sound power level—dB (ref. 10—12 W)

Tons	Unit Model Number	Octave Center Frequency								Overall dBA
		63	125	250	500	1000	2000	4000	8000	
5	WSC060ED	84	91	79	77	74	71	68	63	80
6	WSC072ED	83	90	86	82	79	75	70	63	85
7½	WSC090ED	83	90	86	83	80	75	71	64	85
10	WSC120ED	83	86	80	77	73	69	66	60	79

Note: Tests follow ARI270-95.

ATTACHMENT 4

SoundPLAN Data – HVAC

		Level		Corrections	
Source name	Reference	Leq1	Kwall	CI	CT
		dB(A)	dB(A)	dB(A)	dB(A)
HVAC	Unit	88	-	-	-

No.	Coordinates X	Y	Floor	Height	Limit Leq1	Level w/o NP Leq1	Level w. NP Leq1	Difference Leq1	Conflict Leq1
	in meter			m	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1	490704.97	3647132.84	1.Fl	177.67	-	35.8	0	-35.8	-
2	490709.76	3647098.63	1.Fl	177.59	-	34.1	0	-34.1	-
3	490701.12	3647073.51	1.Fl	177.10	-	32.3	0	-32.3	-
4	490694.65	3647054.70	1.Fl	177.23	-	31.1	0	-31.1	-
5	490705.48	3647034.79	1.Fl	177.06	-	30.4	0	-30.4	-
6	490715.48	3647016.41	1.Fl	176.49	-	29.7	0	-29.7	-
7	490712.94	3646991.07	1.Fl	176.48	-	28.6	0	-28.6	-
8	490691.70	3646960.02	1.Fl	176.51	-	27.1	0	-27.1	-
9	490672.26	3646931.60	1.Fl	176.49	-	25.9	0	-25.9	-
10	490652.50	3646902.71	1.Fl	176.53	-	24.8	0	-24.8	-

ATTACHMENT 5

FHWA RD-77-108 – Vehicle Traffic Noise

FHWA RD-77-108

Traffic Noise Prediction Model

Data Input Sheet

Project Name : Rancho Penasquitos RV/Mini Storage Facility
Project Number : 8797
Modeled Condition : Site Access

Surface Refelction: CNEL
Assessment Metric: Hard
Peak ratio to ADT: 10.00
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	K-Factor
1	Driveway access		282	15	50	96.00	3.00	1.00	80.00	10.00	10.00	

FHWA RD-77-108

Traffic Noise Prediction Model

Predicted Noise Levels

Project Name : Rancho Penasquitos RV/Mini Storage Facility
Project Number : 8797
Modeled Condition : Site Access
Assessment Metric: Hard

			Noise Levels, dBA Hard				Distance to Traffic Noise Level Contours, Feet					
Segment	Roadway	Segment	Auto	MT	HT	Total	75 dB	70 dB	65 dB	60 dB	55 dB	50 dB
1	Driveway access		37.8	37.3	41.6	44.1	0	0	0	1	4	13

Leppert Engineering CORPORATION

October 3, 2018
LEC Job No. PN 6.03-11.91

sent via messenger

Ms. Laura Black
Development Services Department
City of San Diego
1222 First Avenue, MS 301
San Diego, CA 92101

RE: OPEN SPACE EQUIVALENCY ANALYSIS – Rancho Penasquitos Recreational Vehicle (RV) Storage/Mini-Storage Facility

Dear Ms. Black:

On behalf of our client and the applicant, Pardee Homes, we respectfully submit this Open Space Equivalency Analysis for the proposed Open Space Easement Vacation and Planned Development Permit for the Rancho Penasquitos RV Storage/Mini-Storage Facility project, PTS No. 534380.

Background

The Rancho Penasquitos Community Plan Industrial Element allows for the development of the site into a RV storage/mini-storage facility. The Community Plan provides 10 recommendations for this development, including the following:

> *"Vacate the existing open space easement (Lot 12) that was established when the Sun Ridge Vista development was approved and provide equivalent open space at another location acceptable to the Park and Recreation department."*

In order to evaluate what is considered "equivalent" open space, this analysis focuses on how one might assess the value of open space provided. Per the City's current zoning code (Section 131.0201), which was adopted after the Community Plan was updated, *"[t]he purpose of the open space zones is to protect lands for outdoor recreation, education, and scenic and visual enjoyment; to control urban form and design; and to facilitate the preservation of environmentally sensitive lands."* This language is mirrored in the General Plan as well.

Current Value

Outdoor Recreation or Education Value: The site is not currently used for recreational or educational purposes and therefore does not currently provide such value.

Scenic and Visual Values: The site currently does provide a physical buffer between the residences and the freeway, but does not contain significant scenic resources.

Control urban form: The site was not preserved to maintain or protect any unique landform. As documented in the project's geotechnical report, the site has been previously graded with fills being found across the site.

Environmentally Sensitive Lands: The site has been previously disturbed. However, because of the lack of any activity on the site during the past approximately 20 years the site now includes non-native grassland and wetland habitats that are considered environmentally sensitive lands (see Attachment 1 – Biological Technical Report).

Overall, the open space values currently provided by the site consist of marginal visual buffers and environmentally sensitive lands over a portion of the site.

Proposed Value

The development of the site has the potential to affect the existing visual buffer and environmentally sensitive lands (ESL) values.

The value of the site as a visual buffer would be retained, as the project would retain approximately 4.21 acres of the site in its current state and would include extensive landscaping. The proposed landscaping would include trees that would block views of the proposed development as well as the freeway (see Attachment 2 – Site Renderings). Thus, the project would improve the visual buffer values provided at the site.

The proposed project would provide equivalent ESL value by providing compensatory mitigation for ESL impacts (Tier IIIB non-native grassland habitat) and preserving the remaining ESL on-site in accordance with the Biology Guidelines. Mitigation is proposed to include the provision of 2.7-acres of Tier IIIB or better habitat in the East Elliott Area (see Attachment 3 – East Elliott Parcels). The proposed habitat mitigation would be within the MHPA and would be have higher biological value considering its connectivity. All remaining ESL on-site would be protected by a Covenant of Easement, or an equivalent open space easement acceptable to the City, and therefore its value would be preserved.

Overall, the proposed project design would improve the visual buffer values of the site and replace the ESL values via habitat mitigation in accordance with the Biology Guidelines.

Thank you very much for your assistance with this analysis. If you have any questions or require any additional information about the property, please feel free to contact me at (858) 597-2001.

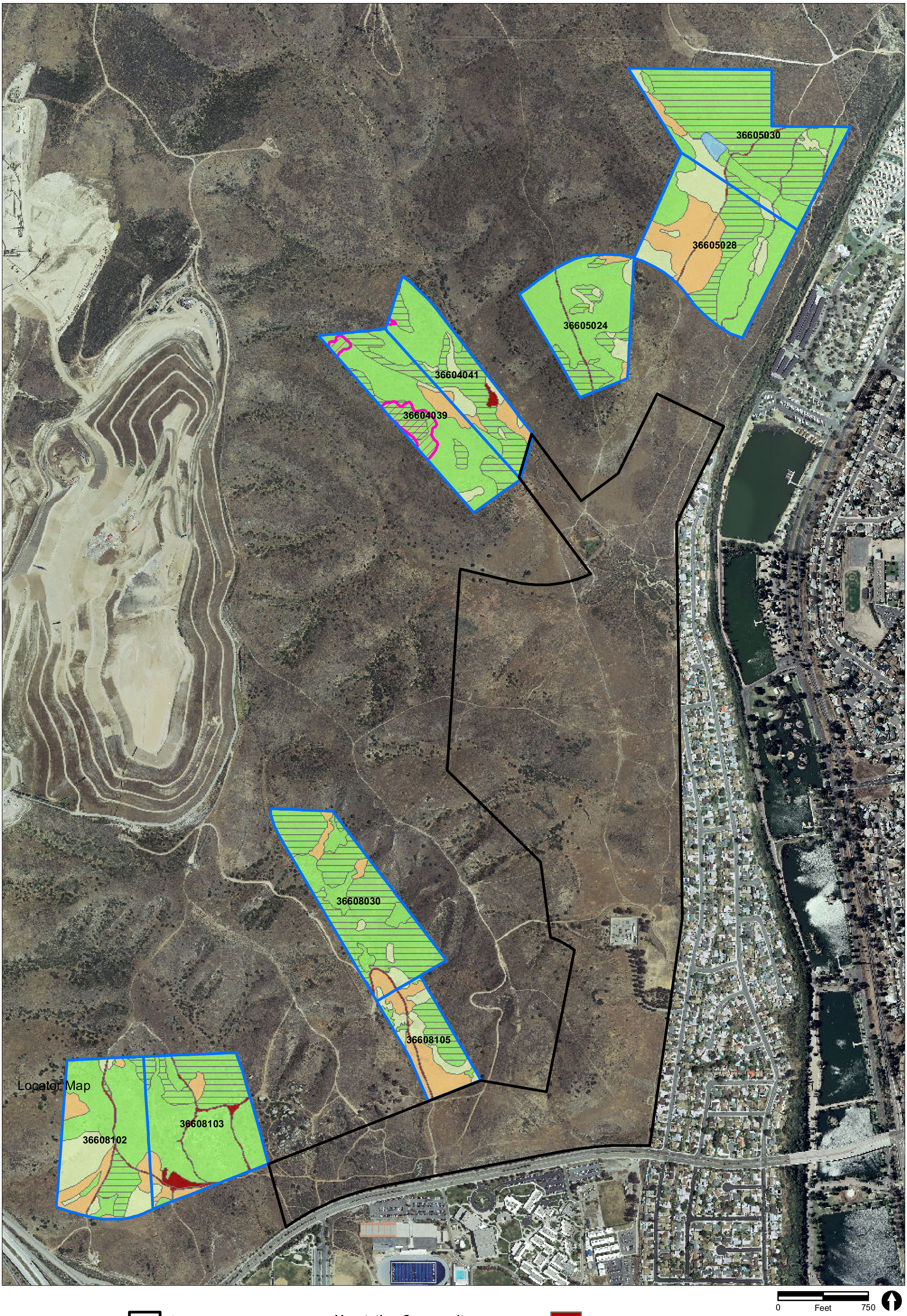
Sincerely yours,
LEPPERT ENGINEERING CORPORATION

John D. Leppert, RCE
President

cc. Allen Kashani, Pardee Homes
April Tornillo, Pardee Homes
Elizabeth Hansen, Southwest Strategies
Dawna Marshall, RECON Environmental, Inc.

Attachments – Biological Technical Report, Site Renderings, and East Elliott Parcels

Image source: SanGIS (flown May 2012)



Castlerock Project Boundary
Pardee Mitigation Parcel
San Diego Goldenstar

Vegetation Community

Coastal Sage Scrub
Disturbed Coastal Sage Scrub

Disturbed Land
Native Grassland
Non-native Grassland
Pond

RECON

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FIGURE 1

Vegetation Map of Pardee Owned Parcels

A EXISTING VIEW FROM SR-56 TOWARD RV MINI STORAGE
(EYE LEVEL VIEW)

A PROPOSED VIEW FROM SR-56 TOWARD RV MINI STORAGE
(EYE LEVEL VIEW)

B EXISTING VIEW FROM INTERSTATE 15 ACCELERATION RAMP
(EYE LEVEL VIEW)

B PROPOSED VIEW FROM INTERSTATE 15 ACCELERATION RAMP
(EYE LEVEL VIEW)

C EXISTING VIEW FROM TERRA VISTA CONDOMINIUM
(2ND STORY VIEW)

C PROPOSED VIEW FROM TERRA VISTA CONDOMINIUM
(2ND STORY VIEW)

NOT TO SCALE

RANCHO PENASQUITOS RV / MINI-STORAGE FACILITY

3D SITE RENDERINGS

DATE: JULY 24, 2018

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

Priority Development Project
Storm Water Quality Management Plan
FOR
Penasquitos RV & Mini Storage

PTS No. 534380, PDP 21 80790
January 2019

Prepared By:
LEPPERT ENGINEERING CORPORATION
5190 GOVERNOR DRIVE, SUITE 205
SAN DIEGO, CA 92122
Job No. PN 06.03-11.91

Prepared For:
Pardee Homes
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13400 Sabre Springs Parkway, Suite 200
San Diego, CA 92128
858-794-2571, Allen.Kashani@Pardeehomes.com

By: John D. Leppert, RCE 26283
Exp. 3/31/20

REGISTERED PROFESSIONAL ENGINEER
JOHN D. LEPPERT
C 26283
CIVIL
STATE OF CALIFORNIA

1/23/2019
Date

Approved by: City of San Diego Date

TABLE OF CONTENTS

ACRONYMS

APN	Assessor's Parcel Number
ASBS	Area of Special Biological Significance
BMP	Best Management Practice
CEQA	California Environmental Quality Act
CGP	Construction General Permit
DCV	Design Capture Volume
DMA	Drainage Management Areas
ESA	Environmentally Sensitive Area
GLU	Geomorphic Landscape Unit
GW	Ground Water
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
HU	Harvest and Use
INF	Infiltration
LID	Low Impact Development
LUP	Linear Underground/Overhead Projects
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
PDP	Priority Development Project
PE	Professional Engineer
POC	Pollutant of Concern
SC	Source Control
SD	Site Design
SDRWQCB	San Diego Regional Water Quality Control Board
SIC	Standard Industrial Classification
SWPPP	Stormwater Pollutant Protection Plan
SWQMP	Storm Water Quality Management Plan
TMDL	Total Maximum Daily Load
WMAA	Watershed Management Area Analysis
WPCP	Water Pollution Control Program
WQIP	Water Quality Improvement Plan

CERTIFICATION PAGE

Penasquitos RV & Mini Storage
534380

I hereby declare that I am the Engineer in Responsible Charge of design of storm water BMPs for this project, and that I have exercised responsible charge over the design of the project as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the requirements of the BMP Design Manual, which is based on the requirements of SDRWQCB Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100 (MS4 Permit), and subsequent amendments.

I have read and understand that the City Engineer has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the Storm Water Standards. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable source control and site design BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by the City Engineer is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

JOHN D. LEPPERT
REGISTERED CIVIL ENGINEER – 26283
Exp. 3/31/20

1/23/2019
DATE

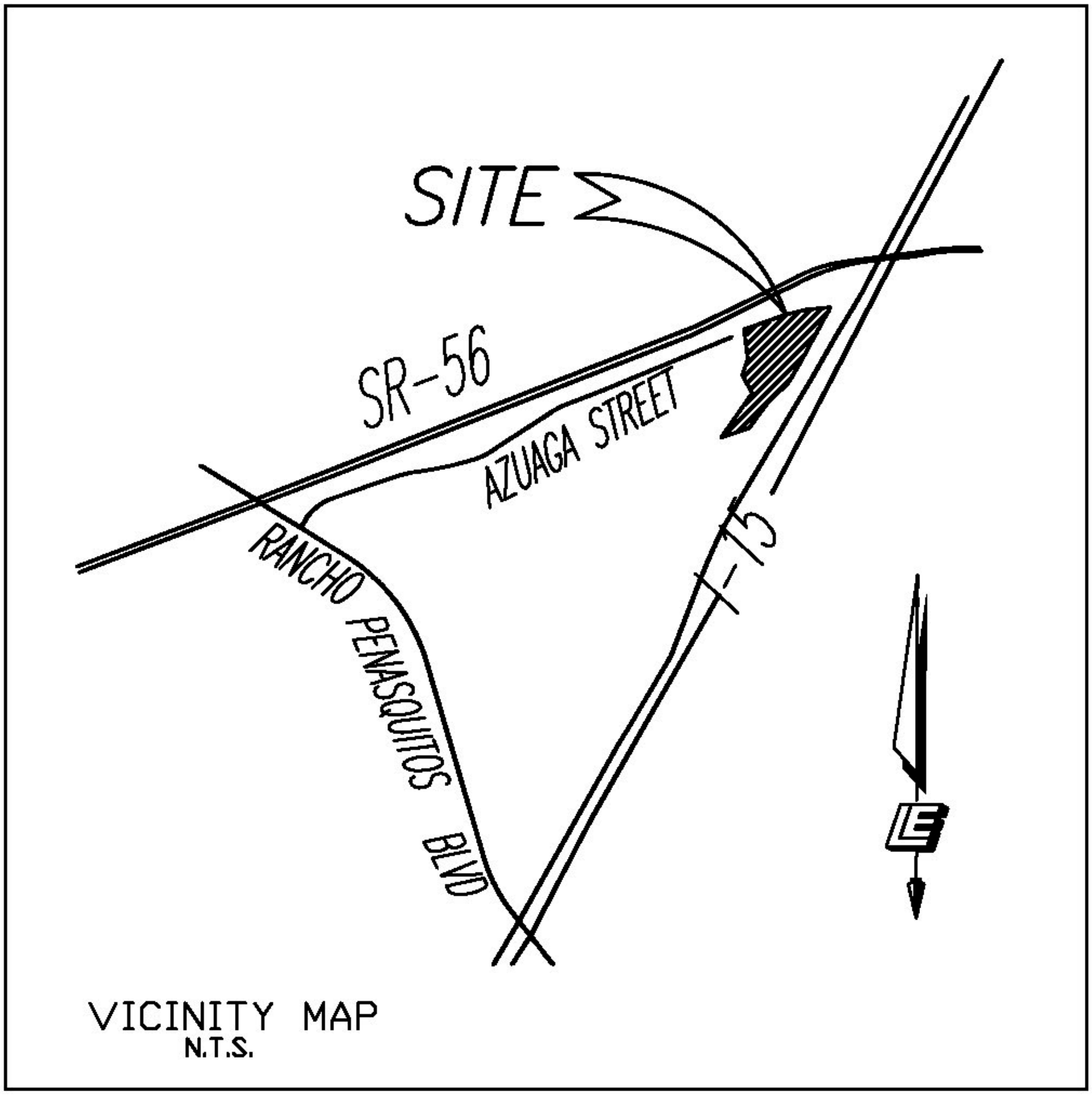
REGISTERED PROFESSIONAL ENGINEER
JOHN D. LEPPERT
C 26283
CIVIL
STATE OF CALIFORNIA

Use this Table to keep a record of submittals of this SWQMP. Each time the SWQMP is re-submitted, provide the date and status of the project. In last column indicate changes that have been made or indicate if response to plan check comments is included. When applicable, insert response to plan check comments behind this page.

Submittal Number	Date	Project Status	Changes
1	03/08/2018	☒ Preliminary Design/ Planning/ CEQA ☐ Final Design	Initial Submittal
2	08/08/2018	☒ Preliminary Design/ Planning/ CEQA ☐ Final Design	Revised Drainage analysis and attachments
3	01/23/2019	☒ Preliminary Design/ Planning/ CEQA ☐ Final Design	Revised Site plan and update attachments
4		☐ Preliminary Design/ Planning/ CEQA ☐ Final Design	

Project Vicinity Map

Penasquitos RV & Mini Storage
534380



City of San Diego
Development Services
1222 First Ave., MS-302
San Diego, CA 92101
(619) 446-5000

Storm Water Requirements Applicability Checklist

FORM DS-560
October 2016

Project Address: SW corner of SR 56 and I 15, 92129	Project Number *(for City Use Only)*: 534380

SECTION 1. Construction Storm Water BMP Requirements:

All construction sites are required to implement construction BMPs in accordance with the performance standards in the Storm Water Standards Manual. Some sites are additionally required to obtain coverage under the State Construction General Permit (CGP)[1], which is administered by the State Water Resources Control Board.

For all projects complete PART A: If project is required to submit a SWPPP or WPCP, continue to PART B.

PART A: Determine Construction Phase Storm Water Requirements.

1. Is the project subject to California's statewide General NPDES permit for Storm Water Discharges Associated with Construction Activities, also known as the State Construction General Permit (CGP)? (Typically projects with land disturbance greater than or equal to 1 acre.)

   ☒ Yes; SWPPP required, skip questions 2-4 ☐ No; next question

2. Does the project propose construction or demolition activity, including but not limited to, clearing, grading, grubbing, excavation, or any other activity resulting in ground disturbance and contact with storm water runoff?

   ☐ Yes; WPCP required, skip 3-4 ☒ No; next question

3. Does the project propose routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility? (Projects such as pipeline/utility replacement)

   ☐ Yes; WPCP required, skip 4 ☒ No; next question

4. Does the project only include the following Permit types listed below?
   - Electrical Permit, Fire Alarm Permit, Fire Sprinkler Permit, Plumbing Permit, Sign Permit, Mechanical Permit, Spa Permit.
   - Individual Right of Way Permits that exclusively include only ONE of the following activities: water service, sewer lateral, or utility service.
   - Right of Way Permits with a project footprint less than 150 linear feet that exclusively include only ONE of the following activities: curb ramp, sidewalk and driveway apron replacement, pot holing, curb and gutter replacement, and retaining wall encroachments.

   ☐ Yes; no document required

Check one of the boxes below, and continue to PART B:

☒ If you checked "Yes" for question 1, **a SWPPP is REQUIRED. Continue to PART B**

☐ If you checked "No" for question 1, and checked "Yes" for question 2 or 3, **a WPCP is REQUIRED.** If the project proposes less than 5,000 square feet of ground disturbance AND has less than a 5-foot elevation change over the entire project area, a Minor WPCP may be required instead. **Continue to PART B.**

☐ If you checked "No" for all questions 1-3, and checked "Yes" for question 4 PART B **does not apply and no document is required. Continue to Section 2.**

1. More information on the City's construction BMP requirements as well as CGP requirements can be found at: www.sandiego.gov/stormwater/regulations/index.shtml

PART B: Determine Construction Site Priority

This prioritization must be completed within this form, noted on the plans, and included in the SWPPP or WPCP. The city reserves the right to adjust the priority of projects both before and after construction. Construction projects are assigned an inspection frequency based on if the project has a "high threat to water quality." The City has aligned the local definition of "high threat to water quality" to the risk determination approach of the State Construction General Permit (CGP). The CGP determines risk level based on project specific sediment risk and receiving water risk. Additional inspection is required for projects within the Areas of Special Biological Significance (ASBS) watershed. **NOTE:** The construction priority does **NOT** change construction BMP requirements that apply to projects; rather, it determines the frequency of inspections that will be conducted by city staff.

Complete PART B and continued to Section 2

1. ☐ **ASBS**
   a. Projects located in the ASBS watershed.

2. ☐ **High Priority**
   a. Projects 1 acre or more determined to be Risk Level 2 or Risk Level 3 per the Construction General Permit and not located in the ASBS watershed.
   b. Projects 1 acre or more determined to be LUP Type 2 or LUP Type 3 per the Construction General Permit and not located in the ASBS watershed.

3. ☒ **Medium Priority**
   a. Projects 1 acre or more but not subject to an ASBS or high priority designation.
   b. Projects determined to be Risk Level 1 or LUP Type 1 per the Construction General Permit and not located in the ASBS watershed.

4. ☐ **Low Priority**
   a. Projects requiring a Water Pollution Control Plan but not subject to ASBS, high, or medium priority designation.

SECTION 2. Permanent Storm Water BMP Requirements.

Additional information for determining the requirements is found in the Storm Water Standards Manual.

PART C: Determine if Not Subject to Permanent Storm Water Requirements.

Projects that are considered maintenance, or otherwise not categorized as "new development projects" or "redevelopment projects" according to the Storm Water Standards Manual are not subject to Permanent Storm Water BMPs.

If "yes" is checked for any number in Part C, proceed to Part F and check "Not Subject to Permanent Storm Water BMP Requirements".

If "no" is checked for all of the numbers in Part C continue to Part D.

1.	Does the project only include interior remodels and/or is the project entirely within an existing enclosed structure and does not have the potential to contact storm water?	☐ Yes ☒ No
2.	Does the project only include the construction of overhead or underground utilities without creating new impervious surfaces?	☐ Yes ☒ No
3.	Does the project fall under routine maintenance? Examples include, but are not limited to: roof or exterior structure surface replacement, resurfacing or reconfiguring surface parking lots or existing roadways without expanding the impervious footprint, and routine replacement of damaged pavement (grinding, overlay, and pothole repair).	☐ Yes ☒ No

PART D: PDP Exempt Requirements.

PDP Exempt projects are required to implement site design and source control BMPs.

If "yes" was checked for any questions in Part D, continue to Part F and check the box labeled "PDP Exempt."

If "no" was checked for all questions in Part D, continue to Part E.

1. Does the project ONLY include new or retrofit sidewalks, bicycle lanes, or trails that:

- **Are designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas? Or;**
- **Are designed and constructed to be hydraulically disconnected from paved streets and roads? Or;**
- **Are designed and constructed with permeable pavements or surfaces in accordance with the Green Streets guidance in the City's Storm Water Standards manual?**

☐ Yes; PDP exempt requirements apply ☒ No; next question

2. Does the project ONLY include retrofitting or redeveloping existing paved alleys, streets or roads designed and constructed in accordance with the Green Streets guidance in the City's Storm Water Standards Manual?

☐ Yes; PDP exempt requirements apply ☒ No; project not exempt.

PART E: Determine if Project is a Priority Development Project (PDP).

Projects that match one of the definitions below are subject to additional requirements including preparation of a Storm Water Quality Management Plan (SWQMP).

If "yes" is checked for any number in PART E, continue to PART F and check the box labeled "Priority Development Project".

If "no" is checked for every number in PART E, continue to PART F and check the box labeled "Standard Development Project".

1.	**New Development that creates 10,000 square feet or more of impervious surfaces collectively over the project site.** This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.	☒ Yes ☐ No
2.	**Redevelopment project that creates and/or replaces 5,000 square feet or more of impervious surfaces on an existing site of 10,000 square feet or more of impervious surfaces.** This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.	☐ Yes ☒ No
3.	**New development or redevelopment of a restaurant.** Facilities that sell prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC 5812), and where the land development creates and/or replace 5,000 square feet or more of impervious surface.	☐ Yes ☒ No
4.	**New development or redevelopment on a hillside.** The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site) and where the development will grade on any natural slope that is twenty-five percent or greater.	☐ Yes ☒ No
5.	**New development or redevelopment of a parking lot that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site).**	☒ Yes ☐ No
6.	**New development or redevelopment of streets, roads, highways, freeways, and driveways.** The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site).	☒ Yes ☐ No

7. **New development or redevelopment discharging directly to an Environmentally Sensitive Area.** The project creates and/or replaces 2,500 square feet of impervious surface (collectively over project site), and discharges directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands).	☐ Yes ☒ No
8. **New development or redevelopment projects of a retail gasoline outlet (RGO) that create and/or replaces 5,000 square feet of impervious surface.** The development project meets the following criteria: (a) 5,000 square feet or more or (b) has a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.	☐ Yes ☒ No
9. **New development or redevelopment projects of an automotive repair shops that creates and/or replaces 5,000 square feet or more of impervious surfaces.** Development projects categorized in any one of Standard Industrial Classification (SIC) codes 5013, 5014, 5541, 7532-7534, or 7536-7539.	☐ Yes ☒ No
10. **Other Pollutant Generating Project.** The project is not covered in the categories above, results in the disturbance of one or more acres of land and is expected to generate pollutants post construction, such as fertilizers and pesticides. This does not include projects creating less than 5,000 sf of impervious surface and where added landscaping does not require regular use of pesticides and fertilizers, such as slope stabilization using native plants. Calculation of the square footage of impervious surface need not include linear pathways that are for infrequent vehicle use, such as emergency maintenance access or bicycle pedestrian use, if they are built with pervious surfaces of if they sheet flow to surrounding pervious surfaces.	☐ Yes ☒ No

PART F: Select the appropriate category based on the outcomes of PART C through PART E.

1. The project is **NOT SUBJECT TO PERMANENT STORM WATER REQUIREMENTS**.	☐
2. The project is a **STANDARD DEVELOPMENT PROJECT**. Site design and source control BMP requirements apply. See the Storm Water Standards Manual for guidance.	☐
3. The project is **PDP EXEMPT**. Site design and source control BMP requirements apply. See the Storm Water Standards Manual for guidance.	☐
4. The project is a **PRIORITY DEVELOPMENT PROJECT**. Site design, source control, and structural pollutant control BMP requirements apply. See the Storm Water Standards Manual for guidance on determining if project requires a hydromodification plan management	☒

Matt DeVincenzo — Agent for owner

Name of Owner or Agent *(Please Print)* — Title

[signature] — 06/05/2018

Signature — Date

Form I-1: Applicability of Permanent, Post-Construction Storm Water BMP Requirements (Storm Water Intake Form for all Development Permit Applications)			Form I-1:
Project Identification			
Project Name: Penasquitos RV & Mini Storage			
Permit Application Number: 534380			Date: March 8, 2018
Determination of Requirements			
The purpose of this form is to identify permanent, post-construction requirements that apply to the project. This form serves as a short <u>summary</u> of applicable requirements, in some cases referencing separate forms that will serve as the backup for the determination of requirements. Answer each step below, starting with Step 1 and progressing through each step until reaching "Stop". Refer to BMP Design Manual sections and/or separate forms referenced in each step below.			
Step	**Answer**	**Progression**	
Step 1: Is the project a "development project"? See Section 1.3 of the BMP Design Manual for guidance.	☒ Yes	Go to Step 2.	
	☐ No	Stop. Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.	
Discussion / justification if the project is <u>not</u> a "development project" (e.g., the project includes <u>only</u> interior remodels within an existing building):			
Step 2: Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions? To answer this item, see Section 1.4 of the BMP Design Manual <u>in its entirety</u> for guidance, AND complete Storm Water Requirements Applicability Checklist.	☐ Standard Project	Stop. Standard Project requirements apply.	
	☒ PDP	PDP requirements apply, including PDP SWQMP. Go to Step 3.	
	☐ Exception to PDP definitions	Stop. Standard Project requirements apply. Provide discussion and list any additional requirements below.	
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:			

<table>
<tr><th colspan="3">Form I-1 Page 2</th></tr>
<tr><th>Step</th><th>Answer</th><th>Progression</th></tr>
<tr><td rowspan="2">Step 3. Is the project subject to earlier PDP requirements due to a prior lawful approval?
See Section 1.10 of the BMP Design Manual for guidance.</td><td>☐ Yes</td><td>Consult the City Engineer to determine requirements.
Provide discussion and identify requirements below.
Go to Step 4.</td></tr>
<tr><td>☒ No</td><td>BMP Design Manual PDP requirements apply.
Go to Step 4.</td></tr>
<tr><td colspan="3">Discussion / justification of prior lawful approval, and identify requirements (<u>not required if prior lawful approval does not apply</u>):</td></tr>
<tr><td rowspan="2">Step 4. Do hydromodification control requirements apply?
See Section 1.6 of the BMP Design Manual for guidance.</td><td>☒ Yes</td><td>PDP structural BMPs required for pollutant control (Chapter 5) and hydromodification control (Chapter 6).
Go to Step 5.</td></tr>
<tr><td>☐ No</td><td>Stop.
PDP structural BMPs required for pollutant control (Chapter 5) only.
Provide brief discussion of exemption to hydromodification control below.</td></tr>
<tr><td colspan="3">Discussion / justification if hydromodification control requirements do <u>not</u> apply:</td></tr>
<tr><td rowspan="2">Step 5. Does protection of critical coarse sediment yield areas apply?
See Section 6.2 of the BMP Design Manual for guidance.</td><td>☐ Yes</td><td>Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2).
Stop.</td></tr>
<tr><td>☒ No</td><td>Management measures not required for protection of critical coarse sediment yield areas.
Provide brief discussion below.
Stop.</td></tr>
<tr><td colspan="3">Discussion / justification if protection of critical coarse sediment yield areas does <u>not</u> apply:

The nearest CCSYA is ~1,400’ to the east of the project on the opposing side of Interstate 15. The area being developed is not receiving run-on from not tributary to the CCSYA and therefor there is no potential impact to it from our project.</td></tr>
</table>

Site Information Checklist For PDPs	Form I-3B
Project Summary Information	
Project Name	Penasquitos RV & Mini Storage
Project Address	Southwest Corner of SR-56 & I-15 San Diego, California 92129
Assessor's Parcel Number(s) (APN(s))	315-570-07-00
Permit Application Number	534380
Project Watershed	Select One: ☐ San Dieguito River ☒ Penasquitos ☐ Mission Bay ☐ San Diego River ☐ San Diego Bay ☐ Tijuana River
Hydrologic subarea name with Numeric Identifier up to two decimal places (9XX.XX)	Poway-906.20
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	10.0 Acres (436,782 Square Feet)
Area to be disturbed by the project (Project Area)	5.8 Acres (253,385 Square Feet)
Project Proposed Impervious Area (subset of Project Area)	3.8 Acres (167,209 Square Feet)
Project Proposed Pervious Area (subset of Project Area)	2.0 Acres (86,176 Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.	
The proposed increase or decrease in impervious area in the proposed condition as compared to the pre-project condition.	38.3% Increased Imperviousness

Form I-3B Page 2 of 11

Description of Existing Site Condition and Drainage Patterns

Current Status of the Site (select all that apply):

☐ Existing development

☒ Previously graded but not built out

☐ Agricultural or other non-impervious use

☐ Vacant, undeveloped/natural

Description / Additional Information:

The project site is currently a previously developed apartment parking lot.

Existing Land Cover Includes (select all that apply):

☒ Vegetative Cover

☒ Non-Vegetated Pervious Areas

☐ Impervious Areas

Description / Additional Information

The project site cover is primarily composed of short grass and other non-native vegetation that has become established following the final grading of the site during the construction of adjacent development.

Underlying Soil belongs to Hydrologic Soil Group (select all that apply):

☐ NRCS Type A

☐ NRCS Type B

☐ NRCS Type C

☒ NRCS Type D

Approximate Depth to Groundwater (GW):

☐ GW Depth < 5 feet

☐ 5 feet < GW Depth < 10 feet

☐ 10 feet < GW Depth < 20 feet

☒ GW Depth > 20 feet

Existing Natural Hydrologic Features (select all that apply):

☐ Watercourses

☐ Seeps

☐ Springs

☒ Wetlands

☐ None

Description / Additional Information:

A manmade wetland has formed at the outfall of the existing brow ditch on the southeast side of the project, adjacent to the I-15 ROW. The proposed project will protect the wetland in place and does not anticipate and disturbance to the area.

Form I-3B Page 3 of 11

Description of Existing Site Topography and Drainage:

How is storm water runoff conveyed from the site? At a minimum, this description should answer:

1. Whether existing drainage conveyance is natural or urban;
2. If runoff from offsite is conveyed through the site? If yes, quantification of all offsite drainage areas, design flows, and locations where offsite flows enter the project site and summarize how such flows are conveyed through the site;
3. Provide details regarding existing project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, and natural and constructed channels;
4. Identify all discharge locations from the existing project along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.

Description / Additional Information:

The existing condition analyses a total of three basins draining into manmade conveyance systems on the previously graded lot.

Run-on is present from the adjacent multi-family development to the north west of the site. There is also an additional existing offsite flow from SR-56 to the north of the project site that discharges onsite via a storm drain pipe to a concrete drainage channel. This flow is quantified on 23448-22-D and has been accounted for throughout the design.

Sub-basin A:
The adjacent Multi-family development to the west drains a portion of the parking lot onto the project site, where it joins the offsite runon from SR 56. These flows continue across the property in a southeasterly direction within a PCC lined channel (channel is shown as vegetated on 23448-D however actual condition of the channel is that it is lined). A site runoff coefficient of 0.70 was chosen corresponding to a "multi-unit" land use. (see Appendix III)

Sub-basin B:
The portion of the site west of the channel is a previously graded area with vegetated cover that drains to the PCC channel crossing the site. A site runoff coefficient of 0.45 for an undeveloped or rural land use was used for this basin.

Sub-basin C:
The portion of the site east of the channel is a previously graded area with vegetated cover that drains to the PCC channel crossing the site. A site runoff coefficient of 0.45 for an undeveloped or rural land use was used for this basin.

The peak runoff at Out-01 is 40.30 CFS based on the existing land uses and site conditions.

Attachment 5 contains drainage calculations and basin maps for the site.

Form I-3B Page 4 of 11
Description of Proposed Site Development and Drainage Patterns
Project Description / Proposed Land Use and/or Activities: The project proposes multiple buildings to provide self storage units, and additional onsite surface parking for vehicle and RV storage. Additional support infrastructure including stormwater treatment facilities, drainage pipes and channels and re-routing of existing utilities are also included in the proposed project.
List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features): Three proposed buildings will house the Mini storage facility, with the parking lot providing storage for RVs and other vehicles. Associated sidewalks ect will be provided as needed for pedestrian/ADA access.
List/describe proposed pervious features of the project (e.g., landscape areas): Project frontage and ROW areas adjacent to the project consist of landscaping. Onsite pervious areas are primarily partial retention planters provided for stormwater quality treatment and HMP flow control.
Does the project include grading and changes to site topography? ☒ Yes ☐ No Description / Additional Information: The graded area will cover just over 50% of the site in order to create a pad graded area where vehicles can be parked and the Mini storage buildings can be constructed.

Form I-3B Page 5 of 11
Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)? ☒ Yes ☐ No If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural and constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.
Description / Additional Information: Onsite drainage will be routed to two separate systems within the project boundary. One drainage system will collect run-on from the adjacent condominium development and plumb it to an existing pipe from the SR 56 ROW, which will be extended through the project site. Additional brow ditches will be constructed to collect any run-off from existing and proposed slopes and drain them to this "bypass" system since these flows do not require additional treatment. The second system will collect all of the on-site run-off generated from the building roofs, parking lots and landscape areas, and direct that water to a proposed PR-1 Bio-filtration with Partial Retention facility located at the south east corner of the proposed development area. From here the sub-drain and overflow discharges will be plumbed to the stormdrain system leaving the site. As compared to the existing condition, the proposed project decreases the peak runoff from the site. This is due to increased travel time for the runoff as it enters the provided bio-filtration ponding. The peak flow of 40.30 CFS existing decreases to 34.62 CFS proposed; a decrease of 5.68 CFS.

Form I-3B Page 6 of 11

Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply):

☒ On-site storm drain inlets
☒ Interior floor drains and elevator shaft sump pumps
☐ Interior parking garages
☐ Need for future indoor & structural pest control
☒ Landscape/Outdoor Pesticide Use
☐ Pools, spas, ponds, decorative fountains, and other water features
☐ Food service
☒ Refuse areas
☐ Industrial processes
☐ Outdoor storage of equipment or materials
☐ Vehicle and Equipment Cleaning
☐ Vehicle/Equipment Repair and Maintenance
☐ Fuel Dispensing Areas
☐ Loading Docks
☒ Fire Sprinkler Test Water
☐ Miscellaneous Drain or Wash Water
☐ Plazas, sidewalks, and parking lots
☐ Large Trash Generating Facilities
☐ Animal Facilities
☐ Plant Nurseries and Garden Centers
☐ Automotive-related Uses

Description / Additional Information:

Onsite storm drain inlets

- The proposed development will utilize onsite inlets will be stamped/marked with "No dumping! Flows to Bay." or similar.

Interior floor drains and elevator shaft pumps

- The proposed development will utilize interior floor drains and elevator shaft pumps that will be plumbed to sanitary sewer.

Landscape/Outdoor Pesticide use

- The proposed development will utilize pest resistant and drought tolerant plant species selected for the site's soil/climate.
- Designing Irrigation Systems for individual area requirements to minimize runoff.
- Utilize rain shutoff devices.

Refuse areas

- All refuse areas provided on-site are enclosed within the subterranean garage.

Fire sprinkler test water

- The proposed development will incorporate fire sprinklers that will discharge into the sanitary sewer during routine maintenance.

Form I-3B Page 7 of 11
Identification and Narrative of Receiving Water
Narrative describing flow path from discharge location(s), through urban storm conveyance system, to receiving creeks, rivers, and lagoons and ultimate discharge location to Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable) Runoff drains via culverts and channels until it reaches Los Penasquitos Creek approximately 1.5 miles from the project site. From there it continues within the creek for ~7.5 miles until it reaches Los Penasquitos Lagoon, prior to entering the Pacific Ocean 2.7 miles later.
Provide a summary of all beneficial uses of receiving waters downstream of the project discharge locations. Los Penasquitos Creek - AGR, COLD, IND, REC1, REC2, WARM, WILD Los Penasquitos Lagoon - BIOL, EST, MAR, MIGR, RARE, REC1, REC2, SHELL, WILD Pacific Ocean - AQUA, BIOL, COMM, IND, MAR, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WILD
Identify all ASBS (areas of special biological significance) receiving waters downstream of the project discharge locations. There are no ASBS receiving waters downstream of the project location.
Provide distance from project outfall location to impaired or sensitive receiving waters. Runoff drains via culverts and channels until it reaches Los Penasquitos Creek approximately 1.5 miles from the project site. From there it continues within the creek for ~7.5 miles until it reaches Los Penasquitos Lagoon, prior to entering the Pacific Ocean 2.7 miles later.
Summarize information regarding the proximity of the permanent, post-construction storm water BMPs to the City's Multi-Habitat Planning Area and environmentally sensitive lands There are onsite ESAs, however the project will respect a buffer area to ensure that these areas are undisturbed.

Form I-3B Page 8 of 11

Identification of Receiving Water Pollutants of Concern

List any 303(d) impaired water bodies within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs/ WQIP Highest Priority Pollutant
Los Penasquitos Creek	Enterococcus	Expected Completion Date 2019
Los Penasquitos Creek	Fecal Coliform	Expected Completion Date 2019
Los Penasquitos Creek	Selenium	Expected Completion Date 2019
Los Penasquitos Creek	Total Dissolved Solids	Expected Completion Date 2019
Los Penasquitos Creek	Total Nitrogen as N	Expected Completion Date 2019
Los Penasquitos Creek	Toxicity	Expected Completion Date 2021
Los Penasquitos Lagoon	Sedimentation/Siltation	Expected Completion Date 2019
Pacific Ocean Shoreline, Miramar Reservoir HA	Indicator Bacteria	Being addressed with USEPA approved TMDL

Identification of Project Site Pollutants*

*Identification of project site pollutants is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs (note the project must also participate in an alternative compliance program unless prior lawful approval to meet earlier PDP requirements is demonstrated)

Identify pollutants expected from the project site based on all proposed use(s) of the site (see BMP Design Manual Appendix B.6):

Pollutant	Not Applicable to the Project Site	Expected from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment	☐	☐	☐
Nutrients	☐	☐	☐
Heavy Metals	☐	☐	☐
Organic Compounds	☐	☐	☐
Trash & Debris	☐	☐	☐
Oxygen Demanding Substances	☐	☐	☐
Oil & Grease	☐	☐	☐
Bacteria & Viruses	☐	☐	☐
Pesticides	☐	☐	☐

Form I-3B Page 9 of 11

Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the BMP Design Manual)?

☒ Yes, hydromodification management flow control structural BMPs required.

☐ No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayment, or the Pacific Ocean.

☐ No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayment, or the Pacific Ocean.

☐ No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA for the watershed in which the project resides.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

The project site runoff discharges to an existing 60" RCP located across Mission Bay Dr from the project site. From there the runoff travels through approximately 750' of pipe where it is is joined by several other flows before discharging directly into Mission Bay a total of 750' feet from the discharge point.

Critical Coarse Sediment Yield Areas*
***This Section only required if hydromodification management requirements apply**

Based on the maps provided within the WMAA, do potential critical coarse sediment yield areas exist within the project drainage boundaries?

☐ Yes

☒ No, No critical coarse sediment yield areas to be protected based on WMAA maps

If yes, have any of the optional analyses presented in Section 6.2 of the BMP Design Manual been performed?

☐ 6.2.1 Verification of Geomorphic Landscape Units (GLUs) Onsite

☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment

☐ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite

☐ No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps

If optional analyses were performed, what is the final result?

☐ No critical coarse sediment yield areas to be protected based on verification of GLUs onsite

☐ Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 8 of the SWQMP.

☐ Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections 6.2.4 and 6.2.5 as applicable, and the areas are identified on the SWQMP Exhibit.

Discussion / Additional Information:

Form I-3B Page 10 of 11
Flow Control for Post-Project Runoff* ***This Section only required if hydromodification management requirements apply**
List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit.
Has a geomorphic assessment been performed for the receiving channel(s)? ☒ No, the low flow threshold is 0.1Q2 (default low flow threshold) ☐ Yes, the result is the low flow threshold is 0.1Q2 ☐ Yes, the result is the low flow threshold is 0.3Q2 ☐ Yes, the result is the low flow threshold is 0.5Q2 If a geomorphic assessment has been performed, provide title, date, and preparer:
Discussion / Additional Information: (optional)

Form I-3B Page 11of 11
Other Site Requirements and Constraints
When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.
Optional Additional Information or Continuation of Previous Sections As Needed
This space provided for additional information or continuation of information from previous sections as needed.

Source Control BMP Checklist for All Development Projects			Form I-4
Project Identification			
Project Name: Penasquitos RV & Mini Storage			
Permit Application Number: 534380			
Source Control BMPs			
All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the BMP Design Manual for information to implement source control BMPs shown in this checklist. Answer each category below pursuant to the following. • "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the BMP Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification may be provided.			
Source Control Requirement	**Applied?**		
SC-1 Prevention of Illicit Discharges into the MS4	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-1 not implemented: Manage A/C condensate • The proposed development will direct condensate into landscaped areas wherever feasible.			
SC-2 Storm Drain Stenciling or Signage	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-2 not implemented: Onsite storm drain inlets • The proposed development will utilize onsite inlets will be stamped/marked with "No dumping! Flows to Bay." or similar.			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-3 not implemented:			
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-4 not implemented:			
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-5 not implemented: Refuse areas • All refuse areas provided on-site are provided with roofs or covers.			

Form I-4 Page 2 of 2			
Source Control Requirement	**Applied?**		
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
☒ On-site storm drain inlets	☒ Yes	☐ No	☐ N/A
☒ Interior floor drains and elevator shaft sump pumps	☒ Yes	☐ No	☐ N/A
☐ Interior parking garages	☐ Yes	☐ No	☒ N/A
☐ Need for future indoor & structural pest control	☐ Yes	☐ No	☒ N/A
☒ Landscape/Outdoor Pesticide Use	☒ Yes	☐ No	☐ N/A
☐ Pools, spas, ponds, decorative fountains, and other water features	☐ Yes	☐ No	☒ N/A
☐ Food service	☐ Yes	☐ No	☒ N/A
☒ Refuse areas	☒ Yes	☐ No	☐ N/A
☐ Industrial processes	☐ Yes	☐ No	☒ N/A
☐ Outdoor storage of equipment or materials	☐ Yes	☐ No	☒ N/A
☐ Vehicle and Equipment Cleaning	☐ Yes	☐ No	☒ N/A
☐ Vehicle/Equipment Repair and Maintenance	☐ Yes	☐ No	☒ N/A
☐ Fuel Dispensing Areas	☐ Yes	☐ No	☒ N/A
☐ Loading Docks	☐ Yes	☐ No	☒ N/A
☒ Fire Sprinkler Test Water	☒ Yes	☐ No	☐ N/A
☐ Miscellaneous Drain or Wash Water	☐ Yes	☐ No	☒ N/A
☒ Plazas, sidewalks, and parking lots	☒ Yes	☐ No	☐ N/A
☐ SC-6A: Large Trash Generating Facilities	☐ Yes	☐ No	☒ N/A
☐ SC-6B: Animal Facilities	☐ Yes	☐ No	☒ N/A
☐ SC-6C: Plant Nurseries and Garden Centers	☐ Yes	☐ No	☒ N/A
☐ SC-6D: Automotive-related Uses	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for all "No" answers shown above.			

Site Design BMP Checklist for All Development Projects			Form I-5
Site Design BMPs			
All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the BMP Design Manual (Part 1 of Storm Water Standards) for information to implement site design BMPs shown in this checklist. Answer each category below pursuant to the following. • "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the BMP Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification may be provided. A site map with implemented site design BMPs must be included at the end of this checklist.			
Site Design Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	☐ Yes	☐ No	☒ N/A
Discussion / justification if SD-1 not implemented: There are no natural drainage pathways or areas to conserve on the site as it has been previously mass graded.			
1-1 Are existing natural drainage pathways and hydrologic features mapped on the site map?	☐ Yes	☐ No	☒ N/A
1-2 Are trees implemented? If yes, are they shown on the site map?	☒ Yes	☐ No	☐ N/A
1-3 Implemented trees meet the design criteria in SD-1 Fact Sheet (e.g. soil volume, maximum credit, etc.)?	☐ Yes	☐ No	☒ N/A
1-4 Is tree credit volume calculated using Appendix B.2.2.1 and SD-1 Fact Sheet in Appendix E?	☐ Yes	☐ No	☒ N/A
SD-2 Have natural areas, soils and vegetation been conserved?	☐ Yes	☐ No	☒ N/A
Discussion / justification if SD-2 not implemented: There are no natural areas, soils or vegetation to conserve on the site as it has been previously mass graded.			

Form I-5 Page 2 of 4			
Site Design Requirement	Applied?		
SD-3 Minimize Impervious Area	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-3 not implemented:			
SD-4 Minimize Soil Compaction	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-4 not implemented:			
SD-5 Impervious Area Dispersion	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-5 not implemented: While impervious area dispersion is utilized for downspouts ect, the site conditions and use preclude the site from meeting the design criteria for impervious area dispersion. As such the credit is not being shown or taken for this project.			
5-1 Is the pervious area receiving runon from impervious area identified on the site map?	☐ Yes	☒ No	☐ N/A
5-2 Does the pervious area satisfy the design criteria in SD-5 Fact Sheet in Appendix E (e.g. maximum slope, minimum length, etc.)	☐ Yes	☒ No	☐ N/A
5-3 Is impervious area dispersion credit volume calculated using Appendix B.2.1.1 and SD-5 Fact Sheet in Appendix E?	☐ Yes	☒ No	☐ N/A

Form I-5 Page 3 of 4			
Site Design Requirement	Applied?		
SD-6 Runoff Collection	☐ Yes	☐ No	☒ N/A
Discussion / justification if SD-6 not implemented:			
6a-1 Are green roofs implemented in accordance with design criteria in SD-6A Fact Sheet? If yes, are they shown on the site map?	☐ Yes	☐ No	☒ N/A
6a-2 Is green roof credit volume calculated using Appendix B.2.1.2 and SD-6A Fact Sheet in Appendix E?	☐ Yes	☐ No	☒ N/A
6b-1 Are permeable pavements implemented in accordance with design criteria in SD-6B Fact Sheet? If yes, are they shown on the site map?	☐ Yes	☐ No	☒ N/A
6b-2 Is permeable pavement credit volume calculated using Appendix B.2.1.3 and SD-6B Fact Sheet in Appendix E?	☐ Yes	☐ No	☒ N/A
SD-7 Landscaping with Native or Drought Tolerant Species	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-7 not implemented:			
SD-8 Harvesting and Using Precipitation	☐ Yes	☐ No	☒ N/A
Discussion / justification if SD-8 not implemented: The project does not meet the requirements for implementing harvest and use based upon total DCV and proposed daily useage.			
8-1 Are rain barrels implemented in accordance with design criteria in SD-8 Fact Sheet? If yes, are they shown on the site map?	☐ Yes	☐ No	☒ N/A
8-2 Is rain barrel credit volume calculated using Appendix B.2.2.2 and SD-8 Fact Sheet in Appendix E?	☐ Yes	☐ No	☒ N/A

Form I-5 Page 4 of 4
Insert Site Map with all site design BMPs identified:
Please see Attachment 1 and 4 for the site map and exhibits demonstrating the BMP implementation.

Summary of PDP Structural BMPs	Form I-6
Project Identification	
Project Name: Penasquitos RV & Mini Storage	
Permit Application Number 534380	
PDP Structural BMPs	

All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the BMP Design Manual). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the BMP Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s).

PDP structural BMPs must be verified by the City at the completion of construction. This includes requiring the project owner or project owner's representative to certify construction of the structural BMPs (complete Form DS-563). PDP structural BMPs must be maintained into perpetuity (see Chapter 7 of the BMP Design Manual).

Use this form to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (page 3 of this form) for each structural BMP within the project (copy the BMP summary information page as many times as needed to provide summary information for each individual structural BMP).

Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the BMP Design Manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate.

Storm Water Pollutant Control BMP Selection was done using Figures 5-1 & 5-2 "Storm Water Standards BMP Selection Flow Chart" from the City of San Diego BMP Design Manual, dated June 2016. See I-6 sheet 2 & 3 for a summary of each step in the flow chart:

DMA-1 through DMA-4

Step 1: Evaluate at DMA Scale

- There are four DMAs onsite to account for, see Attachment 4.

Step 1A: Is the DMA "Self-mitigating" or "De Minimis" or "Self-retaining"

- DMAs are "Self-mitigating" or "De Minimis" or "Self-retaining"
    - The project is "Compliant with Pollutant Control BMP Sizing Requirements"

(Continue on page 2 as necessary.)

Form I-6 Page 2 of 3

(Continued from page 1)

DMA-5

Step 1: Evaluate at DMA Scale
- There is one DMAs onsite to account for, see Attachment 4.

Step 1A: Is the DMA "Self-mitigating" or "De Minimis" or "Self-retaining"
- DMAs are not "Self-mitigating" or "De Minimis" or "Self-retaining"

Step 1B: Adjust runoff factor to account for site design BMPs and estimate DCV
- DCV calculation performed using Worksheet B.2-1, see Attachment 1e.

Step 2: Is Harvest and Use Feasible
- No, Harvest and Use is not feasible, see calculations in Attachment 1c, based on Worksheet B.3-1.

Step 3: Step 3: Is Infiltration Feasible?
- Yes, partial infiltration is feasible, see Attachment 1d.

Step 3 A&B: Partial Infiltration Condition
- Proceed to Step 3C

Step 3C: Compute Sizing Requirement
- Large footprint Partial Retention with Biofiltration (PR-1) are selected BMP
- Initial sizing performed using 3% ,minimum, surface area per PR-1 fact sheet.

Step 4: Can the BMP be designed for the remaining DCV?
- Yes, based a surface sizing of 3% of the tributary area the BMPs will treat the remaining DCV, see calculations in 1e based on Worksheet B.5-1.

Step 4A:
- The Partial Retention with Biofiltration facilities have been sized based on the PR-1 fact sheets.

Step 6 & 7: The project is "Compliant with Pollutant Control BMP Sizing Requirements".

Form I-6 Page 3 of 3
Structural BMP Summary Information (Copy this page as needed to provide information for each individual proposed structural BMP)
Structural BMP ID No. DMA-5
Construction Plan Sheet No. N/A
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention(INF-2) ☐ Retention by permeable pavement (INF-3) ☒ Partial retention by biofiltration with partial retention (PR-1) ☐ Biofiltration (BF-1) ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)
Purpose: ☐ Pollutant control only ☐ Hydromodification control only ☒ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP Other (describe in discussion section below)

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification form DS-563	To be determined based upon final design.
Who will be the final owner of this BMP?	To be determined based upon final design.
Who will maintain this BMP into perpetuity?	To be determined based upon final design.
What is the funding mechanism for maintenance?	Private property owner's O&M funds

SD	**City of San Diego** **Development Services** 1222 First Ave., MS-501 San Diego, CA 92101	# Permanent BMP Construction **Self Certification Form**	**FORM** **DS-563** **December 2016**

Date Prepared:	Project No./Drawing No.:
Project Applicant:	Phone:
Project Address:	
Project Name:	

The purpose of this form is to verify that the site improvements for the project, identified above, have been constructed in conformance with the approved Storm Water Standards Manual documents and drawings.

This form must be completed by the engineer and submitted prior to final inspection of the construction permit. Completion and submittal of this form is required for Priority Development Projects in order to comply with the City's Storm Water ordinances and applicable San Diego Regional MS4 Permit. Final inspection for occupancy and/or release of grading or public improvement bonds may be delayed if this form is not submitted and approved by the City of San Diego.

Certification:

As the professional in responsible charge for the design of the above project, I certify that I have inspected all constructed Low Impact Development (LID) site design, source control, hydromodification, and treatment control BMP's required per the Storm Water Standards Manual; and that said BMP's have been constructed in compliance with the approved plans and all applicable specifications, permits, ordinances and San Diego Regional MS4 Permit.

I understand that this BMP certification statement does not constitute an operation and maintenance verification.

Signature: ______________________________

Date of Signature: ______________________________

Printed Name: ______________________________

Title: ______________________________

Phone No. ______________________________

Engineer's Stamp

Attachment 1

Backup for PDP Pollutant Control BMPs

Items included in this attachment:

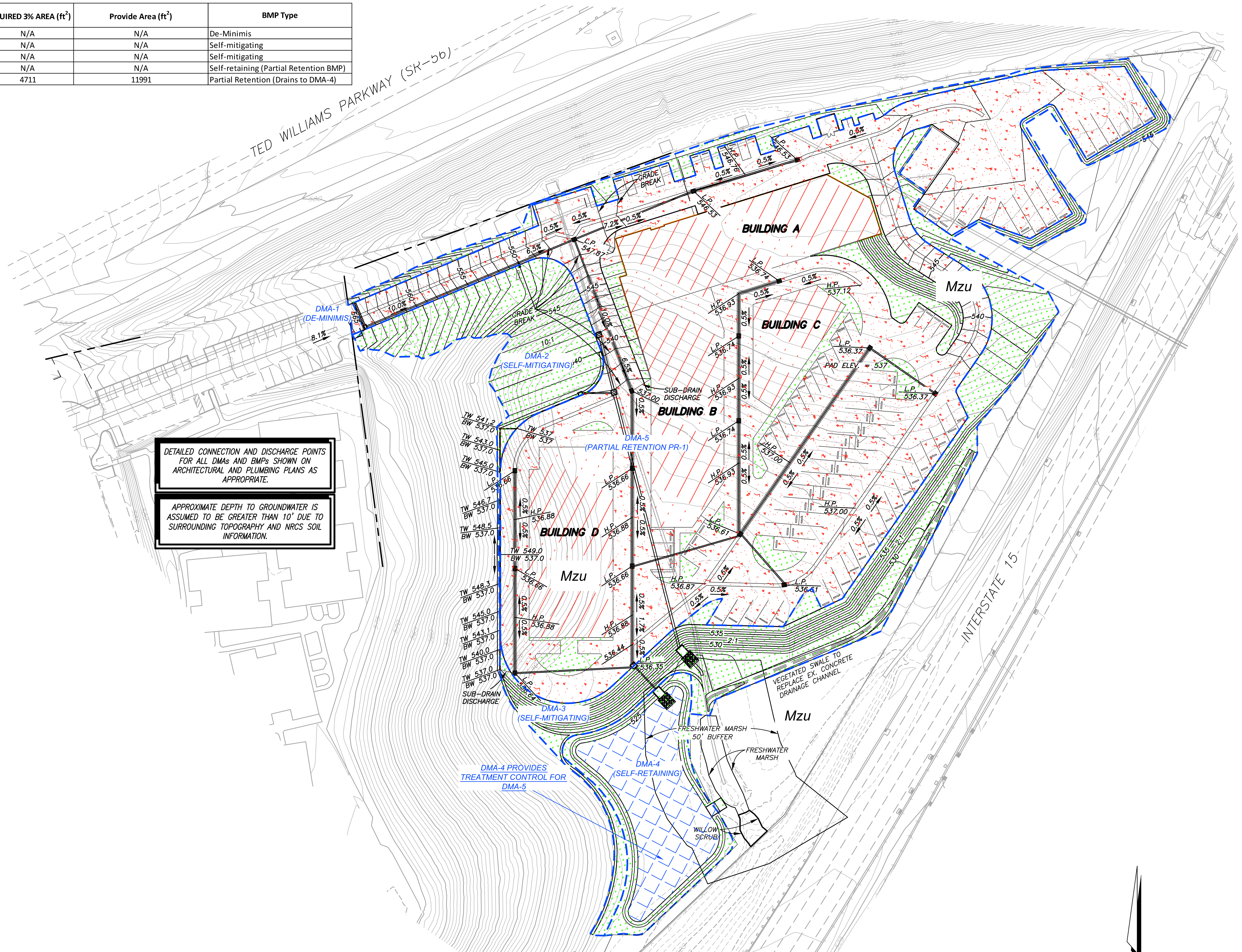
Attachment Sequence	Contents	Checklist
Attachment 1a	**DMA Exhibit (Required)** **See DMA Exhibit Checklist.**	**Included**
Attachment 1b	Tabular summary of DMAs showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1a	☒ Included on DMA exhibit in Attachment 1a ☐ Included as Attachment 1b, separate from DMA Exhibit
Attachment 1c	**Form I-7, Harvest and Use Feasibility Screening Checklist (Required unless the entire project will use infiltration BMPs)** **Refer to Appendix B.3-1 of the BMP design manual to complete Form I-7.**	☒ **Included** ☐ **Not included because the entire project will use infiltration BMPs**
Attachment 1d	Form I-8, Categorization of i nfiltration feasibility c ondition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP design manual to complete Form I-8.	☒ Included ☐ Not included because the entire project will use harvest and use BMPs
Attachment 1e	**Pollutant Control BMP Design Worksheets/ Calculations (Required)** **Refer to Appendices B and E of the BMP design manual for structural pollutant control BMP design guidelines**	☒ **Included**

The DMA Exhibit must identify:

- ☒ Underlying hydrologic soil group
- ☒ Approximate depth to groundwater
- ☒ Existing natural hydrologic features (watercourses, seeps, springs, wetlands) Critical coarse sediment yield areas to be protected
- ☒ Existing topography and impervious areas
- ☒ Existing and proposed site drainage network and connections to drainage offsite
- ☒ Proposed grading
- ☒ Proposed impervious features
- ☐ Proposed design features and surface treatments used to minimize imperviousness
- ☒ Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
- ☐ Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Form I-3B)
- ☒ Structural BMPs (identify location, type of BMP, and size/detail)

PENASQUITOS RV AND MINI STORAGE DMA SUMMARY

BASIN	PERVIOUS AREA (sf)	PERVIOUS AREA (AC)	PERVIOUS AREA C	MPERVIOUS AREA (sf	IMPERVIOUS AREA (AC)	IMPERVIOUS AREA C	WEIGHTED C	Soil Type	REQUIRED 3% AREA (ft^2)	Provide Area (ft^2)	BMP Type
DMA-01	7	0.0	0.1	242	0.0	0.9	N/A	"D"	N/A	N/A	De-Minimis
DMA-02	16049	0.4	0.1	0	0.0	0.9	0.10	"D"	N/A	N/A	Self-mitigating
DMA-03	41250	0.9	0.1	0	0.0	0.9	0.10	"D"	N/A	N/A	Self-mitigating
DMA-04	17393	0.4	0.1	0	0.0	0.9	0.10	"D"	N/A	N/A	Self-retaining (Partial Retention BMP)
DMA-05	11477	0.3	0.1	166967	3.8	0.9	0.85	"D"	4711	11991	Partial Retention (Drains to DMA-4)



DETAILED CONNECTION AND DISCHARGE POINTS FOR ALL DMAs AND BMPs SHOWN ON ARCHITECTURAL AND PLUMBING PLANS AS APPROPRIATE.

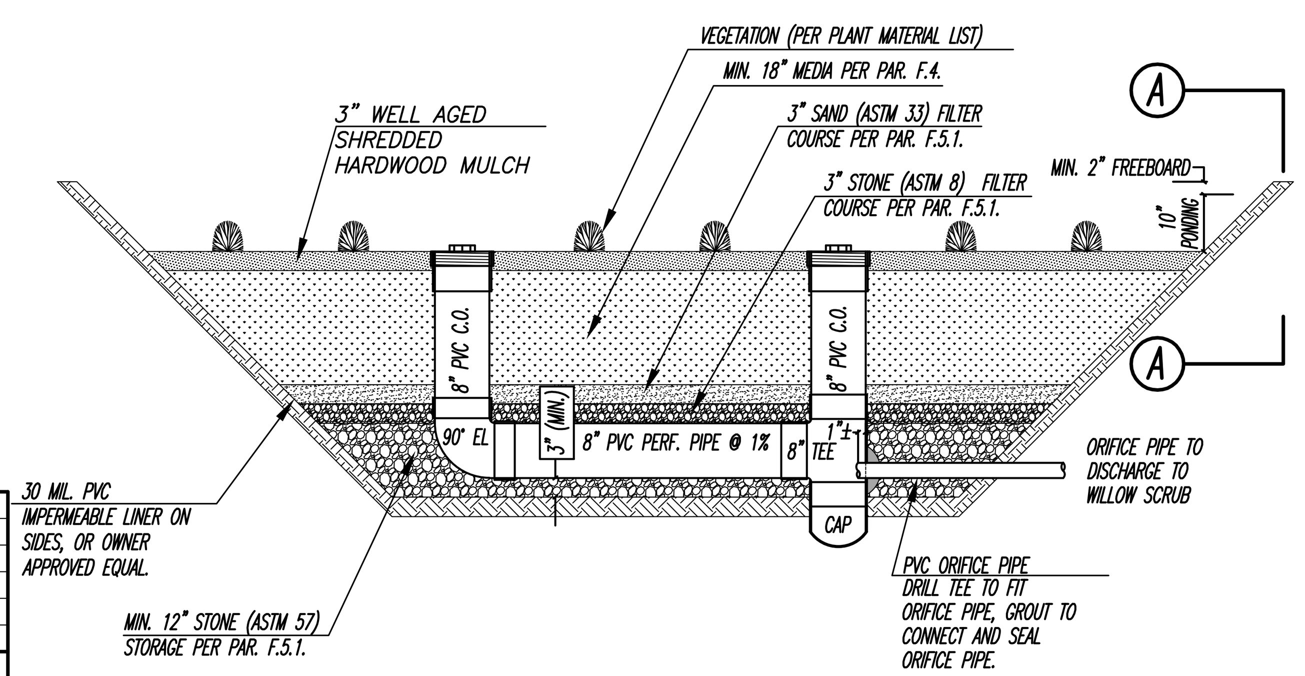
APPROXIMATE DEPTH TO GROUNDWATER IS ASSUMED TO BE GREATER THAN 10' DUE TO SURROUNDING TOPOGRAPHY AND NRCS SOIL INFORMATION.

LEGEND

- SUBDIVISION BOUNDARY
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PRO. DMA LIMITS
- PERVIOUS (SD-4)
- PROPOSED HARDSCAPE IMPERV.
- PROPOSED BUILDING IMPERV.
- BIO-FILTRATION W/ PARTIAL RETENTION (PR-1)

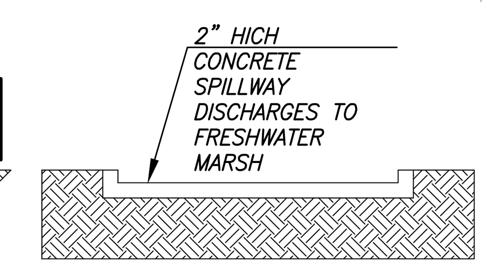
SOILS LEGEND

Mzu ........METAMORPHOSED AND UNMETAMORPHOSED VOLCANIC AND SEDIMENTARY ROCK, UNDIVIDED (HYDROLOGIC SOIL TYPE D)



PRIVATE BIO-FILTER PLANTER DETAIL

(NTS)



SECTION A-A

(NTS)

SCALE: 1" = 50'

NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION
6				12			
5				11			
4				10			
3				9			
2				8			
1	12/05/2017	MFD	ORIGINAL	7			

Leppert Engineering CORPORATION
5190 Governor Drive, Suite 205, San Diego, Ca. 92122-2848
Phone: (858) 597-2001 Fax: (858) 597-2009

APPROVED BY ENGINEER OF WORK — REGISTRATION R.C.E. 26283

FILE CODE NP 13.01-35.16 — DATE

PREPARATION AND REVISION LOG

PENASQUITOS RV AND MINI STORAGE
ATTACHMENT 1A

<table>
<tr><th colspan="2">Harvest and Use Feasibility Checklist</th><th>Form I-7</th></tr>
<tr><td colspan="3">1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?
☒ Toilet and urinal flushing
☐ Landscape irrigation (Landscape irrigation is infeasible within 36 hours)
☐ Other:____________</td></tr>
<tr><td colspan="3">2. If there is a demand; estimate the anticipated average wet season demand over a period of 36 hours. Guidance for planning level demand calculations for toilet/urinal flushing and landscape irrigation is provided in Section B.3.2.
[Provide a summary of calculations here]

1) Population Industrial = 3.5/DU

2) Total population = 17 DU/AC * 3.5 Pop/DU*10 AC Gross = 595 residents

3) Total 24 hr demand = 595 Residents * 5.5 gal/day = 3,273 gal/day

4) 36 hr demand = 3,273 gal * 1.5 = 4,909 gal = 656 CF

5) Demand = 656 CF / 6,578 CF = 0.10</td></tr>
<tr><td colspan="3">3. Calculate the DCV using worksheet B-2.1.
DCV = 6,578 (cubic feet)</td></tr>
<tr><td>3a. Is the 36 hour demand greater than or equal to the DCV?
☐ Yes / ☒ No</td><td>3b. Is the 36 hour demand greater than 0.25DCV but less than the full DCV?
☐ Yes / ☒ No</td><td>3c. Is the 36 hour demand less than 0.25DCV?
☒ Yes</td></tr>
<tr><td>Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.</td><td>Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.</td><td>Harvest and use is considered to be infeasible.</td></tr>
<tr><td colspan="3">Is harvest and use feasible based on further evaluation?
☐ Yes, refer to Appendix E to select and size harvest and use BMPs.
☒ No, select alternate BMPs.</td></tr>
</table>

<table>
<tr><th colspan="2">Categorization of Infiltration Feasibility Condition</th><th colspan="2">Form I-8</th></tr>
<tr><td colspan="4">Part 1 - Full Infiltration Feasibility Screening Criteria
Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?</td></tr>
<tr><td>Criteria</td><td>Screening Question</td><td>Yes</td><td>No</td></tr>
<tr><td>1</td><td>Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.</td><td>☐</td><td>☒</td></tr>
<tr><td colspan="4">Provide basis:

Based upon NRCS soil maps of the area an estimated infiltration rate of 0.0-0.06 in/hr has been identified for the site. Further infiltration testing will be conducted during final engineering, however the rates above are sufficient to allow for the design of the partial infiltration basins shown.

Based upon the above data/numbers it is not feasible to infiltrate at 0.5 in/hr or greater, and full infiltration is therefore not feasible.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</td></tr>
<tr><td>2</td><td>Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.</td><td>☐</td><td>☒</td></tr>
<tr><td colspan="4">Provide basis:

Based upon NRCS soil maps of the area an estimated infiltration rate of 0.0-0.06 in/hr has been identified for the site. Further infiltration testing will be conducted during final engineering, however the rates above are sufficient to allow for the design of the partial infiltration basins shown.

Based upon the above data/numbers it is not feasible to infiltrate at 0.5 in/hr or greater, and full infiltration is therefore not feasible.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</td></tr>
</table>

Form I-8 Page 2 of 4			
Criteria	Screening Question	Yes	No
3	Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☒
Provide basis: Based upon NRCS soil maps of the area an estimated infiltration rate of 0.0-0.06 in/hr has been identified for the site. Further infiltration testing will be conducted during final engineering, however the rates above are sufficient to allow for the design of the partial infiltration basins shown. Based upon the above data/numbers it is not feasible to infiltrate at 0.5 in/hr or greater, and full infiltration is therefore not feasible. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☒
Provide basis: Based upon NRCS soil maps of the area an estimated infiltration rate of 0.0-0.06 in/hr has been identified for the site. Further infiltration testing will be conducted during final engineering, however the rates above are sufficient to allow for the design of the partial infiltration basins shown. Based upon the above data/numbers it is not feasible to infiltrate at 0.5 in/hr or greater, and full infiltration is therefore not feasible. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result*	If all answers to rows 1 - 4 are “Yes” a full infiltration design is potentially feasible. The feasibility screening category is Full Infiltration		☐
	If any answer from row 1-4 is “No”, infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a “full infiltration” design. Proceed to Part 2		☒

<table>
<tr><th colspan="4">Form I-8 Page 3 of 4</th></tr>
<tr><td colspan="4">Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria
Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?</td></tr>
<tr><td>Criteria</td><td>Screening Question</td><td>Yes</td><td>No</td></tr>
<tr><td>5</td><td>Do soil and geologic conditions allow for infiltration in any appreciable rate or volume? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.</td><td>☒</td><td>☐</td></tr>
<tr><td colspan="4">Provide basis:

Based upon NRCS soil maps of the area an estimated infiltration rate of 0.0-0.06 in/hr has been identified for the site. Further infiltration testing will be conducted during final engineering, however the rates above are sufficient to allow for the design of the partial infiltration basins shown.

Based upon the above data/numbers it is feasible to infiltrate at a design rate of 0.03 in/hr . This is based upon the maximum potential infiltration rate of 0.06 in/hr, with an applied factor of safety of 2 for preliminary design purposes. In final design additional infiltration testing will be conducted.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</td></tr>
<tr><td>6</td><td>Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.</td><td>☒</td><td>☐</td></tr>
<tr><td colspan="4">Provide basis:

Due to the project elevation as well as its existing development it is not anticipated that there are any un-mitigatable issues with allowing partial infiltration on the site. During final engineering infiltration tests will confirm the design assumptions proposed.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.</td></tr>
</table>

Form I-8 Page 4 of 4			
Criteria	Screening Question	Yes	No
7	Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☒	☐
Provide basis: Due to the project elevation as well as its existing development it is not anticipated that there are any un-mitigatable issues with allowing partial infiltration on the site. During final engineering infiltration tests will confirm the design assumptions proposed. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	Can infiltration be allowed without violating downstream water rights? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☒	☐
Provide basis: We did not provide a study regarding water rights, however due to the project elevation and lack of on-site streams (ephemeral or otherwise) it is not anticipated that these right would be present on site. These rights are not typical in the San Diego area. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 5-8 are yes then partial infiltration design is potentially feasible. The feasibility screening category is Partial Infiltration.		☒
	If any answer from row 5-8 is no, then infiltration of any volume is considered to be infeasible within the drainage area. The feasibility screening category is No Infiltration.		☐

SITE DCV FOR HARVEST AND USE ANALYSIS

	Design Capture Volume	Worksheet B.2-1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.52	inches
2	Area tributary to BMP (s)	A=	4.1	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.85	unitless
4	Trees Credit Volume	TCV=	0	cubic-feet
5	Rain barrels Credit Volume	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	6,578	cubic-feet

1) Area Weighted Runoff Factor

Surfaces	Area(ac)	Factor
Roof & PCC	3.8	0.9
Landscape(Mulched)	0.3	0.1

C=[(3.8 * 0.9) + (0.3 * 0.1)] / (4.1) = 0.85

2) Design Capture Volume without Tree or Rain Barrels Credit Volumes

DCV = (3630 * 0.85 * 0.52 * 1.27) = 6,578 CF

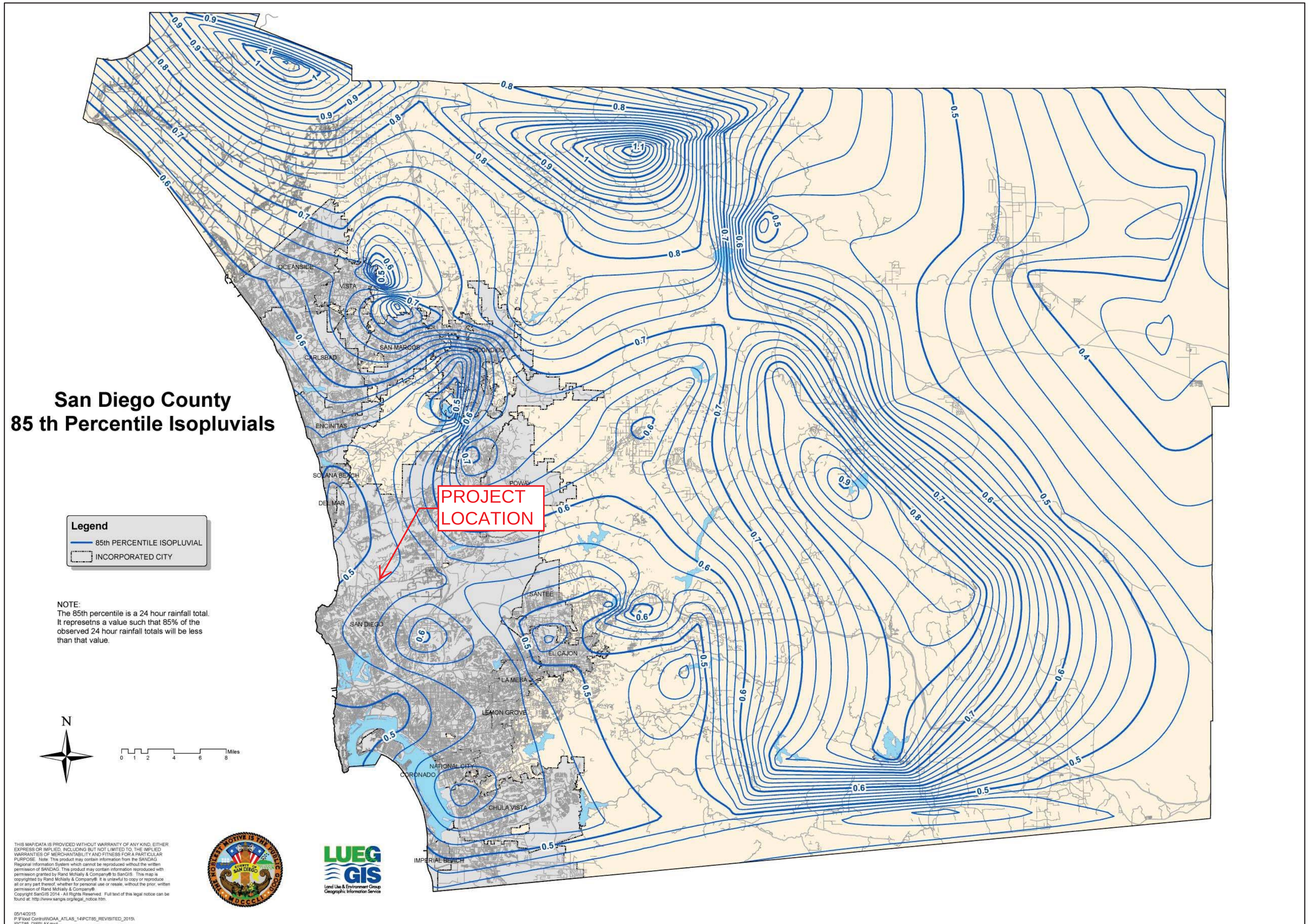


Figure B.1-1: 85th Percentile 24-hour Isopluvial Map

B.1.1 Runoff Factor

Estimate the area weighted runoff factor for the tributary area to the BMP using runoff factor (from Table B.1-1) and area of each surface type in the tributary area and the following equation.

Equation B.1-2: Estimating Runoff Factor for Area

$$C = \frac{\sum C_x A_x}{\sum A_x}$$

where:

C_x = Runoff factor for area X

A_x = Tributary area X (acres)

These runoff factors apply to areas receiving direct rainfall only. For conditions in which runoff is routed onto a surface from an adjacent surface, see Section B.2 for determining composite runoff factors for these areas.

Table B.1-1: Runoff factors for surfaces draining to BMPs – Pollutant Control BMPs

Surface	Runoff Factor
Roofs[1]	0.90
Concrete or Asphalt[1]	0.90
Unit Pavers (grouted)[1]	0.90
Decomposed Granite	0.30
Cobbles or Crushed Aggregate	0.30
Amended, Mulched Soils or Landscape[2]	0.10
Compacted Soil (e.g., unpaved parking)	0.30
Natural (A Soil)	0.10
Natural (B Soil)	0.14
Natural (C Soil)	0.23
Natural (D Soil)	0.30

[1]Surface is considered impervious and could benefit from use of Site Design BMPs and adjustment of the runoff factor per Section B.2.1.

[2]Surface shall be designed in accordance with SD-4 (Amended soils) fact sheet in Appendix E

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs (DMA-5)

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1 (Page 1 of 2)	
1	Remaining DCV after implementing retention BMPs	6,578	cubic-feet
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.02	in/hr.
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.72	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4/ Line 5]	1.8	inches
7	Assumed surface area of the biofiltration BMP	11,991	sq-ft
8	Media retained pore storage	0.1	in/in
9	Volume retained by BMP [[Line 4 + (Line 12 x Line 8)]/12] x Line 7	2,518	cubic-feet
10	DCV that requires biofiltration [Line 1 – Line 9]	4,060	cubic-feet
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	10	inches
12	Media Thickness [18 inches minimum], also add mulch layer thickness to this line for sizing calculations	18	inches
13	Aggregate Storage above underdrain invert (12 inches typical) – use 0 inches for sizing if the aggregate is not over the entire bottom surface area	9	inches
14	Freely drained pore storage	0.2	in/in
15	Media filtration rate to be used for sizing (5 in/hr. with no outlet control; if the filtration rate is controlled by the outlet use the outlet controlled rate which will be less than 5 in/hr.)	0.28	in/hr.
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	1.68	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	17.2	inches
19	Total Depth Treated [Line 17 + Line 18]	18.88	inches

Note: Line 7 is used to estimate the amount of volume retained by the BMP. Update assumed surface area in Line 7 until its equivalent to the required biofiltration footprint (either Line 21 or Line 23)

Worksheet B.5-1: Simple Sizing Method for Biofiltration BMPs (DMA-5)

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1 (Page 2 of 2)	
Option 1 – Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	6,090	cubic- feet
21	Required Footprint [Line 20/ Line 19] x 12	3,871	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	3,045	cubic- feet
23	Required Footprint [Line 22/ Line 18] x 12	2,124	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	178,444	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.85	
26	BMP Footprint Sizing Factor (Default 0.03 or an alternative minimum footprint sizing factor from Worksheet B.5-2, Line 11)	0.03	
27	Minimum BMP Footprint [Line 24 x Line 25 x Line 26]	4,550	sq-ft
28	Footprint of the BMP = Maximum(Minimum(Line 21, Line 23), Line 27)	11,991	sq-ft
Check for Volume Reduction [Not applicable for No Infiltration Condition]			
29	Calculate the fraction of DCV retained in the BMP [Line 9/Line 1]	0.383	unitless
30	Minimum required fraction of DCV retained for partial infiltration condition	0.375	unitless
31	Is the retained DCV ≥ 0.375? If the answer is no increase the footprint sizing factor in Line 26 until the answer is yes for this criterion.	☑ Yes	☐ No

Note:

1. Line 7 is used to estimate the amount of volume retained by the BMP. Update assumed surface area in Line 7 until its equivalent to the required biofiltration footprint (either Line 21 or Line 23)
2. The DCV fraction of 0.375 is based on a 40% average annual percent capture and a 36-hour drawdown time.
3. The increase in footprint for volume reduction can be optimized using the approach presented in Appendix B.5.2. The optimized footprint cannot be smaller than the alternative minimum footprint sizing factor from Worksheet B.5.2.
4. If the proposed biofiltration BMP footprint is smaller than the alternative minimum footprint sizing factor from Worksheet B.5-2, but satisfies Option 1 or Option 2 sizing, it is considered a compact biofiltration BMP and may be allowed at the discretion of the City Engineer, if it meets the requirements in Appendix F.

Attachment 2

Backup for PDP Hydromodification Control Measures

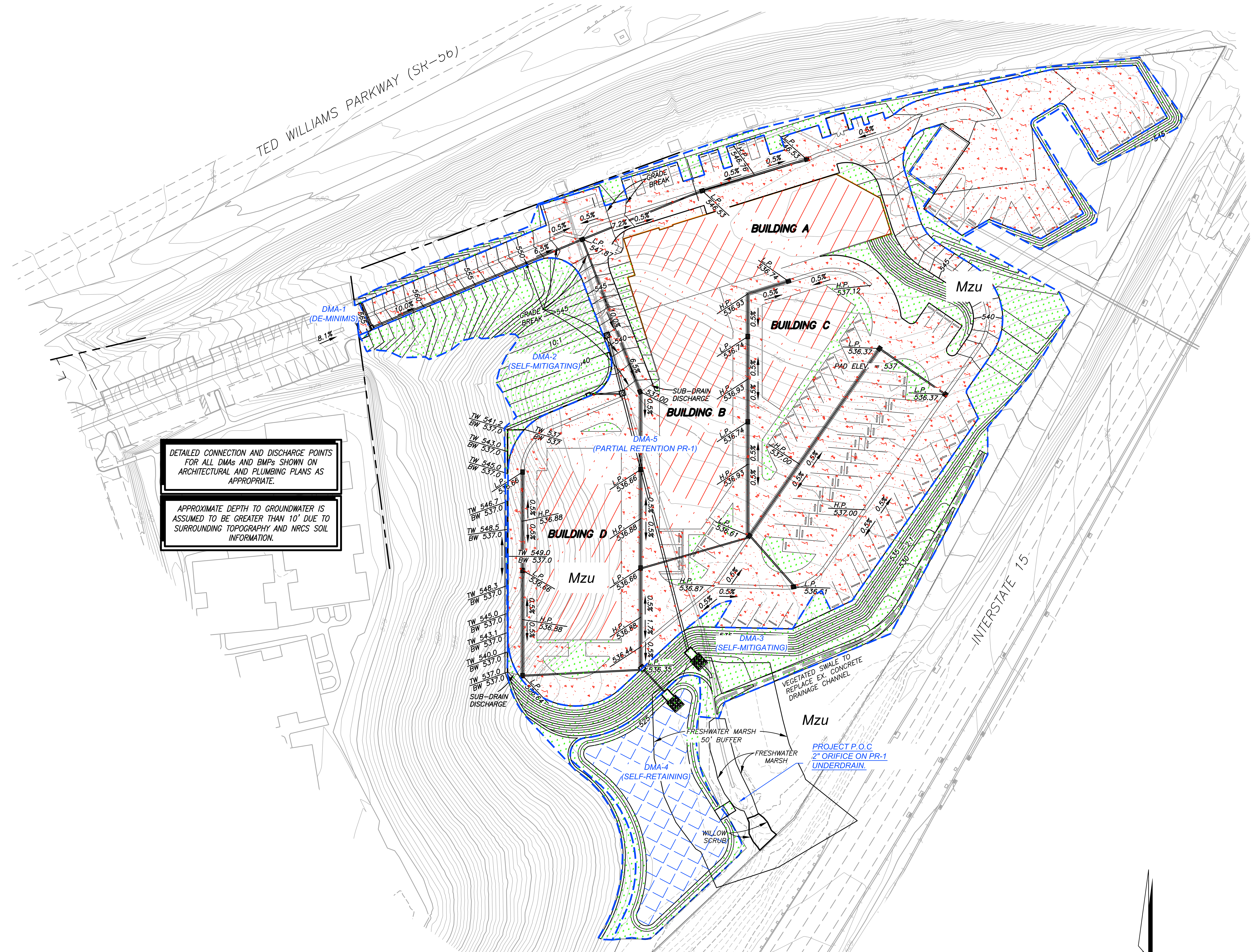
☐ Mark this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.

Items included in this attachment:

Attachment Sequence	Contents	Checklist
Attachment 2a	**Hydromodification management exhibit (Required)**	☒ **Included** **See hydromodification management exhibit Checklist.**
Attachment 2b	Management of critical coarse sediment yield areas (WMAA Exhibit is required, additional analyses are optional) See Section 6.2 of the BMP Design Manual.	☒ Exhibit showing project drainage boundaries marked on WMAA critical coarse sediment yield area map (Required) Optional analyses for critical coarse sediment yield area determination ☐ 6.2.1 Verification of geomorphic landscape units onsite ☐ 6.2.2 Downstream systems sensitivity to coarse sediment ☐ 6.2.3 Optional additional analysis of potential critical coarse sediment yield areas onsite
Attachment 2c	**Geomorphic assessment of receiving channels (Optional)** **See section 6.3.4 of the BMP design manual.**	☒ **Not performed** ☐ **Included** ☐ **Submitted as a separate stand-alone document**
Attachment 2d	Flow control facility design and structural BMP drawdown calculations (Required) Overflow design summary for each structural BMP See Chapter 6 and Appendix G of the BMP Design Manual	☒ Included ☐ Submitted as a separate stand-alone document
Attachment 2e	**Vector Control Plan** **(Required when structural BMPs will not drain in 96 hours)**	☐ **Included** ☒ **Not required because BMPs will drain in less than 96 hours**

The Hydromodification Management Exhibit must identify:

☒ Underlying hydrologic soil group
☒ Approximate depth to groundwater
☒ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☐ Critical coarse sediment yield areas to be protected
☒ Existing topography
☒ Existing and proposed site drainage network and connections to drainage offsite
☒ Proposed grading
☒ Proposed impervious features
☐ Proposed design features and surface treatments used to minimize imperviousness
☒ Point(s) of Compliance (POC) for Hydromodification Management
☒ Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)
☒ Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail)



DETAILED CONNECTION AND DISCHARGE POINTS FOR ALL DMAs AND BMPs SHOWN ON ARCHITECTURAL AND PLUMBING PLANS AS APPROPRIATE.

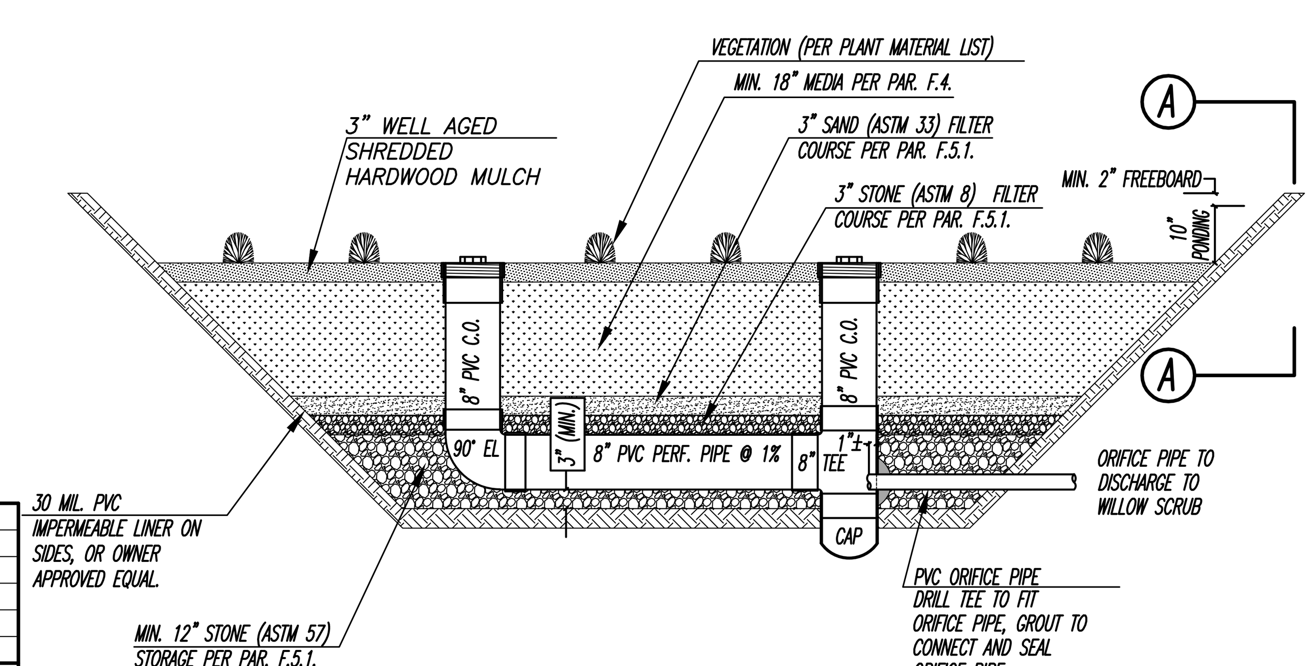
APPROXIMATE DEPTH TO GROUNDWATER IS ASSUMED TO BE GREATER THAN 10' DUE TO SURROUNDING TOPOGRAPHY AND NRCS SOIL INFORMATION.

LEGEND

- SUBDIVISION BOUNDARY
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PRO. DMA LIMITS
- PERVIOUS (SD-4)
- PROPOSED HARDSCAPE IMPERV.
- PROPOSED BUILDING IMPERV.
- BIO-FILTRATION W/ PARTIAL RETENTION (PR-1)

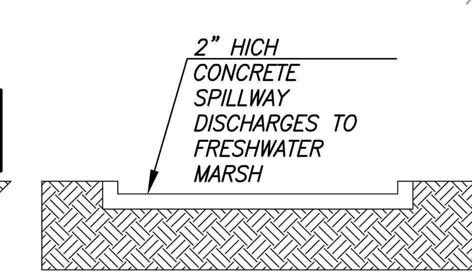
SOILS LEGEND

Mzu ........METAMORPHOSED AND UNMETAMORPHOSED VOLCANIC AND SEDIMENTARY ROCK, UNDIVIDED (HYDROLOGIC SOIL TYPE D)



PRIVATE BIO-FILTER PLANTER DETAIL

(NTS)



SECTION A-A

(NTS)

SCALE: 1" = 50'

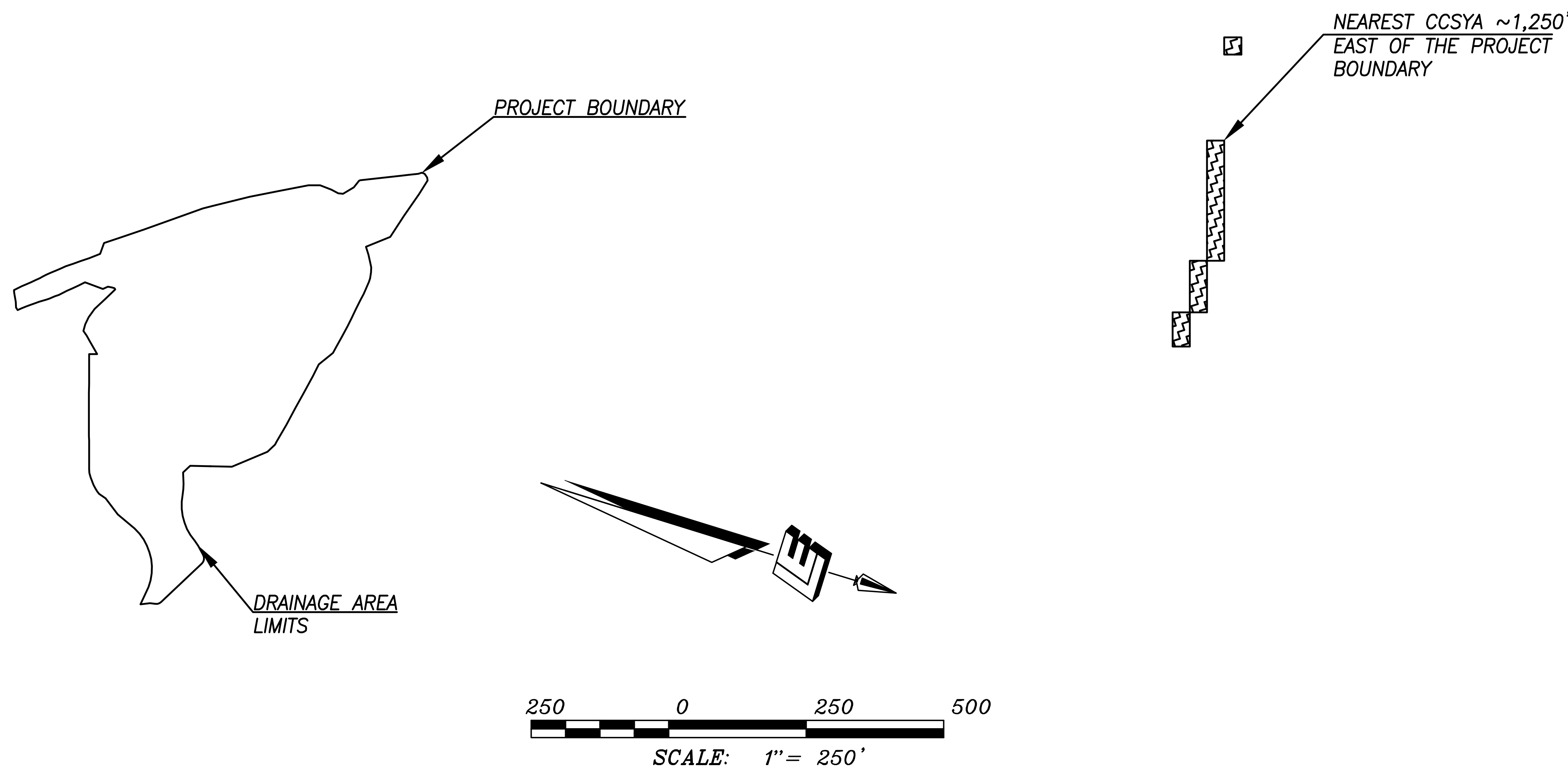
NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION
6				12			
5				11			
4				10			
3				9			
2	01/22/2019	MFD	REVISED SITEPLAN	8			
1	12/05/2017	MFD	ORIGINAL	7			

Leppert Engineering CORPORATION
5190 Governor Drive, Suite 205, San Diego, Ca. 92122-2848
Phone: (858) 597-2001 Fax: (858) 597-2009

APPROVED BY ENGINEER OF WORK | REGISTRATION R.C.E. 26283
FILE CODE PN 06.03-11.91 | DATE

PREPARATION AND REVISION LOG

PENASQUITOS RV AND MINI STORAGE
ATTACHMENT 2A



NO.	DATE	BY	DESCRIPTION
5			
4			
3			
2			
1	03/08/18	MFD	ORIGINAL

APPROVED BY ENGINEER OF WORK	REGISTRATION R C E 26283
FILE CODE PN 06.03–11.91	DATE

PREPARATION AND REVISION LOG

Leppert Engineering
CORPORATION
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LEGEND

SUBDIVISION BOUNDARY

CRITICAL COURSE SEDIMENT YIELD AREAS

WMAA EXHIBIT
PENASQUITOS RV AND MINI STORAGE

SDHM 3.1

PROJECT REPORT

General Model Information

Project Name:	PQ RV-Mini - passing (10in ponding)
Site Name:	PQ RV-Mini
Site Address:	SE corner SR-56 and I-15
City:	San Diego
Report Date:	1/22/2019
Gage:	POWAY
Data Start:	10/01/1963
Data End:	09/30/2004
Timestep:	Hourly
Precip Scale:	1.000
Version Date:	2018/07/12

POC Thresholds

Low Flow Threshold for POC1:	10 Percent of the 2 Year
High Flow Threshold for POC1:	10 Year

Landuse Basin Data
Predeveloped Land Use

Pre-Dev

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
D,NatVeg,Moderate	5.8
Pervious Total	5.8
Impervious Land Use	acre
Impervious Total	0
Basin Total	5.8

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

DMA-05

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
D,Urban,Flat	0.3
Pervious Total	0.3
Impervious Land Use	acre
IMPERVIOUS-FLAT	3.8
Impervious Total	3.8
Basin Total	4.1

Element Flows To:

Surface	Interflow	Groundwater
Surface l Retention)	Surface l Retention)	

DMA-1, 2 & 3

Bypass:	Yes
GroundWater:	No
Pervious Land Use	acre
D,NatVeg,Moderate	1.3
Pervious Total	1.3
Impervious Land Use	acre
Impervious Total	0
Basin Total	1.3

Element Flows To:

Surface	Interflow	Groundwater

Routing Elements
Predeveloped Routing

Mitigated Routing

DMA-04 (Bio-Filtration w/ Partial Retention)

Bottom Length:	119.91 ft.
Bottom Width:	100.00 ft.
Material thickness of first layer:	2
Material type for first layer:	ESM
Material thickness of second layer:	0.5
Material type for second layer:	GRAVEL
Material thickness of third layer:	0.833
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	0.02
Infiltration safety factor:	1
Total Volume Infiltrated (ac-ft.):	31.316
Total Volume Through Riser (ac-ft.):	10.751
Total Volume Through Facility (ac-ft.):	122.721
Percent Infiltrated:	25.52
Total Precip Applied to Facility:	8.653
Total Evap From Facility:	9.617
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	2
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	80.654
Total Outflow (ac-ft.):	122.721
Percent Through Underdrain:	65.72

Discharge Structure

Riser Height:	0.83 ft.
Riser Diameter:	48 in.

Element Flows To:

Outlet 1	Outlet 2

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.2753	0.0000	0.0000	0.0000
0.0478	0.2753	0.0040	0.0000	0.0000
0.0957	0.2753	0.0079	0.0000	0.0000
0.1435	0.2753	0.0119	0.0000	0.0000
0.1913	0.2753	0.0158	0.0000	0.0000
0.2392	0.2753	0.0198	0.0000	0.0000
0.2870	0.2753	0.0237	0.0000	0.0011
0.3348	0.2753	0.0277	0.0000	0.0025
0.3827	0.2753	0.0316	0.0000	0.0034
0.4305	0.2753	0.0356	0.0000	0.0056
0.4784	0.2753	0.0395	0.0000	0.0056
0.5262	0.2753	0.0435	0.0000	0.0056
0.5740	0.2753	0.0474	0.0000	0.0056
0.6219	0.2753	0.0514	0.0000	0.0056
0.6697	0.2753	0.0553	0.0000	0.0056
0.7175	0.2753	0.0593	0.0000	0.0056
0.7654	0.2753	0.0632	0.0000	0.0056
0.8132	0.2753	0.0672	0.0000	0.0056
0.8610	0.2753	0.0711	0.0000	0.0056
0.9089	0.2753	0.0751	0.0000	0.0056

0.9567	0.2753	0.0790	0.0000	0.0056
1.0045	0.2753	0.0830	0.0000	0.0056
1.0524	0.2753	0.0869	0.0000	0.0056
1.1002	0.2753	0.0909	0.0000	0.0056
1.1480	0.2753	0.0948	0.0071	0.0056
1.1959	0.2753	0.0988	0.0106	0.0056
1.2437	0.2753	0.1027	0.0164	0.0056
1.2915	0.2753	0.1067	0.0192	0.0056
1.3394	0.2753	0.1106	0.0236	0.0056
1.3872	0.2753	0.1146	0.0257	0.0056
1.4351	0.2753	0.1185	0.0292	0.0056
1.4829	0.2753	0.1225	0.0309	0.0056
1.5307	0.2753	0.1264	0.0338	0.0056
1.5786	0.2753	0.1304	0.0353	0.0056
1.6264	0.2753	0.1343	0.0379	0.0056
1.6742	0.2753	0.1383	0.0392	0.0056
1.7221	0.2753	0.1422	0.0416	0.0056
1.7699	0.2753	0.1462	0.0427	0.0056
1.8177	0.2753	0.1501	0.0449	0.0056
1.8656	0.2753	0.1541	0.0460	0.0056
1.9134	0.2753	0.1580	0.0480	0.0056
1.9612	0.2753	0.1620	0.0490	0.0056
2.0091	0.2753	0.1674	0.0509	0.0056
2.0569	0.2753	0.1729	0.0519	0.0056
2.1047	0.2753	0.1784	0.0537	0.0056
2.1526	0.2753	0.1838	0.0546	0.0056
2.2004	0.2753	0.1893	0.0563	0.0056
2.2483	0.2753	0.1948	0.0572	0.0056
2.2961	0.2753	0.2002	0.0588	0.0056
2.3439	0.2753	0.2057	0.0596	0.0056
2.3918	0.2753	0.2111	0.0612	0.0056
2.4396	0.2753	0.2166	0.0620	0.0056
2.4874	0.2753	0.2221	0.0635	0.0056
2.5353	0.2753	0.2275	0.0643	0.0056
2.5831	0.2753	0.2330	0.0658	0.0056
2.6309	0.2753	0.2385	0.0665	0.0056
2.6788	0.2753	0.2439	0.0679	0.0056
2.7266	0.2753	0.2494	0.0686	0.0056
2.7744	0.2753	0.2549	0.0700	0.0056
2.8223	0.2753	0.2603	0.0690	0.0056
2.8701	0.2753	0.2658	0.0692	0.0056
2.9179	0.2753	0.2713	0.0693	0.0056
2.9658	0.2753	0.2767	0.0693	0.0056
3.0136	0.2753	0.2822	0.0693	0.0056
3.0615	0.2753	0.2877	0.0693	0.0056
3.1093	0.2753	0.2931	0.0694	0.0056
3.1571	0.2753	0.2986	0.0694	0.0056
3.2050	0.2753	0.3040	0.0698	0.0056
3.2528	0.2753	0.3095	0.0721	0.0056
3.3006	0.2753	0.3150	0.0752	0.0056
3.3330	0.2753	0.3187	0.0790	0.0056

Biofilter Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.3330	0.2753	0.3187	0.0000	1.4210	0.0000
3.3808	0.2767	0.3319	0.0000	1.4210	0.0000
3.4287	0.2782	0.3451	0.0000	1.4542	0.0000
3.4765	0.2796	0.3585	0.0000	1.4874	0.0000

3.5243	0.2811	0.3719	0.0000	1.5206	0.0000
3.5722	0.2826	0.3854	0.0000	1.5538	0.0000
3.6200	0.2840	0.3989	0.0000	1.5870	0.0000
3.6678	0.2855	0.4126	0.0000	1.6202	0.0000
3.7157	0.2870	0.4262	0.0000	1.6534	0.0000
3.7635	0.2885	0.4400	0.0000	1.6866	0.0000
3.8114	0.2900	0.4538	0.0000	1.7198	0.0000
3.8592	0.2914	0.4678	0.0000	1.7530	0.0000
3.9070	0.2929	0.4817	0.0000	1.7862	0.0000
3.9549	0.2944	0.4958	0.0000	1.8194	0.0000
4.0027	0.2959	0.5099	0.0000	1.8526	0.0000
4.0505	0.2974	0.5241	0.0000	1.8858	0.0000
4.0984	0.2989	0.5384	0.0000	1.9190	0.0000
4.1462	0.3005	0.5527	0.0000	1.9521	0.0000
4.1940	0.3020	0.5671	0.2322	1.9853	0.0000
4.2419	0.3035	0.5816	0.9401	2.0185	0.0000
4.2897	0.3050	0.5961	1.9133	2.0517	0.0000
4.3330	0.3064	0.6094	3.0919	2.0818	0.0000
4.3380	0.3066	0.6109	4.4439	2.0852	0.0000

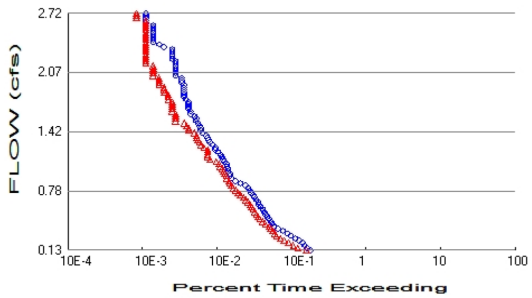
Surface l Retention)

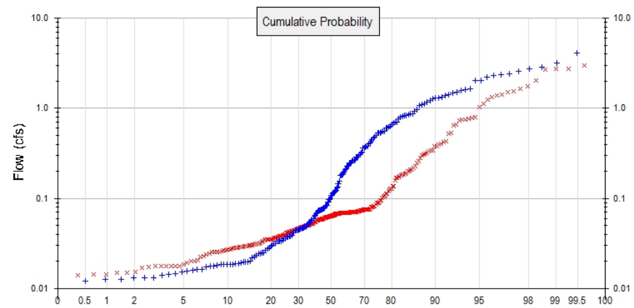
Element Flows To:

Outlet 1	Outlet 2
	DMA-04 (Bio-Filtration w/ Partial Retention)

Analysis Results

POC 1





+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 5.8
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 1.6
Total Impervious Area: 3.8

Flow Frequency Method: Weibull

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	1.290741
5 year	2.27716
10 year	2.717463
25 year	3.369958

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.735505
5 year	1.517915
10 year	2.505811
25 year	2.801599

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.1291	643	570	88	Pass
0.1552	580	437	75	Pass
0.1814	545	381	69	Pass
0.2075	503	326	64	Pass
0.2337	456	285	62	Pass
0.2598	402	254	63	Pass
0.2859	353	228	64	Pass
0.3121	315	215	68	Pass
0.3382	276	202	73	Pass
0.3644	236	189	80	Pass
0.3905	209	180	86	Pass
0.4167	198	161	81	Pass
0.4428	190	147	77	Pass
0.4690	178	135	75	Pass
0.4951	170	128	75	Pass
0.5213	163	122	74	Pass
0.5474	155	116	74	Pass
0.5735	148	110	74	Pass
0.5997	139	105	75	Pass
0.6258	132	100	75	Pass
0.6520	129	94	72	Pass
0.6781	122	87	71	Pass
0.7043	115	81	70	Pass
0.7304	110	74	67	Pass
0.7566	104	69	66	Pass
0.7827	100	64	64	Pass
0.8089	94	59	62	Pass
0.8350	86	56	65	Pass
0.8611	74	53	71	Pass
0.8873	64	52	81	Pass
0.9134	56	49	87	Pass
0.9396	53	48	90	Pass
0.9657	53	45	84	Pass
0.9919	51	44	86	Pass
1.0180	51	42	82	Pass
1.0442	49	40	81	Pass
1.0703	48	38	79	Pass
1.0965	45	35	77	Pass
1.1226	43	29	67	Pass
1.1487	42	27	64	Pass
1.1749	41	27	65	Pass
1.2010	37	27	72	Pass
1.2272	34	27	79	Pass
1.2533	34	24	70	Pass
1.2795	32	22	68	Pass
1.3056	29	21	72	Pass
1.3318	28	20	71	Pass
1.3579	27	19	70	Pass
1.3841	26	19	73	Pass
1.4102	23	18	78	Pass
1.4363	22	15	68	Pass
1.4625	22	15	68	Pass
1.4886	21	14	66	Pass

1.5148	20	13	65	Pass
1.5409	19	10	52	Pass
1.5671	19	10	52	Pass
1.5932	18	10	55	Pass
1.6194	16	10	62	Pass
1.6455	16	9	56	Pass
1.6716	15	9	60	Pass
1.6978	15	9	60	Pass
1.7239	15	9	60	Pass
1.7501	15	9	60	Pass
1.7762	14	8	57	Pass
1.8024	13	8	61	Pass
1.8285	13	8	61	Pass
1.8547	13	7	53	Pass
1.8808	13	7	53	Pass
1.9070	13	7	53	Pass
1.9331	13	6	46	Pass
1.9592	12	6	50	Pass
1.9854	12	6	50	Pass
2.0115	12	6	50	Pass
2.0377	10	5	50	Pass
2.0638	10	5	50	Pass
2.0900	10	5	50	Pass
2.1161	10	5	50	Pass
2.1423	10	5	50	Pass
2.1684	10	4	40	Pass
2.1946	10	4	40	Pass
2.2207	9	4	44	Pass
2.2468	9	4	44	Pass
2.2730	9	4	44	Pass
2.2991	9	4	44	Pass
2.3253	9	4	44	Pass
2.3514	7	4	57	Pass
2.3776	6	4	66	Pass
2.4037	5	4	80	Pass
2.4299	5	4	80	Pass
2.4560	5	4	80	Pass
2.4822	5	4	80	Pass
2.5083	5	4	80	Pass
2.5344	5	4	80	Pass
2.5606	5	4	80	Pass
2.5867	5	4	80	Pass
2.6129	4	4	100	Pass
2.6390	4	4	100	Pass
2.6652	4	3	75	Pass
2.6913	4	3	75	Pass
2.7175	4	3	75	Pass

Water Quality

Drawdown Time Results

Pond: Surface l Retention)

Days	Stage(feet)	Percent of Total Run Time
1	N/A	0.0027
2	N/A	0.0027
3	N/A	0.0027
4	N/A	0.0027
5	N/A	0.0027

Maximum Stage: 0.830 Drawdown Time: Less than 1 day

Model Default Modifications

Total of 0 changes have been made.

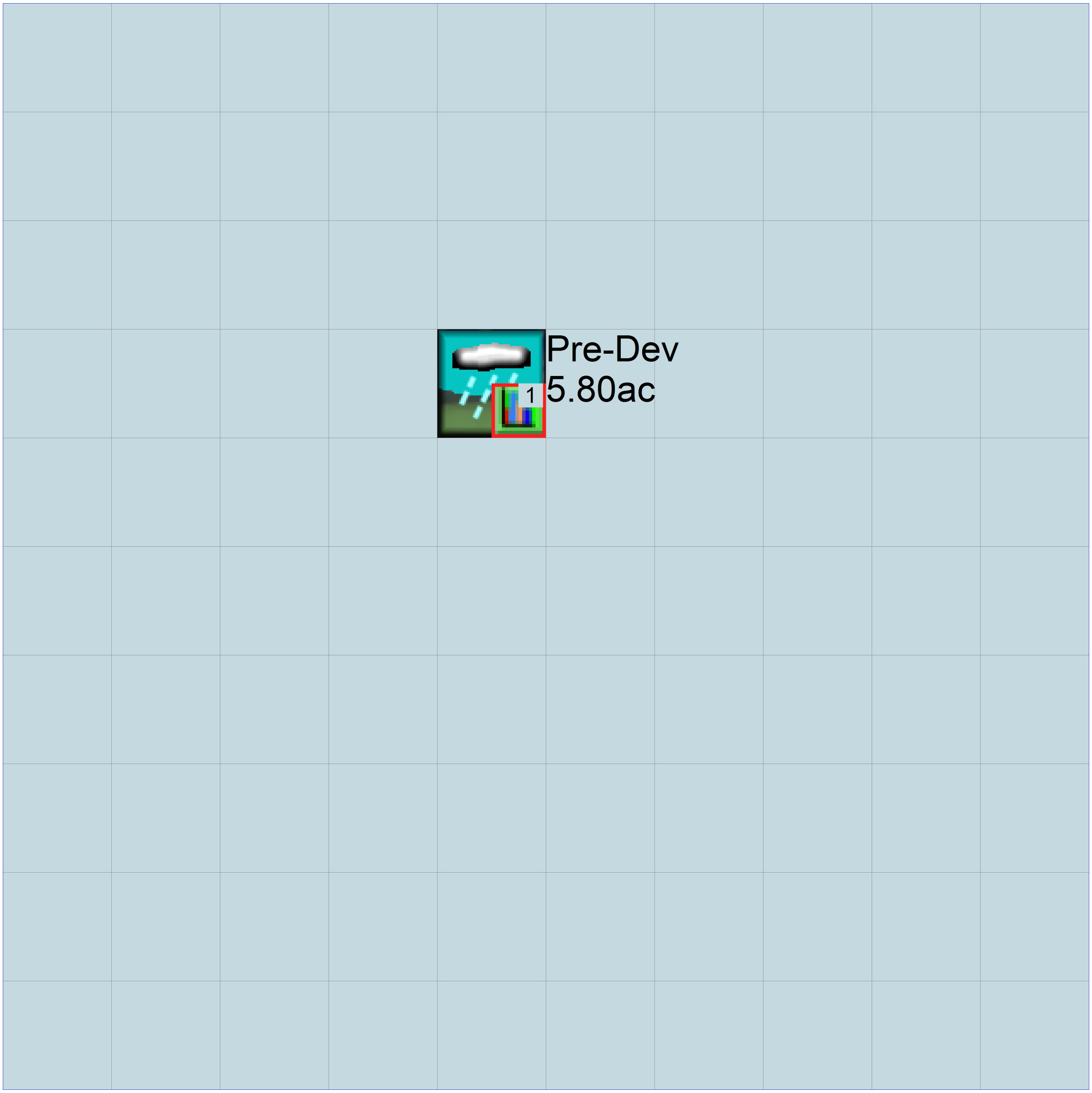
PERLND Changes

No PERLND changes have been made.

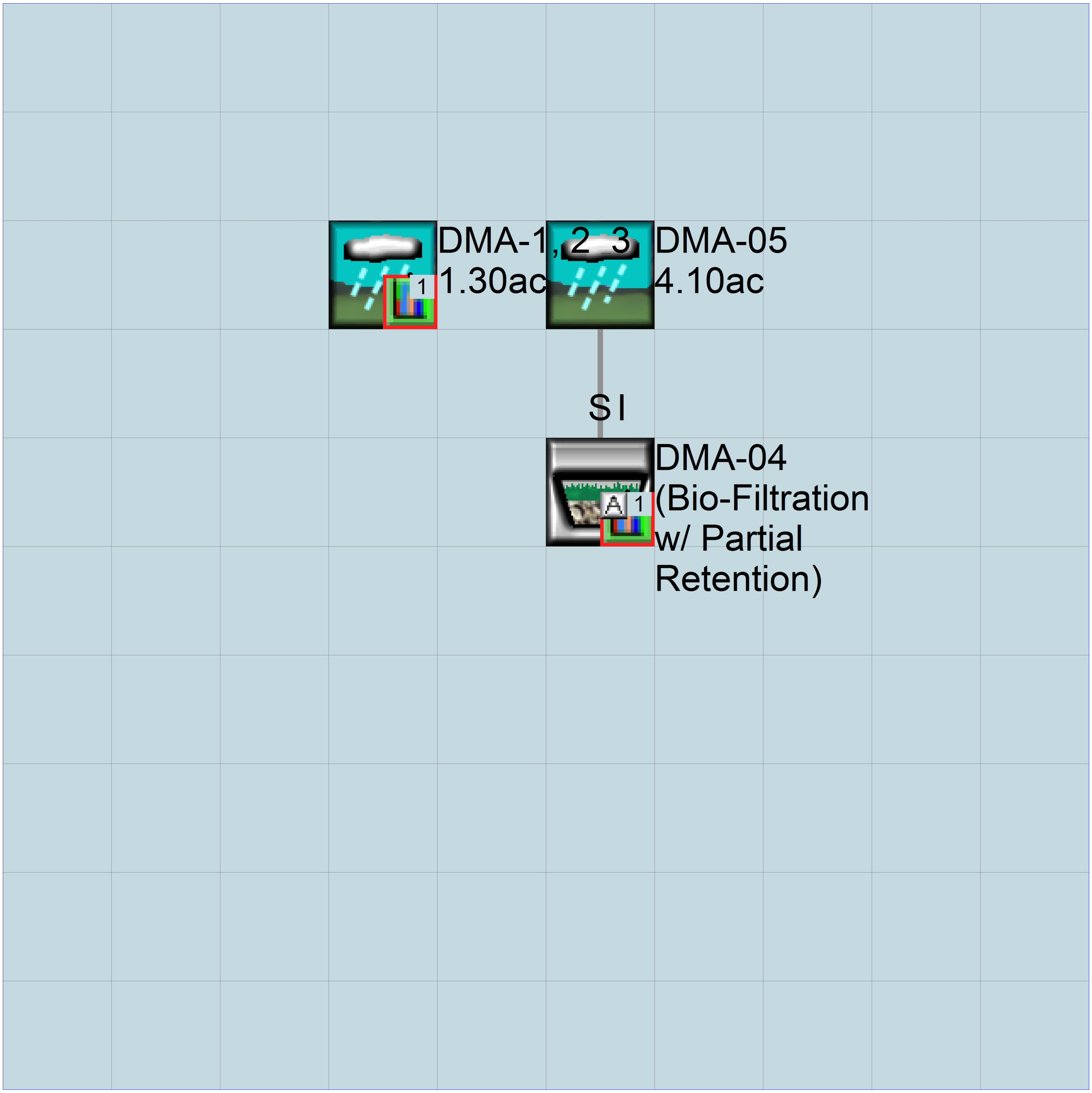
IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1963 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                             ***
WDM        26   PQ RV-Mini - passing (10in ponding).wdm
MESSU      25   PrePQ RV-Mini - passing (10in ponding).MES
           27   PrePQ RV-Mini - passing (10in ponding).L61
           28   PrePQ RV-Mini - passing (10in ponding).L62
           30   POCPQ RV-Mini - passing (10in ponding)1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      PERLND      29
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Pre-Dev                     MAX                      1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out           ***
   29      D,NatVeg,Moderate      1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections *****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   29         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   29         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   29         0    1    1    1    0    0    0    0    1    1    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   29             0         3     0.025        80       0.1       2.5     0.915
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   29             0         0         2         2         0      0.05      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                               ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   29             0       0.6      0.04         1       0.3         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   29       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   29       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
              ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   29             0         0      0.01         0       0.4      0.01         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out            ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections *****************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
  END IWAT-PARM2
```

```
  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Pre-Dev***
PERLND  29                         5.8     COPY   501     12
PERLND  29                         5.8     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                 ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG            ***
                                         in  out                             ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections *****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                      ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *     *  *  *  *  *       *  *  *  *  *        ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                         ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit       for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES
```

```
SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC      ENGL    1             PERLND   1 999 EXTNL  PREC
WDM      2 PREC      ENGL    1             IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP      ENGL    1             PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP      ENGL    1             IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     12.1      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1963 10 01        END    2004 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                   UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                             ***
WDM        26   PQ RV-Mini - passing (10in ponding).wdm
MESSU      25   MitPQ RV-Mini - passing (10in ponding).MES
           27   MitPQ RV-Mini - passing (10in ponding).L61
           28   MitPQ RV-Mini - passing (10in ponding).L62
           30   POCPQ RV-Mini - passing (10in ponding)1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:60
      PERLND      46
      IMPLND       1
      PERLND      29
      GENER        2
      RCHRES       1
      RCHRES       2
      COPY         1
      COPY       501
      COPY       601
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Surface l Retention)        MAX                      1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  601         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
    2        24
  END OPCODE
  PARM
    #    #         K ***
    2             0.
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out           ***
   46      D,Urban,Flat           1    1    1    1   27    0
   29      D,NatVeg,Moderate      1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
```

```
    <PLS > ************* Active Sections *****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   46         0    0    1    0    0    0    0    0    0    0    0    0
   29         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   46         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   29         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   46         0    1    1    1    0    0    0    0    1    1    0
   29         0    1    1    1    0    0    0    0    1    1    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   46              0       3.8      0.03        50      0.05       2.5     0.915
   29              0         3     0.025        80       0.1       2.5     0.915
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   46              0         0         2         2         0      0.05      0.05
   29              0         0         2         2         0      0.05      0.05
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                               ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   46              0       0.6      0.03         1       0.3         0
   29              0       0.6      0.04         1       0.3         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   46       0.6  0.6  0.6  0.6  0.7  0.7  0.7  0.7  0.7  0.6  0.6  0.6
   29       0.4  0.4  0.4  0.4  0.6  0.6  0.6  0.6  0.6  0.4  0.4  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3         ***
    # -  #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   46       0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1
   29       0.1  0.1  0.1  0.1 0.06 0.06 0.06 0.06 0.06  0.1  0.1  0.1
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
              ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   46              0         0      0.15         0         1      0.05         0
   29              0         0      0.01         0       0.4      0.01         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                       in  out          ***
    1      IMPERVIOUS-FLAT        1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***
```

```
  ACTIVITY
    <PLS > ************* Active Sections *****************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    1         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    1         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI     ***
    1         0    0    0    0    1
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1            100      0.05     0.011       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
DMA-05***
PERLND  46                         0.3     RCHRES   1      2
PERLND  46                         0.3     RCHRES   1      3
IMPLND   1                         3.8     RCHRES   1      5
DMA-1, 2 & 3***
PERLND  29                         1.3     COPY   501     12
PERLND  29                         1.3     COPY   601     12
PERLND  29                         1.3     COPY   501     13
PERLND  29                         1.3     COPY   601     13

******Routing******
PERLND  46                         0.3     COPY     1     12
IMPLND   1                         3.8     COPY     1     15
PERLND  46                         0.3     COPY     1     13
RCHRES   1                           1     RCHRES   2      8
RCHRES   2                           1     COPY   501     17
RCHRES   1                           1     COPY   501     17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   12.1        DISPLY   1     INPUT  TIMSER 1
GENER    2 OUTPUT TIMSER      .0002778     RCHRES   1     EXTNL  OUTDGT 1


<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
```

```
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                 ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG            ***
                                          in  out                            ***
    1     Surface l Retent-004    3    1    1    1   28    0    1
    2     DMA-04 (Bio-Filt-003    2    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections *****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
    2         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ****************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
    2         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                      ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *        ***
    1        0  1  0  0    4  5  6  0  0       0  1  0  0  0       2  1  2  2  2
    2        0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
    1             1      0.01       0.0       0.0       0.5       0.0
    2             2      0.02       0.0       0.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                         ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit       for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
    1           0          4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    2           0          4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
*** User-Defined Variable Quantity Lines
***                          addr
***                        <------>
*** kwd  varnam optyp  opn  vari  s1 s2 s3 tp multiply  lc ls ac as agfn ***
  <****> <----> <----> <-> <----><-><-><-><-><--------> <><-> <><-> <--> ***
  UVQUAN vol2   RCHRES   2 VOL              4
  UVQUAN v2m2   GLOBAL     WORKSP  1        3
  UVQUAN vpo2   GLOBAL     WORKSP  2        3
  UVQUAN v2d2   GENER    2 K       1        3
*** User-Defined Target Variable Names
***                  addr or                        addr or
***                 <------>                       <------>
*** kwd   varnam ct  vari  s1 s2 s3  frac oper     vari  s1 s2 s3  frac oper
  <****>  <----><-> <----><-><-><-> <---> <-->    <----><-><-><-> <---> <-->
  UVNAME  v2m2    1 WORKSP  1         1.0 QUAN
  UVNAME  vpo2    1 WORKSP  2         1.0 QUAN
  UVNAME  v2d2    1 K       1         1.0 QUAN
```

```
*** opt foplop dcdts  yr mo dy hr mn d t   vnam  s1 s2 s3 ac quantity  tc  ts rp
  <****><-><--><><-><--> <> <> <> <><><>  <----><-><-><-><-><--------> <> <-><->
  GENER   2                               v2m2            =  13034.
*** Compute remaining available pore space
  GENER   2                               vpo2            =  v2m2
  GENER   2                               vpo2           -=  vol2
*** Check to see if VPORA goes negative; if so set VPORA = 0.0
IF (vpo2 < 0.0) THEN
  GENER   2                               vpo2            =  0.0
END IF
*** Infiltration volume
  GENER   2                               v2d2            =  vpo2
END SPEC-ACTIONS
FTABLES
  FTABLE      2
   71    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)     (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.275275  0.000000  0.000000  0.000000
  0.047835  0.275275  0.003950  0.000000  0.000000
  0.095670  0.275275  0.007901  0.000000  0.000000
  0.143505  0.275275  0.011851  0.000000  0.000000
  0.191341  0.275275  0.015801  0.000000  0.000000
  0.239176  0.275275  0.019752  0.000000  0.000000
  0.287011  0.275275  0.023702  0.000000  0.001129
  0.334846  0.275275  0.027652  0.000000  0.002482
  0.382681  0.275275  0.031603  0.000000  0.003442
  0.430516  0.275275  0.035553  0.000000  0.005551
  0.478352  0.275275  0.039504  0.000000  0.005551
  0.526187  0.275275  0.043454  0.000000  0.005551
  0.574022  0.275275  0.047404  0.000000  0.005551
  0.621857  0.275275  0.051355  0.000000  0.005551
  0.669692  0.275275  0.055305  0.000000  0.005551
  0.717527  0.275275  0.059255  0.000000  0.005551
  0.765363  0.275275  0.063206  0.000000  0.005551
  0.813198  0.275275  0.067156  0.000000  0.005551
  0.861033  0.275275  0.071106  0.000000  0.005551
  0.908868  0.275275  0.075057  0.000000  0.005551
  0.956703  0.275275  0.079007  0.000000  0.005551
  1.004538  0.275275  0.082957  0.000000  0.005551
  1.052374  0.275275  0.086908  0.000000  0.005551
  1.100209  0.275275  0.090858  0.000000  0.005551
  1.148044  0.275275  0.094809  0.007076  0.005551
  1.195879  0.275275  0.098759  0.010614  0.005551
  1.243714  0.275275  0.102709  0.016359  0.005551
  1.291549  0.275275  0.106660  0.019232  0.005551
  1.339385  0.275275  0.110610  0.023550  0.005551
  1.387220  0.275275  0.114560  0.025709  0.005551
  1.435055  0.275275  0.118511  0.029168  0.005551
  1.482890  0.275275  0.122461  0.030898  0.005551
  1.530725  0.275275  0.126411  0.033836  0.005551
  1.578560  0.275275  0.130362  0.035304  0.005551
  1.626396  0.275275  0.134312  0.037900  0.005551
  1.674231  0.275275  0.138262  0.039198  0.005551
  1.722066  0.275275  0.142213  0.041550  0.005551
  1.769901  0.275275  0.146163  0.042727  0.005551
  1.817736  0.275275  0.150113  0.044895  0.005551
  1.865571  0.275275  0.154064  0.045980  0.005551
  1.913407  0.275275  0.158014  0.048003  0.005551
  1.961242  0.275275  0.161965  0.049014  0.005551
  2.009077  0.275275  0.167429  0.050918  0.005551
  2.056912  0.275275  0.172894  0.051870  0.005551
  2.104747  0.275275  0.178359  0.053675  0.005551
  2.152582  0.275275  0.183823  0.054577  0.005551
  2.200418  0.275275  0.189288  0.056296  0.005551
  2.248253  0.275275  0.194752  0.057156  0.005551
  2.296088  0.275275  0.200217  0.058802  0.005551
  2.343923  0.275275  0.205682  0.059625  0.005551
  2.391758  0.275275  0.211146  0.061206  0.005551
  2.439593  0.275275  0.216611  0.061997  0.005551
```

```
  2.487429  0.275275  0.222076  0.063522  0.005551
  2.535264  0.275275  0.227540  0.064285  0.005551
  2.583099  0.275275  0.233005  0.065759  0.005551
  2.630934  0.275275  0.238470  0.066497  0.005551
  2.678769  0.275275  0.243934  0.067927  0.005551
  2.726604  0.275275  0.249399  0.068642  0.005551
  2.774440  0.275275  0.254864  0.070034  0.005551
  2.822275  0.275275  0.260328  0.069040  0.005551
  2.870110  0.275275  0.265793  0.069199  0.005551
  2.917945  0.275275  0.271258  0.069278  0.005551
  2.965780  0.275275  0.276722  0.069318  0.005551
  3.013615  0.275275  0.282187  0.069338  0.005551
  3.061451  0.275275  0.287652  0.069348  0.005551
  3.109286  0.275275  0.293116  0.069353  0.005551
  3.157121  0.275275  0.298581  0.069355  0.005551
  3.204956  0.275275  0.304046  0.069850  0.005551
  3.252791  0.275275  0.309510  0.072119  0.005551
  3.300626  0.275275  0.314975  0.075217  0.005551
  3.333000  0.275275  0.669214  0.079049  0.005551
  END FTABLE  2
  FTABLE      1
   23    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)      (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.275275  0.000000  0.000000  0.000000  0.000000
  0.047835  0.276726  0.013203  0.000000  1.421042  0.000000
  0.095670  0.278181  0.026475  0.000000  1.454236  0.000000
  0.143505  0.279639  0.039816  0.000000  1.487430  0.000000
  0.191341  0.281102  0.053228  0.000000  1.520624  0.000000
  0.239176  0.282568  0.066709  0.000000  1.553818  0.000000
  0.287011  0.284037  0.080261  0.000000  1.587012  0.000000
  0.334846  0.285511  0.093884  0.000000  1.620206  0.000000
  0.382681  0.286988  0.107576  0.000000  1.653400  0.000000
  0.430516  0.288469  0.121340  0.000000  1.686594  0.000000
  0.478352  0.289954  0.135174  0.000000  1.719788  0.000000
  0.526187  0.291443  0.149080  0.000000  1.752982  0.000000
  0.574022  0.292935  0.163057  0.000000  1.786176  0.000000
  0.621857  0.294432  0.177105  0.000000  1.819370  0.000000
  0.669692  0.295932  0.191225  0.000000  1.852564  0.000000
  0.717527  0.297435  0.205417  0.000000  1.885758  0.000000
  0.765363  0.298943  0.219681  0.000000  1.918952  0.000000
  0.813198  0.300454  0.234017  0.000000  1.952146  0.000000
  0.861033  0.301969  0.248426  0.232164  1.985340  0.000000
  0.908868  0.303488  0.262907  0.940069  2.018534  0.000000
  0.956703  0.305011  0.277461  1.913289  2.051728  0.000000
  1.000000  0.306393  0.290697  3.091898  2.081772  0.000000
  1.005000  0.306552  0.292229  4.443852  2.085242  0.000000
  END FTABLE  1
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    1              PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    1              IMPLND   1 999 EXTNL  PETINP
WDM     22 IRRG     ENGL    0.7       SAME PERLND  46     EXTNL  SURLI
WDM      2 PREC     ENGL    1              RCHRES   1     EXTNL  PREC
WDM      1 EVAP     ENGL    0.5            RCHRES   1     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.7            RCHRES   2     EXTNL  POTEV

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   2 HYDR   RO     1 1        1      WDM   1000 FLOW     ENGL      REPL
```

```
RCHRES   2 HYDR   O       1 1        1      WDM   1001 FLOW     ENGL      REPL
RCHRES   2 HYDR   O       2 1        1      WDM   1002 FLOW     ENGL      REPL
RCHRES   2 HYDR   STAGE   1 1        1      WDM   1003 STAG     ENGL      REPL
RCHRES   1 HYDR   STAGE   1 1        1      WDM   1004 STAG     ENGL      REPL
RCHRES   1 HYDR   O       1 1        1      WDM   1005 FLOW     ENGL      REPL
COPY     1 OUTPUT MEAN    1 1     12.1      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN    1 1     12.1      WDM    801 FLOW     ENGL      REPL
COPY   601 OUTPUT MEAN    1 1     12.1      WDM    901 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK        2
PERLND     PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    2

  MASS-LINK        3
PERLND     PWATER IFWO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    3

  MASS-LINK        5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    5

  MASS-LINK        8
RCHRES     OFLOW  OVOL   2                 RCHRES         INFLOW IVOL
  END MASS-LINK    8

  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15

  MASS-LINK       17
RCHRES     OFLOW  OVOL   1                 COPY           INPUT  MEAN
  END MASS-LINK   17


END MASS-LINK

END RUN
```

Predeveloped HSPF Message File

Mitigated HSPF Message File

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Attachment 3

Structural BMP Maintenance Information

Items included in this attachment:

Attachment Sequence	Contents	Checklist
Attachment 3a	Structural BMP maintenance thresholds and actions (Required)	☒ Included (See structural BMP maintenance information checklist.)
Attachment 3b	Maintenance agreement (Form DS-3247) (when applicable)	☐ Included ☒ Not Applicable

Preliminary Design/Planning/CEQA level submittal:

- **Attachment 3a must identify:**

☒ Typical maintenance indicators and actions for proposed structural BMP(s) based on Section 7.7 of the BMP Design Manual

- Attachment 3b is not required for preliminary design / planning / CEQA level submittal.

Final Design level submittal:

Attachment 3a must identify:

☐ Specific maintenance indicators and actions for proposed structural BMP(s). This shall be based on Section 7.7 of the BMP Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)
☐ How to access the structural BMP(s) to inspect and perform maintenance
☐ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
☐ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable.
☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
☐ Recommended equipment to perform maintenance
☐ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management

Attachment 3b: For private entity operation and maintenance, Attachment 3b must include a Storm Water Management and Discharge Control Maintenance Agreement (Form DS-3247). The following information must be included in the exhibits attached to the maintenance agreement:

☐ Vicinity map
☐ Site design BMPs for which DCV reduction is claimed for meeting the pollutant control obligations.
☐ BMP and HMP location and dimensions
☐ BMP and HMP specifications/cross section/model
☐ Maintenance recommendations and frequency
☐ LID features such as (permeable paver and LS location, dim, SF).

Table 7-2. Maintenance Indicators and Actions for Vegetated BMPs

Typical Maintenance Indicator(s) for Vegetated BMPs	Maintenance Actions
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials, without damage to the vegetation.
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans.
Overgrown vegetation	Mow or trim as appropriate, but not less than the design height of the vegetation per original plans when applicable (e.g. a vegetated swale may require a minimum vegetation height).
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system.
Erosion due to concentrated storm water runoff flow	Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the City Engineer shall be contacted prior to any additional repairs or reconstruction.
Standing water in vegetated swales	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, loosening or replacing top soil to allow for better infiltration, or minor re-grading for proper drainage. If the issue is not corrected by restoring the BMP to the original plan and grade, the City Engineer shall be contacted prior to any additional repairs or reconstruction.
Standing water in bioretention, biofiltration with partial retention, or biofiltration areas, or flow-through planter boxes for longer than 96 hours following a storm event*	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains (where applicable), or repairing/replacing clogged or compacted soils.
Obstructed inlet or outlet structure	Clear obstructions.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable.
*These BMPs typically include a surface ponding layer as part of their function which may take 96 hours to drain following a storm event.	

Attachment 4

Permanent Storm Water BMP Plan

The BMP plan must identify:

- ☐ Structural BMP(s) with ID numbers matching Form I-6 Summary of PDP Structural BMPs
- ☐ The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
- ☐ Details and specifications for construction of structural BMP(s)
- ☐ Signage indicating the location and boundary of structural BMP(s) as required by the City Engineer
- ☐ How to access the structural BMP(s) to inspect and perform maintenance
- ☐ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- ☐ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- ☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP) Recommended equipment to perform maintenance
- ☐ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
- ☐ Include landscaping plan sheets showing vegetation requirements for vegetated structural
- ☐ BMP(s) All BMPs must be fully dimensioned on the plans
- ☐ When proprietary BMPs are used, site specific cross section with outflow, inflow and model number shall be provided. Brochure photocopies are not allowed.

LEGEND

SUBDIVISION BOUNDARY	
PROPOSED STORM DRAIN	
EXISTING STORM DRAIN	
PRO. DMA LIMITS	
PERVIOUS (SD-4)	
PROPOSED HARDSCAPE IMPERV.	
PROPOSED BUILDING IMPERV.	
BIO-FILTRATION W/ PARTIAL RETENTION (PR-1)	

SOILS LEGEND

Mzu ........METAMORPHOSED AND UNMETAMORPHOSED VOLCANIC AND SEDIMENTARY ROCK, UNDIVIDED (HYDROLOGIC SOIL TYPE D)

IV. STANDARD/PRIORITY PERMANENT BEST MANAGEMENT PRACTICES (BMP'S)

LOW IMPACT DESIGN (LID) BMP'S:

1. MINIMIZE IMPERVIOUS FOOTPRINT THROUGH EFFICIENT DESIGN, INCORPORATING MULTI-LEVEL BUILDINGS, SHARED DRIVEWAYS AND MINIMUM WIDTHS ON IMPERVIOUS SURFACES (SD-3)
2. LANDSCAPE AREAS TO BE MULCHED (SD-4)
3. DRAIN SIDEWALKS TO ADJACENT LANDSCAPING (SD-5)
4. USE OF PEST RESISTANT AND DROUGHT TOLERANT LANDSCAPING (SD-7)

SOURCE CONTROL BMP'S:

5. DRAIN A/C CONDENSATE TO LANDSCAPE AREAS (SC-1)
6. STENCIL OR STAMP ALL STORM DRAIN INLETS WITH WARNINGS TO DISCOURAGE "ILLEGAL" DUMPING OR DISCHARGE INTO THE STORM DRAIN SYSTEM (SC-2)
7. DESIGN TRASH STORAGE AREAS TO REDUCE POLLUTION CONTRIBUTION (SC-5)

TREATMENT CONTROL BMP'S:

8. USE OF BIOFILTRATION WITH PARTIAL RETENTION TO FILTER RUNOFF (PR-1)

V. CONSTRUCTION STORM WATER BMP PERFORMANCE STANDARDS

A) A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WILL BE REQUIRED PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMITS FOR THE PROJECT.

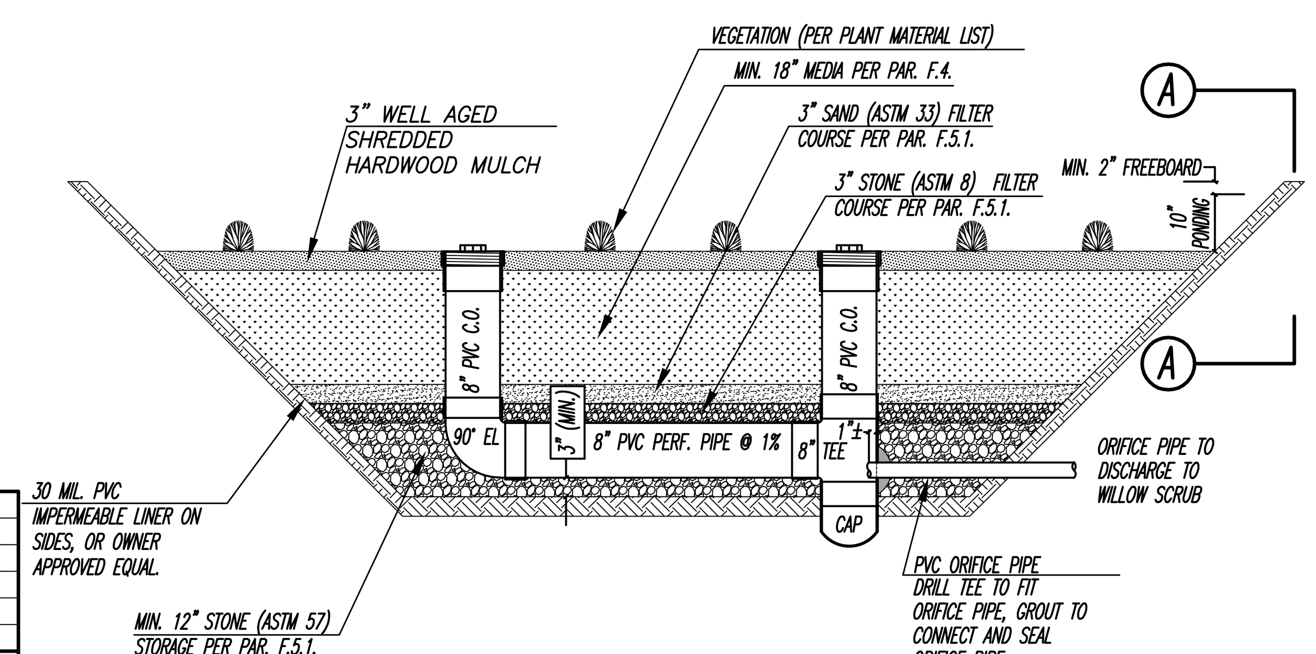
B) THE PERMITEE OR DESIGNEE SHALL INCORPORATE ANY CONSTRUCTION BEST MANAGEMENT PRACTICES (BMP'S) NECESSARY TO COMPLY WITH CHAPTER 14, ARTICLE 2, DIVISION 1 (GRADING REGULATIONS) OF THE LAND DEVELOPMENT CODE, INTO THE CONSTRUCTION PLANS AND/OR SPECIFICATIONS, SATISFACTORY TO THE CITY ENGINEER, PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMITS.

VI. IMPLEMENTATION AND MAINTENANCE REQUIREMENTS

A) THE PERMITEE OR DESIGNEE SHALL EXECUTE A MAINTENANCE AGREEMENT FOR ONGOING PERMANENT BMP MAINTENANCE, SATISFACTORY TO THE CITY ENGINEER, PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMITS FOR THE PROJECT.

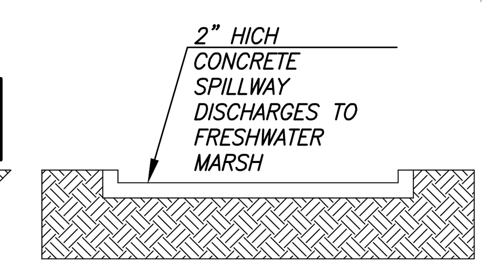
DETAILED CONNECTION AND DISCHARGE POINTS FOR ALL DMAs AND BMPs SHOWN ON ARCHITECTURAL AND PLUMBING PLANS AS APPROPRIATE.

APPROXIMATE DEPTH TO GROUNDWATER IS ASSUMED TO BE GREATER THAN 10' DUE TO SURROUNDING TOPOGRAPHY AND NRCS SOIL INFORMATION.



PRIVATE BIO-FILTER PLANTER DETAIL

(NTS)



SECTION A-A

(NTS)

SCALE: 1" = 50'

NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION
6				12			
5				11			
4				10			
3				9			
2	01/22/2019	MFD	REVISED SITEPLAN	8			
1	12/05/2017	MFD	ORIGINAL	7			

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APPROVED BY ENGINEER OF WORK — REGISTRATION R.C.E. 26283

FILE CODE PN 16.01-11.91 — DATE

PREPARATION AND REVISION LOG

PENASQUITOS RV AND MINI STORAGE

ATTACHMENT 4

Attachment 5

Drainage Study

DRAINAGE STUDY
FOR
Penasquitos RV & Mini Storage

PTS No. 534380, PDP 21 80790
August 2018

Prepared By:
LEPPERT ENGINEERING CORPORATION
5190 GOVERNOR DRIVE, SUITE 205
SAN DIEGO, CA 92122
Job No. PN 06.03-11.91

Prepared For:
Pardee Homes
C/O Allen Kashani
13400 Sabre Springs Parkway, Suite 200
SAN DIEGO, CA 92128
858-794-2571, Allen.Kashani@Pardeehomes.com

REGISTERED PROFESSIONAL ENGINEER
JOHN D. LEPPERT
C 26283
CIVIL
STATE OF CALIFORNIA

____
By: John D. Leppert, RCE 26283
Exp. 3/31/20

____
Date

Table of Contents

Exhibits

Appendices

Drainage Study
Penasquitos RV & Mini Storage
August 2018

Purpose

The purpose of this drainage study is to estimate the quantity of storm water runoff from the proposed development of the Penasquitos RV & Mini Storage site. All water quality analysis will be accomplished in the SWQMP for this proposed development. The proposed stormdrain capacity will be analyzed as a part of the final engineering on the project.

Project Location

The proposed project is located at the south west corner of SR 56 and Interstate 15 within the Poway Hydrologic Area (Hydrologic Sub-area 906.20) of the Peñasquitos Hydrologic unit. (see Exhibit A).

Project Description

The project proposes multiple buildings to provide self storage units, and additional onsite surface parking for vehicle and RV storage. Additional support infrastructure including stormwater treatment facilities, drainage pipes and channels and re-routing of existing utilities are also included in the proposed project.

Method of Calculation

This study calculates the total runoff from the site using the guidelines set forth in the City of San Diego's Drainage Design Manual, dated April 2017 (see Appendix II – Design Runoff: City of San Diego Drainage Design Manual). The specific method used is the Rational Formula for watersheds under 0.5 square miles(see Appendix I – Rational Method: City of San Diego Drainage Design Manual). A 100 year storm event was used for the analysis. Per the City of San Diego Drainage Design Manual, for tributary areas less than one square mile the storm drain system shall be designed so that the combination of storm drain system capacity and overflow will be able to carry the 100-year frequency storm without damage to or flooding of adjacent existing buildings or potential building sites, and Type D soil shall be used for all areas (see Appendix III– Runoff Coefficients: City of San Diego Drainage Design Manual).

Autodesk Storm and Sanitary Analysis was used for the storm analysis. Autodesk Storm and Sanitary Analysis is a link-node based model that performs hydrology, hydraulic, and water quality analysis of storm water and wastewater drainage systems, including sewage treatment plants and water quality control devices. A link represents a hydraulic element (i.e., a pipe, channel, pump, standpipe, culvert, or weir) that transports flow and constituents. A node can represent the junction of two or more links, a storm drain catch basin inlet, the location of a flow or pollutant input into the system, or a storage element (such as a detention pond, retention pond, settling pond, or lake).

Drainage basin boundaries, flow patterns, and topographic elevations are shown on the drainage basin maps located in the map pockets (see Exhibit B – Existing Condition Drainage Basin Map & Exhibit D – Proposed Condition Basin Map).

Existing Condition

The existing condition analyses a total of three basins as shown on Exhibit B, representing the site area and one adjacent site contributing run-on to the project site. There is also an additional existing offsite flow from SR-56 to the north of the project site that discharges onsite via a storm drain pipe to a concrete drainage channel. This flow is quantified on 23448-22-D and input in the analysis at Jun-01 as shown thereon. See Appendix – V for a copy of the referenced plan sheet. .

Sub-basin A:
The adjacent Multi-family development to the west drains a portion of the parking lot onto the project site, where it joins the offsite runon from SR 56. These flows continue across the property in a southeasterly direction within a PCC lined channel (channel is shown as vegetated on 23448-D however actual condition of the channel is that it is lined). A site runoff coefficient of 0.70 was chosen corresponding to a "multi-unit" land use. (see Appendix III)

Sub-basin B:
The portion of the site west of the channel is a previously graded area with vegetated cover that drains to the PCC channel crossing the site. A site runoff coefficient of 0.45 for an undeveloped or rural land use was used for this basin.

Sub-basin C:
The portion of the site east of the channel is a previously graded area with vegetated cover that drains to the PCC channel crossing the site. A site runoff coefficient of 0.45 for an undeveloped or rural land use was used for this basin.

Time of Concentration and runoff calculations for each subbasin are tabulated below:

Basin	**Acres**	**C**	**Length (ft)**	**Upper Elev. (ft)**	**Lower Elev. (ft)**	**Slope (%)**	**Tc (min)**	**Intensity (in/hr)**	**Q_{100} (cfs)**
A	2.0	0.70	1023	615	545	6.8%	12.1	2.90	4.34
B	3.5	0.45	525	575	523	9.9%	12.5	2.86	4.82
C	3.9	0.45	675	550	523	4.0%	19.2	2.31	4.41

*Offsite flow of 28.9 CFS input as a baseline flow for the conveyance system

Intensity values were determined using the City of San Diego Drainage Design Manual Rainfall Intensity Duration Frequency Curves (see Appendix IV). The values represented on the curves is input into Autodesk SSA and the appropriate intensity is interpolated as necessary by the program.

The results of the analysis are included as Exhibit C. The peak runoff at Out-01 is 40.30 CFS based on the existing land uses and site conditions.

<u>Proposed Condition</u>

The proposed condition analysis analyzes three basins as shown on Exhibit D, representing the same areas as in the existing condition.

The PCC channel will be removed and the storm drain pipe will be extended to the southerly property line where it will discharge via an energy dissipater to the remaining section of the existing concrete drainage channel, which discharges to the existing wetland. The proposed on-site drainage system will maintain the existing drainage patterns.

Sub-basin A:
The total area representing this basin is reduced slightly due to installing a trench drain to re-direct this run-on into the proposed piped drainage system. A site runoff coefficient of 0.70 was chosen corresponding to a "multi-unit" land use. (see Appendix III)

Sub-basin B:
The portion of the site west of the developed area will be regraded and routed in a brow ditch around the development. This area will be preserved as open space, covenant of easement and for permanent stormwater treatment BMPs so a site runoff coefficient of 0.45 for an undeveloped land use, was chosen. Since this area has a reasonable expectation of never being developed this coefficient is appropriate.

Sub-basin C:
The developed portion of the site will flow in a private on-site system, approximately as shown. A site runoff coefficient of 0.85 for a commercial land use, was chosen, which represents a site imperviousness of 80%. The actual site imperviousness for the developed area is ~73% so this coefficient is appropriate.

Time of Concentration and runoff calculations for each subbasin are tabulated below:

Basin	Acres	C	Length (ft)	Upper Elev. (ft)	Lower Elev. (ft)	Slope (%)	Tc (min)	Intensity (in/hr)	Q_{100} (cfs)
A	1.8	0.70	820	615	565	6.1%	11.3	2.98	4.02
B	3.1	0.45	570	565	523	7.4%	14.4	2.90	4.04
C	4.6	0.85	825	545	523	2.7%	9.3	3.24	13.46

*Offsite flow of 28.9 CFS input as a baseline flow for the conveyance system

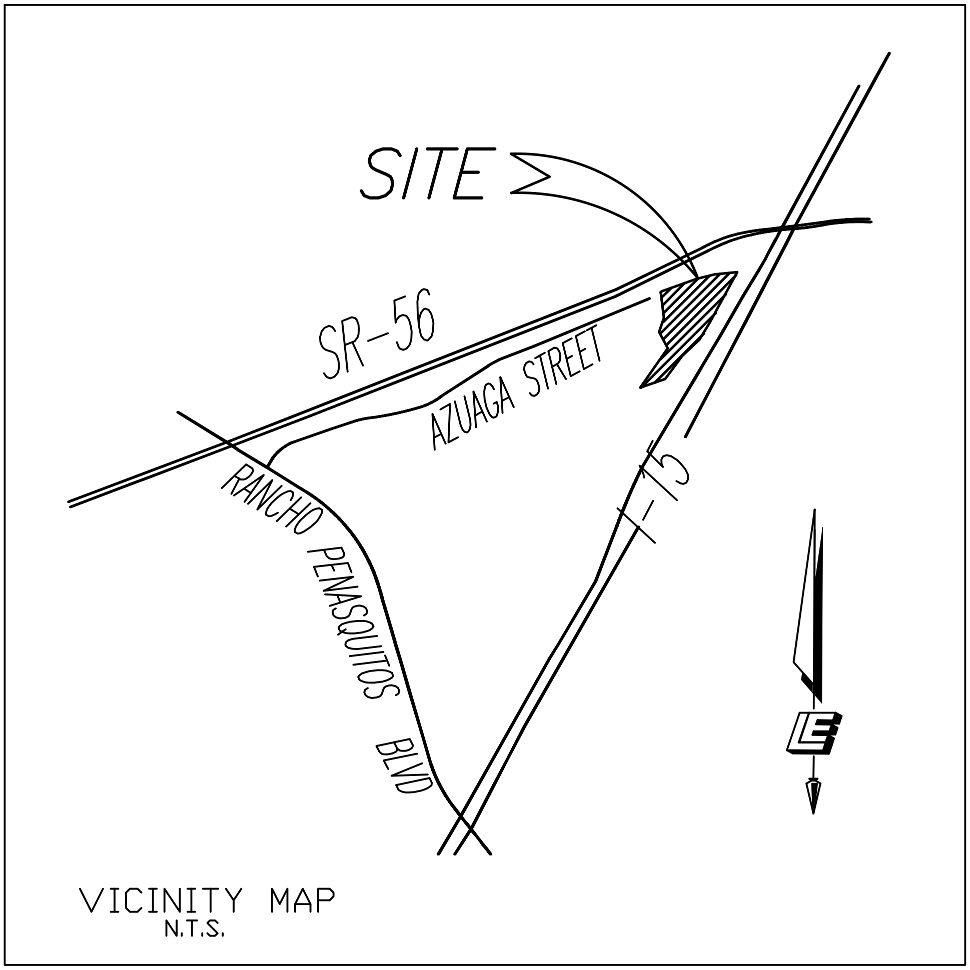
The results of the analysis are included as Exhibit E. The peak runoff at Out-01 is 34.62 CFS based on the existing land uses and site conditions.

<u>Conclusions</u>
As compared to the existing condition, the proposed project decreases the peak runoff from the site. This is due to increased travel time for the runoff as it enters the provided bio-filtration ponding. The peak flow of 40.30 CFS existing decreases to 34.62 CFS proposed; a decrease of 5.68 CFS.

There is no anticipated negative impact to adjacent properties as a result of this project since the runoff total has been decreased. The project does propose impacts to the onsite PCC channel that will require mitigation the requires a 401/404 permit.

EXHIBIT “A” – Location Map

EXHIBIT 'A'



ASSESSOR'S PARCEL NUMBER:

315-570-07-00

LEGAL DESCRIPTION:

LOT 12 OF SUN RIDGE VISTA UNIT NO. 1, IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 11924, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, OCTOBER 22, 1987.

SITE ADDRESS:

SOUTHWEST CORNER OF SR-56 AND I-15
SAN DIEGO, CALIFORNIA 92129

EXHIBIT “B” – Existing Condition Drainage Basin Map

LEGEND

PROPERTY BOUNDARY

STORM DRAIN

BASIN / AREA — ZZ 0.00 AC.

NODE NO. — #

BASIN LIMITS

CURB INLET

CLEANOUT

GRATE INLET

OVERLAND FLOW — 1%

NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION
6				12			
5				11			
4				10			
3				9			
2				8			
1	03/08/2018	MFD	ORIGINAL	7			

Leppert Engineering
CORPORATION
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APPROVED BY ENGINEER OF WORK

REGISTRATION R C E 26283

FILE CODE PN 06.03-11.91

DATE

PREPARATION AND REVISION LOG

PENASQUITOS RV AND MINI STORAGE

EXISTING DRAINAGE MAP

EXHIBIT "C" – Existing Condition SSA Analysis Results

Project Description

File Name .... SSA Analysis - Existing.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	User-Defined
Link Routing Method	Kinematic Wave
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	Sep 04, 2015	00:00:00
End Analysis On	Sep 05, 2015	00:00:00
Start Reporting On	Sep 04, 2015	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins..	3
Nodes..	3
Junctions	2
Outfalls	1
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links..	2
Channels	2
Pipes	0
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period.. 100 year(s)

Subbasin Summary

Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
A	2.00	0.7000	0.63	0.44	0.88	4.34	0 00:12:06
B	3.50	0.4500	0.64	0.29	1.00	4.82	0 00:12:30
C	3.90	0.4500	0.80	0.36	1.41	4.41	0 00:19:12

Node Summary

Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
Jun-01	Junction	550.82	552.32	0.00	0.00	33.24	551.11	0.00	1.21	0 00:00	0.00	0.00
Jun-02	Junction	527.45	528.95	0.00	0.00	40.88	527.93	0.00	1.02	0 00:00	0.00	0.00
Out-01	Outfall	523.00				40.30	523.47					

Link Summary

Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Diameter or Height (in)	Manning's Roughness	Peak Flow (cfs)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Reported Condition
Link-01	Channel	Jun-01	Jun-02	200.00	550.82	527.45	11.6900	18.000	0.0300	33.18	2704.87	0.01	4.65	0.29	0.19	0.00	
Link-02	Channel	Jun-02	Out-01	372.00	527.45	523.00	1.2000	18.000	0.0300	40.30	865.45	0.05	2.09	0.47	0.32	0.00	

Junction Input

Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)
Jun-01	550.82	552.32	1.50	0.00	-552.32	0.00
Jun-02	527.45	528.95	1.50	0.00	-528.95	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	Jun-01	33.24	33.24	551.11	0.29	0.00	1.21	551.09	0.27	0 00:12	0 00:00	0.00	0.00
2	Jun-02	40.88	7.70	527.93	0.48	0.00	1.02	527.87	0.42	0 00:12	0 00:00	0.00	0.00

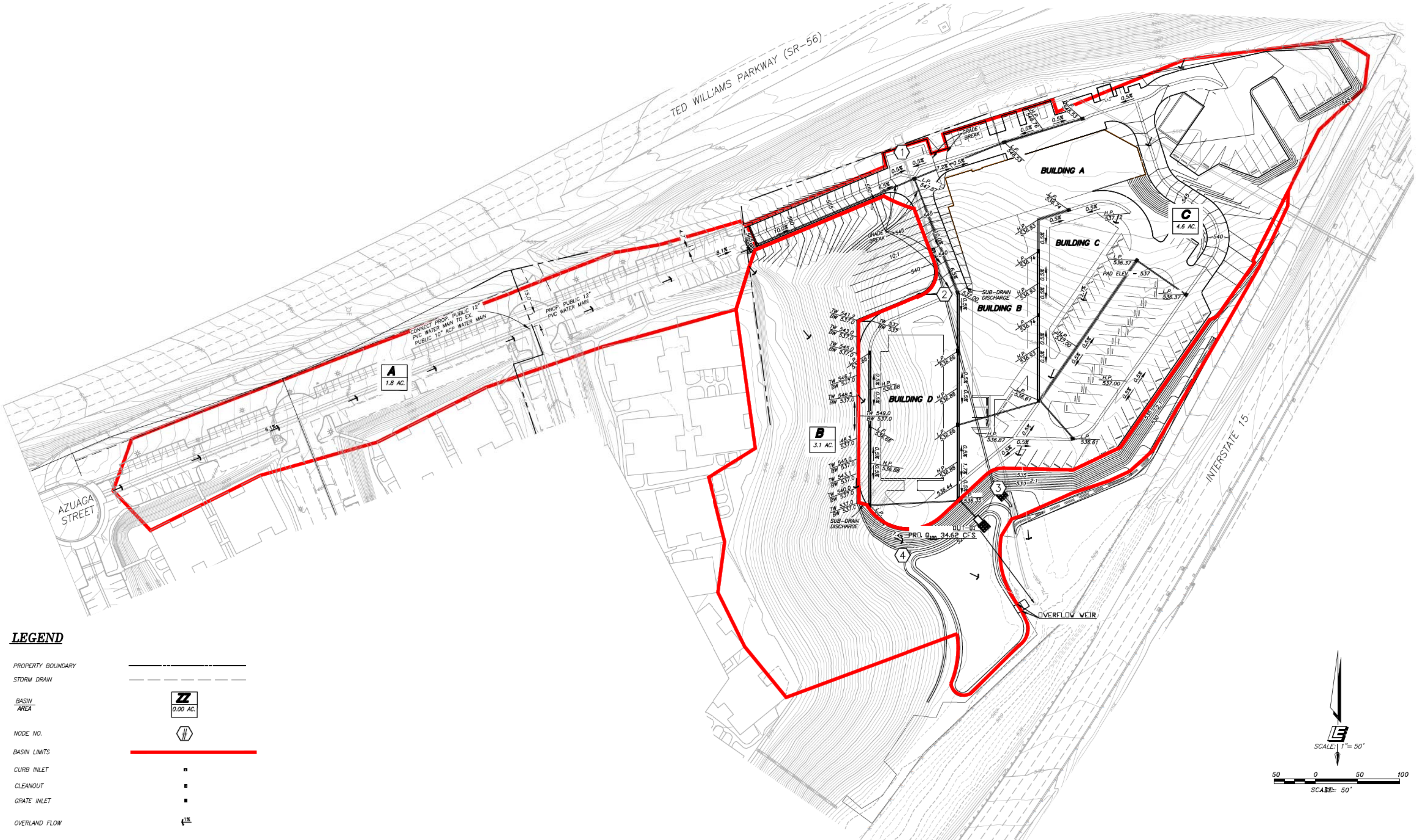
Channel Input

Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate
Link-01	200.00	550.82	0.00	527.45	0.00	23.37	11.6900	Trapezoidal	1.5	258.1	0.0300	0.2000	0.6000	0.0000	0.00	No
Link-02	372.00	527.45	0.00	523.00	0.00	4.45	1.2000	Trapezoidal	1.5	258.1	0.0300	0.2000	0.6000	0.0000	0.00	No

Channel Results

Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
Link-01	33.18	0 00:12	2704.87	0.01	4.65	0.72	0.29	0.19	0.00		
Link-02	40.30	0 00:15	865.45	0.05	2.09	2.97	0.47	0.32	0.00		

EXHIBIT “D” – Proposed Condition Drainage Basin Map



NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION
6				12			
5				11			
4				10			
3				9			
2	01/22/2019	MFD	REVISED SITE PLAN	8			
1	03/08/2018	MFD	ORIGINAL	7			

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APPROVED BY ENGINEER OF WORK	REGISTRATION R C E 26283
FILE CODE PN 06.03-11.91	DATE

PREPARATION AND REVISION LOG

PENASQUITOS RV AND MINI STORAGE
PROPOSED DRAINAGE MAP

EXHIBIT “E” – Proposed Condition SSA Analysis

Project Description

File Name	SSA Analysis - Proposed.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	User-Defined
Link Routing Method	Kinematic Wave
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	Sep 04, 2015	00:00:00
End Analysis On	Sep 05, 2015	00:00:00
Start Reporting On	Sep 04, 2015	00:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins	3
Nodes	6
Junctions	4
Outfalls	1
Flow Diversions	0
Inlets	0
Storage Nodes	1
Links	6
Channels	2
Pipes	2
Pumps	0
Orifices	1
Weirs	1
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	100 year(s)

Subbasin Summary

Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
A	1.80	0.7000	0.60	0.42	0.76	4.02	0 00:11:18
B	3.10	0.4500	0.69	0.31	0.96	4.04	0 00:14:24
C	4.60	0.8500	0.54	0.46	2.09	13.46	0 00:09:18

Node Summary

Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
Jun-01	Junction	550.82	552.32	0.00	0.00	32.92	551.79	0.00	1.03	0 00:00	0.00	0.00
Jun-02	Junction	532.00	537.00	0.00	0.00	32.90	537.00	0.00	0.00	0 00:11	4.79	1440.00
Jun-03	Junction	526.00	530.00	0.00	0.00	34.56	527.86	0.00	2.14	0 00:00	0.00	0.00
Jun-04	Junction	530.00	532.00	0.00	0.00	4.04	530.41	0.00	1.59	0 00:00	0.00	0.00
Out-01	Outfall	523.00				34.62	523.65					
Stor-01	Storage Node	525.00	526.00		12042.00	13.46	525.62				0.00	0.00

Link Summary

Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Diameter or Height (in)	Manning's Roughness	Peak Flow (cfs)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Reported Condition
Link-01	Pipe	Jun-01	Jun-02	200.00	550.82	532.00	9.4100	24.000	0.0130	32.90	69.40	0.47	21.80	0.97	0.48	0.00	Calculated
Link-02	Pipe	Jun-02	Jun-03	372.00	532.00	525.00	1.8800	24.000	0.0130	31.09	28.73	1.08	10.04	1.93	0.96	0.00	> CAPACITY
Link-03	Channel	Jun-03	Out-01	160.00	525.00	523.00	1.2500	12.000	0.0300	34.55	71.84	0.48	4.68	0.65	0.65	0.00	
Link-04	Channel	Jun-04	Jun-03	200.00	530.00	526.00	2.0000	12.000	0.0300	3.96	24.93	0.16	3.49	0.40	0.40	0.00	
Orifice-01	Orifice	Stor-01	Out-01		525.00	523.00		2.000		0.08							
Weir-02	Weir	Stor-01	Out-01		525.00	523.00				0.00							

Junction Input

Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)
Jun-01	550.82	552.32	1.50	0.00	-552.32	0.00
Jun-02	532.00	537.00	5.00	0.00	-537.00	0.00
Jun-03	526.00	530.00	4.00	0.00	-530.00	0.00
Jun-04	530.00	532.00	2.00	0.00	-532.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Time of Peak Flooding Occurrence (days hh:mm)	Total Flooded Volume (ac-in)	Total Time Flooded (min)
1	Jun-01	32.92	32.92	551.79	0.97	0.00	1.03	551.72	0.90	0 00:11	0 00:00	0.00	0.00
2	Jun-02	32.90	0.00	537.00	5.00	0.00	0.00	537.00	5.00	0 00:00	0 00:11	4.79	1440.00
3	Jun-03	34.56	0.00	527.86	1.86	0.00	2.14	527.65	1.65	0 00:12	0 00:00	0.00	0.00
4	Jun-04	4.04	4.04	530.41	0.41	0.00	1.59	530.01	0.01	0 00:14	0 00:00	0.00	0.00

Channel Input

Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate
Link-03	160.00	525.00	-1.00	523.00	0.00	2.00	1.2500	Trapezoidal	1.0	14.0	0.0300	0.5000	0.5000	0.0000	0.00	No
Link-04	200.00	530.00	0.00	526.00	0.00	4.00	2.0000	Trapezoidal	1.0	8.0	0.0300	0.5000	0.5000	0.0000	0.00	No

Channel Results

Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
Link-03	34.55	0 00:15	71.84	0.48	4.68	0.57	0.65	0.65	0.00		
Link-04	3.96	0 00:15	24.93	0.16	3.49	0.96	0.40	0.40	0.00		

Pipe Input

Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Additional Losses	Initial Flow (cfs)	Flap Gate	No. of Barrels
Link-01	200.00	550.82	0.00	532.00	0.00	18.82	9.4100	CIRCULAR	24	0.0130	0.2000	0.6000	0.0000	0.00	No	1
Link-02	372.00	532.00	0.00	525.00	-1.00	7.00	1.8800	CIRCULAR	24	0.0130	0.2000	0.6000	0.0000	0.00	No	1

Pipe Results

Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froude Number	Reported Condition
Link-01	32.90	0 00:11	69.40	0.47	21.80	0.15	0.97	0.48	0.00		Calculated
Link-02	31.09	0 00:11	28.73	1.08	10.04	0.62	1.93	0.96	0.00		> CAPACITY

APPENDIX I – Rational Method: City of San Diego Drainage Design Manual

Appendix

A

Rational Method and Modified Rational Method

A.1. Rational Method (RM)

The Rational Method (RM) is a mathematical formula used to determine the maximum runoff rate from a given rainfall. It has particular application in urban storm drainage where it is used to estimate peak runoff rates from small urban and rural watersheds for the design of storm drains and drainage structures. The RM is recommended for analyzing the runoff response from drainage areas for watersheds less than 0.5 square miles. It should not be used in instances where there is a junction of independent drainage systems or for drainage areas greater than approximately 0.5 square mile in size. In these instances, the Modified Rational Method (MRM) should be used for junctions of independent drainage systems in watersheds up to approximately 1 square mile in size (see Section A.2); or the NRCS Hydrologic Method should be used for watersheds greater than approximately 1 square mile in size (see Appendix B).

A.1.1. Rational Method Formula

The RM formula estimates the peak rate of runoff at any location in a watershed as a function of the drainage area (A), runoff coefficient (C), and rainfall intensity (I) for a duration equal to the time of concentration (T_c), which is the time required for water to flow from the most remote point of the basin to the location being analyzed. The RM formula is expressed in Equation A-1.

Equation A-1. RM Formula Expression

$$Q = C\ I\ A$$

where:

Q	=	peak discharge, in cubic feet per second (cfs)
C	=	runoff coefficient expressed as that percentage of rainfall which becomes surface runoff (no units); Refer to Appendix A.1.2
I	=	average rainfall intensity for a storm duration equal to the time of concetrnatation (T_c) of the contributing draiange area, in inches per hour; Refer to Appendix A.1.3 and Appendix A.1.4
A	=	drainage area contributing to the design location, in acres

APPENDIX II – Design Runoff: City of San Diego Drainage Design Manual

2. For all drainage channels and storm water conveyance systems, which will convey drainage from a tributary area equal to or greater than one (1) square mile, the runoff criteria, shall be based upon a 100-year frequency storm.
3. For tributary areas under one (1) square mile:
    a. The storm water conveyance system shall be designed so that the combination of storm drain system capacity and overflow (streets and gutter) will be able to carry the 100-year frequency storm without damage to or flooding of adjacent existing buildings or potential building sites.
    b. The runoff criteria for the underground storm drain system shall be based upon a 50-year frequency storm.

2.3. Soil Type

For storm drain, culverts, channels, and all associated structures, Type D soil shall be used for all areas.

2.4. Other Requirements

1. Design runoff for drainage and flood control facilities within the City shall be based upon full development of the watershed area in accordance with the land uses shown on the City of San Diego, Progress Guide and General Plan.
2. When determining criteria for floodplain management and flood proofing, design runoff within the City shall be based upon existing conditions in accordance with the City Floodplain Management Requirements and FEMA Regulations.
3. Under City requirements, the minimum elevation of the finished, first floor elevation of any building is 2 feet above the 100-year frequency flood elevation.

2.5. Water Quality Considerations

Requirements for hydrologic studies specific to the design of pollution prevention controls and hydromodification management controls are detailed in the Storm Water Standards. Where the Storm Water Standards specify modifications to the guidelines stated herein on discharge flow methods, design storm frequency, or soil type, the modifications shall supersede these but only for the purposes stated in the Storm Water Standards. Where the Storm Water Standards does not specify a modification, the guidance found here in Chapter 2 shall apply.

APPENDIX III – Runoff Coefficients: City of San Diego Drainage Design Manual

Table A-1. Runoff Coefficients for Rational Method

Land Use	Runoff Coefficient (C) Soil Type (1)
Residential:	
Single Family	0.55
Multi-Units	0.70
Mobile Homes	0.65
Rural (lots greater than ½ acre)	0.45
Commercial (2)	
80% Impervious	0.85
Industrial (2)	
90% Impervious	0.95

Note:
(1) Type D soil to be used for all areas.
(2) Where actual conditions deviate significantly from the tabulated imperviousness values of 80% or 90%, the values given for coefficient C, may be revised by multiplying 80% or 90% by the ratio of actual imperviousness to the tabulated imperviousness. However, in case shall the final coefficient be less than 0.50. For example: Consider commercial property on D soil.

Actual imperviousness = 50%
Tabulated imperviousness = 80%
Revised C = (50/80) x 0.85 = 0.53

The values in Table A–1 are typical for urban areas. However, if the basin contains rural or agricultural land use, parks, golf courses, or other types of nonurban land use that are expected to be permanent, the appropriate value should be selected based upon the soil and cover and approved by the City.

A.1.3. Rainfall Intensity

The rainfall intensity (I) is the rainfall in inches per hour (in/hr.) for a duration equal to the T_C for a selected storm frequency. Once a particular storm frequency has been selected for design and a T_C calculated for the drainage area, the rainfall intensity can be determined from the Intensity-Duration-Frequency Design Chart (Figure A-1).

APPENDIX IV – Rainfall Intensity-Duration-Frequency Curves: City of San Diego Drainage Design Manual

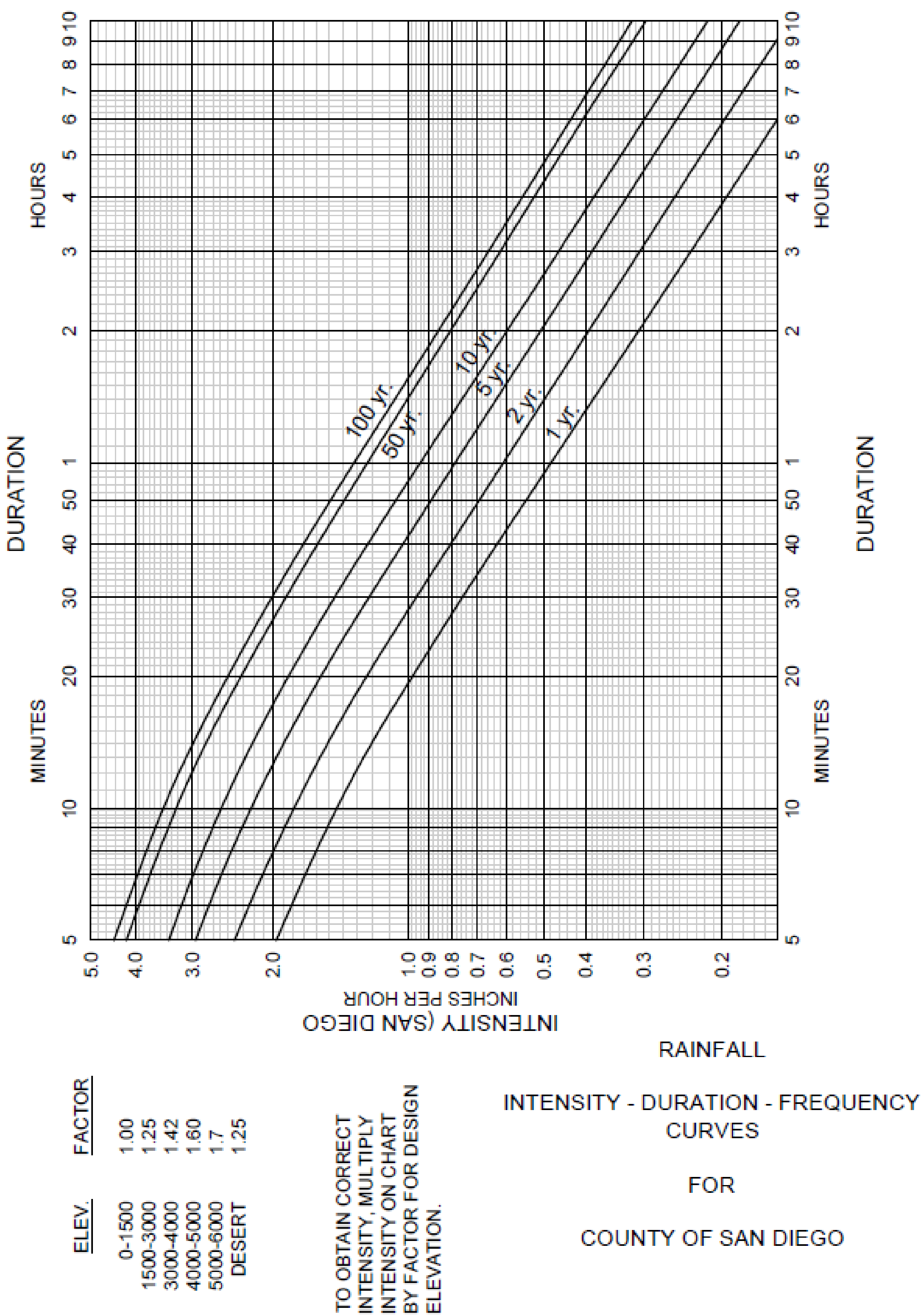
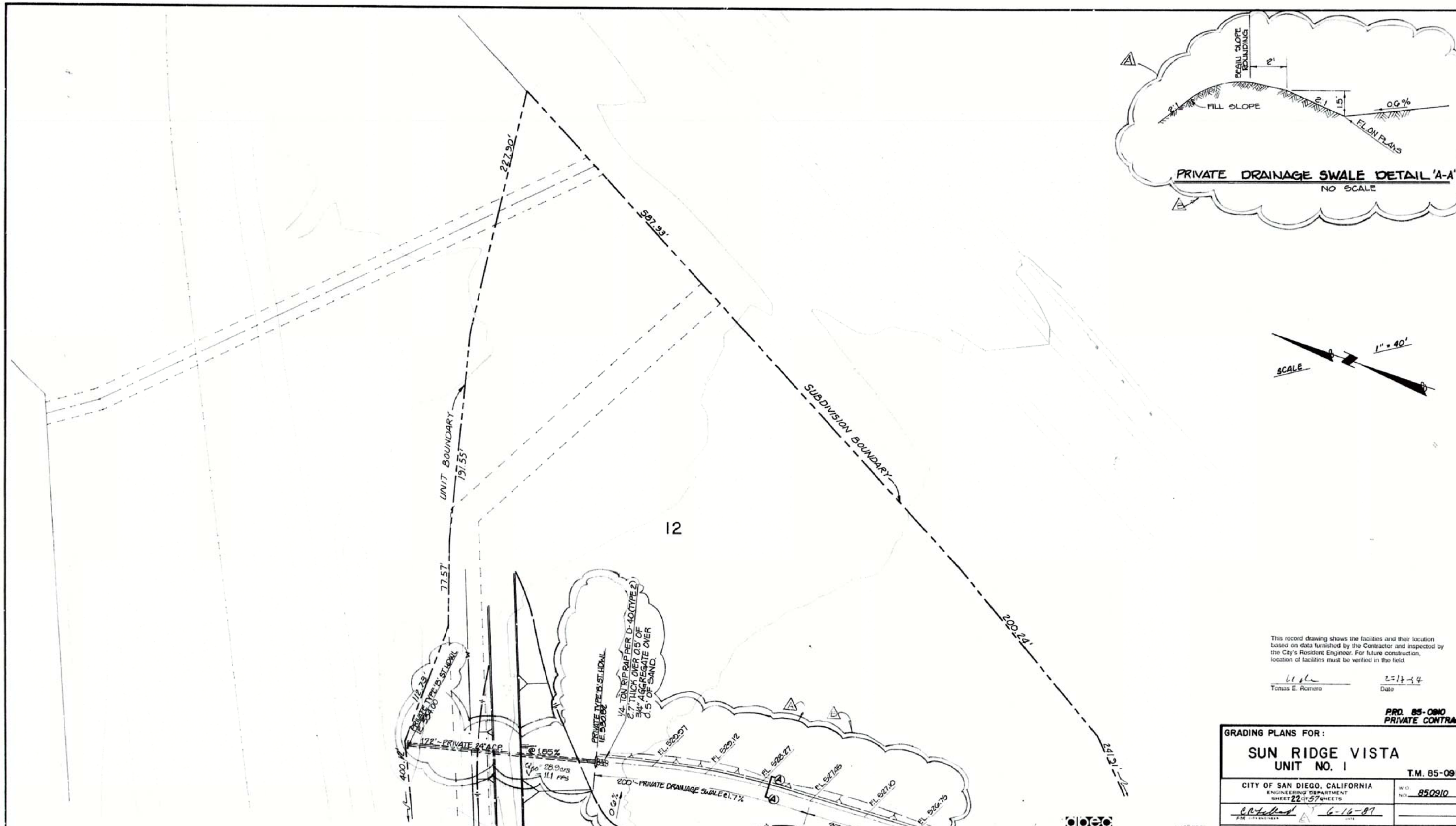


Figure A-1. Intensity-Duration-Frequency Design Chart

APPENDIX V – Existing Improvement Plan



UNAUTHORIZED CHANGES & USES

CAUTION: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

California Council of Civil Engineers & Land Surveyors

Construction contractor agrees that in accordance with generally accepted construction practices, construction contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property; that this requirement shall be made to apply continuously and not be limited to normal working hours, and construction contractor further agrees to defend, indemnify and hold design professional harmless from any and all liability, real or alleged, in connection with the performance of work on this project, excepting liability arising from the sole negligence of design professional.

California Council of Civil Engineers & Land Surveyors

BENCH MARK:
CITY OF SAN DIEGO BENCH
NBP INTERSECTION RANCHO PENASQUITOS BLVD. AND AZUAGA STREET
ELEV.: 556.124 MSL

apec

TOM T. PANTICH R.C.E. 25900 DATE
Associated Professional Engineering Corporation
(619) 239-7501

This record drawing shows the facilities and their location based on data furnished by the Contractor and inspected by the City's Resident Engineer. For future construction, location of facilities must be verified in the field.

Tomas E. Romero — Date 2-17-94

PRD. 85-0910
PRIVATE CONTRACT

GRADING PLANS FOR:

SUN RIDGE VISTA
UNIT NO. 1

T.M. 85-0910

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING DEPARTMENT
SHEET 22 OF 57 SHEETS

W.O. NO. 850910

FOR CITY ENGINEER — 6-16-87

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL				
A CHANGE	APEC		7-20-?	
B CHANGE	APEC			
AS-BUILT C	APEC		3-16-94	

CONTRACTOR: PARDEE — DATE STARTED: 10-27-87
INSPECTOR: R.D. ARGENTO, M. GRAHAM — DATE COMPLETED: 12-3-93

CONTROL CERTIFICATION

288-1737
LAMBERT COORDINATES

23448-22-D

A CHANGE - CHANGED DRAINAGE TO A PRIVATE DRAINAGE SWALE, DELETED EASEMENT, REVISED SWALE DETAIL.

B CHANGE - ADDED 24" STORM DRAIN, DRAINAGE DITCH & DRAINAGE EASEMENT

2314

"AS-BUILT"

Photogrammetry by PHOTO GEODETIC CORPORATION
Consulting Photogrammetric Engineers
San Diego, California

ATTACHMENT 6

GEOTECHNICAL AND GROUNDWATER INVESTIGATION REPORT

GEOCON
INCORPORATED

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

SOIL AND GEOLOGIC RECONNAISSANCE

RV/MINI-STORAGE FACILITY
PEN 173
SAN DIEGO, CALIFORNIA

PREPARED FOR

PARDEE HOMES
SAN DIEGO, CALIFORNIA

MARCH 7, 2018
PROJECT NO. G2250-42-01

GEOCON
INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. G2250-42-01
March 7, 2018

Pardee Homes
13400 Sabre Springs Parkway, Suite 200
San Diego, California 92128

Attention: Ms. April Tornillo

Subject: SOIL AND GEOLOGICAL RECONNAISSANCE
RV/MINI-STORAGE FACILITY
PEN 173
SAN DIEGO, CALIFORNIA

Dear Ms. Tornillo:

In accordance with your authorization, we have prepared this due diligence soil and geologic reconnaissance for the subject site located in San Diego, California. The accompanying report describes the site soil and geologic conditions, discusses potential geotechnical constraints and geologic hazards, and provides preliminary recommendations for site development.

Should you have questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

Rupert S. Adams
CEG 2561

Rodney C. Mikesell
GE 2533

RSA:RCM:dmc

(e-mail) Addressee
(2/del) Leppert Engineering Corporation
Attention: Mr. Rory Linehan

TABLE OF CONTENTS

SOIL AND GEOLOGIC RECONNAISSANCE

1. PURPOSE AND SCOPE

This report presents the results of a soil and geological reconnaissance for a proposed RV and mini-self storage facility located southwest of the intersection Interstate Highway 15 and State Route 56 (Ted Williams Parkway) in San Diego, California (see Vicinity Map, Figure 1). The purpose of this study is to provide preliminary soil and geologic information for the property, identify known geologic hazards that may adversely impact the proposed development, and assist in planning and development studies.

The scope of our study included performing a site reconnaissance and preliminary geologic mapping, a review of available published geologic literature pertinent to the property, and a review of available geotechnical reports near the project site.

2. SITE AND PROJECT DESCRIPTION

The site for the proposed development is a 9.98 acre, triangular-shaped lot located southwest of the intersection Interstate Highway 15 (I-15) and State Route 56 (Ted Williams Parkway; SR-56) in San Diego, California (see Vicinity Map, Figure 1). The site is bounded on the north by SR-56, on the east and south by I-15, and on the west by the Terra Vista apartment complex. Surface grades range from approximately 525 feet to 570 feet mean sea level. Site surface drainage is to the south, draining into a southwest oriented channel, paralleling the southbound lanes of I-15. East- and south-facing fill slopes are present at the west edge of the site, supporting the Terra Vista apartment complex, constructed circa 1989. Based on a review of historical aerial photographs, the site has never been developed. However, minor site grading including drainage-course modification, construction of the Terra Vista apartment complex, construction of SR-56, modifications to the southbound lanes of I-15, and construction of local sewer and water mains, has resulted in minor cuts and undocumented fills. Portions of the site were used for trailer/equipment storage circa 1980 to 1985, prior to completion of the east end of SR-56 circa 1993.

We understand the property will be developed into a mini storage and RV parking facility. Plans show four new buildings will be constructed with at-grade parking, retaining walls, cut- and fill-slopes and surface-drainage improvements. The buddings will be 2- and 3-story structures. A storm water BMP basin is planned at the south end of the site. Cuts and fills up to 15 feet are anticipated. The locations and descriptions herein are based on available plans and our site reconnaissance.

3. SOIL AND GEOLOGIC CONDITIONS

Based on our literature review and site reconnaissance, the site is likely underlain by varying amounts of undocumented fill and previously placed fill overlying undifferentiated metavolcanic rock. A description of the surficial soil and geologic unit are discussed below. The approximate extent of the soil and geologic units is shown on the Geologic Map, Figure 2.

3.1 Undocumented Fill ($Qudf_u$)

Undocumented fill associated with utility installation and miscellaneous site grading is present at the site. Based on geologic reconnaissance, undocumented fill likely consists of silty clay and silty sand with abundant fragments of dark gray to black Metavolcanic Rock. We expect the undocumented fill to be between one and ten feet thick. Exploratory trenches are needed to confirm the presence and thickness of undocumented fill. Fill soils on the property are considered unsuitable in their present condition to support additional fill or settlement sensitive structures and will require removal and recompaction.

3.2 Previously Placed Fill (Qpf)

Based on available aerial maps, previously placed fill (Qpf_d) associated with the adjacent apartment complex likely exists within the slope area to the west. The thickness of the fill is unknown. Historical maps show a drainage previously existed in the slope. The drainage was likely infilled to construct pads for the apartment complex. A record search at the City of San Diego and a geotechnical investigation will be required to evaluate the lateral extent and depth of the previously placed fill. For this report we show it mantling the slope face.

Previously placed fill (Qpf_r) associated with embankment fills for the adjacent SR-56 and I-15 roadways exists along the north and west sides of the site. These fills are beyond the project limits and should not impact the property.

3.3 Metavolcanic Rock (Mzu)

Mesozoic-age, low- to high-metamorphic grade, Metavolcanic Rock is anticipated on the property. This geologic unit typically consists of moderately weak to strong, highly to moderately weathered, dark grayish-brown to black Metavolcanic Rock. When excavated, the rock generates silty, fine to medium sand with gravel. If encountered, excavation of metavolcanics rock may require a very heavy effort with conventional heavy-duty earth moving equipment. Un-weathered portions of Metavolcanic Rock, if encountered, may require blasting. The Metavolcanic Rock at the site is mantled by a thin veneer of undocumented fill, generally less than two feet thick, generated during miscellaneous regrading of the site over the last 40 years. The Metavolcanic Rock is expected to be suitable for support of the proposed structures and improvements in its current condition.

4. GROUNDWATER

We do not expect groundwater to adversely impact proposed project development; however, it is not uncommon for groundwater or seepage conditions to develop where none previously existed. Groundwater elevations are dependent on seasonal precipitation, irrigation; land use, among other factors, and vary as a result. Proper surface drainage will be important to future performance of the project.

5. GEOLOGIC HAZARDS

5.1 Faulting and Seismicity

The results of our investigation and our review of pertinent geologic literature indicate that there are no known active, potentially active, or inactive faults in the vicinity of the site. The California Geological Survey (CGS) defines an active fault as a fault showing evidence for activity within the last 11,000 years. The site is not located within a State of California Earthquake Fault Zone. Major earthquakes occurring on the Newport-Inglewood Fault/Rose Canyon Fault Zone, or other regional active faults located in the southern California area, could subject the site to moderate to severe ground shaking within the life span of the proposed structures.

5.2 Seismicity-Deterministic Analysis

We used the computer program *EZ-FRISK* (2016) to locate known active faults within a search radius of 50 miles from the property. The nearest known active fault is the Newport-Inglewood/Rose Canyon Fault Zone, located approximately 10 miles west of the site. The Newport-Inglewood/Rose Canyon Fault Zone is the dominant source of potential ground motion. Earthquakes that might occur on the Newport-Inglewood/Rose Canyon Fault Zone or other faults within the southern California and northern Baja California area are potential generators of significant ground motion at the site. The estimated deterministic maximum earthquake magnitude and peak ground acceleration for the Newport-Inglewood/Rose Canyon Fault are 7.5 and 0.3g, respectively. Table 5.2 lists the estimated maximum earthquake magnitude and peak ground acceleration for the most dominant faults in relationship to the site location. We calculated peak ground acceleration (PGA) using Boore and Atkinson (2008), Campbell and Bozorgnia (2008), and Chiou and Youngs (2007) acceleration-attenuation relationships.

TABLE 5.2
DETERMINISTIC SPECTRA SITE PARAMETERS

Fault Name	Distance from Site (miles)	Maximum Earthquake Magnitude (Mw)	Peak Ground Acceleration		
			Boore-Atkinson 2008 (g)	Campbell-Bozorgnia 2008 (g)	Chiou-Youngs 2008 (g)
Newport-Inglewood	10	7.5	0.30	0.21	0.30
Rose Canyon	10	6.9	0.21	0.18	0.20
Coronado Bank	26	7.4	0.17	0.11	0.13
Palos Verde Connected	26	7.7	0.18	0.12	0.15
Elsinore	26.5	7.85	0.19	0.12	0.16
Earthquake Valley	33.5	6.8	0.11	0.07	0.07
San Jacinto	48	7.88	0.13	0.08	0.10

5.3 Seismicity-Probabilistic Analysis

We used the computer program *EZ-FRISK* to perform a probabilistic seismic hazard analysis. The computer program *EZ-FRISK* operates under the assumption that the occurrence rate of earthquakes on each mapped Quaternary fault is proportional to the fault slip rate. The program accounts for earthquake magnitude as a function of fault rupture length. Site acceleration estimates are made using the earthquake magnitude and distance from the site to the rupture zone. The program also accounts for uncertainty in each of following: (1) earthquake magnitude, (2) rupture length for a given magnitude, (3) location of the rupture zone, (4) maximum possible magnitude of a given earthquake, and (5) acceleration at the site from a given earthquake along each fault. By calculating the expected accelerations from considered earthquake sources, the program calculates the total average annual expected number of occurrences of site acceleration greater than a specified value. We utilized acceleration-attenuation relationships suggested by Boore and Atkinson (2008), Campbell and Bozorgnia (2008), and Chiou and Youngs (2007) in the analysis. Table 5.3 presents the site-specific probabilistic seismic hazard parameters including acceleration-attenuation relationships and the probability of exceedence.

TABLE 5.3
PROBABILISTIC SEISMIC HAZARD PARAMETERS

Probability of Exceedence	Peak Ground Acceleration		
	Boore-Atkinson, 2007 (g)	Campbell-Bozorgnia, 2008 (g)	Chiou-Youngs, 2008 (g)
2% in a 50-Year Period	0.45	0.36	0.42
5% in a 50-Year Period	0.35	0.27	0.31
10% in a 50-Year Period	0.28	0.22	0.23

While listing peak accelerations is useful for comparison of potential effects of fault activity in a region, other considerations are important in seismic design, including frequency and duration of motion and soil conditions underlying the site. Seismic design of the structures should be evaluated in accordance with the California Building Code (CBC).

5.4 Geologic Hazard Category

The 2008 *City of San Diego Seismic Safety Study (*Sheet 44) references the site as *Other Terrain, Category 53 Level or sloping terrain, unfavorable geologic structure, low to moderate risk.*

5.5 Liquefaction

The potential for liquefaction during a strong earthquake is limited to relatively clean sandy soils in a loose unconsolidated condition located below the water table. Due to the lack of a permanent, near-surface groundwater table and the dense nature of the underlying metavolcanics rock, the risk associated with soil liquefaction is considered very low.

5.6 Tsunamis and Seiches

The site is located approximately ten miles from the coast, at an elevation over 525 feet above MSL. Therefore, the potential for damage due to a tsunami (seismically-induced sea wave) is considered low. The site is not adjacent to or downstream of any lakes or confined bodies of water and, therefore, the possibility of earthquake-induced flooding due to seiches or dam failures is considered low.

5.7 Landslides

No evidence of landsliding was observed during our site reconnaissance. Conjectured landslides have been identified southwest of the property, seated in the Mission Valley Formation. Mission Valley Formation, Stadium Conglomerate, and the underlying Friars Formation (which often contains landslides), do not appear to outcrop on the site, but do outcrop on the adjacent properties to the southwest. Based on our review of predevelopment aerial photographs, the risk for landsliding is considered to be low.

5.8 Subsidence

Based on the subsurface soil conditions observed, the risk associated with ground subsidence is considered low.

5.9 Flooding

The site is not located within a drainage or floodplain; therefore, the risk associated with flooding hazard is considered low.

5.10 Slope Stability

Based on our visual observations and experience with similar soil and geologic conditions, the existing slopes should be grossly and surficially stable with respect to deep-seated instability and shallow sloughing conditions. If Mission Valley or Friars Formations are identified during future exploratory trenching, additional evaluation of slope stability may be warranted.

5.11 Corrosion

The corrosive nature of the soils should be evaluated during the geotechnical investigation and the corrosion potential considered in the design of concrete slabs and foundations, buried metallic pipes, and underground concrete structures. Consultation with a corrosion engineer may be required.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 From a geotechnical engineering standpoint, it is our opinion that the site is suitable for development, provided the recommendations presented herein are implemented.

6.2 The site is likely underlain by undocumented fill and previously placed fill overlying Metavolcanic Rock. The undocumented fill is not suitable in its present condition to receive additional fill or settlement sensitive structures and should be removed and recompacted. The lateral extent and depth of the undocumented fill and previously placed fill is not known and will need to be evaluated during the geotechnical investigation. The Metavolcanic Rock is considered suitable in its natural state or as compacted fill to support structural loading.

6.3 Weathered Metavolcanic Rock is generally rippable with very heavy effort by conventional heavy-duty earth moving equipment. Un-weathered portions of Metavolcanic Rock, if encountered, may require blasting. Undercutting of building pads, street sections and utilities may be required during grading, to mitigate problems with foundation excavation and utility installation.

6.4 A geotechnical investigation will be necessary to evaluate the subsurface conditions at the site and to provide recommendations for design and construction of the proposed improvements. The scope of the geotechnical investigation should include performing a subsurface investigation, laboratory testing, and engineering analyses and include an evaluation of the subsurface geologic conditions, the presence of geologic hazards, including liquefaction and seismically-induced settlement potential, and evaluation of slope stability, and the geotechnical aspects of developing the property. The report should include recommendations regarding remedial grading, earthwork grading considerations, ground improvement options, foundation options, concrete slabs and flatwork, preliminary pavement design, retaining walls, and site drainage.

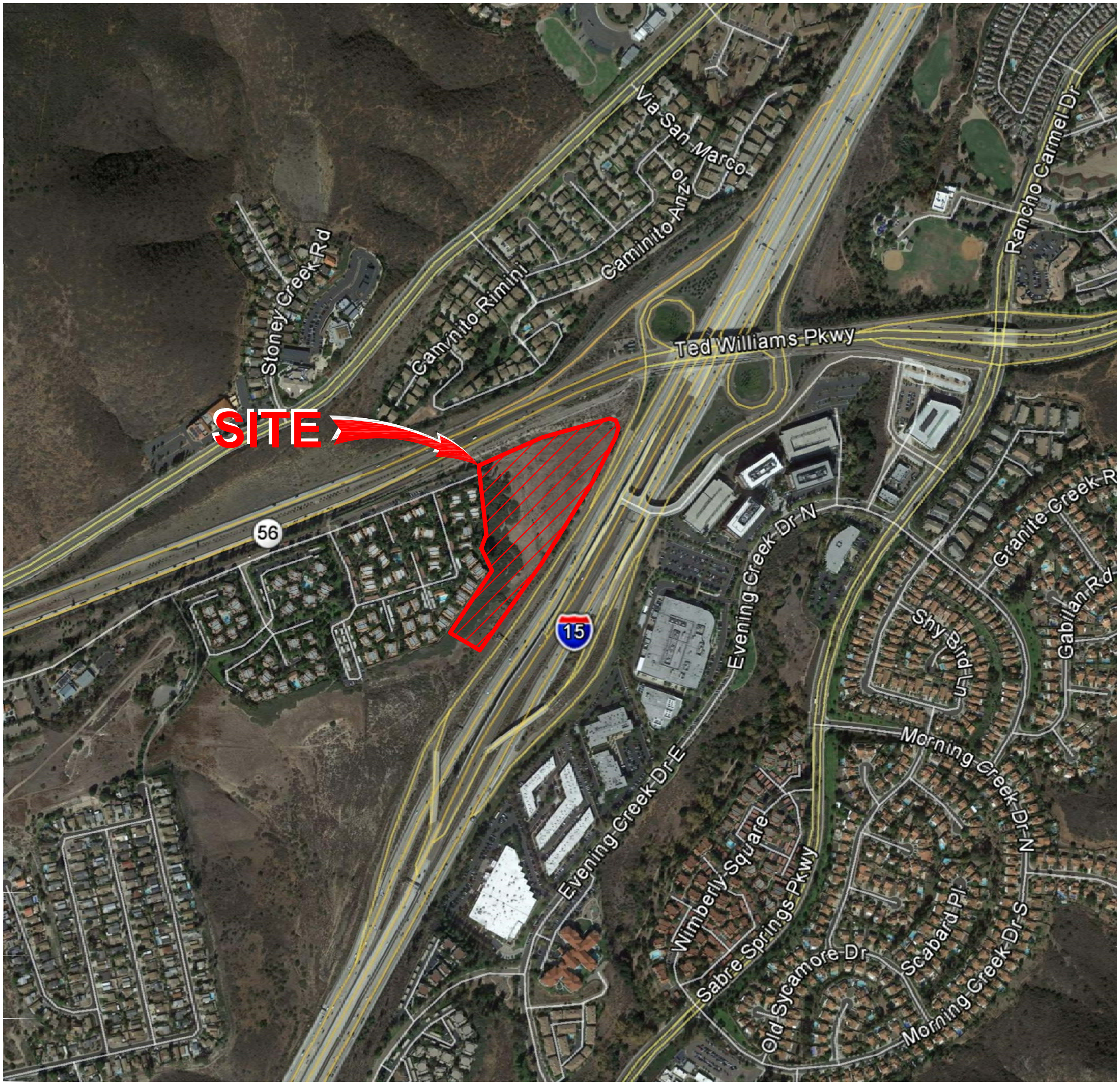
LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

2. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon Incorporated should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon Incorporated.

3. This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

4. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.



THE GEOGRAPHICAL INFORMATION MADE AVAILABLE FOR DISPLAY WAS PROVIDED BY GOOGLE EARTH, SUBJECT TO A LICENSING AGREEMENT. THE INFORMATION IS FOR ILLUSTRATIVE PURPOSES ONLY; IT IS NOT INTENDED FOR CLIENT'S USE OR RELIANCE AND SHALL NOT BE REPRODUCED BY CLIENT. CLIENT SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS GEOCON FROM ANY LIABILITY INCURRED AS A RESULT OF SUCH USE OR RELIANCE BY CLIENT.

N

NO SCALE

VICINITY MAP

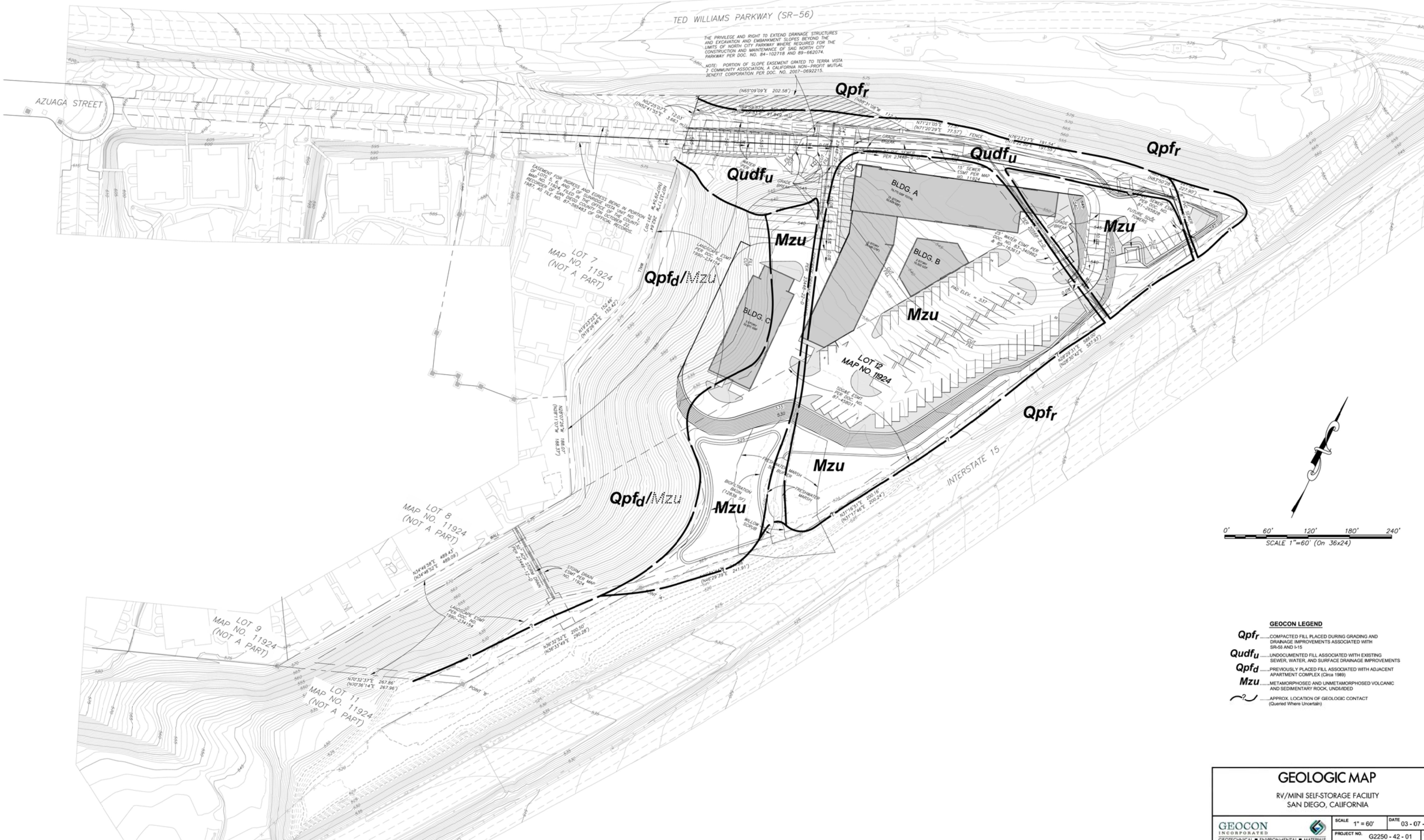
GEOCON INCORPORATED

GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858 558-6900 - FAX 858 558-6159

RV/MINI SELF-STORAGE FACILITY
SAN DIEGO, CALIFORNIA

RSA / CW		DSK/GTYPD	DATE 03 - 07 - 2018	PROJECT NO. G2250 - 42 - 01	FIG. 1

Plotted:03/06/2018 12:18PM | By:RUBEN AGUILAR | File Location:Y:\PROJECTS\G2250-42-01 (Pen 173)\DETAILS\G2250-42-01 Vic Map.dwg



GEOCON LEGEND

Qpf_r ....COMPACTED FILL PLACED DURING GRADING AND DRAINAGE IMPROVEMENTS ASSOCIATED WITH SR-56 AND I-15

$Qudf_u$ ........UNDOCUMENTED FILL ASSOCIATED WITH EXISTING SEWER, WATER, AND SURFACE DRAINAGE IMPROVEMENTS

Qpf_d ....PREVIOUSLY PLACED FILL ASSOCIATED WITH ADJACENT APARTMENT COMPLEX (Circa 1989)

Mzu ........METAMORPHOSED AND UNMETAMORPHOSED VOLCANIC AND SEDIMENTARY ROCK, UNDIVIDED

........APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)

GEOLOGIC MAP

RV/MINI SELF-STORAGE FACILITY
SAN DIEGO, CALIFORNIA

GEOCON INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858 558-6900 - FAX 858 558-6159

SCALE 1" = 60'	DATE 03 - 07 - 2018	
PROJECT NO. G2250 - 42 - 01		FIGURE 2
SHEET 1 OF 1		

LIST OF REFERENCES

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Sun Ridge Vista RV/Mini Storage Facility
City of San Diego (PTS 534380)
Azuaga Street (East of Rancho Penasquitos Blvd)
San Diego, California

September 6, 2018
Fifth Revision February 26, 2019

Transportation Access Analysis

Prepared for:
Pardee Homes
13400 Sabre Springs Parkway, Suite 200
San Diego, CA 92128

Prepared by Justin Rasas (TR 2135) a principal with:

LOS Engineering, Inc.
11622 El Camino Real, Suite 100, San Diego, CA 92130
Phone 619-890-1253

Job #1818

REGISTERED PROFESSIONAL ENGINEER
JUSTIN P. RASAS
NO. TR 2135
EXP. 3/31/202
TRAFFIC
STATE OF CALIFORNIA

SEALED ON 3/4/2019

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Sun Ridge Vista RV/Mini Storage Facility
Executive Summary

The project is an outdoor storage facility for 69 Recreational Vehicles and 139,587 square feet of mini-warehouse all on approximately 10-acres located southwest of Interstate 15 (I-15) and the State Route 56 (SR-56)/Ted Williams Parkway interchange within the Rancho Peñasquitos Community of San Diego, California. The project site is currently vacant. The project is planned to open by the year 2020. The project applicant is processing a Planned Development Permit (PDP), easement vacation, and proposal to allow a use consistent with the Community Plan but not with the site's zone. Per City of San Diego Municipal Code Section 126.0602(a)(2), a PDP can be utilized "to allow uses that are not permitted in the underlying zone but that comply with the applicable land use plan." The project site is zoned RS-1-13.

Project access is from a single driveway at the eastern Azuaga Street terminus (cul-de-sac). The project will share a driveway with the existing built and occupied Terra Vista condominium development. The project has an access easement with the Terra Vista development.

The project trip generation for the project was calculated using trip rates from the City of San Diego *Trip Generation Manual*, May 2003. The project is calculated to generate 281 ADT with 16 AM peak hour trips (8 inbound and 8 outbound) and 26 PM peak hour trips (13 inbound and 13 outbound).

The following scenarios were analyzed for this access analysis: Existing, Existing with Project, Near Term, Near Term (Opening Day 2020) with Project Conditions, and Near Term (Opening Day 2020) with construction traffic. For each scenario, the findings include:

1) Under Existing Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was observed to operate with a maximum delay of 9 minutes and calculated to operate with a 0.1 minute delay.
2) Under Existing with Project Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was calculated to operate with a delay of 0.4 minutes. <u>There are no significant direct impacts because the addition of project traffic does not exceed the significance thresholds.</u>
3) Under Near Term Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was calculated to operate with a 4.2 minute delay.
4) Under Near Term (Opening Day 2020) with Project Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of

Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was calculated to operate with a 4.5 minute delay. There are no significant direct impacts because the addition of project traffic does not exceed the significance thresholds.

5) Under Near Term (Opening Day 2020) with Construction Traffic Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was calculated to operate with a 4.2 minute delay. There is no construction worker traffic anticipated to use the on-ramp in the AM period because workers arrive at the site and not leave; therefore, there is no calculated increase in the freeway on-ramp delay from AM construction traffic. Construction deliveries typically occur off-peak periods. However, if a construction delivery truck is leaving during the AM peak hour, the passenger car equivalent of 2 vehicles (for 1 truck) would be less than the analyzed 3 vehicles using the on-ramp under the "with project conditions" that resulted in no impacts. There are no significant direct impacts because the addition of construction traffic does not exceed the significance thresholds.

The project has no calculated traffic impacts based on the significance thresholds; therefore, mitigation measures are not required.

1.0 Introduction

The project is an outdoor storage facility for 69 Recreational Vehicles and 139,587 square feet of mini-warehouse all on approximately 10-acres located southwest of Interstate 15 (I-15) and the State Route 56 (SR-56)/Ted Williams Parkway interchange within the Rancho Peñasquitos Community Plan of San Diego, California. The project site is currently vacant. The project is planned to open by the year 2020. The project applicant is processing a Planned Development Permit (PDP), easement vacation, and proposal to allow a use consistent with the Community Plan but not with the site's zone. Per City of San Diego Municipal Code Section 126.0602(a)(2), a PDP can be utilized "to allow uses that are not permitted in the underlying zone but that comply with the applicable land use plan.". The location of the project is shown in **Figure 1**. **Figure 2** shows project site details such as parking areas and gate locations while **Figure 3** shows the overall site plan (11x17 format).

The purpose of this access analysis is to analyze how the proposed project traffic will affect the study roadways and intersections during weekday daily, AM peak hour and PM peak hour conditions when the project is completed. This report includes the following chapters:

1.0 Introduction
2.0 Study Methodology
3.0 Existing Conditions
4.0 Project Description
5.0 Existing with Project Conditions
6.0 Near Term without Project Conditions
7.0 Near Term (Opening Day 2020) with Project Conditions
8.0 Near Term (Opening Day 2020) with Construction Traffic Conditions
9.0 Summary of Potential Impacts
10.0 Parking
11.0 Conclusion
12.0 References and List of Preparers

Figure 1: Project Location

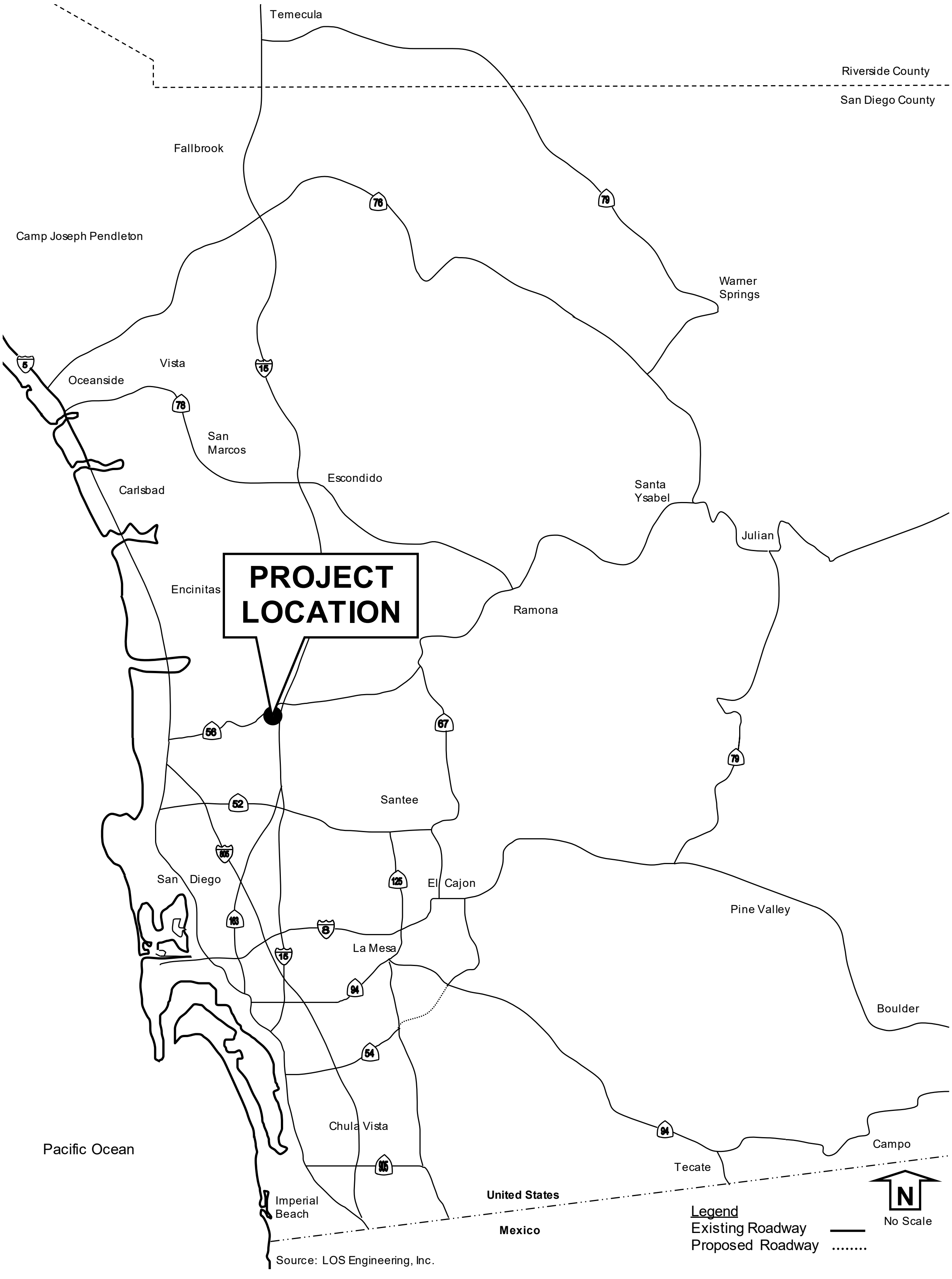
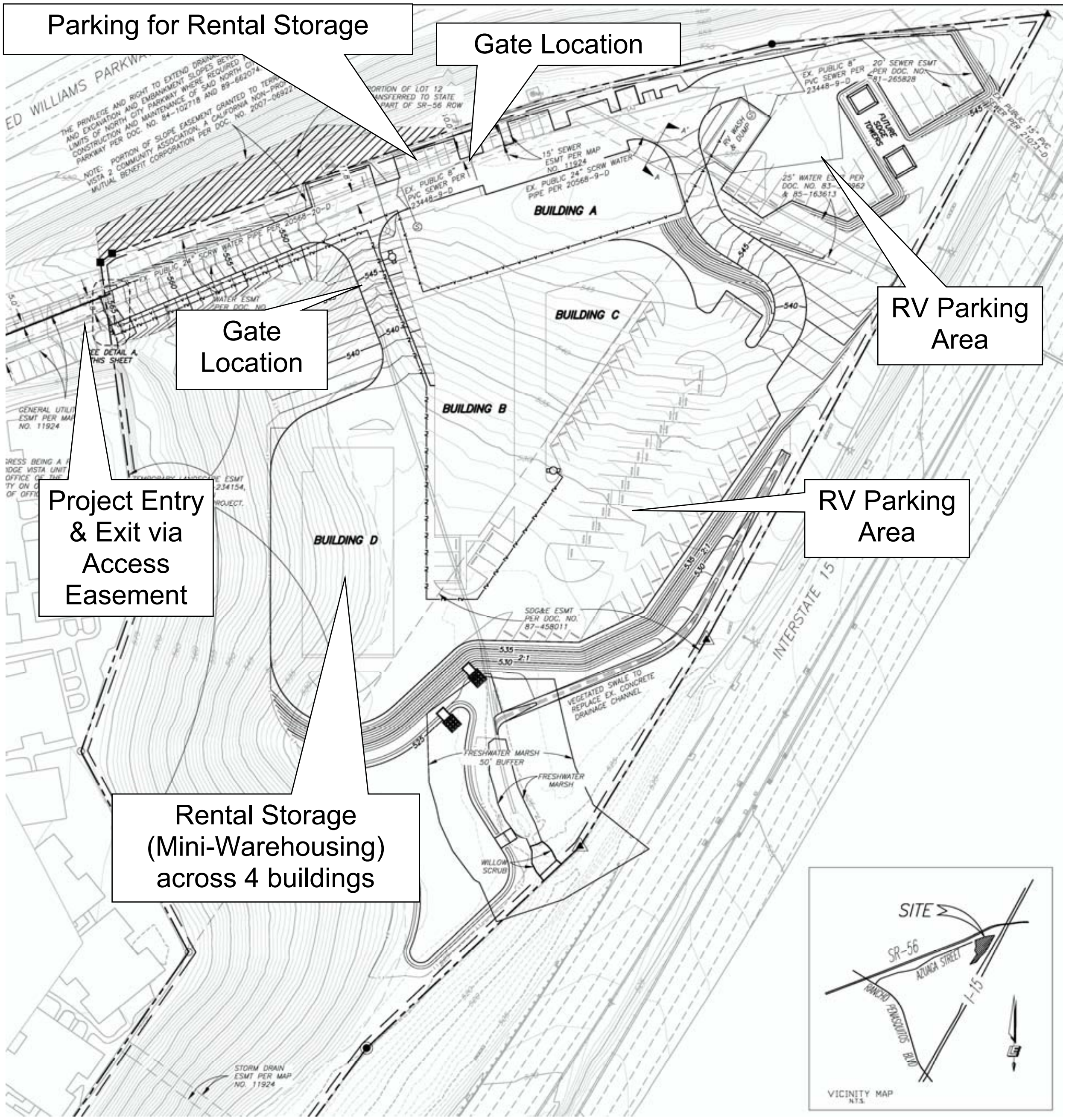
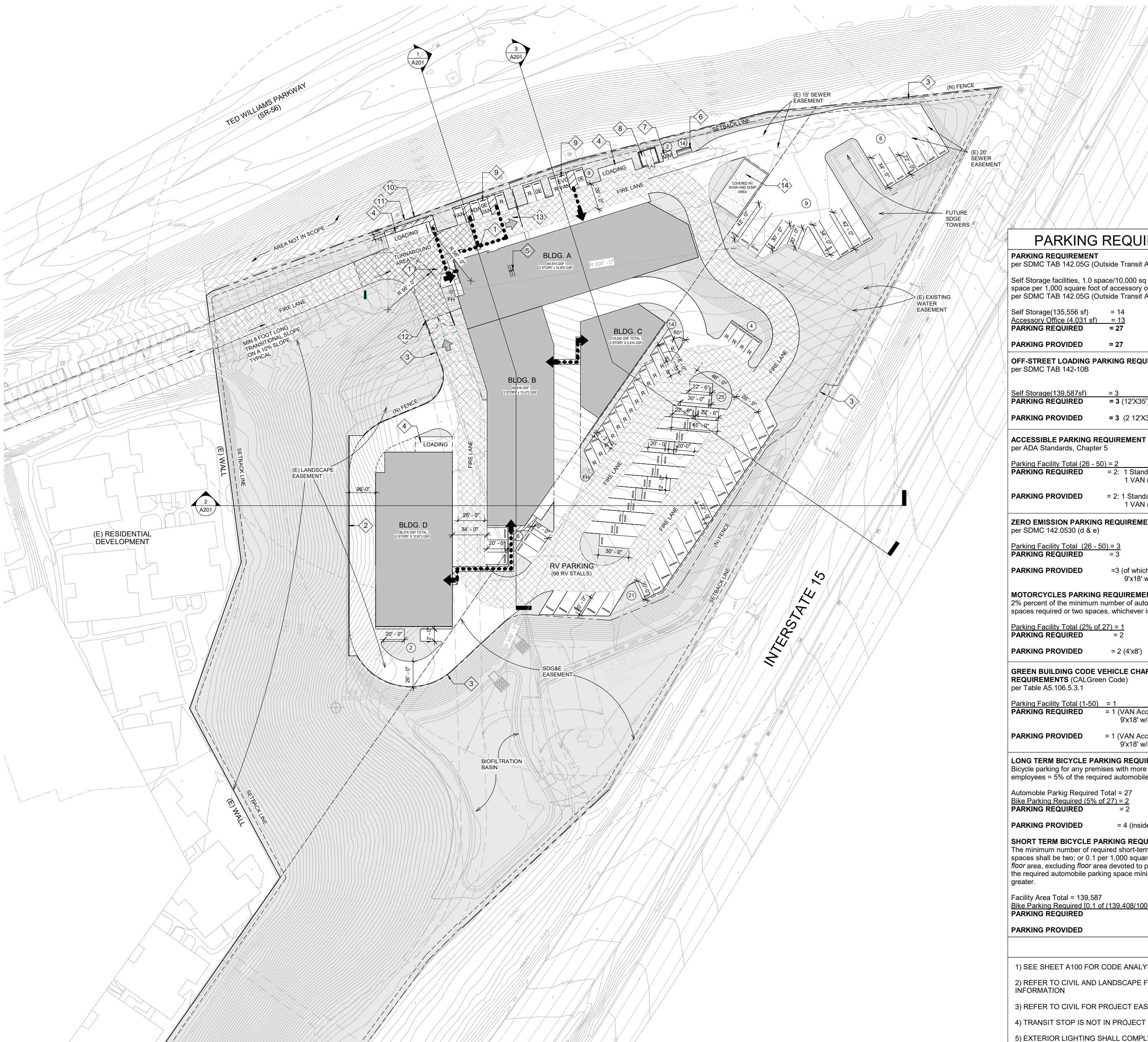


Figure 2: Site Plan Details



Source: Leppert Engineering, Inc.



1 SITE PLAN
A101
SCALE: 1" = 40'-0"
REF: A201

KEYNOTES

1 CURB CUT RAMP
2 RETAINING WALL, SEE CIVIL
3 (N) FENCE, SEE LANDSCAPE
4 OFF STREET LOADING ZONE (12'X35' MIN.)
5 LONG TERM BIKE PARKING RACK (INSIDE BUILDING, SEE SECOND FLOOR PLAN)
6 SHORT TERM BIKE PARKING RACK
7 MOTORCYCLE PARKING
8 MASONRY REFUSE AND RECYCLING ENCLOSUREW/OPEN TRELLIS
9 VISITORS, STAFF AND TENANTS PARKING
10 (E) FENCE, SEE CIVIL
11 PROPERTY LINE, SEE CIVIL
12 VEHICULAR EXIT GATE, PROVIDE SIGN "GATE TO REMAIN OPEN AT ALL TIMES DURING NORMAL BUSINESS HOURS"
13 VEHICULAR ENTRY SLIDING GATE, PROVIDE SIGN "GATE TO REMAIN OPEN AT ALL TIMES DURING NORMAL BUSINESS HOURS"
14 RV WASH AND DUMP COVERED BAY

PARKING REQUIREMENTS

PARKING REQUIREMENT
per SDMC TAB 142.05G (Outside Transit Area)

Self Storage facilities, 1.0 space/10,000 sq ft plus 3.3 space per 1,000 square foot of accessory office space per SDMC TAB 142.05G (Outside Transit Area)

Self Storage(135,556 sf) = 14
Accessory Office (4,031 sf) = 13
PARKING REQUIRED = 27

PARKING PROVIDED = 27

OFF-STREET LOADING PARKING REQUIREMENT
per SDMC TAB 142-10B

Self Storage(139,587sf) = 3
PARKING REQUIRED = 3 (12'X35')

PARKING PROVIDED = 3 (2 12'X35' + 1 12'X45')

ACCESSIBLE PARKING REQUIREMENT
per ADA Standards, Chapter 5

Parking Facility Total (26 - 50) = 2
PARKING REQUIRED = 2: 1 Standard (9'x18' w/ 5' isle)
1 VAN (9'x18' w/ 8' isle)

PARKING PROVIDED = 2: 1 Standard (9'x18' w/ 5' isle)
1 VAN (9'x18' w/ 8' isle)

ZERO EMISSION PARKING REQUIREMENT
per SDMC 142.0530 (d & e)

Parking Facility Total (26 - 50) = 3
PARKING REQUIRED = 3

PARKING PROVIDED =3 (of which 1 VAN 9'x18' w/ 8' isle)

MOTORCYCLES PARKING REQUIREMENT
2% percent of the minimum number of automobile parking spaces required or two spaces, whichever is greater.

Parking Facility Total (2% of 27) = 1
PARKING REQUIRED = 2

PARKING PROVIDED = 2 (4'x8')

GREEN BUILDING CODE VEHICLE CHARGING SPACES REQUIREMENTS (CALGreen Code)
per Table A5.106.5.3.1

Parking Facility Total (1-50) = 1
PARKING REQUIRED = 1 (VAN Accessible 9'x18' w/8' isle)

PARKING PROVIDED = 1 (VAN Accessible 9'x18' w/8' isle)

LONG TERM BICYCLE PARKING REQUIREMENT
Bicycle parking for any premises with more than ten full-time employees = 5% of the required automobile parking.

Automoble Parkig Required Total = 27
Bike Parking Required (5% of 27) = 2
PARKING REQUIRED = 2

PARKING PROVIDED = 4 (inside building)

SHORT TERM BICYCLE PARKING REQUIREMENT
The minimum number of required short-term bicycle parking spaces shall be two; or 0.1 per 1,000 square feet of building *floor* area, excluding *floor* area devoted to parking; or 5% of the required automobile parking space minimum, whichever is greater.

Facility Area Total = 139,587
Bike Parking Required [0.1 of (139.408/1000)]= 14
PARKING REQUIRED = 14

PARKING PROVIDED = 14

LEGEND

FIRE LANE
FH FIRE HYDRANT
NEW BUILDING
LANDSCAPED AREA, SEE LANDSCAPE AND CIVIL
(E) SITE FENCE, SEE CIVIL
(N) FENCE, SEE LANDSCAPE
STRUCTURE OVERHEAD
(E) EXISTING
(N) NEW
36 PARKING SPACES NUMBER GROUPING
PROPERTY LINE, SEE CIVIL
SETBACK LINE, SEE CIVIL
ACCESSIBLE PATH OF TRAVEL
VEHICULAR ENTRY / EXIT
DRIVEWAY SLOPE (DOWN)

REQUIRED PARKING LEGEND

VAN	VAN ACCESSIBLE PAKING STALL 9'X18' W/ 8' AISLE
ADA	STANDARD ACCESSIBLE PARKING STALL 9'X18' W/5' AISLE
0E	ZERO EMISSION VEHICLE 9'X18'
0E VAN	ZERO EMISSION VEHICLE, VAN ACCESSIBLE 9'X18' W/ 8' AISLE
EVC VAN	ELECT. VEHICLE CHARGING STATION, VAN ACCESSIBLE 9'X18' W/ 8' AISLE
R	STANDARD STALL 9'X18' (RESERVERD TO SELF STORAGE FACILITY TENANTS, ANCILLARY OFFICE STAFF AND VISITORS)
M	MOTORCYCLES STALL

SITE and PARKING SUMMARY

TOTAL SITE AREA: 10.03 ACRES (436,782 SQFT)

TOTAL DEVELOPED SITE AREA: 5.82 ACRES (253,385 SQFT)

ZONE RS-1-13 F.A.R. = 0.45 (for Lot size19,001sqft and greater, per Table 131-04J)

PROJECT F.A.R. = BUILDING GSF/SITE SF =
= 139,587 / 436,782 = 0.32

PARKING PROVIDED = 96 STALLS

SELF STORAGE FACILITY = 14 STALLS
ANCILLARY OFFICE SPACE = 13 STALLS
RV STORAGE SPACES * = 69 STALLS
PARKING TOTAL = 96 STALLS

- RV NUMBER OF STALLS TOTAL: 69 TO 60*
combination of:
20'X12' = 19
22'X12' = 19
22'-6"X12' = 19
30'X12' = 3
34'X12' = 3
42'x12' = 6

* # (18) 22'-6"x12' stalls can be combined in # (9) 45'-0"x12' stalls

NOTE: NUMBER AND SIZE OF RV STALLS IS FOR REFERENCE ONLY, WIDTH AND DEPTH OF STALLS SHALL BE STRIPED PER HEALTH AND SAFETY REQUIREMENTS AND MARKET DEMAND

GENERAL NOTES

1) SEE SHEET A100 FOR CODE ANALYSIS

2) REFER TO CIVIL AND LANDSCAPE FOR ADDITIONAL SITE INFORMATION

3) REFER TO CIVIL FOR PROJECT EASEMENTS INFORMATION

4) TRANSIT STOP IS NOT IN PROJECT VICINITY

5) EXTERIOR LIGHTING SHALL COMPLY WITH ALL APPLICABLE LOCAL BUILDING CODES AND REGUALTIONS AND SHALL BE DESIGNE TO MINIMIZE VISUAL IMPACTS.

6) ALL AUTOMOBILE, MOTORCYCLE AND BICYCLE PARKING SPACES MUST BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SAN DIEGO MUNICIPAL CODE (SDMC). ALL ON-SITE PARKING STALLS AND AISLE WIDTHS SHALL BE IN COMPLIANCE WITH REQUIREMENTS OF THE CITY'S LAND DEVELOPMENT CODE AND SHALL NOT BE CONVERTED AND/OR UTILIZED FOR ANY OTHER PURPOSE, UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE APPROPRIATE CITY DECISION MAKER IN ACCORDANCE WITH THE SDMC.

GRAPHIC SCALE

0' 20' 40' 80' 120'

SILLMAN WRIGHT ARCHITECTS
7515 Metropolitan Drive, Suite 400
San Diego, CA 92108
Tel: (619) 294-7515
Fax: (619) 294-7592
www.sillmanwright.com

CLIENT

PardeeHomes
13400 Sabre Springs Parkway
San Diego, CA 92128
Tel.(858)794-2500, Fax(858)794-2599

CONSULTANTS

PROJECT:

PEN 173
RANCHO PENASQUITOS
RV / MINI-STORAGE FACILITY

LOT 12 OF SUN RIDGE VISTA, UNIT NO.1 MAP 1924

REGISTRATION STAMP

ISSUE

REGISTERED ARCHITECT
LARRY R. SILLMAN
No. C-7585
2-19
STATE OF CALIFORNIA

Mark	Date	Description
1	06.04.2018	Revision 1
2	07.20.2018	Revision 2 cycle 10 resp
3	1.18.2019	Revision 3 cycle 11 resp

SCALE:
DESIGNER PROJECT NO.: 17046
DRAWN BY: Author
CHECKED BY: Checker
As indicated

KEY PLAN

DESIGN ITERATION
1.18.2019

SHEET TITLE
SITE PLAN

SHEET NUMBER (SHEET 9 OF 16)
A101

FIGURE 3

2.0 Study Methodology

The parameters by which this access analysis was prepared included the determination of what transportation facilities are to be analyzed, the scenarios to be analyzed and the methods required for analysis. The analysis is based on the *2010 Highway Capacity Manual* (HCM) operations analysis using Level of Service (LOS) evaluation criteria and the threshold for determining an impact is based on the City of San Diego traffic impact significance thresholds.

2.1 Study Area

The project study area is generally determined by the City of San Diego *Traffic Impact Study Manual* (July 1998), which notes the study area is typically determined by the extent of 50 peak hour directional trips. The manual also states "At a minimum, any traffic impact study must address site access and adjacent intersections, plus the first major signalized intersection in each direction from the site". Beyond this minimum requirement, all known congested or potentially congested locations that may be impacted by the proposed development should be studied. The following intersections were included in this study based on the above criteria:

1) Rancho Penasquitos Blvd/SR-56 WB Ramp/Carmel Mountain Road (signalized)
2) Rancho Penasquitos Blvd/Azuaga St/SR-56 EB Ramp (signalized)
3) Rancho Penasquitos Blvd/Calle De Las Rosas (signalized)

The following street segments were also analyzed as part of this study:

1) Rancho Penasquitos Blvd from Carmel Mountain Road to Azuaga Street
2) Rancho Penasquitos Blvd from Azuaga Street to Calle De Las Rosas
3) Azuaga Street east of Rancho Penasquitos Blvd

The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was also analyzed.

Traffic counts and intersection signal timing sheets are included in **Appendix A.**

2.2 Scenarios

The following study scenarios were based on coordination with City staff:

1) Existing without Project Conditions
2) Existing with Project Conditions
3) Near Term without Project Conditions
4) Near Term (Opening Day 2020) with Project Conditions
5) Near Term (Opening Day 2020) with Construction Traffic Conditions

2.3 Traffic Analysis

The traffic analyses prepared for this study were based on the *2010 Highway Capacity Manual* (HCM) operations analysis using Level of Service (LOS) evaluation criteria. The operating conditions of the study intersections were measured using the HCM LOS designations, which ranges from A through F. LOS A represents the best operating condition and LOS F denotes the worst operating condition. For this traffic study, the intersections were analyzed using the City of San Diego criteria. The LOS criteria for each roadway component are described below.

2.3.1 Intersections

The study intersections were analyzed based on the **operational analysis** outlined in the 2010 HCM. This process defines LOS in terms of **average control delay** per vehicle, which is measured in seconds. LOS at the intersections were calculated using the computer software program Synchro 10 (Trafficware Corporation). The HCM LOS for the range of delay by seconds for un-signalized and signalized intersections is described in **Table 1**.

TABLE 1: INTERSECTION LEVEL OF SERVICE DEFINITIONS (HCM 2010)

Level of Service	Un-Signalized (TWSC and AWSC) Control Delay (seconds/vehicle)	Signalized Control Delay (seconds/vehicle)
A	0-10	≤ 10
B	> 10-15	> 10-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

TWSC: Two Way Stop Control. AWSC: All Way Stop Control. Source: Highway Capacity Manual 2010 (exhibit 19-1 for two way stop control, exhibit 20-2 for all way stop control, and exhibit 18-4 for signalized intersections).

Please note there is one intersection under Caltrans' control (Rancho Penasquitos Blvd/SR-56 EB Ramp) that has shared lanes to which the HCM 2010 computation algorithm does not support; therefore, this location was analyzed using the HCM 2000 LOS as shown in **Table 2**.

TABLE 2: INTERSECTION LEVEL OF SERVICE DEFINITIONS (HCM 2000)

Level of Service	Un-Signalized Average Control Delay (seconds/vehicle)	Signalized Average Control Delay (seconds/vehicle)
A	0-10	0-10
B	> 10-15	> 10-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

Source: Highway Capacity Manual 2000.

2.3.2 Street Segments

The street segments were analyzed based on the functional classification of the roadway using the City of San Diego *Average Daily Vehicle Trips* capacity lookup table. The roadway segment capacity and LOS standards used to analyze street segments are summarized in **Table 3**.

TABLE 3: STREET SEGMENT DAILY CAPACITY AND LOS (CITY OF SAN DIEGO)

Circulation Element Road Classification	LOS A	LOS B	LOS C	LOS D	LOS E
Expressway – 6 Lanes	<30,000	<42,000	<60,000	<70,000	<80,000
Prime Arterial – 6 Lanes	<25,000	<35,000	<50,000	<55,000	<60,000
Major Arterial – 6 Lanes	<20,000	<28,000	<40,000	<45,000	<50,000
Major Arterial – 4 Lanes	<15,000	<21,000	<30,000	<35,000	<40,000
Collector – 4 Lanes	<10,000	<14,000	<20,000	<25,000	<30,000
Collector (no Center Ln) – 4 Lanes Collector (with TWLTL) – 2 Lanes	<5,000	<7,000	<10,000	<13,000	<15,000
Collector – 2 Lanes (no fronting property)	<4,000	<5,500	<7,500	<9,000	<10,000
Collector – 2 Lanes (commercial-industrial fronting)	<2,500	<3,500	<5,000	<6,500	<8,000
Collector – 2 Lanes (multi-family)	<2,500	<3,500	<5,000	<6,500	<8,000
Sub-Collector – 2 Lanes (multi-family)			<2,200		

Source: City of San Diego *Traffic Impact Study Manual* July 1998, page 8.

2.3.3 Metered Freeway On-Ramps

The freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was analyzed based on the City of San Diego ramp metering analysis as outlined in Appendix 2 of the City of San Diego *Traffic Impact Study Manual*, July 1998. The most restrictive meter rate for the study on-ramp was obtained from Caltrans. Excerpts from the City of San Diego traffic study manual, Caltrans' on-ramp meter rates (received from Caltrans on 11/16/17), and on-ramp observations are included in **Appendix B**.

2.4 Traffic Significance Threshold

A project is considered to have caused a significant impact if the new project traffic degrades a facility from acceptable LOS to unacceptable LOS or decreases the operations on the surrounding roadways by the City of San Diego defined thresholds as shown in **Table 4**.

TABLE 4: CITY OF SAN DIEGO TRAFFIC IMPACT SIGNIFICANCE THRESHOLDS

Level of Service with Project	Allowable Increase Due to Project Impacts[1]				
	Freeways	Roadway Segments		Intersections	Ramp Metering
	V/C	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
E[2]	0.01	0.02	1.0	2.0	2.0[3]
F[2]	0.005	0.01	0.5	1.0	1.0[3]

Source: City of San Diego. Notes: [1] If a proposed project's traffic impact exceeds the values shown in the table, then the impacts are deemed "significant." The project applicant shall identify "feasible mitigations" to achieve LOS D or better. [2] The acceptable Level of Service (LOS) standard for roadways and intersections in San Diego is LOS D. However, for undeveloped locations, the goal is to achieve a LOS C. [3] The impact is only considered significant if the total delay exceeds 15 minutes AND freeway is operating at LOS E/F. Delay measured in seconds. V/C = Volume to Capacity Ratio (capacity at LOS E should be used). Speed = Arterial speed measured in miles per hour for CMP analyses.

If a significant impact is calculated due to the addition of project traffic, then feasible mitigation is required to reduce the facility to the pre-project conditions or better.

3.0 Existing Conditions

This section describes the study area street system, daily volumes, and LOS.

3.1 Existing Street System

In the vicinity of the project, the following roadways were analyzed as part of this study:

Rancho Penasquitos Boulevard from Carmel Mountain Road to Azuaga Street is classified as a 5-Lane Major and from Azuaga Street to Calle De Las Rosas as a 4-Lane Major in the *Rancho Penasquitos Community Plan* (excerpts included in **Appendix C**). Rancho Penasquitos Blvd from Carmel Mountain Road to Azuaga Street is constructed as a 5-lane roadway (2 northbound/westbound lanes and 3 southbound/eastbound lanes) with a raised median. Rancho Penasquitos Blvd from Azuaga Street to Calle De Las Rosas is constructed as a 4-lane roadway with 2 travel lanes in each direction. South of SR-56 for approximately 400 feet there is a northbound left turn lane with an adjacent double-double yellow delineating the center median area, then a center two way left turn lane for about 250 feet, and then a raised median the remaining distance to Calle De Las Rosas. On-street parking is generally allowed on both sides of the roadway south of Azuaga Street. A functional capacity of 30,000 ADT (LOS E) was applied to both study segments of Rancho Penasquitos Blvd. Contiguous 6 foot wide Sidewalks exist on both sides of the roadway. A posted speed limit was not observed on these segments; however, south of Calle De Las Rosas, the posted speed limit is 40 MPH on Rancho Penasquitos Blvd.

Azuaga Street is not classified in the *Rancho Penasquitos Community Plan*. Azuaga Street east of Rancho Penasquitos Blvd is constructed as a 2 lane un-divided roadway with on-street parking generally allowed on both sides of the roadway. There is a contiguous 6 foot wide sidewalk on the southside of the roadway and no sidewalk on the north side of the roadway. The posted speed limit is 35 MPH. A functional capacity of 8,000 ADT (LOS E) was applied to this segment of Azuaga Street since it has a striped centerline, is 40 feet curb-to-curb, and functions as a collector.

3.2 Multi-Modal Transportation

This section describes the existing multi-modal transportation elements near the project site.

3.2.1 Transit

Metropolitan Transit System (MTS) provides bus service as Route 20 on Rancho Penasquitos Blvd near the project site. The northbound bus stop and southbound bus stop on Rancho Penasquitos Blvd are located approximately 1 mile walking distance from the project site. MTS Bus Route 20 has a scheduled service along Rancho Penasquitos Blvd with service headways of approximately 30 to 60 minutes on weekdays. Saturday and Sunday headways are approximately 1 hour apart along Rancho Penasquitos Blvd. A route map and specific service times and frequency are outlined in the bus schedule included in **Appendix D**.

3.2.2 Bicycle

Existing Bicycle Lanes and Routes

Rancho Penasquitos Blvd between Carmel Mountain Road and Calle De Las Rosas has Class III bike route signs. Azuaga Street from Rancho Penasquitos Blvd to the eastern terminus (cul-de-sac) has Class III bike route signs.

Proposed Bicycle Lanes and Routes

The City of San Diego *Bicycle Master Plan*, December 2013 shows existing Class III bike route along Rancho Penasquitos Blvd between Carmel Mountain Road and I-15, and Class III bike route along Azuaga Street from Rancho Penasquitos Blvd to the eastern terminus (cul-de-sac). The *Rancho Penasquitos Community Plan* shows proposed Class II bike lanes on Rancho Penasquitos Blvd between Carmel Mountain Road and I-15, and no bike lanes nor routes on Azuaga Street from Rancho Penasquitos Blvd to the eastern terminus (cul-de-sac). Excerpts from the City of San Diego *Bicycle Master Plan Update* and the *Rancho Penasquitos Communities Plan* are included in **Appendix E**.

3.2.3 Pedestrian

Contiguous 6 foot wide sidewalks exist on both sides of Rancho Penasquitos Blvd from Carmel Mountain Road to Calle De Las Rosas. There is contiguous 6 foot wide sidewalk on the south side of Azuaga Street east of Rancho Penasquitos Blvd to the cul-de-sac at the eastern terminus of Azuaga Street; however, there is no sidewalk on the north side of Azuaga Street along this same segment. Also, there are no existing sidewalks along the Terra Vista condominium development drive aisle between the Azuaga Street cul-de-sac bulb and the project entrance.

3.2.4 Multi-Modal Summary Map

The existing roadway conditions along with the bus route and bus stops are shown in **Figure 4**.

3.3 Existing Traffic Volumes and LOS Analysis

Intersection counts were collected between 7:00 AM to 9:00 AM for the AM commuter period and from 4:00 PM to 6:00 PM for the PM commuter period on Wednesday, 1/24/2018 at the following locations.

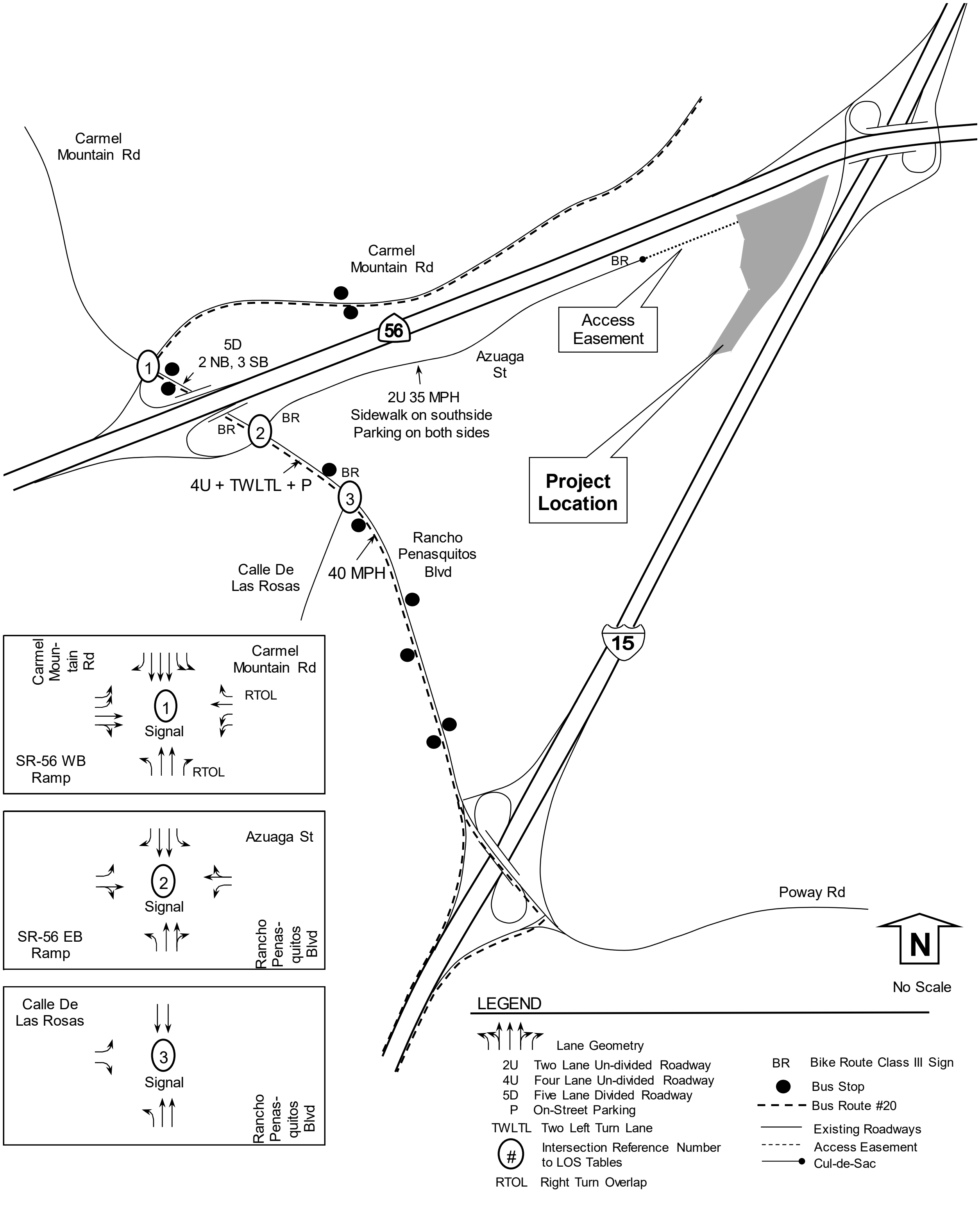
1) Rancho Penasquitos Blvd/SR-56 WB Ramp/Carmel Mountain Road
2) Rancho Penasquitos Blvd/Asuaga St/SR-56 EB Ramp
3) Rancho Penasquitos Blvd/Calle De Las Rosas

The following street segment volumes were also collected on Wednesday, 1/24/2018:

1) Rancho Penasquitos Blvd from Carmel Mountain Road to Azuaga Street
2) Rancho Penasquitos Blvd from Azuaga Street to Calle De Las Rosas
3) Azuaga Street from Rancho Penasquitos Blvd from the eastern terminus of Azuaga St

Additionally, metered freeway on-ramp observations were recorded at the SR-56 WB on-ramp on Wednesday, 1/24/18.

Figure 4: Existing Multi-Modal Conditions



The existing weekday daily, and peak hour volumes are shown in **Figure 5**. The LOS calculated for the intersections and roadway segments are included in **Tables 5 and 6**. The metered freeway on-ramp operations are shown in **Table 7**. Intersection LOS calculations and observation data for the metered freeway on-ramp are included in **Appendix F**.

TABLE 5: EXISTING INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis)[1]	Movement	Study Period	Existing Delay[2]	Existing LOS[3]
1) Rancho Penasquitos at	All	AM	41.8	D
SR-56/Carmel Mt. Rd (S)	All	PM	40.4	D
2) Rancho Penasquitos at	All	AM	22.6	C
SR-56/Azuaga St (S)	All	PM	65.9	E
3) Rancho Penasquitos	All	AM	13.2	B
Calle De Las Rosas (S)	All	PM	16.8	B

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service.

TABLE 6: EXISTING SEGMENT VOLUMES AND LEVEL OF SERVICE

Segment	Functional Classification (as built)	LOS E Capacity	Existing Daily Volume	Existing V/C	Existing LOS
Rancho Penasquitos Boulevard					
Carmel Mt Rd to Azuaga St	5 Ln Major (5D)	40,000	27,256	0.681	C
Azuaga St to Calle De Las Rosas	4 Ln Major (4*)	30,000	27,354	0.912	E
Azuaga Street					
East of Rancho Penasquitos	None (2U)	8,000	3,410	0.426	B

Notes: 5D: 5 lane divided roadway (capacity taken as 4 lane to be conservative). 4* This 4 lane roadway has a portion with a center two way left turn lane and a portion with a raised median. Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Vol to Capacity Ratio.

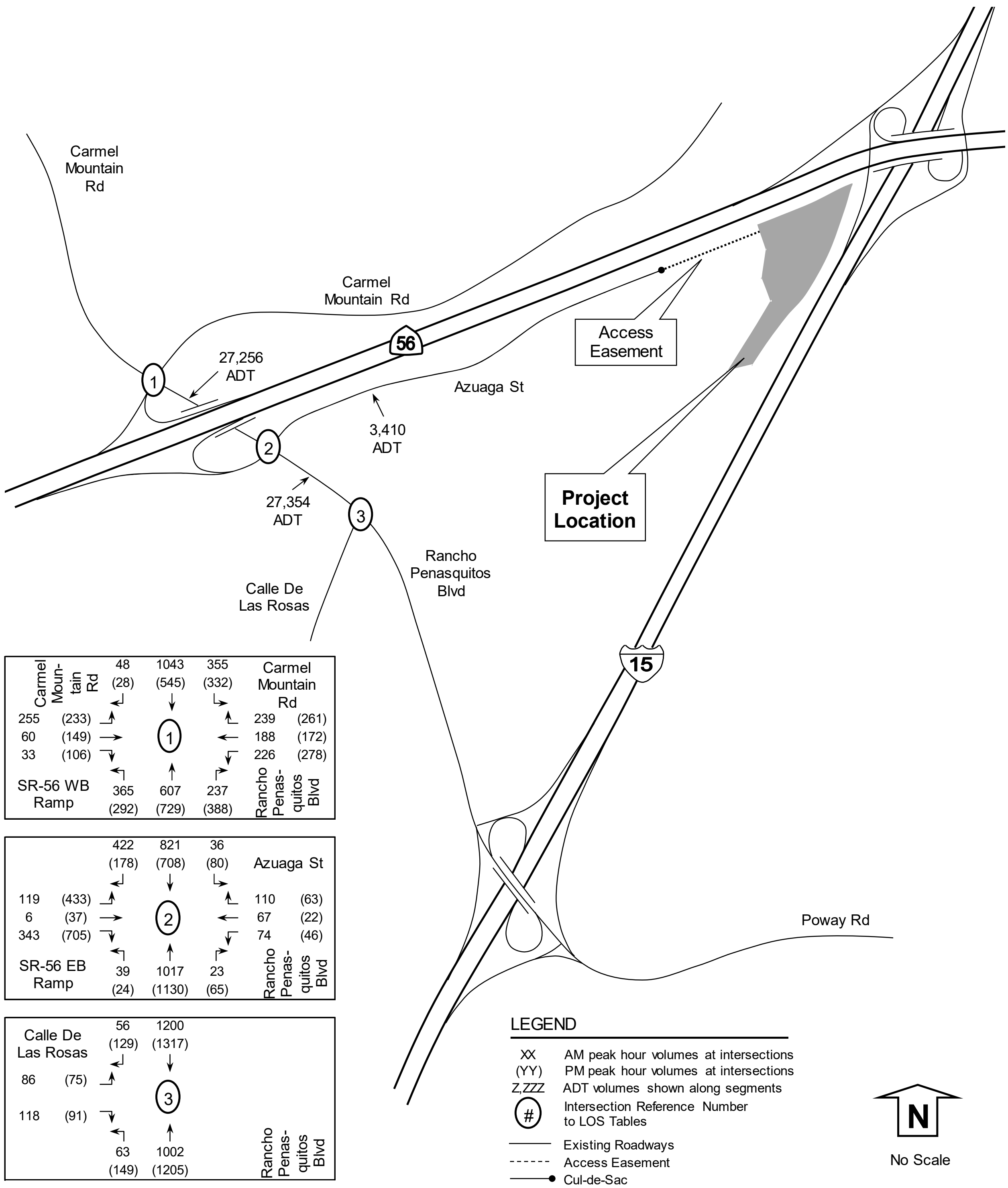
TABLE 7: EXISTING ON-RAMP OPERATIONS

On-Ramp & Peak Period*	Scenario	Vehicle Demand (veh/hr)	Number and type of lanes (1)	Most Restrictive Rate per lane (2)	On-Ramp Rate (veh/hr)	Excess Demand (veh/hr)	Calculated Delay** (minutes)	Calculated Queue in Feet (3)
SR-56 WB On-Ramp from Rancho Penasquitos Blvd/Carmel Mt. Rd							Calculated	
AM WB On-Ramp	Existing	601	1 SOV	600	600	1	0.1	25
							Observed Maximum	
				Maximum Observed Delay and Queue:			9 min.	650 ft
							Vehicles = 27	
PM WB On-Ramp	Existing	492	1 SOV	Ramp meter not on according to Caltrans				

Notes: (1) SOV: Single Occupancy Vehicle. (2) Rate provided by Caltrans. (3) Queue = excess demand x 25 ft/veh.
*Ramp metering is on from 5:30 AM through 9:30 AM. **Delay = (Excess Demand/On-Ramp Rate)x60min/hr.

Under Existing Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was observed to operate with a maximum queue of 27 vehicles (maximum observed delay of 9 minutes) extending back approximately 650 feet from the stop bar (Appendix B), but a calculated delay of 0.1 minutes.

Figure 5: Existing Volumes



4.0 Project Description

The project is an outdoor storage facility for 69 Recreational Vehicles and 139,587 square feet of mini-warehouse all on approximately 10-acres located southwest of Interstate 15 (I-15) and the State Route 56 (SR-56)/Ted Williams Parkway interchange within the Rancho Peñasquitos Community of San Diego, California. The project site is currently vacant. The project is planned to open by the year 2020. The Rancho Peñasquitos Community Plan designates the site as "Recreational Vehicle/Mini-Storage Facility." The site is currently zoned as RS-1-13 and would require a Planned Development Permit for the proposed uses. The project applicant is processing a Planned Development Permit (PDP), easement vacation, and a proposal to allow a use consistent with the Community Plan but not with the site's zone. Per City of San Diego Municipal Code Section 126.0602(a)(2), a PDP can be utilized "to allow uses that are not permitted in the underlying zone but that comply with the applicable land use plan." The site is zoned RS-1-13 and labeled "Recreational Vehicle/Mini-Storage Facility" in the Community Plan – Appendix C.

4.1 Project Access and On-Site Circulation

Project access is from a single driveway at the eastern Azuaga Street terminus (cul-de-sac). The project will share a driveway with the existing built and occupied Terra Vista condominium development. The project has an existing access easement with the Terra Vista condominium development. Easement details are included in **Appendix G**.

On-site circulation consists of a loop road that serves the mini storage buildings and the RV parking areas. The on-site roadway starts out as a single road then splits into a loop road. There are two gates past the area where the loop road splits as called out on the site plan. Prior to the gates, there is on-site parking for potential clients and vehicles can turn around using the "T" intersection where the on-site loop roadway splits on-site.

4.2 Project Trip Generation

The project trip generation for the project was calculated using trip rates from the City of San Diego *Trip Generation Manual*, May 2003 and RV use data. The trip rate for Rental Storage was applied for the building totals of 139,587 SF using 2 daily trips per 1,000 SF (KSF) and RV Quick Facts (https://www.rvia.org/media-resources/rv-quick-facts) was used to calculate an RV storage trip rate. RV Quick Facts state "RV owners…spend an average of 3-4 weeks [traveling] annually, industry research shows." Using 4 weeks to estimate 4 individual one week trips per year or 8 ADT (1 trip in and 1 trip out of RV storage x 4 individual trips equals 8 ADT per year) = 8 ADT/365 days = 0.022 ADT/Day/RV. Peak hours rates were taken from the City's storage rate. The total project trip generation is calculated at 281 ADT with 16 AM peak hour trips (8 inbound and 8 outbound) and 26 PM peak hour trips (13 inbound and 13 outbound) as shown in **Table 8**.

TABLE 8: PROJECT TRIP GENERATION

Proposed Land Use	Rate	Size & Units		ADT	AM %	AM Split		AM IN	AM OUT	PM %	PM Split		PM IN	PM OUT
Rental Storage (Mini-Warehouse)	2 /KSF	139.587	KSF	**279**	6%	0.5	0.5	**8**	**8**	9%	0.5	0.5	**13**	**13**
Rental Storage (RV Parking)	0.022 /RV	69	RV	**2**	6%	0.5	0.5	**0**	**0**	9%	0.5	0.5	**0**	**0**
		TOTAL		**281**				**8**	**8**				**13**	**13**

Source: City of San Diego *Trip Generation Manual*, May 2003. KSF - 1,000 Square Feet; ADT: Average Daily Traffic. RV Parking calculated from https://www.riva.org/media-resources/rv-quick-facts that states "RV owners…spend an average of 3-4 weeks annually, industry research shows." Using 4 weeks to estimate 4 individual one week trips per year or 8 ADT (1 trip in and 1 trip out of RV storage) per year = 8/365 = 0.022 ADT/Day/RV. Peak hours rates taken from above storage rate.

4.3 Project Trip Distribution and Assignment

The distribution was based on surrounding residential areas (expected market capture rate for storage facility) and proximity of state route and freeway interchanges. The project distribution is shown in **Figure 6** while the trip assignment is shown in **Figure 7.**

4.4 Project Construction Traffic

Project construction traffic was based on client provided data from a contractor building a similar self-storage project in Rancho San Diego. That project is scheduled to require about 11 months plus up to 1 month for weather delays (details included in **Appendix H**). There are different phases of construction. The highest concentration of workers is during the vertical construction work with up to 30 workers per day and up to 10 trucks/deliveries throughout the day. The temporary construction trip generation by phase and maximum are shown in **Table 9**.

TABLE 9: PROJECT CONSTRUCTION TRIP GENERATION

Construction Trip Generation by Phase	Start Date	End Date	Approximate Phase Duration	Construction Workers by Phase	Deliveries/ Equipment by Phase	ADT	AM Pk Hr 7-8 AM IN	AM Pk Hr 7-8 AM OUT	PM Pk Hr 4-5 PM IN	PM Pk Hr 4-5 PM OUT
Site Prep/Grading	1/1/2019	2/11/2019	4 weeks	8	6	40	10	0	0	10
Foundations	2/12/2019	12/30/2019	46 weeks	10	10	60	12	0	0	12
Vertical Construction	7/23/2019	12/30/2019	23 weeks	30	10	100	32	0	0	32
Paving & Finish Site	12/31/2019	1/27/2020	4 weeks	20	5	60	22	0	0	22
					Maximum:	**100**	**32**	**0**	**0**	**32**

Daily and peak hour data based on client provided data from contractors who have built similar facilities. ADT: Average Daily Traffic taken at 2 times the number of workers and 4 times the number of deliveries/equipment to represent a passenger car equivalent. Construction workers typically don't leave for lunch, thus only AM inbound and PM outbound trips.

As shown above, the peak construction trip generation occurs during the vertical construction phase with 32 AM peak hour trips (32 inbound and 0 outbound), and 32 PM peak hour trips (0 inbound and 32 outbound). Construction deliveries typically occur during off-peak periods; however, to be conservative one delivery is assumed to arrive during the AM period (inbound) and one delivery is assumed to leave during the PM period (outbound). With a Passenger Car Equivalent (PCE) factor, one truck equals two vehicles, thus the AM inbound includes 30 workers plus 2 PCE = 32 inbound vehicles. Construction deliveries typically take time to unload, thus are not anticipated to leave during the AM period. Since the construction traffic generation is more than the project trip generation (AM 8 inbound and 8 outbound, and PM 13 inbound and 13 outbound), Section 8.0 (Near Term Opening Day 2020 plus Construction Traffic) is included to document the study roadway operations with the addition of temporary construction traffic.

Figure 6: Project Distribution

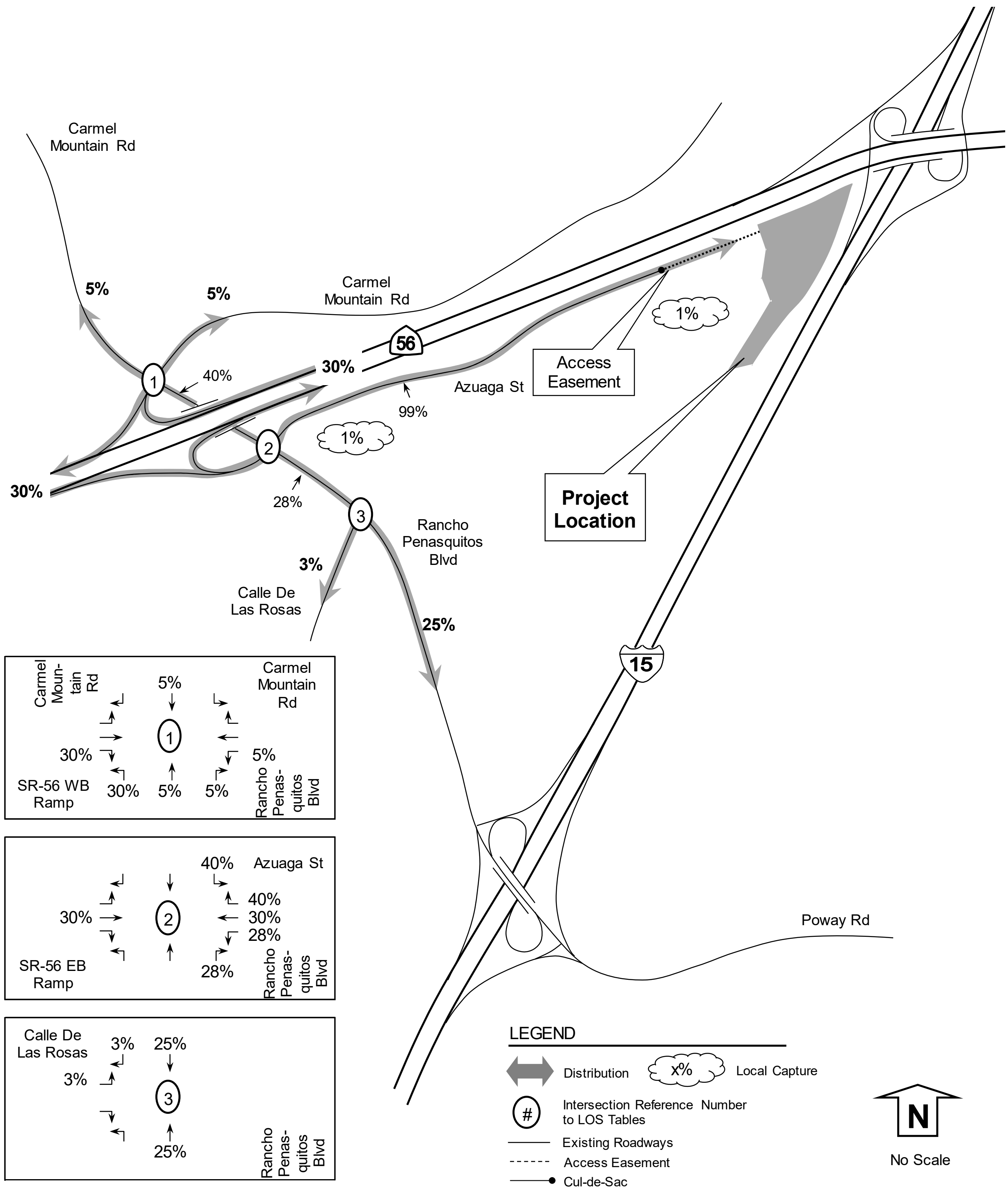
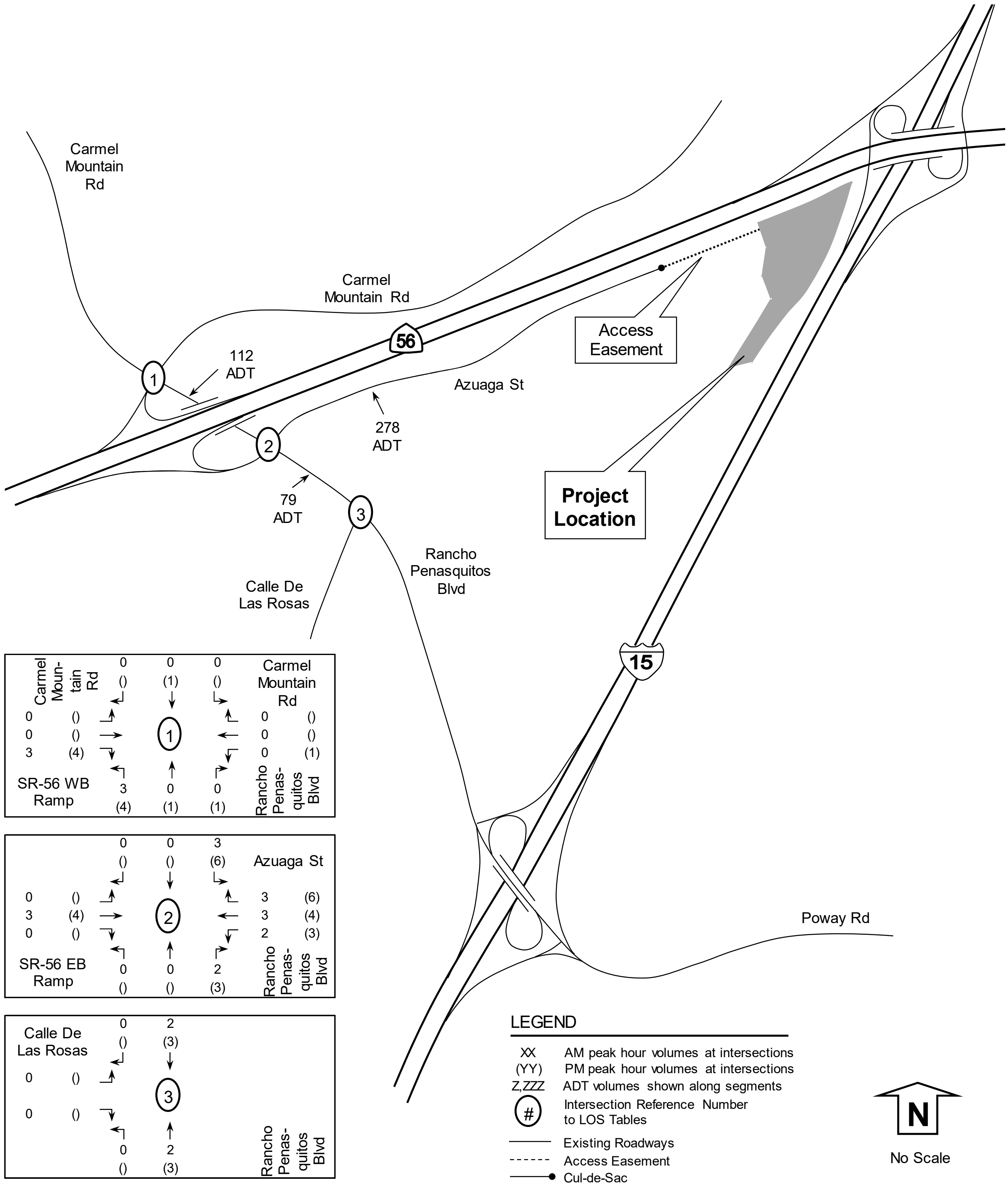


Figure 7: Project Assignment



5.0 Existing with Project Conditions

This scenario accounts for the addition of project traffic onto existing conditions. The traffic volumes are shown in **Figure 8.** The LOS calculated for the study intersections and segments are included in **Tables 10 and 11**. The freeway on-ramp operations are shown in **Table 12**. Intersection LOS calculations are included in **Appendix I**.

TABLE 10: EXISTING WITH PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis)[1]	Movement	Study Period	Existing Delay[2]	Existing LOS[3]	Existing + Project Delay[2]	Existing + Project LOS[3]	Delta[4]	Direct Impact?[5]
1) Rancho Penasquitos at	All	AM	41.8	D	41.9	D	0.1	No
SR-56/Carmel Mt. Rd (S)	All	PM	40.4	D	40.4	D	0.0	No
2) Rancho Penasquitos at	All	AM	22.6	C	23.0	C	0.4	No
SR-56/Azuaga St (S)	All	PM	65.9	E	66.5	E	0.6	No
3) Rancho Penasquitos	All	AM	13.2	B	13.2	B	0.0	No
Calle De Las Rosas (S)	All	PM	16.8	B	16.8	B	0.0	No

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. 5) Direct Impact if project traffic exceeds threshold.

TABLE 11: EXISTING WITH PROJECT SEGMENT VOLUMES AND LEVEL OF SERVICE

Segment	Functional Classification (as built)	LOS E Capacity	Existing Daily Volume	Existing V/C	Existing LOS	Project Daily Volume	Existing + Project Daily Volume	Existing + Project V/C	Existing + Project LOS	Change in V/C	Project Impact?
Rancho Penasquitos Boulevard											
Carmel Mt Rd to Azuaga St	5 Ln Major (5D)	40,000	27,256	0.681	C	112	27,368	0.684	C	0.003	No
Azuaga St to Calle De Las Rosas	4 Ln Major (4*)	30,000	27,354	0.912	E	79	27,433	0.914	E	0.003	No
Azuaga Street											
East of Rancho Penasquitos	None (2U)	8,000	3,410	0.426	B	278	3,688	0.461	C	0.035	No

Notes: 5D: 5 lane divided roadway (capacity taken as 4 lane to be conservative). 4* This 4 lane roadway has a portion with a center two way left turn lane and a portion with a raised median. Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Vol to Capacity Ratio.

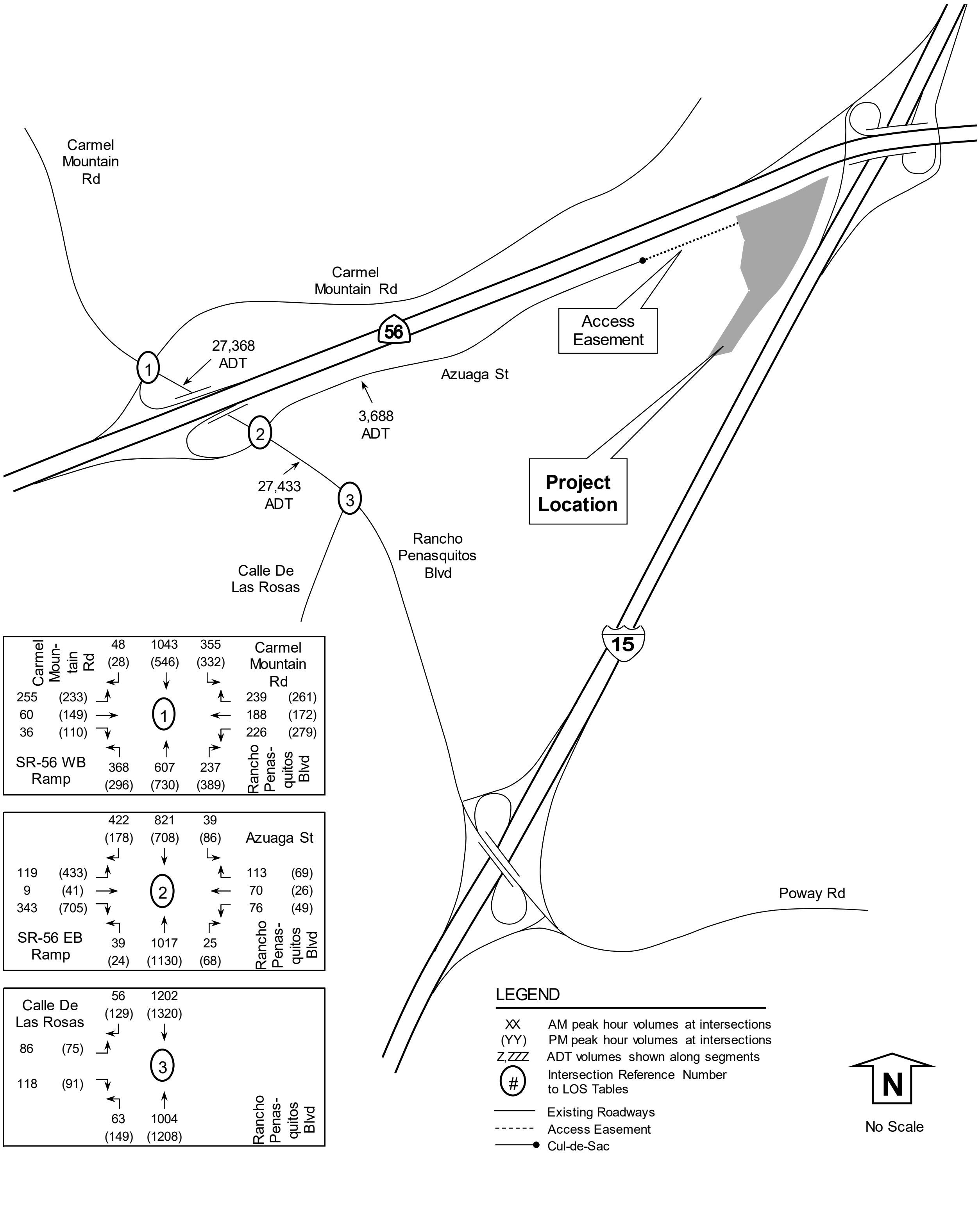
TABLE 12: EXISTING WITH PROJECT ON-RAMP OPERATIONS

On-Ramp & Peak Period*	Scenario	Vehicle Demand (veh/hr)	Number and type of lanes (1)	Most Restrictive Rate per lane (2)	On-Ramp Rate (veh/hr)	Excess Demand (veh/hr)	Calculated Delay** (minutes)	Calculated Queue in Feet (3)	Impact? (4)
SR-56 WB On-Ramp from Rancho Penasquitos Blvd/Carmel Mt. Rd									
AM WB On-Ramp	Existing	601	1 SOV	600	600	1	0.1	25	
AM WB On-Ramp	E+P	604	1 SOV	600	600	4	0.4	100	
Delta due to project (veh/hr):		3	Delay increase from project (minutes):				0.3		No
PM WB On-Ramp	Existing	492	1 SOV	Ramp meter not on according to Caltrans					
PM WB On-Ramp	E+P	496	1 SOV	Ramp meter not on according to Caltrans					
Delta due to project (veh/hr):		4	Delay increase from project (minutes):				0.0		No

Notes: (1) SOV: Single Occupancy Vehicle. (2) Rate provided by Caltrans. (3) Queue = excess demand x 25 ft/veh. (4) Impact only when total delay exceeds 15 minutes and increase in delay is over 2.0 minutes when freeway is at LOS E or delay increase is over 1.0 minute when freeway is at LOS F. *Ramp meter is on from 5:30 AM through 9:30 AM. **Delay = (Excess Demand/On-Ramp Rate)x60min/hr.

Under Existing with Project Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was calculated to operate with a delay of 0.4 minutes. <u>There are no significant direct impacts because the addition of project traffic does not exceed the significance thresholds.</u>

Figure 8: Existing with Project Volumes



6.0 Near Term without Project Conditions

Near term without project conditions describe the anticipated roadway operations for opening day anticipated to be year 2020. The following cumulative projects, anticipated to add traffic to the project study area, were identified based on coordination with City of San Diego engineering staff and a review of known nearby development:

1) *Merge 56* is a mixed-use project with 242 residential units and 525,000 square feet of commercial, office, theater and hotel uses calculated to generate approximately 19,468 ADT with 1,192 AM peak hour trips and 2,095 PM peak hour trips. This cumulative project is generally located south of SR-56 in the vicinity of Camino Del Sur and Torrey Santa Fe Road. Approved May 22, 2018, not yet constructed.

2) *Pacific Village* is a redevelopment project with a net increase of 277 apartments and is generally located on the southeast corner of Carmel Mountain Road and Penasquitos Drive. This cumulative project is calculated to generate 1,796 ADT with 144 AM peak hour trips and 163 PM peak hour trips. Approved March 5, 2018, not yet constructed.

3) *The Preserve at Torrey Highlands* includes 450,000 square feet of commercial office space generally located south of Torrey Santa Fe Road and west of Camino Del Sur. This cumulative project is calculated to generate approximately 5,260 ADT with 684 AM peak hour trips and 736 PM peak hour trips. In review with City.

4) *Watermark* is a commercial project with 151,369 square feet of multi-tenant office, 316,000 square feet of regional shopping center, a 43,917 square foot movie theater, and a 130 room hotel with a combined cumulative ADT of 18,552 with 582 AM peak hour trips and 1,726 PM peak hour trips. This cumulative project is located on the southeast corner of the Scripps Poway Parkway/I-15 interchange. Approved December 6, 2013, not yet constructed.

Individual cumulative project assignments that are anticipated to add traffic to the study area roadways are included in **Appendix J**. The cumulative project volumes and cumulative project locations are shown in **Figure 9**. The cumulative project trip generation is summarized in **Table 13**. Near term traffic volumes (existing + cumulative) without the project are shown in **Figure 10**. The LOS calculated for the study intersections and segments are included in **Tables 14 and 15**. The freeway on-ramp operations are shown in **Table 16**. Intersection LOS calculations are included in **Appendix K**.

TABLE 13: CUMULATIVE PROJECT TRIP GENERATION

		AM		PM	
Cumulative Project	**ADT**	**IN**	**OUT**	**IN**	**OUT**
Merge 56 (Commercial, Office, 242 Dwelling Units) - LLG TIS	**19,468**	**806**	**386**	**929**	**1,166**
Pacific Village (new increase 277 apartments) - LLG TIS	**1,796**	**29**	**115**	**114**	**49**
The Preserve Torrey Highlands (450 KSF Office) - LLG TIS	**5,260**	**616**	**68**	**147**	**589**
Watermark (Shopping Center and Hotel) - USA TIS	**18,552**	**455**	**127**	**838**	**888**
TOTALS	**45,076**	**1,906**	**696**	**2,028**	**2,692**

Source: City of San Diego *Trip Generation Manual*, May 2003. KSF - 1,000 Square Feet; ADT: Average Daily Traffic.

Figure 9: Cumulative Project Locations and Volumes

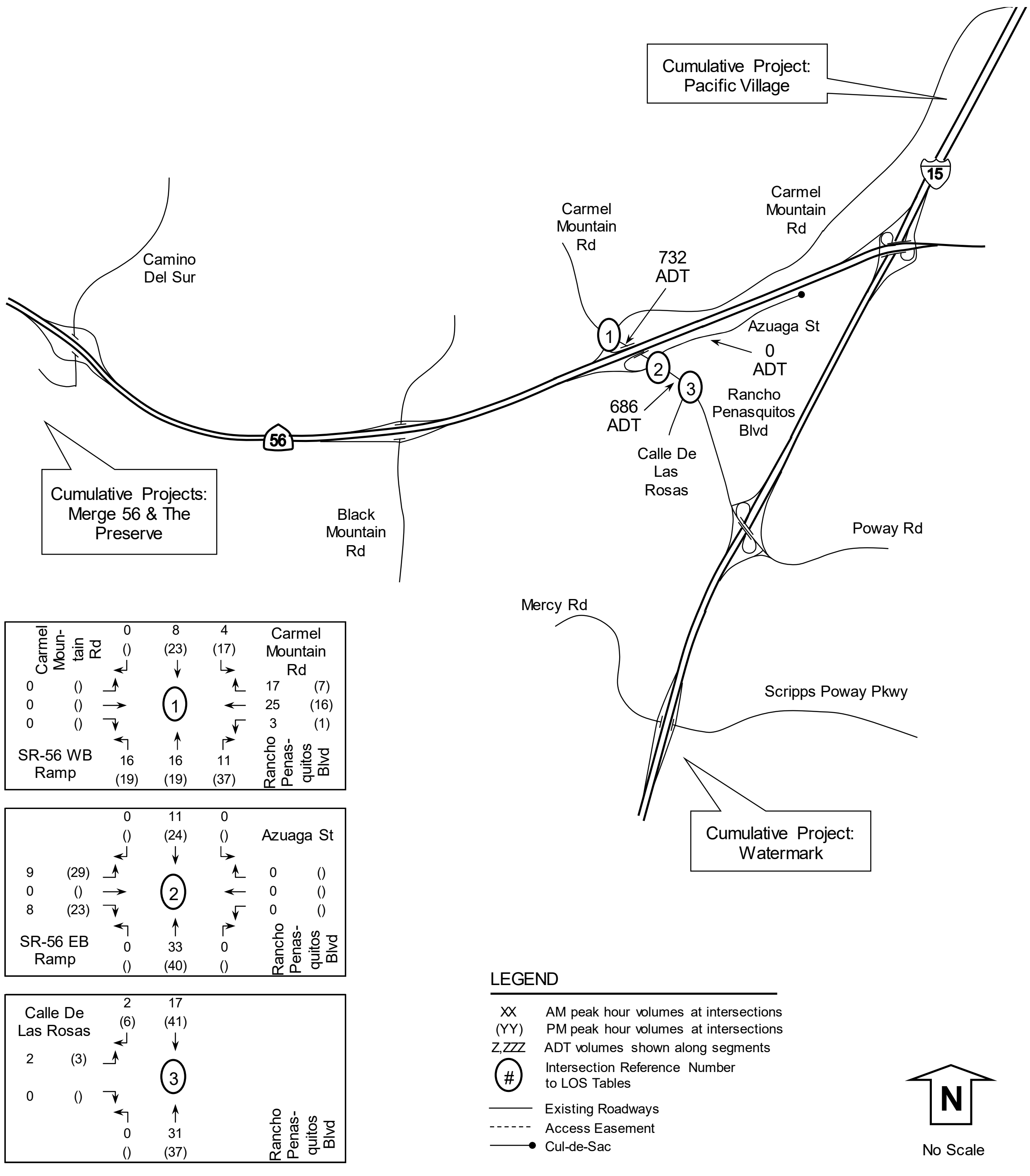


Figure 10: Near Term without Project Volumes

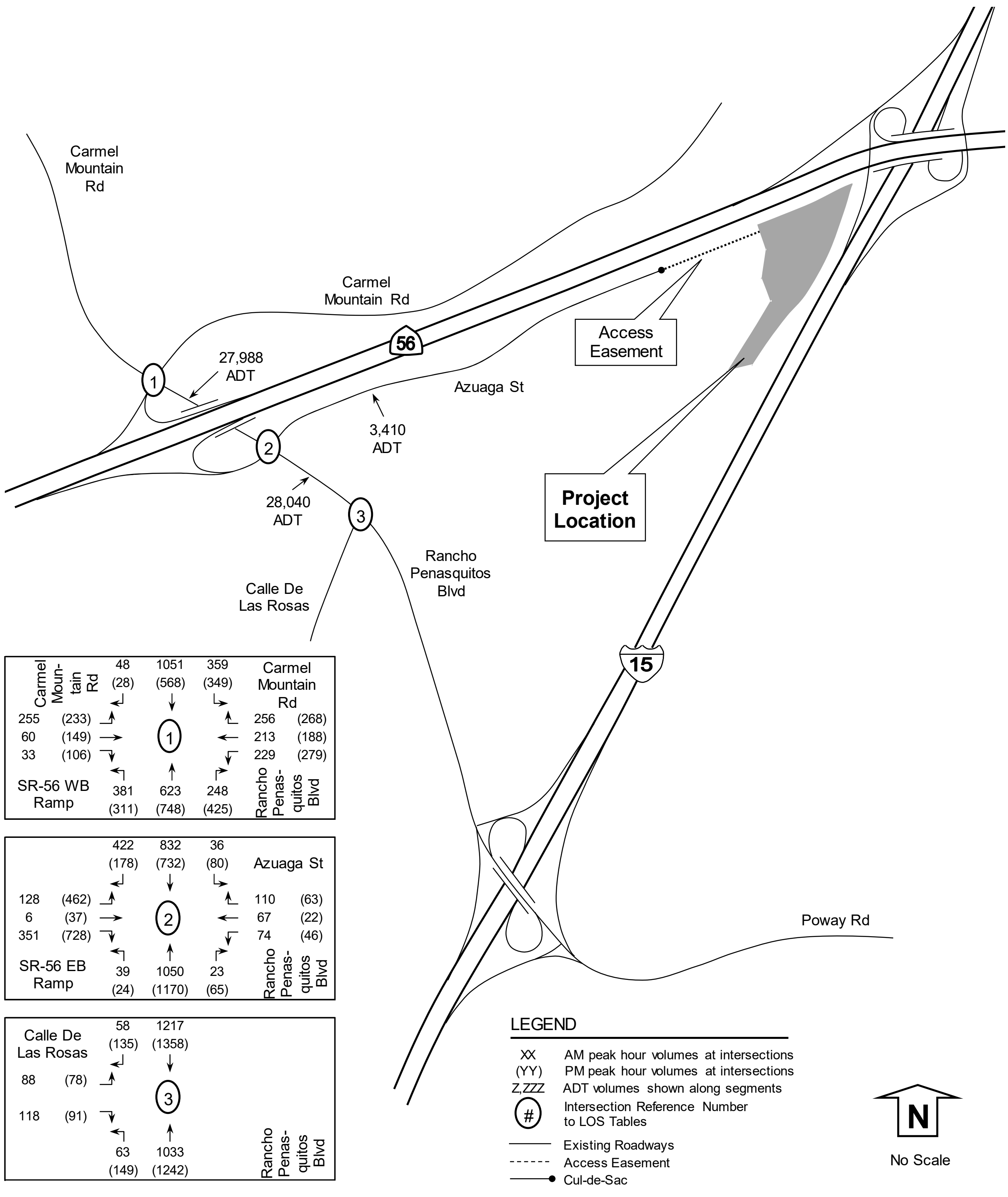


TABLE 14: NEAR TERM WITHOUT PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis)[1]	Movement	Peak Hour	Near Term (E+C) Delay[2]	LOS[3]
1) Rancho Penasquitos at	All	AM	43.1	D
SR-56/Carmel Mt. Rd (S)	All	PM	40.8	D
2) Rancho Penasquitos at	All	AM	23.3	C
SR-56/Azuaga St (S)	All	PM	73.8	E
3) Rancho Penasquitos	All	AM	12.8	B
Calle De Las Rosas (S)	All	PM	16.9	B

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service.

TABLE 15: NEAR TERM WITHOUT PROJECT SEGMENT VOLUMES AND LEVEL OF SERVICE

Daily	Functional Classification (as built)	LOS E Capacity	Near Term (E+C) Daily Volume	V/C	LOS
Rancho Penasquitos Boulevard					
Carmel Mt Rd to Azuaga St	5 Ln Major (5D)	40,000	27,988	0.700	C
Azuaga St to Calle De Las Rosas	4 Ln Major (4*)	30,000	28,040	0.935	E
Azuaga Street					
East of Rancho Penasquitos	None (2U)	8,000	3,410	0.426	B

Notes: 5D: 5 lane divided roadway (capacity taken as 4 lane to be conservative). 4* This 4 lane roadway has a portion with a center two way left turn lane and a portion with a raised median. Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Vol to Capacity Ratio.

TABLE 16: NEAR TERM WITHOUT PROJECT ON-RAMP OPERATIONS

On-Ramp & Peak Period*	Scenario	Vehicle Demand (veh/hr)	Number and type of lanes (1)	Most Restrictive Rate per lane (2)	On-Ramp Rate (veh/hr)	Excess Demand (veh/hr)	Calculated Delay** (minutes)	Calculated Queue in Feet (3)
SR-56 WB On-Ramp from Rancho Penasquitos Blvd/Carmel Mt. Rd								
AM WB On-Ramp	E+C	642	1 SOV	600	600	42	4.2	1,050
PM WB On-Ramp	E+C	527	1 SOV	Ramp meter not on according to Caltrans				

Notes: (1) SOV: Single Occupancy Vehicle. (2) Rate provided by Caltrans. (3) Queue = excess demand x 25 ft/veh.
*Ramp metering is on from 5:30 AM through 9:30 AM. **Delay = (Excess Demand/On-Ramp Rate)x60min/hr.

Under Near Term Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was calculated to operate with a 4.2 minute delay.

7.0 Near Term (Opening Day 2020) with Project Conditions

The near term with project conditions describe the anticipated roadway operations at opening day of the project in year 2020. Near term with project traffic volumes are shown in **Figure 11.** The LOS calculated for the study intersections and segments are included in **Tables 17 and 18**. The freeway on-ramp operations are shown in **Table 19**. Intersection LOS calculations are included in **Appendix L**.

TABLE 17: NEAR TERM (OPENING DAY 2020) WITH PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis)[1]	Movement	Peak Hour	Near Term Delay[2]	Near Term LOS[3]	Near Term + Project Delay[2]	Near Term + Project LOS[3]	Delta[4]	Direct Impact[5]
1) Rancho Penasquitos at	All	AM	43.1	D	43.6	D	0.5	No
SR-56/Carmel Mt. Rd (S)	All	PM	40.8	D	40.9	D	0.1	No
2) Rancho Penasquitos at	All	AM	23.3	C	23.7	C	0.4	No
SR-56/Azuaga St (S)	All	PM	73.8	E	74.5	E	0.7	No
3) Rancho Penasquitos	All	AM	12.8	B	12.8	B	0.0	No
Calle De Las Rosas (S)	All	PM	16.9	B	16.9	B	0.0	No

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. 5) Direct Impact if project traffic exceeds threshold.

TABLE 18: NEAR TERM (OPENING DAY 2020) WITH PROJECT SEGMENT VOLUMES AND LEVEL OF SERVICE

Segment	Functional Classification (as built)	LOS E Capacity	Near Term (E+C) Daily Volume	Near Term (E+C) V/C	Near Term (E+C) LOS	Project Daily Volume	Near Term with Project (E+C+P) Daily Volume	Near Term with Project (E+C+P) V/C	Near Term with Project (E+C+P) LOS	Change in V/C	Project Impact?
Rancho Penasquitos Boulevard											
Carmel Mt Rd to Azuaga St	5 Ln Major (5D)	40,000	27,988	0.700	C	112	28,100	0.703	C	0.003	No
Azuaga St to Calle De Las Rosas	4 Ln Major (4*)	30,000	28,040	0.935	E	79	28,119	0.937	E	0.003	No
Azuaga Street											
East of Rancho Penasquitos	None (2U)	8,000	3,410	0.426	B	278	3,688	0.461	C	0.035	No

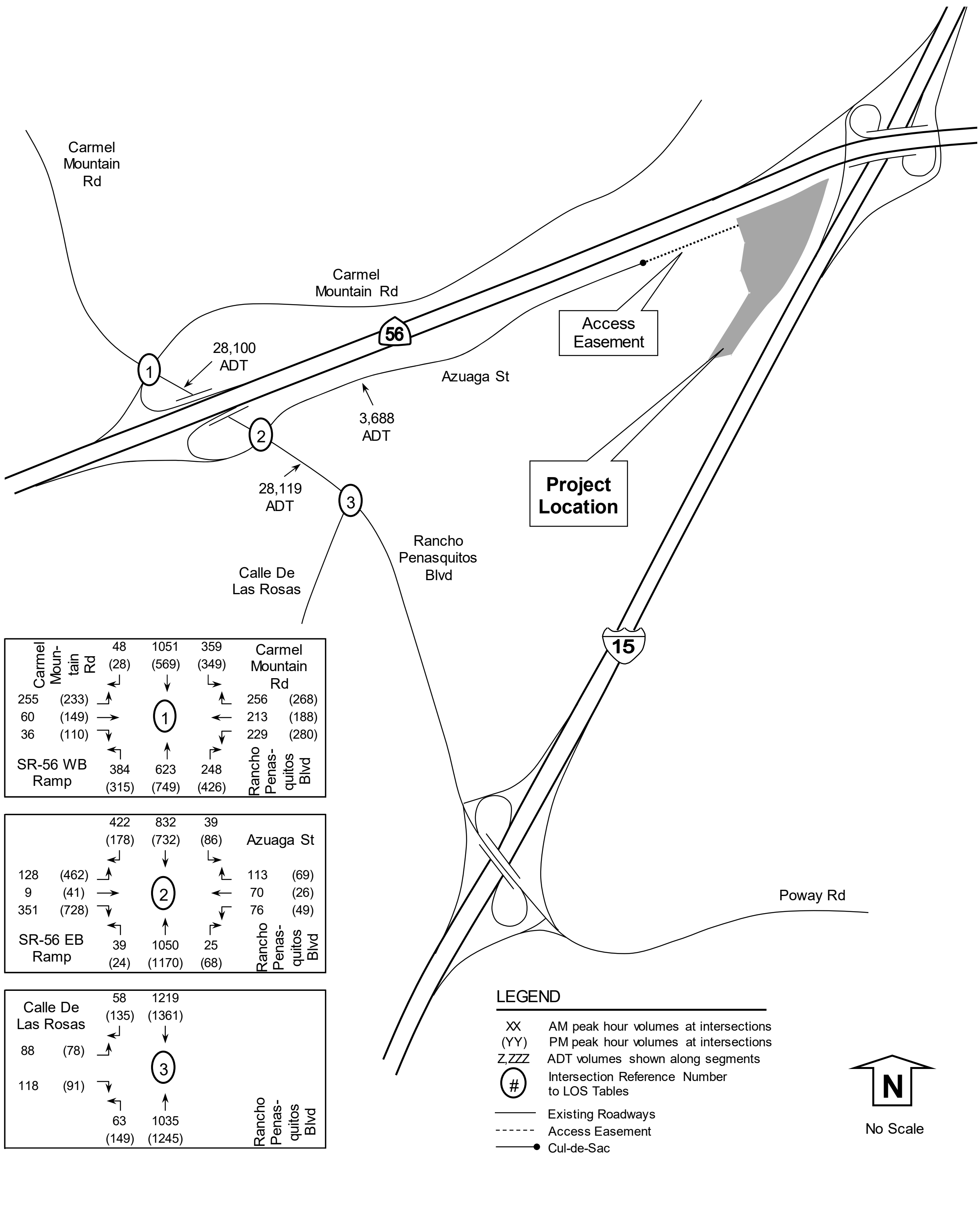
Notes: 5D: 5 lane divided roadway (capacity taken as 4 lane to be conservative). 4* This 4 lane roadway has a portion with a center two way left turn lane and a portion with a raised median. Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Vol to Capacity Ratio.

TABLE 19: NEAR TERM (OPENING DAY 2020) WITH PROJECT ON-RAMP OPERATIONS

On-Ramp & Peak Period*	Scenario	Vehicle Demand (veh/hr)	Number and type of lanes (1)	Most Restrictive Rate per lane (2)	On-Ramp Rate (veh/hr)	Excess Demand (veh/hr)	Calculated Delay** (minutes)	Calculated Queue in Feet (3)	Impact? (4)
SR-56 WB On-Ramp from Rancho Penasquitos Blvd/Carmel Mt. Rd									
AM WB On-Ramp	E+C	642	1 SOV	600	600	42	4.2	1,050	
AM WB On-Ramp	E+C+P	645	1 SOV	600	600	45	4.5	1,125	
Delta due to project (veh/hr):		3	Delay increase from project (minutes):				0.3		No
PM WB On-Ramp	E+C	527	1 SOV	Ramp meter not on according to Caltrans					
PM WB On-Ramp	E+C+P	531	1 SOV	Ramp meter not on according to Caltrans					
Delta due to project (veh/hr):		4	Delay increase from project (minutes):				0.0		No

Notes: (1) SOV: Single Occupancy Vehicle. (2) Rate provided by Caltrans. (3) Queue = excess demand x 25 ft/veh. (4) Impact only when total delay exceeds 15 minutes and increase in delay is over 2.0 minutes when freeway is at LOS E or delay increase is over 1.0 minute when freeway is at LOS F. *Ramp meter is on from 5:30 AM through 9:30 AM. **Delay = (Excess Demand/On-Ramp Rate)x60min/hr.

Figure 11: Near Term (Opening Day 2020) with Project Volumes



Under Near Term with Project Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was calculated to operate with a 4.5 minute delay. <u>There are no significant direct impacts because the addition of project traffic does not exceed the significance thresholds.</u>

8.0 Near Term (Opening Day 2020) with Construction Traffic Conditions

The near term with construction traffic conditions describe the anticipated roadway operations prior to opening day of the project in year 2020; however, to be conservative, this section and analysis is based on adding construction traffic onto near term (opening day 2020) conditions. The construction traffic distribution is shown in **Figure 12** and the construction traffic assignment is shown in **Figure 13**. Near term with construction traffic volumes are shown in **Figure 14.** The LOS calculated for the study intersections and segments are included in **Tables 20 and 21**. The freeway on-ramp operations are shown in **Table 22**. Intersection LOS calculations are included in **Appendix L**.

TABLE 20: NEAR TERM (OPENING DAY 2020) WITH CONSTRUCTION TRAFFIC INTERSECTION LEVEL OF SERVICE

Intersection and	Movement	Peak	Near Term		Near Term + Construction Traffic			
(Analysis)[1]		Hour	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delta[4]	Direct Impact[5]
1) Rancho Penasquitos at	All	AM	43.1	D	43.1	D	0.0	No
SR-56/Carmel Mt. Rd (S)	All	PM	40.8	D	40.9	D	0.1	No
2) Rancho Penasquitos at	All	AM	23.3	C	23.9	C	0.6	No
SR-56/Azuaga St (S)	All	PM	73.8	E	74.9	E	1.1	No
3) Rancho Penasquitos	All	AM	12.8	B	13.2	B	0.4	No
Calle De Las Rosas (S)	All	PM	16.9	B	17.1	B	0.2	No

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. 5) Direct Impact if project traffic exceeds threshold.

TABLE 21: NEAR TERM (OPENING DAY 2020) WITH CONSTRUCTION TRAFFIC SEGMENT VOLUMES AND LEVEL OF SERVICE

Segment	Functional Classification (as built)	LOS E Capacity	Near Term (E+C) Daily Volume	V/C	LOS	Project Daily Volume	Near Term with Construction Traffic Daily Volume	V/C	LOS	Change in V/C	Project Impact?
Rancho Penasquitos Boulevard											
Carmel Mt Rd to Azuaga St	5 Ln Major (5D)	40,000	27,988	0.700	C	40	28,028	0.701	C	0.001	No
Azuaga St to Calle De Las Rosas	4 Ln Major (4*)	30,000	28,040	0.935	E	30	28,070	0.936	E	0.001	No
Azuaga Street											
East of Rancho Penasquitos	None (2U)	8,000	3,410	0.426	B	100	3,510	0.439	C	0.013	No

Notes: 5D: 5 lane divided roadway (capacity taken as 4 lane to be conservative). 4* This 4 lane roadway has a portion with a center two way left turn lane and a portion with a raised median. Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Vol to Capacity Ratio.

TABLE 22: NEAR TERM (OPENING DAY 2020) WITH CONSTRUCTION TRAFFIC ON-RAMP OPERATIONS

On-Ramp & Peak Period*	Scenario	Vehicle Demand (veh/hr)	Number and type of lanes (1)	Most Restrictive Rate per lane (2)	On-Ramp Rate (veh/hr)	Excess Demand (veh/hr)	Calculated Delay** (minutes)	Calculated Queue in Feet (3)	Impact? (4)
SR-56 WB On-Ramp from Rancho Penasquitos Blvd/Carmel Mt. Rd									
AM WB On-Ramp	E+C	642	1 SOV	600	600	42	4.2	1,050	
AM WB On-Ramp	E+C+P	642	1 SOV	600	600	42	4.2	1,050	
Delta due to project (veh/hr):		0		Delay increase from project (minutes):			0.0		No
PM WB On-Ramp	E+C	527	1 SOV	Ramp meter not on according to Caltrans					
PM WB On-Ramp	E+C+P	537	1 SOV	Ramp meter not on according to Caltrans					
Delta due to project (veh/hr):		10		Delay increase from project (minutes):			0.0		No

Notes: (1) SOV: Single Occupancy Vehicle. (2) Rate provided by Caltrans. (3) Queue = excess demand x 25 ft/veh. (4) Impact only when total delay exceeds 15 minutes and increase in delay is over 2.0 minutes when freeway is at LOS E or delay increase is over 1.0 minute when freeway is at LOS F.
*Ramp metering is on from 5:30 AM through 9:30 AM. **Delay = (Excess Demand/On-Ramp Rate)x60min/hr.

Figure 12: Construction Traffic Distribution

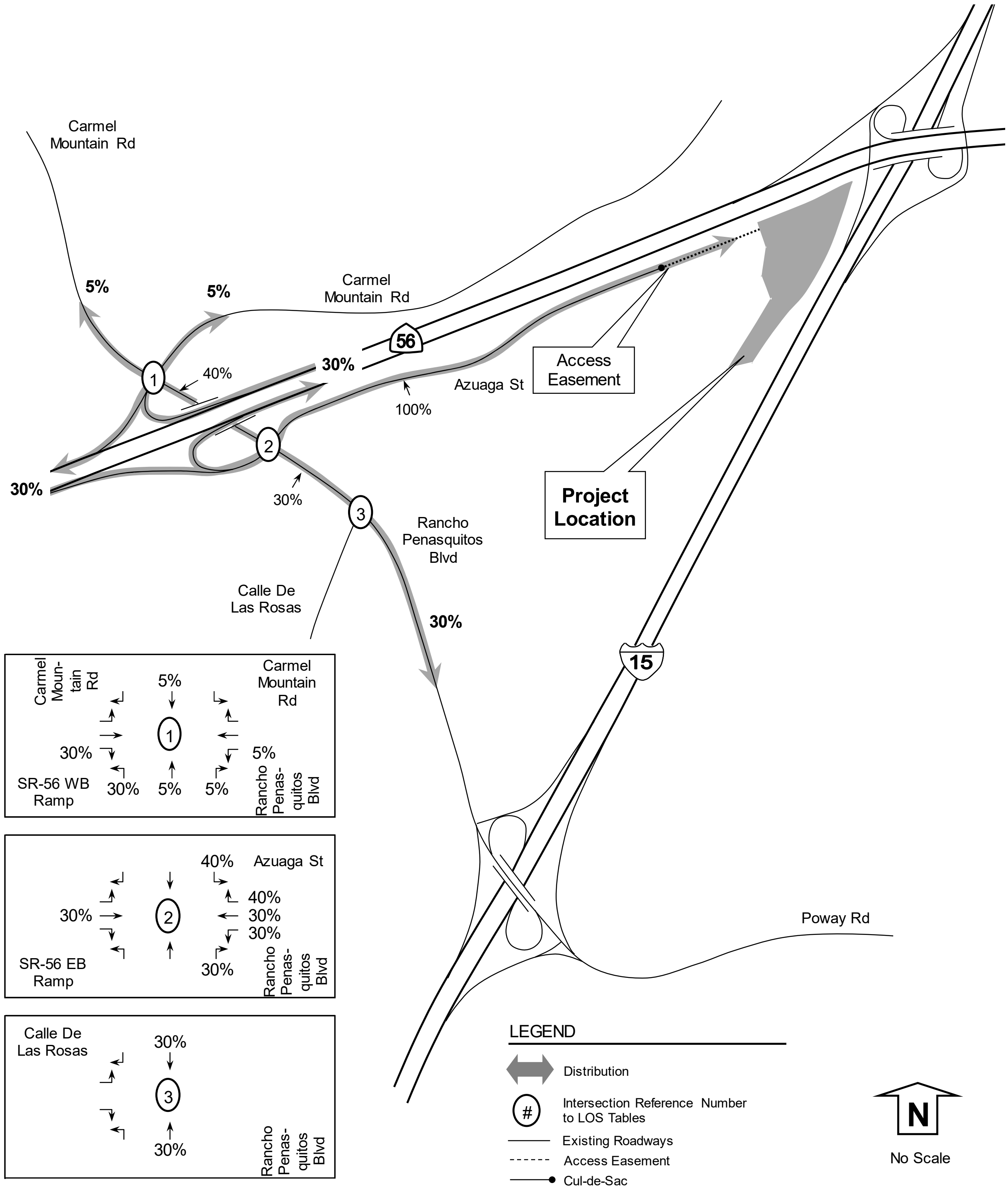


Figure 13: Construction Traffic Assignment

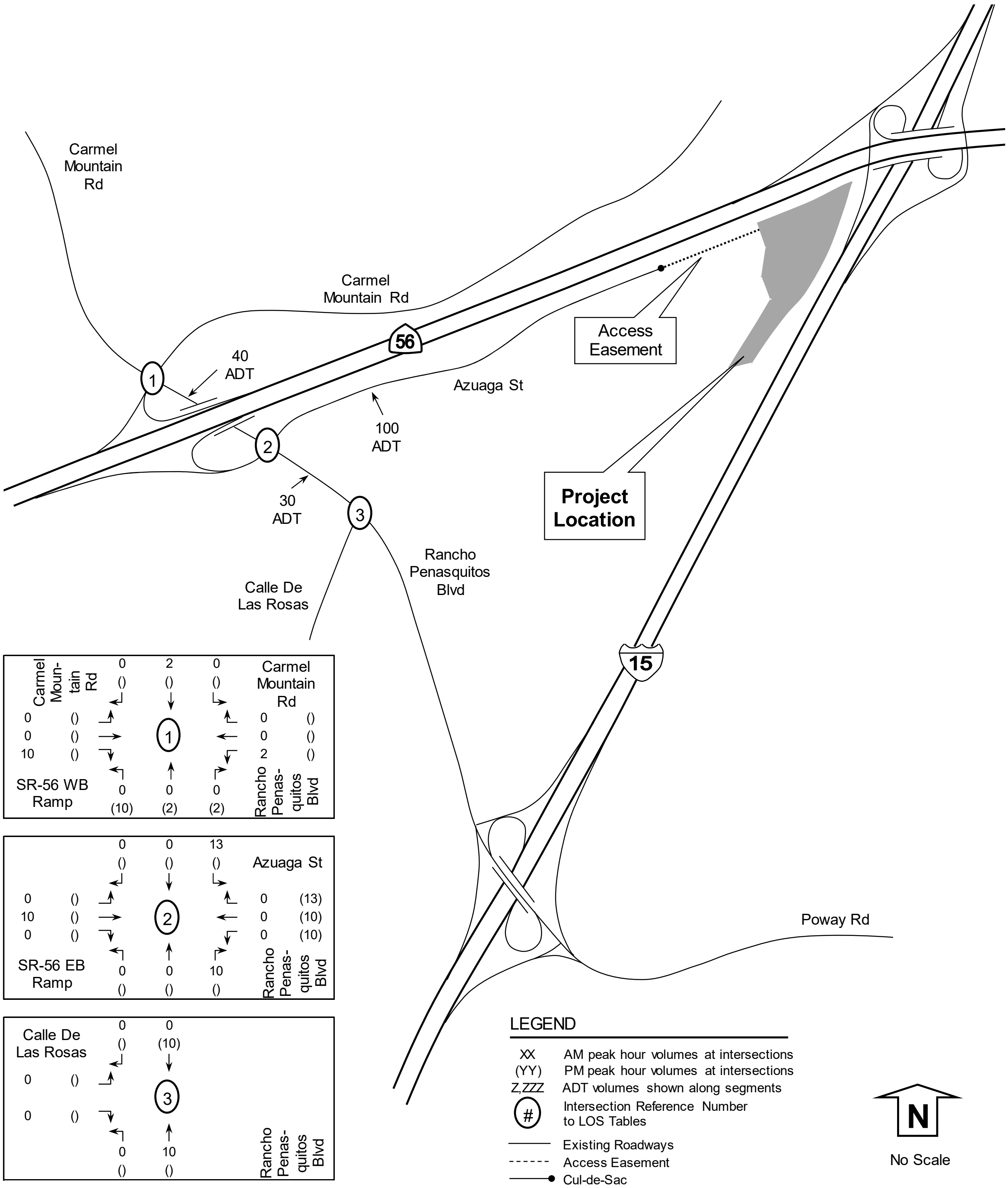
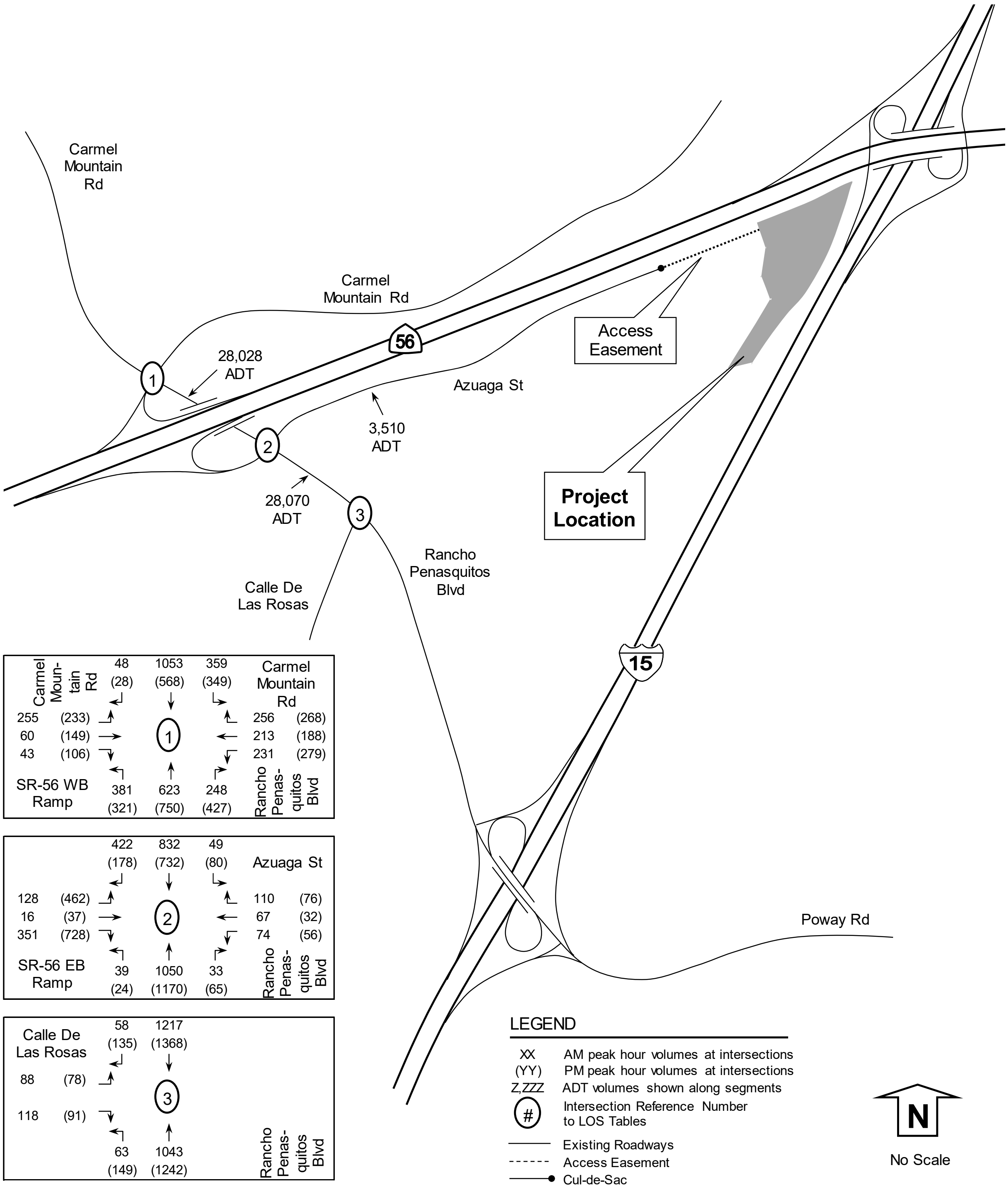


Figure 14: Near Term (Opening Day 2020) with Construction Traffic Volumes



Under Near Term with Construction Traffic Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was calculated to operate with a 4.2 minute delay. There is no construction worker traffic anticipated to use the on-ramp in the AM period because workers arrive at the site and do not leave; therefore, there is no increase in the freeway on-ramp delay from AM construction traffic. Construction deliveries typically occur off-peak periods. However, if a construction delivery truck is leaving during the AM peak hour, the passenger car equivalent of 2 vehicles (for 1 truck) would be less than the analyzed 3 vehicles using the on-ramp under the "with project conditions" that resulted in no impacts. <u>There are no significant direct impacts because the addition of construction traffic does not exceed the significance thresholds.</u>

9.0 Summary of Potential Impacts

The project has no calculated traffic impacts (based on the significance criteria); therefore, mitigation measures are not required. A summary table of the findings is shown in **Table 23.**

TABLE 23: DIRECT IMPACT SUMMARY

Roadway Facility	Existing and Near Term Direct Impacts	Mitigation
Intersection	None	None
Segment	None	None
Metered Freeway On-Ramp	None	None

10.0 Parking

The project site will include 27 parking spaces for the rental storage (mini-warehouse) area and office area. The rental storage requires 1 space/10,000 sf while the office area requires 3.3 spaces/1,000 sf based on the San Diego Municipal Code Table 142-05G. The rental storage is calculated to require a minimum of 14 spaces (135,556/10,000 sf = 13.6 rounded to 14) and the office area is calculated to require a minimum of 13 spaces (4,031 sf /1,000 sf x 3.3 = 13.3 rounded to 13). The parking summary is shown in **Table 24**.

TABLE 24: PROJECT PARKING SUMMARY

Project Component	Minimum Required Parking by Code	Provided Parking
Rental Storage	14 Automobile Spaces	14 Automobile Spaces
Office Area	13 Automobile Spaces	13 Automobile Spaces

11.0 Conclusion

The project is an outdoor storage facility for 69 Recreational Vehicles and 139,587 square feet of mini-warehouse all on approximately 10-acres located southwest of Interstate 15 (I-15) and the State Route 56 (SR-56)/Ted Williams Parkway interchange within the Rancho Peñasquitos Community of San Diego, California. The project site is currently vacant. The project is planned to open by the year 2020. The project applicant is processing a Planned Development Permit (PDP), easement vacation, and proposal to allow a use consistent with the Community Plan but not with the site's zone. Per City of San Diego Municipal Code Section 126.0602(a)(2), a PDP can be utilized "to allow uses that are not permitted in the underlying zone but that comply with the applicable land use plan." The project site is zoned RS-1-13.

Project access is from a single driveway at the eastern Azuaga Street terminus (cul-de-sac). The project will share a driveway with the existing built and occupied Terra Vista condominium development. The project has an access easement with the Terra Vista development.

The project trip generation for the project was calculated using trip rates from the City of San Diego *Trip Generation Manual*, May 2003. The project is calculated to generate 281 ADT with 16 AM peak hour trips (8 inbound and 8 outbound) and 26 PM peak hour trips (13 inbound and 13 outbound).

The following scenarios were analyzed for this access analysis: Existing, Existing with Project, Near Term, Near Term (Opening Day 2020) with Project Conditions, and Near Term (Opening Day 2020) with construction traffic. For each scenario, the findings include:

1) Under Existing Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was observed to operate with a maximum delay of 9 minutes and calculated to operate with a 0.1 minute delay.
2) Under Existing with Project Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was calculated to operate with a delay of 0.4 minutes. <u>There are no significant direct impacts because the addition of project traffic does not exceed the significance thresholds.</u>
3) Under Near Term Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was calculated to operate with a 4.2 minute delay.
4) Under Near Term (Opening Day 2020) with Project Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of

Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was calculated to operate with a 4.5 minute delay. There are no significant direct impacts because the addition of project traffic does not exceed the significance thresholds.

5) Under Near Term (Opening Day 2020) with Construction Traffic Conditions, the study intersections and segments were calculated to operate at LOS D or better except for the intersection of Rancho Penasquitos Blvd/SR-56 EB Ramp/Azuaga St (LOS E PM) and the segment of Rancho Penasquitos Blvd from Azuaga St to Calle De Las Rosas (LOS E). The metered freeway on-ramp at SR-56 WB/Rancho Penasquitos Blvd was calculated to operate with a 4.2 minute delay. There is no construction worker traffic anticipated to use the on-ramp in the AM period because workers arrive at the site and not leave; therefore, there is no calculated increase in the freeway on-ramp delay from AM construction traffic. Construction deliveries typically occur off-peak periods. However, if a construction delivery truck is leaving during the AM peak hour, the passenger car equivalent of 2 vehicles (for 1 truck) would be less than the analyzed 3 vehicles using the on-ramp under the "with project conditions" that resulted in no impacts. There are no significant direct impacts because the addition of construction traffic does not exceed the significance thresholds.

The project has no calculated traffic impacts based on the significance thresholds; therefore, mitigation measures are not required.

12.0 References and List of Preparers

12.1 References

City of San Diego *Traffic Impact Study Manual,* July 1998.

San Diego Traffic Engineers' Council (SANTEC). March 2, 2002. *SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region.*

Trafficware Corporation, 2006. Synchro Version 10 computer software.

Transportation Research Board National Research Council Washington, D.C. *Highway Capacity Manual 2000 and 2010*. CD ROM.

12.2 List of Preparers

Justin Rasas, P.E. (TR 2135), LOS Engineering, Inc. Author

Appendix A

Count Data and Signal Timing Sheets

PO Box 1178
Corona, CA 92880
951-268-6268

Location: San Diego
N/S: Carmel Mountain Rd
E/W: SR-56 WB Ramps

Date: 1/24/2018
Day: WEDNESDAY
Project # 143-18034

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	Carmel Mountain Rd Northbound			Carmel Mountain Rd Southbound			SR-56 WB Ramps Eastbound			SR-56 WB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	89	231	72	40	255	25	107	19	5	62	52	71	1028
7:15 AM	93	200	61	123	288	14	60	13	14	42	44	91	1043
7:30 AM	85	87	52	99	307	6	57	12	4	67	37	37	850
7:45 AM	98	89	52	93	193	3	31	16	10	55	55	40	735
8:00 AM	109	94	47	61	147	8	53	20	6	67	52	50	714
8:15 AM	84	88	56	67	190	10	47	20	11	58	49	44	724
8:30 AM	96	79	41	59	154	11	20	17	7	65	55	55	659
8:45 AM	102	91	50	48	147	9	28	23	10	83	60	56	707
TOTAL VOLUMES:	756	959	431	590	1681	86	403	140	67	499	404	444	6460

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	365	607	237	355	1043	48	255	60	33	226	188	239	3656

PEAK HR FACTOR:	0.771	0.851	0.664	0.882	0.876

Bicycle Counts

	Carmel Mountain Rd Northbound			Carmel Mountain Rd Southbound			SR-56 WB Ramps Eastbound			SR-56 WB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	1	0	0	0	0	0	0	0	1	0	0	2
7:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	3	0	0	1	0	0	0	0	1	0	0	5

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	3	0	0	1	0	0	0	0	1	0	0	5

Pedestrian Counts

	Carmel Mountain Rd North Leg	Carmel Mountain Rd South Leg	SR-56 WB Ramps East Leg	SR-56 WB Ramps West Leg	TOTAL
7:00 AM	0	0	1	1	2
7:15 AM	0	0	1	0	1
7:30 AM	0	0	0	1	1
7:45 AM	0	0	1	0	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	1	1	2
8:30 AM	0	0	0	0	0
8:45 AM	0	0	3	2	5
TOTAL VOLUMES:	0	0	7	5	12

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	3	2	5

PO Box 1178
Corona, CA 92880
951-268-6268

Location: San Diego
N/S: Carmel Mountain Rd
E/W: SR-56 WB Ramps

Date: 1/24/2018
Day: WEDNESDAY
Project # 143-18034

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:45 PM to 5:45 PM**

Vehicle Counts

	Carmel Mountain Rd Northbound			Carmel Mountain Rd Southbound			SR-56 WB Ramps Eastbound			SR-56 WB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	47	151	105	71	118	3	39	30	26	59	42	61	752
4:15 PM	66	157	80	63	126	5	47	34	31	50	34	47	740
4:30 PM	64	174	71	73	130	5	61	19	20	66	38	60	781
4:45 PM	59	192	80	85	123	5	64	32	16	61	40	52	809
5:00 PM	94	209	118	81	164	10	47	48	20	65	42	75	973
5:15 PM	64	168	99	87	129	8	69	41	29	77	50	63	884
5:30 PM	75	160	91	79	129	5	53	28	41	75	40	71	847
5:45 PM	72	152	81	78	127	7	59	35	34	65	29	46	785
TOTAL VOLUMES:	541	1363	725	617	1046	48	439	267	217	518	315	475	6571

PM Peak Hr Begins at: 445 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	292	729	388	332	545	28	233	149	106	278	172	261	3513

PEAK HR FACTOR:	0.837	0.887	0.878	0.936	0.903

Bicycle Counts

	Carmel Mountain Rd Northbound			Carmel Mountain Rd Southbound			SR-56 WB Ramps Eastbound			SR-56 WB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1	0	0	0	0	0	0	0	2

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

Pedestrian Counts

	Carmel Mountain Rd North Leg	Carmel Mountain Rd South Leg	SR-56 WB Ramps East Leg	SR-56 WB Ramps West Leg	TOTAL
4:00 PM	1	0	3	1	5
4:15 PM	1	0	3	4	8
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	2	2	4
5:15 PM	0	0	0	0	0
5:30 PM	0	0	1	0	1
5:45 PM	0	0	1	2	3
TOTAL VOLUMES:	2	0	10	9	21

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	3	2	5

PO Box 1178
Corona, CA 92880
951-268-6268

Location: San Diego
N/S: Rancho Penasquitos Blvd
E/W: SR-56 EB Ramps/Azuaga

Date: 1/24/2018
Day: WEDNESDAY
Project # 143-18034

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	Rancho Penasquitos Blvd Northbound			Rancho Penasquitos Blvd Southbound			SR-56 EB Ramps/Azuaga Eastbound			SR-56 EB Ramps/Azuaga Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	6	346	4	8	214	93	26	0	72	23	11	27	830
7:15 AM	10	298	3	8	230	112	27	0	78	17	18	35	836
7:30 AM	12	192	8	10	229	120	28	2	88	18	22	25	754
7:45 AM	11	181	8	10	148	97	38	4	105	16	16	23	657
8:00 AM	18	217	10	7	155	77	40	4	102	15	16	16	677
8:15 AM	12	176	8	12	134	89	62	3	104	15	10	18	643
8:30 AM	13	185	12	10	150	72	26	1	110	12	9	25	625
8:45 AM	7	200	8	11	183	65	35	2	106	19	11	20	667
TOTAL VOLUMES:	89	1795	61	76	1443	725	282	16	765	135	113	189	5689

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	39	1017	23	36	821	422	119	6	343	74	67	110	3077

PEAK HR FACTOR:	0.758	0.891	0.796	0.896	0.920

Bicycle Counts

	Rancho Penasquitos Blvd Northbound			Rancho Penasquitos Blvd Southbound			SR-56 EB Ramps/Azuaga Eastbound			SR-56 EB Ramps/Azuaga Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	1	0	1	0	0	0	0	0	0	1	3
7:15 AM	0	1	0	0	2	0	0	0	0	0	2	0	5
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	1	0	0	0	0	0	0	2	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	2	0	3	0	0	0	0	4	2	1	13

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	1	1	0	3	0	0	0	0	1	2	1	9

Pedestrian Counts

	Rancho Penasquitos Blvd North Leg	Rancho Penasquitos Blvd South Leg	SR-56 EB Ramps/Azuaga East Leg	SR-56 EB Ramps/Azuaga West Leg	TOTAL
7:00 AM	0	0	1	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	1	1	2
7:45 AM	0	0	1	0	1
8:00 AM	0	2	1	0	3
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	2	1	2	5
TOTAL VOLUMES:	0	4	5	3	12

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	3	1	4

PO Box 1178
Corona, CA 92880
951-268-6268

Location: San Diego
N/S: Rancho Penasquitos Blvd
E/W: SR-56 EB Ramps/Azuaga

Date: 1/24/2018
Day: WEDNESDAY
Project # 143-18034

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

Vehicle Counts

	Rancho Penasquitos Blvd Northbound			Rancho Penasquitos Blvd Southbound			SR-56 EB Ramps/Azuaga Eastbound			SR-56 EB Ramps/Azuaga Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	3	207	15	11	138	34	133	4	216	12	2	10	785
4:15 PM	4	252	15	27	173	34	69	12	178	8	4	14	790
4:30 PM	3	231	20	18	145	38	82	1	161	9	2	12	722
4:45 PM	4	258	15	13	179	39	108	7	178	13	5	21	840
5:00 PM	6	336	18	15	165	45	119	5	169	5	3	11	897
5:15 PM	10	265	15	24	194	46	106	11	183	11	6	17	888
5:30 PM	4	271	17	28	170	48	100	14	175	17	8	14	866
5:45 PM	1	274	21	34	159	52	70	11	149	12	6	16	805
TOTAL VOLUMES:	35	2094	136	170	1323	336	787	65	1409	87	36	115	6593

PM Peak Hr Begins at: 445 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	24	1130	65	80	708	178	433	37	705	46	22	63	3491

PEAK HR FACTOR:	0.847	0.915	0.979	0.840	0.973

Bicycle Counts

	Rancho Penasquitos Blvd Northbound			Rancho Penasquitos Blvd Southbound			SR-56 EB Ramps/Azuaga Eastbound			SR-56 EB Ramps/Azuaga Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	1	0	0	0	0	0	1	0	0	0	0	2
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	2
4:45 PM	0	0	0	0	0	0	0	1	0	1	1	0	3
5:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	2	0	0	0	0	1	0	1	0	0	4
5:30 PM	0	0	1	0	1	0	0	0	0	2	0	0	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	2	4	0	1	0	0	4	0	4	1	1	17

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	4	0	1	0	0	2	0	4	1	0	12

Pedestrian Counts

	Rancho Penasquitos Blvd North Leg	Rancho Penasquitos Blvd South Leg	SR-56 EB Ramps/Azuaga East Leg	SR-56 EB Ramps/Azuaga West Leg	TOTAL
4:00 PM	0	1	3	0	4
4:15 PM	0	1	4	2	7
4:30 PM	0	2	3	0	5
4:45 PM	0	2	3	1	6
5:00 PM	0	1	1	0	2
5:15 PM	0	2	2	1	5
5:30 PM	0	1	1	0	2
5:45 PM	0	0	1	0	1
TOTAL VOLUMES:	0	10	18	4	32

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	6	7	2	15

PO Box 1178
Corona, CA 92880
951-268-6268

Location: San Diego
N/S: Rancho Penasquitos Blvd
E/W: Calle de Los Rosas

Date: 1/24/2018
Day: WEDNESDAY
Project # 143-18034

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **7:00AM to 8:00 AM**

Vehicle Counts

	Rancho Penasquitos Blvd Northbound			Rancho Penasquitos Blvd Southbound			Calle de Los Rosas Eastbound			Calle de Los Rosas Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	5	356	0	0	300	8	19	0	46	0	0	0	734
7:15 AM	20	286	0	0	320	11	16	2	27	0	0	0	682
7:30 AM	20	175	0	0	311	23	24	0	25	0	0	0	578
7:45 AM	18	185	0	0	269	14	27	1	20	0	0	0	534
8:00 AM	7	208	0	0	265	8	22	0	32	0	0	0	542
8:15 AM	10	179	0	0	245	8	17	0	33	0	0	0	492
8:30 AM	14	173	0	0	256	10	32	0	29	0	0	0	514
8:45 AM	8	185	0	0	290	18	31	0	22	0	0	0	554
TOTAL VOLUMES:	102	1747	0	0	2256	100	188	3	234	0	0	0	4630

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	63	1002	0	0	1200	56	86	3	118	0	0	0	2528

PEAK HR FACTOR:	0.738	0.940	0.796	0.000	0.861

Bicycle Counts

	Rancho Penasquitos Blvd Northbound			Rancho Penasquitos Blvd Southbound			Calle de Los Rosas Eastbound			Calle de Los Rosas Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	1	0	0	0	0	0	1	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1	0	0	0	0	0	1	0	3

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	1	0	0	1	0	0	0	0	0	1	0	3

Pedestrian Counts

	Rancho Penasquitos Blvd North Leg	Rancho Penasquitos Blvd South Leg	Calle de Los Rosas East Leg	Calle de Los Rosas West Leg	TOTAL
7:00 AM	1	0	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	1	0	0	0	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	1	1
8:30 AM	0	0	0	0	0
8:45 AM	0	2	0	0	2
TOTAL VOLUMES:	2	2	0	1	5

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	2	0	0	0	2

PO Box 1178
Corona, CA 92880
951-268-6268

Location: San Diego
N/S: Rancho Penasquitos Blvd
E/W: Calle de Los Rosas

Date: 1/24/2018
Day: WEDNESDAY
Project # 143-18034

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:45 PM to 5:45 PM**

Vehicle Counts

	Rancho Penasquitos Blvd Northbound			Rancho Penasquitos Blvd Southbound			Calle de Los Rosas Eastbound			Calle de Los Rosas Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	42	202	0	0	350	41	16	0	27	0	0	0	678
4:15 PM	19	268	0	0	295	34	18	0	19	0	0	0	653
4:30 PM	34	231	0	0	303	35	13	0	17	0	0	0	633
4:45 PM	27	311	0	0	331	26	18	0	30	0	0	0	743
5:00 PM	40	327	0	0	315	27	15	0	23	0	0	0	747
5:15 PM	42	280	0	0	333	36	19	0	25	0	0	0	735
5:30 PM	40	287	0	0	338	40	23	0	13	0	0	0	741
5:45 PM	30	274	0	1	284	35	8	0	25	0	0	0	657
TOTAL VOLUMES:	274	2180	0	1	2549	274	130	0	179	0	0	0	5587

PM Peak Hr Begins at: 445 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	149	1205	0	0	1317	129	75	0	91	0	0	0	2966

PEAK HR FACTOR:	0.922	0.956	0.865	0.000	0.993

Bicycle Counts

	Rancho Penasquitos Blvd Northbound			Rancho Penasquitos Blvd Southbound			Calle de Los Rosas Eastbound			Calle de Los Rosas Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	0	0	0	0	0	0	0	1	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	4	0	0	0	0	0	0	0	0	1	0	5

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	1	0	0	0	0	0	0	0	0	1	0	2

Pedestrian Counts

	Rancho Penasquitos Blvd North Leg	Rancho Penasquitos Blvd South Leg	Calle de Los Rosas East Leg	Calle de Los Rosas West Leg	TOTAL
4:00 PM	0	0	0	1	1
4:15 PM	2	0	0	0	2
4:30 PM	0	0	1	0	1
4:45 PM	1	0	0	0	1
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	1	0	0	1
TOTAL VOLUMES:	3	1	1	1	6

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	1	0	0	0	1

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

City of San Diego
Carmel Mountian Road
B/ State Route 56 Westbound - State Route 56 Eastbound

File Name 001
Site Code: 143-18034
24 Hour Directional Volume Count

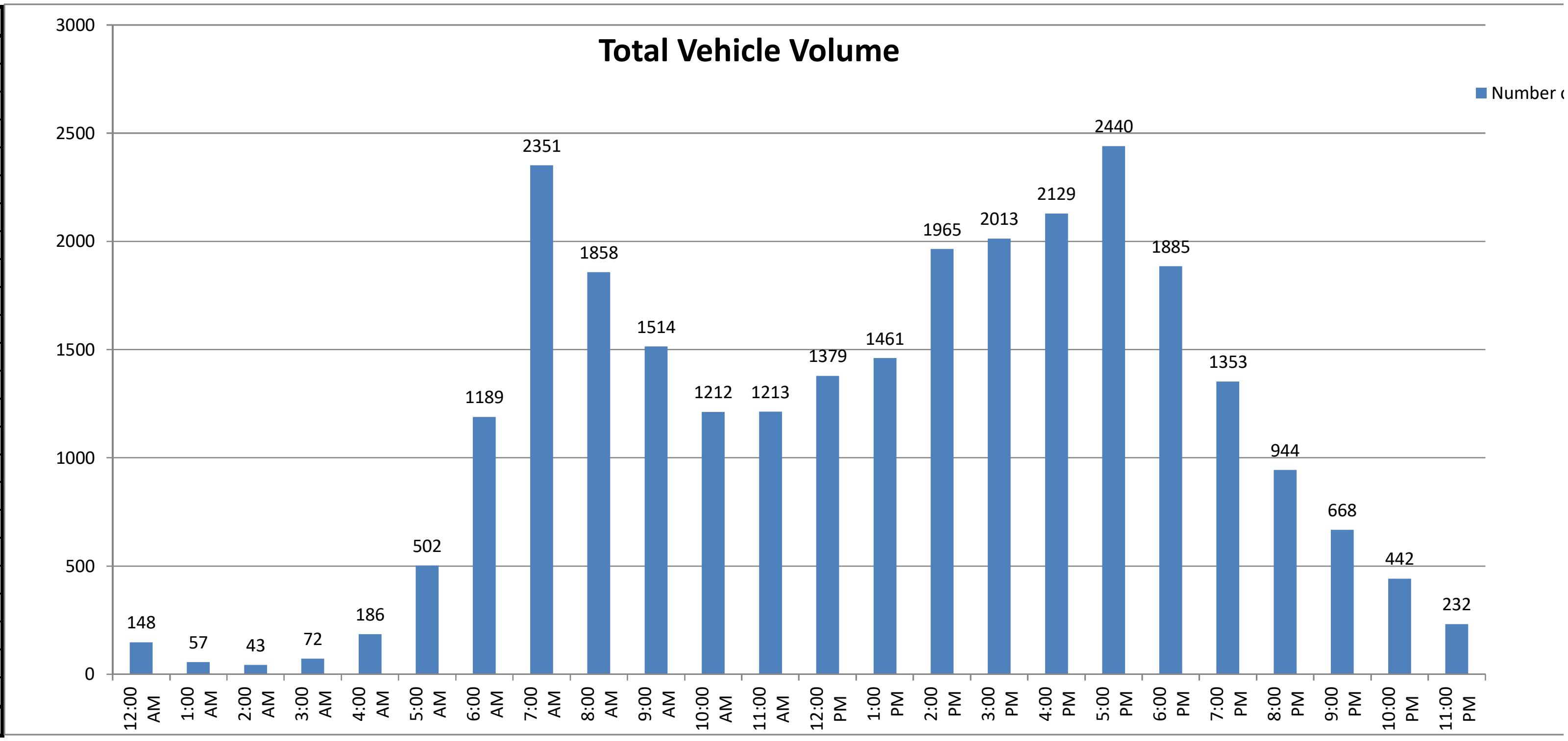
Date:	Northbound				Southbound					
1/24/2018	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	32	199			22	147				
12:15	18	182			13	149				
12:30	21	182			12	146				
12:45	19	209	90	772	11	165	58	607	148	1379
1:00	15	175			9	181				
1:15	4	186			4	163				
1:30	8	205			5	170				
1:45	6	217	33	783	6	164	24	678	57	1461
2:00	5	271			6	174				
2:15	6	235			1	175				
2:30	6	269			7	241				
2:45	4	315	21	1090	8	285	22	875	43	1965
3:00	7	269			7	208				
3:15	4	287			9	197				
3:30	10	265			9	207				
3:45	13	362	34	1183	13	218	38	830	72	2013
4:00	16	326			10	191				
4:15	26	318			16	204				
4:30	15	308			29	214				
4:45	35	372	92	1324	39	196	94	805	186	2129
5:00	44	442			57	233				
5:15	52	366			67	242				
5:30	58	356			68	239				
5:45	70	344	224	1508	86	218	278	932	502	2440
6:00	88	309			92	222				
6:15	129	322			129	175				
6:30	156	280			158	176				
6:45	229	212	602	1123	208	189	587	762	1189	1885
7:00	390	200			277	172				
7:15	344	195			332	156				
7:30	225	193			316	143				
7:45	237	178	1196	766	230	116	1155	587	2351	1353
8:00	265	156			204	128				
8:15	241	127			228	97				
8:30	222	123			213	104				
8:45	242	133	970	539	243	76	888	405	1858	944
9:00	210	121			182	83				
9:15	192	108			206	69				
9:30	191	98			194	65				
9:45	185	76	778	403	154	48	736	265	1514	668
10:00	151	69			146	56				
10:15	161	93			128	46				
10:30	148	62			155	37				
10:45	174	46	634	270	149	33	578	172	1212	442
11:00	138	47			147	26				
11:15	149	41			147	23				
11:30	187	34			154	14				
11:45	148	31	622	153	143	16	591	79	1213	232
Totals	5296	9914			5049	6997				
Combined Totals		15210				12046				
ADT										27256
AM Peak Hour	700	AM			700	AM				
Volume	1196				1155					
P.H.F.	0.767				0.870					
PM Peak Hour		445	PM			500	PM			
Volume		1536				932				
P.H.F.		0.869				0.963				
Percentage	34.8%	65.2%			41.9%	58.1%				

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

24 Hour Volume Plot

Carmel Mountian Road
B/ State Route 56 Westbound - State Route 56 Eastbound
1/24/2018

Start Time	1/24/2018
12:00 AM	148
1:00 AM	57
2:00 AM	43
3:00 AM	72
4:00 AM	186
5:00 AM	502
6:00 AM	1189
7:00 AM	2351
8:00 AM	1858
9:00 AM	1514
10:00 AM	1212
11:00 AM	1213
12:00 PM	1379
1:00 PM	1461
2:00 PM	1965
3:00 PM	2013
4:00 PM	2129
5:00 PM	2440
6:00 PM	1885
7:00 PM	1353
8:00 PM	944
9:00 PM	668
10:00 PM	442
11:00 PM	232
Total	27256



Volumes represent the combined totals for both directions

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

City of San Diego
Rancho Penasquitos Boulevard
B/ State Route 56 - Calle De Las Rosas

File Name 002
Site Code: 143-18034
24 Hour Directional Volume Count

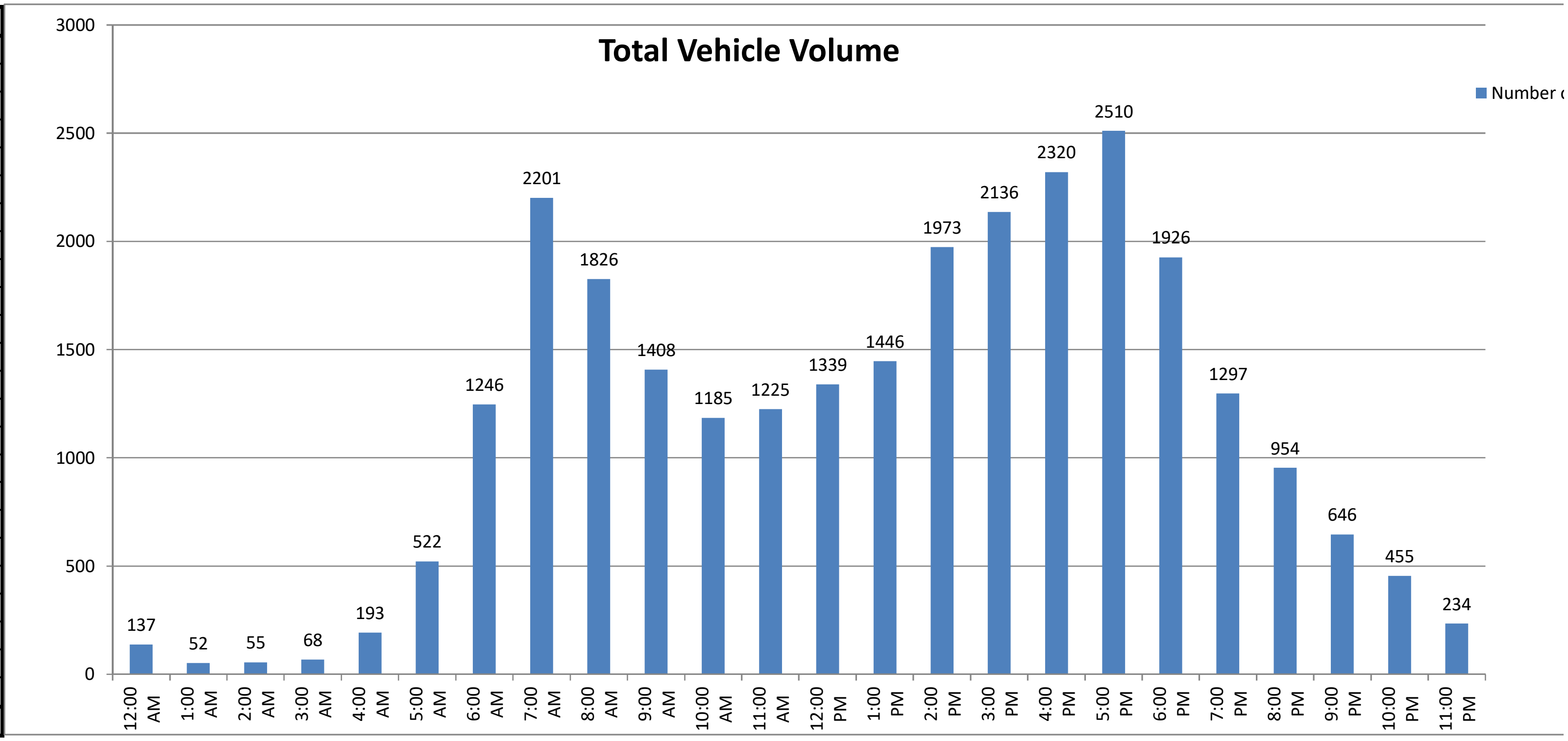
Date:	Northbound				Southbound					
1/24/2018	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	27	160			15	196				
12:15	18	133			16	183				
12:30	15	142			15	184				
12:45	16	150	76	585	15	191	61	754	137	1339
1:00	12	140			8	202				
1:15	6	127			4	209				
1:30	5	152			7	225				
1:45	6	179	29	598	4	212	23	848	52	1446
2:00	3	199			9	218				
2:15	5	195			6	236				
2:30	4	226			15	316				
2:45	4	242	16	862	9	341	39	1111	55	1973
3:00	5	210			5	325				
3:15	3	189			10	298				
3:30	10	169			11	351				
3:45	10	224	28	792	14	370	40	1344	68	2136
4:00	14	199			10	342				
4:15	17	254			22	341				
4:30	15	215			40	304				
4:45	22	311	68	979	53	354	125	1341	193	2320
5:00	27	316			63	323				
5:15	40	286			73	367				
5:30	51	270			95	354				
5:45	59	281	177	1153	114	313	345	1357	522	2510
6:00	62	224			143	298				
6:15	107	241			158	257				
6:30	128	211			209	256				
6:45	228	180	525	856	211	259	721	1070	1246	1926
7:00	351	159			314	197				
7:15	265	156			307	197				
7:30	188	131			316	176				
7:45	197	139	1001	585	263	142	1200	712	2201	1297
8:00	212	115			260	161				
8:15	168	108			260	158				
8:30	182	92			260	105				
8:45	196	108	758	423	288	107	1068	531	1826	954
9:00	134	99			226	100				
9:15	128	90			235	95				
9:30	142	79			234	77				
9:45	128	59	532	327	181	47	876	319	1408	646
10:00	107	67			181	69				
10:15	107	74			184	59				
10:30	121	44			183	50				
10:45	114	42	449	227	188	50	736	228	1185	455
11:00	109	43			191	31				
11:15	113	33			184	25				
11:30	135	30			197	21				
11:45	124	31	481	137	172	20	744	97	1225	234
Totals	4140	7524			5978	9712				
Combined Totals		11664				15690				
ADT										27354
AM Peak Hour	645	AM			700	AM				
Volume	1032				1200					
P.H.F.	0.735				0.949					
PM Peak Hour		445	PM			330	PM			
Volume		1183				1404				
P.H.F.		0.936				0.949				
Percentage	35.5%	64.5%			38.1%	61.9%				

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

24 Hour Volume Plot

Rancho Penasquitos Boulevard
B/ State Route 56 - Calle De Las Rosas
1/24/2018

Start Time	1/24/2018
12:00 AM	137
1:00 AM	52
2:00 AM	55
3:00 AM	68
4:00 AM	193
5:00 AM	522
6:00 AM	1246
7:00 AM	2201
8:00 AM	1826
9:00 AM	1408
10:00 AM	1185
11:00 AM	1225
12:00 PM	1339
1:00 PM	1446
2:00 PM	1973
3:00 PM	2136
4:00 PM	2320
5:00 PM	2510
6:00 PM	1926
7:00 PM	1297
8:00 PM	954
9:00 PM	646
10:00 PM	455
11:00 PM	234
Total	27354



Volumes represent the combined totals for both directions

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PO Box 1178
Corona, CA 92878

City of San Diego
Azuaga Street
E/ Rancho Penasquitos Boulevard

File Name 004
Site Code: 143-18034
24 Hour Directional Volume Count

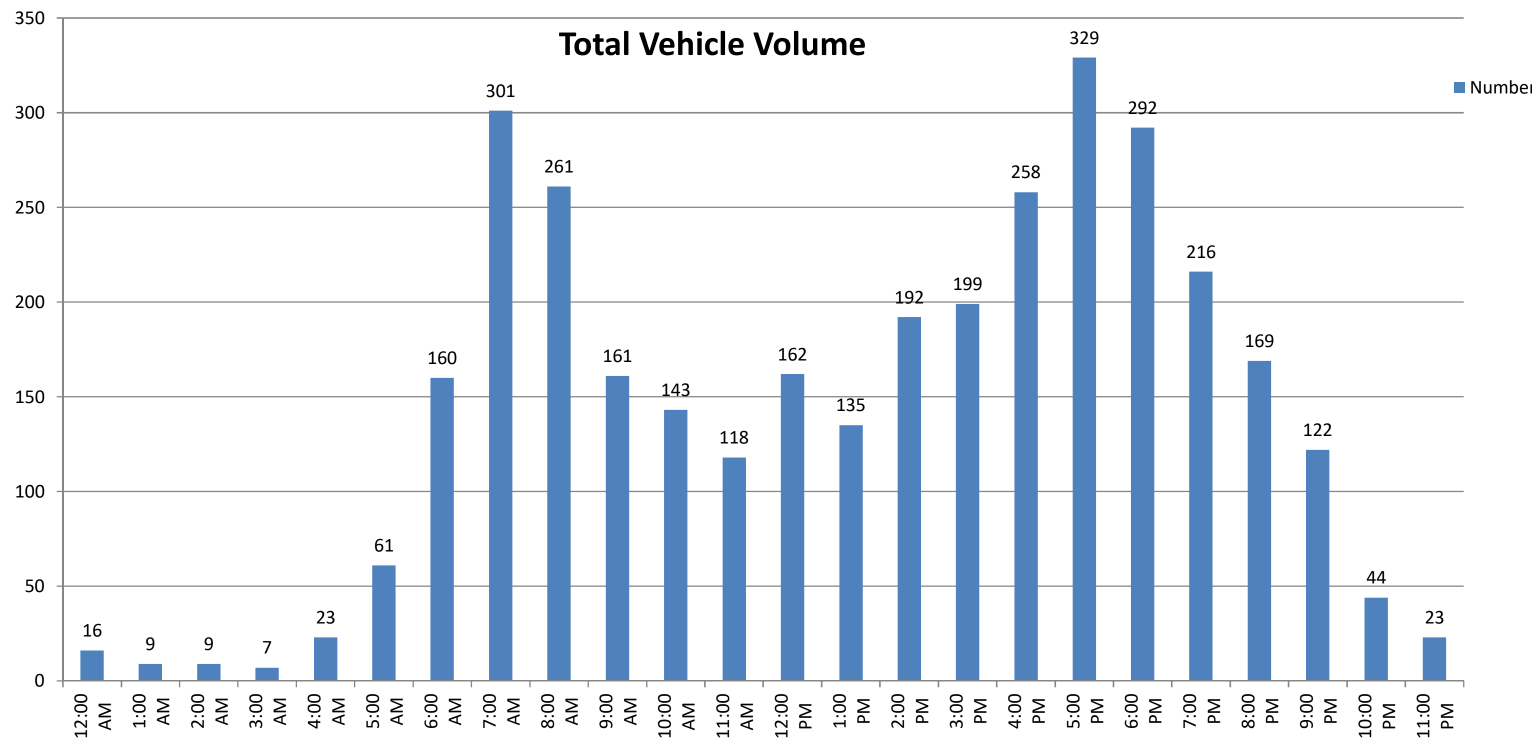
Date:	Eastbound				Westbound					
1/24/2018	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	4	19			2	23				
12:15	4	18			1	19				
12:30	3	15			0	22				
12:45	2	23	13	75	0	23	3	87	16	162
1:00	3	18			0	15				
1:15	1	12			0	18				
1:30	1	16			0	16				
1:45	4	15	9	61	0	25	0	74	9	135
2:00	1	27			2	22				
2:15	1	33			0	19				
2:30	0	16			2	15				
2:45	3	40	5	116	0	20	4	76	9	192
3:00	2	25			2	23				
3:15	0	24			0	18				
3:30	1	30			0	21				
3:45	0	33	3	112	2	25	4	87	7	199
4:00	0	34			3	18				
4:15	0	45			2	21				
4:30	0	43			10	21				
4:45	2	35	2	157	6	41	21	101	23	258
5:00	1	42			6	19				
5:15	6	46			13	32				
5:30	3	67			16	34				
5:45	2	54	12	209	14	35	49	120	61	329
6:00	4	50			26	30				
6:15	3	52			28	15				
6:30	7	40			36	29				
6:45	11	58	25	200	45	18	135	92	160	292
7:00	17	38			54	15				
7:15	10	38			71	20				
7:30	24	38			55	19				
7:45	21	36	72	150	49	12	229	66	301	216
8:00	20	34			49	17				
8:15	29	26			33	24				
8:30	20	34			43	7				
8:45	21	18	90	112	46	9	171	57	261	169
9:00	12	29			34	16				
9:15	15	19			21	19				
9:30	21	17			26	5				
9:45	9	13	57	78	23	4	104	44	161	122
10:00	14	10			19	5				
10:15	10	6			29	4				
10:30	15	3			13	4				
10:45	17	9	56	28	26	3	87	16	143	44
11:00	11	5			14	2				
11:15	18	4			15	2				
11:30	9	2			20	0				
11:45	20	7	58	18	11	1	60	5	118	23
Totals	402	1316			867	825				
Combined Totals		1718				1692				
ADT										3410
AM Peak Hour	730	AM			700	AM				
Volume	94				229					
P.H.F.	0.810				0.806					
PM Peak Hour		530	PM			515	PM			
Volume		223				131				
P.H.F.		0.832				0.936				
Percentage	23.4%	76.6%			51.2%	48.8%				

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

24 Hour Volume Plot

Azuaga Street
E/ Rancho Penasquitos Boulevard
1/24/2018

Start Time	1/24/2018
12:00 AM	16
1:00 AM	9
2:00 AM	9
3:00 AM	7
4:00 AM	23
5:00 AM	61
6:00 AM	160
7:00 AM	301
8:00 AM	261
9:00 AM	161
10:00 AM	143
11:00 AM	118
12:00 PM	162
1:00 PM	135
2:00 PM	192
3:00 PM	199
4:00 PM	258
5:00 PM	329
6:00 PM	292
7:00 PM	216
8:00 PM	169
9:00 PM	122
10:00 PM	44
11:00 PM	23
Total	3410



Volumes represent the combined totals for both directions

LOCATION: **RTE 56 EB @ RANCHO PENASQUITO BLVD / AZUAGA STREET**

CALTRANS C8 Version 3 DATE: 5/7/2014

F PAGE

	INTERVAL	PHASE TIMING 1	2	3	4	5	6	7	8	9	PRE-EMPTION E		FLAGS	F 1	2	3	4	5	6	7	8	
0	WALK	1	7	1	1	1	7	1	7	CLK RST	EV SEL	0	PERMIT	1	2	3	4	5	6	7	8	0
1	DONT WALK	1	34	1	1	1	23	1	29		RR1 CLR	5	RED LOCK								8	1
2	MIN GREEN	5	14	1	1	10	14	10	5		EVA DLY	0	YEL LOCK									2
3	TYPE 3 DET	0	0	0	0	0	0	0	0		EVA CLR	5	V RECALL		2				6			3
4	ADD/VEH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		EVB DLY	0	P RECALL									4
5	PASSAGE	2.0	2.0	0.9	0.9	2.0	2.0	2.0	2.0		EVB CLR	5	PED PHASES		2				6		8	5
6	MAX GAP	2.0	2.0	0.9	0.9	2.0	2.0	2.0	2.0		EVC DLY	0	RT OLA									6
7	MIN GAP	2.0	2.0	0.9	0.9	2.0	2.0	2.0	2.0		EVC CLR	5	RT OLB									7
8	MAX EXT	20	45	9	9	20	45	20	35		EVD DLY	0	DBL ENTRY									8
9	MAX 2									YR	EVD CLR	5	MAX 2 PHASES									9
A	MAX 3									MO	MAX EV	255	LAG PHASES	READ ONLY								A
B										DAY	RR2 CLR	5	RED REST									B
C	REDUCE BY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	DOW			REST-IN-WALK									C
D	EVERY	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	HR			MAX 3 PHASES									D
E	YELLOW	3.2	4.5	3.0	3.0	3.2	4.5	3.6	3.6	MIN			YEL START UP		2				6			E
F	RED	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	SEC			FIRST PHASE							7		F
	PED XING FT		119				79		103					1	2	3	4	5	6	7	8	
	BIKE XING FT		118			90	110	90														

NOTES: 7/8 SPLIT

FOC LONG FAILURE	
FOD SHORT FAILURE	
FOE	0
FOF	5
FCO	3
FC1	3
FC2	10
FCA	0.0
FCB	0.0
FCC	0.0
FCD	0.0

FDO TB SELECT	1
FD3 PED SELECT	0
FD4 7 WIRE	0
FD5 PERMISSIVE	0
FD8 OS SEEKING	1
CO5 FLASH TYPE	1
CC2 DOWNLOAD	1

ENTRIES IN THESE LOCATIONS CAN BE CHANGED IN CC1 FLASH ONLY

LOCATION: **RTE 56 EB @ RANCHO PENASQUITO BLVD / AZUAGA STREET**

CALTRANS C8 Version 3 DATE: 8/26/2004

C PAGE

		CONTROL PLANS									Y-COORD			LAG PHASE		FLAGS									
		1	2	3	4	5	6	7	8	9		C	D	E		F	1	2	3	4	5	6	7	8	
0	CYCLE LENGTH	**90**	**80**	**120**												LAG FZ FREE		**2**		**4**		**6**		**8**	0
1	FZ1 GRN FCTR	**8**	**8**	**10**										GAPOUT CP1		LAG FZ CP 1		**2**		**4**		**6**		**8**	1
2														GAPOUT CP2		LAG FZ CP 2		**2**		**4**		**6**		**8**	2
3	FZ3 GRN FCTR	**0**	**0**	**0**										GAPOUT CP3		LAG FZ CP 3		**2**		**4**		**6**		**8**	3
4	FZ4 GRN FCTR	**0**	**0**	**0**							PERM TIME			GAPOUT CP4		LAG FZ CP 4									4
5	FZ5 GRN FCTR	**8**	**8**	**10**							LAG OFFSET			GAPOUT CP5		LAG FZ CP 5									5
6											FORCE OFF			GAPOUT CP6		LAG FZ CP 6									6
7	FZ7 GRN FCTR	**10**	**10**	**10**							LONG GRN			GAPOUT CP7		LAG FZ CP 7									7
8	FZ8 GRN FCTR	**26**	**14**	**40**							NO GREEN			GAPOUT CP8		LAG FZ CP 8									8
9	MULTI CYCLE	**0**	**0**	**0**										GAPOUT CP9		LAG FZ CP 9									9
A	OFFSET A	**69**	**68**	**85**							OFFSET					LAG C COORD									A
B	OFFSET B															LAG D COORD									B
C	OFFSET C															COORD FAZES		**2**				**6**			C
D	FZ 3 EXT																								D
E	FZ 7 EXT																								E
F	OFFSET INTRPT																								F
																	1	2	3	4	5	6	7	8	

CO1 MANUAL CP
CO2 MASTER CP
CO3 CURRENT CP
CO4 LAST CP
CO7 TRNSMT CP
COD MANUAL OFFSET
CAO LOCAL CYCLE TIMER
CBO MASTER CYCLE TIMER
CAA LOCAL OFFSET
CBA MASTER OFFSET

SYSTEM MASTER:
RTE 56 EB RAMP

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

LOCATION	OFF	ON
1		**1**
2		
3		
4		
5		
6		
7		
8		

COO = **1**

CCB/CDB OFFSET TIMER
CCC/CDC LAG GREEN TIMER
CCD/CDD FORCE OFF TIMER
CCE/CDE LONG GREEN TIMER
CCF/CDF NO GREEN TIMER

LOCATION: RTE 56 EB @ RANCHO PENASQUITOS BLVD / AZUAGA STREET

CALTRANS C8 DATE 2/1/94

D PAGE

	D	FLAGS								E	FLAGS								F	FLAGS							
	MAX	1	2	3	4	5	6	7	8	MIN	1	2	3	4	5	6	7	8	PED	1	2	3	4	5	6	7	8
0	RCL									RCL									RCL								
1	CP 1									CP 1								X	CP 1								
2	CP 2									CP 2								X	CP 2								
3	CP 3									CP 3								X	CP 3								
4	CP 4									CP 4									CP 4								
5	CP 5									CP 5									CP 5								
6	CP 6									CP 6									CP 6								
7	CP 7									CP 7									CP 7								
8	CP 8									CP 8									CP 8								
9	CP 9									CP 9									CP 9								
A																			RCL 1								
B																			RCL 2								
C																											
D																											
E																											
F																											

E PAGE

	E	FLAGS								F	FLAGS								
	FUNCTION	1	2	3	4	5	6	7	8	FUNCTION	1	2	3	4	5	6	7	8	
0										CODE 4									0
1										CODE 5									1
2										C-RECALL									2
3										D-RECALL									3
4										EXCLUSIVE									4
5										2 PED		X							5
6										6 PED						X			6
7										4 PED				X					7
8										8 PED								X	8
9																			9
A	OLA NOT									OLA ON									A
B	OLB NOT									OLB ON									B
C	OLC NOT									OLC ON									C
D	OLD NOT									OLD ON									D
E																			E
F																			F
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	

LAST POWER FAILURE REGISTER

HOUR = D-A-E

MINUTE = D-B-E

DAY = D-C-E

RCL 1 = TIME OF DAY MAX RECALL (1ST SELECT) PHASES
(CALL ACTIVE LIGHTS)

RCL 2 = TIME OF DAY MAX RECALL (2ND SELECT) PHASES
(CALL ACTIVE LIGHTS)

LAST FLASH TIME REGISTER

HOUR = D-A-F

MINUTE = D-B-F

DAY = D-C-F

D-E-E = C8 VERSION NUMBER

D-E-F = LITHIUM BATTERY CONDITION

84 = BAD

85 = GOOD

LOCATION RTE 56 EB @ RANCHO PENASQUITOS BLVD / AZUAGA STREET

CALTRANS C8 DATE : 2/1/94

7 PAGE

TIME OF DAY ACTIVITY TABLE											
7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS											
	HR	MIN	ACT	ON/ OFF	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

9 PAGE C09 = 0 or 1

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0	06	00	1	A		X	X	X	X	X	
1	08	40	E			X	X	X	X	X	
2											
3											
4	16	00	3	A		X	X	X	X	X	
5	18	15	E			X	X	X	X	X	
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

9 PAGE C09 = 2

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

ACTIVITY CODE

1 TYPE OF MAX TERMINATION
2 MAX 2
3 MAX 3
4 COND SERV (1ST SELECT)
5 COND SERV (2ND SELECT)
6 ENERGIZE AUX OUTPUT-RED
7 ENERGIZE AUX OUTPUT-GREEN
8 ENERGIZE AUX OUTPUT-YELLOW
9 TIME OF DAY MAX RECALL (1ST SELECT)
A TRAFFIC ACT. MAX 2 OPERATION
B TIME OF DAY MAX RECALL (2ND SELECT)
C YELLOW YIELD COORDINATION
D YELLOW YIELD COORDINATION
E TIME OF DAY FREE OPERATION
F FLASHING OPERATION

LOCATION: **RTE 56 EB @ RANCHO PENASQUITO BLVD / AZUAGA STREET**

CALTRANS C8 Version 3 DATE: 5/7/2014

E PAGE

F+C+F+1+2+3+E+B+ E+PHASES or TYPE+EVENT NO.		PHASES		TYPE			PHASES		TYPE	
		C		D			E		F	
0	I1	1		5,6		J1	5		5,6	
1	I2U	2		5,6		J2U	6		5,6	
2	I2L	2		5,6		J2L	6		5,6	
3	I3U	2		5,6		J3U	6		5,6	
4	I3L	2		5	5,6	J3L	6		5	
5	I4	2		7,8	5,6	J4	6		7,8	
6	I5	3		5,6		J5	7		5,6	
7	I6U	4		5,6		J6U	8		5,6	
8	I6L	4		5,6		J6L	8		5,6	
9	I7U	4		5,6		J7U	8		5,6	
A	I7L	4		5		J7L	8		5	
B	I8	4		7,8		J8	8		7,8	
C	I9U	1		5,6		J9U	5		5,6	
D	I9L	3		5,6		J9L	7		5,6	

DETECTOR TYPE

1 RED LOCK
2 YELLOW LOCK
5 EXTENSION
6 COUNT
7 CALLING
8 TYPE 3 DISCONNECT

REASSIGNS DETECTORS TO VARIOUS PHASES / FUNCTIONS

F-C-F MUST EQUAL ZERO WHEN FINISHED

LOWER CASE NUMBERS ARE DEFAULT VALUES

BLANK SPACES CONTAIN DEFAULTS (DO NOT ZERO OUT)

D PAGE

DETECTOR SETTINGS									
I FILE					J FILE				
	DELAY		CARRYOVER			DELAY		CARRYOVER	
I1	D10		D30		J1	D20		D40	
I2U	D11		D31		J2U	D21		D41	
I2L	D12		D32	2.0	J2L	D22		D42	
I3U	D13		D33	2.0	J3U	D23		D43	2.0
I3L	D14		D34		J3L	D24		D44	2.0
I4	D15		D35		J4	D25		D45	
I5	D16		D36		J5	D26	10.0	D46	
I6U	D17		D37		J6U	D27		D47	
I6L	D18		D38		J6L	D28		D48	
I7U	D19		D39		J7U	D29	10.0	D49	
I7L	D1A		D3A		J7L	D2A		D4A	
I8	D1B		D3B		J8	D2B		D4B	
I9U	D1C		D3C		J9U	D2C		D4C	
I9L	D1D		D3D		J9L	D2D		D4D	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	56	6.8/8.7	145	208

T.C. Martin
REGISTERED CIVIL ENGINEER

2-19-91
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER T.C. MARTIN No. 14728 Exp. 3-31-93 CIVIL STATE OF CALIFORNIA

POLE SCHEDULE

LOC	STANDARD TYPE	MASTARM SIG	MASTARM LUM	PLACEMENT DIMENSIONS A FT	PLACEMENT DIMENSIONS B FT	VEHICLE POLE	VEHICLE MASTARM	PEDESTRIAN SIGNAL	PEDESTRIAN P.P.B.	REMARKS
A	19-4-80	25'	15'	10	5½'	SV-1-T	MAT	SP-1-T	Ø6P ←	180W LPS DETAIL U ES-6T REQUIRED.
B	1-A (10')			8	2½'	TV-2-T		SP-1-T	Ø8P →	
C	29-5-80	50'	15'	19	5½'	SV-1-T	MAT 5 2-MAS	SP-1-T	Ø8P ←	180W LPS DETAIL U ES-6T REQUIRED.
D	1-A (10')			26	2½'	TV-2-T		SP-1-T	Ø2P →	
E	29-5-80	55'	15'		5½'	SV-1-T	MAT 5 MAS 11		Ø2P ←	180W LPS
F	1-A (10')			20	2½'	TV-2-T		SP-1-T		
G	26-4-80	45'	15'	10	5½'	SV-1-T	MAT 5 MAS	SP-1-T		180W LPS 2-PEU DETAIL U ES-6T REQUIRED.
H	1-A (10')			8	2½'	TV-2-T			Ø6P →	
J	EXISTING MODEL 170 CONTROLLER ASSEMBLY IN TYPE 332 CABINET. INSTALL ADDITIONAL LOOP DETECTOR SENSOR UNITS AS REQUIRED.									

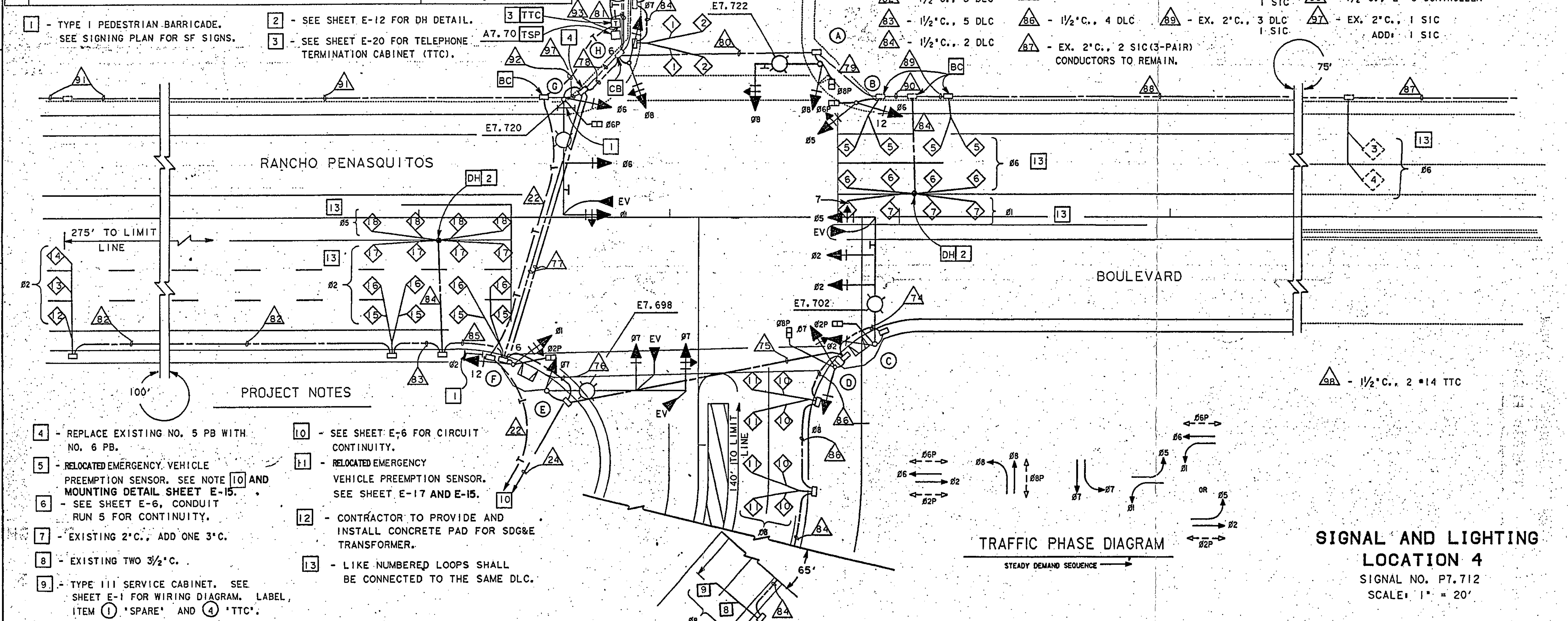
CONDUIT SIZE AND RUN

AWG SIZE OR CABLE TYPE	PHASE	POLE OR CIRCUIT	2" (74)	2½" (75)	3" (76)	TWO 2½" (77)	7 (78)	EX. 2" (79)	EX. 3" (80)	8 (81)		
NO. 14 CABLES		POLE - A							1/1	1/1		
3 CONDUCTORS / 12 CONDUCTORS		B						1/1	1/1	1/1		
		C	1/1	1/1	1/1	1/1	1/1			1/1		
		D		1/1	1/1	1/1	1/1			1/1		
		E			1/1	1/1	1/1			1/1		
		F				/1	/1			/1		
		G					/1			/1		
		H								1/1		
TOTAL CABLES-3 CONDUCTOR/12 CONDUCTOR			1/1	2/2	3/3	3/4	3/5	/1	2/2	6/8		
14		PEU					4					
10		LIGHTING	2	2	2	2	2		2			
10		COUNT STATION			2	2	2					
TYPE B DLC	1	LOOP DETECTOR						1	1	1		
	2					6	6			6		
	8			4	4	4	4			4		
	5					1	1			1		
	6							4	4	4		
EV-DLC	EV		1	1	3	3	4			4		
SIC							2			3		
TOTAL CONDUCTORS/CABLES			6	12	17	25	35	7	12	37		

CONDUIT NOTES

82 - 1½"C., 3 DLC
83 - 1½"C., 5 DLC
84 - 1½"C., 2 DLC
85 - 1½"C., 7 DLC
86 - 1½"C., 4 DLC
87 - EX. 2"C., 2 SIC(3-PAIR) CONDUCTORS TO REMAIN.
88 - EX. 2"C., 2 DLC 1 SIC
89 - EX. 2"C., 3 DLC 1 SIC
90 - EX. 2"C., 5 DLC 1 SIC
91 - EX. 2"C., 1 SIC ADD: 2 SIC
92 - 2"C., 2 SIC
93 - 2"C., MT CONDUCTORS BY OTHERS
94 - 2"C., 3 SIC
22 - 1½"C., 1 SIC
95 - EX. 2"C., 2 #10 LIGHTING ADD: 2 #10 COUNT STATION 4 #14 PEU
24 - 1½"C., 2 #10 LIGHTING 2 #6 COUNT STATION
96 - 1½"C., 2 #6 CONTROLLER
97 - EX. 2"C., 1 SIC ADD: 1 SIC
98 - 1½"C., 2 #14 TTC

1 - TYPE I PEDESTRIAN BARRICADE. SEE SIGNING PLAN FOR SF SIGNS.
2 - SEE SHEET E-12 FOR DH DETAIL.
3 - SEE SHEET E-20 FOR TELEPHONE TERMINATION CABINET (TTC).



PROJECT NOTES

4 - REPLACE EXISTING NO. 5 PB WITH NO. 6 PB.
5 - RELOCATED EMERGENCY VEHICLE PREEMPTION SENSOR. SEE NOTE 10 AND MOUNTING DETAIL SHEET E-15.
6 - SEE SHEET E-6, CONDUIT RUN 5 FOR CONTINUITY.
7 - EXISTING 2"C., ADD ONE 3"C.
8 - EXISTING TWO 3½"C.
9 - TYPE III SERVICE CABINET. SEE SHEET E-1 FOR WIRING DIAGRAM. LABEL, ITEM 1 'SPARE' AND 4 'TTC'.
10 - SEE SHEET E-6 FOR CIRCUIT CONTINUITY.
11 - RELOCATED EMERGENCY VEHICLE PREEMPTION SENSOR. SEE SHEET E-17 AND E-15.
12 - CONTRACTOR TO PROVIDE AND INSTALL CONCRETE PAD FOR SDG&E TRANSFORMER.
13 - LIKE NUMBERED LOOPS SHALL BE CONNECTED TO THE SAME DLC.

TRAFFIC PHASE DIAGRAM

STEADY DEMAND SEQUENCE

SIGNAL AND LIGHTING LOCATION 4

SIGNAL NO. P7.712
SCALE: 1" = 20'

NOTE: THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

E-16

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans TRAFFIC ELECTRICAL
PROJECT ENGINEER PAUL HARDIN
CALCULATED/DESIGNED BY DJW
CHECKED BY JFC
REVISED BY
DATE REVISED

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3

FORM DC-OE-92-PF (REV. 3/88)

CU 11208
EA 010071

LOCATION: RTE 56 WB @ RANCHO PENSQUITOS BLVD / CARMEL MOUNTAIN RD

CALTRANS C8 Version 3 DATE: 11/3/2011

F PAGE

	INTERVAL	PHASE TIMING 1	2	3	4	5	6	7	8	9	PRE-EMPTION E		FLAGS	F 1	2	3	4	5	6	7	8	
0	WALK	1	7	1	7	1	7	1	1	CLK RST	EV SEL	0	PERMIT	1	2	3	4	5	6	7	8	0
1	DONT WALK	1	31	1	35	1	29	1	1		RR1 CLR	5	RED LOCK	1		3		5		7		1
2	MIN GREEN	5	15	5	5	15	15	14	5		EVA DLY	0	YEL LOCK				4				8	2
3	TYPE 3 DET	0	0	0	0	0	0	0	0		EVA CLR	5	V RECALL		2				6			3
4	ADD/VEH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		EVB DLY	0	P RECALL									4
5	PASSAGE	2.0	2.0	1.0	1.0	1.5	2.0	1.0	1.0		EVB CLR	5	PED PHASES		2		4		6			5
6	MAX GAP	2.0	2.0	1.0	1.0	1.5	2.0	1.0	1.0		EVC DLY	0	RT OLA									6
7	MIN GAP	2.0	2.0	1.0	1.0	1.5	2.0	1.0	1.0		EVC CLR	5	RT OLB									7
8	MAX EXT	20	45	30	30	20	45	20	30		EVD DLY	0	DBL ENTRY									8
9	MAX 2	35								YR	EVD CLR	5	MAX 2 PHASES	1								9
A	MAX 3			40						MO	MAX EV	255	LAG PHASES	READ ONLY								A
B										DAY	RR2 CLR	5	RED REST									B
C	REDUCE BY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	DOW			REST-IN-WALK									C
D	EVERY	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	HR			MAX 3 PHASES			3						D
E	YELLOW	3.2	4.5	3.2	4.5	3.2	4.5	3.2	3.6	MIN			YEL START UP		2				6			E
F	RED	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	SEC			FIRST PHASE			3				7		F
	PED XING FT		108		124		100							1	2	3	4	5	6	7	8	
	BIKE XING FT		125			130	132	115														

NOTES:

FOC LONG FAILURE	
FOD SHORT FAILURE	
FOE	0
FOF	5

FCO	3
FC1	3
FC2	10
FCA	0.0
FCB	0.0
FCC	0.0
FCD	0.0

FDO TB SELECT	1
FD3 PED SELECT	0
FD4 7 WIRE	0
FD5 PERMISSIVE	0
FD8 OS SEEKING	1

CO5 FLASH TYPE	1
CC2 DOWNLOAD	1

ENTRIES IN THESE LOCATIONS CAN BE CHANGED IN CC1 FLASH ONLY

LOCATION: RTE 56 WB @ RANCHO PENASQUITOS BLVD / CARMEL MOUNTAIN ROAD

CALTRANS C8 Version 3 DATE: 1/3/02 PAGE 2

C PAGE

		CONTROL PLANS									Y-COORD			LAG PHASE		FLAG									
		1	2	3	4	5	6	7	8	9		C	D	E		F	1	2	3	4	5	6	7	8	
0	CYCLE LENGTH															LAG FZ FREE		2		4		6		8	0
1	FZ1 GRN FCTR													GAPOUT CP1		LAG FZ CP 1									1
2														GAPOUT CP2		LAG FZ CP 2									2
3	FZ3 GRN FCTR													GAPOUT CP3		LAG FZ CP 3									3
4	FZ4 GRN FCTR										PERM TIME			GAPOUT CP4		LAG FZ CP 4									4
5	FZ5 GRN FCTR										LAG OFFSET			GAPOUT CP5		LAG FZ CP 5									5
6											FORCE OFF			GAPOUT CP6		LAG FZ CP 6									6
7	FZ7 GRN FCTR										LONG GRN			GAPOUT CP7		LAG FZ CP 7									7
8	FZ8 GRN FCTR										NO GREEN			GAPOUT CP8		LAG FZ CP 8									8
9	MULTI CYCLE													GAPOUT CP9		LAG FZ CP 9									9
A	OFFSET A										OFFSET					LAG C COORD									A
B	OFFSET B															LAG D COORD									B
C	OFFSET C															COORD FAZES		2				6			C
D	FZ 3 EXT																								D
E	FZ 7 EXT																								E
F	OFFSET INTRPT																								F
																	1	2	3	4	5	6	7	8	

CO1 MANUAL CP
CO2 MASTER CP
CO3 CURRENT CP
CO4 LAST CP
CO7 TRNSMT CP
COD MANUAL OFFSET
CAO LOCAL CYCLE TIMER
CBO MASTER CYCLE TIMER
CAA LOCAL OFFSET
CBA MASTER OFFSET

SYSTEM MASTER:
RTE 56 EB RAMP

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

LOCATION	OFF	ON
1		
2		1
3		
4		
5		
6		
7		
8		

COO = 2

CCB/CDB OFFSET TIMER
CCC/CDC LAG GREEN TIMER
CCD/CDD FORCE OFF TIMER
CCE/CDE LONG GREEN TIMER
CCF/CDF NO GREEN TIMER

LOCATION: RTE 56 WB @ RANCHO PENASQUITOS BLVD / CARMEL MOUNTAIN ROAD

CALTRANS C8 Version 3 DATE: 1/3/02

D PAGE

	D	FLAGS								E	FLAGS								F	FLAGS							
	MAX	1	2	3	4	5	6	7	8	MIN	1	2	3	4	5	6	7	8	PED	1	2	3	4	5	6	7	8
0	RCL									RCL									RCL								
1	CP 1									CP 1									CP 1								
2	CP 2									CP 2									CP 2								
3	CP 3									CP 3									CP 3								
4	CP 4									CP 4									CP 4								
5	CP 5									CP 5									CP 5								
6	CP 6									CP 6									CP 6								
7	CP 7									CP 7									CP 7								
8	CP 8									CP 8									CP 8								
9	CP 9									CP 9									CP 9								
A																			RCL 1								
B																			RCL 2								
C																											
D																											
E																											
F																											
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8

E PAGE

	E	FLAGS								F	FLAGS								
	FUNCTION	1	2	3	4	5	6	7	8	FUNCTION	1	2	3	4	5	6	7	8	
0										CODE 4									0
1										CODE 5									1
2										C-RECALL									2
3										D-RECALL									3
4										EXCLUSIVE									4
5										2 PED		2							5
6										6 PED						6			6
7										4 PED				4					7
8										8 PED								8	8
9																			9
A	OLA NOT									OLA ON									A
B	OLB NOT									OLB ON									B
C	OLC NOT									OLC ON									C
D	OLD NOT									OLD ON									D
E																			E
F																			F
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	

LAST POWER FAILURE REGISTER

HOUR = D-A-E

MINUTE = D-B-E

DAY = D-C-E

RCL 1 = TIME OF DAY MAX RECALL (1ST SELECT) PHASES

(CALL ACTIVE LIGHTS)

RCL 2 = TIME OF DAY MAX RECALL (2ND SELECT) PHASES

(CALL ACTIVE LIGHTS)

LAST FLASH TIME REGISTER

HOUR = D-A-F

MINUTE = D-B-F

DAY = D-C-F

D-E-E = C8 VERSION NUMBER

D-E-F = LITHIUM BATTERY CONDITION

84 = BAD

85 = GOOD

LOCATION: **RTE 56 WB @ RANCHO PENSQUITOS BLVD / CARMEL MOUNTAIN RD**

CALTRANS C8 Version 3 DATE: 11/3/2011

7 PAGE

TIME OF DAY ACTIVITY TABLE											
7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS											
				ON/	S	M	T	W	T	F	S
	HR	MIN	ACT	OFF	1	2	3	4	5	6	7
0	15	00	3	X	1	2	3	4	5	6	7
1	19	00	3		1	2	3	4	5	6	7
2	07	00	2	X		2	3	4	5	6	
3	09	00	2			2	3	4	5	6	
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

ACTIVITY CODE

1 TYPE OF MAX TERMINATION
2 MAX 2
3 MAX 3
4 COND SERV (1ST SELECT)
5 COND SERV (2ND SELECT)
6 ENERGIZE AUX OUTPUT-RED

7 ENERGIZE AUX OUTPUT-GREEN

9 PAGE C09 = 0 or 1

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
					S	M	T	W	T	F	S
	HR	MIN	CP	OS	1	2	3	4	5	6	7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

8 ENERGIZE AUX OUTPUT-YELLOW

9 TIME OF DAY MAX RECALL (1ST SELECT)
A TRAFFIC ACT. MAX 2 OPERATION
B TIME OF DAY MAX RECALL (2ND SELECT)
C YELLOW YIELD COORDINATION
D YELLOW YIELD COORDINATION
E TIME OF DAY FREE OPERATION
F FLASHING OPERATION

9 PAGE C09 = 2

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
					S	M	T	W	T	F	S
	HR	MIN	CP	OS	1	2	3	4	5	6	7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

LOCATION: **RTE 56 WB @ RANCHO PENSQUITOS BLVD / CARMEL MOUNTAIN RD**

CALTRANS C8 Version 3 DATE: 3/1/2011

E PAGE

F+C+F+1+2+3+E+B+ E+PHASES or TYPE+EVENT NO.										
		PHASES		TYPE			PHASES		TYPE	
			C		D			E		F
0	I1	1		5,6		J1	5		5,6	
1	I2U	2		5,6		J2U	6		5,6	
2	I2L	2		5,6		J2L	6		5,6	
3	I3U	2		5,6		J3U	6		5,6	
4	I3L	2		5	5,6	J3L	6		5	
5	I4	2		7,8	5,6	J4	6		7,8	5,6
6	I5	3		5,6		J5	7		5,6	
7	I6U	4		5,6		J6U	8		5,6	
8	I6L	4		5,6		J6L	8		5,6	
9	I7U	4		5,6		J7U	8		5,6	
A	I7L	4		5		J7L	8		5	5,6
B	I8	4	5	7,8		J8	8		7,8	
C	I9U	1	3	5,6		J9U	5	7	5,6	
D	I9L	3		5,6		J9L	7		5,6	

REASSIGNS DETECTORS TO VARIOUS PHASES / FUNCTIONS

DETECTOR TYPE

1 RED LOCK
2 YELLOW LOCK
5 EXTENSION
6 COUNT
7 CALLING
8 TYPE 3 DISCONNECT

D PAGE

DETECTOR SETTINGS									
I FILE					J FILE				
	DELAY		CARRYOVER			DELAY		CARRYOVER	
I1	D10		D30		J1	D20		D40	
I2U	D11		D31	2.4	J2U	D21		D41	2.4
I2L	D12		D32	2.4	J2L	D22		D42	2.4
I3U	D13		D33		J3U	D23		D43	
I3L	D14		D34		J3L	D24		D44	
I4	D15		D35		J4	D25		D45	
I5	D16		D36		J5	D26		D46	
I6U	D17		D37	1.0	J6U	D27		D47	
I6L	D18		D38	1.0	J6L	D28		D48	
I7U	D19		D39		J7U	D29		D49	
I7L	D1A		D3A		J7L	D2A		D4A	
I8	D1B		D3B		J8	D2B		D4B	
I9U	D1C		D3C		J9U	D2C		D4C	
I9L	D1D		D3D		J9L	D2D		D4D	

F-C-F MUST EQUAL ZERO WHEN FINISHED

LOWER CASE NUMBERS ARE DEFAULT VALUES

BLANK SPACES CONTAIN DEFAULTS (DO NOT ZERO OUT)

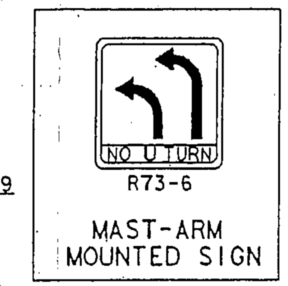
CONDUCTOR AND CONDUIT SCHEDULE

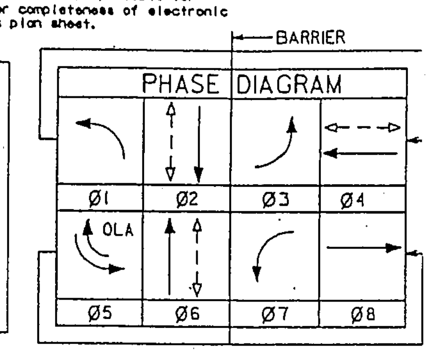
AWG OR CABLE	POLE OR PHASE	1	2	3	4	5	6	7	8	9	10
3 Cond / 12 Cond	A	-/-	-/-	-/-	-/-	-/-	1/1	1/1	-/-	-/-	-/-
	B	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	C	-/-	-/-	-/-	-/-	-/1	-/1	-/1	-/-	-/-	-/-
	D	-/-	-/-	-/-	-/1	-/1	-/1	-/1	-/-	-/-	-/1
	E	-/-	-/-	1/1	1/1	1/1	1/1	1/1	-/-	-/-	-/-
	F	1/1	1/1	1/1	1/1	1/1	1/1	1/1	-/-	-/-	-/-
	G	-/-	1/1	1/1	1/1	1/1	-/1	-/1	-/1	-/1	-/-
	H	-/-	-/-	-/-	-/-	-/-	1/1	1/1	1/1	-/-	-/-
	I	-/-	-/-	-/-	-/-	-/-	1/1	1/1	-/-	-/-	-/-
TOTAL		1/1	2/2	2/3	3/4	3/5	5/8	5/8	1/2	0/1	0/1
#14	PEU	0	0	0	0	3	0	0	0	0	0
#10	LIGHTING	2	2	2	2	2	0	0	2	2	2
#6	CONTROLLER	0	0	0	0	2	2	2	0	0	0
	SIC	0	0	0	0	3	3	3	0	0	0
DLC	Ø1	-	-	-	-	1	1	1	-	-	-
	Ø2	-	6	6	6	-	6	6	-	-	-
	Ø3	-	-	4	4	-	4	4	-	-	-
	Ø4	-	-	-	-	-	4	4	4	-	-
	Ø5	-	2	2	2	-	2	2	-	-	-
	Ø6	-	-	-	-	4	4	4	-	-	-
	Ø7	-	-	-	-	-	-	4	-	-	-
	Ø8	-	-	4	4	-	4	4	-	-	-
TOTAL		0	8	14	14	5	25	25	6	0	0
EVPE CABLE		1	1	1	2	0	3	4	1	1	1
CONDUIT SIZE		53	63	78	78	53	2-78	2-78	53	63	78

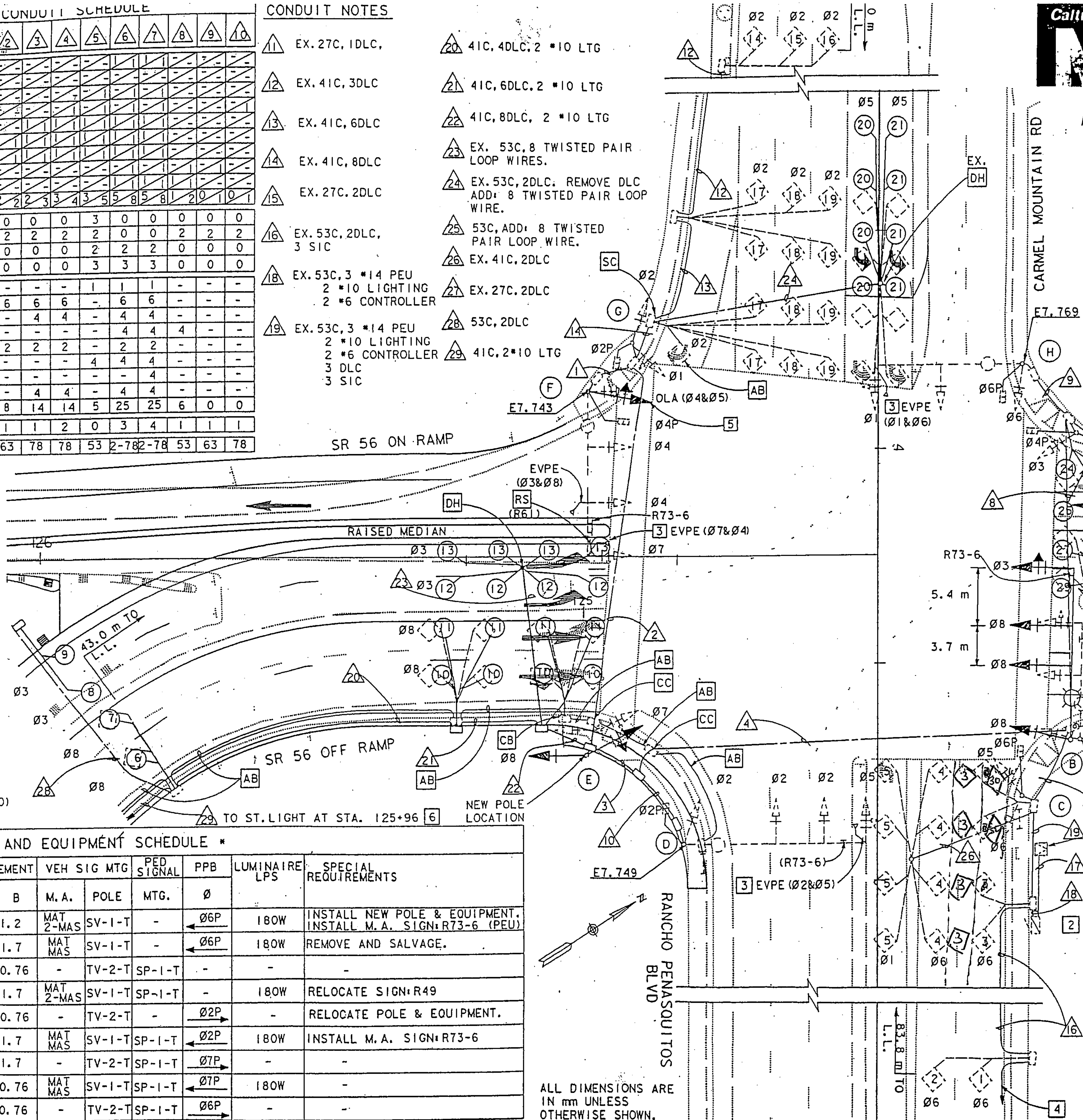
CONDUIT NOTES

- 11 EX. 27C, 1DLC.
- 12 EX. 4IC, 3DLC
- 13 EX. 4IC, 6DLC
- 14 EX. 4IC, 8DLC
- 15 EX. 27C, 2DLC
- 16 EX. 53C, 2DLC, 3 SIC
- 18 EX. 53C, 3 #14 PEU, 2 #10 LIGHTING, 2 #6 CONTROLLER
- 19 EX. 53C, 3 #14 PEU, 2 #10 LIGHTING, 2 #6 CONTROLLER, 3 DLC, 3 SIC
- 20 4IC, 4DLC, 2 #10 LTG
- 21 4IC, 6DLC, 2 #10 LTG
- 22 4IC, 8DLC, 2 #10 LTG
- 23 EX. 53C, 8 TWISTED PAIR LOOP WIRES.
- 24 EX. 53C, 2DLC. REMOVE DLC ADD: 8 TWISTED PAIR LOOP WIRE.
- 25 53C, ADD: 8 TWISTED PAIR LOOP WIRE.
- 26 EX. 4IC, 2DLC
- 27 EX. 27C, 2DLC
- 28 53C, 2DLC
- 29 4IC, 2 #10 LTG

Caltrans
11 | SD | 56 | 13.8 | 31 | 32
REGISTERED CIVIL ENGINEER 8/1/2000
PLANS APPROVAL DATE
Buck Engineering Company
TRANSPORTATION DIVISION
5620 Friars Road
San Diego, CA 92110-2506
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.
REGISTERED PROFESSIONAL ENGINEER MICHAEL KENNEY No. 56661 Exp. 6-30-01 CIVIL STATE OF CALIFORNIA
RECEIVED TRS-PERMIT OFF AUG 1 2000







NOTES

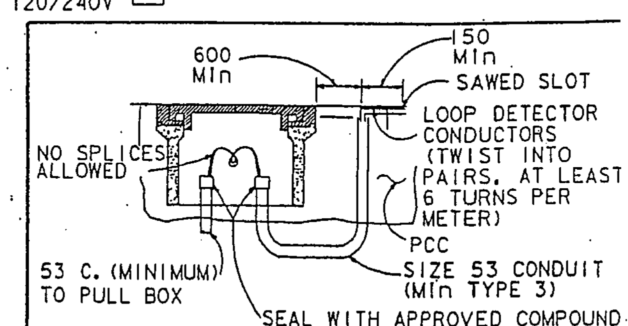
1. EXISTING MODEL 170 CONTROLLER ASSEMBLY TO REMAIN. ADD 4 LOOP DETECTOR SENSOR UNITS.
2. EXISTING TYPE III-AF 120/240 SERVICE REMAIN.
3. EMERGENCY VEHICLE DETECTORS
4. INTERCONNECT CONDUIT AND CABLE CONTINUOUS TO SIGNAL AT ADJACENT INTERSECTION
5. RS EXISTING 3-SECTION SIGNAL HEAD. INSTALL 5-SECTION SIGNAL HEAD AS SHOWN.
6. RESET ELECTROLIER (TYPE 30) AT SAME STATION

POLE AND EQUIPMENT SCHEDULE *

NO.	STANDARD Type	Sig M.A.	Lum M.A.	PLACEMENT A	PLACEMENT B	VEH SIG MTG M.A.	VEH SIG MTG POLE	PED SIGNAL MTG.	PPB Ø	LUMINAIRE LPS	SPECIAL REQUIREMENTS
A	29-5-129	15.2	4.6	2.7	1.2	MAT 2-MAS	SV-1-T	-	Ø6P	180W	INSTALL NEW POLE & EQUIPMENT. INSTALL M.A. SIGN: R73-6 (PEU)
B	24-4-129	10.7	4.6	0.91	1.7	MAT MAS	SV-1-T	-	Ø6P	180W	REMOVE AND SALVAGE.
C	1-A (3.0)	-	-	2.1	0.76	-	TV-2-T	SP-1-T	-	-	-
D	29-5-29	16.8	4.6	3.7	1.7	MAT 2-MAS	SV-1-T	SP-1-T	-	180W	RELOCATE SIGN: R49
E	1-A (3.0)	-	-	4.0	0.76	-	TV-2-T	-	Ø2P	-	RELOCATE POLE & EQUIPMENT.
F	29-5-129	15.2	4.6	6.7	1.7	MAT MAS	SV-1-T	SP-1-T	Ø2P	180W	INSTALL M.A. SIGN: R73-6
G	1-A (3.0)	-	-	3.0	1.7	-	TV-2-T	SP-1-T	Ø7P	-	-
H	26-4-129	13.7	4.6	1.5	0.76	MAT MAS	SV-1-T	SP-1-T	Ø7P	180W	-
I	1-A (3.0)	-	-	3.0	0.76	-	TV-2-T	SP-1-T	Ø6P	-	-

* NOTE: ALL NEW SIGNAL HEADS SHALL BE 300 mm ALL VISORS SHALL BE THE TUNNEL TYPE.

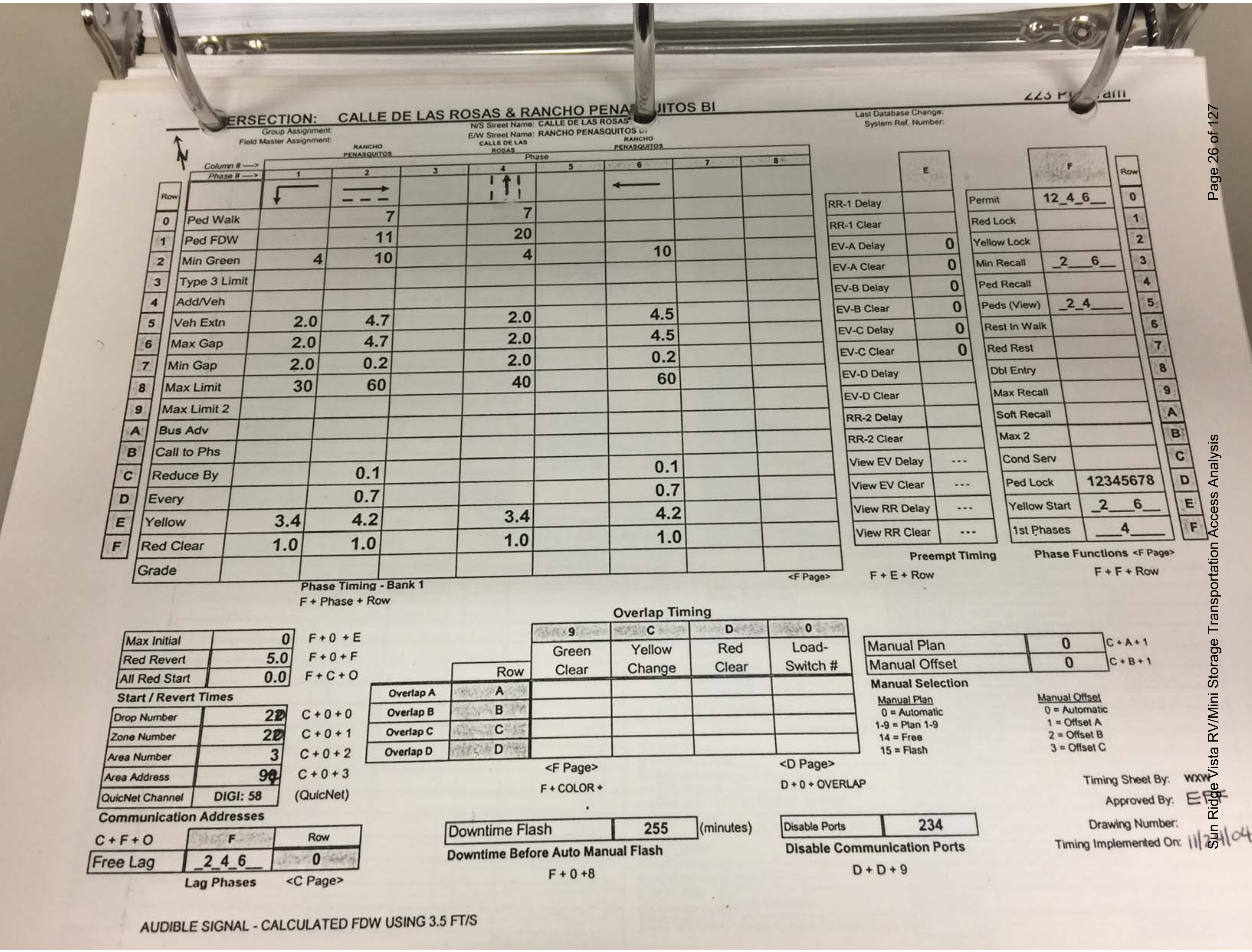
ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SHOWN.



DETECTOR HANDHOLE DETAILS
SEE 'TYPE A DETECTOR HANDHOLE DETAILS', ES-5E, FOR DETAILS NOT SHOWN. (NO SCALE)

SIGNAL AND LIGHTING
SIGNAL NO. P7.76 E-1

SCALE: 1:200



223 P[illegible]am

INTERSECTION: CALLE DE LAS ROSAS & RANCHO PENASQUITOS BI

Group Assignment:
Field Master Assignment:

N/S Street Name: CALLE DE LAS ROSAS
E/W Street Name: RANCHO PENASQUITOS BI

Last Database Change:
System Ref. Number:

Row	Column # → / Phase # →	1	2 (RANCHO PENASQUITOS)	3	4 (CALLE DE LAS ROSAS)	5	6 (RANCHO PENASQUITOS)	7	8
0	Ped Walk		7		7				
1	Ped FDW		11		20				
2	Min Green	4	10		4		10		
3	Type 3 Limit								
4	Add/Veh								
5	Veh Extn	2.0	4.7		2.0		4.5		
6	Max Gap	2.0	4.7		2.0		4.5		
7	Min Gap	2.0	0.2		2.0		0.2		
8	Max Limit	30	60		40		60		
9	Max Limit 2								
A	Bus Adv								
B	Call to Phs								
C	Reduce By		0.1				0.1		
D	Every		0.7				0.7		
E	Yellow	3.4	4.2		3.4		4.2		
F	Red Clear	1.0	1.0		1.0		1.0		
	Grade								

Phase Timing - Bank 1
F + Phase + Row
<F Page>

	E
RR-1 Delay	
RR-1 Clear	
EV-A Delay	0
EV-A Clear	0
EV-B Delay	0
EV-B Clear	0
EV-C Delay	0
EV-C Clear	0
EV-D Delay	
EV-D Clear	
RR-2 Delay	
RR-2 Clear	
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Preempt Timing
F + E + Row

	F	Row
Permit	12_4_6__	0
Red Lock		1
Yellow Lock		2
Min Recall	_2___6__	3
Ped Recall		4
Peds (View)	_2_4____	5
Rest In Walk		6
Red Rest		7
Dbl Entry		8
Max Recall		9
Soft Recall		A
Max 2		B
Cond Serv		C
Ped Lock	12345678	D
Yellow Start	_2___6__	E
1st Phases	___4____	F

Phase Functions <F Page>
F + F + Row

Max Initial	0	F + 0 + E
Red Revert	5.0	F + 0 + F
All Red Start	0.0	F + C + O

Start / Revert Times

Drop Number	22	C + 0 + 0
Zone Number	22	C + 0 + 1
Area Number	3	C + 0 + 2
Area Address	99	C + 0 + 3
QuicNet Channel	DIGI: 58	(QuicNet)

Communication Addresses

C + F + O	F	Row
Free Lag	_2_4_6__	0

Lag Phases <C Page>

Overlap Timing

	Row	9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
Overlap A	A				
Overlap B	B				
Overlap C	C				
Overlap D	D				

<F Page>
F + COLOR +

<D Page>
D + 0 + OVERLAP

Manual Plan	0	C + A + 1
Manual Offset	0	C + B + 1

Manual Selection

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Downtime Flash	255	(minutes)

Downtime Before Auto Manual Flash
F + 0 + 8

Disable Ports	234

Disable Communication Ports
D + D + 9

Timing Sheet By: WXW
Approved By: EF
Drawing Number:
Timing Implemented On: 11/24/04

AUDIBLE SIGNAL - CALCULATED FDW USING 3.5 FT/S

INTERSECTION: CALLE DE LAS ROSAS & RANCHO PENASQUITOS BI

Row	Column # ---->	Plan 1	2	3	4	5	6	7	8	9
	Plan Name ---->									
0	Cycle Length	90	80	120						
1	Phase 1 - ForceOff	56	43	13						
2	Phase 2 - ForceOff	0	0	0						
3	Phase 3 - ForceOff									
4	Phase 4 - ForceOff	44	31	44						
5	Phase 5 - ForceOff									
6	Phase 6 - ForceOff	0	0	0						
7	Phase 7 - ForceOff									
8	Phase 8 - ForceOff									
9	Ring Offset									
A	Offset A	40	28	70						
B	Offset B									
C	Offset C									
D	Permissive	10	10	20						
E	Hold Release	255	255	255						
F	Ped Shift	0	0	0						

Coordination <C Page>

C + Plan + ROW

Row	Time	Plan	Offset	Day of Week
0	06 : 00	1	A	_23456_
1	08 : 40	E	A	_23456_
2	11 : 00	2	A	_23456_
3	13 : 00	E	A	1234567

	E
Plan 1	_2__6__
Plan 2	_2__6__
Plan 3	_2__6__

Appendix B

City of San Diego and Caltrans' On-Ramp Criteria and On-Ramp Rates

TRAFFIC IMPACT STUDY MANUAL

JULY
1998

APPENDIX 2. RAMP METERING ANALYSIS

Ramp metering analysis should be performed for each horizon year scenario in which ramp metering is expected. The following table shows relevant information that should be included in the ramp meter analysis (calculations are shown in the footnotes):

LOCATION	DEMAND[1] (veh/hr)	METER RATE[2] (veh/hr)	EXCESS DEMAND[3] (veh/hr)	AVERAGE DELAY[4] (veh/hr)	AVERAGE QUEUE[5] (feet)
I-5/Carmel Mountain Road (SB/AM Peak)	985	788	197	15.0[6]	4,925
I-5/Carmel Mountain Road (SB/PM Peak)	510	1,000	0	0	0

Notes:

1 DEMAND is the peak hour demand expected to use the on-ramp.

2 METER RATE is the peak hour capacity expected to be processed through the ramp meter. This value is usually available from Caltrans.

3 EXCESS DEMAND = (DEMAND) – (METER RATE) or zero, whichever is greater

4 AVERAGE DELAY = EXCESS DEMAND / METER RATE * 60 minutes/hour

$$\text{AVERAGE DELAY} = \frac{\text{EXCESS DEMAND}}{\text{METER RATE}} * 60 \text{ minutes/hour}$$

5 AVERAGE QUEUE = (EXCESS DEMAND) * 25 feet/vehicle

6 Ramp meter delays above 15 minutes are not acceptable.

Location (I.D.)	Route	Dir	Period	Cars per green	Sec./ Cycle	(per lane) Veh./hr	Total # lanes	HOV
Rcho Penasquitos 56WB (ID: 14803)	56	WB	0530 - 0930	2	7.5 - 12	960 - 600	1	No

The meters normally operate in a traffic responsive mode.
There are 15 separate rates or steps between the slowest and the fastest discharge rate that depend on the mainlane volumes.

Queue Study

Location:	San Diego	Date: 1/24/2018
N/S Street:	Carmel Mountain Road	Weather: Sunny
E/W Street:	SR-56 Westbound On Ramp	Movement: WB On

	Time	Vehicles Queue	Length of Queue (in feet)
1	7:00	21	550
2	7:01	10	
3	7:02	4	
4	7:03	27	650
5	7:04	7	
6	7:05	9	
7	7:06	17	525
8	7:07	0	
9	7:08	4	
10	7:09	3	75
11	7:10	0	
12	7:11	12	
13	7:12	0	0
14	7:13	8	
15	7:14	7	
16	7:15	3	75
17	7:16	11	
18	7:17	3	
19	7:18	0	0
20	7:19	25	
21	7:20	5	
22	7:21	3	75
23	7:22	20	
24	7:23	5	
25	7:24	0	0
26	7:25	3	
27	7:26	5	
28	7:27	0	0
29	7:28	11	
30	7:29	0	
31	7:30	5	100
32	7:31	3	
33	7:32	7	
34	7:33	3	50
35	7:34	0	
36	7:35	3	
37	7:36	0	0
38	7:37	6	

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Corona, CA 92878

Queue Study

Location: San Diego
N/S Street: Carmel Mountain Road
E/W Street: SR-56 Westbound On Ramp

Date: 1/24/2018
Weather: Sunny
Movement: WB On

	Time	Vehicles Queue	Length of Queue (in feet)
39	7:38	3	
40	7:39	7	225
41	7:40	13	
42	7:41	0	
43	7:42	9	200
44	7:43	0	
45	7:44	8	
46	7:45	0	0
47	7:46	0	
48	7:47	0	
49	7:48	3	50
50	7:49	8	
51	7:50	1	
52	7:51	0	
53	7:52	0	
54	7:53	0	
55	7:54	0	0
56	7:55	8	
57	7:56	3	
58	7:57	3	0
59	7:58	0	
60	7:59	0	
61	8:00	0	0
62	8:01	5	
63	8:02	5	
64	8:03	0	0
65	8:04	3	
66	8:05	7	
67	8:06	23	550
68	8:07	15	
69	8:08	3	
70	8:09	0	0
71	8:10	1	
72	8:11	3	
73	8:12	3	75
74	8:13	0	
75	8:14	0	
76	8:15	3	75

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Queue Study

Location: San Diego
N/S Street: Carmel Mountain Road
E/W Street: SR-56 Westbound On Ramp

Date: 1/24/2018
Weather: Sunny
Movement: WB On

	Time	Vehicles Queue	Length of Queue (in feet)
77	8:16	5	
78	8:17	3	
79	8:18	0	0
80	8:19	0	
81	8:20	0	
82	8:21	3	75
83	8:22	4	
84	8:23	0	
85	8:24	6	175
86	8:25	0	
87	8:26	0	
88	8:27	0	0
89	8:28	0	
90	8:29	8	
91	8:30	0	0
92	8:31	0	
93	8:32	3	
94	8:33	6	150
95	8:34	0	
96	8:35	7	
97	8:36	5	125
98	8:37	0	
99	8:38	0	
100	8:39	11	300
101	8:40	4	
102	8:41	0	
103	8:42	0	0
104	8:43	0	
105	8:44	25	
106	8:45	10	225
107	8:46	0	
108	8:47	4	
109	8:48	0	0
110	8:49	2	
111	8:50	10	
112	8:51	3	0
113	8:52	7	
114	8:53	0	

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Corona, CA 92878

Queue Study

Location:	San Diego	Date: 1/24/2018
N/S Street:	Carmel Mountain Road	Weather: Sunny
E/W Street:	SR-56 Westbound On Ramp	Movement: WB On

	Time	Vehicles Queue	Length of Queue (in feet)
115	8:54	0	0
116	8:55	0	
117	8:56	0	
118	8:57	8	175
119	8:58	2	
120	8:59	6	
121	9:00	6	150

	Vehicles in Queue	Queue Length in Feet
Observed Maximum =	**27**	**650**

Observed Max occurred at 7:03am, and queue dissipated at 7:12am

Max Observed Delay = **9 minutes**

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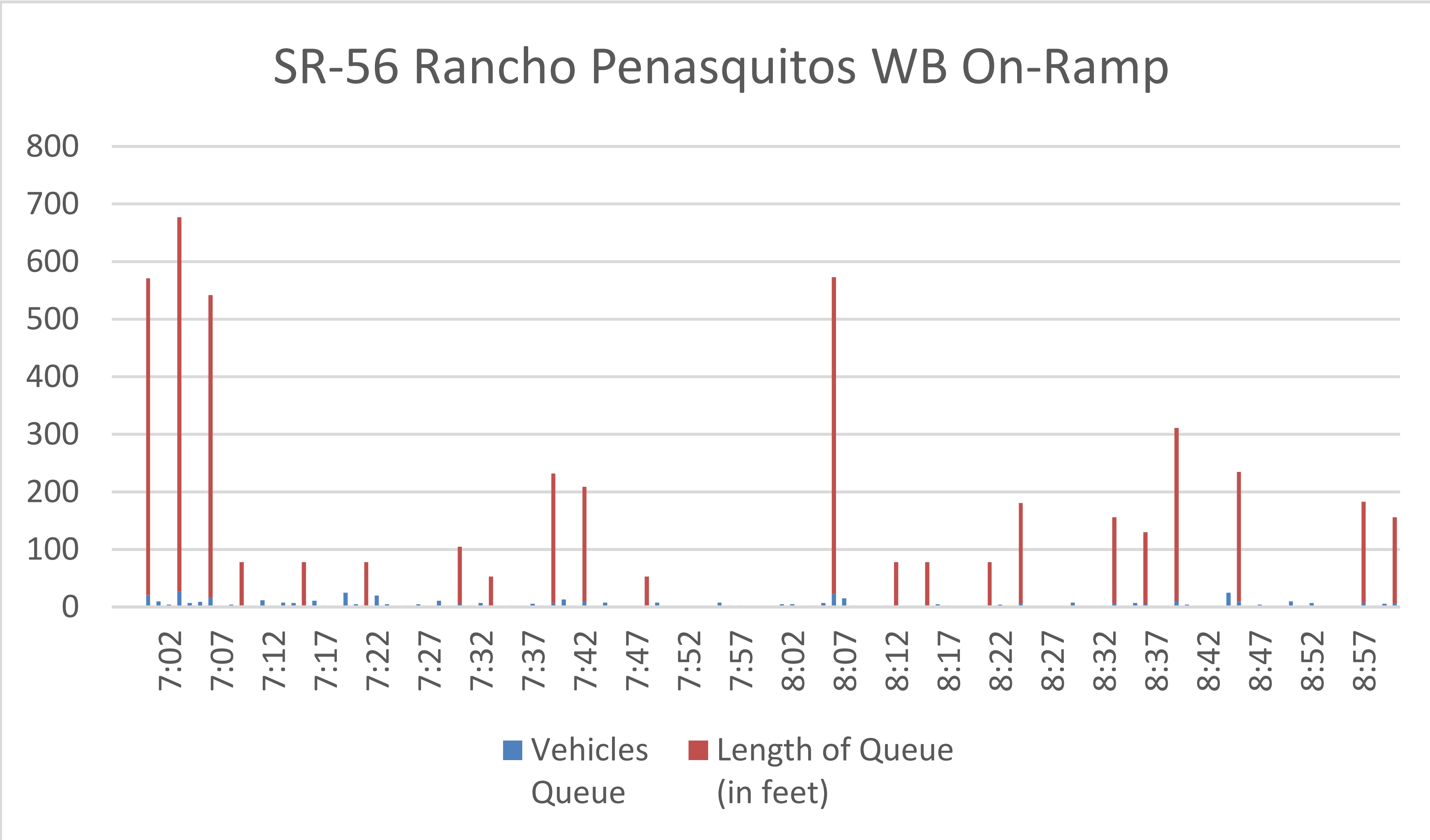
SR-56 Rancho Penasquitos WB On-Ramp
800
700
600
500
400
300
200
100
0
7:02
7:07
7:12
7:17
7:22
7:27
7:32
7:37
7:42
7:47
7:52
7:57
8:02
8:07
8:12
8:17
8:22
8:27
8:32
8:37
8:42
8:47
8:52
8:57
Vehicles Queue
Length of Queue (in feet)

Appendix C

City of San Diego Community Plan Excerpts

Rancho Peñasquitos

COMMUNITY PLAN

Printed on recycled paper.

This information, or this document (or portions thereof), will be made available in alternative formats upon request.

RANCHO PEÑASQUITOS COMMUNITY PLAN

The following amendments have been incorporated into this April 2011 posting of this Plan:

Amendment	Date Approved by Planning Commission	Resolution Number	Date Adopted by City Council	Resolution Number
Rescinded the 1978 Peñasquitos East Community Plan and approved the 1993 Rancho Penasquitos Plan update, except for the portion related to the Paraiso Cumbres property.			March 30, 1993	R-281713
Designated the 232-acre Paraiso Cumbres property as 197 acres of open space and 35 acres of low-density residential development. Also revised text on page 92 and 125 of the 1993 Rancho Penasquitos Community Plan update.			June 1, 1993	R-282056
Shifted 206 acres of development area into the MHPA.			March 18, 1997	R-288456
Redesignated 2.94 acres from neighborhood commercial to low-medium density residential (5-10 du/ac).			June 8, 1998	R-290169
Deleted prohibition on residential use on 3.8-acre site on Azuaga Street adjacent to SDG&E substation to permit the development of a church with associated senior housing.			April 9, 2002	R-296301
Redesignated 1-acre portion of park & ride (commercial designation) to park use to permit development of a skate park.			September 23, 2003	R-298423
Reconfigured low-medium residential, regional commercial, and open space areas on approximately 147 acres. Also adjusted the boundary between Rancho Peñasquitos and Torrey Highlands based on the realignment of Carmel Mountain Road.			March 30, 2004	R-299054
Added MCAS Miramar ALUCP policy language and deleted references and maps to the NAS Miramar CLUP.	February 17, 2011		April 26, 2011	R-306737

MAYOR

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Ron Roberts
John Hartley
George Stevens
Tom Behr
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Juan Vargas

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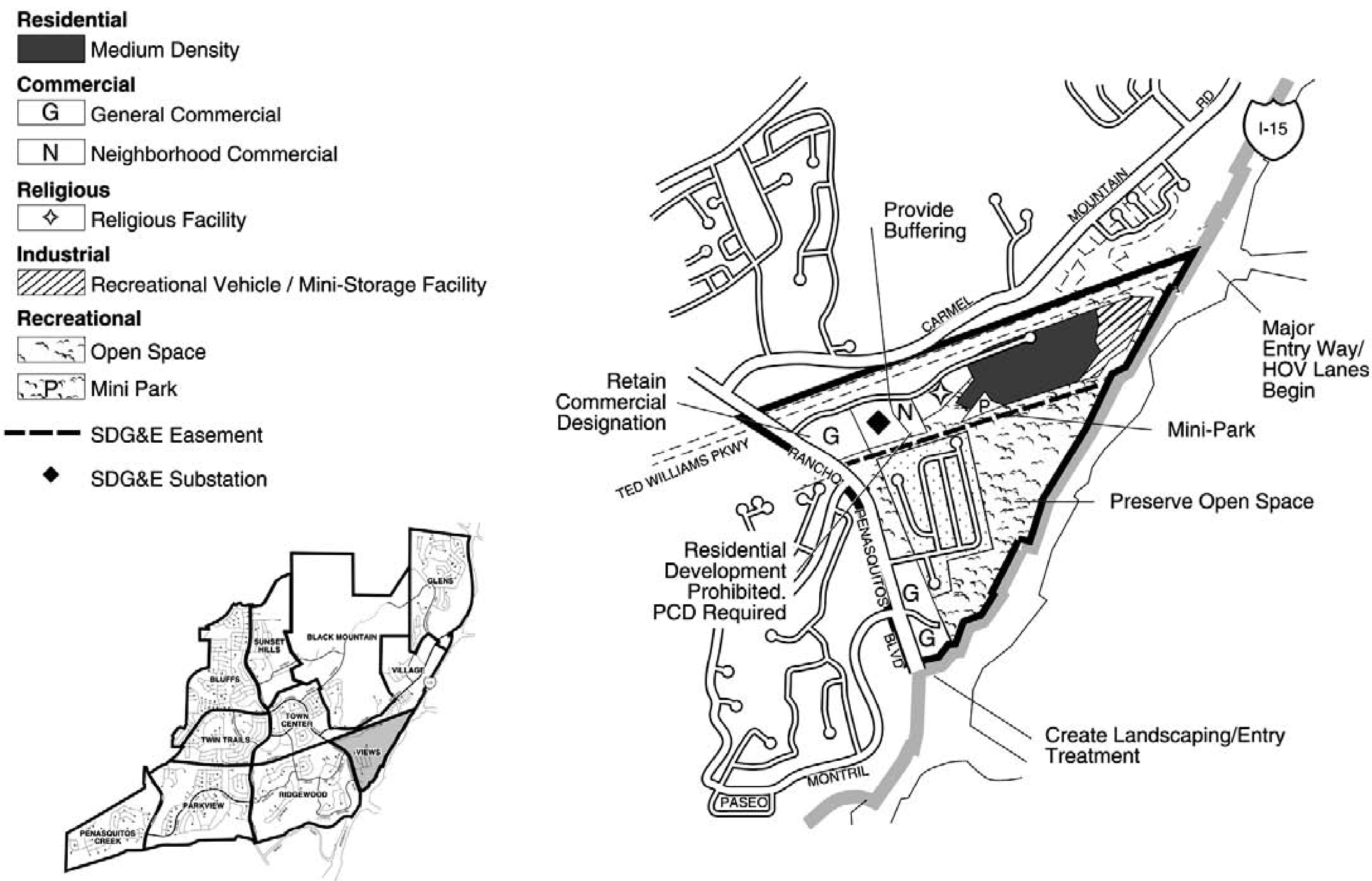
Ron St. Germain, Editor/Proofreader

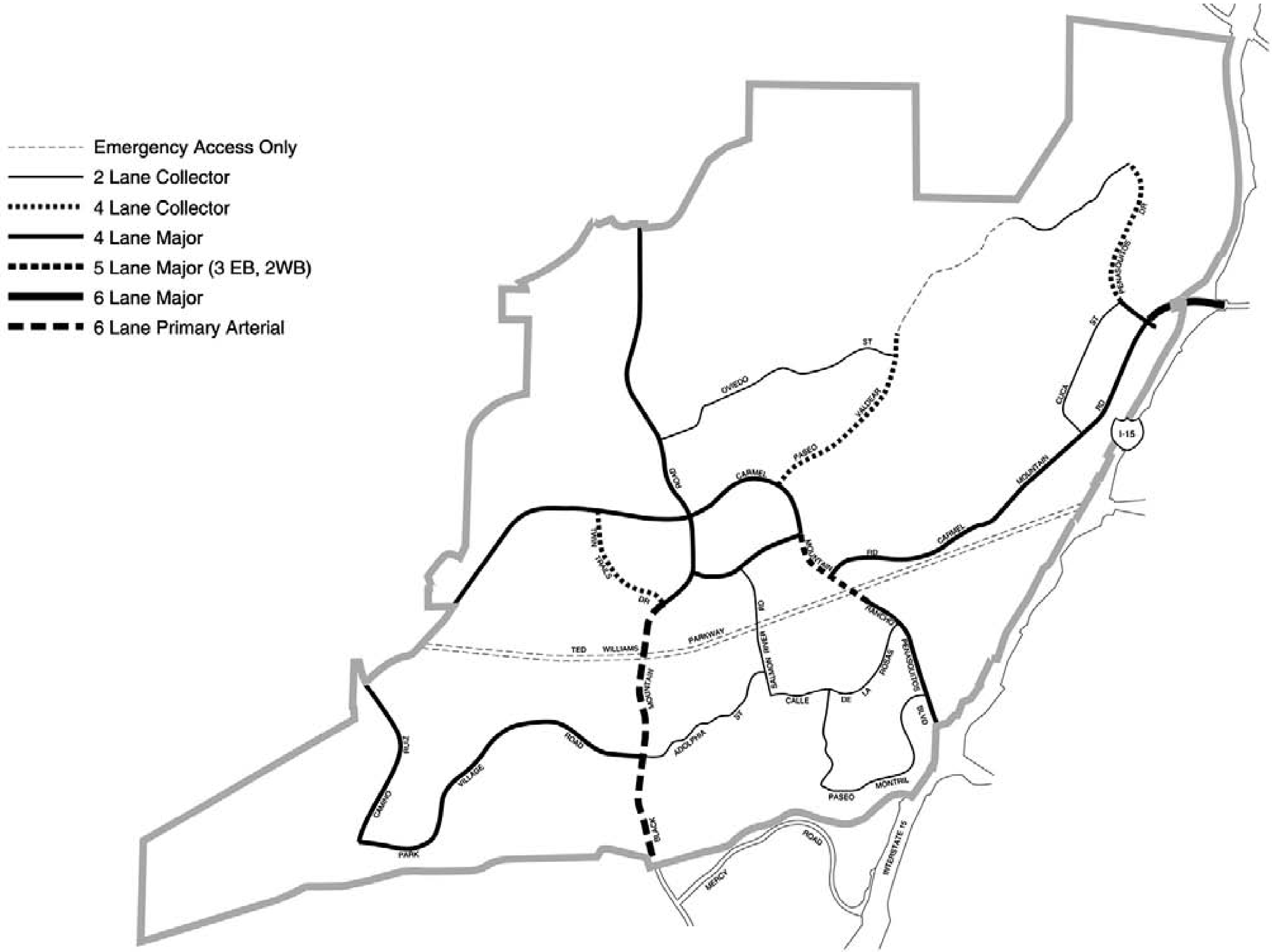
Other individuals who contributed to the preparation of this Plan are Mary Lee Balko, James Ragsdale, Mike Westlake, Bill Levin and Sam Riordan.



Views

Rancho Peñasquitos Community Plan

17
FIGURE



Recommended Street Classifications

Rancho Peñasquitos Community Plan

28
FIGURE

Appendix D

Transit Map and Schedule

Black Mountain Open Space Park
Peñasquitos Dr
Carmel Village Plaza
Carmel Mountain Rd
235
237
20
Cuca St
Rancho Carmel Dr
Ted Williams Pkwy
Sundevil Wy
Carmel Mountain Rd
20
Rancho Peñasquitos Bl
Sabre Springs/
Peñasquitos Transit Station
235, 237, 290, 944
Sabre Springs Pkwy
280
290
235
237
Calle de las Rosas
Sabre Springs
Poway
944
Paseo Montril
Mercy Rd
Sabre Springs Pkwy
Springhurst Dr

CASH FARES / *Tarifas en efectivo*

Exact fare, please / *Favor de pagar la cantidad exacta*

Day Pass (Regional) / *Pase diario (Regional)* Compass Card required ($2) / *Se requiere un Compass Card ($2)*	$5.00
One-Way Fare / *Tarifa de una direccíon*	$2.50
Senior (60+)/Disabled/Medicare *Mayores de 60 años/Discapacitados/Medicare*	$1.25*
Children 5 & under / *Niños de 5 años o menos* Up to two children ride free per paying adult / *Máximo dos niños viajan gratis por cada adulto*	FREE / *GRATIS*

MONTHLY PASSES / *Pases mensual*

Adult / *Adulto*	$72.00
Senior (60+)/Disabled/Medicare *Mayores de 60 años/Discapacitados/Medicare*	$18.00*
Youths (18 and under) *Jóvenes (18 años o menos)*	$36.00*

*I.D. required for discount fare or pass.
**Se requiere identificación para tarifas o pases de descuento.*

DAY PASS (REGIONAL) / *Pase diario (Regional)*

All passes are sold on Compass Card, which can be reloaded and reused for up to five years. Compass Cards are available for $2 at select outlets. A $5 Day Pass requires a Compass Card. A paper Day Pass can be purchased on board buses for an additional $2 fee.

Todos los pases se venden en el Compass Card, el cual puede ser recargado y reutilizado por hasta cinco años. Compass Cards están disponibles por $2 en selectas sucursales. Un pase de un día por $5 requiere un Compass Card. Un pase de un día de papel se puede obtener a bordo los autobuses por un costo adicional de $2.

DIRECTORY / *Directorio*

Regional Transit Information *Información de transporte público regional*	511 or/ó (619) 233-3004
TTY/TDD (teletype for hearing impaired) *Teletipo para sordos*	(619) 234-5005 or/ó (888) 722-4889
InfoExpress (24-hour info via Touch-Tone phone) *Información las 24 horas (via teléfono de teclas)*	(619) 685-4900
Customer Service / Suggestions *Servicio al cliente / Sugerencias*	(619) 557-4555
SafeWatch	(619) 557-4500
Lost & Found *Objetos extraviados*	(619) 557-4555
Transit Store	(619) 234-1060 12th & Imperial Transit Center M–F 8am–5pm
For MTS online trip planning *Planificación de viajes por Internet*	sdmts.com

For more information on riding MTS services, pick up a Rider's Guide on a bus or at the Transit Store, or visit **sdmts.com**.

Para obtener más información sobre el uso de los servicios de MTS, recoja un 'Rider's Guide' en un autobús o en la Transit Store, o visita a ***www.sdmts.com****.*

Thank you for riding MTS! ***¡Gracias por viajar con MTS!***

Effective JANUARY 29, 2017

20 Downtown – Rancho Bernardo Station
via Fashion Valley

110 Downtown – Mira Mesa Express
via I-15 / Hwy 163

DESTINATIONS

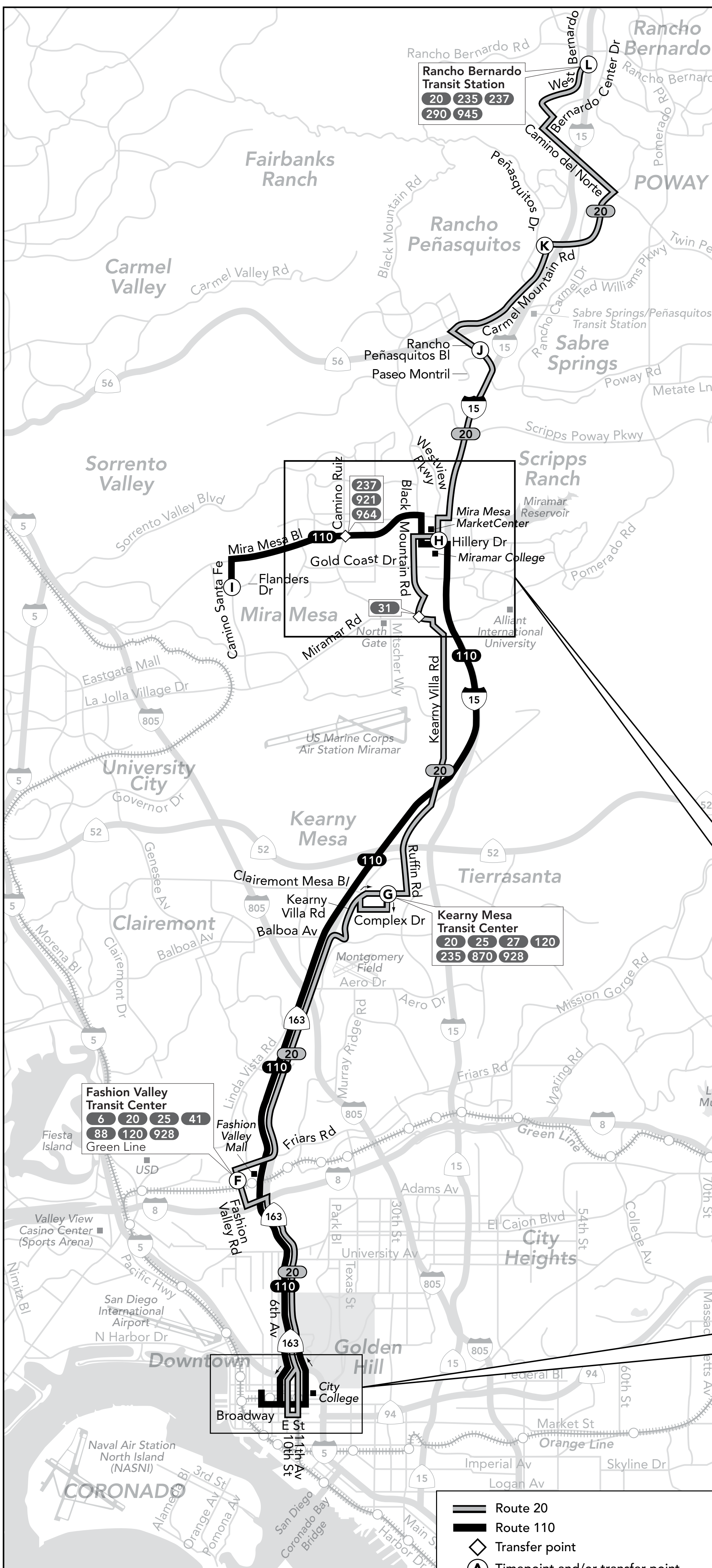
- City College
- Downtown Courthouses (110)
- Fashion Valley Mall (20)
- Miramar College
- Mira Mesa MarketCenter

TROLLEY CONNECTIONS
City College
Fashion Valley (20)

Metropolitan Transit System

01/17

Alternative formats available upon request. Please call: (619) 557-4555 / *Formato alternativo disponible al preguntar. Favor de llamar: (619) 557-4555*



Route 110 – Monday through Friday / *lunes a viernes*

Morning only

Mira Mesa ➡ Downtown

(I) Camino Santa Fe & Flanders Dr. DEPART	(H) Miramar College Transit Station	(D) 10th Av. & B St.	(C) Broadway & 5th Av.	(B) Broadway & 1st Av. ARRIVE
6:02a	6:15a	6:35a	6:39a	6:44a
6:22	6:35	6:55	6:59	7:04
6:40	6:55	7:17	7:21	7:27
7:05	7:20	7:42	7:46	7:52

Route 110 – Monday through Friday / *lunes a viernes*

Afternoon only

Downtown ➡ Mira Mesa

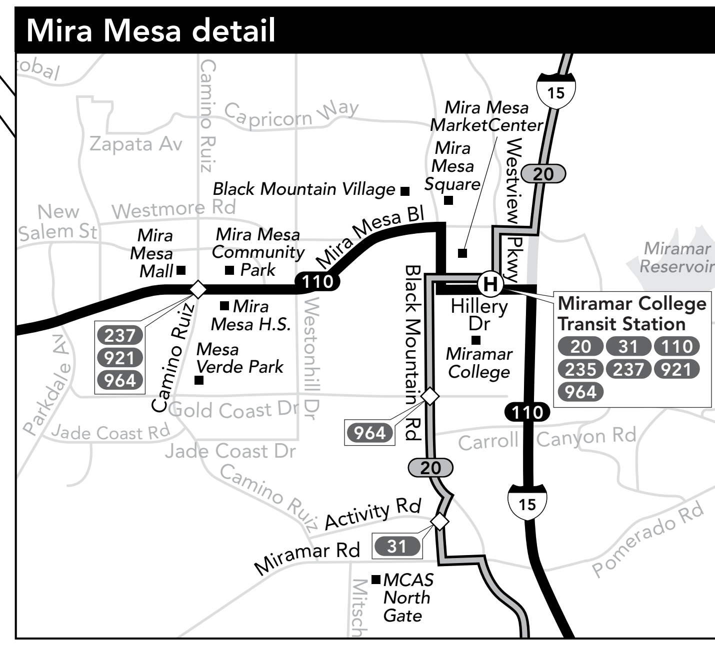
(A) Front St. & B St. DEPART	(C) Broadway & 3rd Av.	(E) City College Transit Center (11th & B)	(H) Miramar College Transit Station	(I) Camino Santa Fe & Flanders Dr. ARRIVE
4:02p	**4:05p**	**4:12p**	**4:31p**	**4:47p**
4:27	**4:30**	**4:37**	**4:58**	**5:15**
4:52	**4:55**	**5:02**	**5:23**	**5:40**
5:22	**5:25**	**5:32**	**5:53**	**6:10**

The schedules and other information shown in this timetable are subject to change. MTS does not assume responsibility for errors in timetables nor for any inconvenience caused by delayed buses.

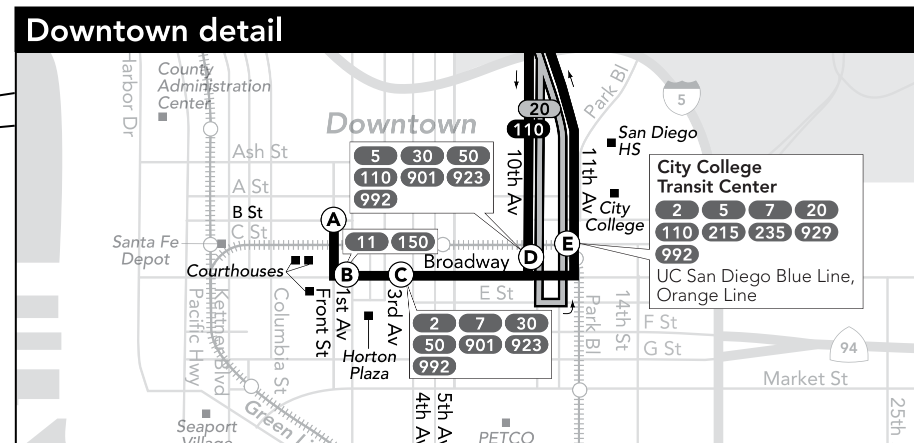
Los horarios e información que se indican en este itinerario están sujetos a cambios. MTS no asume responsabilidad por errores en los itinerarios, ni por ningún perjuicio que se origine por los autobuses demorados.

Route 110 does not operate on weekends or on the following holidays and observed holidays
La ruta 110 no ofrece servicio durante el fin de semana ó durante los siguientes días festivos y feriados observados >>> New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas

Mira Mesa detail



Downtown detail



A Saturday or Sunday schedule will be operated on the following holidays and observed holidays >>> New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas

Se operará con horario de sábado o domingo durante los siguientes días festivos y feriados observados

Route 20 – Monday through Friday / *lunes a viernes*

Downtown ➡ Kearny Mesa ➡ Rancho Bernardo

(D) 10th Av. & Broadway DEPART	(E) City College Transit Center (11th & C)	(F) Fashion Valley Transit Center ARRIVE	(F) Fashion Valley Transit Center DEPART	(G) Kearny Mesa Transit Center	(H) Miramar College Transit Station	(J) Rancho Peñasquitos & Paseo Montril	(K) Carmel Mtn. & Peñasquitos Dr.	(L) R. Bernardo Transit Station ARRIVE
—	4:55a	5:06a	5:08a	5:20a	5:37a	5:44a	5:52a	6:07a
—	5:25	5:36	5:38	5:51	6:10	6:17	6:25	6:41
—	5:40	5:51	5:53	6:07	6:29	6:37	6:45	7:02
—	5:55	6:06	6:08	6:22	—	—	—	—
—	6:10	6:21	6:23	6:37	7:02	7:10	7:19	7:37
6:22a	6:25	6:36	6:38	6:52	—	—	—	—
6:37	6:40	6:51	6:53	7:07	7:32	7:40	7:49	8:07
6:52	6:55	7:06	7:08	7:22	—	—	—	—
7:07	7:10	7:21	7:23	7:37	8:02	8:10	8:19	8:37
7:22	7:25	7:36	7:38	7:52	—	—	—	—
7:37	7:40	7:51	7:53	8:07	8:32	8:40	8:49	9:07
7:52	7:55	8:06	8:08	8:22	—	—	—	—
8:07	8:10	8:21	8:23	8:37	9:02	9:10	9:19	9:37
8:22	8:25	8:36	8:38	8:52	—	—	—	—
8:37	8:40	8:51	8:53	9:08	9:31	9:39	9:48	10:06
8:52	8:55	9:06	9:08	9:23	—	—	—	—
9:07	9:10	9:21	9:23	9:38	10:01	10:09	10:18	10:36
9:37	9:40	9:51	9:53	10:08	10:31	10:39	10:48	11:06
10:07	10:10	10:21	10:23	10:38	11:01	11:09	11:18	11:36
10:37	10:40	10:51	10:53	11:08	11:31	11:39	11:48	12:06p
11:07	11:10	11:21	11:23	11:38	12:01p	12:09p	12:18p	12:36
11:37	11:40	11:51	11:53	12:08p	12:31	12:39	12:48	1:06
12:07p	12:10p	12:21p	12:23p	12:38	1:01	1:09	1:18	1:36
12:37	12:40	12:52	12:54	1:10	1:33	1:42	1:52	2:10
1:07	1:10	1:22	1:24	1:40	2:04	2:13	2:23	2:41
1:37	1:40	1:52	1:54	2:10	2:34	2:43	2:53	3:11
2:07	2:10	2:23	2:25	2:41	3:07	3:16	3:27	3:45
2:37	2:40	2:53	2:55	3:11	3:37	3:46	3:57	4:15
2:52	2:55	3:08	3:10	3:26	—	—	—	—
3:07	3:10	3:23	3:25	3:41	4:07	4:16	4:27	4:45
3:22	3:25	3:38	3:40	3:56	—	—	—	—
3:37	3:40	3:53	3:55	4:11	4:37	4:46	4:57	5:15
3:52	3:55	4:08	4:10	4:26	—	—	—	—
4:07	4:10	4:23	4:25	4:41	5:07	5:16	5:27	5:45
4:22	4:25	4:38	4:40	4:56	—	—	—	—
4:37	4:40	4:53	4:55	5:11	5:37	5:46	5:57	6:15
4:52	4:55	5:08	5:10	5:26	—	—	—	—
5:07	5:10	5:23	5:25	5:41	6:05	6:14	6:25	6:42
5:22	5:25	5:38	5:40	5:56	—	—	—	—
5:37	5:40	5:52	5:54	6:09	6:32	6:41	6:51	7:07
6:07	6:10	6:21	6:23	6:37	6:58	7:07	7:16	7:31
6:37	6:40	6:51	6:53	7:07	7:28	7:37	7:46	8:01
7:06	7:09	7:20	7:22	7:35	7:54	8:02	8:10	8:24
7:36	7:39	7:50	7:52	8:05	8:24	8:32	8:40	8:54
8:36	8:39	8:50	8:52	9:05	—	—	—	—

Rancho Bernardo ➡ Kearny Mesa ➡ Downtown

(L) Rancho Bernardo Transit Station DEPART	(K) Carmel Mtn. & Peñasquitos Dr.	(J) Rancho Peñasquitos & Paseo Montril	(H) Miramar College Transit Station	(G) Kearny Mesa Transit Center ▲	(F) Fashion Valley Transit Center ARRIVE	(F) Fashion Valley Transit Center DEPART	(D) 10th Av. & Broadway ARRIVE
4:58a	5:13a	5:21a	5:30a	5:49a	6:01a	6:03a	6:12a
5:26	5:42	5:51	6:00	6:20	6:33	6:35	6:45
5:52	6:09	6:19	6:30	6:52	7:05	7:07	7:18
—	—	—	—	7:06	7:19	7:21	7:33
6:19	6:37	6:49	7:00	7:23	7:36	7:38	7:50
—	—	—	—	7:38	7:51	7:53	8:05
6:49	7:07	7:19	7:30	7:53	8:06	8:08	8:20
—	—	—	—	8:08	8:21	8:23	8:35
7:19	7:37	7:49	8:00	8:23	8:36	8:38	8:50
7:49	8:07	8:19	8:30	8:53	9:06	9:08	9:20
8:21	8:39	8:51	9:00	9:22	9:35	9:37	9:48
8:51	9:09	9:21	9:30	9:52	10:05	10:07	10:18
9:25	9:42	9:52	10:00	10:22	10:36	10:38	10:49
9:55	10:12	10:22	10:30	10:52	11:06	11:08	11:19
10:25	10:42	10:52	11:00	11:22	11:36	11:38	11:49
10:55	11:12	11:22	11:30	11:52	12:06p	12:08p	12:19p
11:24	11:42	11:52	12:00p	12:23p	12:37	12:39	12:50
11:54	12:12p	12:22p	12:30	12:53	1:07	1:09	1:20
12:24p	12:42	12:52	1:00	1:23	1:37	1:39	1:50
12:54	1:12	1:22	1:30	1:53	2:07	2:09	2:20
1:24	1:42	1:52	2:00	2:23	2:37	2:39	2:50
—	—	—	—	2:38	2:52	2:54	3:05
1:54	2:12	2:22	2:30	2:53	3:07	3:09	3:20
—	—	—	—	3:08	3:22	3:24	3:35
2:24	2:42	2:52	3:00	3:23	3:37	3:39	3:50
—	—	—	—	3:38	3:52	3:54	4:05
2:51	3:10	3:20	3:29	3:53	4:08	4:10	4:22
—	—	—	—	4:08	4:23	4:25	4:37
3:19	3:38	3:48	3:57	4:21	4:37	4:39	4:51
—	—	—	—	4:36	4:52	4:54	5:06
3:49	4:08	4:18	4:27	4:52	5:08	5:10	5:22
—	—	—	—	5:07	5:23	5:25	5:37
4:18	4:38	4:48	4:57	5:22	5:38	5:40	5:53
—	—	—	—	5:37	5:53	5:55	6:08
4:48	5:08	5:18	5:27	5:52	6:08	6:10	6:23
—	—	—	—	6:07	6:23	6:25	6:37
5:19	5:39	5:49	5:58	6:21	6:36	6:38	6:50
5:49	6:09	6:19	6:28	6:50	7:04	7:06	7:17
6:24	6:42	6:52	7:01	7:21	7:34	7:36	7:47
7:10	7:27	7:36	7:45	8:05	8:17	8:19	8:29
8:15	8:30	8:39	8:47	9:05	9:17	9:19	9:29
9:18	9:32	9:40	9:48	10:05	10:17	10:19	10:28

Route 20 – Saturday / *sábado*

Downtown ➡ Kearny Mesa ➡ Rancho Bernardo

(D) 10th Av. & Broadway DEPART	(E) City College Transit Center (11th & C)	(F) Fashion Valley Transit Center ARRIVE	(F) Fashion Valley Transit Center DEPART	(G) Kearny Mesa Transit Center	(H) Miramar College Transit Station	(J) Rancho Peñasquitos & Paseo Montril	(K) Carmel Mtn. & Peñasquitos Dr.	(L) R. Bernardo Transit Station ARRIVE
—	5:40a	5:50a	5:52a	6:05a	6:23a	6:29a	6:37a	6:52a
—	6:10	6:20	6:22	6:35	6:53	6:59	7:07	7:22
6:37a	6:40	6:51	6:53	7:07	7:26	—	—	—
7:07	7:10	7:21	7:23	7:37	7:56	8:03	8:11	8:27
7:37	7:40	7:51	7:53	8:07	8:26	—	—	—
8:07	8:10	8:21	8:23	8:37	8:57	9:04	9:13	9:30
8:37	8:40	8:51	8:53	9:07	9:27	—	—	—
9:07	9:10	9:21	9:23	9:37	9:57	10:04	10:13	10:30
9:37	9:40	9:51	9:53	10:07	10:27	—	—	—
10:07	10:10	10:21	10:23	10:37	10:57	11:04	11:13	11:30
10:37	10:40	10:52	10:54	11:09	11:29	—	—	—
11:07	11:10	11:22	11:24	11:39	11:59	12:07p	12:17p	12:35p
11:37	11:40	11:52	11:54	12:09p	12:29p	—	—	—
12:07p	12:10p	12:22p	12:24p	12:39	12:59	1:07	1:17	1:35
12:37	12:40	12:52	12:54	1:09	1:29	—	—	—
1:07	1:10	1:22	1:24	1:39	1:59	2:07	2:17	2:35
1:37	1:40	1:52	1:54	2:09	2:29	—	—	—
2:07	2:10	2:22	2:24	2:39	2:59	3:07	3:17	3:35
2:37	2:40	2:52	2:54	3:09	3:29	—	—	—
3:07	3:10	3:22	3:24	3:39	3:59	4:07	4:17	4:35
3:37	3:40	3:52	3:54	4:09	4:29	—	—	—
4:07	4:10	4:22	4:24	4:39	4:59	5:07	5:17	5:35
4:37	4:40	4:52	4:54	5:09	5:29	—	—	—
5:07	5:10	5:22	5:24	5:39	5:59	6:07	6:17	6:35
5:37	5:40	5:52	5:54	6:09	6:29	—	—	—
6:07	6:10	6:21	6:23	6:37	6:56	7:04	7:13	7:30
7:07	7:10	7:21	7:23	7:36	7:55	8:03	8:11	8:26

Rancho Bernardo ➡ Kearny Mesa ➡ Downtown

(L) Rancho Bernardo Transit Station DEPART	(K) Carmel Mtn. & Peñasquitos Dr.	(J) Rancho Peñasquitos & Paseo Montril	(H) Miramar College Transit Station	(G) Kearny Mesa Transit Center ▲	(F) Fashion Valley Transit Center ARRIVE	(F) Fashion Valley Transit Center DEPART	(D) 10th Av. & Broadway ARRIVE
—	—	—	5:36a	5:52a	6:05a	6:07a	6:16a
6:07a	6:20a	6:28a	6:36	6:52	7:05	7:07	7:16
—	—	—	7:06	7:23	7:36	7:38	7:48
7:05	7:19	7:28	7:36	7:53	8:06	8:08	8:18
—	—	—	8:05	8:23	8:36	8:38	8:48
8:02	8:17	8:27	8:35	8:53	9:06	9:08	9:18
—	—	—	9:05	9:23	9:36	9:38	9:48
9:02	9:17	9:27	9:35	9:53	10:06	10:08	10:18
—	—	—	10:04	10:22	10:36	10:38	10:48
9:58	10:15	10:25	10:34	10:52	11:06	11:08	11:18
—	—	—	11:04	11:22	11:36	11:38	11:48
10:58	11:15	11:25	11:34	11:52	12:06p	12:08p	12:18p
—	—	—	12:05p	12:23p	12:37	12:39	12:49
11:59	12:16p	12:26p	12:35	12:53	1:07	1:09	1:19
—	—	—	1:04	1:22	1:37	1:39	1:50
12:57p	1:15	1:25	1:34	1:52	2:07	2:09	2:20
—	—	—	2:04	2:22	2:37	2:39	2:50
1:57	2:15	2:25	2:34	2:52	3:07	3:09	3:20
—	—	—	3:04	3:22	3:37	3:39	3:50
2:57	3:15	3:25	3:34	3:52	4:07	4:09	4:20
—	—	—	4:04	4:22	4:37	4:39	4:50
3:57	4:15	4:25	4:34	4:52	5:07	5:09	5:20
—	—	—	5:04	5:22	5:37	5:39	5:50
4:57	5:15	5:25	5:34	5:52	6:07	6:09	6:20
—	—	—	6:05	6:22	6:36	6:38	6:49
6:00	6:17	6:26	6:35	6:52	7:06	7:08	7:19
—	—	—	7:05	7:22	7:35	7:37	7:47
7:02	7:18	7:27	7:35	7:52	8:05	8:07	8:17
8:04	8:19	8:27	8:35	8:52	9:05	9:07	9:17

Route 20 – Sunday / *domingo*

Downtown ➡ Kearny Mesa ➡ Rancho Bernardo

(D) 10th Av. & Broadway DEPART	(E) City College Transit Center (11th & C)	(F) Fashion Valley Transit Center ARRIVE	(F) Fashion Valley Transit Center DEPART	(G) Kearny Mesa Transit Center	(H) Miramar College Transit Station	(J) Rancho Peñasquitos & Paseo Montril	(K) Carmel Mtn. & Peñasquitos Dr.	(L) R. Bernardo Transit Station ARRIVE
—	6:10a	6:20a	6:22a	6:35a	6:53a	6:59a	7:07a	7:22a
7:07a	7:10	7:21	7:23	7:37	7:56	8:03	8:11	8:27
8:07	8:10	8:21	8:23	8:37	8:57	9:04	9:13	9:30
9:07	9:10	9:21	9:23	9:37	9:57	10:04	10:13	10:30
10:07	10:10	10:21	10:23	10:37	10:57	11:04	11:13	11:30
11:07	11:10	11:22	11:24	11:39	11:59	12:07p	12:17p	12:35p
12:07p	12:10p	12:22p	12:24p	12:39p	12:59p	1:07	1:17	1:35
1:07	1:10	1:22	1:24	1:39	1:59	2:07	2:17	2:35
2:07	2:10	2:22	2:24	2:39	2:59	3:07	3:17	3:35
3:07	3:10	3:22	3:24	3:39	3:59	4:07	4:17	4:35
4:07	4:10	4:22	4:24	4:39	4:59	5:07	5:17	5:35
5:07	5:10	5:22	5:24	5:39	5:59	6:07	6:17	6:35
6:07	6:10	6:21	6:23	6:37	6:56	7:04	7:13	7:30
7:07	7:10	7:21	7:23	7:36	7:55	8:03	8:11	8:26

Rancho Bernardo ➡ Kearny Mesa ➡ Downtown

(L) Rancho Bernardo Transit Station DEPART	(K) Carmel Mtn. & Peñasquitos Dr.	(J) Rancho Peñasquitos & Paseo Montril	(H) Miramar College Transit Station	(G) Kearny Mesa Transit Center ▲	(F) Fashion Valley Transit Center ARRIVE	(F) Fashion Valley Transit Center DEPART	(D) 10th Av. & Broadway ARRIVE
6:07a	6:20a	6:28a	6:36a	6:52a	7:05a	7:07a	7:16a
7:05	7:19	7:28	7:36	7:53	8:06	8:08	8:18
8:02	8:17	8:27	8:35	8:53	9:06	9:08	9:18
9:02	9:17	9:27	9:35	9:53	10:06	10:08	10:18
9:58	10:15	10:25	10:34	10:52	11:06	11:08	11:18
10:58	11:15	11:25	11:34	11:52	12:06p	12:08p	12:18p
11:59	12:16p	12:26p	12:35p	12:53p	1:07	1:09	1:19
12:57p	1:15	1:25	1:34	1:52	2:07	2:09	2:20
1:57	2:15	2:25	2:34	2:52	3:07	3:09	3:20
2:57	3:15	3:25	3:34	3:52	4:07	4:09	4:20
3:57	4:15	4:25	4:34	4:52	5:07	5:09	5:20
4:57	5:15	5:25	5:34	5:52	6:07	6:09	6:20
6:00	6:17	6:26	6:35	6:52	7:06	7:08	7:19
7:02	7:18	7:27	7:35	7:52	8:05	8:07	8:17

▲ = Board bus on Complex Drive next to Bank of America. / *Encuentra el autobús en Complex Drive al lado de Bank of America.*

Appendix E

City of San Diego *Bicycle Master Plan* and Community Plan Excerpts

City of San Diego Bicycle Master Plan

San Diego, California

FINAL – Deceber 2013

PREPARED BY:
Alta Planning + Design
PREPARED FOR:
The City of San Diego

City of San Diego Bicycle Master Plan, December 2013

Existing Bicycle Routes

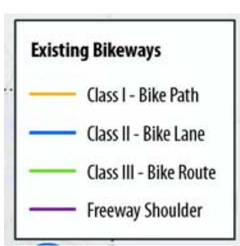


Figure 3-3:
San Diego Existing Bikeways (North)

Rancho Peñasquitos

COMMUNITY PLAN

Printed on recycled paper.

This information, or this document (or portions thereof), will be made available in alternative formats upon request.

RANCHO PEÑASQUITOS COMMUNITY PLAN

The following amendments have been incorporated into this April 2011 posting of this Plan:

Amendment	Date Approved by Planning Commission	Resolution Number	Date Adopted by City Council	Resolution Number
Rescinded the 1978 Peñasquitos East Community Plan and approved the 1993 Rancho Penasquitos Plan update, except for the portion related to the Paraiso Cumbres property.			March 30, 1993	R-281713
Designated the 232-acre Paraiso Cumbres property as 197 acres of open space and 35 acres of low-density residential development. Also revised text on page 92 and 125 of the 1993 Rancho Penasquitos Community Plan update.			June 1, 1993	R-282056
Shifted 206 acres of development area into the MHPA.			March 18, 1997	R-288456
Redesignated 2.94 acres from neighborhood commercial to low-medium density residential (5-10 du/ac).			June 8, 1998	R-290169
Deleted prohibition on residential use on 3.8-acre site on Azuaga Street adjacent to SDG&E substation to permit the development of a church with associated senior housing.			April 9, 2002	R-296301
Redesignated 1-acre portion of park & ride (commercial designation) to park use to permit development of a skate park.			September 23, 2003	R-298423
Reconfigured low-medium residential, regional commercial, and open space areas on approximately 147 acres. Also adjusted the boundary between Rancho Peñasquitos and Torrey Highlands based on the realignment of Carmel Mountain Road.			March 30, 2004	R-299054
Added MCAS Miramar ALUCP policy language and deleted references and maps to the NAS Miramar CLUP.	February 17, 2011		April 26, 2011	R-306737

- **Park-and-Ride Lots.** The two existing park-and-ride lots should be augmented by an additional lot (or lots), in the vicinity of the intersection of Carmel Mountain Road and Rancho Peñasquitos Boulevard. Joint use of parking areas at schools, churches and parks for park-and-ride purposes should be encouraged.

- **Transit Stops.** Attractive covered waiting areas for bus stops should be provided throughout the community. These should be sited in highly visible locations where conflicts with vehicular traffic are minimized.

- **Intra-community Transit.** DART (demand responsive transit) or dial-a-ride transit service should be provided throughout Rancho Peñasquitos. Such service exists in neighboring communities. Provision of a fixed route intra-community transit system in Rancho Peñasquitos appears infeasible in the short term due to topography, low-density and existing road layouts but should be periodically re-examined and remains a stated community desire. If fuel prices rise sharply or fuel shortages develop, fixed routes traversing the community may become cost effective.

Non-Motorized Transportation

Non-motorized transportation systems include pedestrian paths and sidewalks, bikeways and equestrian paths. Pedestrian and bicycle circulation systems should provide access from residential neighborhoods to public facilities and commercial services and should link neighborhoods throughout the community.

A system of safe, accessible pathways and sidewalks should be provided along roads and through open spaces and public utility easements (see **Figure 30**). Pathways within the open space system are discussed in more detail in the **Open Space and Resource Management Element**. Pedestrian access must be designed and developed to avoid mid-block street crossings.

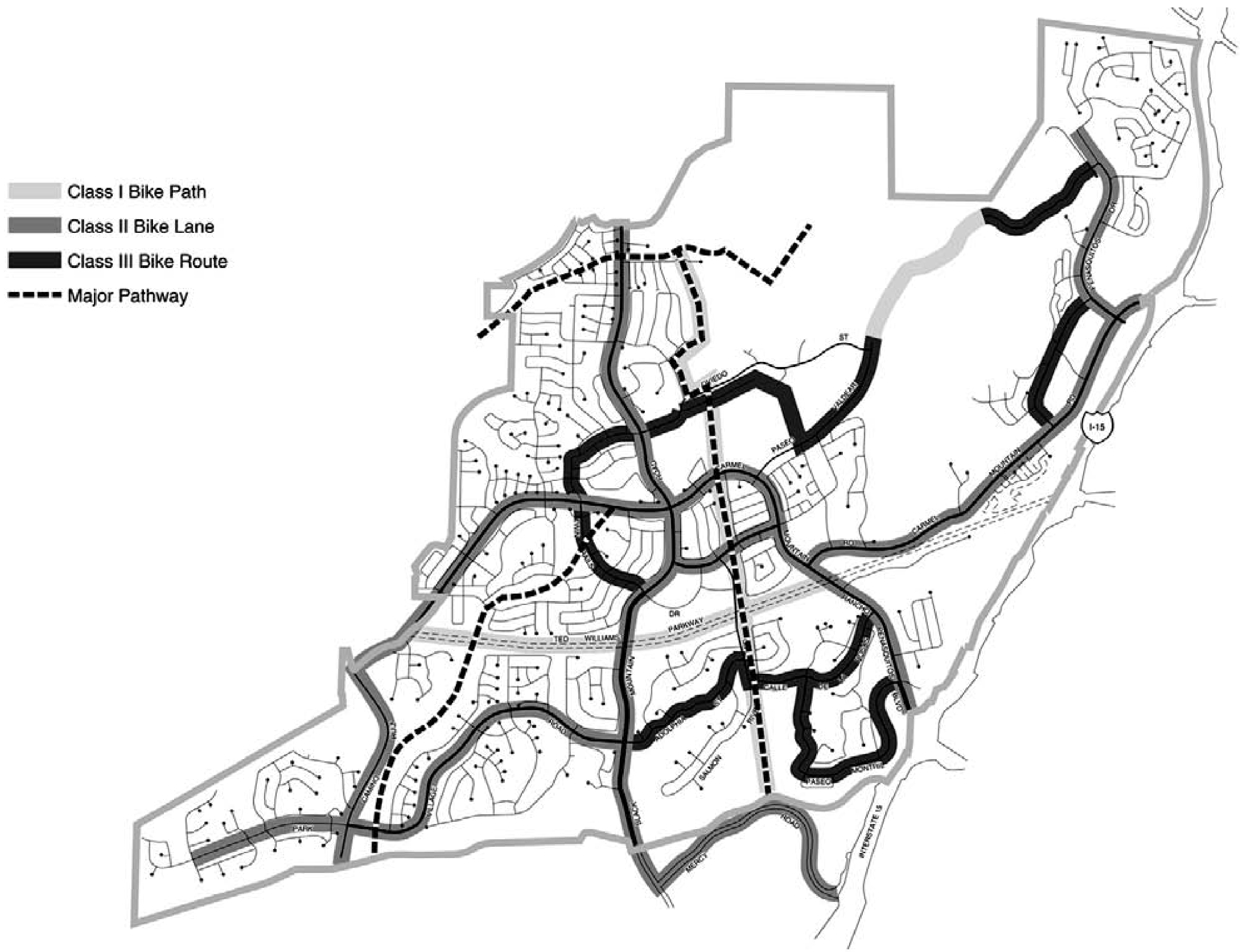
Pedestrian pathways in new commercial and residential developments should link with existing paths and conflicts with motor vehicles should be minimized. Where feasible, these pathways should provide direct access to public transit stops.

Public rights for pedestrian and bicycle access along the County Water Authority's right-of-way should be secured.

The public parklands of Black Mountain and Peñasquitos Canyon should be linked by a system of hiking, biking, equestrian and walking trails.

A system of bridle trails should be completed through the Peñasquitos Canyon Preserve to connect with the countywide riding system.

Bikeways should be provided on important streets in accordance with **Figure 30**. All major streets within the community should have Class II bike lanes with on-street parking prohibited where possible.



Bikeways and Pedestrian Circulation

Rancho Peñasquitos Community Plan

30 FIGURE

Appendix F

Existing LOS Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	60	33	226	188	239	365	607	237	355	1043	48
Future Volume (veh/h)	255	60	33	226	188	239	365	607	237	355	1043	48
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	290	68	38	257	214	187	415	690	-5	403	1185	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	1	2	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	337	353	182	317	283	451	390	1406	629	473	1601	499
Arrive On Green	0.10	0.16	0.16	0.09	0.15	0.15	0.22	0.40	0.00	0.14	0.31	0.00
Sat Flow, veh/h	3442	2245	1157	3442	1863	1538	1774	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	290	52	54	257	214	187	415	690	-5	403	1185	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1632	1721	1863	1538	1774	1770	1583	1721	1695	1583
Q Serve(g_s), s	7.5	2.3	2.6	6.6	9.9	8.9	19.8	13.1	0.0	10.3	18.7	0.0
Cycle Q Clear(g_c), s	7.5	2.3	2.6	6.6	9.9	8.9	19.8	13.1	0.0	10.3	18.7	0.0
Prop In Lane	1.00		0.71	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	337	278	257	317	283	451	390	1406	629	473	1601	499
V/C Ratio(X)	0.86	0.19	0.21	0.81	0.76	0.41	1.06	0.49	-0.01	0.85	0.74	0.00
Avail Cap(c_a), veh/h	337	450	415	317	445	585	390	1406	629	489	1601	499
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.59	0.59	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	40.0	32.9	33.0	40.1	36.6	25.9	35.1	20.3	0.0	37.9	27.5	0.0
Incr Delay (d2), s/veh	19.8	0.3	0.4	14.5	4.1	0.6	53.1	0.7	0.0	13.1	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	1.2	1.2	3.8	5.4	3.8	15.4	6.6	0.0	5.7	9.2	0.0
LnGrp Delay(d),s/veh	59.8	33.2	33.4	54.6	40.7	26.5	88.2	21.0	0.0	51.0	30.7	0.0
LnGrp LOS	E	C	C	D	D	C	F	C		D	C	
Approach Vol, veh/h		396			658			1100			1588	
Approach Delay, s/veh		52.7			42.1			46.5			35.8	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	33.8	13.0	19.2	16.6	41.3	12.5	19.7
Change Period (Y+Rc), s	* 4.2	5.5	* 4.2	5.5	* 4.2	5.5	* 4.2	* 5.5
Max Green Setting (Gmax), s	* 20	20.5	* 8.8	21.5	* 13	27.5	* 8.3	* 23
Max Q Clear Time (g_c+I1), s	21.8	20.7	9.5	11.9	12.3	15.1	8.6	4.6
Green Ext Time (p_c), s	0.0	0.0	0.0	1.2	0.1	3.5	0.0	0.5

Intersection Summary		
HCM 2010 Ctrl Delay		41.8
HCM 2010 LOS		D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	6	343	74	67	110	39	1017	23	36	821	422
Future Volume (vph)	119	6	343	74	67	110	39	1017	23	36	821	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.91		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1561		1770	1666		1770	3525		1770	3539	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1561		1770	1666		1770	3525		1770	3539	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	7	373	80	73	120	42	1105	25	39	892	459
RTOR Reduction (vph)	0	226	0	0	64	0	0	2	0	0	0	193
Lane Group Flow (vph)	129	154	0	80	129	0	42	1128	0	39	892	266
Confl. Peds. (#/hr)									5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	8	8		7	7		1	6		5	2	8
Permitted Phases												2
Actuated Green, G (s)	14.7	14.7		8.7	8.7		4.9	31.2		3.6	29.9	44.6
Effective Green, g (s)	14.7	14.7		8.7	8.7		4.9	31.2		3.6	29.9	44.6
Actuated g/C Ratio	0.19	0.19		0.11	0.11		0.06	0.40		0.05	0.39	0.58
Clearance Time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	337	297		199	187		112	1426		82	1372	991
v/s Ratio Prot	0.07	c0.10		0.05	c0.08		0.02	c0.32		0.02	c0.25	0.05
v/s Ratio Perm												0.12
v/c Ratio	0.38	0.52		0.40	0.69		0.38	0.79		0.48	0.65	0.27
Uniform Delay, d1	27.2	28.0		31.8	32.9		34.6	20.1		35.8	19.3	8.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.6		0.5	8.5		0.8	2.9		1.6	0.8	0.1
Delay (s)	27.5	28.7		32.3	41.4		35.4	23.0		37.4	20.2	8.2
Level of Service	C	C		C	D		D	C		D	C	A
Approach Delay (s)		28.4			38.8			23.4			16.7	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	18.9
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	86	118	63	1002	1200	56
Future Volume (veh/h)	86	118	63	1002	1200	56
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	100	137	73	1165	1395	65
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	196	175	326	2814	1930	90
Arrive On Green	0.11	0.11	0.37	1.00	0.56	0.56
Sat Flow, veh/h	1774	1583	1774	3632	3532	160
Grp Volume(v), veh/h	100	137	73	1165	716	744
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1829
Q Serve(g_s), s	4.8	7.6	2.6	0.0	26.9	27.1
Cycle Q Clear(g_c), s	4.8	7.6	2.6	0.0	26.9	27.1
Prop In Lane	1.00	1.00	1.00			0.09
Lane Grp Cap(c), veh/h	196	175	326	2814	993	1026
V/C Ratio(X)	0.51	0.78	0.22	0.41	0.72	0.72
Avail Cap(c_a), veh/h	335	299	326	2814	993	1026
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.89	0.89	0.75	0.75
Uniform Delay (d), s/veh	37.7	39.0	24.0	0.0	14.6	14.6
Incr Delay (d2), s/veh	2.0	7.4	0.3	0.4	3.4	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	6.8	1.2	0.2	13.9	14.4
LnGrp Delay(d),s/veh	39.8	46.4	24.3	0.4	18.0	18.0
LnGrp LOS	D	D	C	A	B	B
Approach Vol, veh/h	237			1238	1460	
Approach Delay, s/veh	43.6			1.8	18.0	
Approach LOS	D			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		76.1		13.9	21.1	55.0		
Change Period (Y+Rc), s		4.5		4.0	4.5	4.5		
Max Green Setting (Gmax), s		64.5		17.0	9.5	50.5		
Max Q Clear Time (g_c+I1), s		2.0		9.6	4.6	29.1		
Green Ext Time (p_c), s		10.3		0.4	0.0	10.0		

Intersection Summary		
HCM 2010 Ctrl Delay		13.2
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	149	106	278	172	261	292	729	388	332	545	28
Future Volume (veh/h)	233	149	106	278	172	261	292	729	388	332	545	28
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	265	169	120	316	195	297	332	828	441	377	619	32
Adj No. of Lanes	2	2	0	2	1	1	1	2	1	2	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	327	341	227	380	343	488	365	1522	669	445	1798	542
Arrive On Green	0.10	0.17	0.17	0.11	0.18	0.18	0.21	0.43	0.43	0.13	0.35	0.35
Sat Flow, veh/h	3442	2020	1345	3442	1863	1542	1774	3539	1555	3442	5085	1532
Grp Volume(v), veh/h	265	147	142	316	195	297	332	828	441	377	619	32
Grp Sat Flow(s),veh/h/ln	1721	1770	1595	1721	1863	1542	1774	1770	1555	1721	1695	1532
Q Serve(g_s), s	9.1	9.0	9.8	10.8	11.4	19.7	21.9	20.9	27.1	12.9	10.7	1.7
Cycle Q Clear(g_c), s	9.1	9.0	9.8	10.8	11.4	19.7	21.9	20.9	27.1	12.9	10.7	1.7
Prop In Lane	1.00		0.84	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	327	299	269	380	343	488	365	1522	669	445	1798	542
V/C Ratio(X)	0.81	0.49	0.53	0.83	0.57	0.61	0.91	0.54	0.66	0.85	0.34	0.06
Avail Cap(c_a), veh/h	439	332	299	493	365	507	503	1522	669	579	1798	542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.20	0.20	0.20	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	45.2	45.5	52.3	44.6	35.0	46.6	25.4	27.2	51.1	28.5	25.6
Incr Delay (d2), s/veh	8.1	1.2	1.6	9.2	1.9	2.0	4.3	0.3	1.1	9.0	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	4.5	4.4	5.6	6.1	8.6	11.2	10.3	11.8	6.7	5.1	0.7
LnGrp Delay(d),s/veh	61.3	46.4	47.1	61.4	46.5	37.0	50.9	25.7	28.3	60.1	29.1	25.8
LnGrp LOS	E	D	D	E	D	D	D	C	C	E	C	C
Approach Vol, veh/h		554			808			1601			1028	
Approach Delay, s/veh		53.7			48.9			31.7			40.4	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.9	47.9	15.6	27.6	19.7	57.1	17.4	25.8
Change Period (Y+Rc), s	* 4.2	5.5	* 4.2	5.5	* 4.2	5.5	* 4.2	* 5.5
Max Green Setting (Gmax), s	* 34	27.8	* 15	23.5	* 20	41.6	* 17	* 23
Max Q Clear Time (g_c+I1), s	23.9	12.7	11.1	21.7	14.9	29.1	12.8	11.8
Green Ext Time (p_c), s	0.7	3.6	0.4	0.4	0.6	5.7	0.4	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	40.4
HCM 2010 LOS	D

Notes

LOS Engineering, Inc.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	433	37	705	46	22	63	24	1130	65	80	708	178
Future Volume (vph)	433	37	705	46	22	63	24	1130	65	80	708	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.89		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1559		1770	1616		1770	3502		1770	3539	1560
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1559		1770	1616		1770	3502		1770	3539	1560
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	471	40	766	50	24	68	26	1228	71	87	770	193
RTOR Reduction (vph)	0	141	0	0	64	0	0	3	0	0	0	53
Lane Group Flow (vph)	471	665	0	50	28	0	26	1296	0	87	770	140
Confl. Peds. (#/hr)			10						10			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	8	8		7	7		1	6		5	2	8
Permitted Phases												2
Actuated Green, G (s)	45.2	45.2		6.4	6.4		8.3	44.4		6.8	42.9	88.1
Effective Green, g (s)	45.2	45.2		6.4	6.4		8.3	44.4		6.8	42.9	88.1
Actuated g/C Ratio	0.37	0.37		0.05	0.05		0.07	0.36		0.06	0.35	0.72
Clearance Time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	657	579		93	84		120	1277		98	1247	1188
v/s Ratio Prot	0.27	c0.43		c0.03	0.02		0.01	c0.37		c0.05	0.22	0.04
v/s Ratio Perm												0.05
v/c Ratio	0.72	1.15		0.54	0.33		0.22	1.01		0.89	0.62	0.12
Uniform Delay, d1	32.8	38.2		56.2	55.6		53.6	38.7		57.1	32.6	5.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.1	85.3		3.0	0.8		0.3	28.9		54.7	0.6	0.0
Delay (s)	35.9	123.6		59.2	56.4		54.0	67.6		111.8	33.3	5.1
Level of Service	D	F		E	E		D	E		F	C	A
Approach Delay (s)		91.2			57.4			67.3			34.6	
Approach LOS		F			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	65.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	121.7	Sum of lost time (s)	18.9
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	75	91	149	1205	1317	129		
Future Volume (veh/h)	75	91	149	1205	1317	129		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900		
Adj Flow Rate, veh/h	87	106	173	1401	1531	150		
Adj No. of Lanes	1	1	1	2	2	0		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	150	134	387	2989	1915	186		
Arrive On Green	0.08	0.08	0.44	1.00	0.59	0.59		
Sat Flow, veh/h	1774	1583	1774	3632	3344	315		
Grp Volume(v), veh/h	87	106	173	1401	826	855		
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1797		
Q Serve(g_s), s	5.7	7.9	8.2	0.0	43.2	44.7		
Cycle Q Clear(g_c), s	5.7	7.9	8.2	0.0	43.2	44.7		
Prop In Lane	1.00	1.00	1.00			0.18		
Lane Grp Cap(c), veh/h	150	134	387	2989	1043	1059		
V/C Ratio(X)	0.58	0.79	0.45	0.47	0.79	0.81		
Avail Cap(c_a), veh/h	248	222	387	2989	1043	1059		
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.84	0.84	0.76	0.76		
Uniform Delay (d), s/veh	52.9	53.9	28.8	0.0	19.0	19.3		
Incr Delay (d2), s/veh	3.5	10.0	0.7	0.4	4.8	5.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.9	7.1	4.0	0.2	22.3	23.6		
LnGrp Delay(d),s/veh	56.4	63.9	29.5	0.4	23.8	24.5		
LnGrp LOS	E	E	C	A	C	C		
Approach Vol, veh/h	193			1574	1681			
Approach Delay, s/veh	60.5			3.6	24.1			
Approach LOS	E			A	C			
Timer	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		105.9		14.1	30.7	75.2		
Change Period (Y+Rc), s		4.5		4.0	4.5	4.5		
Max Green Setting (Gmax), s		94.7		16.8	19.5	70.7		
Max Q Clear Time (g_c+I1), s		2.0		9.9	10.2	46.7		
Green Ext Time (p_c), s		14.6		0.3	0.3	13.0		

Intersection Summary		
HCM 2010 Ctrl Delay		16.8
HCM 2010 LOS		B

Appendix G

Easement Details

LEGEND:

PROPERTY LINE	
INDICATES FOUND 1" IRON PIPE AND TAG STAMPED "DIV. HIWAYS" PER R.O.S. 18415	●
INDICATES FOUND 1" IRON PIPE AND TAG STAMPED "CAL DOT" PER R.O.S. 18415	■
INDICATES FOUND 1" IRON PIPE STAMPED "DIV. OF HWYS" PER DIVISION OF HIGHWAYS R/W MAP NO. 55612	▲
INDICATES FOUND 2" X 24" IRON PIPE WITH DISC STAMPED "L.S. 3663" PER MAP NO. 11924	◉
INDICATES FOUND 3/4" X 18" IRON PIN STAMPED "L.S. 3363" PER MAP NO. 11924	▣
INDICATES FOUND 1" IRON PIPE AND TAG STAMPED "DIV. HIWAYS" PER M.S. 964	◬
INDICATES FOUND 3/4" X 18" IRON PIN AND PLASTIC PLUG STAMPED "L.S. 5163", NO RECORD	○
INDICATES PORTION OF LOT 12, MAP 11924, NOT INCLUDED IN PROJECT AREA	
INDICATES PROPOSED 25' WATER EASEMENT	
INDICATES PORTION OF EXISTING WATER EASEMENT TO BE ABANDONED	
INDICATES PROPOSED COVENANT OF EASEMENT	

EASEMENT NOTES:

THERE IS AN EXISTING OPEN SPACE EASEMENT OVER THE ENTIRETY OF LOT 12 AS SHOWN ON MAP NO. 11924 FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, OCTOBER 22, 1987.

THERE IS A NON-PLOTTABLE EASEMENT GRANTED TO PACIFIC BELL FOR PUBLIC UTILITIES, INGRESS, AND EGRESS, RECORDED AUGUST 8, 1988 AS INSTRUMENT NO. 88-387814. THE EXACT LOCATION AND EXTNEET OF SAID EASEMENT IS NOT DISCLOSED OF RECORD.

PREPARED BY:

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PHONE #: (858) 597-2001

PROJECT ADDRESS:
SOUTHWEST CORNER OF SR-56 AND I-15
SAN DIEGO, CALIFORNIA 92129

PROJECT NAME:
PENASQUITOS RV/MINI-STORAGE

SHEET TITLE:
EASEMENTS

REVISION 14:
REVISION 13:
REVISION 12:
REVISION 11:
REVISION 10:
REVISION 9:
REVISION 8:
REVISION 7:
REVISION 6:
REVISION 5:
REVISION 4:
REVISION 3:
REVISION 2: 7/20/2018
REVISION 1: 6/5/2018

ORIGINAL DATE: 3/8/2018

SHEET 4 (C-3) OF 16

DEP#

NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION
6				12			
5				11			
4				10			
3	7/20/18	RL	RESBUMITTAL 2	9			
2	6/5/18	RL	RESBUMITTAL 1	8			
1	3/8/18	RL	ORIGINAL	7			

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APPROVED BY ENGINEER OF WORK

REGISTRATION R C E 26283

FILE CODE PN 06.03-11.91

DATE

PREPARATION AND REVISION LOG

REGISTERED PROFESSIONAL ENGINEER
JOHN D. LEPPERT
C 26283
CIVIL
STATE OF CALIFORNIA


EX. 24" SCRW
PIPE PER 20568-
WATER ESMT PER DOC. NO. 85-163613
TEMPORARY LANDSCAPE ESMT PER DOC. NO. 1990-234154, WILL TERMINATE UPON COMMENCEMENT OF PROJECT.
EASEMENT FOR INGRESS AND EGRESS BEING A PORTION OF LOTS 5, 6, AND 7 OF SUNRIDGE VISTA UNIT NO. 1, MAP NO. 11924, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY ON OCTOBER 22, 1987, AS FILE NO. 87-595483 OF OFFICIAL RECORDS.
24.0
LOT 7
LOT 6

DOC # 1991-0539501
18-OCT-1991 08:00 AM

OFFICIAL RECORDS
SAN DIEGO COUNTY RECORDER'S OFFICE
ANNETTE EVANS, COUNTY RECORDER

RECORDING REQUESTED BY
COMMONWEALTH LAND TITLE CO

When Recorded Mail Deed And
Tax Statements to:

RYAN McGIRR
10343 Azunga St. #65
San Diego, CA 92129

306

Escrow # 500712-MH
Order # 6300365
APN: 315-572-06-01

CONDOMINIUM GRANT DEED
PHASE 1

TAX: 119.90

The Undersigned Grantor Declares: /
Documentary Transfer Tax: $ 119.90
Computed on Full Value of Property

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, Pardee Construction Company, a California corporation, hereby grants to

RYAN McGIRR and PATRICIA McGIRR, husband and wife as joint tenants

the following described real property situated in the City of San Diego, County of San Diego, State of California:

A condominium composed of:

INTEREST 1:

An undivided .02 interest as tenant-in-common in and to Lot 6 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 as Map No. 11924 in the Office of the County Recorder of San Diego County, California.

EXCEPTING THEREFROM the following:

A. All Living Units shown upon Terra Vista 2 Phase 1 Condominium Plan recorded in the Office of the County Recorder of San Diego County, California, on July 2, 1990, as File/Page No. 90-358914;

B. The exclusive use common areas, shown upon the Condominium Plan referred to above, designated as:

Balconies, Patios, Parking Spaces and Storage Areas

AND RESERVING THEREFROM:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 6 of Sun Ridge Vista Unit No. 1 according to Map No. 11924 filed on October 22, 1987 in the Office of the County Recorder of San Diego County, California, which easement is appurtenant to Lots 8, 9, 10, 5 and 7 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987. This easement shall become effective as to said Lots 8, 9, 10, 5 and 7 of Sun Ridge Vista Unit No. 1 upon (i) the recordation of a Condominium Plan on the property to be annexed, (ii) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 5 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (iii) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 7 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (iv) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 8 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (v) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 9 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (vi) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 10 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (vii) the close of the first sale of a Condominium by Declarant in the property to be annexed, all as more fully set forth in the Declaration to which reference is hereinafter made.

The Common Area referred to herein is Lot 6 of Sun Ridge Vista Unit No. 1 according to Map No. 11924 filed on October 22, 1987 in the Office of the County Recorder of San Diego County, California, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 2:

Living Unit No. 65, of Lot 6 of Sun Ridge Vista Unit No. 1, as shown upon the Condominium Plan referred to above.

INTEREST 3:

The exclusive right to use, possession and occupancy of those portions of Lot 6 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987, described in INTEREST 1 above which are appurtenant to the Living Unit described in INTEREST 2 above, as more particularly designated on the Condominium Plan referred to above as "Exclusive Use Common Areas", which right is appurtenant to INTEREST 1 and 2 above described.

INTEREST 4:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 5 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2 and 3 described above. This easement shall become effective upon (i) the recordation of a Condominium Plan on said Lot 5, (ii) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 5 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot 5 to be members of the Association and (iii) the close of the first sale of a Condominium by Declarant in said Lot 5, all as more fully set forth in the Declaration to which reference is hereinabove made. The Common Area referred to herein is Lot 5 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 5:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 7 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2 and 3 described above. This easement shall become effective upon (i) the recordation of a Condominium Plan on said Lot 7, (ii) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 7 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot 7 to be members of the Association and (iii) the close of the first sale of a Condominium by Declarant in said Lot 7, all as more fully set forth in the Declaration to which reference is hereinabove made. The Common Area referred to herein is Lot 7 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 6:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 8 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2 and 3 described above. The Common Area referred to herein is Lot 8 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 7:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 9 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2 and 3 described above. The Common Area referred to herein is Lot 9 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

25 × 10

7

308

INTEREST 8:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 10 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2 and 3 described above. The Common Area referred to herein is Lot 10 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 9:

Whereas, Grantor by this deed is conveying to Grantee a portion of certain real property to be the "Servient Tenement" and described as follows:
Lots 5, 6 and 7 of Sun Ridge Vista Unit No. 1, Map No. 11924 filed in the Office of the County Recorder of San Diego County on October 22, 1987 as File/Page No. 87-595483 of Official Records, in the City of San Diego, County of San Diego, State of California.

NOW, THEREFORE, it is agreed as follows:

Grantor hereby reserves from the grant of the Servient Tenement a non-exclusive easement appurtenant to the Dominant Tenement described as Lot 12 of Sun Ridge Vista Unit No. 1, Map No. 11924, filed in the Office of the County Recorder of San Diego County on October 22, 1987, as File/Page No. 87-595483 of Official Records, in the City of San Diego, State of California, said easement is over and across the real property set out in Exhibit "A" attached hereto and made a part hereof. Said easement is for the purpose of ingress and egress to said Dominant Tenement including all types of motor vehicles, boats, trailers, and recreational vehicles and is for the express benefit of the Owner of said Dominant Tenement and all invitees, guests, business visitors of the Owner of the Dominant Estate, and people given permission to enter by Owner of Dominant Estate.

INTEREST 10:

Class A Membership in Terra Vista 2 Community Association, a California nonprofit mutual benefit corporation.

Grantees, in accepting this deed and the conveyance hereunder, do hereby jointly and severally, for the benefit of Grantor and for the benefit of the Terra Vista 2 Community Association, a California nonprofit mutual benefit corporation, and each and every one of the other members of said nonprofit corporation, that Grantees will promptly, fully and faithfully comply with and conform to the Declaration of Covenants, Conditions and Restrictions of Terra Vista 2 recorded July 2, 1990, as File/Page No. 90-358915 with the Office of the County Recorder of San Diego County, California, the By-Laws of Terra Vista 2 Community Association, a California nonprofit mutual benefit corporation, and the rules and regulations from time to time prescribed thereunder by the Board of Directors of said corporation, or their officers, and in particular, Grantees do hereby agree, jointly and severally, to promptly pay in full any dues, fees or assessments levied by said corporation on the membership conveyed hereby.

The obligations of Grantees herein set forth shall be covenants running with the above-described property, it being understood that said membership in Terra Vista 2 Community Association and the obligations thereof will automatically pass to Grantees' successors in title in the above-described property, whether such successors acquire title by foreclosure or otherwise, and shall be binding upon the Grantees above named, their heirs, devisees, executors, administrators, successors and assigns, provided that Grantees and their said successors in title shall be bound by the foregoing covenants only as long as they, respectively, own title to the above described property.

This deed is made and accepted upon the easements, covenants, conditions and restrictions set forth in Declaration of Covenants, Conditions and Restrictions of Terra Vista 2 on the 2nd day of July 1990, as File/Page No. 90-358915, Official Records in the Office of the County Recorder of San Diego County, which is incorporated herein by reference with the same effect as though fully set forth herein.

SUBJECT TO:

1. General and Special Taxes for the current Fiscal Year.
2. Covenants, Conditions and Restrictions, Reservations, Easements, Rights-of-Way of record.

IN WITNESS WHEREOF, this instrument is executed this 4th day of September, 19 91.

PARDEE CONSTRUCTION COMPANY, a California corporation

By Nancy B. Smith

By Nancy Trojan

STATE OF CALIFORNIA
COUNTY OF LOS ANGELES } SS

ON September 4, 19 91 before me, the undersigned, a Notary Public in and for said County and State, personally appeared Nancy B. Smith and Nancy Trojan proved to me on the basis of satisfactory evidence to be the persons who executed the within instrument as Vice President, and Asst. Secretary of the Corporation therein named, and aknowledged to me that such Corporation executed the within instrument pursuant to its By-laws or a Resolution of its Board of Directors.

OFFICIAL SEAL
JACQUELINE F. HOWARD
NOTARY PUBLIC-CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires Jan. 21, 1994

Notary's Signature Jacqueline F. Howard

25×10

310

Exhibit "A"

(EASEMENT FOR INGR3 :S AND EGRESS)

Being in portion of Lots 5, 6 and 7 of Sun Ridge Vista Unit No. 1, Map No. 11924, filed in the office of the County Recorder of San Diego County on October 22, 1987 as File No. 87-595483 of Official Records, in the City of San Diego, County of San Diego, State of California, more particulary described as follows:

Beginning at the Southeast corner of Lot 16 of said Sun Ridge Vista Unit No. 1, said point being on the right of way of Azuaga Street, as dedicated per said Map No. 11924, also being the beginning of a 45.00 foot radius curve concave southwesterly, a radial line to said point bears North 16°23'36" East;
Thence southeasterly along said right of way and the arc of said curve through a central angle of 25°41'38", an arc distance of 20.18 feet to the True Point of Beginning;
Thence leaving said right of way North 68°28'30" East a distance of 829.84 feet to a point on the East line of said Lot 7;
Thence along said East line South 07°29'54" East a distance of 24.74 feet;
Thence leaving said East line South 68°28'30" West a distance of 819.34 feet to a point on said right of way of Azuaga Street, said point also being on the arc of a 45.00 foot radius curve concave westerly, a radial line to said point bears North 73°34'29" East;
Thence northerly along the arc of said curve through a central angle of 31°29'15", an arc distance of 24.73 feet to the TRUE POINT OF BEGINNING;

Access Esmt./2512
L.N./ j.c
12/07/89

25×10

Recorded At The Request Of
TRANSAMERICA TITLE INSURANCE COMPANY

When Recorded Mail Deed And
Tax Statements to:
TRANSAMERICA
3633 5th Ave #100
S.D. Ca. 92103

DOC #: 1990-0680023
24-DEC-1990 09:33 AM

SAN DIEGO COUNTY RECORDER'S OFFICE
VERA L. LYLE, COUNTY RECORDER
RF: 7.00 FEES:
AF: 5.00
MF: 1.00
DC: 20.00 TAX 120.45

994

Escrow #500424
Order #6300323
APN: 315-572-05 WOP

CONDOMINIUM GRANT DEED
Terra Vista 2 Phase 3

The Undersigned Grantor Declares:
Documentary Transfer Tax: $ 120.45
Computed on Full Value of Property

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, Pardee Construction Company, a California corporation, hereby grants to
DAVID A. ALLEN and LISA L. ALLEN, Husband and Wife as Joint Tenants

the following described real property situated in the City of San Diego, County of San Diego, State of California:

A condominium composed of:

INTEREST 1:

An undivided .01 interest as tenant-in-common in and to Lot 5 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 as Map No. 11924 in the Office of the County Recorder of San Diego County, California.

EXCEPTING THEREFROM the following:

A. All Living Units shown upon Terra Vista 2 Phase 3 Condominium Plan recorded in the Office of the County Recorder of San Diego County, California, on July 2, 1990, as File/Page No. 90-358916;

B. The exclusive use common areas, shown upon the Condominium Plan referred to above, designated as:

Balconies, Patios, Parking Spaces and Storage Areas

AND RESERVING THEREFROM:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 5 of Sun Ridge Vista Unit No. 1 according to Map No. 11924 filed on October 22, 1987 in the Office of the County Recorder of San Diego County, California, which easement is appurtenant to Lots 10, 6, 7, 8 and 9 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987. This easement shall become effective as to said Lots 10, 6, 7, 8 and 9 of Sun Ridge Vista Unit No. 1 upon (i) the recordation of a Condominium Plan on the property to be annexed, (ii) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 10 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (iii) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 6 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (iv) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 7 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (v) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 8 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (vi) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 9 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (vii) the close of the first sale of a Condominium by Declarant in the property to be annexed, all as more fully set forth in the Declaration to which reference is hereinafter made.

The Common Area referred to herein is Lot 5 of Sun Ridge Vista Unit No. 1 according to Map No. 11924 filed on October 22, 1987 in the Office of the County Recorder of San Diego County, California, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 2:

Living Unit No. 23, of Lot 5 of Sun Ridge Vista Unit No. 1, as shown upon the Condominium Plan referred to above.

INTEREST 3:

The exclusive right to use, possession and occupancy of those portions of Lot 5 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987, described in INTEREST 1 above which are appurtenant to the Living Unit described in INTEREST 2 above, as more particularly designated on the Condominium Plan referred to above as "Exclusive Use Common Areas", which right is appurtenant to INTEREST 1 and 2 above described.

INTEREST 4:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 10 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2 and 3 described above. The Common Area referred to herein is Lot 10 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 5:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 6 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2 and 3 described above. The Common Area referred to herein is Lot 6 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 6:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 7 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2, and 3 described above. The Common Area referred to herein is Lot 7 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 7:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 8 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2, and 3 described above. The Common Area referred to herein is Lot 8 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 8:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 9 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2, and 3 described above. The Common Area referred to herein is Lot 9 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 9:

Whereas, Grantor by this deed is conveying to Grantee a portion of certain real property to be the "Servient Tenement" and described as follows: Lots 5, 6 and 7 of Sun Ridge Vista Unit No. 1, Map No. 11924 filed in the Office of the County Recorder of San Diego County on October 22, 1987 as File/Page No. 87-595483 of Official Records, in the City of San Diego, County of San Diego, State of California.

NOW, THEREFORE, it is agreed as follows:

Grantor hereby reserves from the grant of the Servient Tenement a non-exclusive easement appurtenant to the Dominant Tenement described as Lot 12 of Sun Ridge Vista Unit No. 1, Map No. 11924, filed in the Office of the County Recorder of San Diego County on October 22, 1987, as File/Page No. 87-595483 of Official Records, in the City of San Diego, State of California, said easement is over and across the real property set out in Exhibit "A" attached hereto and made a part hereof. Said easement is for the purpose of ingress and egress to said Dominant Tenement including all types of motor vehicles, boats, trailers, and recreational vehicles and is for the express benefit of the Owner of said Dominant Tenement and all invitees, guests, business visitors of the Owner of the Dominant Estate, and people given permission to enter by Owner of Dominant Estate.

INTEREST 10:

Class A Membership in Terra Vista 2 Community Association, a California nonprofit mutual benefit corporation.

Grantees, in accepting this deed and the conveyance hereunder, do hereby jointly and severally, for the benefit of Grantor and for the benefit of the Terra Vista 2 Community Association, a California nonprofit mutual benefit corporation, and each and every one of the other members of said nonprofit corporation, that Grantees will promptly, fully and faithfully comply with and conform to the Declaration of Covenants, Conditions and Restrictions of Terra Vista 2 recorded July 2, 1990, as File/Page No. 90-358915 with the Office of the County Recorder of San Diego County, California, the By-Laws of Terra Vista 2 Community Association, a California nonprofit mutual benefit corporation, and the rules and regulations from time to time prescribed thereunder by the Board of Directors of said corporation, or their officers, and in particular, Grantees do hereby agree, jointly and severally, to promptly pay in full any dues, fees or assessments levied by said corporation on the membership conveyed hereby.

The obligations of Grantees herein set forth shall be covenants running with the above-described property, it being understood that said membership in Terra Vista 2 Community Association and the obligations thereof will automatically pass to Grantees' successors in title in the above-described property, whether such successors acquire title by foreclosure or otherwise, and shall be binding upon the Grantees above named, their heirs, devisees, executors, administrators, successors and assigns, provided that Grantees and their said successors in title shall be bound by the foregoing covenants only as long as they, respectively, own title to the above described property.

This deed is made and accepted upon the easements, covenants, conditions and restrictions set forth in Declaration of Covenants, Conditions and Restrictions of Terra Vista 2 on the 2nd day of July 1990, as File/Page No. 90-358915, Official Records in the Office of the County Recorder of San Diego County, which is incorporated herein by reference with the same effect as though fully set forth herein.

SUBJECT TO:

1. General and Special Taxes for the current Fiscal Year.
2. Covenants, Conditions and Restrictions, Reservations, Easements, Rights-of-Way of record.

IN WITNESS WHEREOF, this instrument is executed this 19 day of December, 1990.

PARDEE CONSTRUCTION COMPANY, a California corporation

By [signature]
C. S. DeLette, Vice President

By Patricia Cohen
Patricia Cohen, Assistant Secretary

TATE OF CALIFORNIA
OUNTY OF Los Angeles } SS

ON December 19, 1990, before me, the undersigned, a Notary Public in and for said County and State, personally appeared C. S. DeLette, Patricia Cohen proved to me on the basis of satisfactory evidence to be the person...... who executed the within instrument as Vice President, and Assistant Secretary of the Corporation therein named, and aknowledged to me that such Corporation executed the within instrument pursuant to its By-laws or a Resolution of its Board of Directors.

Notary's Signature [signature]

OFFICIAL SEAL
REGINO Q UY
NOTARY PUBLIC CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires Nov 8, 1994

-4-

(EASEMENT FOR INGRESS AND EGRESS)

Being in portion of Lots 5, 6 and 7 of Sun Ridge Vista Unit No. 1, Map No. 11924, filed in the office of the County Recorder of San Diego County on October 22, 1987 as File No. 87-595483 of Official Records, in the City of San Diego, County of San Diego, State of California, more particulary described as follows:

Beginning at the Southeast corner of Lot 16 of said Sun Ridge Vista Unit No. 1, said point being on the right of way of Azuaga Street, as dedicated per said Map No. 11924, also being the beginning of a 45.00 foot radius curve concave southwesterly, a radial line to said point bears North 16°23'36" East;
Thence southeasterly along said right of way and the arc of said curve through a central angle of 25°41'38", an arc distance of 20.18 feet to the True Point of Beginning;
Thence leaving said right of way North 68°28'30" East a distance of 829.84 feet to a point on the East line of said Lot 7;
Thence along said East line South 07°29'54" East a distance of 24.74 feet;
Thence leaving said East line South 68°28'30" West a distance of 819.34 feet to a point on said right of way of Azuaga Street, said point also being on the arc of a 45.00 foot radius curve concave westerly, a radial line to said point bears North 73°34'29" East;
Thence northerly along the arc of said curve through a central angle of 31°29'15", an arc distance of 24.73 feet to the TRUE POINT OF BEGINNING;

(Said portion contains 19,762.61 Sq. Ft.)

Access Esmt./2512
L.N./ j.c
12/07/89

EXHIBIT "A"

Recorded At The Request Of
TRANSAMERICA TITLE INSURANCE COMPANY

DOC #: 1990-0613857
14-NOV-1990 08:00 AM

When Recorded Mail Deed And
Tax Statements to:
MR. SMITH and MS. McBRIDE
10377 Azuagu Street #125
San Diego, CA 92129

899

SAN DIEGO COUNTY RECORDER'S OFFICE
VERA L. LYLE, COUNTY RECORDER
RF: 7.00 FEES: 133.45
AF: 5.00 OC
MF: 1.00
TAX: 120.45

Escrow # 500415
Order # 6300425
APN: 315-572-07

CONDOMINIUM GRANT DEED
PHASE 2

The Undersigned Grantor Declares:
Documentary Transfer Tax: $ 120.45
Computed on Full Value of Property

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, Pardee Construction Company, a California corporation, hereby grants to

JOHN E. SMITH, a single man and KATHLEEN M. McBRIDE, a single woman as Joint Tenants

the following described real property situated in the City of San Diego, County of San Diego, State of California:

A condominium composed of:

INTEREST 1:

An undivided .02 interest. as tenant-in-common in and to Lot 7 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 as Map No. 11924 in the Office of the County Recorder of San Diego County, California.

EXCEPTING THEREFROM the following:

A. All Living Units shown upon Terra Vista 2 Phase 2 Condominium Plan recorded in the Office of the County Recorder of San Diego County, California, on July 2, 1990, as File/Page No. 90-358918;

B. The exclusive use common areas, shown upon the Condominium Plan referred to above, designated as:

Balconies, Patios, Parking Spaces and Storage Areas

AND RESERVING THEREFROM:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 7 of Sun Ridge Vista Unit No. 1 according to Map No. 11924 filed on October 22, 1987 in the Office of the County Recorder of San Diego County, California, which easement is appurtenant to Lots 5, 6, 8, 9 and 10 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987. This easement shall become effective as to said Lots 5, 6, 8, 9 and 10 of Sun Ridge Vista Unit No. 1 upon (i) the recordation of a Condominium Plan on the property to be annexed, (ii) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 5 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (iii) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 6 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (iv) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 8 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (v) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 9 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (vi) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 10 of Sun Ridge Vista Unit No. 1 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot to be members of the Association, (vii) the close of the first sale of a Condominium by Declarant in the property to be annexed, all as more fully set forth in the Declaration to which reference is hereinafter made.

OFFICIAL RECORDS, SAN DIEGO COUNTY, VERA L. LYLE, RECORDER

The Common Area referred to herein is Lot 7 of Sun Ridge Vista Unit No. 1 according to Map No. 11924 filed on October 22, 1987 in the Office of the County Recorder of San Diego County, California, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area. 900

INTEREST 2:

Living Unit No. 125, of Lot 7 of Sun Ridge Vista Unit No. 1, as shown upon the Condominium Plan referred to above.

INTEREST 3:

The exclusive right to use, possession and occupancy of those portions of Lot 7 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987, described in INTEREST 1 above which are appurtenant to the Living Unit described in INTEREST 2 above, as more particularly designated on the Condominium Plan referred to above as "Exclusive Use Common Areas", which right is appurtenant to INTEREST 1 and 2 above described.

INTEREST 4:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 5 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2 and 3 described above. This easement shall become effective upon (i) the recordation of a Condominium Plan on said Lot 5, (ii) the recordation of a Supplementary Declaration of Covenants, Conditions and Restrictions declaring said Lot 5 to be subject to the Declaration of Covenants, Conditions and Restrictions recorded as hereinafter set forth which requires the owners of said Lot 5 to be members of the Association and (iii) the close of the first sale of a Condominium by Declarant in said Lot 5, all as more fully set forth in the Declaration to which reference is hereinabove made. The Common Area referred to herein is Lot 5 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 5:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 6 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2 and 3 described above. The Common Area referred to herein is Lot 6 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 6:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 8 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2, and 3 described above. The Common Area referred to herein is Lot 8 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 7:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 9 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2, and 3 described above. The Common Area referred to herein is Lot 9 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

901

INTEREST 8:

A non-exclusive easement for ingress and egress and recreational use on, over and under the Common Area of Lot 10 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, which easement is appurtenant to INTEREST 1, 2, and 3 described above. The Common Area referred to herein is Lot 10 of Sun Ridge Vista Unit No. 1 filed on October 22, 1987 in the Office of the County Recorder, excepting therefrom any residential buildings thereon and any portion thereof which may be designated as an Exclusive Use Common Area.

INTEREST 9:

Whereas, Grantor by this deed is conveying to Grantee a portion of certain real property to be the "Servient Tenement" and described as follows:
Lots 5, 6 and 7 of Sun Ridge Vista Unit No. 1, Map No. 11924 filed in the Office of the County Recorder of San Diego County on October 22, 1987 as File/Page No. 87-595483 of Official Records, in the City of San Diego, County of San Diego, State of California.

NOW, THEREFORE, it is agreed as follows:

Grantor hereby reserves from the grant of the Servient Tenement a non-exclusive easement appurtenant to the Dominant Tenement described as Lot 12 of Sun Ridge Vista Unit No. 1, Map No. 11924, filed in the Office of the County Recorder of San Diego County on October 22, 1987, as File/Page No. 87-595483 of Official Records, in the City of San Diego, State of California, said easement is over and across the real property set out in Exhibit "A" attached hereto and made a part hereof. Said easement is for the purpose of ingress and egress to said Dominant Tenement including all types of motor vehicles, boats, trailers, and recreational vehicles and is for the express benefit of the Owner of said Dominant Tenement and all invitees, guests, business visitors of the Owner of the Dominant Estate, and people given permission to enter by Owner of Dominant Estate.

INTEREST 10:

Class A Membership in Terra Vista 2 Community Association, a California nonprofit mutual benefit corporation.

Grantees, in accepting this deed and the conveyance hereunder, do hereby jointly and severally, for the benefit of Grantor and for the benefit of the Terra Vista 2 Community Association, a California nonprofit mutual benefit corporation, and each and every one of the other members of said nonprofit corporation, that Grantees will promptly, fully and faithfully comply with and conform to the Declaration of Covenants, Conditions and Restrictions of Terra Vista 2 recorded July 2, 1990, as File/Page No. 90-358915 with the Office of the County Recorder of San Diego County, California, the By-Laws of Terra Vista 2 Community Association, a California nonprofit mutual benefit corporation, and the rules and regulations from time to time prescribed thereunder by the Board of Directors of said corporation, or their officers, and in particular, Grantees do hereby agree, jointly and severally, to promptly pay in full any dues, fees or assessments levied by said corporation on the membership conveyed hereby.

The obligations of Grantees herein set forth shall be covenants running with the above-described property, it being understood that said membership in Terra Vista 2 Community Association and the obligations thereof will automatically pass to Grantees' successors in title in the above-described property, whether such successors acquire title by foreclosure or otherwise, and shall be binding upon the Grantees above named, their heirs, devisees, executors, administrators, successors and assigns, provided that Grantees and their said successors in title shall be bound by the foregoing covenants only as long as they, respectively, own title to the above described property.

This deed is made and accepted upon the easements, covenants, conditions and restrictions set forth in Declaration of Covenants, Conditions and Restrictions of Terra Vista 2 on the 2nd day of July 1990, as File/Page No. 90-358915, Official Records in the Office of the County Recorder of San Diego County, which is incorporated herein by reference with the same effect as though fully set forth herein.

902

SUBJECT TO:

1. General and Special Taxes for the current Fiscal Year.

2. Covenants, Conditions and Restrictions, Reservations, Easements, Rights-of-Way of record.

IN WITNESS WHEREOF, this instrument is executed this 23RD day of OCTOBER, 19 90

PARDEE CONSTRUCTION COMPANY, a California corporation

By ~~C. S. DELETTE, VICE PRESIDENT~~

By BARBARA BAIL, ASSISTANT SECRETARY

STATE OF CALIFORNIA
COUNTY OF LOS ANGELES } SS

ON OCTOBER 23, 19 90 before me, the undersigned, a Notary Public in and for said County and State, personally appeared C. S. DELETTE AND BARBARA BAIL proved to me on the basis of satisfactory evidence to be the person...... who executed the within instrument as VICE President, and ASST. Secretary of the Corporation therein named, and acknowledged to me that such Corporation executed the within instrument pursuant to its By-laws or a Resolution of its Board of Directors.

Notary's Signature Shannon Y. Neighbors

OFFICIAL SEAL
SHANNON Y. NEIGHBORS
NOTARY PUBLIC-CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires Jan. 18, 1994

Exhibit "A"

(EASEMENT FOR INGRESS AND EGRESS)

Being in portion of Lots 5, 6 and 7 of Sun Ridge Vista Unit No. 1, Map No. 11924, filed in the office of the County Recorder of San Diego County on October 22, 1987 as File No. 87-595483 of Official Records, in the City of San Diego, County of San Diego, State of California, more particulary described as follows:

Beginning at the Southeast corner of Lot 16 of said Sun Ridge Vista Unit No. 1, said point being on the right of way of Azuaga Street, as dedicated per said Map No. 11924, also being the beginning of a 45.00 foot radius curve concave southwesterly, a radial line to said point bears North 16°23'36" East;
Thence southeasterly along said right of way and the arc of said curve through a central angle of 25°41'38", an arc distance of 20.18 feet to the True Point of Beginning;
Thence leaving said right of way North 68°28'30" East a distance of 829.84 feet to a point on the East line of said Lot 7;
Thence along said East line South 07°29'54" East a distance of 24.74 feet;
Thence leaving said East line South 68°28'30" West a distance of 819.34 feet to a point on said right of way of Azuaga Street, said point also being on the arc of a 45.00 foot radius curve concave westerly, a radial line to said point bears North 73°34'29" East;
Thence northerly along the arc of said curve through a central angle of 31°29'15", an arc distance of 24.73 feet to the TRUE POINT OF BEGINNING;

Access Esmt./2512
L.N./ j.c
12/07/89

Appendix H

Construction Details

From: Bryan Grissinger <bryan@swselfstorage.com>
Sent: Thursday, October 25, 2018 1:50 PM
To: Walker, Nick @ CBRE
Subject: Construction timing

Nick – I just reviewed our schedule for our Rancho San Diego project which is 110,000 gross SF/92,000 rentable. The total project schedule is about 11 months, if you are grading/ doing foundations in winter/wet months I would add another month for weather delays. If I break it into 4 phases, below is what I would anticipate. Let me know if this is what you are looking for.

Grading (6 weeks)

- Typically 5-8 ppl per day
- Low person count, but lots of large equipment. Likely a couple skip loaders, Dozers, and large Scrapers.

Foundations (10 weeks)

- Typically 8-10 ppl per day.
- On days where pads are poured there will be a crew of about 25 people. I would figure this to be 2 days per building

Vertical construction (4 months)

- 25 -30 people per day on average.

Finish Site work (3 months)

- Includes paving, landscaping, finish work and close out
- Typically about 20 people per day on site (rotating crews from different sub contractors)

Appendix I

Existing with Project LOS Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	60	36	226	188	239	368	607	237	355	1043	48
Future Volume (veh/h)	255	60	36	226	188	239	368	607	237	355	1043	48
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	290	68	41	257	214	187	418	690	-5	403	1185	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	1	2	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	337	337	186	328	283	451	390	1406	629	473	1601	499
Arrive On Green	0.10	0.15	0.15	0.10	0.15	0.15	0.22	0.40	0.00	0.14	0.31	0.00
Sat Flow, veh/h	3442	2184	1208	3442	1863	1538	1774	3539	1583	3442	5085	1583
Grp Volume(v), veh/h	290	54	55	257	214	187	418	690	-5	403	1185	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1622	1721	1863	1538	1774	1770	1583	1721	1695	1583
Q Serve(g_s), s	7.5	2.4	2.7	6.6	9.9	8.9	19.8	13.1	0.0	10.3	18.7	0.0
Cycle Q Clear(g_c), s	7.5	2.4	2.7	6.6	9.9	8.9	19.8	13.1	0.0	10.3	18.7	0.0
Prop In Lane	1.00		0.74	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	337	273	250	328	283	451	390	1406	629	473	1601	499
V/C Ratio(X)	0.86	0.20	0.22	0.78	0.76	0.41	1.07	0.49	-0.01	0.85	0.74	0.00
Avail Cap(c_a), veh/h	337	440	404	337	445	585	390	1406	629	489	1601	499
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.59	0.59	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	40.0	33.2	33.3	39.8	36.6	25.9	35.1	20.3	0.0	37.9	27.5	0.0
Incr Delay (d2), s/veh	19.8	0.4	0.4	11.2	4.1	0.6	55.5	0.7	0.0	13.1	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	1.2	1.2	3.6	5.4	3.8	15.7	6.6	0.0	5.7	9.2	0.0
LnGrp Delay(d),s/veh	59.8	33.5	33.8	51.0	40.7	26.5	90.6	21.0	0.0	51.0	30.7	0.0
LnGrp LOS	E	C	C	D	D	C	F	C		D	C	
Approach Vol, veh/h		399			658			1103			1588	
Approach Delay, s/veh		52.7			40.7			47.5			35.8	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	33.8	13.0	19.2	16.6	41.3	12.8	19.4
Change Period (Y+Rc), s	* 4.2	5.5	* 4.2	5.5	* 4.2	5.5	* 4.2	* 5.5
Max Green Setting (Gmax), s	* 20	20.5	* 8.8	21.5	* 13	27.5	* 8.8	* 22
Max Q Clear Time (g_c+I1), s	21.8	20.7	9.5	11.9	12.3	15.1	8.6	4.7
Green Ext Time (p_c), s	0.0	0.0	0.0	1.2	0.1	3.5	0.0	0.5

Intersection Summary		
HCM 2010 Ctrl Delay		41.9
HCM 2010 LOS		D

Notes

LOS Engineering, Inc.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	9	343	76	70	113	39	1017	25	39	821	422
Future Volume (vph)	119	9	343	76	70	113	39	1017	25	39	821	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.91		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1563		1770	1667		1770	3524		1770	3539	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1563		1770	1667		1770	3524		1770	3539	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	10	373	83	76	123	42	1105	27	42	892	459
RTOR Reduction (vph)	0	223	0	0	63	0	0	2	0	0	0	192
Lane Group Flow (vph)	129	160	0	83	136	0	42	1130	0	42	892	267
Confl. Peds. (#/hr)									5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	8	8		7	7		1	6		5	2	8
Permitted Phases												2
Actuated Green, G (s)	15.0	15.0		8.7	8.7		4.8	31.2		3.6	30.0	45.0
Effective Green, g (s)	15.0	15.0		8.7	8.7		4.8	31.2		3.6	30.0	45.0
Actuated g/C Ratio	0.19	0.19		0.11	0.11		0.06	0.40		0.05	0.39	0.58
Clearance Time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	343	302		198	187		109	1420		82	1371	995
v/s Ratio Prot	0.07	c0.10		0.05	c0.08		0.02	c0.32		0.02	c0.25	0.05
v/s Ratio Perm												0.12
v/c Ratio	0.38	0.53		0.42	0.73		0.39	0.80		0.51	0.65	0.27
Uniform Delay, d1	27.1	28.0		32.0	33.2		34.9	20.3		36.0	19.4	8.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.9		0.5	11.3		0.8	3.0		2.2	0.9	0.1
Delay (s)	27.4	28.9		32.5	44.5		35.7	23.3		38.3	20.3	8.1
Level of Service	C	C		C	D		D	C		D	C	A
Approach Delay (s)		28.6			41.0			23.7			16.8	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	77.4	Sum of lost time (s)	18.9
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	86	118	63	1004	1202	56
Future Volume (veh/h)	86	118	63	1004	1202	56
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	100	137	73	1167	1398	65
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	196	175	326	2814	1930	90
Arrive On Green	0.11	0.11	0.37	1.00	0.56	0.56
Sat Flow, veh/h	1774	1583	1774	3632	3532	160
Grp Volume(v), veh/h	100	137	73	1167	718	745
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1829
Q Serve(g_s), s	4.8	7.6	2.6	0.0	27.0	27.2
Cycle Q Clear(g_c), s	4.8	7.6	2.6	0.0	27.0	27.2
Prop In Lane	1.00	1.00	1.00			0.09
Lane Grp Cap(c), veh/h	196	175	326	2814	993	1026
V/C Ratio(X)	0.51	0.78	0.22	0.41	0.72	0.73
Avail Cap(c_a), veh/h	335	299	326	2814	993	1026
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.88	0.88	0.74	0.74
Uniform Delay (d), s/veh	37.7	39.0	24.0	0.0	14.6	14.6
Incr Delay (d2), s/veh	2.0	7.4	0.3	0.4	3.4	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	6.8	1.2	0.2	13.9	14.4
LnGrp Delay(d),s/veh	39.8	46.4	24.3	0.4	18.0	18.0
LnGrp LOS	D	D	C	A	B	B
Approach Vol, veh/h	237			1240	1463	
Approach Delay, s/veh	43.6			1.8	18.0	
Approach LOS	D			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		76.1		13.9	21.1	55.0		
Change Period (Y+Rc), s		4.5		4.0	4.5	4.5		
Max Green Setting (Gmax), s		64.5		17.0	9.5	50.5		
Max Q Clear Time (g_c+I1), s		2.0		9.6	4.6	29.2		
Green Ext Time (p_c), s		10.4		0.4	0.0	10.0		

Intersection Summary		
HCM 2010 Ctrl Delay		13.2
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	149	110	279	172	261	296	730	389	332	546	28
Future Volume (veh/h)	233	149	110	279	172	261	296	730	389	332	546	28
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	265	169	125	317	195	297	336	830	442	377	620	32
Adj No. of Lanes	2	2	0	2	1	1	1	2	1	2	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	327	335	232	381	343	488	369	1522	669	445	1787	539
Arrive On Green	0.10	0.17	0.17	0.11	0.18	0.18	0.21	0.43	0.43	0.13	0.35	0.35
Sat Flow, veh/h	3442	1985	1374	3442	1863	1542	1774	3539	1555	3442	5085	1532
Grp Volume(v), veh/h	265	149	145	317	195	297	336	830	442	377	620	32
Grp Sat Flow(s),veh/h/ln	1721	1770	1590	1721	1863	1542	1774	1770	1555	1721	1695	1532
Q Serve(g_s), s	9.1	9.2	10.0	10.8	11.4	19.7	22.2	21.0	27.2	12.9	10.8	1.7
Cycle Q Clear(g_c), s	9.1	9.2	10.0	10.8	11.4	19.7	22.2	21.0	27.2	12.9	10.8	1.7
Prop In Lane	1.00		0.86	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	327	298	268	381	343	488	369	1522	669	445	1787	539
V/C Ratio(X)	0.81	0.50	0.54	0.83	0.57	0.61	0.91	0.55	0.66	0.85	0.35	0.06
Avail Cap(c_a), veh/h	439	332	298	493	365	507	503	1522	669	579	1787	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.16	0.16	0.16	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	45.3	45.6	52.3	44.6	35.0	46.5	25.5	27.2	51.1	28.7	25.8
Incr Delay (d2), s/veh	8.1	1.3	1.7	9.2	1.9	2.0	3.5	0.2	0.8	9.0	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	4.6	4.5	5.6	6.1	8.6	11.3	10.3	11.7	6.7	5.1	0.7
LnGrp Delay(d),s/veh	61.3	46.6	47.3	61.5	46.5	37.0	49.9	25.7	28.1	60.1	29.3	26.0
LnGrp LOS	E	D	D	E	D	D	D	C	C	E	C	C
Approach Vol, veh/h		559			809			1608			1029	
Approach Delay, s/veh		53.8			48.9			31.4			40.5	
Approach LOS		D			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.1	47.7	15.6	27.6	19.7	57.1	17.5	25.7				
Change Period (Y+Rc), s	* 4.2	5.5	* 4.2	5.5	* 4.2	5.5	* 4.2	* 5.5				
Max Green Setting (Gmax), s	* 34	27.8	* 15	23.5	* 20	41.6	* 17	* 23				
Max Q Clear Time (g_c+I1), s	24.2	12.8	11.1	21.7	14.9	29.2	12.8	12.0				
Green Ext Time (p_c), s	0.7	3.6	0.4	0.4	0.6	5.7	0.4	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			40.4									
HCM 2010 LOS			D									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	433	41	705	49	26	69	24	1130	68	86	708	178
Future Volume (vph)	433	41	705	49	26	69	24	1130	68	86	708	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.89		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1561		1770	1623		1770	3500		1770	3539	1560
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1561		1770	1623		1770	3500		1770	3539	1560
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	471	45	766	53	28	75	26	1228	74	93	770	193
RTOR Reduction (vph)	0	167	0	0	70	0	0	4	0	0	0	54
Lane Group Flow (vph)	471	644	0	53	33	0	26	1298	0	93	770	139
Confl. Peds. (#/hr)			10						10			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	8	8		7	7		1	6		5	2	8
Permitted Phases												2
Actuated Green, G (s)	45.4	45.4		7.4	7.4		7.9	43.4		6.8	42.3	87.7
Effective Green, g (s)	45.4	45.4		7.4	7.4		7.9	43.4		6.8	42.3	87.7
Actuated g/C Ratio	0.37	0.37		0.06	0.06		0.06	0.36		0.06	0.35	0.72
Clearance Time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	659	581		107	98		114	1246		98	1228	1181
v/s Ratio Prot	0.27	c0.41		c0.03	0.02		0.01	c0.37		c0.05	0.22	0.04
v/s Ratio Perm												0.05
v/c Ratio	0.71	1.11		0.50	0.33		0.23	1.04		0.95	0.63	0.12
Uniform Delay, d1	32.7	38.2		55.4	54.9		54.1	39.2		57.4	33.2	5.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.1	70.7		1.3	0.7		0.4	37.1		72.9	0.7	0.0
Delay (s)	35.8	109.0		56.8	55.6		54.5	76.3		130.3	33.9	5.3
Level of Service	D	F		E	E		D	E		F	C	A
Approach Delay (s)		82.1			56.0			75.9			37.2	
Approach LOS		F			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	66.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	121.9	Sum of lost time (s)	18.9
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	75	91	149	1208	1320	129
Future Volume (veh/h)	75	91	149	1208	1320	129
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	87	106	173	1405	1535	150
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	150	134	386	2988	1916	185
Arrive On Green	0.08	0.08	0.44	1.00	0.59	0.59
Sat Flow, veh/h	1774	1583	1774	3632	3345	315
Grp Volume(v), veh/h	87	106	173	1405	828	857
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1797
Q Serve(g_s), s	5.7	7.9	8.2	0.0	43.4	45.0
Cycle Q Clear(g_c), s	5.7	7.9	8.2	0.0	43.4	45.0
Prop In Lane	1.00	1.00	1.00			0.18
Lane Grp Cap(c), veh/h	150	134	386	2988	1043	1059
V/C Ratio(X)	0.58	0.79	0.45	0.47	0.79	0.81
Avail Cap(c_a), veh/h	266	237	386	2988	1043	1059
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.83	0.83	0.76	0.76
Uniform Delay (d), s/veh	52.8	53.9	28.8	0.0	19.0	19.4
Incr Delay (d2), s/veh	3.5	9.8	0.7	0.4	4.8	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	7.1	4.0	0.2	22.3	23.7
LnGrp Delay(d),s/veh	56.3	63.7	29.5	0.4	23.8	24.5
LnGrp LOS	E	E	C	A	C	C
Approach Vol, veh/h	193			1578	1685	
Approach Delay, s/veh	60.4			3.6	24.2	
Approach LOS	E			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		105.8		14.2	30.6	75.2		
Change Period (Y+Rc), s		4.5		4.0	4.5	4.5		
Max Green Setting (Gmax), s		93.5		18.0	18.3	70.7		
Max Q Clear Time (g_c+I1), s		2.0		9.9	10.2	47.0		
Green Ext Time (p_c), s		14.7		0.3	0.3	12.9		

Intersection Summary		
HCM 2010 Ctrl Delay		16.8
HCM 2010 LOS		B

Appendix J

Cumulative Project Information

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

As discussed in *Section 2.2* of this report, the Project proposes to redevelop the existing multi-family 41.5-acre site with 324 mixed housing types, in addition to entitling the northern portion of the property for 277 apartments. As previously mentioned, the Project description has changed to reduce the apartment count from 277 to 276 units since the analysis was completed in this report. The trip generation calculations provided in this traffic study utilize the 277 apartment DU amount, which represents a slightly conservative analysis.

The following is a discussion on the additional traffic expected to be generated with the development of these homes.

7.1 Trip Generation

7.1.1 *Existing Trip Generation*

The existing Peñasquitos Village development is currently occupied by 332 multi-family units. The current use of the site includes a mix a market rate rentals and Section 8 rent controlled units. However, there are no legal obligations of the property to remain rent controlled and they could be leased at market rates at any time. Trip generation for the existing development was calculated using the City of San Diego *Trip Generation Manual, May 2003*. Using the multi-family daily rate of eight (8) trips per dwelling unit based on the site density, the existing land use currently generates 2,656 ADT with 212 trips during the AM peak hour (42 inbound / 170 outbound) and 266 trips during the PM peak hour (186 inbound / 80 outbound).

7.1.2 *Proposed Trip Generation*

The Project proposes to develop three distinct housing types: 99 single-family cluster homes, 105 multi-family tri-plex units, and 120 row towns, for a total of 324 units. In addition, the northern portion of the site will be entitled for 277 apartments. For purposes of this analysis, the trip generation for all 601 units was calculated. Below are the product types, densities and trip rates applied in the calculations.

Product Type	Units	Acres	Density	City Trip Rate
Single-Family Detached Cluster	99	11.8	8.4 du/acre	10 ADT/du *
Multi-Family Tri-Plex	105	9.2	11.4 du/acre	8 ADT/du
Row Towns	120	8.5	14.1 du/acre	8 ADT/du
Apartments (3-stories)	277	12.0	23.1 du/acre	6 ADT/du

*The single-family cluster homes used a 10 ADT/du rate to be conservative based on the “single-family” designation.

To arrive at the net new trips on the street system with the redevelopment, the proposed Project trips were deducted from the existing site trip generation. Using the City of San Diego *Trip Generation Manual, May 2003,* the proposed Project is forecasted to generate a gross total of 4,452 ADT with 356 trips during the AM peak hour (71 inbound / 285 outbound) and 429 trips during the PM peak hour (300 inbound / 129 outbound).

7.1.3 *Net New Trip Generation*

Subtracting the existing site trip generation from the proposed Project, the net new trips expected on the street system with redevelopment of the site is 1,796 net new ADT with 144 net new trips during the AM peak hour (29 inbound / 115 outbound) and 163 net new trips during the PM peak hour (114 inbound / 49 outbound).

Table 7–1 shows the Existing, proposed Project, and Net New traffic generation.

TABLE 7–1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs) [a]		AM Peak Hour					PM Peak Hour				
		Rate [b]	Volume	% of ADT [b]	In:Out Split [b]	Volume			% of ADT [b]	In:Out Split [b]	Volume		
						In	Out	Total			In	Out	Total
EXISTING DEVELOPMENT													
Family Apartments (8 DU per acre)	332 DU	8/DU	2,656	8%	2:8	42	170	212	10%	7:3	186	80	266
Total Existing Trip Generation	**332 DU**	—	**2,656**	—	—	**42**	**170**	**212**	—	—	**186**	**80**	**266**
PROPOSED PROJECT													
Single-Family Cluster (8.4 DU per acre)	99 DU	10/DU	990	8%	2:8	16	63	79	10%	7:3	69	30	99
Multi-Family Tri-Plex (11.4 DU per acre)	105 DU	8/DU	840	8%	2:8	13	54	67	10%	7:3	59	25	84
Row Towns (14.1 DU per acre)	120 DU	8/DU	960	8%	2:8	15	62	77	10%	7:3	67	29	96
Subtotal Trip Generation	*324 DU*	—	*2,790*	—	—	*44*	*179*	*223*	—	—	*195*	*84*	*279*
Apartments (23.1 DU per acre)	277 DU	6/DU	1,662	8%	2:8	27	106	133	9%	7:3	105	45	150
Total Proposed Trip Generation	**601 DU**	—	**4,452**	—	—	**71**	**285**	**356**	—	—	**300**	**129**	**429**
Net New Trip Generation	**269 DU**	—	**1,796**	—	—	**29**	**115**	**144**	—	—	**114**	**49**	**163**

Footnotes:

a. ADT = Average Daily Traffic.
b. Rates taken from City of San Diego *Trip Generation Manual*, May 2003.

General Notes:

1. DU = dwelling units
2. Since completion of this traffic study, the Project description has changed to reduce the apartments from 277 to 276 units. The trip generation calculations provided in this traffic study utilize the 277 apartments DU amount, which represents a slightly conservative analysis.

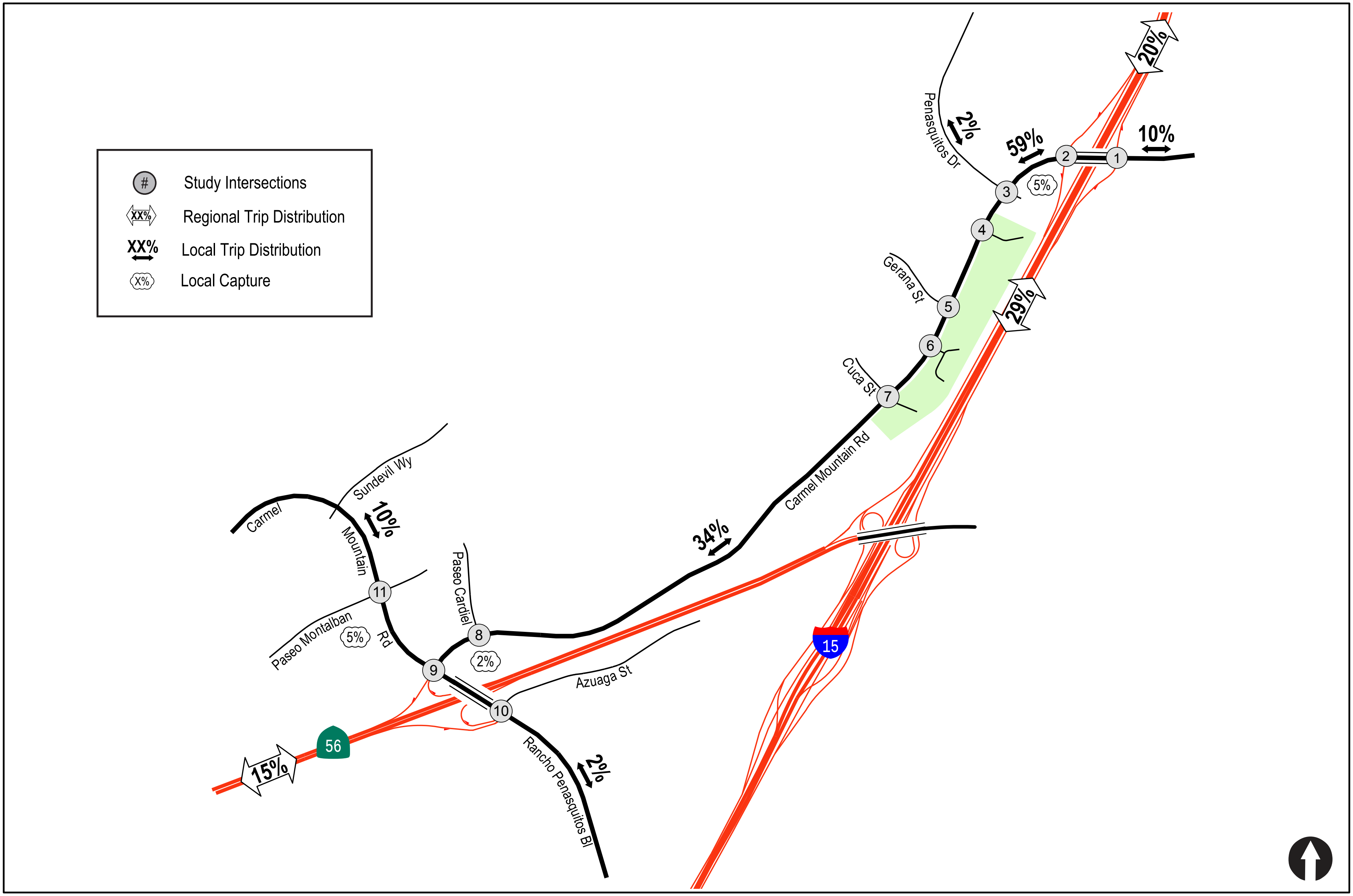

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Figure 7-1

Project Traffic Distribution

Sun Ridge Vista RV/Mini Storage Transportation Access Analysis

PACIFIC VILLAGE

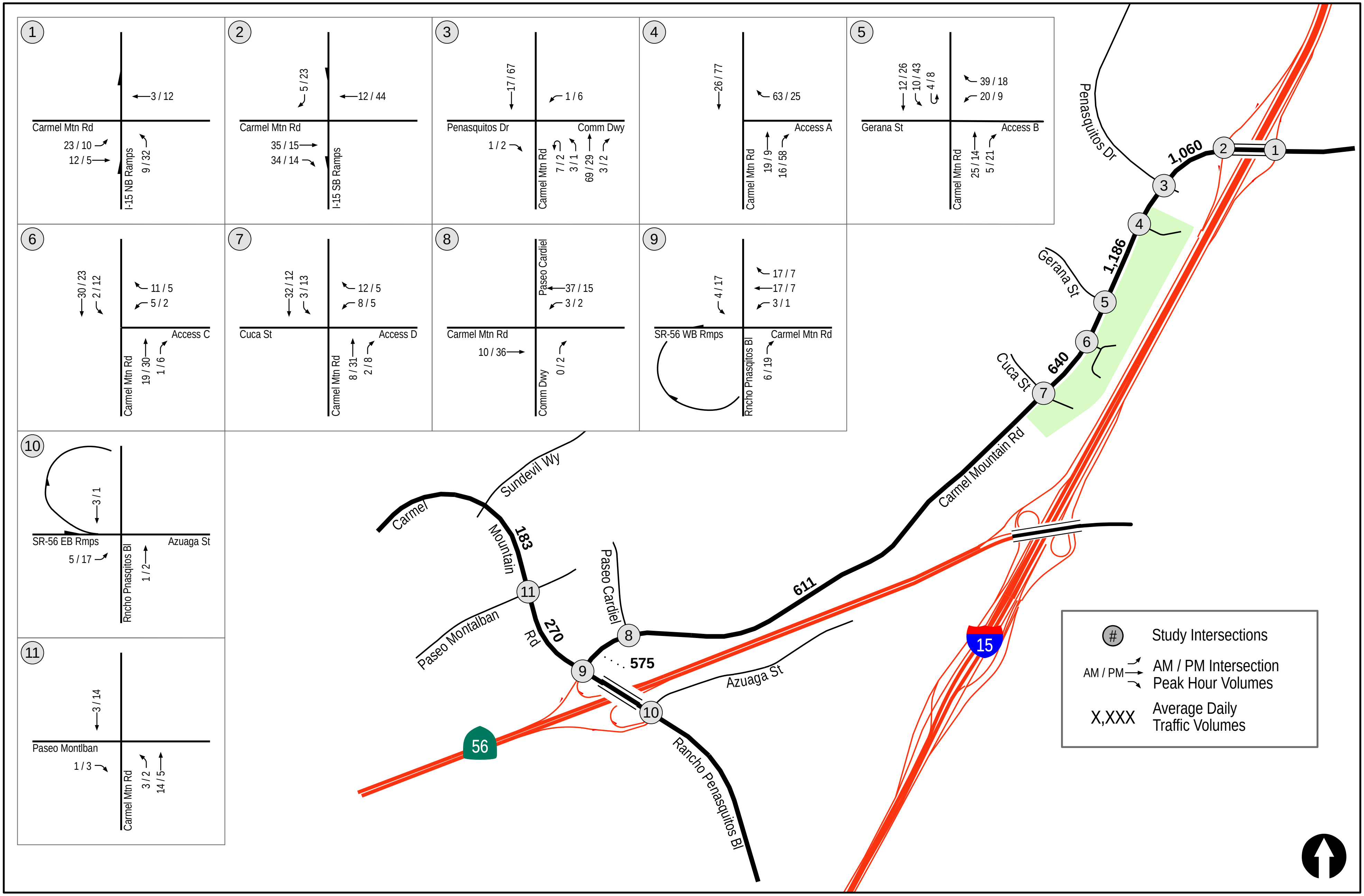

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Figure 7-4

Net New Project Traffic Volumes

Sun Ridge Vista RV/Mini Storage Transportation Access Analysis

PACIFIC VILLAGE

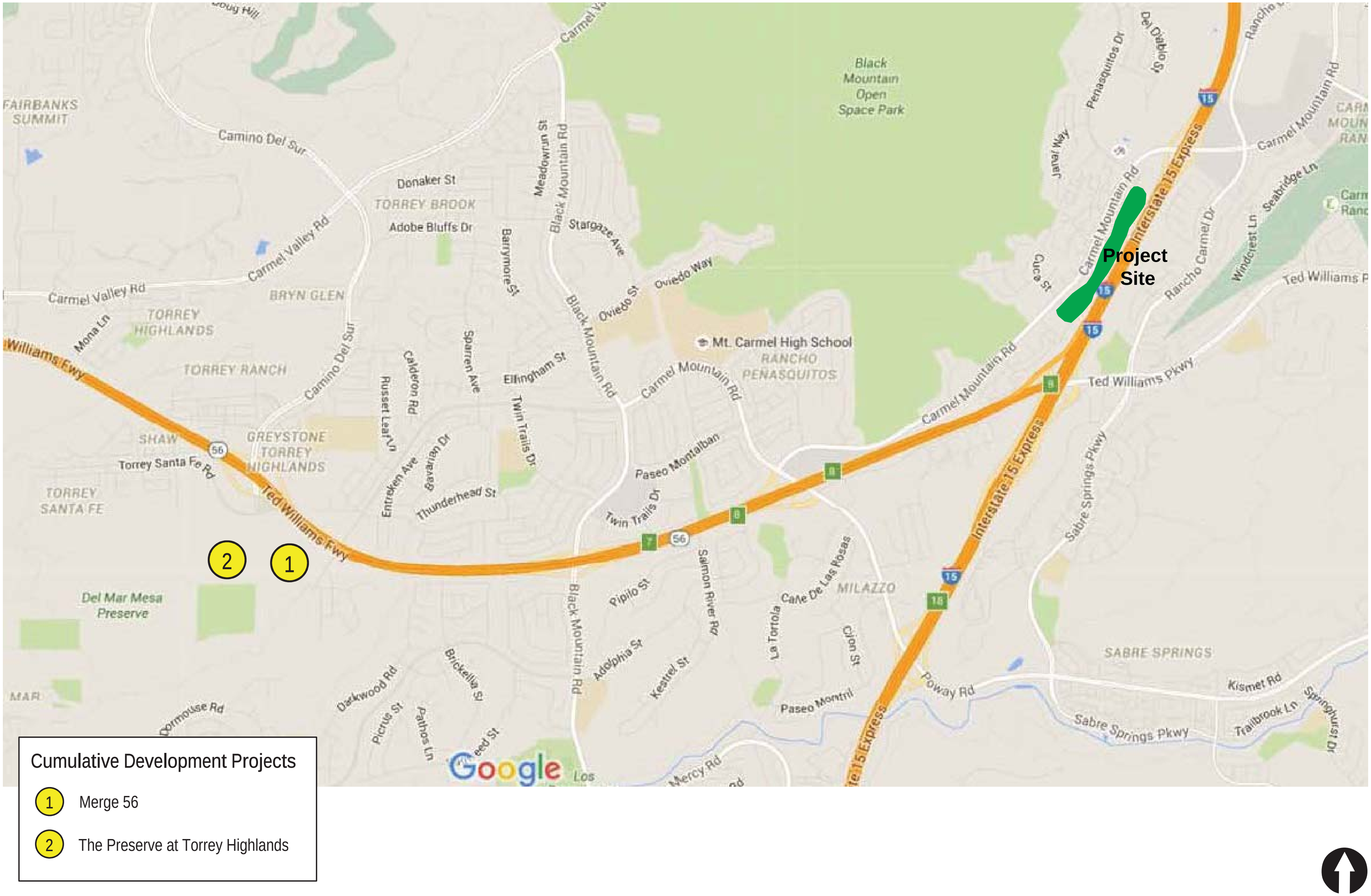

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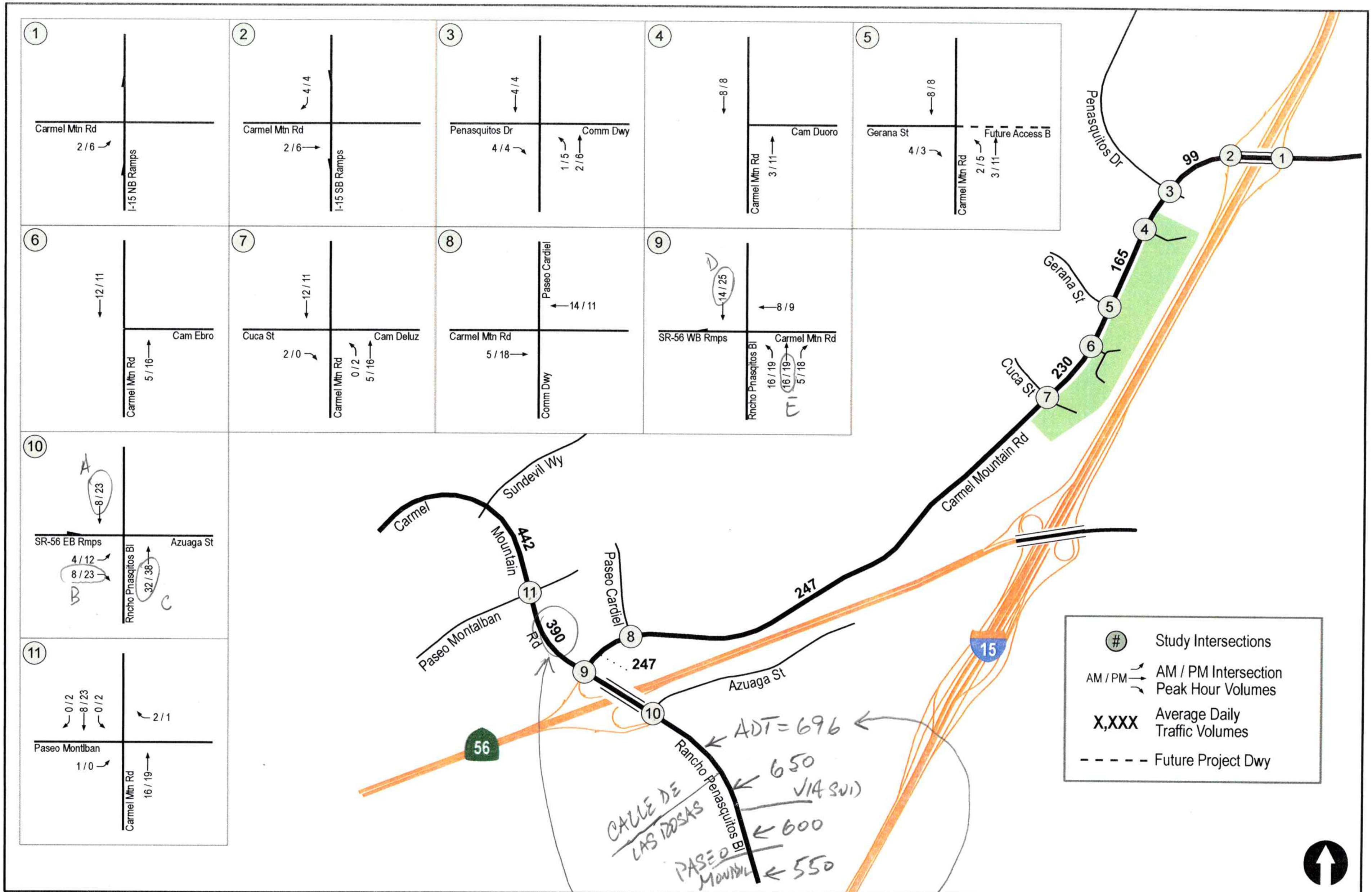
Figure 9-1

Cumulative Projects Location Map

Sun Ridge Vista RV/Mini Storage Transportation Access Analysis

PACIFIC VILLAGE



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$$\frac{ADT}{A+B+C \perp \#10} = \frac{390}{D+E \perp \#9} \therefore ADT = 696$$

$8+23+8+23+32+38 = 132$

$14+25+16+19 = 74$

Figure 9-2

Cumulative Projects Traffic Volumes

PACIFIC VILLAGE

TABLE 9–1
CUMULATIVE DEVELOPMENT PROJECTS SUMMARY

No.	Name	Project	ADT [a]	AM		PM		Status
				In	Out	In	Out	
1	Merge 56	525 KSF Commercial/ Office + 242 Residential Units	19,468	806	386	929	1,166	Under Review PTS# 360009
2	The Preserve at Torrey Highlands	450 KSF Commercial Office	5,260	616	68	147	589	Under Review PTS# 442880
Total Cumulative Projects			**24,728**	**1,422**	**472**	**1,076**	**1,755**	–

Footnotes:

a. Average daily traffic.

Figure 9–1 shows the locations of the cumulative projects and ***Figure 9–2*** depicts the cumulative projects traffic volumes. ***Figure 9–3*** depicts the Existing + Cumulative Projects traffic volumes and ***Figure 9–4*** depicts the Existing + Cumulative Projects + Project traffic volumes.

Appendix F contains the cumulative projects assignment sheets.

TRAFFIC IMPACT ANALYSIS

For

WATERMARK

Prepared for

THE CITY OF SAN DIEGO

and

SUDBERRY PROPERTIES

8th DRAFT: November 12, 2012

REGISTERED PROFESSIONAL ENGINEER
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1.0 EXECUTIVE SUMMARY

This study was commissioned by Sudberry Properties in order to determine potential transportation impacts and appropriate mitigation measures for the proposed Watermark Project. The proposed project is located on the Southeast corner of the Scripps Poway Parkway/I-15 Interchange. The development is proposed to be accessed via a channelized right in/out driveway on Scripps Poway Parkway just East of the I-15 Northbound Ramps as well as an existing signalized entry on Scripps Highland Drive at the existing intersection of Scripps Highland Drive/ Scripps Gateway Court. The proposed development involves a Community Plan Amendment and Rezone (as well as other discretionary actions) to include a mix of uses such as Multi-Tenant Office, a Regional Shopping Center, a Movie Theater and a Hotel which would be expected to generate approximately 21,509 daily driveway trips and 18,552 daily cumulative trips (not including the Med-Impact buildings). The ultimate land use intensity for each type of use (i.e. office/retail/etc…) has not yet been determined and will be dependent on market conditions. However, the trip generation for the project will not exceed what has been evaluated in this study (including daily trips, AM peak inbound, AM peak outbound, PM peak inbound and PM peak outbound) and therefore any impacts from a project generating less traffic would be less than what was considered in this analysis. The project site is adjacent to and shares access with the existing (Bldg. 1) and entitled (Bldg. 2) Med-Impact Single-Tenant Office buildings. This development has been considered an "other project" for offsite analysis (Bldg. 1 was under construction but not yet open at the time of existing traffic counts) and has been considered part of the "whole site" for access analysis purposes. The proposed development would be expected to generate a maximum 21,509 ADT at driveways with 648 trips in the AM peak hour (501 inbound and 148 outbound) and 2,003 trips in the PM peak hour (978 inbound and 1,025 outbound). The proposed development would be expected to generate a maximum 18,552 cumulative ADT with 583 trips in the AM peak hour (455 inbound and 127 outbound) and 1,726 trips in the PM peak hour (838 inbound and 888 outbound).

In order to determine a scope of work for the Transportation Impact Study, staff of Urban Systems Associates, Inc. (USAI) completed a preliminary analysis and met with City Transportation staff. Based on the meeting, study area intersections and street segments were identified for the analysis and traffic generation and distribution was determined. The preliminary analysis was based on a Sandag Series 11 travel forecast and both machine and manual traffic counts of the existing daily and peak hour traffic flow data for the study intersections and street segments.

The traffic generation of the Watermark project was based on trip generation rates found in the City of San Diego's May 2003 Trip Generation Manual. The project traffic was added to the Existing, Near Term and Horizon Year 2030 scenarios resulting in an impact analysis which analyzed six scenarios: Existing, Existing with Project, Near Term Without Project, Near Term With Project, Horizon Year 2030 Without Project, and Horizon Year 2030 With Project. The term Near Term is meant to discuss a condition occurring within the next several years to reflect the proposed project's opening day. This reflects the best information available for determining what traffic would be in the next several years. The analysis year used for transportation modeling purposes is the Year 2030. SANDAG Series 11 select zone analysis was used to determine the distribution of project traffic and future with project traffic volumes.

Study Results:

Based upon this transportation impact analysis, it was determined that development of the proposed project would have the following impacts:

FIGURE 2-3

Study Area Boundary and Intersection Key

TABLE 3-1

Project Cumulative Trip Generation

Use	Amount	Trip Rate	ADT	AM Peak Hour %	AM Peak Hour #	AM Peak Hour In/Out	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour %	PM Peak Hour #	PM Peak Hour In/Out	PM Peak Hour In	PM Peak Hour Out
Multi Tenant Office	151,369 *SF*	Ln(T)=0.756 Ln(x)+ 3.95	2,310	13%	300	9 : 1	270	30	14%	323	2 : 8	65	259
SubTotal			2,310		300		270	30		323		65	259
Mixed Use Reduction %			3%		5%		5%	5%		4%		4%	4%
Office Mixed-Use Reduct.			-69		-15		-14	-2		-13		-3	-10
Office SubTotal			**2,240**		**285**		**257**	**29**		**310**		**62**	**248**
Hotel	130 *rm*	10 /rm	1,300	6%	78	6 : 4	47	31	8%	104	6 : 4	62	42
Mixed Use Reduction %			10%		8%		8%	8%		10%		10%	10%
Hotel M-U Reduct.			-130		-6		-4	-2		-10		-6	-4
Hotel SubTotal			**1,170**		**72**		**43**	**29**		**94**		**56**	**37**
Retail	316,000 *SF*	Ln(t)=.756*Ln(x)+5.25*0.8	11,828	2%	237	7 : 3	166	71	9%	1,064	5 : 5	532	532
Movie	43,917 *SF*	80 /1000 SF	3,513	0%	11	7 : 3	7	3	8%	281	7 : 3	197	84
Reduction in Retail Trips			-199		-21		-17	-4		-23		-9	-15
Retail SubTotal			**15,142**		**226**		**156**	**70**		**1,322**		**720**	**602**
Total			**18,552**		**583**		**455**	**127**		**1,726**		**838**	**888**

Notes:
Source - City of San Diego Trip Generation Manual, 2003
Mixed Use Reduction % - City of San Diego Traffic Impact Study Manual, July 1998

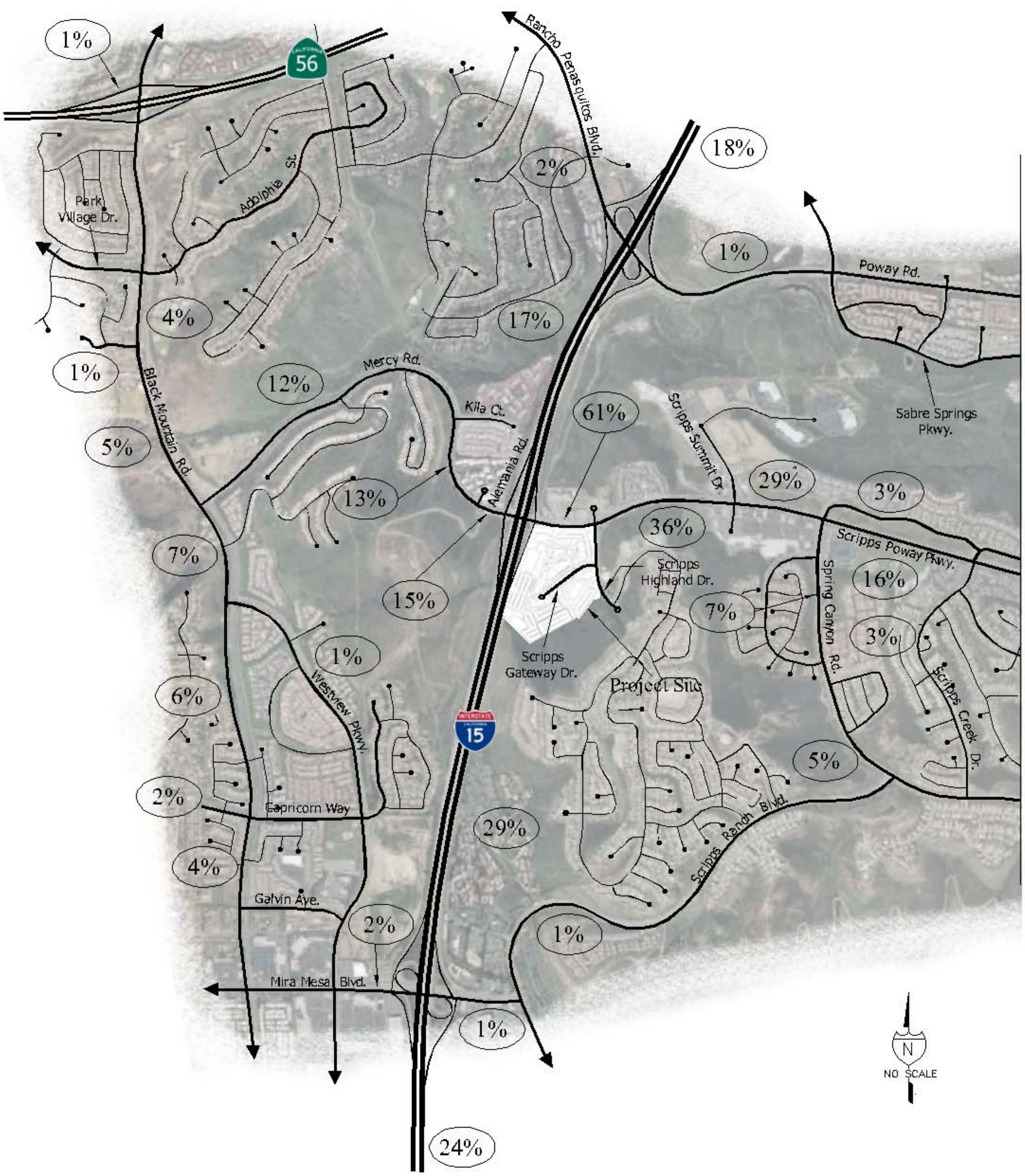

FIGURE 3-1

Project Traffic Distribution

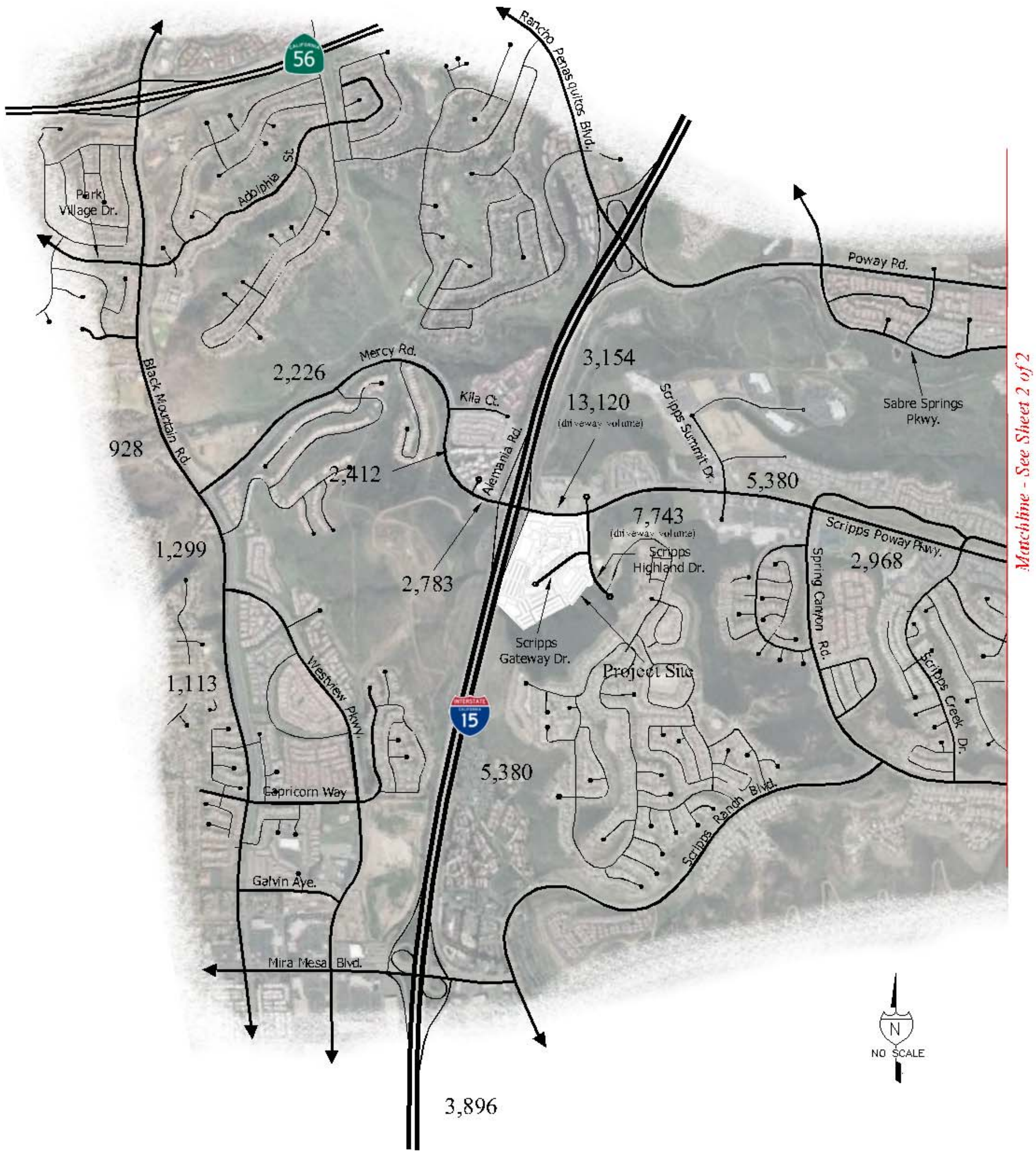

FIGURE 3-2

Project Only (ADT) Traffic Assignment

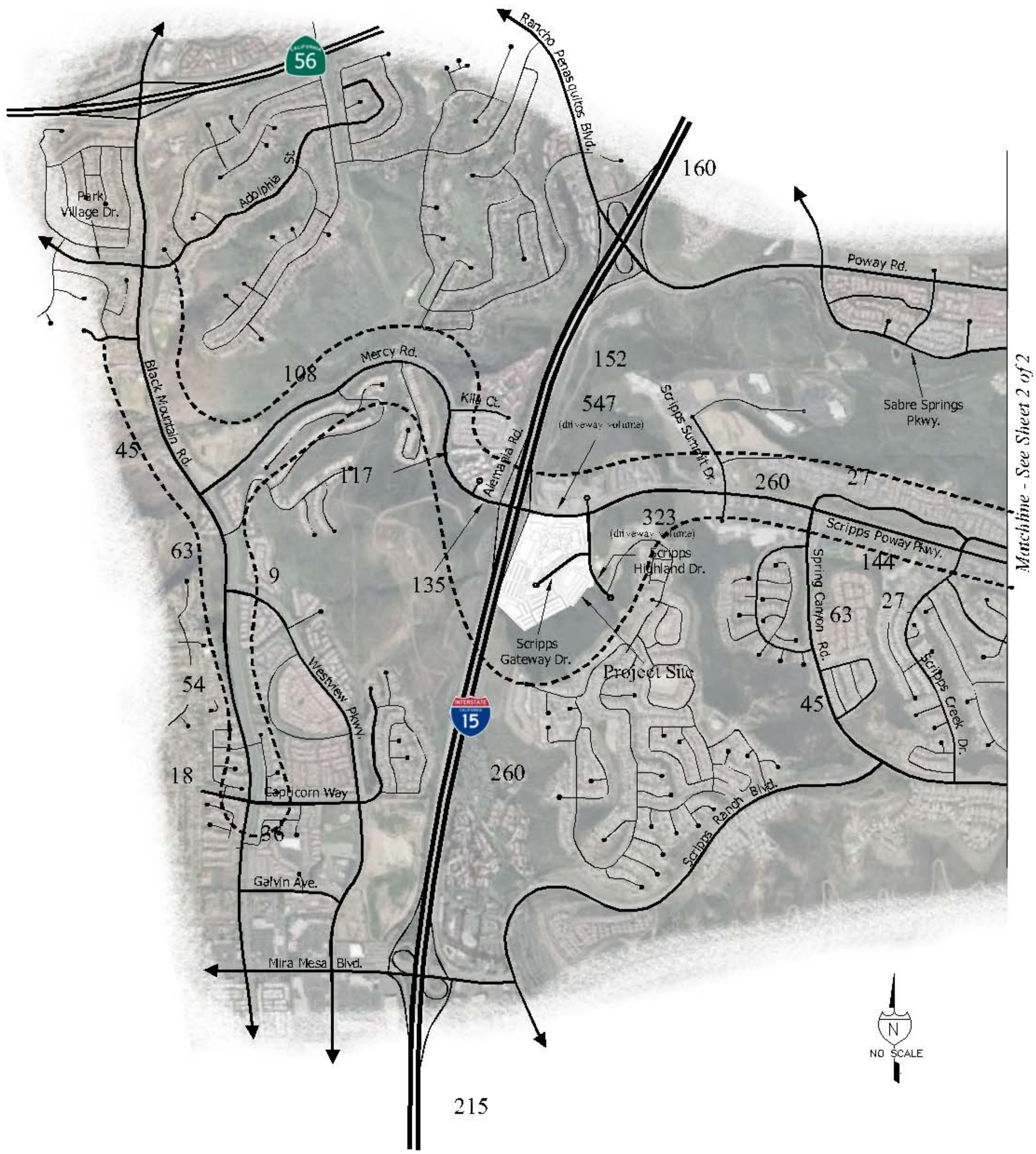

FIGURE 3-3

Project Only (peak hour) Traffic Assignment

Page 1 of 2

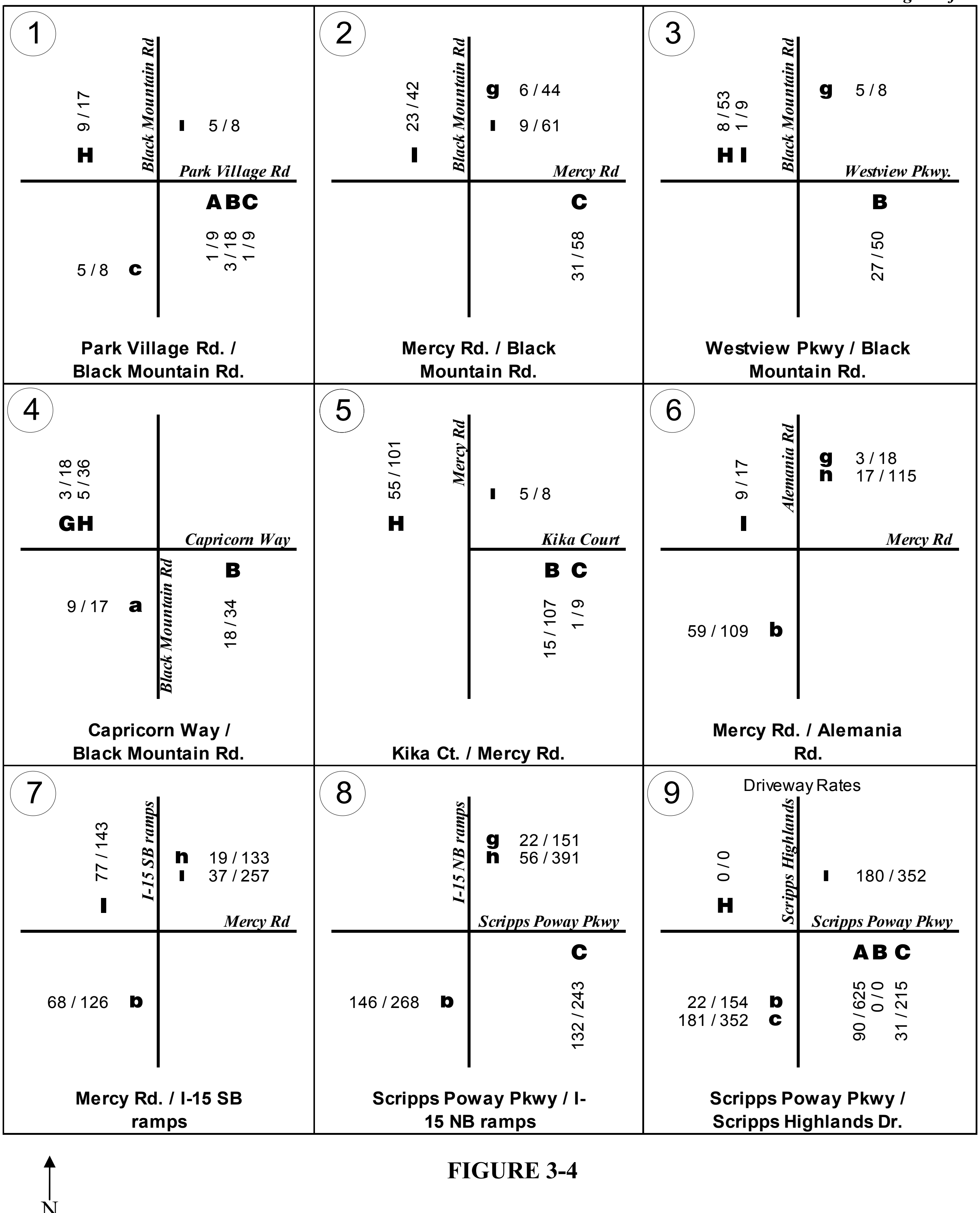

FIGURE 3-4

Project Only AM / PM Peak Hour Traffic

Page 2 of 2

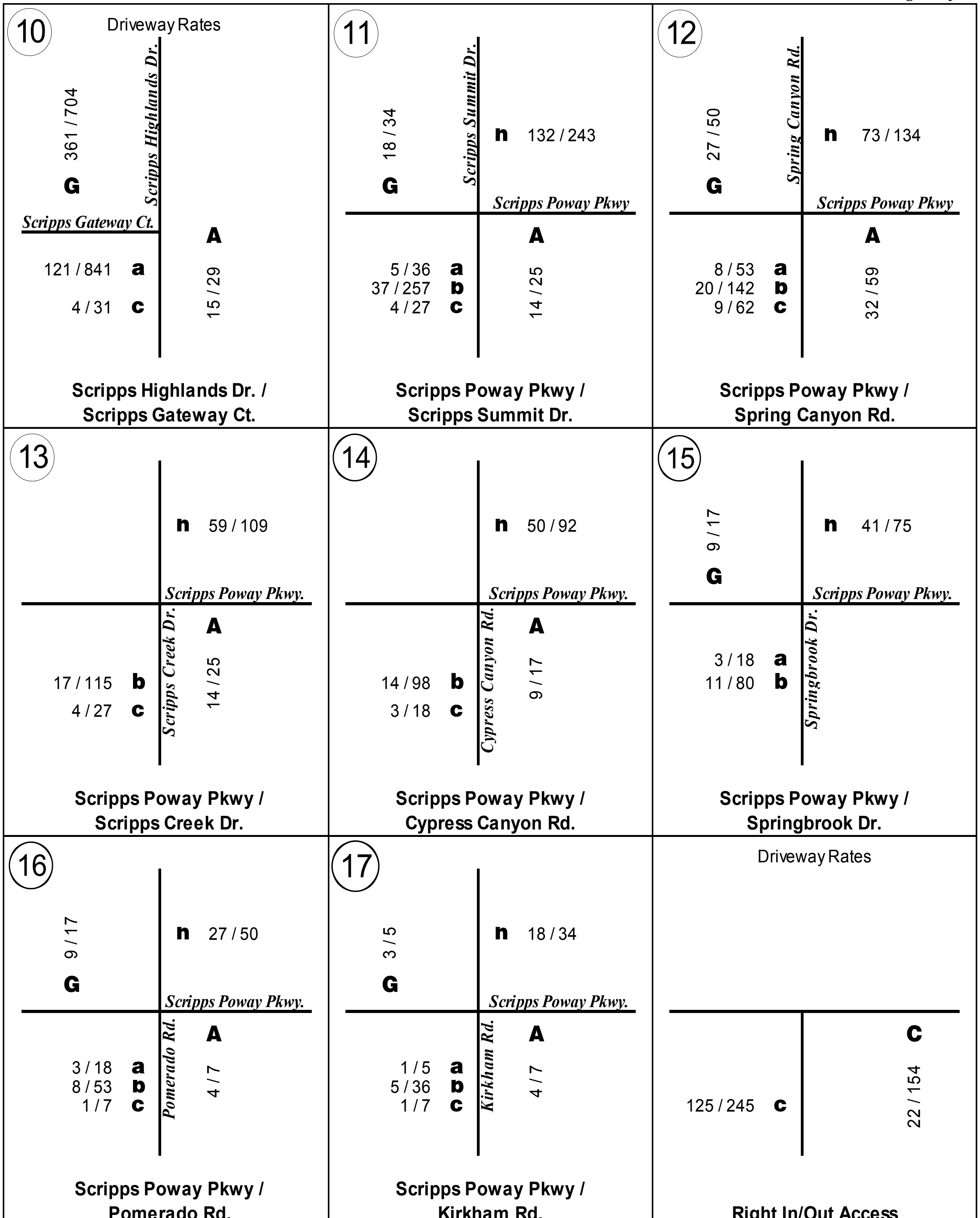

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FIGURE 3-5

Project Only AM / PM Peak Hour Traffic

Appendix K

Near Term LOS Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	60	33	229	213	256	381	623	248	359	1051	48
Future Volume (veh/h)	255	60	33	229	213	256	381	623	248	359	1051	48
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	290	68	38	260	242	206	433	708	8	408	1194	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	1	2	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	337	398	205	298	309	478	390	1346	591	483	1529	476
Arrive On Green	0.10	0.18	0.18	0.09	0.17	0.17	0.22	0.38	0.38	0.14	0.30	0.00
Sat Flow, veh/h	3442	2245	1158	3442	1863	1540	1774	3539	1554	3442	5085	1583
Grp Volume(v), veh/h	290	52	54	260	242	206	433	708	8	408	1194	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1633	1721	1863	1540	1774	1770	1554	1721	1695	1583
Q Serve(g_s), s	7.5	2.3	2.5	6.7	11.2	9.6	19.8	13.9	0.3	10.4	19.3	0.0
Cycle Q Clear(g_c), s	7.5	2.3	2.5	6.7	11.2	9.6	19.8	13.9	0.3	10.4	19.3	0.0
Prop In Lane	1.00		0.71	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	337	313	289	298	309	478	390	1346	591	483	1529	476
V/C Ratio(X)	0.86	0.17	0.19	0.87	0.78	0.43	1.11	0.53	0.01	0.84	0.78	0.00
Avail Cap(c_a), veh/h	337	460	425	298	445	590	390	1346	591	528	1529	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.55	0.55	0.55	1.00	1.00	0.00
Uniform Delay (d), s/veh	40.0	31.4	31.5	40.6	36.0	25.0	35.1	21.6	17.4	37.7	28.8	0.0
Incr Delay (d2), s/veh	19.8	0.2	0.3	23.3	5.6	0.6	68.0	0.8	0.0	11.2	4.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	1.1	1.2	4.1	6.3	4.2	17.0	6.9	0.1	5.7	9.6	0.0
LnGrp Delay(d),s/veh	59.8	31.6	31.8	63.9	41.6	25.6	103.1	22.4	17.4	48.9	32.8	0.0
LnGrp LOS	E	C	C	E	D	C	F	C	B	D	C	
Approach Vol, veh/h		396			708			1149			1602	
Approach Delay, s/veh		52.3			45.1			52.8			36.9	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	32.6	13.0	20.4	16.8	39.7	12.0	21.4
Change Period (Y+Rc), s	* 4.2	5.5	* 4.2	5.5	* 4.2	5.5	* 4.2	* 5.5
Max Green Setting (Gmax), s	* 20	20.5	* 8.8	21.5	* 14	26.5	* 7.8	* 23
Max Q Clear Time (g_c+I1), s	21.8	21.3	9.5	13.2	12.4	15.9	8.7	4.5
Green Ext Time (p_c), s	0.0	0.0	0.0	1.3	0.2	3.3	0.0	0.5

Intersection Summary			
HCM 2010 Ctrl Delay			44.7
HCM 2010 LOS			D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	6	351	74	67	110	39	1050	23	36	832	422
Future Volume (vph)	128	6	351	74	67	110	39	1050	23	36	832	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.91		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1561		1770	1666		1770	3525		1770	3539	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1561		1770	1666		1770	3525		1770	3539	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	139	7	382	80	73	120	42	1141	25	39	904	459
RTOR Reduction (vph)	0	224	0	0	64	0	0	1	0	0	0	191
Lane Group Flow (vph)	139	165	0	80	129	0	42	1165	0	39	904	268
Confl. Peds. (#/hr)									5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	8	8		7	7		1	6		5	2	8
Permitted Phases												2
Actuated Green, G (s)	15.2	15.2		8.7	8.7		4.7	31.2		3.6	30.1	45.3
Effective Green, g (s)	15.2	15.2		8.7	8.7		4.7	31.2		3.6	30.1	45.3
Actuated g/C Ratio	0.20	0.20		0.11	0.11		0.06	0.40		0.05	0.39	0.58
Clearance Time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	346	305		198	186		107	1417		82	1372	998
v/s Ratio Prot	0.08	c0.11		0.05	c0.08		0.02	c0.33		0.02	c0.26	0.05
v/s Ratio Perm												0.12
v/c Ratio	0.40	0.54		0.40	0.69		0.39	0.82		0.48	0.66	0.27
Uniform Delay, d1	27.2	28.1		32.0	33.2		35.1	20.7		36.1	19.5	8.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.9		0.5	8.7		0.9	3.8		1.6	0.9	0.1
Delay (s)	27.5	29.0		32.5	41.9		35.9	24.5		37.7	20.4	8.0
Level of Service	C	C		C	D		D	C		D	C	A
Approach Delay (s)		28.6			39.1			24.9			16.8	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	77.6	Sum of lost time (s)	18.9
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	88	118	63	1033	1217	58
Future Volume (veh/h)	88	118	63	1033	1217	58
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	102	137	73	1201	1415	67
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	197	176	305	2811	1966	93
Arrive On Green	0.11	0.11	0.34	1.00	0.57	0.57
Sat Flow, veh/h	1774	1583	1774	3632	3529	162
Grp Volume(v), veh/h	102	137	73	1201	727	755
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1829
Q Serve(g_s), s	4.9	7.6	2.6	0.0	26.8	27.1
Cycle Q Clear(g_c), s	4.9	7.6	2.6	0.0	26.8	27.1
Prop In Lane	1.00	1.00	1.00			0.09
Lane Grp Cap(c), veh/h	197	176	305	2811	1013	1046
V/C Ratio(X)	0.52	0.78	0.24	0.43	0.72	0.72
Avail Cap(c_a), veh/h	375	334	305	2811	1013	1046
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.88	0.88	0.74	0.74
Uniform Delay (d), s/veh	37.7	38.9	25.3	0.0	14.0	14.0
Incr Delay (d2), s/veh	2.1	7.2	0.4	0.4	3.2	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	6.8	1.3	0.2	13.8	14.4
LnGrp Delay(d),s/veh	39.8	46.1	25.7	0.4	17.2	17.2
LnGrp LOS	D	D	C	A	B	B
Approach Vol, veh/h	239			1274	1482	
Approach Delay, s/veh	43.4			1.9	17.2	
Approach LOS	D			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		76.0		14.0	20.0	56.0		
Change Period (Y+Rc), s		4.5		4.0	4.5	4.5		
Max Green Setting (Gmax), s		62.5		19.0	6.5	51.5		
Max Q Clear Time (g_c+I1), s		2.0		9.6	4.6	29.1		
Green Ext Time (p_c), s		10.8		0.5	0.0	10.4		
Intersection Summary								
HCM 2010 Ctrl Delay			12.8					
HCM 2010 LOS			B					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	149	106	279	188	268	311	748	425	349	568	28
Future Volume (veh/h)	233	149	106	279	188	268	311	748	425	349	568	28
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	265	169	120	317	214	305	353	850	483	397	645	32
Adj No. of Lanes	2	2	0	2	1	1	1	2	1	2	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	327	346	231	381	348	502	385	1492	655	464	1725	520
Arrive On Green	0.10	0.17	0.17	0.11	0.19	0.19	0.22	0.42	0.42	0.13	0.34	0.34
Sat Flow, veh/h	3442	2020	1345	3442	1863	1543	1774	3539	1555	3442	5085	1532
Grp Volume(v), veh/h	265	147	142	317	214	305	353	850	483	397	645	32
Grp Sat Flow(s),veh/h/ln	1721	1770	1596	1721	1863	1543	1774	1770	1555	1721	1695	1532
Q Serve(g_s), s	9.1	9.0	9.7	10.8	12.7	20.1	23.3	21.9	31.3	13.5	11.5	1.7
Cycle Q Clear(g_c), s	9.1	9.0	9.7	10.8	12.7	20.1	23.3	21.9	31.3	13.5	11.5	1.7
Prop In Lane	1.00		0.84	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	327	303	274	381	348	502	385	1492	655	464	1725	520
V/C Ratio(X)	0.81	0.48	0.52	0.83	0.61	0.61	0.92	0.57	0.74	0.86	0.37	0.06
Avail Cap(c_a), veh/h	439	332	299	493	365	515	503	1492	655	579	1725	520
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	44.9	45.2	52.3	44.8	34.4	45.9	26.4	29.1	50.8	30.0	26.8
Incr Delay (d2), s/veh	8.1	1.2	1.5	9.2	2.9	2.0	2.3	0.1	0.7	10.1	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	4.5	4.4	5.6	6.8	8.8	11.7	10.8	13.5	7.1	5.5	0.7
LnGrp Delay(d),s/veh	61.3	46.1	46.8	61.5	47.7	36.4	48.2	26.6	29.8	60.9	30.6	27.0
LnGrp LOS	E	D	D	E	D	D	D	C	C	E	C	C
Approach Vol, veh/h		554			836			1686			1074	
Approach Delay, s/veh		53.6			48.8			32.0			41.7	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.3	46.2	15.6	27.9	20.4	56.1	17.5	26.1
Change Period (Y+Rc), s	* 4.2	5.5	* 4.2	5.5	* 4.2	5.5	* 4.2	* 5.5
Max Green Setting (Gmax), s	* 34	27.8	* 15	23.5	* 20	41.6	* 17	* 23
Max Q Clear Time (g_c+I1), s	25.3	13.5	11.1	22.1	15.5	33.3	12.8	11.7
Green Ext Time (p_c), s	0.7	3.6	0.4	0.4	0.6	4.5	0.4	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	40.8
HCM 2010 LOS	D

Notes

LOS Engineering, Inc.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	462	37	728	46	22	63	24	1170	65	80	732	178
Future Volume (vph)	462	37	728	46	22	63	24	1170	65	80	732	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.89		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1559		1770	1622		1770	3503		1770	3539	1559
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1559		1770	1622		1770	3503		1770	3539	1559
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	502	40	791	50	24	68	26	1272	71	87	796	193
RTOR Reduction (vph)	0	176	0	0	63	0	0	3	0	0	0	55
Lane Group Flow (vph)	502	655	0	50	29	0	26	1340	0	87	796	138
Confl. Peds. (#/hr)			10						10			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	8	8		7	7		1	6		5	2	8
Permitted Phases												2
Actuated Green, G (s)	44.4	44.4		8.4	8.4		7.6	43.5		6.8	42.7	87.1
Effective Green, g (s)	44.4	44.4		8.4	8.4		7.6	43.5		6.8	42.7	87.1
Actuated g/C Ratio	0.36	0.36		0.07	0.07		0.06	0.36		0.06	0.35	0.71
Clearance Time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	644	567		121	111		110	1249		98	1238	1171
v/s Ratio Prot	0.28	c0.42		c0.03	0.02		0.01	c0.38		c0.05	0.22	0.04
v/s Ratio Perm												0.05
v/c Ratio	0.78	1.15		0.41	0.26		0.24	1.07		0.89	0.64	0.12
Uniform Delay, d1	34.5	38.8		54.4	53.8		54.4	39.2		57.2	33.3	5.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.4	88.4		0.8	0.5		0.4	47.4		54.7	0.9	0.0
Delay (s)	39.9	127.2		55.3	54.3		54.8	86.6		111.9	34.1	5.5
Level of Service	D	F		E	D		D	F		F	C	A
Approach Delay (s)		94.3			54.6			86.0			35.3	
Approach LOS		F			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	73.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	122.0	Sum of lost time (s)	18.9
Intersection Capacity Utilization	102.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	78	91	149	1242	1358	135
Future Volume (veh/h)	78	91	149	1242	1358	135
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	89	103	169	1411	1543	142
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.95
Percent Heavy Veh, %	0	2	2	2	2	2
Cap, veh/h	150	131	395	2995	1917	175
Arrive On Green	0.08	0.08	0.45	1.00	0.59	0.59
Sat Flow, veh/h	1810	1583	1774	3632	3365	298
Grp Volume(v), veh/h	89	103	169	1411	828	857
Grp Sat Flow(s),veh/h/ln	1810	1583	1774	1770	1770	1800
Q Serve(g_s), s	5.7	7.7	7.8	0.0	43.7	45.2
Cycle Q Clear(g_c), s	5.7	7.7	7.8	0.0	43.7	45.2
Prop In Lane	1.00	1.00	1.00			0.17
Lane Grp Cap(c), veh/h	150	131	395	2995	1037	1055
V/C Ratio(X)	0.59	0.78	0.43	0.47	0.80	0.81
Avail Cap(c_a), veh/h	256	224	395	2995	1037	1055
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.81	0.81	0.75	0.75
Uniform Delay (d), s/veh	53.1	54.0	28.0	0.0	19.3	19.7
Incr Delay (d2), s/veh	3.7	9.8	0.6	0.4	4.9	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	6.9	3.8	0.2	22.6	23.7
LnGrp Delay(d),s/veh	56.8	63.8	28.6	0.4	24.2	24.9
LnGrp LOS	E	E	C	A	C	C
Approach Vol, veh/h	192			1580	1685	
Approach Delay, s/veh	60.5			3.4	24.5	
Approach LOS	E			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		106.1		13.9	31.3	74.8		
Change Period (Y+Rc), s		4.5		4.0	4.5	4.5		
Max Green Setting (Gmax), s		94.5		17.0	19.7	70.3		
Max Q Clear Time (g_c+I1), s		2.0		9.7	9.8	47.2		
Green Ext Time (p_c), s		14.8		0.3	0.3	12.7		

Intersection Summary		
HCM 2010 Ctrl Delay		16.9
HCM 2010 LOS		B

Appendix L

Near Term with Project LOS Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	60	36	229	213	256	384	623	248	359	1051	48
Future Volume (veh/h)	255	60	36	229	213	256	384	623	248	359	1051	48
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	290	68	41	260	242	206	436	708	8	408	1194	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	1	2	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	298	342	189	334	311	480	410	1381	606	483	1523	474
Arrive On Green	0.09	0.16	0.16	0.10	0.17	0.17	0.23	0.39	0.39	0.14	0.30	0.00
Sat Flow, veh/h	3442	2184	1208	3442	1863	1540	1774	3539	1554	3442	5085	1583
Grp Volume(v), veh/h	290	54	55	260	242	206	436	708	8	408	1194	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1622	1721	1863	1540	1774	1770	1554	1721	1695	1583
Q Serve(g_s), s	7.6	2.4	2.7	6.6	11.2	9.6	20.8	13.7	0.3	10.4	19.3	0.0
Cycle Q Clear(g_c), s	7.6	2.4	2.7	6.6	11.2	9.6	20.8	13.7	0.3	10.4	19.3	0.0
Prop In Lane	1.00		0.74	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	298	277	254	334	311	480	410	1381	606	483	1523	474
V/C Ratio(X)	0.97	0.19	0.22	0.78	0.78	0.43	1.06	0.51	0.01	0.84	0.78	0.00
Avail Cap(c_a), veh/h	298	421	386	375	466	607	410	1381	606	528	1523	474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.55	0.55	0.55	1.00	1.00	0.00
Uniform Delay (d), s/veh	41.0	33.0	33.1	39.7	35.9	24.9	34.6	20.9	16.8	37.7	28.9	0.0
Incr Delay (d2), s/veh	44.4	0.3	0.4	9.0	4.8	0.6	51.1	0.7	0.0	11.2	4.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	1.2	1.2	3.6	6.2	4.2	16.0	6.8	0.1	5.7	9.6	0.0
LnGrp Delay(d),s/veh	85.4	33.3	33.5	48.7	40.6	25.5	85.7	21.7	16.8	48.9	33.0	0.0
LnGrp LOS	F	C	C	D	D	C	F	C	B	D	C	
Approach Vol, veh/h		399			708			1152			1602	
Approach Delay, s/veh		71.2			39.2			45.9			37.0	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	32.5	12.0	20.5	16.8	40.6	12.9	19.6
Change Period (Y+Rc), s	* 4.2	5.5	* 4.2	5.5	* 4.2	5.5	* 4.2	* 5.5
Max Green Setting (Gmax), s	* 21	19.5	* 7.8	22.5	* 14	26.5	* 9.8	* 21
Max Q Clear Time (g_c+I1), s	22.8	21.3	9.6	13.2	12.4	15.7	8.6	4.7
Green Ext Time (p_c), s	0.0	0.0	0.0	1.4	0.2	3.4	0.1	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	43.6
HCM 2010 LOS	D

Notes

LOS Engineering, Inc.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	9	351	76	70	113	39	1050	25	39	832	422
Future Volume (vph)	128	9	351	76	70	113	39	1050	25	39	832	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.91		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1563		1770	1667		1770	3524		1770	3539	1554
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1563		1770	1667		1770	3524		1770	3539	1554
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	139	10	382	83	76	123	42	1141	27	42	904	459
RTOR Reduction (vph)	0	221	0	0	63	0	0	2	0	0	0	191
Lane Group Flow (vph)	139	171	0	83	136	0	42	1166	0	42	904	268
Confl. Peds. (#/hr)									5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	8	8		7	7		1	6		5	2	8
Permitted Phases												2
Actuated Green, G (s)	15.4	15.4		8.7	8.7		4.7	31.2		3.6	30.1	45.5
Effective Green, g (s)	15.4	15.4		8.7	8.7		4.7	31.2		3.6	30.1	45.5
Actuated g/C Ratio	0.20	0.20		0.11	0.11		0.06	0.40		0.05	0.39	0.58
Clearance Time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	350	309		197	186		106	1413		81	1369	1000
v/s Ratio Prot	0.08	c0.11		0.05	c0.08		0.02	c0.33		0.02	c0.26	0.05
v/s Ratio Perm												0.12
v/c Ratio	0.40	0.55		0.42	0.73		0.40	0.83		0.52	0.66	0.27
Uniform Delay, d1	27.2	28.1		32.2	33.4		35.2	20.9		36.3	19.6	8.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	1.2		0.5	12.0		0.9	3.9		2.3	0.9	0.1
Delay (s)	27.4	29.3		32.7	45.4		36.1	24.7		38.6	20.6	8.0
Level of Service	C	C		C	D		D	C		D	C	A
Approach Delay (s)		28.8			41.7			25.1			17.0	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	18.9
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	88	118	63	1035	1219	58
Future Volume (veh/h)	88	118	63	1035	1219	58
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	102	137	73	1203	1417	67
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	196	175	306	2813	1966	93
Arrive On Green	0.11	0.11	0.35	1.00	0.57	0.57
Sat Flow, veh/h	1774	1583	1774	3632	3529	162
Grp Volume(v), veh/h	102	137	73	1203	728	756
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1829
Q Serve(g_s), s	4.9	7.6	2.6	0.0	26.9	27.1
Cycle Q Clear(g_c), s	4.9	7.6	2.6	0.0	26.9	27.1
Prop In Lane	1.00	1.00	1.00			0.09
Lane Grp Cap(c), veh/h	196	175	306	2813	1013	1046
V/C Ratio(X)	0.52	0.78	0.24	0.43	0.72	0.72
Avail Cap(c_a), veh/h	335	299	306	2813	1013	1046
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.88	0.88	0.73	0.73
Uniform Delay (d), s/veh	37.8	39.0	25.2	0.0	14.0	14.0
Incr Delay (d2), s/veh	2.1	7.4	0.3	0.4	3.3	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	6.8	1.3	0.2	13.9	14.4
LnGrp Delay(d),s/veh	39.9	46.4	25.6	0.4	17.2	17.2
LnGrp LOS	D	D	C	A	B	B
Approach Vol, veh/h	239			1276	1484	
Approach Delay, s/veh	43.6			1.9	17.2	
Approach LOS	D			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		76.0		14.0	20.0	56.0		
Change Period (Y+Rc), s		4.5		4.0	4.5	4.5		
Max Green Setting (Gmax), s		64.5		17.0	8.5	51.5		
Max Q Clear Time (g_c+I1), s		2.0		9.6	4.6	29.1		
Green Ext Time (p_c), s		10.9		0.4	0.0	10.4		

Intersection Summary		
HCM 2010 Ctrl Delay		12.8
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	149	110	280	188	268	315	749	426	349	569	28
Future Volume (veh/h)	233	149	110	280	188	268	315	749	426	349	569	28
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	265	169	125	318	214	305	358	851	484	397	647	32
Adj No. of Lanes	2	2	0	2	1	1	1	2	1	2	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	327	340	235	382	348	502	390	1492	655	464	1711	515
Arrive On Green	0.10	0.17	0.17	0.11	0.19	0.19	0.22	0.42	0.42	0.13	0.34	0.34
Sat Flow, veh/h	3442	1985	1375	3442	1863	1543	1774	3539	1555	3442	5085	1531
Grp Volume(v), veh/h	265	149	145	318	214	305	358	851	484	397	647	32
Grp Sat Flow(s),veh/h/ln	1721	1770	1590	1721	1863	1543	1774	1770	1555	1721	1695	1531
Q Serve(g_s), s	9.1	9.2	9.9	10.9	12.7	20.1	23.7	22.0	31.4	13.5	11.6	1.7
Cycle Q Clear(g_c), s	9.1	9.2	9.9	10.9	12.7	20.1	23.7	22.0	31.4	13.5	11.6	1.7
Prop In Lane	1.00		0.86	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	327	303	272	382	348	502	390	1492	655	464	1711	515
V/C Ratio(X)	0.81	0.49	0.53	0.83	0.61	0.61	0.92	0.57	0.74	0.86	0.38	0.06
Avail Cap(c_a), veh/h	439	332	298	493	365	515	503	1492	655	579	1711	515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	45.0	45.3	52.3	44.8	34.4	45.8	26.4	29.1	50.8	30.3	27.0
Incr Delay (d2), s/veh	8.1	1.2	1.6	9.3	2.9	2.0	2.4	0.1	0.7	10.1	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	4.6	4.5	5.7	6.8	8.8	11.9	10.8	13.5	7.1	5.6	0.7
LnGrp Delay(d),s/veh	61.3	46.3	47.0	61.5	47.7	36.4	48.1	26.6	29.8	60.9	30.9	27.2
LnGrp LOS	E	D	D	E	D	D	D	C	C	E	C	C
Approach Vol, veh/h		559			837			1693			1076	
Approach Delay, s/veh		53.6			48.8			32.1			41.9	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.6	45.9	15.6	27.9	20.4	56.1	17.5	26.0
Change Period (Y+Rc), s	* 4.2	5.5	* 4.2	5.5	* 4.2	5.5	* 4.2	* 5.5
Max Green Setting (Gmax), s	* 34	27.8	* 15	23.5	* 20	41.6	* 17	* 23
Max Q Clear Time (g_c+I1), s	25.7	13.6	11.1	22.1	15.5	33.4	12.9	11.9
Green Ext Time (p_c), s	0.7	3.6	0.4	0.4	0.6	4.5	0.4	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	40.9
HCM 2010 LOS	D

Notes

LOS Engineering, Inc.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	462	41	728	49	26	69	24	1170	68	86	732	178
Future Volume (vph)	462	41	728	49	26	69	24	1170	68	86	732	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.89		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1561		1770	1623		1770	3501		1770	3539	1560
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1561		1770	1623		1770	3501		1770	3539	1560
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	502	45	791	53	28	75	26	1272	74	93	796	193
RTOR Reduction (vph)	0	165	0	0	70	0	0	3	0	0	0	54
Lane Group Flow (vph)	502	671	0	53	33	0	26	1343	0	93	796	139
Confl. Peds. (#/hr)			10						10			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	8	8		7	7		1	6		5	2	8
Permitted Phases												2
Actuated Green, G (s)	45.4	45.4		7.4	7.4		7.6	43.5		6.8	42.7	88.1
Effective Green, g (s)	45.4	45.4		7.4	7.4		7.6	43.5		6.8	42.7	88.1
Actuated g/C Ratio	0.37	0.37		0.06	0.06		0.06	0.36		0.06	0.35	0.72
Clearance Time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	658	580		107	98		110	1248		98	1238	1185
v/s Ratio Prot	0.28	c0.43		c0.03	0.02		0.01	c0.38		c0.05	0.22	0.04
v/s Ratio Perm												0.05
v/c Ratio	0.76	1.16		0.50	0.33		0.24	1.08		0.95	0.64	0.12
Uniform Delay, d1	33.6	38.3		55.5	54.9		54.4	39.2		57.4	33.3	5.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.7	88.7		1.3	0.7		0.4	48.6		72.9	0.9	0.0
Delay (s)	38.3	127.0		56.8	55.7		54.8	87.8		130.4	34.1	5.2
Level of Service	D	F		E	E		D	F		F	C	A
Approach Delay (s)		93.7			56.0			87.2			37.2	
Approach LOS		F			E			F			D	

Intersection Summary			
HCM 2000 Control Delay	74.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	122.0	Sum of lost time (s)	18.9
Intersection Capacity Utilization	103.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	78	91	149	1245	1361	135
Future Volume (veh/h)	78	91	149	1245	1361	135
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	89	103	169	1415	1547	142
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.95
Percent Heavy Veh, %	0	2	2	2	2	2
Cap, veh/h	150	131	395	2995	1917	174
Arrive On Green	0.08	0.08	0.45	1.00	0.59	0.59
Sat Flow, veh/h	1810	1583	1774	3632	3366	297
Grp Volume(v), veh/h	89	103	169	1415	829	860
Grp Sat Flow(s),veh/h/ln	1810	1583	1774	1770	1770	1800
Q Serve(g_s), s	5.7	7.7	7.8	0.0	43.9	45.4
Cycle Q Clear(g_c), s	5.7	7.7	7.8	0.0	43.9	45.4
Prop In Lane	1.00	1.00	1.00			0.17
Lane Grp Cap(c), veh/h	150	131	395	2995	1037	1055
V/C Ratio(X)	0.59	0.78	0.43	0.47	0.80	0.81
Avail Cap(c_a), veh/h	256	224	395	2995	1037	1055
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.81	0.81	0.74	0.74
Uniform Delay (d), s/veh	53.1	54.0	28.0	0.0	19.4	19.7
Incr Delay (d2), s/veh	3.7	9.8	0.6	0.4	4.9	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	6.9	3.8	0.2	22.6	24.0
LnGrp Delay(d),s/veh	56.8	63.8	28.6	0.4	24.3	24.9
LnGrp LOS	E	E	C	A	C	C
Approach Vol, veh/h	192			1584	1689	
Approach Delay, s/veh	60.5			3.4	24.6	
Approach LOS	E			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		106.1		13.9	31.3	74.8		
Change Period (Y+Rc), s		4.5		4.0	4.5	4.5		
Max Green Setting (Gmax), s		94.5		17.0	19.7	70.3		
Max Q Clear Time (g_c+I1), s		2.0		9.7	9.8	47.4		
Green Ext Time (p_c), s		14.9		0.3	0.3	12.7		

Intersection Summary		
HCM 2010 Ctrl Delay		16.9
HCM 2010 LOS		B

Appendix M

Near Term with Construction Traffic LOS Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	60	43	231	213	256	381	623	248	359	1053	48
Future Volume (veh/h)	255	60	43	231	213	256	381	623	248	359	1053	48
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	290	68	49	262	242	206	433	708	8	408	1197	0
Adj No. of Lanes	2	2	0	2	1	1	1	2	1	2	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	337	361	236	298	309	478	410	1346	591	483	1472	458
Arrive On Green	0.10	0.18	0.18	0.09	0.17	0.17	0.23	0.38	0.38	0.14	0.29	0.00
Sat Flow, veh/h	3442	2039	1330	3442	1863	1540	1774	3539	1554	3442	5085	1583
Grp Volume(v), veh/h	290	58	59	262	242	206	433	708	8	408	1197	0
Grp Sat Flow(s),veh/h/ln	1721	1770	1599	1721	1863	1540	1774	1770	1554	1721	1695	1583
Q Serve(g_s), s	7.5	2.5	2.8	6.8	11.2	9.6	20.8	13.9	0.3	10.4	19.7	0.0
Cycle Q Clear(g_c), s	7.5	2.5	2.8	6.8	11.2	9.6	20.8	13.9	0.3	10.4	19.7	0.0
Prop In Lane	1.00		0.83	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	337	313	283	298	309	478	410	1346	591	483	1472	458
V/C Ratio(X)	0.86	0.19	0.21	0.88	0.78	0.43	1.06	0.53	0.01	0.84	0.81	0.00
Avail Cap(c_a), veh/h	337	460	416	298	445	590	410	1346	591	528	1472	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.54	0.54	0.54	1.00	1.00	0.00
Uniform Delay (d), s/veh	40.0	31.5	31.6	40.6	36.0	25.0	34.6	21.6	17.4	37.7	29.7	0.0
Incr Delay (d2), s/veh	19.8	0.3	0.4	24.4	5.6	0.6	48.4	0.8	0.0	11.2	5.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	1.3	1.3	4.2	6.3	4.2	15.6	6.9	0.1	5.7	9.9	0.0
LnGrp Delay(d),s/veh	59.8	31.8	32.0	65.0	41.6	25.6	83.0	22.4	17.4	48.9	34.7	0.0
LnGrp LOS	E	C	C	E	D	C	F	C	B	D	C	
Approach Vol, veh/h		407			710			1149			1605	
Approach Delay, s/veh		51.8			45.6			45.2			38.3	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	31.6	13.0	20.4	16.8	39.7	12.0	21.4
Change Period (Y+Rc), s	* 4.2	5.5	* 4.2	5.5	* 4.2	5.5	* 4.2	* 5.5
Max Green Setting (Gmax), s	* 21	19.5	* 8.8	21.5	* 14	26.5	* 7.8	* 23
Max Q Clear Time (g_c+I1), s	22.8	21.7	9.5	13.2	12.4	15.9	8.8	4.8
Green Ext Time (p_c), s	0.0	0.0	0.0	1.3	0.2	3.3	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	43.1
HCM 2010 LOS	D

Notes

LOS Engineering, Inc.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	16	351	74	67	110	39	1050	33	49	832	422
Future Volume (vph)	128	16	351	74	67	110	39	1050	33	49	832	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.91		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1568		1770	1666		1770	3520		1770	3539	1554
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1568		1770	1666		1770	3520		1770	3539	1554
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	139	17	382	80	73	120	42	1141	36	53	904	459
RTOR Reduction (vph)	0	223	0	0	64	0	0	2	0	0	0	190
Lane Group Flow (vph)	139	176	0	80	129	0	42	1175	0	53	904	269
Confl. Peds. (#/hr)									5			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	8	8		7	7		1	6		5	2	8
Permitted Phases												2
Actuated Green, G (s)	15.5	15.5		8.7	8.7		4.7	31.2		3.6	30.1	45.6
Effective Green, g (s)	15.5	15.5		8.7	8.7		4.7	31.2		3.6	30.1	45.6
Actuated g/C Ratio	0.20	0.20		0.11	0.11		0.06	0.40		0.05	0.39	0.59
Clearance Time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	352	311		197	186		106	1409		81	1367	1001
v/s Ratio Prot	0.08	c0.11		0.05	c0.08		0.02	c0.33		0.03	c0.26	0.05
v/s Ratio Perm												0.12
v/c Ratio	0.39	0.56		0.41	0.69		0.40	0.83		0.65	0.66	0.27
Uniform Delay, d1	27.1	28.2		32.2	33.3		35.2	21.0		36.5	19.7	7.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	1.4		0.5	8.7		0.9	4.2		13.5	0.9	0.1
Delay (s)	27.4	29.6		32.7	42.0		36.1	25.2		50.1	20.6	8.0
Level of Service	C	C		C	D		D	C		D	C	A
Approach Delay (s)		29.0			39.3			25.6			17.6	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	77.9	Sum of lost time (s)	18.9
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	88	118	63	1043	1217	58
Future Volume (veh/h)	88	118	63	1043	1217	58
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	102	137	73	1213	1415	67
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	196	175	326	2813	1928	91
Arrive On Green	0.11	0.11	0.37	1.00	0.56	0.56
Sat Flow, veh/h	1774	1583	1774	3632	3529	162
Grp Volume(v), veh/h	102	137	73	1213	727	755
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1829
Q Serve(g_s), s	4.9	7.6	2.6	0.0	27.5	27.8
Cycle Q Clear(g_c), s	4.9	7.6	2.6	0.0	27.5	27.8
Prop In Lane	1.00	1.00	1.00			0.09
Lane Grp Cap(c), veh/h	196	175	326	2813	993	1026
V/C Ratio(X)	0.52	0.78	0.22	0.43	0.73	0.74
Avail Cap(c_a), veh/h	335	299	326	2813	993	1026
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.88	0.88	0.74	0.74
Uniform Delay (d), s/veh	37.8	39.0	24.0	0.0	14.7	14.8
Incr Delay (d2), s/veh	2.1	7.4	0.3	0.4	3.5	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	6.8	1.2	0.2	14.3	14.8
LnGrp Delay(d),s/veh	39.9	46.4	24.3	0.4	18.3	18.3
LnGrp LOS	D	D	C	A	B	B
Approach Vol, veh/h	239			1286	1482	
Approach Delay, s/veh	43.6			1.8	18.3	
Approach LOS	D			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		76.0		14.0	21.0	55.0		
Change Period (Y+Rc), s		4.5		4.0	4.5	4.5		
Max Green Setting (Gmax), s		64.5		17.0	9.5	50.5		
Max Q Clear Time (g_c+I1), s		2.0		9.6	4.6	29.8		
Green Ext Time (p_c), s		11.1		0.4	0.0	10.0		

Intersection Summary		
HCM 2010 Ctrl Delay		13.2
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	149	106	279	188	268	321	750	427	349	568	28
Future Volume (veh/h)	233	149	106	279	188	268	321	750	427	349	568	28
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	265	169	120	317	214	305	365	852	485	397	645	32
Adj No. of Lanes	2	2	0	2	1	1	1	2	1	2	3	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	327	346	231	381	348	502	397	1492	655	464	1692	509
Arrive On Green	0.10	0.17	0.17	0.11	0.19	0.19	0.22	0.42	0.42	0.13	0.33	0.33
Sat Flow, veh/h	3442	2020	1345	3442	1863	1543	1774	3539	1555	3442	5085	1531
Grp Volume(v), veh/h	265	147	142	317	214	305	365	852	485	397	645	32
Grp Sat Flow(s),veh/h/ln	1721	1770	1596	1721	1863	1543	1774	1770	1555	1721	1695	1531
Q Serve(g_s), s	9.1	9.0	9.7	10.8	12.7	20.1	24.1	22.0	31.5	13.5	11.6	1.7
Cycle Q Clear(g_c), s	9.1	9.0	9.7	10.8	12.7	20.1	24.1	22.0	31.5	13.5	11.6	1.7
Prop In Lane	1.00		0.84	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	327	303	274	381	348	502	397	1492	655	464	1692	509
V/C Ratio(X)	0.81	0.48	0.52	0.83	0.61	0.61	0.92	0.57	0.74	0.86	0.38	0.06
Avail Cap(c_a), veh/h	439	332	299	493	365	515	503	1492	655	579	1692	509
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	44.9	45.2	52.3	44.8	34.4	45.5	26.4	29.2	50.8	30.6	27.3
Incr Delay (d2), s/veh	8.1	1.2	1.5	9.2	2.9	2.0	2.5	0.1	0.7	10.1	0.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	4.5	4.4	5.6	6.8	8.8	12.1	10.8	13.7	7.1	5.5	0.8
LnGrp Delay(d),s/veh	61.3	46.1	46.8	61.5	47.7	36.4	48.0	26.6	29.9	60.9	31.3	27.5
LnGrp LOS	E	D	D	E	D	D	D	C	C	E	C	C
Approach Vol, veh/h		554			836			1702			1074	
Approach Delay, s/veh		53.6			48.8			32.1			42.1	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.0	45.4	15.6	27.9	20.4	56.1	17.5	26.1
Change Period (Y+Rc), s	* 4.2	5.5	* 4.2	5.5	* 4.2	5.5	* 4.2	* 5.5
Max Green Setting (Gmax), s	* 34	27.8	* 15	23.5	* 20	41.6	* 17	* 23
Max Q Clear Time (g_c+I1), s	26.1	13.6	11.1	22.1	15.5	33.5	12.8	11.7
Green Ext Time (p_c), s	0.7	3.6	0.4	0.4	0.6	4.5	0.4	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	40.9
HCM 2010 LOS	D

Notes

LOS Engineering, Inc.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	462	37	728	56	32	76	24	1170	65	80	732	178
Future Volume (vph)	462	37	728	56	32	76	24	1170	65	80	732	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.89		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1559		1770	1633		1770	3503		1770	3539	1559
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1559		1770	1633		1770	3503		1770	3539	1559
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	502	40	791	61	35	83	26	1272	71	87	796	193
RTOR Reduction (vph)	0	167	0	0	71	0	0	3	0	0	0	55
Lane Group Flow (vph)	502	664	0	61	47	0	26	1340	0	87	796	138
Confl. Peds. (#/hr)			10						10			5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	8	8		7	7		1	6		5	2	8
Permitted Phases												2
Actuated Green, G (s)	44.4	44.4		8.4	8.4		7.6	43.5		6.8	42.7	87.1
Effective Green, g (s)	44.4	44.4		8.4	8.4		7.6	43.5		6.8	42.7	87.1
Actuated g/C Ratio	0.36	0.36		0.07	0.07		0.06	0.36		0.06	0.35	0.71
Clearance Time (s)	4.6	4.6		4.6	4.6		4.2	5.5		4.2	5.5	4.6
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	644	567		121	112		110	1249		98	1238	1171
v/s Ratio Prot	0.28	c0.43		c0.03	0.03		0.01	c0.38		c0.05	0.22	0.04
v/s Ratio Perm												0.05
v/c Ratio	0.78	1.17		0.50	0.42		0.24	1.07		0.89	0.64	0.12
Uniform Delay, d1	34.5	38.8		54.8	54.5		54.4	39.2		57.2	33.3	5.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.4	94.5		1.2	0.9		0.4	47.4		54.7	0.9	0.0
Delay (s)	39.9	133.3		56.0	55.4		54.8	86.6		111.9	34.1	5.5
Level of Service	D	F		E	E		D	F		F	C	A
Approach Delay (s)		98.1			55.6			86.0			35.3	
Approach LOS		F			E			F			D	

Intersection Summary			
HCM 2000 Control Delay	74.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	122.0	Sum of lost time (s)	18.9
Intersection Capacity Utilization	102.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	78	91	149	1242	1368	135
Future Volume (veh/h)	78	91	149	1242	1368	135
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	89	103	169	1411	1555	142
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.95
Percent Heavy Veh, %	0	2	2	2	2	2
Cap, veh/h	150	131	395	2995	1918	173
Arrive On Green	0.08	0.08	0.45	1.00	0.59	0.59
Sat Flow, veh/h	1810	1583	1774	3632	3367	296
Grp Volume(v), veh/h	89	103	169	1411	833	864
Grp Sat Flow(s),veh/h/ln	1810	1583	1774	1770	1770	1801
Q Serve(g_s), s	5.7	7.7	7.8	0.0	44.2	45.8
Cycle Q Clear(g_c), s	5.7	7.7	7.8	0.0	44.2	45.8
Prop In Lane	1.00	1.00	1.00			0.16
Lane Grp Cap(c), veh/h	150	131	395	2995	1037	1055
V/C Ratio(X)	0.59	0.78	0.43	0.47	0.80	0.82
Avail Cap(c_a), veh/h	256	224	395	2995	1037	1055
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.81	0.81	0.74	0.74
Uniform Delay (d), s/veh	53.1	54.0	28.0	0.0	19.4	19.8
Incr Delay (d2), s/veh	3.7	9.8	0.6	0.4	5.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	6.9	3.8	0.2	23.0	24.1
LnGrp Delay(d),s/veh	56.8	63.8	28.6	0.4	24.4	25.2
LnGrp LOS	E	E	C	A	C	C
Approach Vol, veh/h	192			1580	1697	
Approach Delay, s/veh	60.5			3.4	24.8	
Approach LOS	E			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		106.1		13.9	31.3	74.8		
Change Period (Y+Rc), s		4.5		4.0	4.5	4.5		
Max Green Setting (Gmax), s		94.5		17.0	19.7	70.3		
Max Q Clear Time (g_c+I1), s		2.0		9.7	9.8	47.8		
Green Ext Time (p_c), s		14.8		0.3	0.3	12.6		

Intersection Summary		
HCM 2010 Ctrl Delay		17.1
HCM 2010 LOS		B