SEABREEZE SENIOR LIVING PROJECT

AIR QUALITY STUDY

PTS 600824

Prepared for:

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KLR Planning
San Diego, CA

Prepared by:

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PLANNING GROUP

April 2019

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SEABREEZE SENIOR LIVING PROJECT
City of San Diego, California

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EXECUTIVE SUMMARY

This report is an analysis of the potential air quality impacts associated with the proposed Seabreeze Senior Living project located on an approximately 9.0-acre site located at 5720 Old Carmel Valley Road generally west of Sandown Way and north of Rider Place. The site is located in Neighborhood 4 of the North City West Carmel Del Mar Neighborhoods 4, 5, & 6 Precise Plan of Carmel Valley. The report has been prepared by Birdseye Planning Group under contract to KLR Planning, at the request of the City of San Diego to support the discretionary review process. This study analyzes the potential for temporary air quality impacts associated with construction and long-term air quality impacts associated with operation of the proposed project.

Air quality modeling was performed in general accordance with the methodologies outlined in the SDAPCD 2009 RAQS to identify both construction and operational emissions associated with the proposed project. All emissions were calculated using the California Emissions Estimator Model (CalEEMod) software version 2016.3.2 which incorporates current air emission data, planning methods and protocol approved by CARB.

Construction of the proposed project would not exceed the San Diego Air Pollution Control District (SDAPCD) regional construction emission thresholds for daily emissions. Operational emissions include emissions from electricity consumption (energy sources), vehicle trips (mobile sources), area sources, landscape equipment and evaporative emissions as the structures are repainted over the life of the project. The majority of operational emissions are associated with vehicle trips to and from the project site. The net change in emissions between what currently operates on the site versus the proposed project would not exceed the SDAPCD thresholds for the criteria pollutants evaluated.

The proposed project would involve the use of diesel-powered construction equipment. Diesel exhaust may be noticeable temporarily at adjacent properties; however, construction activities would be temporary. The project would provide senior care services and does not include industrial or agricultural uses that are typically associated with objectionable odors. The project would include filtered HVAC systems throughout the building(s) and ventilation filters/hoods for the kitchen areas to avoid or minimize odors associated with food preparation. Therefore, impacts associated with objectionable odors would be less than significant.

Although CO is not a regional air quality concern in SDAB, elevated CO levels can occur at or near intersections that experience severe traffic congestion. Screening for possible elevated CO levels is recommended for severely congested intersections experiencing levels of service E or F with project traffic where a significant project traffic impact may occur. The Traffic Impact Analysis prepared for the project determined that no significant direct or cumulative project impacts to study area intersections or roadway segments would occur under existing, near-term cumulative or horizon year conditions. Receptors would not be exposed to substantial pollutant concentrations.

As noted, the RAQS relies on information from CARB and SANDAG, including projected growth in the County, mobile, area and all other source emissions to project future emissions and determine from that the strategies necessary for the reduction of stationary source emissions through regulatory controls. Projects that propose development that is consistent with the growth anticipated by the general plan is consistent with the State Implementation Plan, Air Quality Management Plan and Regional Air Quality Strategy. The project was determined to be consistent with the SIP, AQMP and RAQS and significance threshold. Impacts related to this threshold would be less than significant.

Seabreeze Senior Living Project
San Diego, California

AIR QUALITY STUDY

PROJECT DESCRIPTION

The Seabreeze Senior Living project involves demolition of the existing equestrian facility and construction of a 128-unit senior residential care facility. The approximately 9.0-acre project site is located at 5720 Old Carmel Valley Road generally west of Sandown Way and north of Rider Place. Single-family and multi-family residential development is located to the east and south of the project site. An equestrian trail parallels the property off-site to the west. Cathedral Catholic High School is located to the north. The project site is currently fully developed with an equestrian facility, which includes barns, garages, arenas, 80 barn stalls for boarding, pastures, a hotwalker, and associated riding paths, outbuildings, and facilities (see Figure 1).

The proposed project involves demolition of the existing equestrian facility and construction of a 128-unit senior residential care facility. A two-story main building would be located in the northern portion of the project site and would be approximately 110,263 square feet in size, providing 104 assisted living units and 14 assisted living memory care units. Five single-story duplex casitas would be located in the southern portion of the project site, totaling approximately 11,607 square feet. Each duplex would include two two-bedroom units. Residential amenities would include a dining area, a large central open courtyard with additional outdoor courtyards on the perimeter of the building, scenic overlooks, internal walking trails, and connections to the off-site regional trail. Access to the project site would remain via an improved full-width paved private drive off Old Carmel Valley Road, as it exists today, with the addition of sidewalk from Old Carmel Valley Road to the buildings.
(see Figure 2).

The Project proposes to provide a private shuttle service for residents. It is anticipated that a 14passenger van would serve the Project and would operate primarily during daytime hours (generally between 9:00 AM and 5:00 PM) with service provided outside that period for special events, as needed. The shuttle service would include regularly scheduled outings to local/regional events and activities such as concerts, sporting events, shopping, festivals, and church services. Shuttle arrangements can also be made for grocery shopping, doctor's visits, or other individual errands and activities.

It is anticipated that the proposed project would begin construction in mid- to late 2019 and be completed by late 2020.

REGULATORY SETTING

Air pollutants are regulated at the national, State, and air basin level; each agency has a different degree of control. The United States Environmental Protection Agency (USEPA) regulates at the national level; the California Air Resources Control Board (CARB) regulates at the State level; and the San Diego Air Pollution Control District (SDAPCD) regulates air quality in San Diego County.

The federal and state governments have been empowered by the federal and state Clean Air Acts to regulate the emission of airborne pollutants and have established ambient air quality standards for the protection of public health. The USEPA is the federal agency designated to administer national air quality regulations, while CARB is the state equivalent in the California Environmental Protection Agency. Local control over air quality management is provided by CARB through multi-county and county-level Air Pollution Control Districts (APCDs) (also referred to as Air Quality Management Districts). CARB establishes statewide air quality standards and is responsible for the control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. CARB has established 15 air basins statewide. The City of San Diego is located in the San Diego Air Basin (SDAB), which is under the jurisdiction of the SDAPCD.

California Air Resources Board

CARB, which became part of the California EPA (CalEPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act (CCAA), meeting state requirements of the federal Clean Air Act and establishing California Ambient Air Quality Standards (CAAQSs). It is also responsible for setting emission standards for vehicles sold in California and for other emission sources such as consumer products and certain off-road equipment. CARB also established passenger vehicle fuel specifications and oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level. The CCAA is administered by CARB at the state level and by the Air Quality Management Districts at the regional level. Both state and federal standards are summarized in Table 1. The federal "primary" standards have been established to protect the public health. The federal "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the general welfare.

San Diego Air Pollution Control District

The SDAPCD was created to protect the public from the harmful effects of air pollution, achieve and maintain air quality standards, foster community involvement and develop and implement cost-effective programs that meet state and federal mandates while considering environmental and economic impacts.

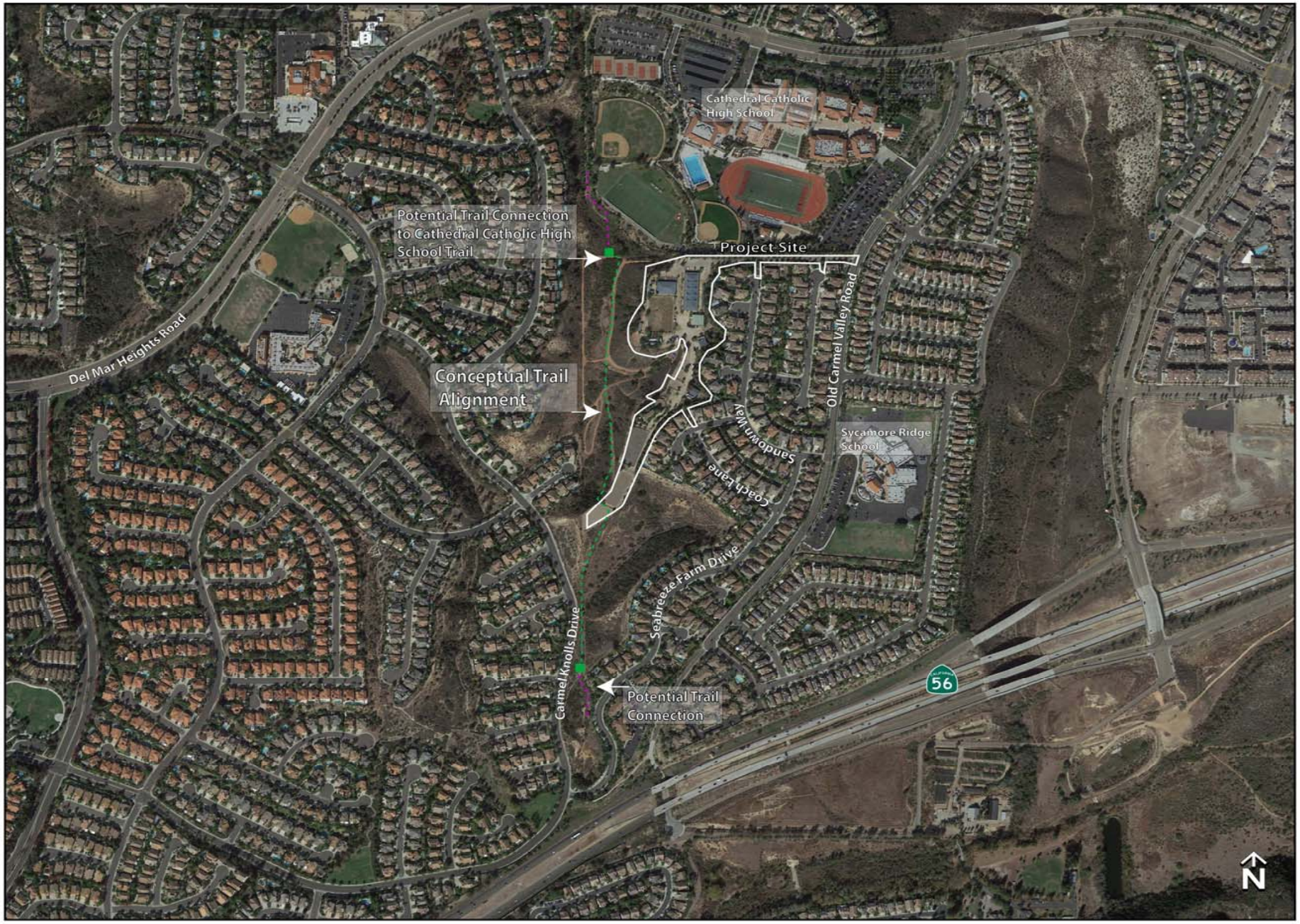
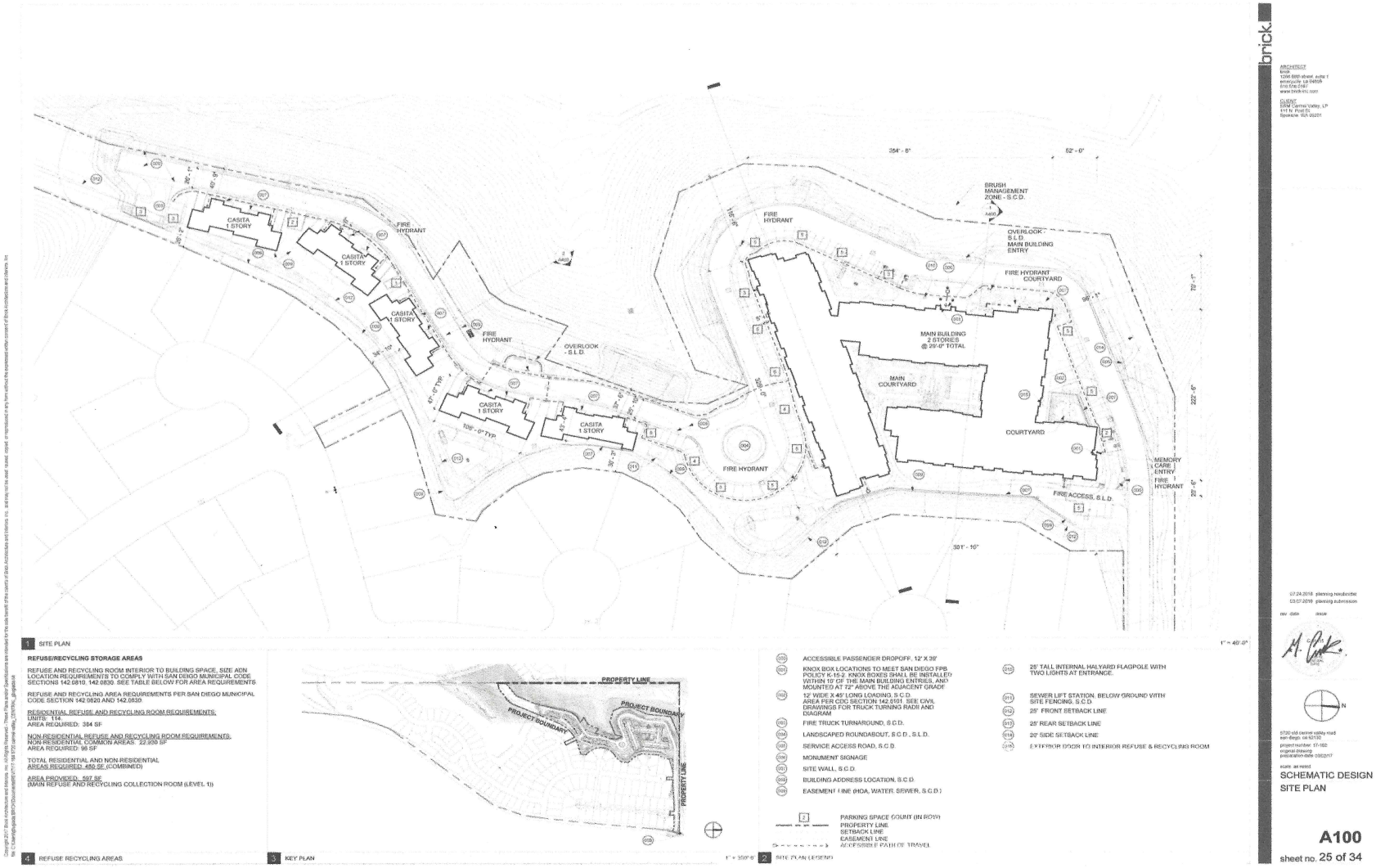


Figure 1—Vicinity Map



1 SITE PLAN

REFUSE/RECYCLING STORAGE AREAS

REFUSE AND RECYCLING ROOM INTERIOR TO BUILDING SPACE, SIZE ADN LOCATION REQUIREMENTS TO COMPLY WITH SAN DIEGO MUNICIPAL CODE SECTIONS 142.0810, 142.0830. SEE TABLE BELOW FOR AREA REQUIREMENTS

REFUSE AND RECYCLING AREA REQUIREMENTS PER SAN DIEGO MUNICIPAL CODE SECTION 142.0820 AND 142.0830

RESIDENTIAL REFUSE AND RECYCLING ROOM REQUIREMENTS:
UNITS: 114
AREA REQUIRED: 384 SF

NON-RESIDENTIAL REFUSE AND RECYCLING ROOM REQUIREMENTS:
NON-RESIDENTIAL COMMON AREAS: 22,939 SF
AREA REQUIRED: 96 SF

TOTAL RESIDENTIAL AND NON-RESIDENTIAL
AREAS REQUIRED: 480 SF (COMBINED)

AREA PROVIDED: 597 SF
(MAIN REFUSE AND RECYCLING COLLECTION ROOM (LEVEL 1))

4 REFUSE RECYCLING AREAS

3 KEY PLAN

2 SITE PLAN LEGEND

- (101) ACCESSIBLE PASSENGER DROPOFF, 12' X 39'
- (102) KNOX BOX LOCATIONS TO MEET SAN DIEGO FPB POLICY K-15-2. KNOX BOXES SHALL BE INSTALLED WITHIN 10' OF THE MAIN BUILDING ENTRIES, AND MOUNTED AT 72" ABOVE THE ADJACENT GRADE
- (103) 12' WIDE X 45' LONG LOADING, S.C.D. AREA PER CDG SECTION 142.0101. SEE CIVIL DRAWINGS FOR TRUCK TURNING RADII AND DIAGRAM
- (104) FIRE TRUCK TURNAROUND, S.C.D.
- (105) LANDSCAPED ROUNDABOUT, S.C.D., S.L.D.
- (106) SERVICE ACCESS ROAD, S.C.D.
- (107) MONUMENT SIGNAGE
- (108) SITE WALL, S.C.D.
- (109) BUILDING ADDRESS LOCATION, S.C.D.
- (110) EASEMENT LINE (HOA, WATER, SEWER, S.C.D.)
- (111) 25' TALL INTERNAL HALYARD FLAGPOLE WITH TWO LIGHTS AT ENTRANCE.
- (112) SEWER LIFT STATION, BELOW GROUND WITH SITE FENCING, S.C.D.
- (113) 25' FRONT SETBACK LINE
- (114) 25' REAR SETBACK LINE
- (115) 20' SIDE SETBACK LINE
- (116) EXTERIOR DOOR TO INTERIOR REFUSE & RECYCLING ROOM

2 PARKING SPACE COUNT (IN ROW)
PROPERTY LINE
SETBACK LINE
EASEMENT LINE
ACCESSIBLE PATH OF TRAVEL

brick.

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07.24.2018 planning resubmittal
12.07.2018 planning submission
rev date issue

5720 old carmel valley road
san diego, ca 92130
project number 17-162
original drawing
publication date 03/02/17

scale as noted

SCHEMATIC DESIGN
SITE PLAN

A100
sheet no. 25 of 34

Figure 2—Site Plan

Specifically, the SDAPCD is responsible for monitoring air quality and planning, implementing, and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district. Programs developed include air quality rules and regulations that regulate stationary source emissions, including area sources, point sources, and certain mobile source emissions. The SDAPCD is also responsible for establishing permitting requirements for stationary sources and ensuring that new, modified or relocated stationary sources do not create net emissions increases; and thus, are consistent with the region's air quality goals. The

Table 1
Current Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standards	California Standard
Ozone	1-Hour	---	0.09 ppm
	8-Hour	0.070 µg/m^3	0.070 µg/m^3
PM_{10}	24-Hour	150 µg/m^3	50 µg/m^3
	Annual	---	20 µg/m^3
$PM_{2.5}$	24-Hour	35 µg/m^3	---
	Annual	12 µg/m^3	12 µg/m^3
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.053 ppm	0.030 ppm
	1-Hour	0.100 ppm	0.18 ppm
Sulfur Dioxide	24-Hour	---	0.04 ppm
	3-Hour	0.5 ppm (secondary)	---
	1-Hour	0.075 ppm (primary)	0.25 ppm
Lead	30-Day Average	---	1.5 µg/m^3
	3-Month Average	0.15 µg/m^3	---

ppm = parts per million
µg/m^3 = micrograms per cubic meter
Source: California Air Resources Board, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf May 4, 2016.

SDAPCD provides significance thresholds in Regulation II, Rule 20.2, Table 20-2-1. "AQIA Trigger Levels." These trigger levels were established for stationary sources of air pollution and are commonly used for environmental evaluations. The SDAPCD enforces air quality rules and regulations through a variety of means, including inspections, educational or training programs, or fines, when necessary.

State Implementation Plan/Air Quality Management Plan/Regional Air Quality Strategy

The federal Clean Air Act Amendments (CAAA) mandate that states submit and implement a State Implementation Plan (SIP) for areas not meeting air quality standards. SIPs are comprehensive plans that describe how an area will attain national and state ambient air quality standards. SIPs are a compilation of new and previously submitted plans, programs (i.e., monitoring, modeling and permitting programs), district rules, state regulations and federal controls and include pollution control measures that demonstrate how the standards will be met through those measures.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB forwards SIP revisions to the USEPA for approval and publication in the Federal Register. Thus, the Regional Air Quality Strategy (RAQS) and Air Quality Management Plan (AQMP) prepared by SDAPCD and referenced herein become part of the SIP as the material relates to efforts ongoing in San Diego to achieve the national and state ambient air quality standards. The most recent SIP element for San Diego County was submitted in December 2016. The document identifies control measures and associated emission reductions necessary to demonstrate attainment of the 2008 Federal 8-hour ozone standard by July 20, 2018.

The San Diego RAQS was developed pursuant to California Clean Air Act (CCAA) requirements. The RAQS was initially adopted in 1991 and was updated in 1995, 1998, 2001, 2004, 2009 and 2016. The RAQS can be found at the following: http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/2016%20RAQS.pdf. The RAQS identifies feasible emission control measures to provide progress in San Diego County toward attaining the State ozone standard. The pollutants addressed in the RAQS are volatile organic compounds (VOC) and oxides of nitrogen (NOx), precursors to the photochemical formation of ozone (the primary component of smog). The RAQS was initially adopted by the San Diego County Air Pollution Control Board on June 30, 1992, and amended on March 2, 1993, in response to ARB comments. At present, no attainment plan for particulate matter less than 10 microns in diameter (PM_{10}) or particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) is required by the state regulations; however, SDAPCD has adopted measures to reduce particulate matter in San Diego County. These measures range from regulation against open burning to incentive programs that introduce cleaner technology. These measures can be found in a report titled "*Measures to Reduce Particulate Matter in San Diego County*" December 2005 and can be found at: http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/PM-Measures.pdf.

The RAQS relies on information from CARB and San Diego Association of Governments (SANDAG), including mobile and area source emissions, as well as information regarding projected growth in the County, to estimate future emissions and then determine strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle

trends as well as land use plans developed by the cities and the County as part of the development of the individual General Plans. As such, projects that propose development consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project would propose development which is less dense than anticipated within the General Plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the General Plan and SANDAG's growth projections, the project might conflict with the RAQS and SIP; and thus, have a potentially significant impact on air quality.

Under state law, the SDAPCD is required to prepare an AQMP for pollutants for which the SDAB is designated non-attainment. Each iteration of the SDAPCD's AQMP is an update of the previous plan and has a 20-year horizon. Currently the SDAPCD has implemented a 2012 8-hour National Ozone Implementation/Maintenance Plan, a 2007 8-hour Ozone Plan, and a 2004 Carbon Monoxide Plan. The SDAPCD adopted the 2008 8-hour Ozone Attainment Plan for San Diego County on December 16, 2016. CARB adopted the ozone plan as a revision to the California SIP on March 23, 2017. The ozone plan was submitted to the USEPA for review on April 12, 2017. Comments from the USEPA are pending. These plans are available for download on the ARB website located at the following URL: http://www.arb.ca.gov/planning/sip/planarea/sansip.htm.

ENVIRONMENTAL SETTING

REGIONAL CLIMATE

The weather of San Diego County is profoundly influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average minimum temperature for January ranges from the mid-40s to the high-50s degrees Fahrenheit (4 to 15 degrees Celsius) across the county. July maximum temperatures average in the mid-80s to the high-90s degrees Fahrenheit (high-20s to the high-30s degrees Celsius). Most of the county's precipitation falls from November to April, with infrequent (approximately 10 percent) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches (254 millimeters); the amount increases with elevations as moist air is lifted over the mountains.

The interaction of ocean, land, and the Pacific High-Pressure Zone maintains clear skies for much of the year and drives the prevailing winds. Local terrain is often the dominant factor inland and winds in inland mountainous areas tend to blow upwards in the valleys during the day and down the hills and valleys at night.

In conjunction with the onshore/offshore wind patterns, there are two types of temperature inversions (reversals of the normal decrease of temperature with height), which occur within the region that affect atmospheric dispersive capability and that act to degrade local air quality. In the summer, an inversion at about 1,100 to 2,500 feet (335 to 765 meters) is formed over the

entire coastal plain when the warm air mass over land is undercut by a shallow layer of cool marine air flowing onshore. The prevailing sunny days in this region further exacerbate the smog problem by inducing additional adverse photochemical reactions. During the winter, a nightly shallow inversion layer (usually at about 800 feet or 243 meters) forms between the cooled air at the ground and the warmer air above, which can trap vehicular pollutants. The days of highest Carbon Monoxide (CO) concentrations occur during the winter months.

The predominant onshore/offshore wind pattern is sometimes interrupted by so-called Santa Ana conditions, when high pressure over the Nevada-Utah region overcomes the prevailing westerly wind direction. This draws strong, steady, hot, and dry winds from the east over the mountains and out to sea. Strong Santa Ana winds tend to blow pollutants out over the ocean, producing clear days. However, at the onset or breakdown of these conditions or if the Santa Ana is weak, prevailing northwesterly winds are reestablished which send polluted air from the Los Angeles basin ashore in the SDAB. "Smog transport from the South Coast Air Basin (the metropolitan areas of Los Angeles, Orange, San Bernardino, and Riverside counties) is a key factor on more than half the days San Diego exceeds clean air standards" (San Diego Air Pollution Control District, 2010).

Pollutants

The SDAPCD is required to monitor air pollutant levels to ensure that air quality standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the local air basin is classified as being in "attainment" or "non-attainment." San Diego County is listed as a federal non-attainment area for ozone (eight hour) and a state non-attainment area for ozone (one hour and eight-hour standards), PM_{10} and $PM_{2.5}$. As shown in Table 2, the SDAB is in attainment for the state and federal standards for nitrogen dioxide, carbon monoxide, sulfur dioxide and lead. Characteristics of ozone, carbon monoxide, nitrogen dioxide, and suspended particulates are described below.

Ozone. Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_X) and reactive organic gases (ROG)[1]. Nitrogen oxides are formed during the combustion of fuels, while reactive organic compounds are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it mostly occurs in concentrations considered serious between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

[1] *Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, from an air quality perspective*

Carbon Monoxide. Carbon monoxide (CO) is a local pollutant that is found in high concentrations only near the source. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is automobile exhaust. Elevated CO concentrations; therefore, are usually only found near areas of high traffic volumes operating in congested conditions. Carbon monoxide health effects are related to blood hemoglobin. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.

Table 2
San Diego County Attainment Status

Criteria Pollutant	Federal Designation	State Designation
Ozone (one hour)	Attainment*	Non-Attainment
Ozone (eight hour)	Non-Attainment	Non-Attainment
Carbon Monoxide	Attainment	Attainment
PM_{10}	Unclassifiable**	Non-Attainment
$PM_{2.5}$	Attainment	Non-Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility	No Federal Standard	Unclassified

** The federal 1-hour standard of 12 ppm was in effect from 1979 through June 1, 2005. The revoked standard is referenced here because it was used for such a long period and because this benchmark is addressed in State Implementation Plans (SIPs).*

*** At the time of designation, if the available data does not support a designation of attainment or non-attainment, the area is designated as unclassifiable.*

Source: San Diego Air Pollution Control District. June 2016. http://www.sandiegocounty.gov/content/sdc/apcd/en/air-quality-planning/attainment-status.html

Nitrogen Dioxide. Nitrogen dioxide (NO_2) is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. Nitrogen dioxide is an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. Nitrogen dioxide absorbs blue light and causes a reddish-brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM_{10} and acid rain.

Suspended Particulates. PM_{10} is particulate matter measuring no more than 10 microns in diameter, while $PM_{2.5}$ is fine particulate matter measuring no more than 2.5 microns in diameter. Suspended particulates are mostly dust particles, nitrates and sulfates. Both PM_{10} and

two groups are important: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC).

$PM_{2.5}$ are by-products of fuel combustion and wind erosion of soil and unpaved roads and are directly emitted into the atmosphere through these processes. Suspended particulates are also created in the atmosphere through chemical reactions. The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and fine particulates ($PM_{2.5}$) can be very different. The small particulates generally come from windblown dust and dust kicked up from mobile sources. The fine particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. Fine particulate matter is more likely to penetrate deeply into the lungs and poses a health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

SENSITIVE RECEPTORS

Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to air pollutants. Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress, such as children; the elderly; persons engaged in strenuous work or exercise and people with cardiovascular and chronic respiratory diseases. The nearest receptors are single-family residential receptors located adjacent and east of the project site. Single-family residential receptors are also located further to the west along Seagrove Street beyond an open space area and trail. Cathedral Catholic High School to the north is also a receptor. There are multiple child care/day care facilities located in proximity to the project site. The nearest one is the Lee, Quan and Marcy Family Child Care facility located at 12774 Seabreeze Farms Drive, 0.8 miles southwest of the site. Areas containing sensitive receptors are shown in Figure 3.

Monitored Air Quality

The SDAPCD monitors air quality conditions at locations throughout the SDAB. For this analysis, data from the San Diego Kearny Villa Road monitoring station southeast of the site were used to characterize existing ozone and $PM_{2.5}$ conditions in the vicinity of the project site. A summary of the data recorded at the Kearny Villa Road monitoring station from 2014 through 2016 is presented in Table 3.

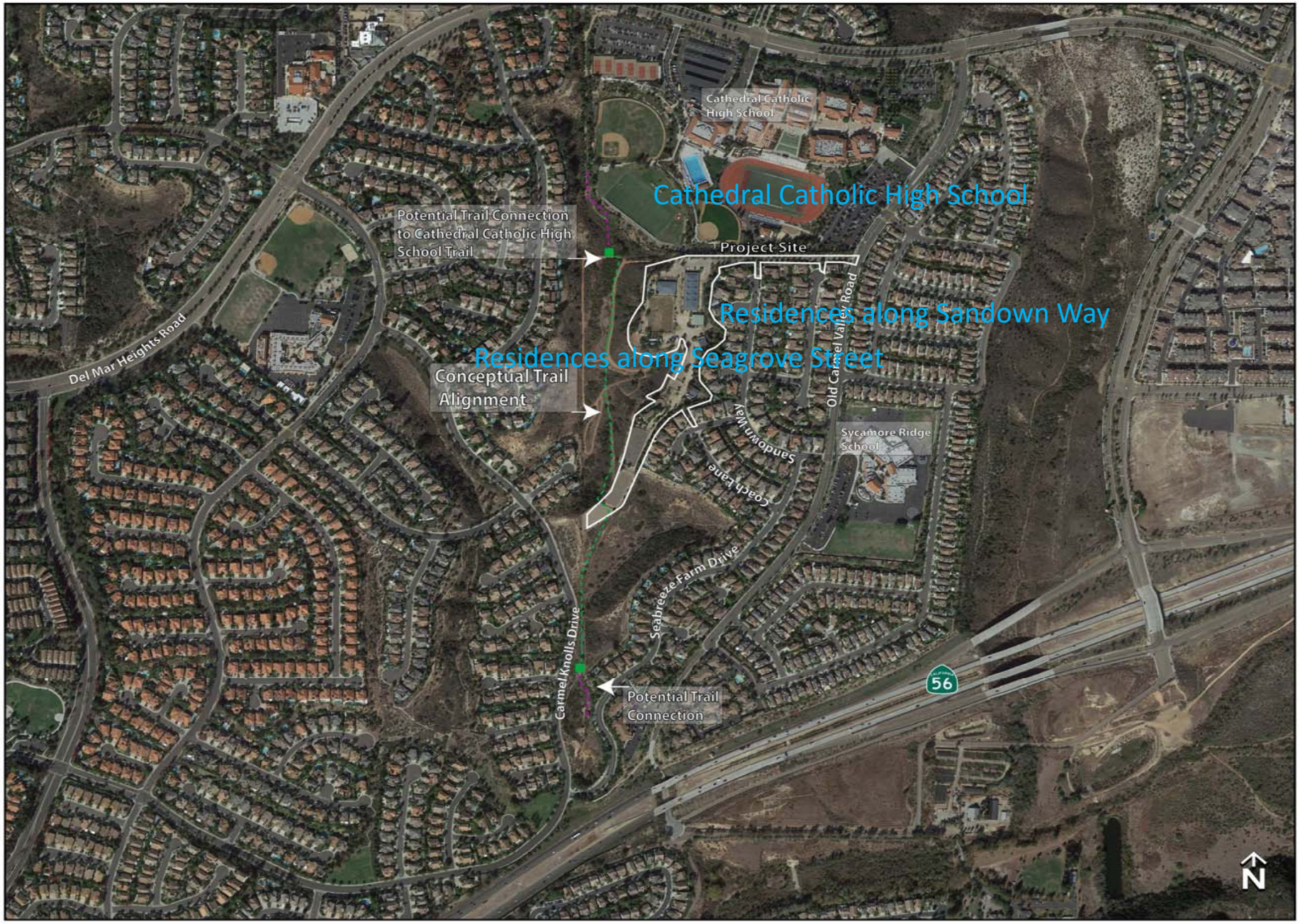

Figure 3—Sensitive Receptors

AIR QUALITY IMPACT ANALYSIS

METHODOLOGY AND SIGNIFICANCE THRESHOLDS

Air quality modeling was performed in general accordance with the methodologies outlined in the SDAPCD 2009 RAQS to identify both construction and operational emissions associated with the proposed project. All emissions were calculated using the California Emissions Estimator Model (CalEEMod) software version 2016.3.2 which incorporates current air emission data, planning methods and protocol approved by CARB.

As referenced, construction activities would include demolition of existing building foundation remnants, clearing and vegetation removal, grading, construction of the buildings/utilities and related improvements as well as paving driveways and parking areas. Construction activities would require the use of equipment that would generate criteria air pollutant emissions. For modeling purposes, it was assumed that all construction equipment used would be diesel-

Table 3
Ambient Air Quality Data

Pollutant	2014	2015	2016
Ozone, ppm - Worst 8-Hour Average	0.082	0.070	0.075
Number of days of State 1-hour exceedances (>0.070 ppm)	4	0	3
Number of days of Federal exceedances (>0.070 ppm)[1]	4	0	3
Particulate Matter <10 microns, μg/m^3 Worst 24 Hours*	39	39	36
Number of samples of State exceedances (>50 μg/m^3)	0	0	*
Number of samples of Federal exceedances (>150 μg/m^3)	0	0	0
Particulate Matter <2.5 microns, μg/m^3 Worst 24 Hours	20.2	25.7	19.4
Number of samples of State exceedances (>50 μg/m^3)	0	0	0
Number of samples of Federal exceedances (>150 μg/m^3)	0	0	0

[1] – Federal O3 standard reduced from 75 ppm to 70 ppm in October 2015
*Insufficient data to determine number of exceedances
Data from the San Diego Kearny Villa Road, 6125 A Kearny Villa Road Station in San Diego.
Source: California Air Resources Board, 2014, 2015, 2016 Air Quality Data Summaries available at: http://www.arb.ca.gov/adam/topfour/topfourdisplay.php Accessed February 8, 2018.

powered. Construction emissions associated with development of the proposed project were quantified by estimating the types of equipment, including the number of individual pieces of equipment, that would be used on-site during each of the construction phases as well as off-site haul trips to remove demolition debris. Construction emissions are analyzed using the regional thresholds established by the SDAPCD and published under Rule 20-2.

Operational emissions include mobile source emissions, energy emissions and area source emissions. Mobile source emissions are generated by motor vehicle trips associated with operation of the project. Emissions attributable to energy use include electricity and natural gas consumption for space and water heating. Area source emissions are generated by landscape maintenance equipment, use of consumer products and painting. To determine whether a regional air quality impact would occur, the increase in emissions would be compared with the SDAPCD recommended regional thresholds for operational emissions.

Thresholds of Significance. Based on City of San Diego Significance Determination Thresholds Guidelines, a project would have a significant air quality impact if it would:

a) *Conflict with or obstruct implementation of the applicable air quality plan;*
b) *Violate any air quality standard or contribute substantially to an existing or projected air quality violation;*
c) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);*
d) *Expose sensitive receptors to substantial pollutant concentrations;*
e) *Create objectionable odors affecting a substantial number of people. or*
f) *Release substantial quantities of air contaminants beyond the boundaries of the premises upon which the stationary source emitting the contaminants is located.*

A significant adverse air quality impact may occur when a project individually or cumulatively interferes with progress toward the attainment of the ozone standard by generating emissions that equal or exceed the established long term quantitative thresholds for pollutants or exceed a state or federal ambient air quality standard for any criteria pollutant.

As referenced, the SDAPCD has established thresholds in Rule 20.2 for new or modified stationary sources (SDAPCD, 2015). With the exception of Volatile Organic Compounds (VOCs) and $PM_{2.5}$ thresholds, the City of San Diego screening quantities shown in the *California Environmental Quality Act Significance Determination Thresholds,* Table A-2, (City of San Diego, 2016) incorporate screening level thresholds from Rule 20.2 for use in air quality reports and for determining CEQA air quality impacts. The City does not show a standard for $PM_{2.5}$ but does include a threshold for Reactive Organic Gas/Volatile Organic Compounds (ROG/VOC) emissions. Collectively, the standards shown in Table A-2 of the City's 2016 CEQA Determination Thresholds and the $PM_{2.5}$ threshold shown in Table 20.2-1 of SDAPCD Rule 20.2, are used herein to determine whether project emissions would cause a significant air quality impact. The standards shown in Table A-2 are used rather than the Ambient Air Quality Standards shown in Table A-3 of the *California Environmental Quality Act Significance Determination Thresholds* because the analysis does not indicate a significant or adverse project-related or cumulative impact to air quality associated with construction or operation of the

project. The standards provided in Table A-2 of the City of San Diego *California Environmental Quality Act Significance Determination Thresholds* are shown in Table 4.

Table 4
San Diego Air Pollution Control District Pollutant Thresholds for Stationary Sources

Pollutant	Emission Rate		
	lbs/hour	lbs/day	tons/year
Carbon Monoxide (CO)	100	550	100
Nitrogen Oxides (NOx)	25	250	40
Particulate Matter (PM_{10})	--	100	15
Sulfur Oxides (SOx)	25	250	40
Lead/Lead Compounds	--	3.2	0.6
Particulate Matter ($PM_{2.5}$)	--	--	--
Volatile Organic Compounds (VOCs)	--	137[(a)]	15

Source: SDAPCD Rule 1501, 20.2(d)(2)

a. San Diego Air Basin has been in attainment of SOx standard due to sulfur-free natural gas for electricity generation and lack of heavy industrial/manufacturing uses in the region.

Note- Lead emissions have steadily declined due to catalytic converters and increased use of lead-free gasoline. San Diego is no longer required to monitor for lead.

CONSTRUCTION EMISSIONS

Project construction would generate temporary air pollutant emissions. These impacts are associated with fugitive dust (PM_{10} and $PM_{2.5}$) from soil disturbance and exhaust emissions (NO_x and CO) from heavy construction vehicles. For the purpose of estimating emissions, it was assumed that approximately 2 acres would be disturbed daily during overall construction. This may vary from day to day depending on construction requirements; however, a 2-acre area reasonably approximates the area where site preparation and grading emissions would be concentrated. The number of haul trips to remove demolition debris were estimated based on tonnage. As noted, construction would generally consist of construction/demolition waste, vegetation removal, site preparation, construction of buildings, paving and the application of architectural coating (painting).

Site preparation and grading would involve the greatest concentration of heavy equipment use and the highest potential for fugitive dust emissions. The project would be required to comply with SDAPCD Rules 52 and 54 which identify measures to reduce fugitive dust and is required to be implemented at all construction sites located within the SDAB. Therefore, the following conditions, which are required to reduce fugitive dust in compliance with SDAPCD Rules 52 and 54, were included in CalEEMod for site preparation and grading phases of construction.

1. **Minimization of Disturbance.** Construction contractors should minimize the area disturbed by clearing, grading, earth moving, or excavation operations to prevent excessive amounts of dust.

2. **Soil Treatment.** Construction contractors should treat all graded and excavated material, exposed soil areas and active portions of the construction site, including unpaved on-site roadways to minimize fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll compaction as appropriate. Watering shall be done as often as necessary, and at least twice daily, preferably in the late morning and after work is done for the day. Note – it was assumed watering would occur three times daily for modeling purposes.

3. **Soil Stabilization.** Construction contractors should monitor all graded and/or excavated inactive areas of the construction site at least weekly for dust stabilization. Soil stabilization methods, such as water and roll compaction, and environmentally safe dust control materials shall be applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area shall be seeded and watered until landscape growth is evident, or periodically treated with environmentally safe dust suppressants, to prevent excessive fugitive dust.

4. **No Grading During High Winds.** Construction contractors should stop all clearing, grading, earth moving, and excavation operations during periods of high winds (20 miles per hour or greater, as measured continuously over a one-hour period).

5. **Street Sweeping.** Construction contractors should sweep all on-site driveways and adjacent streets and roads at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.

Construction is assumed to begin in mid-2019 and be completed by December 2020. In addition to SDAPCD Rules 52 and 54 requirements, emissions modeling also accounts for the use of low-VOC paint (150 g/L for non-flat coatings) as required by SDAPCD Rule 67. Table 4 summarizes the estimated maximum daily emissions of pollutants occurring during the construction period.

As shown in Table 5, construction of the proposed project would not exceed the SDAPCD regional construction emission thresholds for daily emissions. Thus, the project construction would not conflict with the SIP, RAQS or AQMP, violate an air quality standard or contribute to an existing or projected violation, result in a cumulatively considerable increase in ozone or particulate matter emissions or expose receptors to substantial pollutant concentrations (**thresholds a-d**).

Table 5
Estimated Maximum Construction Emissions

Construction Phase		Maximum Emissions (lbs/day)				
	ROG	NO_x	CO	SOx	PM_{10}	$PM_{2.5}$
2019 Maximum lbs/day	*4.4*	45.6	22.6	0.04	10.6	6.7
2020 Maximum lbs/day	*76.5*	*20.9*	*19.8*	*0.03*	*1.9*	1.2
City of San Diego Screening Thresholds	*137*	*100*	*550*	*250*	*100*	67
2019 Maximum lbs/hour	**--**	**5.7**	**2.8**	**.005**	**--**	**--**
2020 Maxumum lbs/hour	**--**	**2.6**	**2.5**	**.0038**	**--**	**--**
City of San Diego Screening Thresholds	--	25	100	25	--	--
2019 Maximum tons/year	**0.57**	**5.9**	**2.9**	**.005**	**1.38**	**0.87**
2020 Maximum tons/year	**9.9**	**2.7**	**2.6**	**.004**	**1.9**	**0.15**
City of San Diego Screening Thresholds	15	40	100	40	15	--
Threshold Exceeded 2019	**No**	**No**	**No**	**No**	**No**	**No**
Threshold Exceeded 2020	**No**	**No**	**No**	**No**	**No**	**No**

See Appendix for CalEEMod ver. 2016.3.2 computer model output for the demolition of existing development. Summer emissions shown.
Note – Hourly emissions were calculated by dividing daily emissions by 8 (assuming an 8-hour work day). Annual emissions were calculated by multiplying daily emissions by 261 (assuming 261 total work days annually).

LONG-TERM REGIONAL (OPERATIONAL) IMPACTS

Regional Pollutant Emissions

Table 6 summarizes emissions associated with operation of the proposed project. Operational emissions include emissions from electricity consumption (energy sources), vehicle trips (mobile sources), area sources, landscape equipment and evaporative emissions as the structures are repainted over the life of the project. The majority of operational emissions are associated with vehicle trips to and from the project site. For reference, only daily emissions are reported below. Hourly and annual emissions are shown in Table 6.

Vehicular Traffic. As shown in Table 6, daily emissions associated with vehicular traffic would be 13.72 pounds.

Energy. As shown in Table 6, daily emissions associated with vehicular traffic and operation of the building and related infrastructure would be 0.47 pounds.

Area. As shown in Table 6, daily emissions associated with vehicular traffic and operation of the building and related infrastructure would be 14.02 pounds

The net change in emissions would not exceed the SDAPCD thresholds for ROG, NO_X, CO, SO_X, PM_{10} or $PM_{2.5}$. Therefore, the project's regional air quality impacts (**including impacts related to criteria pollutants, sensitive receptors and violations of air quality standards per threshold c-d**) would be less than significant.

Table 6
Estimated Operational Emissions

	Estimated Emissions (lbs/day)					
	ROG	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project						
Area	3.3	0.12	10.5	0.0	0.05	0.05
Energy	0.03	0.28	0.12	0.0	0.02	0.02
Mobile	0.6	2.7	7.8	0.02	2.1	0.5
Maximum lbs/day	**4.2**	**2.94**	**18.04**	**0.02**	**2.2**	**0.66**
SDAPCD Thresholds	*137*	*100*	*550*	*250*	*100*	67
Maximum lbs/hour	**--**	**0.36**	**2.2**	**.0025**	**--**	**--**
SDAPCD Thresholds	--	25	100	25	--	--
Maximum tons/annually	**0.7**	**0.5**	**3.2**	**0.004**	**0.4**	**0.12**
SDAPCD Thresholds	15	40	100	40	15	--
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

See Appendix for CalEEMod ver. 2016.3.2 computer model output for the proposed development. Summer emissions shown.

Note – Hourly emissions were calculated by dividing daily emissions by 8. Annual emissions were calculated by multiplying daily emissions by 365.

Existing Emissions

Table 7 shows operation emissions associated with operation of the existing project to provide a comparative analysis of existing and project-related emissions.

Vehicular Traffic. As shown in Table 7, daily emissions associated with vehicular traffic are 11.61 pounds.

Energy. As shown in Table 7, daily emissions associated with vehicular traffic and operation of the building and related infrastructure are 0.22 pounds.

Area. As shown in Table 7, daily emissions associated with vehicular traffic and operation of the building and related infrastructure are 0.93 pounds.

Table 7
Estimated Operational Emissions – Existing Conditions

	Estimated Emissions (lbs/day)					
	ROG	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project						
Area	0.8	0.01	0.01	0.0	0.01	0.01
Energy	0.01	0.1	0.08	0.01	0.01	0.01
Mobile	0.6	2.4	6.8	0.01	1.4	0.3
Maximum lbs/day	**1.5**	**2.5**	**6.8**	**0.02**	**1.4**	**0.4**
SDAPCD Thresholds	*137*	*100*	*550*	*250*	*100*	67
Maximum lbs/hour	**--**	**0.31**	**0.9**	**.0025**	**--**	**--**
SDAPCD Thresholds	--	25	100	25	--	--
Maximum tons/annually	**0.2**	**0.45**	**1.2**	**0.0037**	**0.26**	**0.073**
SDAPCD Thresholds	15	40	100	40	15	--
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

See Appendix for CalEEMod ver. 2016.3.2 computer model output for the existing development. Summer emissions shown.

Note – Hourly emissions were calculated by dividing daily emissions by 8. Annual emissions were calculated by multiplying daily emissions by 365.

As shown in Table 7, the combined emissions associated with vehicular traffic, energy and area sources are less than the proposed project and do not exceed the SDAPCD thresholds for ROG, NO_X, CO, SO_X, PM_{10} or $PM_{2.5}$ under existing conditions.

Objectionable Odors

The proposed project would involve the use of diesel-powered construction equipment. Diesel exhaust may be noticeable temporarily at adjacent properties; however, construction activities would be temporary. The project would provide senior care services and does not include industrial or agricultural uses that are typically associated with objectionable odors. The project would include filtered HVAC systems throughout the building(s) and ventilation filters/hoods for the kitchen areas to avoid or minimize odors associated with food preparation. Therefore, impacts associated with objectionable odors (**significance threshold e**) would be less than significant.

Local Carbon Monoxide Emissions

As previously discussed, carbon monoxide is a colorless, odorless, poisonous gas that may be found in high concentrations near areas of high traffic volumes. CO emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. The SDAB is in attainment of state and federal CO standards; thus, CO data is no longer collected and not all monitoring stations have CO data available. The 1110 Beardsley Street monitoring station in the Barrio Logan community is the closest monitoring station to the site that provides CO data. The maximum 8-hour average CO level recorded in 2012 (the last year data were recorded) was 1.81 parts per million (ppm). Concentrations are below the 9-ppm state and federal 8-hour standard.

Although CO is not a regional air quality concern in SDAB, elevated CO levels can occur at or near intersections that experience severe traffic congestion. A localized air quality impact is considered significant if the additional CO emissions resulting from the project create a "hot spot" where the California 1-hour standard of 20.0 ppm or the 8-hour standard of 9 ppm is exceeded. This can occur at severely congested intersections during cold winter temperatures. Screening for possible elevated CO levels is recommended for severely congested intersections experiencing levels of service E or F with project traffic where a significant project traffic impact may occur. The potential for CO hotspots is based on the University of California Davis CO Protocol defined in the Transportation Project-Level Carbon Monoxide Protocol Revised December 1997 UCD-ITS-RR-97. Section 4.7 of the protocol provides specific criteria for performing a screening level CO review for projects within a CO attainment area. Specifically, project-related traffic that would worsen the LOS at intersections operating at LOS E or F, would be subject to a detailed evaluation. If not, no further review is necessary.

The Traffic Impact Analysis prepared for the project (Linscott, Law and Greenspan, Inc., January 2018) stated that per City of San Diego significance thresholds, no significant direct or cumulative project impacts to study area intersections or roadway segments were calculated under existing, near-term cumulative or horizon year conditions. Thus, no mitigation measures are required. Based on these findings, receptors would not be exposed to substantial pollutant concentrations (**threshold d**) related to CO hotspots. No further evaluation with respect to CO hotspots is required.

SIP/AQMP/RAQS Consistency

As noted, the RAQS relies on information from CARB and SANDAG, including projected growth in the County, mobile, area and all other source emissions to project future emissions and determine from that the strategies necessary for the reduction of stationary source emissions through regulatory controls. Projects that propose development that is consistent with the growth anticipated by the General Plan is consistent with the SIP, AQMP and RAQS. The proposed project involves the construction of 128 senior housing units on a 9.0-acre site.

The majority of the site is zoned AR-1-1. The driveway to the development area is in the adjacent CVPD-SF2 zone. A small area in the southern end of the project site is within the

CVPD-Open Space zone. The project will require a Conditional Use Permit to allow the proposed residential care facility and an amendment to the Carmel Valley Community Plan and North City West Carmel Del Mar Neighborhoods 4, 5 & 6 Precise Plan to change the existing land use designation from RA – Recreational Area Equestrian Facility to Senior Living Facility. The project is intended to provide housing for senior residents and is expected to serve existing residents within the San Diego region. However, whether this could create an adverse air quality impact is determined based on vehicle miles traveled (VMT) between the existing use, what is projected with the proposed project and whether this change would increase regional VMT beyond what was used in preparation of the AQMP and RAQS.

The SIP/AQMP/RAQS are based on buildout under the General Plan. Because Community Plans are a part of the General Plan, SIP/AQMP/RAQS consistency was compared to existing VMT, full buildout under the current zoning and Community Plan land use designation and the proposed project. Under existing conditions, annual VMT is approximately 658,227. Under the full build out scenario, the equestrian arena and associated administrative uses would be expanded to accommodate larger scale equestrian events based on limitations of the AR-1-1 zone. The total square footage would be approximately 14,500 square feet greater than what is currently developed on the project site, or 53,704 square feet of equestrian uses resulting in 1,009,006 annual VMT. VMT associated with the proposed project is estimated to be 891,483 annual miles. The represents approximately 11% less than what could occur with buildout under the current zoning. Daily emissions associated with the proposed project are slightly higher than projected under the build out scenario primarily because of higher energy demand associated with lighting, food preparation, water consumption and related activities. However, a portion of these emissions will be offset with project design features including energy efficient lighting, mechanical equipment, low flow plumbing fixtures and water efficient landscaping. Provided these features are incorporated, project emissions would be below the daily thresholds referenced herein.

Operation of the proposed project would house residents within the region and is not expected to increase the local population or otherwise induce growth. As shown in Tables 4 and 5, the project would not exceed daily thresholds established by the SDAPCD and City of San Diego during construction or operation; and thus, would not cause an adverse air quality impact. Furthermore, as shown in Table 6, emissions associated with the existing use do not exceed the SDAPCD and City of San Diego thresholds. Thus, while project-related VMT and related emissions would be higher than the existing use or those that could occur with build out under the current land use designation, emissions would not exceed the thresholds required to cause a significant or adverse impact to air quality under either scenario. Thus, it is concluded that the project would not increase regional VMT to the extent that it could compromise attainment of regional air quality goals and/or be inconsistent with the SIP, AQMP and RAQS (a - air quality plans) referenced above. Impacts related to this threshold would be less than significant.

CONCLUSION

As discussed herein, project related emissions would not exceed the SDAPCD and City of San Diego thresholds during either construction or operation. The proposed project would not conflict with the SIP, AQMP or RAQS nor would it produce objectionable odors during operation. No significant or adverse air quality impacts would occur with construction or operation of the proposed project. The project would be required to comply with SDAPCD Rules 52 and 54 during grading and other ground disturbing activities. These rules provide measures for reducing fugitive dust and is required to be implemented at all construction sites located within the SDAB. This would be considered a standard condition. No mitigation measures related to air quality would be required.

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Appendix A

CalEEMod Air Emission Model Results –
Summer Emissions for Construction and Operation

Equestrian Center

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.50	1000sqft	0.03	1,500.00	0
Arena	30.20	1000sqft	9.71	30,204.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2018
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Square footage shown for 6 existing buildings. Total lot site is 9 acres.

Vehicle Trips - Trip rate modified to refelct 135 trips daily for existing use.

Construction Off-road Equipment Mitigation -

Area Mitigation - Assumes low VOC paint used per SDAPCD requirements

Table Name	Column Name	Default Value	New Value

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					
2018	4.6393	48.2539	23.0925	0.0402	18.2141	2.5780	20.7921	9.9699	2.3717	12.3416	0.0000	4,006.3502	4,006.3502	1.1984	0.0000	4,033.1332
2019	37.0152	21.7344	17.7261	0.0294	0.1406	1.2949	1.4356	0.0381	1.2175	1.2556	0.0000	2,852.7144	2,852.7144	0.7183	0.0000	2,868.8737
Maximum	**37.0152**	**48.2539**	**23.0925**	**0.0402**	**18.2141**	**2.5780**	**20.7921**	**9.9699**	**2.3717**	**12.3416**	**0.0000**	**4,006.3502**	**4,006.3502**	**1.1984**	**0.0000**	**4,033.1332**

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					
2018	4.6393	48.2539	23.0925	0.0402	7.1937	2.5780	9.7717	3.9122	2.3717	6.2839	0.0000	4,006.3502	4,006.3502	1.1984	0.0000	4,033.1332
2019	37.0152	21.7344	17.7261	0.0294	0.1406	1.2949	1.4356	0.0381	1.2175	1.2556	0.0000	2,852.7144	2,852.7144	0.7183	0.0000	2,868.8737
Maximum	**37.0152**	**48.2539**	**23.0925**	**0.0402**	**7.1937**	**2.5780**	**9.7717**	**3.9122**	**2.3717**	**6.2839**	**0.0000**	**4,006.3502**	**4,006.3502**	**1.1984**	**0.0000**	**4,033.1332**

	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**	**60.04**	**0.00**	**49.58**	**60.53**	**0.00**	**44.55**	**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	0.8801	3.0000e-005	3.2800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9400e-003	6.9400e-003	2.0000e-005		7.4100e-003
Energy	0.0112	0.1019	0.0856	6.1000e-004		7.7500e-003	7.7500e-003		7.7500e-003	7.7500e-003		122.3024	122.3024	2.3400e-003	2.2400e-003	123.0292
Mobile	0.6718	2.4735	6.8093	0.0189	1.4164	0.0218	1.4382	0.3787	0.0205	0.3992		1,908.1501	1,908.1501	0.1139		1,910.9980
Total	**1.5631**	**2.5754**	**6.8982**	**0.0195**	**1.4164**	**0.0295**	**1.4459**	**0.3787**	**0.0283**	**0.4069**		**2,030.4594**	**2,030.4594**	**0.1163**	**2.2400e-003**	**2,034.0346**

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	0.8801	3.0000e-005	3.2800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9400e-003	6.9400e-003	2.0000e-005		7.4100e-003
Energy	0.0112	0.1019	0.0856	6.1000e-004		7.7500e-003	7.7500e-003		7.7500e-003	7.7500e-003		122.3024	122.3024	2.3400e-003	2.2400e-003	123.0292
Mobile	0.6718	2.4735	6.8093	0.0189	1.4164	0.0218	1.4382	0.3787	0.0205	0.3992		1,908.1501	1,908.1501	0.1139		1,910.9980
Total	**1.5631**	**2.5754**	**6.8982**	**0.0195**	**1.4164**	**0.0295**	**1.4459**	**0.3787**	**0.0283**	**0.4069**		**2,030.4594**	**2,030.4594**	**0.1163**	**2.2400e-003**	**2,034.0346**

	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	Demolition	Demolition	2/27/2018	3/26/2018	5	20	
2	Site Preparation	Site Preparation	3/27/2018	4/9/2018	5	10	
3	Grading	Grading	4/10/2018	5/7/2018	5	20	
4	Building Construction	Building Construction	5/8/2018	3/25/2019	5	230	
5	Paving	Paving	3/26/2019	4/22/2019	5	20	
6	Architectural Coating	Architectural Coating	4/23/2019	5/20/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 47,556; Non-Residential Outdoor: 15,852; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Equestrian Center - San Diego County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	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
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	13.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2018

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	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**		**1.9386**	**1.9386**		**1.8048**	**1.8048**		**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

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	0.0000	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
Worker	0.0639	0.0460	0.5135	1.3500e-003	0.1232	8.9000e-004	0.1241	0.0327	8.2000e-004	0.0335		134.5837	134.5837	4.6100e-003		134.6988
Total	**0.0639**	**0.0460**	**0.5135**	**1.3500e-003**	**0.1232**	**8.9000e-004**	**0.1241**	**0.0327**	**8.2000e-004**	**0.0335**		**134.5837**	**134.5837**	**4.6100e-003**		**134.6988**

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	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**		**1.9386**	**1.9386**		**1.8048**	**1.8048**	**0.0000**	**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

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	0.0000	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
Worker	0.0639	0.0460	0.5135	1.3500e-003	0.1232	8.9000e-004	0.1241	0.0327	8.2000e-004	0.0335		134.5837	134.5837	4.6100e-003		134.6988
Total	**0.0639**	**0.0460**	**0.5135**	**1.3500e-003**	**0.1232**	**8.9000e-004**	**0.1241**	**0.0327**	**8.2000e-004**	**0.0335**		**134.5837**	**134.5837**	**4.6100e-003**		**134.6988**

3.3 Site Preparation - 2018

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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.0663**	**2.5769**	**20.6432**	**9.9307**	**2.3708**	**12.3014**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

3.3 Site Preparation - 2018

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	0.0000	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
Worker	0.0766	0.0552	0.6162	1.6200e-003	0.1479	1.0600e-003	0.1489	0.0392	9.8000e-004	0.0402		161.5004	161.5004	5.5300e-003		161.6386
Total	**0.0766**	**0.0552**	**0.6162**	**1.6200e-003**	**0.1479**	**1.0600e-003**	**0.1489**	**0.0392**	**9.8000e-004**	**0.0402**		**161.5004**	**161.5004**	**5.5300e-003**		**161.6386**

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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**7.0458**	**2.5769**	**9.6228**	**3.8730**	**2.3708**	**6.2437**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

3.3 Site Preparation - 2018

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	0.0000	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
Worker	0.0766	0.0552	0.6162	1.6200e-003	0.1479	1.0600e-003	0.1489	0.0392	9.8000e-004	0.0402		161.5004	161.5004	5.5300e-003		161.6386
Total	**0.0766**	**0.0552**	**0.6162**	**1.6200e-003**	**0.1479**	**1.0600e-003**	**0.1489**	**0.0392**	**9.8000e-004**	**0.0402**		**161.5004**	**161.5004**	**5.5300e-003**		**161.6386**

3.4 Grading - 2018

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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272		2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**6.5523**	**1.5513**	**8.1037**	**3.3675**	**1.4272**	**4.7947**		**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

3.4 Grading - 2018

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	0.0000	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
Worker	0.0639	0.0460	0.5135	1.3500e-003	0.1232	8.9000e-004	0.1241	0.0327	8.2000e-004	0.0335		134.5837	134.5837	4.6100e-003		134.6988
Total	**0.0639**	**0.0460**	**0.5135**	**1.3500e-003**	**0.1232**	**8.9000e-004**	**0.1241**	**0.0327**	**8.2000e-004**	**0.0335**		**134.5837**	**134.5837**	**4.6100e-003**		**134.6988**

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					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272	0.0000	2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**2.5554**	**1.5513**	**4.1067**	**1.3133**	**1.4272**	**2.7405**	**0.0000**	**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

3.4 Grading - 2018

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	0.0000	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
Worker	0.0639	0.0460	0.5135	1.3500e-003	0.1232	8.9000e-004	0.1241	0.0327	8.2000e-004	0.0335		134.5837	134.5837	4.6100e-003		134.6988
Total	**0.0639**	**0.0460**	**0.5135**	**1.3500e-003**	**0.1232**	**8.9000e-004**	**0.1241**	**0.0327**	**8.2000e-004**	**0.0335**		**134.5837**	**134.5837**	**4.6100e-003**		**134.6988**

3.5 Building Construction - 2018

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	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

3.5 Building Construction - 2018

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	0.0258	0.6588	0.1745	1.3900e-003	0.0339	5.1500e-003	0.0390	9.7400e-003	4.9300e-003	0.0147		149.0949	149.0949	0.0118		149.3904
Worker	0.0553	0.0399	0.4450	1.1700e-003	0.1068	7.7000e-004	0.1076	0.0283	7.1000e-004	0.0290		116.6392	116.6392	3.9900e-003		116.7390
Total	**0.0811**	**0.6986**	**0.6195**	**2.5600e-003**	**0.1406**	**5.9200e-003**	**0.1466**	**0.0381**	**5.6400e-003**	**0.0437**		**265.7341**	**265.7341**	**0.0158**		**266.1293**

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	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**	**0.0000**	**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

3.5 Building Construction - 2018

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	0.0258	0.6588	0.1745	1.3900e-003	0.0339	5.1500e-003	0.0390	9.7400e-003	4.9300e-003	0.0147		149.0949	149.0949	0.0118		149.3904
Worker	0.0553	0.0399	0.4450	1.1700e-003	0.1068	7.7000e-004	0.1076	0.0283	7.1000e-004	0.0290		116.6392	116.6392	3.9900e-003		116.7390
Total	**0.0811**	**0.6986**	**0.6195**	**2.5600e-003**	**0.1406**	**5.9200e-003**	**0.1466**	**0.0381**	**5.6400e-003**	**0.0437**		**265.7341**	**265.7341**	**0.0158**		**266.1293**

3.5 Building 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**

3.5 Building 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	0.0230	0.6199	0.1601	1.3800e-003	0.0339	4.3100e-003	0.0382	9.7400e-003	4.1300e-003	0.0139		148.0083	148.0083	0.0114		148.2940
Worker	0.0510	0.0356	0.4022	1.1400e-003	0.1068	7.6000e-004	0.1076	0.0283	7.0000e-004	0.0290		113.1260	113.1260	3.6100e-003		113.2163
Total	**0.0741**	**0.6556**	**0.5623**	**2.5200e-003**	**0.1406**	**5.0700e-003**	**0.1457**	**0.0381**	**4.8300e-003**	**0.0429**		**261.1343**	**261.1343**	**0.0150**		**261.5103**

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**

3.5 Building 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	0.0230	0.6199	0.1601	1.3800e-003	0.0339	4.3100e-003	0.0382	9.7400e-003	4.1300e-003	0.0139		148.0083	148.0083	0.0114		148.2940
Worker	0.0510	0.0356	0.4022	1.1400e-003	0.1068	7.6000e-004	0.1076	0.0283	7.0000e-004	0.0290		113.1260	113.1260	3.6100e-003		113.2163
Total	**0.0741**	**0.6556**	**0.5623**	**2.5200e-003**	**0.1406**	**5.0700e-003**	**0.1457**	**0.0381**	**4.8300e-003**	**0.0429**		**261.1343**	**261.1343**	**0.0150**		**261.5103**

3.6 Paving - 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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**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**

3.6 Paving - 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	0.0000	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
Worker	0.0589	0.0411	0.4641	1.3100e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		130.5300	130.5300	4.1700e-003		130.6342
Total	**0.0589**	**0.0411**	**0.4641**	**1.3100e-003**	**0.1232**	**8.8000e-004**	**0.1241**	**0.0327**	**8.1000e-004**	**0.0335**		**130.5300**	**130.5300**	**4.1700e-003**		**130.6342**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**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**

3.6 Paving - 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	0.0000	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
Worker	0.0589	0.0411	0.4641	1.3100e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		130.5300	130.5300	4.1700e-003		130.6342
Total	**0.0589**	**0.0411**	**0.4641**	**1.3100e-003**	**0.1232**	**8.8000e-004**	**0.1241**	**0.0327**	**8.1000e-004**	**0.0335**		**130.5300**	**130.5300**	**4.1700e-003**		**130.6342**

3.7 Architectural Coating - 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					
Archit. Coating	36.7370					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**37.0035**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.7 Architectural Coating - 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	0.0000	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
Worker	0.0118	8.2200e-003	0.0928	2.6000e-004	0.0246	1.8000e-004	0.0248	6.5400e-003	1.6000e-004	6.7000e-003		26.1060	26.1060	8.3000e-004		26.1268
Total	**0.0118**	**8.2200e-003**	**0.0928**	**2.6000e-004**	**0.0246**	**1.8000e-004**	**0.0248**	**6.5400e-003**	**1.6000e-004**	**6.7000e-003**		**26.1060**	**26.1060**	**8.3000e-004**		**26.1268**

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					
Archit. Coating	36.7370					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**37.0035**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.7 Architectural Coating - 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	0.0000	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
Worker	0.0118	8.2200e-003	0.0928	2.6000e-004	0.0246	1.8000e-004	0.0248	6.5400e-003	1.6000e-004	6.7000e-003		26.1060	26.1060	8.3000e-004		26.1268
Total	**0.0118**	**8.2200e-003**	**0.0928**	**2.6000e-004**	**0.0246**	**1.8000e-004**	**0.0248**	**6.5400e-003**	**1.6000e-004**	**6.7000e-003**		**26.1060**	**26.1060**	**8.3000e-004**		**26.1268**

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	0.6718	2.4735	6.8093	0.0189	1.4164	0.0218	1.4382	0.3787	0.0205	0.3992		1,908.1501	1,908.1501	0.1139		1,910.9980
Unmitigated	0.6718	2.4735	6.8093	0.0189	1.4164	0.0218	1.4382	0.3787	0.0205	0.3992		1,908.1501	1,908.1501	0.1139		1,910.9980

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	16.55	3.69	1.58	30,039	30,039
Arena	323.48	323.48	323.48	628,188	628,188
Total	340.03	327.17	325.06	658,227	658,227

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
Arena	9.50	7.30	7.30	0.00	81.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.574135	0.045525	0.189369	0.116519	0.019283	0.005646	0.014833	0.022073	0.001871	0.002173	0.006385	0.000739	0.001452
Arena	0.574135	0.045525	0.189369	0.116519	0.019283	0.005646	0.014833	0.022073	0.001871	0.002173	0.006385	0.000739	0.001452

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	0.0112	0.1019	0.0856	6.1000e-004		7.7500e-003	7.7500e-003		7.7500e-003	7.7500e-003		122.3024	122.3024	2.3400e-003	2.2400e-003	123.0292
NaturalGas Unmitigated	0.0112	0.1019	0.0856	6.1000e-004		7.7500e-003	7.7500e-003		7.7500e-003	7.7500e-003		122.3024	122.3024	2.3400e-003	2.2400e-003	123.0292

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					
Arena	956.598	0.0103	0.0938	0.0788	5.6000e-004		7.1300e-003	7.1300e-003		7.1300e-003	7.1300e-003		112.5409	112.5409	2.1600e-003	2.0600e-003	113.2097
General Office Building	82.9726	8.9000e-004	8.1300e-003	6.8300e-003	5.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004		9.7615	9.7615	1.9000e-004	1.8000e-004	9.8195
Total		**0.0112**	**0.1019**	**0.0856**	**6.1000e-004**		**7.7500e-003**	**7.7500e-003**		**7.7500e-003**	**7.7500e-003**		**122.3024**	**122.3024**	**2.3500e-003**	**2.2400e-003**	**123.0292**

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					
Arena	0.956598	0.0103	0.0938	0.0788	5.6000e-004		7.1300e-003	7.1300e-003		7.1300e-003	7.1300e-003		112.5409	112.5409	2.1600e-003	2.0600e-003	113.2097
General Office Building	0.0829726	8.9000e-004	8.1300e-003	6.8300e-003	5.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004		9.7615	9.7615	1.9000e-004	1.8000e-004	9.8195
Total		**0.0112**	**0.1019**	**0.0856**	**6.1000e-004**		**7.7500e-003**	**7.7500e-003**		**7.7500e-003**	**7.7500e-003**		**122.3024**	**122.3024**	**2.3500e-003**	**2.2400e-003**	**123.0292**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	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	0.8801	3.0000e-005	3.2800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9400e-003	6.9400e-003	2.0000e-005		7.4100e-003
Unmitigated	0.8801	3.0000e-005	3.2800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9400e-003	6.9400e-003	2.0000e-005		7.4100e-003

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	0.2013					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6785					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.1000e-004	3.0000e-005	3.2800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9400e-003	6.9400e-003	2.0000e-005		7.4100e-003
Total	**0.8801**	**3.0000e-005**	**3.2800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.9400e-003**	**6.9400e-003**	**2.0000e-005**		**7.4100e-003**

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	0.2013					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6785					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.1000e-004	3.0000e-005	3.2800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.9400e-003	6.9400e-003	2.0000e-005		7.4100e-003
Total	**0.8801**	**3.0000e-005**	**3.2800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.9400e-003**	**6.9400e-003**	**2.0000e-005**		**7.4100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

Seabreeze Senior Living Facility

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Congregate Care (Assisted Living)	128.00	Dwelling Unit	9.00	121,870.00	366

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot size is 9 acres. Developed area would equal 121,870 sf

Construction Phase - Construction duration estimated.

Demolition -

Grading - Assumes two acres graded daily.

Area Coating - SDAPCD Rule 67 limits non-flat coatings to 150 g/L VOCs

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation - Assumes use of low VOC paint 150 g/L

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Vehicle Trips - Trip rate increased to match traffic study

Architectural Coating - Rule 67

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	150
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	250	150
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	250	150
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	250	150
tblConstructionPhase	NumDays	20.00	30.00
tblEnergyUse	NT24E	3,054.10	3,277.06
tblEnergyUse	T24E	209.39	246.93
tblEnergyUse	T24NG	3,248.74	4,687.93
tblGrading	AcresOfGrading	10.00	2.00
tblLandUse	LandUseSquareFeet	128,000.00	121,870.00
tblLandUse	LotAcreage	8.00	9.00
tblVehicleTrips	WD_TR	2.74	3.10

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	4.4057	45.6220	22.6200	0.0405	18.2141	2.3914	20.6055	9.9699	2.2001	12.1700	0.0000	3,990.7030	3,990.7030	1.1967	0.0000	4,017.4486
2020	76.5653	20.9921	19.8585	0.0385	0.8505	1.1301	1.9806	0.2277	1.0626	1.2904	0.0000	3,740.0465	3,740.0465	0.7178	0.0000	3,756.9559
Maximum	**76.5653**	**45.6220**	**22.6200**	**0.0405**	**18.2141**	**2.3914**	**20.6055**	**9.9699**	**2.2001**	**12.1700**	**0.0000**	**3,990.7030**	**3,990.7030**	**1.1967**	**0.0000**	**4,017.4486**

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	4.4057	45.6220	22.6200	0.0405	8.2777	2.3914	10.6691	4.5080	2.2001	6.7081	0.0000	3,990.7030	3,990.7030	1.1967	0.0000	4,017.4486
2020	76.5653	20.9921	19.8585	0.0385	0.8505	1.1301	1.9806	0.2277	1.0626	1.2904	0.0000	3,740.0465	3,740.0465	0.7178	0.0000	3,756.9559
Maximum	**76.5653**	**45.6220**	**22.6200**	**0.0405**	**8.2777**	**2.3914**	**10.6691**	**4.5080**	**2.2001**	**6.7081**	**0.0000**	**3,990.7030**	**3,990.7030**	**1.1967**	**0.0000**	**4,017.4486**

	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**	**52.12**	**0.00**	**43.99**	**53.56**	**0.00**	**40.58**	**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	199.4460	3.9477	252.3887	0.4386		33.9618	33.9618		33.9618	33.9618	3,554.7815	1,509.8382	5,064.6198	3.2989	0.2796	5,230.4162
Energy	0.0335	0.2866	0.1220	1.8300e-003		0.0232	0.0232		0.0232	0.0232		365.8646	365.8646	7.0100e-003	6.7100e-003	368.0388
Mobile	0.7022	2.8710	8.3083	0.0286	2.4024	0.0232	2.4257	0.6421	0.0217	0.6638		2,902.6640	2,902.6640	0.1485		2,906.3773
Total	**200.1818**	**7.1053**	**260.8189**	**0.4691**	**2.4024**	**34.0082**	**36.4106**	**0.6421**	**34.0067**	**34.6488**	**3,554.7815**	**4,778.3668**	**8,333.1484**	**3.4544**	**0.2863**	**8,504.8323**

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	3.3605	0.1222	10.5831	5.6000e-004		0.0583	0.0583		0.0583	0.0583	0.0000	19.0147	19.0147	0.0184	0.0000	19.4754
Energy	0.0335	0.2866	0.1220	1.8300e-003		0.0232	0.0232		0.0232	0.0232		365.8646	365.8646	7.0100e-003	6.7100e-003	368.0388
Mobile	0.6821	2.7548	7.8421	0.0267	2.2367	0.0218	2.2585	0.5978	0.0204	0.6182		2,713.7550	2,713.7550	0.1401		2,717.2585
Total	**4.0761**	**3.1636**	**18.5471**	**0.0291**	**2.2367**	**0.1033**	**2.3400**	**0.5978**	**0.1019**	**0.6997**	**0.0000**	**3,098.6343**	**3,098.6343**	**0.1656**	**6.7100e-003**	**3,104.7727**

	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	**97.96**	**55.48**	**92.89**	**93.79**	**6.90**	**99.70**	**93.57**	**6.90**	**99.70**	**97.98**	**100.00**	**35.15**	**62.82**	**95.21**	**97.66**	**63.49**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/3/2019	6/28/2019	5	20	
2	Site Preparation	Site Preparation	6/29/2019	7/12/2019	5	10	
3	Grading	Grading	7/13/2019	8/9/2019	5	20	
4	Building Construction	Building Construction	8/10/2019	6/26/2020	5	230	
5	Paving	Paving	6/27/2020	7/24/2020	5	20	
6	Architectural Coating	Architectural Coating	7/25/2020	9/18/2020	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 246,787; Residential Outdoor: 82,262; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Seabreeze Senior Living Facility - San Diego County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	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
Demolition	6	15.00	0.00	10.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	92.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 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					0.1083	0.0000	0.1083	0.0164	0.0000	0.0164			0.0000			0.0000
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451
Total	**3.5134**	**35.7830**	**22.0600**	**0.0388**	**0.1083**	**1.7949**	**1.9032**	**0.0164**	**1.6697**	**1.6861**		**3,816.8994**	**3,816.8994**	**1.0618**		**3,843.4451**

3.2 Demolition - 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	4.3400e-003	0.1502	0.0324	4.0000e-004	8.7400e-003	5.7000e-004	9.3000e-003	2.3900e-003	5.4000e-004	2.9400e-003		43.2736	43.2736	3.8300e-003		43.3694
Vendor	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
Worker	0.0589	0.0411	0.4641	1.3100e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		130.5300	130.5300	4.1700e-003		130.6342
Total	**0.0632**	**0.1913**	**0.4965**	**1.7100e-003**	**0.1320**	**1.4500e-003**	**0.1334**	**0.0351**	**1.3500e-003**	**0.0364**		**173.8036**	**173.8036**	**8.0000e-003**		**174.0035**

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					0.0488	0.0000	0.0488	7.3800e-003	0.0000	7.3800e-003			0.0000			0.0000
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451
Total	**3.5134**	**35.7830**	**22.0600**	**0.0388**	**0.0488**	**1.7949**	**1.8437**	**7.3800e-003**	**1.6697**	**1.6771**	**0.0000**	**3,816.8994**	**3,816.8994**	**1.0618**		**3,843.4451**

3.2 Demolition - 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	4.3400e-003	0.1502	0.0324	4.0000e-004	8.7400e-003	5.7000e-004	9.3000e-003	2.3900e-003	5.4000e-004	2.9400e-003		43.2736	43.2736	3.8300e-003		43.3694
Vendor	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
Worker	0.0589	0.0411	0.4641	1.3100e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		130.5300	130.5300	4.1700e-003		130.6342
Total	**0.0632**	**0.1913**	**0.4965**	**1.7100e-003**	**0.1320**	**1.4500e-003**	**0.1334**	**0.0351**	**1.3500e-003**	**0.0364**		**173.8036**	**173.8036**	**8.0000e-003**		**174.0035**

3.3 Site Preparation - 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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.3 Site Preparation - 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	0.0000	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
Worker	0.0707	0.0493	0.5569	1.5700e-003	0.1479	1.0500e-003	0.1489	0.0392	9.7000e-004	0.0402		156.6359	156.6359	5.0000e-003		156.7610
Total	**0.0707**	**0.0493**	**0.5569**	**1.5700e-003**	**0.1479**	**1.0500e-003**	**0.1489**	**0.0392**	**9.7000e-004**	**0.0402**		**156.6359**	**156.6359**	**5.0000e-003**		**156.7610**

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					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**8.1298**	**2.3904**	**10.5202**	**4.4688**	**2.1991**	**6.6679**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.3 Site Preparation - 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	0.0000	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
Worker	0.0707	0.0493	0.5569	1.5700e-003	0.1479	1.0500e-003	0.1489	0.0392	9.7000e-004	0.0402		156.6359	156.6359	5.0000e-003		156.7610
Total	**0.0707**	**0.0493**	**0.5569**	**1.5700e-003**	**0.1479**	**1.0500e-003**	**0.1489**	**0.0392**	**9.7000e-004**	**0.0402**		**156.6359**	**156.6359**	**5.0000e-003**		**156.7610**

3.4 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					6.1281	0.0000	6.1281	3.3217	0.0000	3.3217			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.1281**	**1.3974**	**7.5255**	**3.3217**	**1.2856**	**4.6073**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.4 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	0.0000	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
Worker	0.0589	0.0411	0.4641	1.3100e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		130.5300	130.5300	4.1700e-003		130.6342
Total	**0.0589**	**0.0411**	**0.4641**	**1.3100e-003**	**0.1232**	**8.8000e-004**	**0.1241**	**0.0327**	**8.1000e-004**	**0.0335**		**130.5300**	**130.5300**	**4.1700e-003**		**130.6342**

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					2.7577	0.0000	2.7577	1.4948	0.0000	1.4948			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**2.7577**	**1.3974**	**4.1550**	**1.4948**	**1.2856**	**2.7803**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.4 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	0.0000	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
Worker	0.0589	0.0411	0.4641	1.3100e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		130.5300	130.5300	4.1700e-003		130.6342
Total	**0.0589**	**0.0411**	**0.4641**	**1.3100e-003**	**0.1232**	**8.8000e-004**	**0.1241**	**0.0327**	**8.1000e-004**	**0.0335**		**130.5300**	**130.5300**	**4.1700e-003**		**130.6342**

3.5 Building 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**

3.5 Building 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	0.0644	1.7358	0.4481	3.8700e-003	0.0948	0.0121	0.1069	0.0273	0.0116	0.0388		414.4233	414.4233	0.0320		415.2232
Worker	0.3612	0.2521	2.8466	8.0400e-003	0.7558	5.3900e-003	0.7611	0.2005	4.9600e-003	0.2054		800.5837	800.5837	0.0256		801.2228
Total	**0.4257**	**1.9879**	**3.2947**	**0.0119**	**0.8505**	**0.0175**	**0.8680**	**0.2277**	**0.0165**	**0.2443**		**1,215.0070**	**1,215.0070**	**0.0576**		**1,216.4460**

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**

3.5 Building 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	0.0644	1.7358	0.4481	3.8700e-003	0.0948	0.0121	0.1069	0.0273	0.0116	0.0388		414.4233	414.4233	0.0320		415.2232
Worker	0.3612	0.2521	2.8466	8.0400e-003	0.7558	5.3900e-003	0.7611	0.2005	4.9600e-003	0.2054		800.5837	800.5837	0.0256		801.2228
Total	**0.4257**	**1.9879**	**3.2947**	**0.0119**	**0.8505**	**0.0175**	**0.8680**	**0.2277**	**0.0165**	**0.2443**		**1,215.0070**	**1,215.0070**	**0.0576**		**1,216.4460**

3.5 Building Construction - 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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.5 Building Construction - 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	0.0523	1.5786	0.4022	3.8300e-003	0.0948	7.7200e-003	0.1025	0.0273	7.3900e-003	0.0347		411.6561	411.6561	0.0304		412.4153
Worker	0.3376	0.2275	2.6078	7.7800e-003	0.7558	5.3000e-003	0.7611	0.2005	4.8900e-003	0.2054		775.3273	775.3273	0.0232		775.9061
Total	**0.3899**	**1.8061**	**3.0100**	**0.0116**	**0.8505**	**0.0130**	**0.8636**	**0.2277**	**0.0123**	**0.2400**		**1,186.9834**	**1,186.9834**	**0.0535**		**1,188.3214**

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.5 Building Construction - 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	0.0523	1.5786	0.4022	3.8300e-003	0.0948	7.7200e-003	0.1025	0.0273	7.3900e-003	0.0347		411.6561	411.6561	0.0304		412.4153
Worker	0.3376	0.2275	2.6078	7.7800e-003	0.7558	5.3000e-003	0.7611	0.2005	4.8900e-003	0.2054		775.3273	775.3273	0.0232		775.9061
Total	**0.3899**	**1.8061**	**3.0100**	**0.0116**	**0.8505**	**0.0130**	**0.8636**	**0.2277**	**0.0123**	**0.2400**		**1,186.9834**	**1,186.9834**	**0.0535**		**1,188.3214**

3.6 Paving - 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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**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**

3.6 Paving - 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	0.0000	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
Worker	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064
Total	**0.0550**	**0.0371**	**0.4252**	**1.2700e-003**	**0.1232**	**8.6000e-004**	**0.1241**	**0.0327**	**8.0000e-004**	**0.0335**		**126.4121**	**126.4121**	**3.7700e-003**		**126.5064**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**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**

3.6 Paving - 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	0.0000	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
Worker	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064
Total	**0.0550**	**0.0371**	**0.4252**	**1.2700e-003**	**0.1232**	**8.6000e-004**	**0.1241**	**0.0327**	**8.0000e-004**	**0.0335**		**126.4121**	**126.4121**	**3.7700e-003**		**126.5064**

3.7 Architectural Coating - 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					
Archit. Coating	76.2571					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**76.4993**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 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	0.0000	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
Worker	0.0661	0.0445	0.5102	1.5200e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		151.6945	151.6945	4.5300e-003		151.8077
Total	**0.0661**	**0.0445**	**0.5102**	**1.5200e-003**	**0.1479**	**1.0400e-003**	**0.1489**	**0.0392**	**9.6000e-004**	**0.0402**		**151.6945**	**151.6945**	**4.5300e-003**		**151.8077**

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					
Archit. Coating	76.2571					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**76.4993**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 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	0.0000	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
Worker	0.0661	0.0445	0.5102	1.5200e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		151.6945	151.6945	4.5300e-003		151.8077
Total	**0.0661**	**0.0445**	**0.5102**	**1.5200e-003**	**0.1479**	**1.0400e-003**	**0.1489**	**0.0392**	**9.6000e-004**	**0.0402**		**151.6945**	**151.6945**	**4.5300e-003**		**151.8077**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Increase Transit Accessibility

Improve Pedestrian Network

Increase Transit Frequency

	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	0.6821	2.7548	7.8421	0.0267	2.2367	0.0218	2.2585	0.5978	0.0204	0.6182		2,713.7550	2,713.7550	0.1401		2,717.2585
Unmitigated	0.7022	2.8710	8.3083	0.0286	2.4024	0.0232	2.4257	0.6421	0.0217	0.6638		2,902.6640	2,902.6640	0.1485		2,906.3773

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	396.80	281.60	312.32	1,051,535	978,979
Total	396.80	281.60	312.32	1,051,535	978,979

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
Congregate Care (Assisted	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted Living)	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193

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	0.0335	0.2866	0.1220	1.8300e-003		0.0232	0.0232		0.0232	0.0232		365.8646	365.8646	7.0100e-003	6.7100e-003	368.0388
NaturalGas Unmitigated	0.0335	0.2866	0.1220	1.8300e-003		0.0232	0.0232		0.0232	0.0232		365.8646	365.8646	7.0100e-003	6.7100e-003	368.0388

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					
Congregate Care (Assisted Living)	3109.85	0.0335	0.2866	0.1220	1.8300e-003		0.0232	0.0232		0.0232	0.0232		365.8646	365.8646	7.0100e-003	6.7100e-003	368.0388
Total		**0.0335**	**0.2866**	**0.1220**	**1.8300e-003**		**0.0232**	**0.0232**		**0.0232**	**0.0232**		**365.8646**	**365.8646**	**7.0100e-003**	**6.7100e-003**	**368.0388**

5.2 Energy by Land Use - NaturalGas

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					
Congregate Care (Assisted Living)	3.10985	0.0335	0.2866	0.1220	1.8300e-003		0.0232	0.0232		0.0232	0.0232		365.8646	365.8646	7.0100e-003	6.7100e-003	368.0388
Total		**0.0335**	**0.2866**	**0.1220**	**1.8300e-003**		**0.0232**	**0.0232**		**0.0232**	**0.0232**		**365.8646**	**365.8646**	**7.0100e-003**	**6.7100e-003**	**368.0388**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

Use Low VOC Cleaning Supplies

	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	3.3605	0.1222	10.5831	5.6000e-004		0.0583	0.0583		0.0583	0.0583	0.0000	19.0147	19.0147	0.0184	0.0000	19.4754
Unmitigated	199.4460	3.9477	252.3887	0.4386		33.9618	33.9618		33.9618	33.9618	3,554.7815	1,509.8382	5,064.6198	3.2989	0.2796	5,230.4162

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	0.6268					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.6080					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	195.8906	3.8255	241.8056	0.4381		33.9035	33.9035		33.9035	33.9035	3,554.7815	1,490.8235	5,045.6051	3.2805	0.2796	5,210.9408
Landscaping	0.3207	0.1222	10.5831	5.6000e-004		0.0583	0.0583		0.0583	0.0583		19.0147	19.0147	0.0184		19.4754
Total	**199.4460**	**3.9477**	**252.3887**	**0.4386**		**33.9618**	**33.9618**		**33.9618**	**33.9618**	**3,554.7815**	**1,509.8382**	**5,064.6198**	**3.2989**	**0.2796**	**5,230.4162**

6.2 Area by SubCategory

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	0.6268					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.4130					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.3207	0.1222	10.5831	5.6000e-004		0.0583	0.0583		0.0583	0.0583		19.0147	19.0147	0.0184		19.4754
Total	**3.3605**	**0.1222**	**10.5831**	**5.6000e-004**		**0.0583**	**0.0583**		**0.0583**	**0.0583**	**0.0000**	**19.0147**	**19.0147**	**0.0184**	**0.0000**	**19.4754**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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

Biological Technical Report for the Seabreeze Senior Living Project in the City of San Diego, California

PTS 600824

November 26, 2018

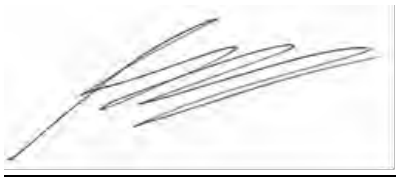
Prepared for:

KLR Planning
PO Box 882676
San Diego, CA 92168

Prepared by:

Alden Environmental, Inc.
3245 University Avenue, #1188
San Diego, CA 92104

Principal Investigator:



Greg Mason, Senior Biologist

ALDEN
ENVIRONMENTAL, INC

Seabreeze Senior Living Project
Biological Technical Report

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1.0 INTRODUCTION

This report describes the existing biological conditions for the Seabreeze Senior Living Project (Project) site and provides the City of San Diego (City), resources agencies, and Project applicant with information necessary to assess impacts to biological resources under the California Environmental Quality Act (CEQA), City's Biology Guidelines (City 2012), and applicable federal and State of California (State) regulations.

1.1 PROJECT LOCATION

The approximately 10-acre Project site (Assessor Parcel Numbers 30510045, 30510046, and 30510047) is located at 5720 Old Carmel Valley Road, within Neighborhood 4 of the North City West Carmel Del Mar Neighborhoods 4, 5, & 6 Precise Plan of Carmel Valley. Situated generally west of Sandown Way and north of Rider Place, Cathedral Catholic High School is located adjacent to the north of the Project site, with open space located immediately to the west. Single-family and multi-family residential development is located to the east and south (Figures 1 and 2). The site is located on the U.S. Geological Survey (USGS) Del Quadrangle in Section 16, Township 14S, Range 3W. It is not within or adjacent to the City's Preserve, the Multi-habitat Planning Area (MHPA; Figure 2).

1.2 PROJECT DESCRIPTION

The Project involves the redevelopment of an existing equestrian facility as a senior residential care facility. The Project site is currently fully developed with an equestrian facility, which includes barns, garages, arenas, barn stalls for boarding, pastures, a hotwalker, and associated riding paths, outbuildings, and facilities.

Regional access to the site is provided by State Route 56 (SR-56), located approximately 1.3 miles to the southeast and Interstate 5 (I-5), located approximately three miles to the west. Local access is provided via Del Mar Heights Road, approximately one-quarter mile northeast of the Project site. Direct access to the site is directly via Old Carmel Valley Road.

The proposed Project involves demolition of the existing equestrian facility and construction of a 128-unit senior residential care facility. A two-story main building would be located in the northern portion of the Project site. Five single-story duplex casitas would be located in the southern portion of the Project site. Amenities would include a dining area, a large central open courtyard with additional outdoor courtyards on the perimeter of the building, scenic overlooks, and internal walking trails. Access to the Project site would remain via an improved full-width paved drive off Old Carmel Valley Road, as it does today. The proposed Project includes also three above-ground detention basins with biofiltration media, which serve the dual purposes of hydromodification management and pollutant treatment, respectively.

2.0 METHODS

2.1 LITERATURE REVIEW

Prior to conducting field investigations, Alden Environmental, Inc. (Alden) performed a search of the California Natural Diversity Database, California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (CNPS 2018), and U.S. Fish and Wildlife Service database for information regarding sensitive species known to occur within one mile of the Project site. Previous biological reports prepared for the existing development also were reviewed.

2.2 BIOLOGICAL SURVEYS

Vegetation mapping was conducted by Alden biologist Greg Mason on November 7, 2017. The area mapped included the project limits as well as an approximately 100 foot biological buffer mapping area (for informational purposes). Potential jurisdictional wetland/riparian features also were searched for during the site visit. A sensitive plant survey was conducted on May 16, 2018. Incidental plant and animal observations were noted during the vegetation mapping and will be noted during the upcoming sensitive plant survey. No focused survey for sensitive animal species was conducted in the Project site, nor is any required.

2.2.1 Vegetation and Jurisdictional Feature Mapping

Vegetation communities were mapped in the field according to the Draft Vegetation Communities of San Diego County (Oberbauer et al. 2008). The mapping was done on recent aerial photography at a scale of one inch equals 150 feet.

2.2.2 Sensitive Plant Species

A spring season sensitive plant species survey was conducted on May 16, 2018.

Sensitive plant species are those that are considered federal, State, or CNPS rare, threatened, or endangered (i.e., CNPS Rare Plant Rank 1 or 2); MSCP Covered Species; or MSCP Narrow Endemic species. More specifically, if a species is designated with any of the following statuses (a-c below), it is considered sensitive per City Municipal Code (Chapter 11, Article 3, Division 1):

(a) A species or subspecies is listed as rare, endangered, or threatened under Section 670.2 or 670.5, Title 14, California Code of Regulations, or the federal Endangered Species Act, Title 50, Code of Federal Regulations, Section 17.11 or 17.12, or candidate species under the California Code of Regulations;
(b) A species is a Narrow Endemic as listed in the Biology Guidelines in the Land Development Manual (City 2012); and/or

(c) A species is a Covered Species as listed in the Biology Guidelines in the Land Development Manual (City 2012).

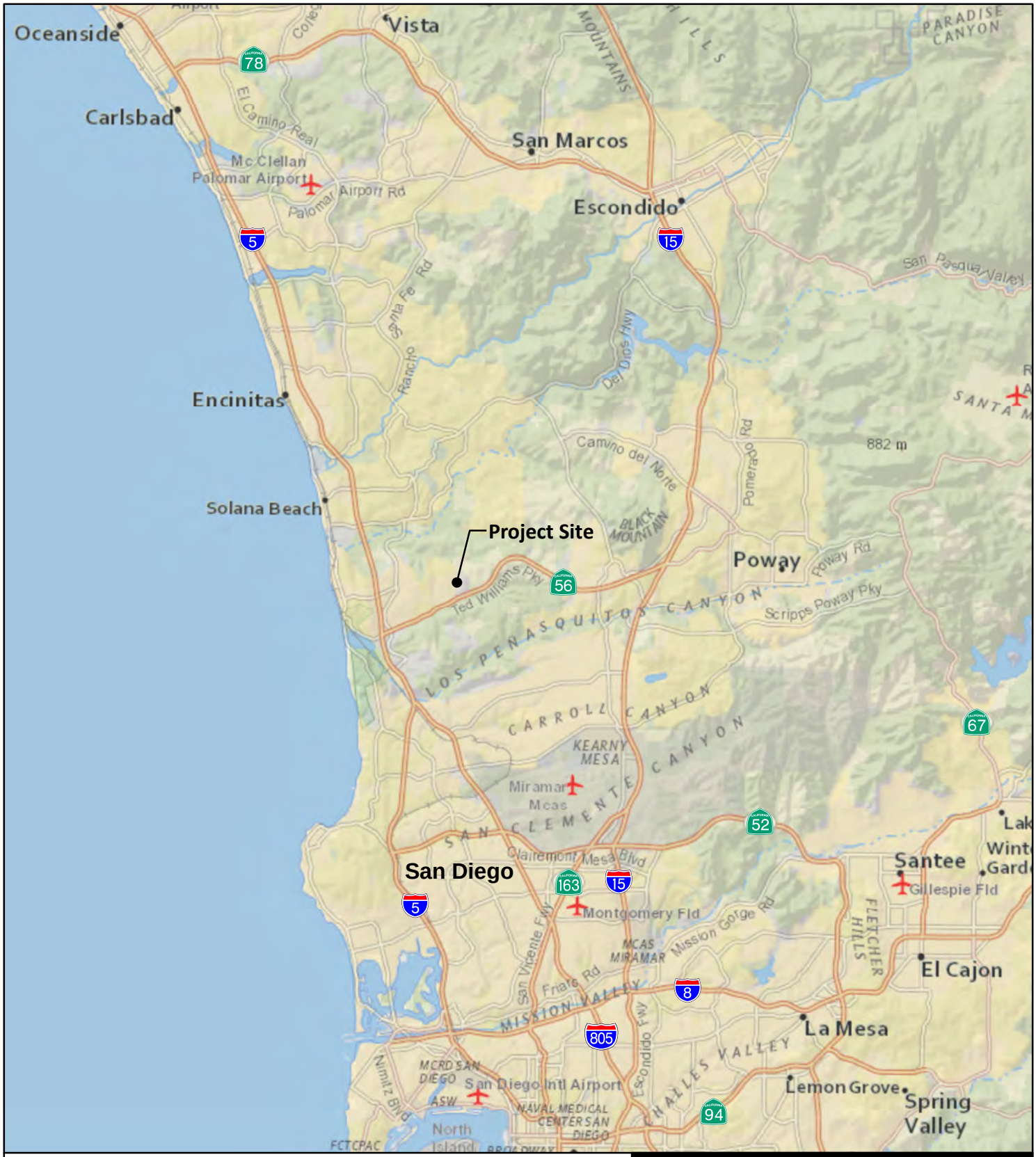

Figure 1

Regional Location

SEABREEZE SENIOR LIVING

N
W E
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0 2 4 Miles

ALDEN ENVIRONMENTAL, INC

Figure 2

Project Location

SEABREEZE SENIOR LIVING

N
W E
S

0 1,000 2,000 Feet

ALDEN ENVIRONMENTAL, INC

A species may also be considered sensitive if it is included in the CNPS Inventory of Rare and Endangered Plants (CNPS 2018).

Sensitive plant status is often based on one or more of three distributional attributes: geographic range, habitat specificity, and/or population size. A species that exhibits a small or restricted geographic range (such as those endemic to the region) is geographically rare. A species may be more or less abundant but occur only in very specific habitats. Lastly, a species may be widespread but exists naturally in small populations.

2.2.3 Survey Limitations

Noted animal species were identified by direct observation, vocalizations, or the observance of scat, tracks, or other signs. However, the animal species observed or detected do not necessarily represent a comprehensive account of all species that utilize the site because species that are nocturnal, secretive, or seasonally restricted may not have been observed/detected. Those species that are sensitive and have potential to occur are addressed in this report in Section 6.2.3.

2.2.4 Nomenclature

Nomenclature used in this report is from the following sources: City Biology Guidelines (City 2012) and the City's MSCP Subarea Plan (City 1997a); Holland (1986); Oberbauer et al. (2008); Hickman, ed. (1993); California Native Plant Society (CNPS 2018); Crother (2008); American Ornithological Society (2017); Jones, et al. (1992); and CDFW (2017).

3.0 REGULATORY CONTEXT

Biological resources on site are subject to regulatory administration by the federal government, State, and City as follows.

3.1 FEDERAL

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA; 16 U.S. Code Sections 703-711) includes provisions for protection of migratory birds, including the non-permitted take of migratory birds. The MBTA regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 Code of Federal Regulations Section 10.13. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, and many others. Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered a "take." The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country, and is enforced in the United States by the USFWS. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors). Direct impacts to nesting birds protected by the MBTA could result if clearing of vegetation or construction occurs during the nesting season (February 1 to September 15). Clearing of vegetation or construction activities could cause destruction of active nests or mortality of adults, young, or eggs. Therefore, these regulations could require that construction activities (particularly vegetation removal or construction near nests) be reduced or eliminated

during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds will not be disturbed, subject to approval by the USFWS. The Seabreeze Senior Living Project must comply with the MBTA.

3.2 STATE OF CALIFORNIA

California Environmental Quality Act

Primary environmental legislation in California is found in the CEQA and its implementing guidelines (State CEQA Guidelines), requiring that projects with potential adverse effects or impacts on the environment undergo environmental review. Adverse impacts to the environment are typically mitigated as a result of the environmental review process in accordance with existing laws and regulations.

California Fish and Game Code

Pursuant to California Fish and Game Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Raptors and owls and their active nests are protected by California Fish and Game Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. Direct impacts to nesting birds protected by the MBTA and California Fish and Game Code could result if clearing of vegetation or construction occurs during the nesting season (February 1 to September 15). Clearing of vegetation or construction activities could cause destruction of active nests or mortality of adults, young, or eggs. Therefore, these regulations could require that construction activities (particularly vegetation removal or construction near nests) be reduced or eliminated during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds will not be disturbed, subject to approval by CDFW and/or USFWS. The Seabreeze Senior Living Project must comply with California Fish and Game Code Sections 3503 and 3503.5.

3.3 CITY OF SAN DIEGO

Environmentally Sensitive Lands Regulations

Mitigation requirements for sensitive biological resources follow the requirements of the City's Biology Guidelines (2012) as outlined in the City's Municipal Code Environmentally Sensitive Lands (ESL) Regulations (Chapter 14, Article 3, Division 1). ESL Regulations serve as standards for the determination of biological impacts and mitigation under CEQA in the City. ESL include sensitive biological resources, steep hillsides, coastal beaches, sensitive coastal bluffs and 100-year floodplains (San Diego Municipal Code [SDMC] 143.0110).

The purpose of the ESL Regulations is to, "protect, preserve and, where damaged, restore the ESL of San Diego and the viability of the species supported by those lands" (SDMC 143.0101). ESL remaining on a site must be put in a protected Open Space Easement. The ESL regulations

specify development requirements inside and outside of the MHPA. Inside the MHPA, development must be located in the least sensitive portion of a given site; outside of the MHPA, development must avoid wetlands and non-Covered Species (City 2012). The ESL regulations further require that impacts to sensitive biological resources must be assessed and mitigation provided where necessary, as required by Section III of the City's Biology Guidelines. The Project site is not within or adjacent to the MHPA (Figure 2). The MSCP and MHPA are further discussed in Section 4.0.

Biology Guidelines

The City's Biology Guidelines (2012) have been formulated by the Development Services Department to aid in the implementation and interpretation of the ESL Regulations; San Diego Land Development Code, Chapter 14, Division 1, Section 143.0101 et seq; and the Open Space Residential (OR-1-2) Zone, Chapter 13, Division 2, Section 131.0201 et seq. Section III of the Biology Guidelines (Biological Impact Analysis and Mitigation Procedures) also serves as standards for the determination of impact and mitigation under CEQA and the Coastal Act. The Biology Guidelines are the baseline biological standards for processing Neighborhood Development Permits, Site Development Permits, and Coastal Development Permits issued pursuant to ESL Regulations.

4.0 REGIONAL CONTEXT

4.1 MSCP EVALUATION

The City's MSCP Subarea Plan (City 1997a) was prepared to meet the requirements of the California Natural Communities Conservation Planning (NCCP) Act of 1992. The City's Subarea Plan forms the basis for the MSCP Implementing Agreement (City 1997b), which is the contract between the City, USFWS, and CDFW. The Implementing Agreement ensures implementation of the City's Subarea Plan and thereby allows the City to issue "take" permits under the federal and State Endangered Species acts to address impacts at the local level.

Pursuant to its MSCP permit, the City has incidental "take" authority over 85 rare, threatened, and endangered species including regionally sensitive species that it aims to conserve (i.e., "Covered Species"). "Covered" refers to species that are covered by the City's Incidental Take Permit, and most are considered to be adequately protected within the MHPA. Special conditions apply to Covered Species that would be potentially impacted by a project including designing a project to avoid impacts to Covered Species in the MHPA where feasible. Outside the MHPA, projects must incorporate measures (i.e., Area Specific Management Directives) for the protection of Covered Species as identified in Appendix A of the City's Subarea Plan.

In addition to identifying preserve areas within the City (and guiding implementation of the MSCP within its corporate boundaries), the City's Subarea Plan also regulates effects on natural communities throughout the City. Additional discussion of the MHPA as it relates to the Project is provided in Section 4.1.1.

4.1.1 Multi-Habitat Planning Area

The MHPA was developed by the City in cooperation with the USFWS, CDFW, property owners, developers, and environmental groups using the Preserve Design Criteria contained in the Final MSCP Plan and the City Council-adopted criteria for the creation of the MHPA. MHPA lands are large blocks of native habitat that have the ability to support a diversity of plant and animal life and, therefore, have been included within the City's Subarea Plan for conservation. The MHPA also delineates core biological resource areas and corridors targeted for conservation as these lands have been determined to provide the necessary habitat quality, quantity, and connectivity to sustain the unique biodiversity of the San Diego region. The Project site is not within or adjacent to the MHPA (Figure 2).

4.1.2 MHPA Land Use Adjacency Guidelines

Development adjacent to the MHPA is subject to special conditions to ensure that indirect impacts to the MHPA are minimized. Section 1.4.3 of the City's Subarea Plan outlines the requirements to address indirect effects related to Drainage and Toxics, Lighting, Noise, Public Access, Invasive Plant Species, Brush Management, and Grading/Land Development. The Project site is not adjacent to the MHPA, however, so these adjacency guidelines would not apply.

4.1.3 Specific Management Directives

Section 1.5.7 of the City's Subarea Plan contains specific management and policy directives for Urban Habitat Lands within which the Project site lies. The system of urban habitat canyons and natural open space throughout the City provide important areas for people to enjoy and learn about the natural world and local environment. These areas also afford visual enjoyment and psychological relief from urbanization, while supporting habitat for the maintenance of both common and sensitive species. A number of MSCP Covered species can be found in urban habitat lands, one of which, San Diego barrel cactus, has been found on the Project site.

Major issues for these lands include:

1. Intense land uses and activities adjacent to and in covered species habitat.
   A senior living facility is not an intense land use or activity.

2. Dumping, litter, and vandalism.
   A senior living facility would have regular waste management service, and its residents, visitors, and employees are not expected to practice illegal dumping, littering, or vandalism.

3. Itinerant living quarters.
   Itinerant living quarters do not exist presently on the Project site and are not anticipated to materialize in this residential area.

4. Utility, facility and road repair, construction, and maintenance activities.

Other than the minor impacts to Diegan coastal sage scrub and Diegan coastal sage scrub-disturbed (MSCP Covered species habitat) from construction of the senior living facility, no utility or road repair, construction, or maintenance activities are proposed.

5. Exotic (non-native) and invasive plants and animals.

SDMC Landscape Standards (Section 1.3) would be followed by the proposed Project so that no potentially invasive plant species are planted adjacent to MSCP Covered species habitat. Additionally, if the senior living facility allows pet ownership, it is expected that the animals will be required to remain indoors, or when outdoors, under human control (i.e., leashed).

6. Urban runoff and water quality.

Runoff from the Project and its adverse effects on water quality would be minimized through the required use of the City's Construction Site Best Management Practices (SDMC §43.0301) during construction and compliance with City of San Diego Storm Water Standards (City 2018).

Special conditions apply to MSCP Covered Species that would be potentially impacted by projects, and projects must incorporate measures (i.e., Area Specific Management Directives) for the protection of Covered Species as identified in Appendix A of the City's Subarea Plan.

While the proposed Project would not directly impact the MSCP Covered San Diego barrel cactus and is not expected to directly impact the MSCP Covered coastal California gnatcatcher and southern California rufous-crowned sparrow (the latter two species with moderate to high potential to occur), the following Area Specific Management Directives for these species are required to be followed per the City's Subarea Plan.

San Diego barrel cactus. Area Specific Management Directives must include measures to protect this species from edge effects, unauthorized collection, and include appropriate fire management/control practices to protect against a too frequent fire cycle.

Coastal California gnatcatcher. Area Specific Management Directives must include measures to reduce edge effects and minimize disturbance during the nesting period, fire protection measures to reduce the potential for habitat degradation due to unplanned fire, and management measures to maintain or improve habitat quality including vegetation structure.

Southern California rufous-crowned sparrow. Area Specific Management Directives must include maintenance of dynamic processes, such as fire, to perpetuate some open phases of coastal sage scrub with herbaceous components.

5.0 SURVEY RESULTS

5.1 PHYSICAL CHARACTERISTICS

The site is irregularly shaped with variable topography. Average elevation is approximately 250 feet above mean sea level. Soils consist of loamy alluvial land-Huerhuero complex (9 to 50 percent slopes, severely eroded) and Corralitos loamy sand (0 to 5 percent slopes), and Las Flores loamy fine sand (5 to 9 percent slopes, eroded; Bowman 1973).

5.2 VEGETATION COMMUNITIES/LAND COVER TYPES

Five vegetation communities/land cover types occur on the Project site (Figure 3). Table 1 presents a list of these communities/cover types and their respective acreage totals. Vegetation communities that occur off site, but are within the 100 foot biological buffer map are not discussed in the text below. They are not within the project footprint and have been included on the map for informational purposes only.

Table 1
EXISTING VEGETATION COMMUNITIES/LAND COVER TYPES

Vegetation Community/Land Cover Type[1]	Project Site Acre(s)	Off Site Acre(s)
Upland		
Scrub oak chaparral (Tier I)	0.02	-
Diegan coastal sage scrub (Tier II)	0.44	-
Diegan coastal sage scrub-disturbed (Tier II)	0.02	0.04
Other Upland		
Disturbed land (Tier IV)	0.11	-
Land Cover		
Urban/developed	9.53	0.2
TOTAL	**10.12**	**0.24**

[1]Upland vegetation communities are divided into five tiers of sensitivity (City 2012).

5.2.1 Upland Vegetation Communities

Scrub Oak Chaparral

Scrub oak chaparral is a dense, evergreen chaparral up to 20 feet tall, dominated by scrub oak (*Quercus* spp.) often with mountain mahogany (*Cercocarpus betuloides*). Scrub oak chaparral occurs in somewhat more mesic areas than many other chaparrals, such as north facing slopes, and recovers more rapidly from fires than other chaparrals due to its resprouting capabilities (Holland 1986; Keeley and Keeley 1988). Scrub oak chaparral occurs on a north-facing slope in the southern portion of the site and is dominated by Nuttall's scrub oak (*Quercus dumosa*). Associated species include laurel sumac (*Malosma laurina*), black sage (*Salvia mellifera*), and chamise (*Adenostoma fasciculatum*).

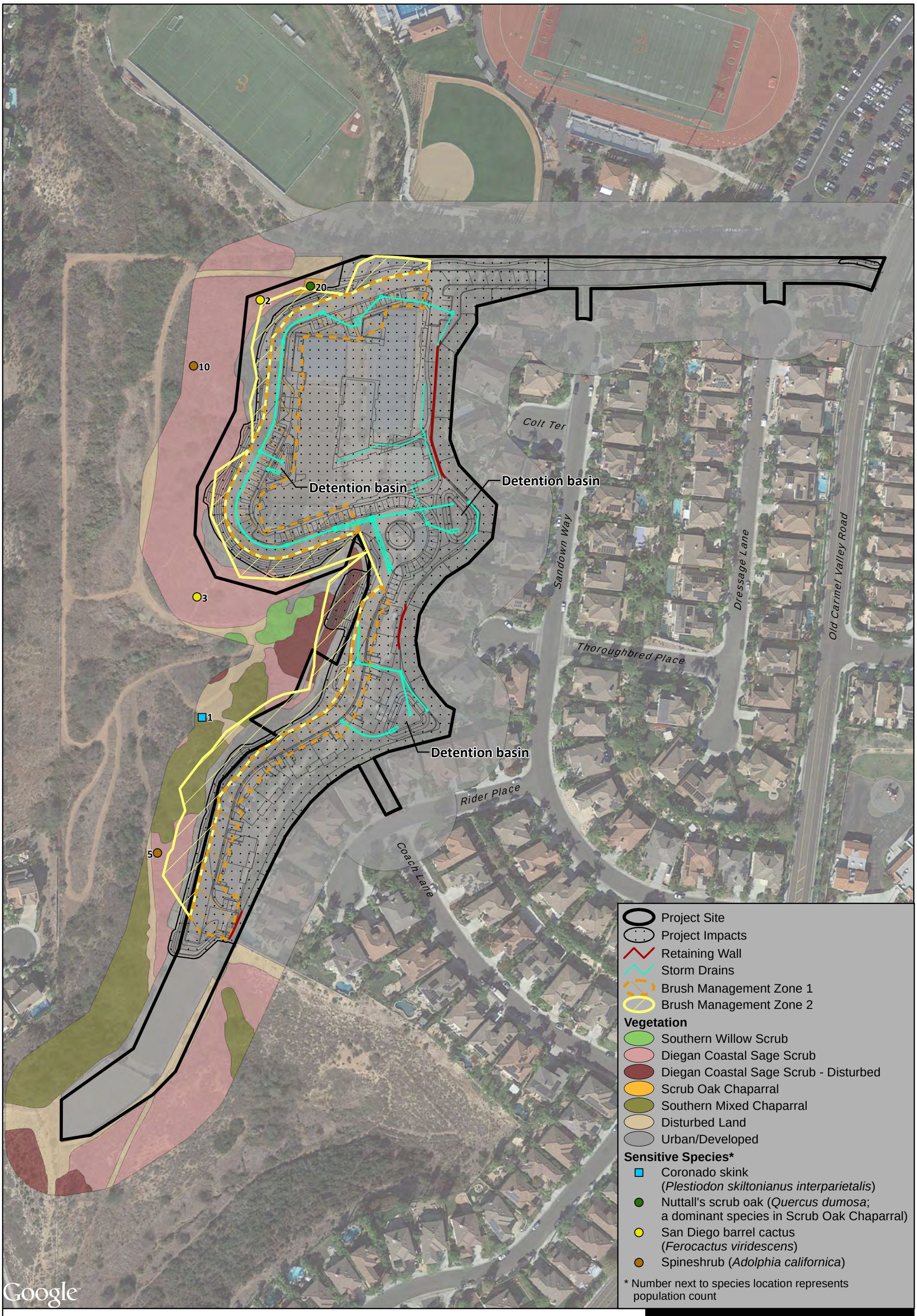

Figure 3

Biological Resources/Impacts

SEABREEZE SENIOR LIVING

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Diegan Coastal Sage Scrub

Coastal sage scrub is one of two major shrub types that occur in California. This community occupies xeric sites characterized by shallow soils. Coastal sage scrub is dominated by subshrubs whose leaves abscise during drought. This adaptation allows these species to better withstand the prolonged dry period in the summer and fall. Coastal sage scrub species have relatively shallow root systems and open canopies, which may allow for the occurrence of a substantial herbaceous component.

Diegan coastal sage scrub on site is characterized by species such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and black sage. Diegan coastal sage scrub-disturbed contains many of the same shrub species as the undisturbed community but is more sparse and has a higher proportion of non-native species (principally non-native grasses). The disturbance appears to have been due to previous foot and vehicle usage. There are numerous trails, paths, and tire tracks, showing evidence of previous disturbance. The disturbed areas still retain sufficient amounts of native species to be considered a native/sensitive vegetation community, although the amount of weeds is higher than in undisturbed areas.

5.2.2 Other Uplands

Disturbed Land

Disturbed land on site supports more than 50 percent cover of non-native plant species that are not annual grasses (of the Poaceae family; City 2012). Disturbed land occurs in the northwestern portion of the site and is characterized by species such as garland daisy (*Glebionis coronaria*), artichoke thistle (*Cynara cardunculus*), black mustard (*Brassica nigra*), and Russian thistle (*Salsola tragus*).

5.2.3 Land Cover

Urban/Developed

Urban/developed areas have been constructed upon or are otherwise physically altered to the extent that no naturally occurring, native vegetation is supported. These areas contain permanent or semi-permanent structures, pavement or hardscape, and limited landscaped areas that typically require irrigation (Oberbauer et al. 2008). The majority of the project footprint would occur on already developed area.

5.3 JURISDICTIONAL FEATURES

The following describes wetlands or waters subject to Federal, State, or local jurisdiction: Waters of the U.S. and Waters of the State encompass wetlands but also may include ephemeral and intermittent streams that may or may not be vegetated. Generally, wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities present.

Army Corps of Engineers

Waters of the U.S. include wetlands and non-wetlands (streams) under the jurisdiction of the U.S. Army Corps of Engineers (Corps). Waters of the State include wetland habitats and streambeds under the jurisdiction of the CDFW.

Corps wetland boundaries are determined using the three criteria (vegetation, hydrology, and soils) established for wetland delineations as described within the *Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Supplement* (Corps 2008).

California Department of Fish and Wildlife

CDFW jurisdictional boundaries are determined based on the presence of riparian vegetation or regular surface flow. Streambeds within CDFW jurisdiction are delineated based on the definition of a streambed as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports riparian vegetation." CDFW jurisdictional limits for streambeds are determined by the top of the bank. Vegetated CDFW habitats are mapped at the limits of the riparian vegetation canopy.

City Wetlands, specifically, are defined by the City Municipal Code (Chapter 11, Article 3, Division 1) as areas that are characterized by any of the following summarized conditions.

1. All areas persistently or periodically containing naturally occurring wetland vegetation communities;

2. Areas that have hydric soils or wetland hydrology and lack naturally occurring wetland vegetation communities; and/or

3. Areas lacking wetland vegetation communities, hydric soils, and wetland hydrology due to non-permitted filling of previously existing wetlands.

There are no potential Waters of the U.S., Waters of the State, or City Wetlands present on the Project site. The project footprint is located outside of the canyon, on a previously graded and developed hilltop area. There are no valleys, depressions, rills, gullies, streambeds, or ponds present within the project footprint. Alden noted and mapped City Wetlands in the off-site canyon to the west, but no wetlands occur on site. Therefore, no regulatory permitting would be required because there would be no impacts to jurisdictional features.

5.4 PLANT SPECIES OBSERVED

Fifty-three plant species were observed. A list of these species is presented in Appendix A.

5.5 ANIMAL SPECIES OBSERVED OR DETECTED

Twelve animal species were observed or detected on site (Appendix B.)

6.0 SENSITIVE RESOURCES

6.1 SENSITIVE VEGETATION COMMUNITIES

Sensitive vegetation communities are considered rare within the region or sensitive by CDFW (Holland 1986) or the City (2012). These communities in any form (including, for example, -disturbed) are considered sensitive because they have been historically depleted, are naturally uncommon, or support sensitive species. The Project site supports two sensitive vegetation communities: scrub oak chaparral and Diegan coastal sage scrub (including disturbed).

6.2 SENSITIVE SPECIES

This section addresses sensitive plant and animal species observed and those evaluated for their potential to occur.

6.2.1 Sensitive Plant Species Observed

Three sensitive plant species were observed (Figure 3). They include Nuttall's scrub oak (*Quercus dumosa*), San Diego barrel cactus (*Ferocactus viridescens*), and spineshrub (*Adolphia californica*) as described below. These species all occur outside of the project limits; although the Nuttall's scrub oak (20 individuals) and San Diego barrel cactus (2 individuals) are located within project's BMZ II area (impact neutral).

Nuttall's scrub oak (*Quercus dumosa*)

Sensitivity: CNPS Rare Plant Rank 1B.1 (Appendix C)

Distribution: Coastal southern California from near Point Conception in Santa Barbara County south into northern Baja California, Mexico.

Habitat(s): Coastal areas with sandy soil or on sandstone substrate, in scrub oak chaparral, southern maritime chaparral, southern mixed chaparral or coastal sage scrub vegetation.

Presence On Site: Approximately 20 individual Nuttall's scrub oaks occur as scrub oak chaparral in the northern portion of the site within BMZ II area but outside of the project footprint (Figure 3).

San Diego barrel cactus (*Ferocactus viridescens*)

Sensitivity: CNPS Rare Plant Rank 2B.1; MSCP Covered Species (Appendix C)

Distribution: San Diego County; Baja California, Mexico.

Habitat(s): Hillsides with Diegan coastal sage scrub, often at the crest of slopes and growing among cobbles. Occasionally found on vernal pool periphery and mima mound topography.

Presence On Site: A total of five San Diego barrel cacti were observed in two locations (Figure 3). Two were observed within the within BMZ II area but outside of the project footprint. The remaining were observed within the larger biological mapping buffer area.

Spineshrub (*Adolphia californica*)

Sensitivity: CNPS Rare Plant Rank 2B.1 (Appendix C)

Distribution: Below 1,000 feet above mean sea level in western San Diego County and northwestern Baja California, Mexico.

Habitat(s): Clay soils in dry canyons and washes in coastal sage scrub and chaparral.

Presence On Site: A total of 15 spineshrubs were observed in two locations outside of the project footprint and within the biological buffer mapping area (Figure 3).

6.2.2 Sensitive Plant Species Not Observed and Their Potential to Occur

All City Narrow Endemic plant species were evaluated for their potential to occur on site as described in Table 2. A sensitive plant survey was conducted on May 16, 2018. Other sensitive plant species that were not observed but that may have potential to occur on site based on the literature review of the site and vicinity are addressed in Table 3.

Table 2 MSCP NARROW ENDEMIC PLANT SPECIES POTENTIAL TO OCCUR				
SPECIES	**LISTING/ SENSITIVITY[1] Federal/State CNPS**	**HABITAT(S)/ DISTRIBUTION**	**BLOOM PERIOD**	**POTENTIAL TO OCCUR**
San Diego thornmint (*Acanthomintha ilicifolia*)	FT/SE CNPS Rare Plant Rank 1B.1	Occurs on clay lenses in grassy openings in chaparral or sage scrub. Prefers friable or broken, clay soils. Range limited to coastal areas of San Diego County and Baja California, Mexico.	April to June	Not expected. Clay soils not present on site. Also, site is virtually 100% developed.
Shaw's agave (*Agave shawii*)	--/-- CNPS Rare Plant Rank 2B.1	Occurs in coastal sage scrub and coastal bluff scrub. Range limited to coastal areas of San Diego County and Baja California, Mexico.	September to May	Very low. A perennial leaf succulent that likely would have been observed if present. Also, site is virtually 100% developed.
San Diego ambrosia (*Ambrosia pumila*)	FE/-- CNPS Rare Plant Rank 1B.1	Found in disturbed areas within chaparral, coastal sage scrub, and grasslands. Range includes San Diego and Riverside counties south to Baja California, Mexico.	June to September	Very low. Not known from Project vicinity. Also, site is virtually 100% developed.
Aphanisma (*Aphanisma blitoides*)	--/-- CNPS Rare Plant Rank 1B.2	Occurs in sandy areas along the coast. Range includes islands off the southern California coast from San Onofre to Imperial Beach in San Diego County.	April to May	Very low. No known populations in MSCP Plan Area (City 1997a). Also, site is virtually 100% developed.
Coastal dunes milk-vetch (Astragalus tener var. titi)	FE/SE CNPS Rare Plant Rank 1B.1	Occurs in sandy places along the coast, including coastal dunes. Range includes coastal areas of Monterey, Los Angeles, and San Diego counties.	March to May	None. Coastal dunes not present. Also, site is virtually 100% developed.

Table 2 (continued)
MSCP NARROW ENDEMIC PLANT SPECIES POTENTIAL TO OCCUR

SPECIES	LISTING/ SENSITIVITY[1] Federal/State CNPS	HABITAT(S)/ DISTRIBUTION	BLOOM PERIOD	POTENTIAL TO OCCUR
Encinitas baccharis (*Baccharis vanessae*)	FT SE CNPS Rare Plant Rank 1B.1	Occurs on sandstone soils in chaparral. Known mainly from the Encinitas area from which it has been nearly extirpated.	August to November	Not expected. Not known from near the site. Also, site is virtually 100% developed.
Snake cholla (*Cylindropuntia californica* var. *californica*)	--/-- CNPS Rare Plant Rank 1B.1	Found in open patches in coastal sage scrub, primarily in southern portion of San Diego County and in Florida Canyon.	April to June	Very low. A perennial stem succulent that likely would have been observed if present. Also, site is virtually 100% developed.
Otay tarplant (*Deinandra conjugens)*	FT/SE CNPS Rare Plant Rank 1B.1	Occurs in disturbed areas and patches of coastal sage scrub in the Otay Mesa area.	June to August	Not expected. Occurs in Otay Mesa; not known from vicinity. Also, site is virtually 100% developed.
Short-leaved dudleya (*Dudleya blochmaniae* ssp. *brevifolia*)	--/SE CNPS Rare Plant Rank 1B.1	Occurs on Torrey sandstone soils in chaparral and coastal scrub.	April	None. Suitable soils not present. Also, site is virtually 100% developed.
San Diego button-celery (*Eryngium aristulatum* var. *parishii*)	FE/SE CNPS Rare Plant Rank 1B.1	Vernal pools or mima mound areas with vernally moist conditions are preferred habitat. Occurs in San Diego and Riverside counties and Baja California, Mexico.	April to June	Not expected. Suitable habitat not present. Also, site is virtually 100% developed.
Variegated dudleya (Dudleya variegata)	--/-- CNPS Rare Plant Rank 1B.2	Occurs on dry hillsides and mesas in chaparral, coastal sage scrub, grasslands, and near vernal pools. Ranges from San Diego County south to Baja California, Mexico.	May to June	Very low. Not known from vicinity. Also, site is virtually 100% developed.

Table 2 (continued)
MSCP NARROW ENDEMIC PLANT SPECIES POTENTIAL TO OCCUR

SPECIES	LISTING/ SENSITIVITY[1] Federal/State CNPS	HABITAT(S)/ DISTRIBUTION	BLOOM PERIOD	POTENTIAL TO OCCUR
Spreading navarretia (*Navarretia fossalis*)	FT/-- CNPS Rare Plant Rank 1B.1	Occurs in marshes and swamps (assorted freshwater habitats), playas, and vernal pools.	April to June	None. No suitable habitat present. Also, site is virtually 100% developed.
California Orcutt grass (*Orcuttia californica*)	FT/SE CNPS Rare Plant Rank 1B.1	Occurs within and adjacent to vernal pools.	April to June	None. No suitable habitat present. Also, site is virtually 100% developed.
San Diego mesa mint (*Pogogyne abramsii*)	FE/SE CNPS Rare Plant Rank 1B.1	Occurs within and adjacent to vernal pools.	March to July	None. No suitable habitat present. Also, site is virtually 100% developed.
Otay Mesa mint (*Pogogyne nudiuscula*)	FE/SE CNPS Rare Plant Rank 1B.1	Occurs within and adjacent to vernal pools on Otay Mesa.	March to July	None. No suitable habitat present. Not known from Project vicinity. Also, site is virtually 100% developed.

[1]See Appendix C for an explanation of listing/sensitivity codes. Narrow Endemic Species are a subset of MSCP Covered Species. Otay Mesa mint, San Diego mesa mint, California Orcutt grass, San Diego button-celery, and spreading navarretia are not currently MSCP Covered as explained in Appendix C.

Table 3 SENSITIVE PLANT SPECIES AND THEIR POTENTIAL TO OCCUR[1]				
SPECIES	**LISTING/ SENSITIVITY[2] Federal/State CNPS City**	**HABITAT(S)/DISTRIBUTION**	**BLOOM PERIOD**	**POTENTIAL TO OCCUR**
Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)	--/-- CNPS Rare Plant Rank 1B.2 --	North-facing slopes and drainages in chaparral in Scattered locations below approximately 2,300 feet above mean sea level from the foothills to the coast in Orange and San Diego counties and south into Baja California, Mexico.	April to June	Not expected within the project footprint. Moderate in coastal sage scrub and in chaparral adjacent to the site, outside of the project limits but within the wider Study Area. There would be no project impact to this species.
Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)	FE/-- CNPS Rare Plant Rank 1B.1 MSCP Covered	Sandy, maritime chaparral.	December to June	Not expected. Maritime chaparral is not present on site.
Del Mar Mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*)	--/-- CNPS Rare Plant Rank 1B.1 MSCP Covered	Sandy soils in coastal bluff scrub, openings in maritime chaparral, and coastal scrub.	May, July, August, September	Low. Potential habitat limited on site.
Wart-stemmed ceanothus (*Ceanothus verrucosus*)	--/-- CNPS Rare Plant Rank 2B.2 MSCP Covered	Chaparral.	December to May	Not expected within the project footprint. Moderate in chaparral adjacent to the site, outside of the project limits but within the wider Study Area. There would be no project impact to this species.

[1]These species were not observed. Sensitive plant species that were observed are listed prior to Table 2.
[2]See Appendix C for an explanation of listing/sensitivity codes.

6.2.3 Sensitive Animal Species Observed or Detected

One sensitive animal species has been observed outside of the project footprint, within the biological buffer mapping area: Coronado skink (*Plestiodon skiltonianus interparietalis*; Figure 3). This species is briefly described below.

Coronado skink (*Plestiodon skiltonianus interparietalis*)

Sensitivity: State Watch List (Appendix C)

Distribution: Southwestern California from Los Angeles County south into northwestern Baja California, Mexico; also occurs on several islands off the Pacific coast including Los Coronados Islands.

Habitat(s): Grasslands, coastal sage scrub, open chaparral, oak woodland, and coniferous forests, usually under rocks, leaf litter, logs, debris, or in the shallow burrows it digs.

Presence On Site: This species was observed within Diegan coastal sage scrub/disturbed land well outside of the project limits in the biological mapping buffer area (Figure 3).

6.2.4 Sensitive Animal Species Not Observed or Detected and Their Potential to Occur

Sensitive animal species that were not observed or detected but that may have potential to occur on site based on the literature review for the project vicinity and potential habitats present are listed in Table 4. Four of the species listed in Table 4 have moderate or moderate-to-high potential to occur on site: southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*; moderate), coastal California gnatcatcher (*Polioptila californica californica*; moderate to high), Dulzura pocket mouse (*Chaetodipus californicus femoralis*; moderate), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*; moderate). See Table 4 for information regarding the listing/sensitivity and habitat requirements for these species. No animal species that was not observed or detected has high potential to occur on site.

6.2.5 Nesting Birds

The site has potential to support nesting birds that are protected by the MBTA and California Fish and Game Code Sections 3503 and 3503.5 (see Sections 3.1 and 3.2). Species protected by these policies include geese, ducks, shorebirds, raptors, songbirds, and many others. The most likely types of birds to nest on site would be songbirds.

6.2.6 Wildlife Corridors and Nursery Sites

Wildlife corridors can be local or regional in scale; their functions may vary temporally and spatially based on conditions and species presence. Wildlife corridors represent areas where wildlife movement is concentrated due to natural or anthropogenic constraints. Animals use these corridors to move between different habitats areas. Regional corridors provide these functions and link two or more large habitat areas. Regional corridors provide avenues for wildlife dispersal, migration, and contact between otherwise distinct populations.

Table 4 SENSITIVE ANIMAL SPECIES AND THEIR POTENTIAL TO OCCUR[1]			
SPECIES	**LISTING OR SENSITIVITY[2] Federal/State City**	**HABITAT(S)/DISTRIBUTION**	**POTENTIAL TO OCCUR**
INVERTEBRATES			
Quino checkerspot butterfly (*Euphydryas editha quino*)	FE/-- --	Primary larval host plants in San Diego are dwarf plantain (*Plantago erecta*) at lower elevations. Owl's clover (*Castilleja exserta*) may serve as host plant if primary host plants have senesced. Potential habitat includes areas of low-growing and sparse vegetation. Exists only as several, probably isolated, colonies in southwestern Riverside County, southern San Diego County, and northern Baja California, Mexico.	Not expected. The site is not within the recommended survey area for the species (USFWS 2014). Also, site is virtually 100% developed.
Hermes copper butterfly (*Lycaena hermes*)	FC/-- --	Southern mixed chaparral and coastal sage scrub with mature specimens of its larval host plant, spiny redberry (*Rhamnus crocea*). Range is San Diego County, south of Fallbrook, to northern Baja California, Mexico.	Not expected. Spiny redberry was not observed. Also, site is virtually 100% developed.
VERTEBRATES			
Reptiles			
Northern red-diamond rattlesnake (*Crotalus ruber*)	--/SSC --	Found in chaparral, coastal sage scrub, and along creek banks, particularly among rock outcrops or piles of debris supporting rodents. Ranges from extreme southeastern Los Angeles County (Diamond Bar) into southern San Bernardino County, and south into southern Baja California, Mexico.	Low. Prefers rocky outcroppings within coastal sage scrub or chaparral habitats. Rocky outcroppings are not present on the Project site. Also, site is virtually 100% developed.
Birds			
Bell's sage sparrow (*Amphispiza belli belli*)	BCC/-- WL	Chaparral and sage scrub with modest leaf litter. Patchy distribution throughout San Diego County, which often shifts to include partially recovered burned areas.	Low due to limited habitat and the species' patchy distribution.
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	--/WL MSCP Covered	Coastal sage scrub and open chaparral as well as shrubby grasslands. Occur throughout coastal lowlands and foothills of San Diego County	Moderate. Could occur within coastal sage scrub habitat on site.

Table 4 (continued) SENSITIVE ANIMAL SPECIES AND THEIR POTENTIAL TO OCCUR[1]			
SPECIES	**LISTING OR SENSITIVITY[2] Federal/State City**	**HABITAT(S)/DISTRIBUTION**	**POTENTIAL TO OCCUR**
INVERTEBRATES (continued)			
Coastal California gnatcatcher (*Polioptila californica californic*a)	FT/SSC MSCP Covered	Coastal sage scrub in southern Los Angeles, Orange, western Riverside, and San Diego counties south into Baja California, Mexico.	Moderate to high. Could occur within coastal sage scrub habitat on site.
Mammals			
San Diego desert woodrat (*Neotoma lepida intermedia*)	--/SSC --	Open chaparral and coastal sage scrub, often building large, stick nests in rock outcrops or around clumps of cactus or yucca. Occurs along the coastal slope of southern California from San Luis Obispo County south into coastal northwestern Baja California, Mexico	Low. Nests likely would have been observed if present.
Dulzura pocket mouse (*Chaetodipus californicus femoralis*)	--/SSC --	Primarily associated with mature chaparral. In San Diego County, it ranges eastward to the desert transition zone.	Moderate. Habitat potentially suitable.
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	--/SSC --	Open areas of coastal sage scrub and weedy growth, often on sandy substrates. Ranges from Los Angeles County and southern San Bernardino County south into west-central Baja California, Mexico.	Moderate. Habitat potentially suitable.

[1]These species were not observed. Sensitive animal species that were observed are listed in Section 6.2.3.
[2]See Appendix C for an explanation of listing and sensitivity codes.

The City's Preserve, the Multi-habitat Planning Area (MHPA) includes core biological resource areas and corridors targeted for conservation that preserve local and regional corridor functions. The site is not in or adjacent to the MHPA; rather, the site is surrounded by existing development precluding it from connecting habitat areas to the north including the MHPA north of Del Mar Heights Road (0.25 mile to the north of the Project site and with intervening development) and 0.21 mile to the east of the Project site (west of Carmel Valley Road) and with intervening development (Figure 2). The project is located on a previously graded and developed area and is not within or part of a wildlife corridor. Given that the site is not a part of a wildlife corridor, the project would not result in impacts to any wildlife corridor. Additionally, as stated in the prior Environmental Impact Report for the Project site (City 1996), "No restrictions to key wildlife corridors would occur."

A wildlife nursery site is a specific, established location often used repeatedly for breeding purposes, such as a heron rookery or bat maternal colony roost. No such wildlife nursery sites were observed, and due to the urban location of the site, none is expected.

7.0 PROJECT IMPACT ANALYSIS

This section analyzes the Project's effects on sensitive biological resources. The City's CEQA Significance Determination Thresholds (City 2012) are used to establish whether or not there is a significant effect. A significant effect is defined as a "substantial or potentially substantial adverse change in the environment." Appendix G of the CEQA Guidelines further indicate that there may be a significant effect on biological resources if a project will:

A. Substantially affect an endangered, rare, or threatened species of animal or plant or the habitat of the species.

B. Interfere substantially with the movement of any resident or migratory fish or wildlife species.

   There are no wildlife movement corridors or habitat linkages on, or adjacent to, the Project site. As stated in the prior Environmental Impact Report for the Project site (City 1996), "No restrictions to key wildlife corridors would occur", and "Impacts to wildlife movement and wildlife corridors are considered less than significant." Therefore, the Project would not interfere substantially with wildlife movement, and this significance criterion is not addressed further.

C. Substantially diminish habitat for fish, wildlife, or plants.

Impacts to biological resources are evaluated by City staff through the CEQA review process, the ESL Regulations and Biology Guidelines, and through the review of a project's consistency with the City's MSCP Subarea Plan.

For projects within the City or carried out by the City which may affect sensitive biological resources, potential impacts to such sensitive biological resources must be evaluated using the following significance criteria:

1. Would the project result in substantial adverse impacts, either directly or through habitat modifications, to any species identified as a candidate, sensitive or special status species in the MSCP or other local or regional plans, policies or regulations, of by the CDFW or USFWS?

2. Would the project result in a substantial adverse impacts on any Tier I, Tier II, Tier IIIA or Tier IIIB habitats as identified in the Biology Guidelines of the Land Development Code or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS?

3. Would the project result in a substantial adverse impact on wetlands (including, but not limited to, marsh, vernal pools, riparian areas, etc.) through direct removal, filling, hydrological interruption, or other means?

   There are no potential Waters of the U.S., Waters of the State, or City Wetlands present on the Project site. As such, the Project would not impact wetlands, so this significance criterion is not addressed further. See Section 5.3 (Jurisdictional Features) for wetlands definitions.

4. Would the project substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, including linkages identified in the MSCP Plan, or impede the use of native wildlife nursery sites?

   There are no wildlife movement corridors or habitat linkages on, or adjacent to, the Project site, and there are no native wildlife nursery sites on the Project site. The project is located on a previously graded and developed site. Additionally, as stated in the prior Environmental Impact Report for the Project site (City 1996), "No restrictions to key wildlife corridors would occur", and "Impacts to wildlife movement and wildlife corridors are considered less than significant." Therefore, the Project would not substantially interfere with wildlife or impede the use of native wildlife nursery sites, and this significance criterion is not addressed further.

5. Would the project conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Conservation Community Plan (NCCP) or other approved local, regional or state habitat conservation plan, either within the MSCP plan area or in the surrounding region?

   The Project is not within or adjacent to the MHPA, so it would not directly or indirectly impact the MHPA. Also, there would be no direct impacts to MSCP Covered Species, and the Project addresses each of the Major Issues listed in Section 1.5.7 of the City's MSCP Subarea Plan for Specific Management Directives for the Urban Habitat Lands (see Section 4.1.3 of this biological technical report). Therefore, this significance criterion is not addressed further.

6. Would the project introduce a land use within an area adjacent to the MHPA that would result in adverse edge effects?

   The Project site is not adjacent to the MHPA, so the Project would not result in edge effects to the MHPA, and this significance criterion is not addressed further.

7. Would the project conflict with any local policies or ordinances protecting biological resources?

   The Project has been designed, and its mitigation has been formulated, to satisfy the requirements of the City's ESL Regulations and Biology Guidelines (City 2012). Therefore, the Project would not conflict with any local policies or ordinances protecting biological resources, and this significance criterion is not addressed further.

8. Would the project introduce invasive species of plants into natural open space?

   The project is not located adjacent to the MHPA; therefore, the Land Use Adjacency guidelines do not apply. However, invasive or potentially invasive species identified in the California Invasive Plant Inventory prepared by the California Invasive Plant Council (2006) would be included in the project landscape plans. By excluding invasive species in the landscape plant palette, the built Project would not be a source of invasive species in the adjacent area.

7.1 DIRECT IMPACTS

All direct impacts from the proposed Project would be permanent, and Zone 1 Brush Management is located within the permanent impact footprint. While Zone 2 Brush Management would impact vegetation communities/land cover types, Zone 2 is impact neutral (i.e., not counted as an impact but cannot be used as mitigation).

7.1.1 Vegetation Communities/Land Cover Types

Approximately 7.89 acres of vegetation communities/land cover would be directly impacted through removal with implementation of Project construction as presented in Table 5 and shown on Figure 3. To ensure that the impacts listed in Table 5 are not exceeded and no direct impacts occur outside the Project impact footprint, Permit Condition, *Biological Resource Protection During Construction*, (Section 8.0 of this report) is required.

Table 5 IMPACTS TO VEGETATION COMMUNITIES/ LAND COVER TYPES			
Vegetation Community/ Land Cover Type	**On-site Impact[1] Acre(s)**	**Off-site Impact[1] Acre(s)**	**TOTAL**
Upland			
Scrub oak chaparral (Tier I)	-	-	**-**
Diegan coastal sage scrub (Tier II)	0.05	-	**0.05**
Diegan coastal sage scrub-disturbed (Tier II)	-	0.04	**0.04**
Other Upland			
Disturbed land (Tier IV)	-	-	**-**
Land Cover			
Urban/developed	7.6	0.2	**7.8**
TOTAL	**7.65**	**0.24**	**7.89**

[1]BMZ I is located entirely within the graded footprint and therefore is not calculated separately.

Wetland/Riparian Vegetation Communities

There would be no direct impacts to wetland/riparian vegetation communities from the proposed Project because none are present on site. See Section 5.3 (Jurisdictional Features) for wetland/riparian definition.

Upland Vegetation Communities

Proposed Project construction would directly impact 0.09 acre of Diegan coastal sage scrub (including disturbed). Typically, impacts to Diegan coastal sage scrub (Tier II) are considered significant by the City. However, according to the City's Biology Guidelines (City 2012), total upland impacts (to Tiers I through IIIB) of less than 0.1 acre are not considered significant and do not require mitigation. The project would impact 0.09 acre of Diegan coastal sage scrub (including disturbed); therefore, this impact would not be considered significant and mitigation would not be required.

There would be no direct impacts to the remaining upland vegetation communities from the proposed Project (i.e., Tier I scrub oak chaparral).

Other Uplands (Tier IV)

Disturbed land (defined in Section 5.2.2) would not be directly impacted by proposed Project construction.

Land Cover

Approximately 7.8 acres of urban/developed land would be directly impacted by proposed Project construction. Since this land cover has not been assigned a Tier, and it is not a sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS, impacts to urban/developed would be less than significant (Significance Criteria 2 and C). No mitigation would be required.

7.1.2 Sensitive Plant Species

Construction of the proposed Project would not directly impact sensitive plant species observed (Nuttall's scrub oak, San Diego barrel cactus, and spineshrub; Significance Criterion 1). That is, construction would not cause the removal of these plants or adverse impacts to these species. Therefore, no mitigation would be required.

Construction of the proposed Project would not directly impact sensitive plant species with moderate potential to occur (summer holly and wart-stemmed ceanothus) because these species occur in chaparral habitats, which would not be impacted. Impacts are also not anticipated to sensitive plant species with low potential to occur. No mitigation would be required.

7.1.3 Sensitive Animal Species

Construction of the proposed Project would not directly impact sensitive animal species observed (i.e., Coronado skink). While the Project would directly impact 0.09 acre of potential habitat for the species (Diegan coastal sage scrub [including disturbed]), the area of impact is not substantial, and the impact would not significantly affect the species (Significance Criterion 1). No mitigation would be required.

Similarly, construction of the proposed Project is not expected to directly impact sensitive bird species with moderate-to-high or moderate potential to occur (i.e., coastal California gnatcatcher and southern California rufous-crowned sparrow, respectively) since they could fly away and avoid construction equipment. Construction could directly impact Dulzura pocket mouse and northwestern San Diego pocket mouse with moderate potential to occur, however, since these species could be crushed in their burrows. While the Project would directly impact 0.09 acre of potential habitat for all of these species (Diegan coastal sage scrub [including disturbed]), the area of impact is not substantial, and the loss of habitat for these species, should they occur, would be less than significant (Significance Criteria 1 [and A for the gnatcatcher]). The potential direct impacts to the pocket mice species would also be less than significant because the number of individuals potentially affected would be very low (due to the area of impact being very low—0.09 acre), and the species are not State or federal listed. No mitigation would be required.

7.2 INDIRECT IMPACTS

Potential indirect impacts consist of secondary effects of a project such as drainage/water quality issues, fugitive dust, lighting, noise, public access, invasive plant species, disruption of avian nesting, and nuisance animals. The magnitude of an indirect impact can be the same as a direct impact, but the effect usually takes a longer time to become apparent. For example, fugitive dust from equipment used during grading could settle on nearby vegetation and interfere with photosynthetic processes. Immediate impacts to plant health may not be apparent, but over time, the plants may be adversely affected.

Drainage/Water Quality

The release and spread of toxins, chemicals, petroleum products, and other elements can degrade or harm the natural environment or ecosystems processes. Should this occur in ESL, the impacts could be significant according to Significance Criteria 1, 2, and 3. All potential drainage and toxics impacts would be minimized during construction through the Project's required use of the City's Construction Site Best Management Practices (SDMC §43.0301) and compliance with City of San Diego Storm Water Standards (City 2018). The built Project would include three above-ground detention basins with biofiltration media, which serve the dual purposes of hydromodification management and pollutant treatment, respectively (Figure 3; Project Design Consultants 2018). Therefore, potential impacts resulting from drainage or impaired water quality from the proposed Project would be less than significant. No mitigation would be required, but the Project will be conditioned to meet the City standards.

Fugitive Dust

Fugitive dust produced by construction can disperse onto adjacent native vegetation and significantly affect sensitive species (Significance Criteria 1 and A), sensitive natural communities (Significance Criteria 2 and C), and wetlands (Significance Criterion 3). A continual cover of dust can reduce the overall vigor of individual plants by reducing their photosynthetic capabilities and increasing their susceptibility to pests or disease. This, in turn, could affect animals dependent on these plants (e.g., seed-eating rodents). Fugitive dust also may make plants unsuitable as habitat for wildlife.

Construction of the proposed Project would include the use of dust control measures required in SDMC Section 142.0101 et seq. Therefore, construction would result in less-than-significant impacts from fugitive dust with the implementation of these protocols. No mitigation would be required.

Lighting

Nighttime lighting exposes wildlife to an unnatural light regime that may adversely affect foraging patterns, increase predation risk, cause biological clock disruptions, and result in a loss of species diversity. Nighttime lighting can be a significant indirect impact according to Significance Criteria 1 and A (significantly affect sensitive species) if it spills into ESL. Potential nighttime lighting impacts would be minimized to less-than-significant levels by the Project's

adherence to the City's Outdoor Lighting Regulations (SDMC §142.0740). Therefore, no mitigation would be required.

Noise

Construction

Construction-related noise from such sources as clearing, grading, and construction vehicular traffic would be a temporary impact to wildlife from implementation of the proposed Project.

These noise-related impacts would be considered significant according to Significance Criteria 1 and A if species sensitive to noise are present. The coastal California gnatcatcher, which is sensitive to noise, has moderate to high potential to occur. However, noise-related impacts to the gnatcatcher are only an issue if the site is located within the MHPA. The Project site is not within (or adjacent to) the MHPA. The City has take authorization for the coastal California gnatcatcher, so noise impacts to this species outside the MHPA are allowed, and no mitigation would be required.

Operation

The Project, a senior residential care facility, would not create noise-related impacts that would affect the coastal California gnatcatcher that has moderate potential to occur. Noise-related impacts to the gnatcatcher are only an issue if the site is located within the MHPA. The Project site is not within (or adjacent to) the MHPA. The City has take authorization for the coastal California gnatcatcher, so noise impacts to this species outside the MHPA are allowed. No mitigation would be required.

Public Access

Development of the Project does not propose the use of the existing (former equestrian) trails in the canyon off site to the west, nor would the senior living facility be expected to result in the creation of new trails off site (the Project would create new trails internal to the proposed senior living facility). Therefore, potential indirect impacts to ESL from the Project are not anticipated, and no mitigation would be required.

Disruption of Avian Nesting

Indirect impacts to nesting birds protected by the MBTA and California Fish and Game Code Sections 3503 and 3503.5 could result if clearing of vegetation or construction activity near active avian nests occurs during the nesting season (February 1 to September 15) and causes abandonment of the nests resulting in mortality of eggs or young. Indirect impacts to protected nesting birds would be considered significant according to Significance Criteria 1 and A. The Seabreeze Senior Living Project must comply with the MBTA and California Fish and Game Code Sections 3503 and 3503.5. Therefore, no mitigation is required with such compliance.

Invasive Plant Species

Invasive, non-native plants can displace native plants; reduce species diversity; increase flammability and fire frequency; change ground and surface water levels; and adversely affect native wildlife dependent on the native flora. Invasive, non-native plants can colonize areas disturbed by construction and potentially spread into adjacent natural communities (i.e., ESL). Invasive, non-native plants can also spread from landscaping into adjacent natural communities.

The potential introduction and/or spread of invasive, non-native plant species to natural communities (ESL) during construction would be considered a significant impact according to Significance Criteria 1, 2, 8, A, and C. The introduction and/or spread of these species can occur, for example, if plant material is introduced or spread from the tires or undercarriages of construction equipment or if grading activities exceed authorized limits and weed-infested soil enters ESL. Permit Condition, *Biological Resource Protection During Construction,* (Section 8.0 of this report) would be required.

SDMC Landscape Standards (Section 1.3) would be followed by the proposed Project so that no potentially invasive plant species are planted in landscaping adjacent to ESL resulting in a less-than-significant impact from landscaping. No mitigation would be required.

Nuisance Animals

Residential projects have the potential for domestic animals to impact native wildlife. While un-owned cats, as opposed to owned pets, cause the majority of this mortality, findings suggest that free-ranging cats are likely the single greatest source of mortality for birds and mammals in the United States (Loss et al. 2013). If the senior living facility allows pet ownership, it is expected that the animals will be required to remain indoors, or when outdoors, under human control (i.e., leashed). Therefore, potential indirect impacts to native wildlife from nuisance domestic animals would be less than significant, and no mitigation would be required.

7.3 CUMULATIVE IMPACTS

The MSCP was designed to compensate for the cumulative loss of biological resources throughout the San Diego region. Projects that conform to the MSCP as specified by the City's Subarea Plan and implementing ordinances, (i.e., Biology Guidelines and ESL Regulations) are not expected to result in a significant cumulative impact for those biological resources adequately covered by the MSCP. These resources include the vegetation communities identified as Tier I through IV and MSCP Covered Species (City 2012).

The Project would comply with the City's Subarea Plan by complying with the Specific Management Directives (see Section 4.1.3) and by mitigating for significant impacts in accordance with ESL Regulations and the City's Biology Guidelines (see Section 8.0). Other projects in the City would also be required to comply with the City's Subarea Plan. Therefore, the Project combined with other foreseeable projects in the City would have less-than-significance cumulative impacts on biological resources, and no mitigation would be required.

8.0 CONCLUSION

The Project would not result in significant impacts to sensitive vegetation communities, sensitive plant species, sensitive animal species, or jurisdictional/wetland resources. While there are no significant impacts and, therefore, no mitigation is required, a Permit Condition for "Biological Resource Protection During Construction," outlined below, will be provided to ensure the Project's scope would be limited to the Project impact footprint and to ensure there would be no indirect impacts associated with the introduction and/or spread of non-native, invasive plant species to ESL during construction activities.

PERMIT CONDITION: BIOLOGICAL RESOURCE PROTECTION DURING CONSTRUCTION

I. Prior to Construction

A. **Biologist Verification:** The owner/permittee shall provide a letter to the City's MMC Section stating that a Project Biologist (Qualified Biologist), as defined in the City of San Diego'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 a 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 Mitigation Monitoring Coordination 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, ESL Ordinance, project permit conditions; CEQA; endangered species acts; and/or other local, State or Federal requirements.

D. **Biological Construction Mitigation/Monitoring Exhibit:** The Qualified Biologist shall present a Biological Construction Mitigation/Monitoring Exhibit which includes the biological documents in C, above. In addition, include: restoration/revegetation plans, plant salvage/relocation requirements, avian or other wildlife surveys/survey schedules (including general avian nesting and USFWS protocol), 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 Biological Construction Mitigation/Monitoring Exhibit shall include a site plan, written and graphic depiction of the project's biological mitigation/monitoring program, and a schedule. The Biological Construction Mitigation/Monitoring Exhibit 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 silt and orange construction fencing or equivalent along the limits of disturbance and verify compliance with any other project conditions as shown on the Biological Construction Mitigation/Monitoring Exhibit. This phase shall include, as applicable, 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 avian buffers and clarify 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 Biological Construction Mitigation/Monitoring Exhibit. 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 pre-construction 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 Mitigation Monitoring Coordination on the 1st day of monitoring, the 1st week of each month, the last day of monitoring, and immediately in the case of any undocumented condition or discovery.

The Qualified Biologist shall monitor, as is feasible, for the presence of sensitive animals species and shall, if practicable, direct or move these animals out of harm's way (i.e., to a location of suitable habitat outside the impact footprint).

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

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 laws. The Qualified Biologist shall submit a final Biological Construction Mitigation/Monitoring Exhibit /report to the satisfaction of the City Assistant Deputy Director /MMC within 30 days of construction completion.

9.0 REFERENCES

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10.0 PREPARER'S QUALIFICATIONS/CERTIFICATIONS

Greg Mason, Principal/Senior Biologist, Alden Environmental, Inc.

Summary of Qualifications

Mr. Mason is the Principal and Senior Biologist at Alden Environmental, Inc. He has over 20 years' experience working in the environmental field and has participated in hundreds of projects in San Diego County. His experience includes oversight of large- and small-scale mitigation compliance programs, including habitat restoration, sensitive species surveys, vegetation mapping, wetland delineations, construction monitoring, impact analysis, report preparation, project permitting, and project management. He has worked extensively with both public and private clients, in coordination with federal, state and local regulatory staff, in the implementation of mitigation and monitoring programs in the field. He assists clients in obtaining aquatic resources permits including U.S. Army Corps Section 404 Permits, RWQCB Section 401 Certifications, and CDFW 1600 Streambed Alteration Agreements. Through his permitting work, Mr. Mason also facilitates the Section 7 consultation process with the USFWS and negotiates conservation measures. Mr. Mason is permitted by the USFWS to conduct presence/absence surveys for Quino checkerspot butterfly; San Diego, Riverside, vernal pool, Conservancy, and longhorn fairy shrimps; and vernal pool tadpole shrimp throughout the range of each species, and is also authorized to conduct dry season fairy shrimp analysis, identification, and culturing.

Professional Experience

Jr. Environmental Planner	HELIX Environmental Planning, Inc., La Mesa, CA	1992 - 1993
Peace Corps Volunteer	U.S. Peace Corps, Paraguay	1993 - 1996
Environmental Planner	Helix Environmental Planning, Inc., La Mesa, CA	1996 - 1998
Biologist	Helix Environmental Planning, Inc., La Mesa, CA	1998 - 2001
Biology Group Manager	Helix Environmental Planning, Inc., La Mesa, CA	2001 - 2004
Division Manager, Biological Services	Helix Environmental Planning, Inc., La Mesa, CA	2004 - 2008
Vice President, Biological Services	Helix Environmental Planning, Inc., La Mesa, CA	2008 - 2011
Principal and Senior Biologist	Alden Environmental, Inc., San Diego, CA	2011 - Present

Education

Bachelor of Science, Natural Resources Planning & Interpretation, Humboldt State University, 1992

Registrations/Certifications/Licenses

- USFWS Threatened/ Endangered Wildlife Species Permit (quino checkerspot butterfly; San Diego, Riverside, vernal pool, Conservancy, and longhorn fairy shrimps; and vernal pool tadpole shrimp)
- USFWS authorized for dry season fairy shrimp analysis, identification, and culturing
- CDFW Scientific Collecting Permit SC-007619
- County of San Diego, Approved Biological Consultant and Approved Revegetation Planner

Professional Affiliations

- California Native Plant Society
- Returned Peace Corps Volunteer Association

Appendix A
Plant Species Observed

Appendix A
PLANT SPECIES OBSERVED

SCIENTIFIC NAME	COMMON NAME	VEGETATION COMMUNITY[1]
Aizoaceae – Ice Plant Family		
Mesembryanthemum crystalinum[2]	crystalline iceplant	DL, NNG
Mesembryanthemum nodiflorum[2]	slender-leaf iceplant	DL
Apiaceae – Carrot Family		
Foeniculum vulgare[2]	sweet fennel	DL
Aracaceae – Palm Family		
Washingtonia robusta[2]	Mexican fan palm	DL
Asteraceae – Sunflower Family		
Baccharis salicifolia	mule fat	DL
Centaurea melitensis[2]	tocalote	DL, NNG
Erigeron sp.[2]	horseweed, fleabane	DL
Glebionis coronaria[2]	garland daisy	DL, NNG
Gutierrezia californica	matchweed	DL
Hedypnois cretica[2]	Crete hedypnois	DL
Helianthus sp.	sunflower	DL
Lactuca serriola[2]	prickly lettuce	DL, NNG
Matricaria discoidea	pineapple weed	DL
Sonchus sp.[2]	sow-thistle	DL
Boraginaceae – Borage Family		
Amsinckia menziesii	rancher's fiddleneck	DL, NNG
Pectocarya sp.	pectocarya	DL
Brassicaceae – Mustard Family		
Brassica nigra[2]	black mustard	DL, NNG
Hirschfeldia incana[2]	short-pod mustard	DL, NNG
Sisymbrium sp.[2]	London rocket	DL
Caryophyllaceae – Pink Family		
Spergularia boconi[2]	sand-spurrey	DL
Chenopodiaceae – Goosefoot Family		
Atriplex semibaccata[2]	Australian saltbush	DL
Chenopodium murale[2]	nettle-leaf goosefoot	DL, NNG
Salsola tragus[2]	Russian thistle	DL, NNG
Fabaceae – Pea Family		
Acacia sp.[2]	acacia	DL
Melilotus albus[2]	white sweetclover	DL
Geraniaceae – Geranium Family		

Erodium botrys[2]	storksbill	DL, NNG
Erodium cicutarium[2]	red-stem filaree	DL
Malvaceae – Mallow Family		
Malva parviflora[2]	cheeseweed	DL, NNG
Poaceae – Grass Family		
Avena barbata[2]	slender wild oat	DL, NNG
Bromus diandrus[2]	ripgut grass	DL, NNG
Bromus hordeaceus[2]	soft chess	DL, NNG
Bromus madritensis ssp. *rubens*[2]	red brome, foxtail chess	DL, NNG
Hordeum murinum ssp. *glaucum*[2]	glaucous barley	DL, NNG
Schismus barbatus[2]	Mediterranean schismus	DL, NNG
Primulaceae – Primrose Family		
Anagallis arvensis[2]	scarlet pimpernel	DL
Salicaceae – Willow Family		
Salix sp.[2]	willow	DL
Solanaceae – Nightshade Family		
Nicotiana glauca[2]	tree tobacco	DL
Tamaricaceae – Tamarisk Family		
Tamarix sp.[2]	tamarisk	DL
Urticaceae – Nettle Family		
Urtica urens[2]	dwarf nettle	DL

[1] Vegetation community acronyms: DL = disturbed land; NNG = non-native grassland
[2] Non-native species

Appendix B
Animal Species Observed or Detected

APPENDIX B
ANIMAL SPECIES OBSERVED/DETECTED

SCIENTIFIC NAME	COMMON NAME	WHERE OBSERVED
Invertebrates		
Apis mellifera	European honey bee	DL
Apodemia virgulti	Behr's metalmark	DL
Brephidium exilis	western pygmy blue	DL
Pieris rapae rapae	cabbage white	DL
Vanessa annabella	west coast lady	DL
Vanessa sp.	lady butterfly (unidentified)	DL
Reptiles		
Sceloporus occidentalis	western fence lizard	DL
Lampropeltis getula	California kingsnake	DL
Birds		
*Accipiter cooperii**	Cooper's hawk	Fly over
Agelaius phoeniceus	red-winged blackbird	DL
Anthus rubescens	American pipit	DL
Ardea herodias	great blue heron	Fly over
Buteo jamaicensis	red-tailed hawk	Fly over
Charadrius vociferus	killdeer	DL, NNG
Calypte anna	Anna's hummingbird	DL
Columba livia	rock pigeon	DL
Corvus brachyrynchos	American crow	Fly over
Corvus corax	common raven	Fly over
Falco sparverius	American kestrel	DL
Haemorhous mexicanus	house finch	DL
Icterus cucullatus	hooded oriole	DL
Melospiza melodia	song sparrow	DL
Melozone crissalis	California towhee	DL
Mimus polyglottos	northern mockingbird	DL
Molothrus ater	brown-headed cowbird	DL
Petrochelidon pyrrhonota	cliff swallow	Fly over
Psaltriparus minimus	bushtit	DL
Sayornis nigricans	black phoebe	DL
Sayornis saya	Say's phoebe	DL
Setophaga coronata	yellow-rumped warbler	DL
Spinus psaltria	lesser goldfinch	DL
Stelgidopteryx serripennis	northern rough-winged swallow	Fly over
Sturnella neglecta	western meadowlark	DL
Sturnus vulgaris vulgaris	European starling	DL
Thryomanes bewickii	Bewick's wren	DL
Tyrannus vociferans	Cassin's kingbird	DL
Vermivora celata	orange-crowned warbler	DL
Zenaida macroura	mourning dove	DL
Zonotrichia leucophrys	white-crowned sparrow	DL
Mammals		
Canis latrans	coyote	DL—scat
*Lepus californicus bennettii**	San Diego black-tailed jackrabbit	DL—scat
Otopermophilus beecheyi	California ground squirrel	DL
Sylvilagus audubonii	desert cottontail	DL

DL = disturbed land, NNG = non-native grassland
*Sensitive species

Appendix C
Explanation of Listing/Sensitivity Codes For Plant and Animal Species

Appendix C
EXPLANATION OF LISTING/SENSITIVITY CODES
FOR PLANT AND ANIMAL SPECIES

U.S. Fish and Wildlife Service (USFWS)

FE Federally Listed Endangered
FT Federally Listed Threatened
BCC Bird of Conservation Concern—Represents USFWS' highest conservation priorities and draw attention to species in need of conservation action.

California Department of Fish and Wildlife (CDFW)

SE State Listed Endangered
ST State Listed Threatened
SCE State Candidate for Listing as Endangered
SSC State Species of Special Concern—Declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.
WL Watch List—Birds that are/were: a) not on the current list of species of special concern but were on previous lists and have not been State listed under the California Endangered Species Act; b) previously State or federally listed and now are on neither list; or c) on the list of "Fully Protected" species.
FULLY PROTECTED refers to all vertebrate and invertebrate taxa of concern to the California Natural Diversity Data Base regardless of legal or protection status. These species may not be taken or possessed without a permit from the Fish and Game Commission and/or CDFW.

City of San Diego

MSCP Covered Species Covered Species are those species included in the Incidental Take Authorization issued to the City by the USFWS and CDFW as part of the City's MSCP Subarea Plan.

MSCP Narrow Endemic Species A species that is confined to a specific geographic region, soil type, and/or habitat. Narrow Endemic species are a subset of Covered Species.

Appendix C (cont.)
EXPLANATION OF LISTING OR STATUS CODES
FOR PLANT AND ANIMAL SPECIES

California Native Plant Society (CNPS)

California Rare Plant Rank

1A = Presumed extirpated in California and either rare or extinct elsewhere.
1B = Rare, threatened, or endangered in California and elsewhere.

2A= Presumed extirpated in California but more common elsewhere.
2B= Rare, threatened, or endangered in California but more common elsewhere.
3 = More information is needed.
4 = A watch list for species of limited distribution.

Threat Rank

.1 = Seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)

.2 = Moderately endangered in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat)

.3 = Not very threatened in California (less than 20 percent of occurrences threatened/ low degree and immediacy of threat or no current threats known)

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST INTRODUCTION

In December 2015, the City adopted a Climate Action Plan (CAP) that outlines the actions that City will undertake to achieve its proportional share of State greenhouse gas (GHG) emission reductions. The purpose of the Climate Action Plan Consistency Checklist (Checklist) is to, in conjunction with the CAP, provide a streamlined review process for proposed new development projects that are subject to discretionary review and trigger environmental review pursuant to the California Environmental Quality Act (CEQA).[1]

Analysis of GHG emissions and potential climate change impacts from new development is required under CEQA. The CAP is a plan for the reduction of GHG emissions in accordance with CEQA Guidelines Section 15183.5. Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of the CAP.

This Checklist is part of the CAP and contains measures that are required to be implemented on a project-by-project basis to ensure that the specified emissions targets identified in the CAP are achieved. Implementation of these measures would ensure that new development is consistent with the CAP's assumptions for relevant CAP strategies toward achieving the identified GHG reduction targets. Projects that are consistent with the CAP as determined through the use of this Checklist may rely on the CAP for the cumulative impacts analysis of GHG emissions. Projects that are not consistent with the CAP must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in this Checklist to the extent feasible. Cumulative GHG impacts would be significant for any project that is not consistent with the CAP.

The Checklist may be updated to incorporate new GHG reduction techniques or to comply with later amendments to the CAP or local, State, or federal law.

[1] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

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CAP CONSISTENCY CHECKLIST SUBMITTAL APPLICATION

- The Checklist is required only for projects subject to CEQA review.[2]
- If required, the Checklist must be included in the project submittal package. Application submittal procedures can be found in Chapter 11: Land Development Procedures of the City's Municipal Code.
- The requirements in the Checklist will be included in the project's conditions of approval.
- The applicant must provide an explanation of how the proposed project will implement the requirements described herein to the satisfaction of the Planning Department.

Application Information

Contact Information

Project No./Name: Seabreeze Senior Living

Property Address: 5720 Old Carmel Valley Road, San Diego, CA 92130

Applicant Name/Co.: Ryan Leong / SRM Carmel Valley, L.P.

Contact Phone: (509) 944-4557 Contact Email: ryan@srmdevelopment.com

Was a consultant retained to complete this checklist? ■ Yes ☐ No If Yes, complete the following

Consultant Name: Brittany Ruggels Wallace Contact Phone: (619) 204-9757

Company Name: KLR Planning Contact Email: brittany@klrplanning.com

Project Information

1. What is the size of the project (acres)? 10.12 gross acres
2. Identify all applicable proposed land uses:
   - ☐ Residential (indicate # of single-family units):
   - ☐ Residential (indicate # of multi-family units):
   - ☐ Commercial (total square footage):
   - ☐ Industrial (total square footage):
   - ■ Other (describe): Residential Care facility
3. Is the project or a portion of the project located in a Transit Priority Area? ☐ Yes ■ No
4. Provide a brief description of the project proposed:

See Attachment A, Project Description.

[2] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

ATTACHMENT A

SEABREEZE SENIOR LIVING PROJECT

PROJECT DESCRIPTION

The *Seabreeze Senior Living* project involves the redevelopment of an existing equestrian facility as a senior living community. The approximately ten-acre project site is located at 5720 Old Carmel Valley Road, within Neighborhood 4 of the North City West Carmel Del Mar Neighborhoods 4, 5, & 6 Precise Plan of Carmel Valley. Situated generally west of Sandown Way and north of Rider Place, Cathedral Catholic High School is located adjacent to the north of the project site, with open space located immediately to the west. Single-family and multi-family residential development is located to the east and south of the project site. An equestrian trail parallels the property off-site to the west. The project site is currently fully developed with an equestrian facility, which includes barns, garages, housing, arenas, 80 barn stalls for boarding, pastures, a hotwalker, and associated riding paths, outbuildings, and facilities.

Regional access to the site is provided by State Route 56 (SR-56), located approximately 1.3 miles southeast of the project site, and Interstate 5 (I-5), located approximately three miles to the west. Local access is provided via Del Mar Heights Road, approximately one-quarter mile northeast of the project site. Direct access to the site is directly via Old Carmel Valley Road.

The proposed project involves demolition of the existing equestrian facility and construction of a senior residential care facility with up to 128 units. A two-story main building would be located in the northern portion of the project site and would be approximately 110,263 square feet in size, providing approximately 104 assisted living units and approximately 14 assisted living memory care units. Five single-story duplex casitas would be located in the southern portion of the project site, totaling approximately 11,607 square feet. Each duplex would include two two-bedroom units. Residential amenities would include a dining area, a large central open courtyard with additional outdoor courtyards on the perimeter of the building, scenic overlooks, internal walking trails, and connections to the off-site regional trail. Access to the project site would remain via an improved full-width paved drive off Old Carmel Valley Road, as it does today.

The majority of the project site is in the Carmel Valley Community Plan Area and is zoned AR-1-1. The access drive occurs within the adjacent CVPD-SF2 zone, and a very small sliver in the southern portion of the project site lies within the CVPD-OS zone. Because the vast majority of the project site and the area where development is proposed lies within the AR-1-1 zone, all analyses have been conducted based on the AR-1-1 zone.

The project site is currently identified as RA – *Recreational Area Equestrian Facility* – in the Carmel Del Mar Neighborhood 4, 5 & 6 Precise Plan. The AR-1-1 zone applies to lands that are in agricultural use or that are undeveloped. The purpose of the AR zones is to accommodate a wide range of agricultural uses while also permitting a range of other uses, including senior living, institutional uses such as schools, universities, hospitals, religious institutions and residential, but at low intensities of development. Residential care facilities for seven or more persons – like those proposed by the project – are expressly allowed in the AR-1-1 zone with application of a Conditional Use Permit.

The proposed Seabreeze Senior Living project is consistent with the underlying AR-1-1 zoning and requires a Conditional Use Permit to allow for a residential care facility. A Site Development Permit would be required due to the presence of adjacent off-site Environmentally Sensitive Lands (steep slopes and biological resources). The project will also require an Amendment to the Carmel Valley Community Plan and North City West Carmel Del Mar Neighborhoods 4, 5 & 6 Precise Plan to change the existing land use designation from RA – *Recreational Area Equestrian Facility* to *Senior Residential Care Facility*. Because the Precise Plan is a subchapter of the Carmel Valley Community Plan, the Precise Plan will be processed as a Community Plan Amendment and as a General Plan Amendment, as the Community Plan is an integrated element of the General Plan. The project actions would require approval by the City Council (Process Five).

CAP CONSISTENCY CHECKLIST QUESTIONS

Step 1: Land Use Consistency

The first step in determining CAP consistency for discretionary development projects is to assess the project's consistency with the growth projections used in the development of the CAP. This section allows the City to determine a project's consistency with the land use assumptions used in the CAP.

Step 1: Land Use Consistency		
Checklist Item (Check the appropriate box and provide explanation and supporting documentation for your answer)	Yes	No
A. Is the proposed project consistent with the existing General Plan and Community Plan land use and zoning designations?;[3] OR,		
B. If the proposed project is not consistent with the existing land use plan and zoning designations, and includes a land use plan and/or zoning designation amendment, would the proposed amendment result in an increased density within a Transit Priority Area (TPA)[4] and implement CAP Strategy 3 actions, as determined in Step 3 to the satisfaction of the Development Services Department?; OR,	☐	☑
C. If the proposed project is not consistent with the existing land use plan and zoning designations, does the project include a land use plan and/or zoning designation amendment that would result in an equivalent or less GHG-intensive project when compared to the existing designations?		

If "***Yes***," proceed to Step 2 of the Checklist. For question B above, complete Step 3. For question C above, provide estimated project emissions under both existing and proposed designation(s) for comparison. Compare the maximum buildout of the existing designation and the maximum buildout of the proposed designation.

If "***No***," in accordance with the City's Significance Determination Thresholds, the project's GHG impact is significant. The project must nonetheless incorporate each of the measures identified in Step 2 to mitigate cumulative GHG emissions impacts unless the decision maker finds that a measure is infeasible in accordance with CEQA Guidelines Section 15091. Proceed and complete Step 2 of the Checklist.

The proposed project requires a Community Plan Amendment to the Carmel Valley Community Plan to allow for implementation of the proposed project. The senior residential care facility is allowed in the AR-1-1 zone with application of a Conditional Use Permit (CUP). With the Community Plan Amendment and CUP, the project would be consistent with the existing Community Plan land use and zoning designations. Incorporation of the measures applicable in Step 2 ensure that cumulative impacts would be less than significant.

[3] This question may also be answered in the affirmative if the project is consistent with SANDAG Series 12 growth projections, which were used to determine the CAP projections, as determined by the Planning Department.

[4] This category applies to all projects that answered in the affirmative to question 3 on the previous page: Is the project or a portion of the project located in a transit priority area.

Step 2: CAP Strategies Consistency

The second step of the CAP consistency review is to review and evaluate a project's consistency with the applicable strategies and actions of the CAP. Step 2 only applies to development projects that involve permits that would require a certificate of occupancy from the Building Official or projects comprised of one and two family dwellings or townhouses as defined in the California Residential Code and their accessory structures.[5] All other development projects that would not require a certificate of occupancy from the Building Official shall implement Best Management Practices for construction activities as set forth in the Greenbook (for public projects).

Step 2: CAP Strategies Consistency			
Checklist Item (Check the appropriate box and provide explanation for your answer)	Yes	No	N/A
Strategy 1: Energy & Water Efficient Buildings			
1. *Cool/Green Roofs*. • Would the project include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specified in the voluntary measures under California Green Building Standards Code (Attachment A)?; OR • Would the project roof construction have a thermal mass over the roof membrane, including areas of vegetated (green) roofs, weighing at least 25 pounds per square foot as specified in the voluntary measures under California Green Building Standards Code?; OR • Would the project include a combination of the above two options? Check "N/A" only if the project does not include a roof component. The project would include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specific in the voluntary measures under California Green Building Standards Code.	☑	☐	☐

[5] Actions that are not subject to Step 2 would include, for example: 1) discretionary map actions that do not propose specific development, 2) permits allowing wireless communication facilities, 3) special events permits, 4) use permits or other permits that do not result in the expansion or enlargement of a building (e.g., decks, garages, etc.), and 5) non-building infrastructure projects such as roads and pipelines. Because such actions would not result in new occupancy buildings from which GHG emissions reductions could be achieved, the items contained in Step 2 would not be applicable.

2. *Plumbing fixtures and fittings* With respect to plumbing fixtures or fittings provided as part of the project, would those low-flow fixtures/appliances be consistent with each of the following: Residential buildings: • Kitchen faucets: maximum flow rate not to exceed 1.5 gallons per minute at 60 psi; • Standard dishwashers: 4.25 gallons per cycle; • Compact dishwashers: 3.5 gallons per cycle; and • Clothes washers: water factor of 6 gallons per cubic feet of drum capacity? Nonresidential buildings: • Plumbing fixtures and fittings that do not exceed the maximum flow rate specified in Table A5.303.2.3.1 (voluntary measures) of the California Green Building Standards Code (See Attachment A); and • Appliances and fixtures for commercial applications that meet the provisions of Section A5.303.3 (voluntary measures) of the California Green Building Standards Code (See Attachment A)? Check "N/A" only if the project does not include any plumbing fixtures or fittings. The proposed project involves the construction of a senior residential care facility, which is a use that does not clearly fit as "residential" or "non-residential." For purposes of complying with this requirements, the project would comply with requirements for residential buildings.	☑	☐	☐

Strategy 3: Bicycling, Walking, Transit & Land Use			
3. *Electric Vehicle Charging* • Multiple-family projects of 17 dwelling units or less: Would 3% of the total parking spaces required, or a minimum of one space, whichever is greater, be provided with a listed cabinet, box or enclosure connected to a conduit linking the parking spaces with the electrical service, in a manner approved by the building and safety official, to allow for the future installation of electric vehicle supply equipment to provide electric vehicle charging stations at such time as it is needed for use by residents? • Multiple-family projects of more than 17 dwelling units: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use by residents? • Non-residential projects: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use? Check "N/A" only if the project is a single-family project or would not require the provision of listed cabinets, boxes, or enclosures connected to a conduit linking the parking spaces with electrical service, e.g., projects requiring fewer than 10 parking spaces. The project would provide three parking spaces for electric vehicles (EV) and three parking spaces for zero emissions vehicles. EV parking spaces would include 50 percent of the total required listed cabinets, boxes, or enclosures with necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations for use. Two EV charging stations wil be ready for use.	☑	☐	☐
Strategy 3: Bicycling, Walking, Transit & Land Use (Complete this section if project includes non-residential or mixed uses)			
4. *Bicycle Parking Spaces* Would the project provide more short- and long-term bicycle parking spaces than required in the City's Municipal Code (Chapter 14, Article 2, Division 5)?[6] Check "N/A" only if the project is a residential project. The project would provide six bicycle parking spaces: three spaces for short-term bicycle parking and three spaces for long-term bicycle parking. The City's Municipal Code requires two short-term and two long-term bicycle parking spaaces.	☑	☐	☐

[6] Non-portable bicycle corrals within 600 feet of project frontage can be counted towards the project's bicycle parking requirements.

5. *Shower facilities*

If the project includes nonresidential development that would accommodate over 10 tenant occupants (employees), would the project include changing/shower facilities in accordance with the voluntary measures under the California Green Building Standards Code as shown in the table below?

Number of Tenant Occupants (Employees)	Shower/Changing Facilities Required	Two-Tier (12" X 15" X 72") Personal Effects Lockers Required
0-10	0	0
11-50	1 shower stall	2
51-100	1 shower stall	3
101-200	1 shower stall	4
Over 200	1 shower stall plus 1 additional shower stall for each 200 additional tenant-occupants	1 two-tier locker plus 1 two-tier locker for each 50 additional tenant-occupants

Check "N/A" only if the project is a residential project, or if it does not include nonresidential development that would accommodate over 10 tenant occupants (employees).

The proposed project would accommodate between 11 and 50 employees. Therefore, the project would include changing/shower facilities in accordance with the voluntary measures under the California Green Building Standards Code: 1 shower stall and two two-tier personal effects lockers.

☑	☐	☐

6. *Designated Parking Spaces*

If the project includes a nonresidential use in a TPA, would the project provide designated parking for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles in accordance with the following table?

Number of Required Parking Spaces	Number of Designated Parking Spaces
0-9	0
10-25	2
26-50	4
51-75	6
76-100	9
101-150	11
151-200	18
201 and over	At least 10% of total

This measure does not cover electric vehicles. See Question 4 for electric vehicle parking requirements.

Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces. The required designated parking spaces are to be provided within the overall minimum parking requirement, not in addition to it.

Check "N/A" only if the project is a residential project, or if it does not include nonresidential use in a TPA.

The proposed project consists of a senior residential care facility and is not located within a TPA. The requirement of designated parking spaces applies to nonresidential uses within a TPA. As such, this requirement does not apply to the proposed project.

☐	☐	☑

7. *Transportation Demand Management Program* If the project would accommodate over 50 tenant-occupants (employees), would it include a transportation demand management program that would be applicable to existing tenants and future tenants that includes: At least one of the following components: • Parking cash out program • Parking management plan that includes charging employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools • Unbundled parking whereby parking spaces would be leased or sold separately from the rental or purchase fees for the development for the life of the development And at least three of the following components: • Commitment to maintaining an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees • On-site carsharing vehicle(s) or bikesharing • Flexible or alternative work hours • Telework program • Transit, carpool, and vanpool subsidies • Pre-tax deduction for transit or vanpool fares and bicycle commute costs • Access to services that reduce the need to drive, such as cafes, commercial stores, banks, post offices, restaurants, gyms, or childcare, either onsite or within 1,320 feet (1/4 mile) of the structure/use? Check "N/A" only if the project is a residential project or if it would not accommodate over 50 tenant-occupants (employees). The Seabreeze Senior Living project would employ less than 50 employees. A Transportation Demand Management Program is required for projects that would accommodate over 50 employees. As such, this requirement does not apply to the proposed project.	☐	☐	☑

Step 3: Project CAP Conformance Evaluation (if applicable)

N/A. Relative to response in Step 1, the project's response applies to Option C. Therefore, Step 3 is not required.

The third step of the CAP consistency review only applies if Step 1 is answered in the affirmative under option B. The purpose of this step is to determine whether a project that is located in a TPA but that includes a land use plan and/or zoning designation amendment is nevertheless consistent with the assumptions in the CAP because it would implement CAP Strategy 3 actions. In general, a project that would result in a reduction in density inside a TPA would not be consistent with Strategy 3.The following questions must each be answered in the affirmative and fully explained.

1. **Would the proposed project implement the General Plan's City of Villages strategy in an identified Transit Priority Area (TPA) that will result in an increase in the capacity for transit-supportive residential and/or employment densities?**
   Considerations for this question:
   - Does the proposed land use and zoning designation associated with the project provide capacity for transit-supportive residential densities within the TPA?
   - Is the project site suitable to accommodate mixed-use village development, as defined in the General Plan, within the TPA?
   - Does the land use and zoning associated with the project increase the capacity for transit-supportive employment intensities within the TPA?

2. **Would the proposed project implement the General Plan's Mobility Element in Transit Priority Areas to increase the use of transit?**
   Considerations for this question:
   - Does the proposed project support/incorporate identified transit routes and stops/stations?
   - Does the project include transit priority measures?

3. **Would the proposed project implement pedestrian improvements in Transit Priority Areas to increase walking opportunities?**
   Considerations for this question:
   - Does the proposed project circulation system provide multiple and direct pedestrian connections and accessibility to local activity centers (such as transit stations, schools, shopping centers, and libraries)?
   - Does the proposed project urban design include features for walkability to promote a transit supportive environment?

4. **Would the proposed project implement the City of San Diego's Bicycle Master Plan to increase bicycling opportunities?**
   Considerations for this question:
   - Does the proposed project circulation system include bicycle improvements consistent with the Bicycle Master Plan?
   - Does the overall project circulation system provide a balanced, multimodal, "complete streets" approach to accommodate mobility needs of all users?

5. **Would the proposed project incorporate implementation mechanisms that support Transit Oriented Development?**
   Considerations for this question:
   - Does the proposed project include new or expanded urban public spaces such as plazas, pocket parks, or urban greens in the TPA?
   - Does the land use and zoning associated with the proposed project increase the potential for jobs within the TPA?
   - Do the zoning/implementing regulations associated with the proposed project support the efficient use of parking through mechanisms such as: shared parking, parking districts, unbundled parking, reduced parking, paid or time-limited parking, etc.?

6. **Would the proposed project implement the Urban Forest Management Plan to increase urban tree canopy coverage?**
   Considerations for this question:
   - Does the proposed project provide at least three different species for the primary, secondary and accent trees in order to accommodate varying parkway widths?
   - Does the proposed project include policies or strategies for preserving existing trees?
   - Does the proposed project incorporate tree planting that will contribute to the City's 20% urban canopy tree coverage goal?

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST
ATTACHMENT A

This attachment provides performance standards for applicable Climate Action Pan (CAP) Consistency Checklist measures.

Table 1 Roof Design Values for Question 1: Cool/Green Roofs supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan

Land Use Type	Roof Slope	Minimum 3-Year Aged Solar Reflectance	Thermal Emittance	Solar Reflective Index
Low-Rise Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
High-Rise Residential Buildings, Hotels and Motels	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
Non-Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 residential and non-residential voluntary measures shown in Tables A4.106.5.1 and A5.106.11.2.2, respectively. Roof installation and verification shall occur in accordance with the CALGreen Code.

CALGreen does not include recommended values for low-rise residential buildings with roof slopes of ≤ 2:12 for San Diego's climate zones (7 and 10). Therefore, the values for climate zone 15 that covers Imperial County are adapted here.

Solar Reflectance Index (SRI) equal to or greater than the values specified in this table may be used as an alternative to compliance with the aged solar reflectance values and thermal emittance.

Table 2	Fixture Flow Rates for Non-Residential Buildings related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan
Fixture Type	**Maximum Flow Rate**
Showerheads	1.8 gpm @ 80 psi
Lavatory Faucets	0.35 gpm @60 psi
Kitchen Faucets	1.6 gpm @ 60 psi
Wash Fountains	1.6 [rim space(in.)/20 gpm @ 60 psi]
Metering Faucets	0.18 gallons/cycle
Metering Faucets for Wash Fountains	0.18 [rim space(in.)/20 gpm @ 60 psi]
Gravity Tank-type Water Closets	1.12 gallons/flush
Flushometer Tank Water Closets	1.12 gallons/flush
Flushometer Valve Water Closets	1.12 gallons/flush
Electromechanical Hydraulic Water Closets	1.12 gallons/flush
Urinals	0.5 gallons/flush

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Tables A5.303.2.3.1 and A5.106.11.2.2, respectively. See the California Plumbing Code for definitions of each fixture type.

Where complying faucets are unavailable, aerators rated at 0.35 gpm or other means may be used to achieve reduction.

Acronyms:
gpm = gallons per minute
psi = pounds per square inch (unit of pressure)
in. = inch

Table 3	**Standards for Appliances and Fixtures for Commercial Application related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan**	
Appliance/Fixture Type	**Standard**	
Clothes Washers	Maximum Water Factor (WF) that will reduce the use of water by 10 percent below the California Energy Commissions' WF standards for commercial clothes washers located in Title 20 of the *California Code of Regulations*.	
Conveyor-type Dishwashers	0.70 maximum gallons per rack (2.6 L) (High-Temperature)	0.62 maximum gallons per rack (4.4 L) (Chemical)
Door-type Dishwashers	0.95 maximum gallons per rack (3.6 L) (High-Temperature)	1.16 maximum gallons per rack (2.6 L) (Chemical)
Undercounter-type Dishwashers	0.90 maximum gallons per rack (3.4 L) (High-Temperature)	0.98 maximum gallons per rack (3.7 L) (Chemical)
Combination Ovens	Consume no more than 10 gallons per hour (38 L/h) in the full operational mode.	
Commercial Pre-rinse Spray Valves (manufactured on or after January 1, 2006)	Function at equal to or less than 1.6 gallons per minute (0.10 L/s) at 60 psi (414 kPa) and • Be capable of cleaning 60 plates in an average time of not more than 30 seconds per plate. • Be equipped with an integral automatic shutoff. • Operate at static pressure of at least 30 psi (207 kPa) when designed for a flow rate of 1.3 gallons per minute (0.08 L/s) or less.	

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Section A5.303.3. See the California Plumbing Code for definitions of each appliance/fixture type.

Acronyms:
L = liter
L/h = liters per hour
L/s = liters per second
psi = pounds per square inch (unit of pressure)
kPa = kilopascal (unit of pressure)

PRELIMINARY
DRAINAGE REPORT
SEABREEZE SENIOR LIVING

City of San Diego, CA
July 23, 2018
PTS No. 600824

Prepared For:

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FIGURES

TABLES

APPENDICES

1. INTRODUCTION

This preliminary drainage report has been prepared in support of a Vesting Tentative Map Entitlement submittal for the Seabreeze Senior Living redevelopment project (Project), which is located in the community of Carmel Valley within the City of San Diego limits. Specifically, the majority of the project is located in the AR-1-1 zone within the Carmel Valley Community Plan area (Council District). The access drive occurs within the adjacent CVPD-SF2 zone, and a very small sliver in the southern portion of the project site lies within the CVPD-OS zone. The project area is approximately 10.12 acres in size with 5.75 acres planned for redevelopment. The area is bounded by natural open space to the west and south, the Cathedral Catholic High School to the north, and the Seabreeze Farms residential development to the east. See Figure 1 for the Vicinity Map.

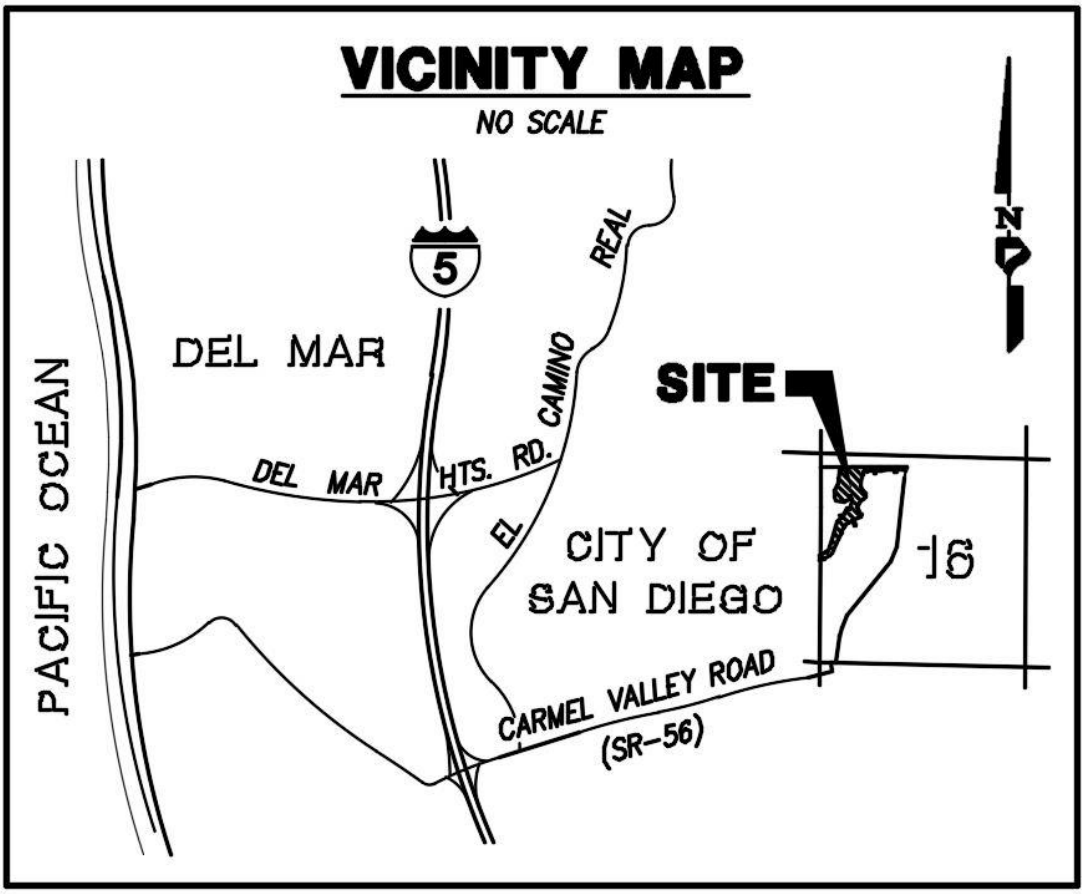

Figure 1: Project Vicinity Map

Under developed conditions, the project will consist of a new two-story assisted living facility and five new single story duplexes. Project improvements include courtyards, patio areas, parking stalls, and landscaping. The project site is currently home to the Seabreeze Farms Equestrian Center, which consists of two 1-story wood barns, an office building, a feed shed, a wood garage, a trailer home, trailers, covered grooming stalls, multiple horse training areas, and HOA maintained landscaped slopes per the adjacent Seabreeze Farms housing community.

Under existing conditions, there are two known existing storm drain lines on site. These storm drains were constructed per the mass grading and storm drain plans for Seabreeze Farms (DWG No. 30128-D). As observed during a site visit at the equestrian facility, there are several area drains and brooks boxes located around the site. It is likely additional storm drain lines were installed during the development of the equestrian center.

The project site is not located within a FEMA Special Flood Hazard Area per FIRM panel 06073C1329G, effective date May 2012. Refer to Exhibit A, FIRMette Map, included in Appendix 1. The project is not subject to the Clean Water Act (CWA) Sections 401 and 404 since there will be no fill or dredging discharged into an aquatic environment.

The purpose of this report is to provide peak 100-year design discharges for use in designing the storm drain system for the project and to address any potential impacts and mitigation with respect to drainage. The drainage analysis presented herein reflects an entitlement level-of-effort, which includes peak 100-year storm event hydrologic analyses using preliminary grades. Hydraulic analyses for inlets, pipe sizes and inverts, and HGL's will be provided during final engineering. Therefore, the purpose of this report submittal is to acquire from the City of San Diego: 1) concept approval of the proposed storm drain layout and 2) approval of the methodology used in the evaluation of the project storm drain system hydrology.

For information regarding storm water mitigation, refer to the Storm Water Quality Management Plan (SWQMP) prepared by Project Design Consultants for the project treatment BMPs in proposed conditions.

2. EXISTING AND PROPOSED DRAINAGE PATTERNS

2.1 Existing Drainage Patterns

Under existing conditions, the project is mostly pervious. Soil type data for the project area was available from the USDA web soil survey and was classified as Soil Type D. Refer to Appendix 1 for the hydrologic soil group output from the USDA survey.

The project is generally flat in existing conditons, therefore most of the site ponds during and post rain events. The ponded areas remain as stagnant water or the ponded areas erode the soil on the corners of the horse fields before draining westerly towards the open canyon to the west. Onsite flows either pond; drain into onsite grate inlets via cobble lined swale or through sheet flow; have roof drainage conveyed through roof downspouts which tie underground into the area drain pipe system built when the equestrian facility was developed.

Onsite drainage was divided into five drainage areas, Systems 1000E to 5000E. The "E" in the system name refers to the existing condition drainage area in order to differentiate between the proposed (P) drainage area. System 1000 represents the area along the northern perimeter of the site that has drainage flowing into a brow ditch which then directs runoff offsite. Systems 2000, 4000, and 5000 represent onsite area that drains westerly towards the canyon via sheet flow or conveyance through the existing pipe drainage in the site. System 3000 consists of onsite and offsite drainage area. The offsite drainage is run-on from the existing adjacent single family development, Seabreeze Farms. Offsite runoff commingles with onsite runoff through the existing public reinforced concrete pipe (RCP) storm drain system that was built per the Seabreeze Farms development. Runoff drains westerly and discharges into the canyon. Additional sloped area along the southwestern perimeter of the site drains towards an existing brow ditch which then confluences with the System 3000 drainage before discharging out into the canyon. Drainage excerpts from the Seabreeze Farms Drainage Study are provided in Appendix 5. The as-built reference drawing for the existing onsite storm drain is located in Appendix 6. Refer to Appendix 7 for the existing condition drainage map (Exhibit B).

2.2 Proposed Drainage Patterns and Storm Drain Improvements

Proposed condition drainage patterns vary from existing conditions since onsite flows will no longer sheet flow into the canyon. Therefore, unlike existing conditions, the proposed conditions onsite drainage consists of only one system, System 1000P. The discharge location in proposed conditions will be the same outfall location as existing condition System 3000E.

Under proposed conditions, surface drainage will be along private driveways, courtyards, patios, and landscaping. The proposed building facilities and casitas will have roof drainage conveyed into landscaping or an area drain system via roof downspouts. Runoff will be conveyed through a proposed private storm drain system that will tie into the existing storm drain system. Refer to the proposed condition drainage map (Exhibit C) in Appendix 6. Runoff into the existing and proposed storm drain system will be collected and captured by inlets via gutter flow, or through sheet flow into a basin, or through area drain conveyance. Similar to existing condition System 3000E, the offsite run-on from the Seabreeze Farms development is included in the proposed System 1000 analysis.

3. HYDROLOGY CRITERIA, METHODOLOGY, AND RESULTS

3.1 Hydrology Criteria

The drainage basins were delineated using available topography, walk through of the site, and the proposed site layout of the project. Table 1 summarizes the key hydrology assumptions and criteria used for the hydrologic modeling.

Table 1: Hydrology Criteria

Existing and Proposed Hydrology:	100-year storm frequency
Soil Type:	Hydrologic Soil Group D per Drainage Design Manual requirements
Runoff coefficients:	Based on land use in sub-drainage area, from C=0.45 to 0.95. See Rational Method output.
Rainfall intensity:	Based on the City of San Diego Intensity Frequency Design Chart presented in the 2017 City of San Diego Drainage Design Manual.

3.2 Hydrology Methodology

The Rational Method was used to determine the onsite 100-year storm flow for the design of the project storm drain improvements. The goal of this analysis was to:

- Determine the differences in the drainage conditions between existing and proposed conditions and verify that there are no substantial drainage issues for the project.
- Provide design flows for drainage design.

The Rational Method was used to calculate onsite and offsite runoff for the 100-year storm. CivilD hydrologic computer software was used to model the onsite and offsite drainage basins. Per the City of San Diego Drainage Design Manual, hydrologic soil type D was utilized for all calculations.

3.3 Description of Hydrologic Modeling Software

The Civil-D Rational Method Program was used to perform the Rational Method hydrologic calculations. This section provides a brief explanation of the computational procedure used in the computer model.

The Civil-D Modified Rational Method Hydrology Program is a computer-aided design program where the user develops a node link model of the watershed. Developing independent node link models for each interior watershed and linking these sub-models together at confluence points creates the node link model. The intensity-duration-frequency relationships are applied to each of the drainage areas in the model to get the peak flow rates at each point of interest.

3.4 Hydrology Results

Table 2 below summarizes the Rational Method results for the key areas of interest.

Table 2: Summary of Hydrology Results

Condition	***System***	***Nodes***	***Q_{100} (cfs)***	***Contributing Area (ac.)***
BACKBONE SEABREEZE FARMS DRAINAGE STUDY	A	1202-1201	23.0*	15.3
EXISTING CONDITIONS	3000E	3045-3050	17.6*	12.6
PROPOSED	1A	1000-1090	13.1 undetained, 9.1 detained	4.4
	1B	1090-1100	4.7 undetained, 0.9 detained	1.9
	1000P (Includes Systems 1A & 1B)	1135-1140	22.0*	16.1

NOTE: * Values include 12.6 cfs of offsite runon via pipe #7 per DWG #30128-24-D

The table shows the flow rates from the Seabreeze Farms Drainage study, the existing conditions for the equestrian facility, and the proposed conditions for the Seabreeze Senior Living development. Under proposed conditions, the project has a contributing area of 3.5 acres more than the existing equestrian facility at the Node 1140 pipe outfall and a flow rate 4.4 cfs higher. However, when you compare the proposed condition flow rate to the initial backbone flow rate in the Seabreeze Farm Drainage study, the proposed condition flow rate is 1.0 cfs less. Currently, there is a 24-inch RCP discharge pipe that will outlet the proposed condition flows into the canyon. Since this pipe was sized according to the backbone study there will be sufficient capacity for the new proposed condition flow, and th project does not increase flows above what was previously permitted.

Table 3: Summary of Area/C Value Calculations

Study	***Impervious Area (ac.)***	***Pervious Area (ac.)***	***Total Area (ac.)***	***Composite Runoff Coefficient***
EXISTING	1.2	11.4	12.6	0.46
PROPOSED	13.7	2.4	16.1	0.44

4. HYDRAULIC CRITERIA, METHODOLOGY, AND RESULTS

Detailed hydraulic calculations will be performed during final engineering. However, preliminary detention calculations are included in Appendix 4 to document the proposed two detention areas. System 1A is detained in the proposed 72" diameter detention underground storage facility and System 1B is detained in Biofiltration Basin 4.

5. CONCLUSION

This drainage report was prepared in support of the site development permit package submittal for the proposed Seabreeze Senior Living redevelopment. This study presented the results of the existing and proposed drainage conditions for the project. Proposed onsite runoff is treated and then commingled with offsite runon before heading to the project outfall. Because the proposed onsite runoff is treated before being commingled with the offsite runon the offsite runon does not need to be treated. The peak discharges are shown in Table 2. The peak discharge flow for the proposed condition will be 22.0 cfs, while for the backbone study the peak discharge was 23.0 cfs. The Q_{100} value for the existing RCP discharge pipe was found from an as-built drawing (located in Appendix 6) and matches the backbone drainage study (located in Appendix 5). The project proposes to detain onsite flows such that the proposed condition peak runoff will have a lower flow than the backbone drainage study. Since the canyon discharge pipe was sized according to the backbone drainage study, there will be no required changes to the downstream existing storm drain system and the pipe will be able to handle the post-development 100-year flows into the new proposed drainage system.

APPENDIX 1

Supporting Documentation

(IDF Curve, Runoff Coefficients, FEMA Firmette, USDA Soil Output)

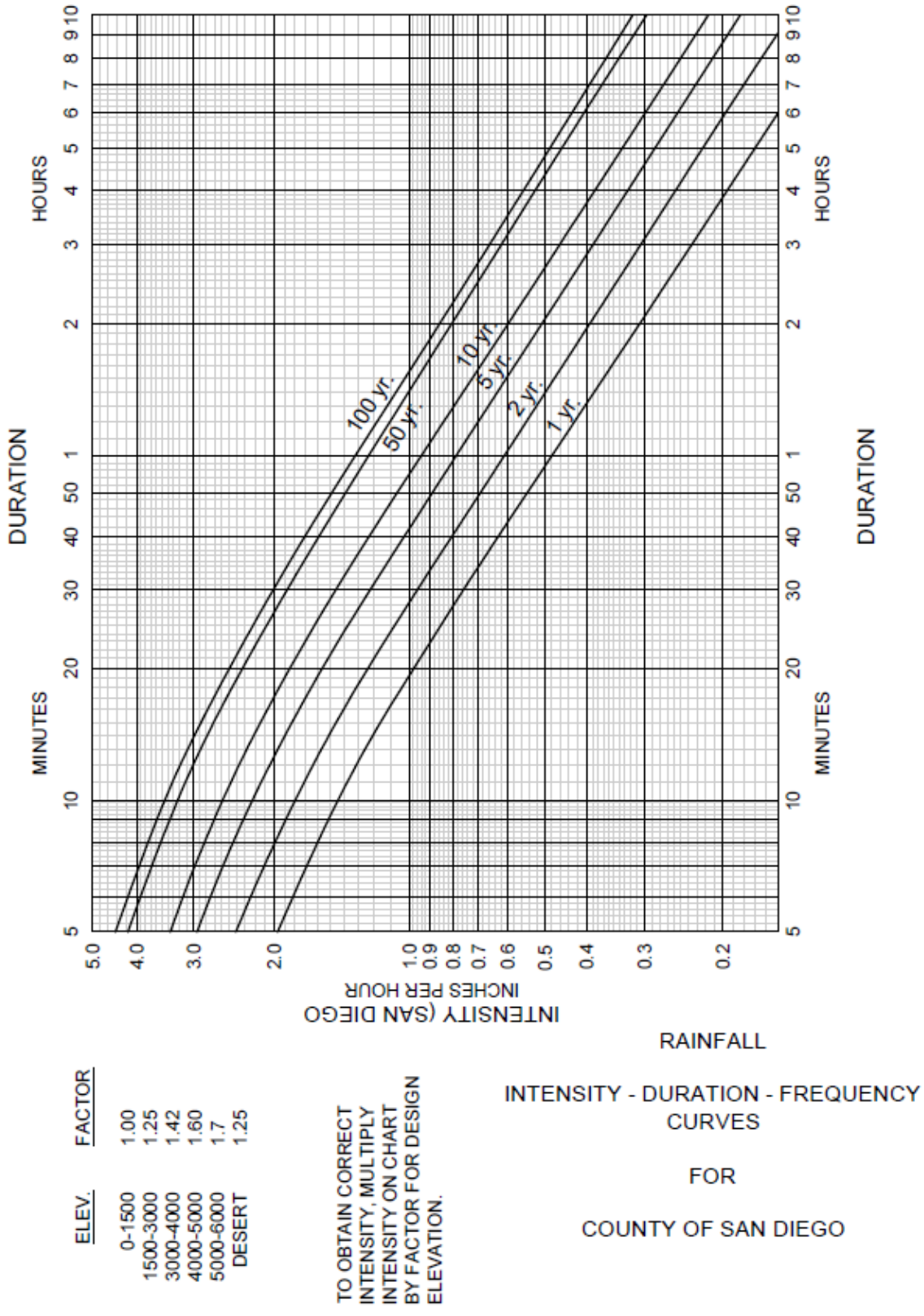

Figure A-1. Intensity-Duration-Frequency Design Chart

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).

National Flood Hazard Layer FIRMette

FEMA

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth
- Regulatory Floodway *Zone AE, AO, AH, VE, AR*

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/24/2018 at 10:53:50 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

EXHIBIT A

Map Scale: 1:3,470 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 12, Sep 13, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 3, 2014—Nov 22, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
LeC2	Las Flores loamy fine sand, 5 to 9 percent slopes, eroded	D	3.8	38.7%
LvF3	Loamy alluvial land-Huerhuero complex, 9 to 50 percent slopes, severely eroded	D	6.1	61.3%
Totals for Area of Interest			**9.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX 2

Existing Conditions 100-year Rational Method Computer Output

Calculated Commercial Land Use C Values

(Based on Note 2 of Table A-1 of City Drainage Design Manual

System	Upstream Node	Downstream Node	Total Area (Ac.)	Impervious Area (Ac.)	Calculated C Value
S2000E100	2000	2005	0.02	0.09	0.50
S2000E100	2015	2010	0.06	0.38	0.50
S3000E100	3005	3010	0.58	1.96	0.50

```
                San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2003 Version 6.3

Rational method hydrology  program based on
San Diego County Flood Control Division 1985 hydrology manual
        Rational Hydrology Study        Date: 07/12/18
--------------------------------------------------------------------------
4308.00 SEABREEZE SENIOR LIVING
EXISTING CONDITIONS
S1000E100



--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

--------------------------------------------------------------------------


Program License Serial Number 4049

--------------------------------------------------------------------------
Rational hydrology study storm event year is   100.0
English (in-lb) input data Units used
English (in) rainfall data used

Standard intensity of Appendix I-B used for year and
Elevation 0 - 1500 feet
Factor (to multiply * intensity)  =  1.000
Only used if inside City of San Diego
San Diego hydrology manual 'C' values used
Runoff coefficients by rational method


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1000.000 to Point/Station     1005.000
**** INITIAL AREA EVALUATION ****
__________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[COMMERCIAL area type                       ]
Initial subarea flow distance  =  129.000(Ft.)
Highest elevation =  294.000(Ft.)
Lowest elevation =  288.000(Ft.)
Elevation difference =    6.000(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =     3.06 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.8500)*( 129.000^.5)/(   4.651^(1/3)]=   3.06
Setting time of concentration to 5 minutes
Rainfall intensity (I) =      4.389(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.850
Subarea runoff =      0.597(CFS)
Total initial stream area =        0.160(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1005.000 to Point/Station     1010.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
__________________________________________________________________________
```



```
Top of street segment elevation =   288.000(Ft.)
End of street segment elevation =   249.000(Ft.)
Length of street segment  =   485.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.670(Ft.)
Slope from gutter to grade break (v/hz) =   0.094
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.330(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0180
 Manning's N from grade break to crown =  0.0180
Estimated mean flow rate at midpoint of street =      1.809(CFS)
Depth of flow =   0.184(Ft.), Average velocity =   3.609(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   4.304(Ft.)
Flow velocity =   3.61(Ft/s)
Travel time =    2.24 min.     TC =    7.24  min.
 Adding area flow to street
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[COMMERCIAL area type                       ]
Rainfall intensity =      3.798(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.850
Subarea runoff =      2.098(CFS) for    0.650(Ac.)
Total runoff =      2.695(CFS)  Total area =        0.81(Ac.)
Street flow at end of street =      2.695(CFS)
Half street flow at end of street =      1.348(CFS)
Depth of flow =   0.205(Ft.), Average velocity =   3.873(Ft/s)
Flow width (from curb towards crown)=   5.315(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1015.000 to Point/Station     1010.000
**** SUBAREA FLOW ADDITION ****
__________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Time of concentration =     7.24 min.
Rainfall intensity =      3.798(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.450
Subarea runoff =      1.384(CFS) for    0.810(Ac.)
Total runoff =      4.080(CFS)  Total area =        1.62(Ac.)
End of computations, total study area =           1.620 (Ac.)
```

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                San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2003 Version 6.3

Rational method hydrology  program based on
San Diego County Flood Control Division 1985 hydrology manual
        Rational Hydrology Study        Date: 07/12/18
--------------------------------------------------------------------------
4308.00 SEABREEZE SENIOR LIVING
EXISTING CONDITIONS
S2000E100



--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

--------------------------------------------------------------------------


Program License Serial Number 4049

--------------------------------------------------------------------------
Rational hydrology study storm event year is   100.0
English (in-lb) input data Units used
English (in) rainfall data used

Standard intensity of Appendix I-B used for year and
Elevation 0 - 1500 feet
Factor (to multiply * intensity)  =  1.000
Only used if inside City of San Diego
San Diego hydrology manual 'C' values used
Runoff coefficients by rational method


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     2000.000 to Point/Station     2005.000
**** INITIAL AREA EVALUATION ****
__________________________________________________________________________
User specified 'C' value of 0.500 given for subarea
Initial subarea flow distance  =   70.000(Ft.)
Highest elevation =  249.200(Ft.)
Lowest elevation =  249.000(Ft.)
Elevation difference =    0.200(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =    13.72 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.5000)*(  70.000^.5)/( 0.286^(1/3)]=  13.72
Rainfall intensity (I) =      3.005(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.500
Subarea runoff =      0.135(CFS)
Total initial stream area =        0.090(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     2005.000 to Point/Station     2010.000
**** SUBAREA FLOW ADDITION ****
__________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
```



```
Time of concentration =    13.72 min.
Rainfall intensity =      3.005(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.450
Subarea runoff =      1.231(CFS) for    0.910(Ac.)
Total runoff =      1.366(CFS)  Total area =        1.00(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     2015.000 to Point/Station     2010.000
**** SUBAREA FLOW ADDITION ****
__________________________________________________________________________
User specified 'C' value of 0.500 given for subarea
Time of concentration =    13.72 min.
Rainfall intensity =      3.005(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.500
Subarea runoff =      0.571(CFS) for    0.380(Ac.)
Total runoff =      1.937(CFS)  Total area =        1.38(Ac.)
End of computations, total study area =          1.380 (Ac.)
```

```
                San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2003 Version 6.3

Rational method hydrology  program based on
San Diego County Flood Control Division 1985 hydrology manual
        Rational Hydrology Study        Date: 07/19/18
--------------------------------------------------------------------------
4308.00 SEABREEZE SENIOR LIVING
EXISTING CONDITIONS
S3000E100



--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

--------------------------------------------------------------------------


Program License Serial Number 4049

--------------------------------------------------------------------------
Rational hydrology study storm event year is   100.0
English (in-lb) input data Units used
English (in) rainfall data used

Standard intensity of Appendix I-B used for year and
Elevation 0 - 1500 feet
Factor (to multiply * intensity)  =  1.000
Only used if inside City of San Diego
San Diego hydrology manual 'C' values used
Runoff coefficients by rational method


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3000.000 to Point/Station     3005.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Initial subarea flow distance  =   89.000(Ft.)
Highest elevation =  249.400(Ft.)
Lowest elevation =  248.800(Ft.)
Elevation difference =    0.600(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =    12.59 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.4500)*(  89.000^.5)/( 0.674^(1/3)]=  12.59
Rainfall intensity (I) =      3.103(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff =      0.098(CFS)
Total initial stream area =        0.070(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3005.000 to Point/Station     3010.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________________
User specified 'C' value of 0.500 given for subarea
```



```
Time of concentration =    12.59 min.
Rainfall intensity =      3.103(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.500
Subarea runoff =      3.041(CFS) for    1.960(Ac.)
Total runoff =      3.139(CFS)  Total area =        2.03(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3010.000 to Point/Station     3015.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   233.500(Ft.)
Downstream point/station elevation =   232.130(Ft.)
Pipe length  =   135.74(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.139(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     3.139(CFS)
Normal flow depth in pipe =    8.71(In.)
Flow top width inside pipe =   10.71(In.)
Critical Depth =    9.10(In.)
Pipe flow velocity =      5.14(Ft/s)
Travel time through pipe =    0.44 min.
Time of concentration (TC) =    13.03 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3010.000 to Point/Station     3015.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      2.030(Ac.)
Runoff from this stream =      3.139(CFS)
Time of concentration =   13.03 min.
Rainfall intensity =     3.064(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3015.000 to Point/Station     3015.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
______________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[SINGLE FAMILY area type                    ]
Rainfall intensity (I) =      2.688(In/Hr) for a   100.0 year storm
User specified values are as follows:
TC =  18.20 min.  Rain intensity =       2.69(In/Hr)
Total area =        8.750(Ac.)  Total runoff =    12.648(CFS)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3015.000 to Point/Station     3015.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      8.750(Ac.)
Runoff from this stream =     12.648(CFS)
Time of concentration =   18.20 min.
Rainfall intensity =     2.688(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
```

```
 No.       (CFS)       (min)                 (In/Hr)


1        3.139     13.03                3.064
2       12.648     18.20                2.688
Qmax(1) =
           1.000 *    1.000 *     3.139) +
           1.000 *    0.716 *    12.648) + =      12.193
Qmax(2) =
           0.877 *    1.000 *     3.139) +
           1.000 *    1.000 *    12.648) + =      15.401

Total of 2 streams to confluence:
Flow rates before confluence point:
       3.139      12.648
Maximum flow rates at confluence using above data:
       12.193       15.401
Area of streams before confluence:
        2.030        8.750
Results of confluence:
Total flow rate =     15.401(CFS)
Time of concentration =    18.200 min.
Effective stream area after confluence =     10.780(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3015.000 to Point/Station     3020.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =   231.630(Ft.)
Downstream point/station elevation =   230.670(Ft.)
Pipe length  =   103.05(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    15.401(CFS)
Given pipe size =     30.00(In.)
Calculated individual pipe flow  =    15.401(CFS)
Normal flow depth in pipe =   12.98(In.)
Flow top width inside pipe =   29.73(In.)
Critical Depth =   15.89(In.)
Pipe flow velocity =      7.56(Ft/s)
Travel time through pipe =    0.23 min.
Time of concentration (TC) =    18.43 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3015.000 to Point/Station     3020.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     10.780(Ac.)
Runoff from this stream =     15.401(CFS)
Time of concentration =   18.43 min.
Rainfall intensity =     2.674(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3025.000 to Point/Station     3030.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
```



```
Initial subarea flow distance  =   40.000(Ft.)
Highest elevation =  262.400(Ft.)
Lowest elevation =  249.400(Ft.)
Elevation difference =   13.000(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =     2.32 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.4500)*(  40.000^.5)/(  32.500^(1/3)]=   2.32
Setting time of concentration to 5 minutes
Rainfall intensity (I) =      4.389(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff =      0.040(CFS)
Total initial stream area =        0.020(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3030.000 to Point/Station     3035.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Time of concentration =     5.00 min.
Rainfall intensity =      4.389(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.450
Subarea runoff =      1.402(CFS) for    0.710(Ac.)
Total runoff =      1.442(CFS)  Total area =        0.73(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3035.000 to Point/Station     3020.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   232.100(Ft.)
Downstream point/station elevation =   230.670(Ft.)
Pipe length  =   142.56(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.442(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.442(CFS)
Normal flow depth in pipe =    6.49(In.)
Flow top width inside pipe =    8.07(In.)
Critical Depth =    6.64(In.)
Pipe flow velocity =      4.22(Ft/s)
Travel time through pipe =    0.56 min.
Time of concentration (TC) =     5.56 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3040.000 to Point/Station     3020.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Time of concentration =     5.56 min.
Rainfall intensity =      4.204(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.450
Subarea runoff =      1.400(CFS) for    0.740(Ac.)
Total runoff =      2.842(CFS)  Total area =        1.47(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3040.000 to Point/Station     3020.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      1.470(Ac.)
Runoff from this stream =      2.842(CFS)
Time of concentration =    5.56 min.
Rainfall intensity =     4.204(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1       15.401     18.43                2.674
2        2.842      5.56                4.204
Qmax(1) =
           1.000 *    1.000 *    15.401) +
           0.636 *    1.000 *     2.842) + =      17.209
Qmax(2) =
           1.000 *    0.302 *    15.401) +
           1.000 *    1.000 *     2.842) + =       7.491

Total of 2 streams to confluence:
Flow rates before confluence point:
      15.401       2.842
Maximum flow rates at confluence using above data:
       17.209       7.491
Area of streams before confluence:
       10.780       1.470
Results of confluence:
Total flow rate =     17.209(CFS)
Time of concentration =    18.427 min.
Effective stream area after confluence =     12.250(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3020.000 to Point/Station     3045.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =   230.340(Ft.)
Downstream point/station elevation =   216.630(Ft.)
Pipe length  =    48.50(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    17.209(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    17.209(CFS)
Normal flow depth in pipe =    6.13(In.)
Flow top width inside pipe =   20.94(In.)
Critical Depth =   17.94(In.)
Pipe flow velocity =     27.17(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =    18.46 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3045.000 to Point/Station     3045.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
```



```
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Time of concentration =    18.46 min.
Rainfall intensity =      2.672(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.450
Subarea runoff =      0.361(CFS) for    0.300(Ac.)
Total runoff =     17.569(CFS)  Total area =       12.55(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     3045.000 to Point/Station     3050.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =   215.500(Ft.)
Downstream point/station elevation =   207.380(Ft.)
Pipe length  =    24.78(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    17.569(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    17.569(CFS)
Normal flow depth in pipe =    5.97(In.)
Flow top width inside pipe =   20.75(In.)
Critical Depth =   18.13(In.)
Pipe flow velocity =     28.80(Ft/s)
Travel time through pipe =    0.01 min.
Time of concentration (TC) =    18.47 min.
End of computations, total study area =          12.550 (Ac.)
```

```
                San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2003 Version 6.3

Rational method hydrology  program based on
San Diego County Flood Control Division 1985 hydrology manual
        Rational Hydrology Study        Date: 07/12/18
--------------------------------------------------------------------------
4308.00 SEABREEZE SENIOR LIVING
EXISTING CONDITIONS
S4000E100


--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

--------------------------------------------------------------------------


Program License Serial Number 4049

--------------------------------------------------------------------------
Rational hydrology study storm event year is   100.0
English (in-lb) input data Units used
English (in) rainfall data used

Standard intensity of Appendix I-B used for year and
Elevation 0 - 1500 feet
Factor (to multiply * intensity)  =  1.000
Only used if inside City of San Diego
San Diego hydrology manual 'C' values used
Runoff coefficients by rational method


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     4000.000 to Point/Station     4005.000
**** INITIAL AREA EVALUATION ****
__________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Initial subarea flow distance  =   65.000(Ft.)
Highest elevation =  253.600(Ft.)
Lowest elevation =  246.800(Ft.)
Elevation difference =    6.800(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =     4.31 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.4500)*(  65.000^.5)/(  10.462^(1/3)]=   4.31
Setting time of concentration to 5 minutes
Rainfall intensity (I) =      4.389(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff =      0.099(CFS)
Total initial stream area =        0.050(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     4005.000 to Point/Station     4010.000
**** SUBAREA FLOW ADDITION ****
__________________________________________________________________________
```



```
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Time of concentration =     5.00 min.
Rainfall intensity =      4.389(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.450
Subarea runoff =      1.244(CFS) for    0.630(Ac.)
Total runoff =      1.343(CFS)  Total area =        0.68(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     4015.000 to Point/Station     4010.000
**** SUBAREA FLOW ADDITION ****
__________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Time of concentration =     5.00 min.
Rainfall intensity =      4.389(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.450
Subarea runoff =      1.244(CFS) for    0.630(Ac.)
Total runoff =      2.587(CFS)  Total area =        1.31(Ac.)
End of computations, total study area =           1.310 (Ac.)
```

```
                San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2003 Version 6.3

Rational method hydrology  program based on
San Diego County Flood Control Division 1985 hydrology manual
        Rational Hydrology Study        Date: 07/12/18
--------------------------------------------------------------------------
4308.00 SEABREEZE SENIOR LIVING
EXISTING CONDITIONS
S5000E100


--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

--------------------------------------------------------------------------


Program License Serial Number 4049

--------------------------------------------------------------------------
Rational hydrology study storm event year is   100.0
English (in-lb) input data Units used
English (in) rainfall data used

Standard intensity of Appendix I-B used for year and
Elevation 0 - 1500 feet
Factor (to multiply * intensity)  =  1.000
Only used if inside City of San Diego
San Diego hydrology manual 'C' values used
Runoff coefficients by rational method


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     5000.000 to Point/Station     5005.000
**** INITIAL AREA EVALUATION ****
__________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Initial subarea flow distance  =   76.000(Ft.)
Highest elevation =  245.200(Ft.)
Lowest elevation =  244.200(Ft.)
Elevation difference =    1.000(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =     9.31 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.4500)*(  76.000^.5)/( 1.316^(1/3)]=   9.31
Rainfall intensity (I) =      3.463(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff =      0.125(CFS)
Total initial stream area =        0.080(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     5010.000 to Point/Station     5005.000
**** SUBAREA FLOW ADDITION ****
__________________________________________________________________________
Decimal fraction soil group A = 0.000
```



```
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Time of concentration =     9.31 min.
Rainfall intensity =      3.463(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.450
Subarea runoff =      0.997(CFS) for    0.640(Ac.)
Total runoff =      1.122(CFS)  Total area =        0.72(Ac.)
End of computations, total study area =           0.720 (Ac.)
```

APPENDIX 3

Proposed Conditions 100-year Rational Method Computer Output

```
                San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2003 Version 6.3

Rational method hydrology  program based on
San Diego County Flood Control Division 1985 hydrology manual
        Rational Hydrology Study        Date: 07/19/18
------------------------------------------------------------------------
4308.00 SEABREEZE SENIOR LIVING
PROPOSED CONDITIONS
S1000P100
SYSTEM 1A
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

------------------------------------------------------------------------


Program License Serial Number 4049

------------------------------------------------------------------------
Rational hydrology study storm event year is   100.0
English (in-lb) input data Units used
English (in) rainfall data used

Standard intensity of Appendix I-B used for year and
Elevation 0 - 1500 feet
Factor (to multiply * intensity)  =  1.000
Only used if inside City of San Diego
San Diego hydrology manual 'C' values used
Runoff coefficients by rational method


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1000.000 to Point/Station     1005.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[COMMERCIAL area type                    ]
Initial subarea flow distance  =  110.000(Ft.)
Highest elevation =  292.800(Ft.)
Lowest elevation =  287.200(Ft.)
Elevation difference =    5.600(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =     2.74 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.8500)*( 110.000^.5)/(   5.091^(1/3)]=   2.74
Setting time of concentration to 5 minutes
Rainfall intensity (I) =      4.389(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.850
Subarea runoff =      0.298(CFS)
Total initial stream area =        0.080(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1005.000 to Point/Station     1006.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Top of street segment elevation =   287.200(Ft.)
```



```
End of street segment elevation =   248.000(Ft.)
Length of street segment  =   583.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  26.000(Ft.)
Distance from crown to crossfall grade break  =  13.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0180
 Manning's N from grade break to crown =  0.0180
Estimated mean flow rate at midpoint of street =      0.370(CFS)
Depth of flow =   0.113(Ft.), Average velocity =   3.627(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   2.000(Ft.)
Flow velocity =   3.63(Ft/s)
Travel time =    2.68 min.     TC =    7.68  min.
 Adding area flow to street
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[COMMERCIAL area type                    ]
Rainfall intensity =      3.715(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.850
Subarea runoff =      1.516(CFS) for    0.480(Ac.)
Total runoff =      1.814(CFS)  Total area =        0.56(Ac.)
Street flow at end of street =      1.814(CFS)
Half street flow at end of street =      1.814(CFS)
Depth of flow =   0.208(Ft.), Average velocity =   3.942(Ft/s)
Flow width (from curb towards crown)=   6.126(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1006.000 to Point/Station     1010.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   246.000(Ft.)
Downstream point/station elevation =   244.420(Ft.)
Pipe length  =   127.66(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.814(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.814(CFS)
Normal flow depth in pipe =    7.27(In.)
Flow top width inside pipe =    7.10(In.)
Critical Depth =    7.40(In.)
Pipe flow velocity =      4.75(Ft/s)
Travel time through pipe =    0.45 min.
Time of concentration (TC) =     8.13 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1010.000 to Point/Station     1010.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
```

```
[COMMERCIAL area type                        ]
Time of concentration =     8.13 min.
Rainfall intensity =      3.639(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.850
Subarea runoff =      1.299(CFS) for    0.420(Ac.)
Total runoff =      3.113(CFS)  Total area =        0.98(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1011.000 to Point/Station     1010.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[COMMERCIAL area type                        ]
Time of concentration =     8.13 min.
Rainfall intensity =      3.639(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.850
Subarea runoff =      0.866(CFS) for    0.280(Ac.)
Total runoff =      3.979(CFS)  Total area =        1.26(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1010.000 to Point/Station     1030.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   244.420(Ft.)
Downstream point/station elevation =   238.960(Ft.)
Pipe length  =   431.06(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.979(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     3.979(CFS)
Normal flow depth in pipe =    9.75(In.)
Flow top width inside pipe =    9.37(In.)
Critical Depth =   10.15(In.)
Pipe flow velocity =      5.82(Ft/s)
Travel time through pipe =    1.23 min.
Time of concentration (TC) =     9.36 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1010.000 to Point/Station     1030.000
**** CONFLUENCE OF MINOR STREAMS ****
________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      1.260(Ac.)
Runoff from this stream =      3.979(CFS)
Time of concentration =    9.36 min.
Rainfall intensity =     3.456(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1035.000 to Point/Station     1040.000
**** INITIAL AREA EVALUATION ****
________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[COMMERCIAL area type                        ]
Initial subarea flow distance  =   76.000(Ft.)
```



```
Highest elevation =  249.600(Ft.)
Lowest elevation =  248.600(Ft.)
Elevation difference =    1.000(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =     3.58 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.8500)*(  76.000^.5)/(   1.316^(1/3)]=   3.58
Setting time of concentration to 5 minutes
Rainfall intensity (I) =      4.389(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.850
Subarea runoff =      0.224(CFS)
Total initial stream area =        0.060(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1040.000 to Point/Station     1045.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
________________________________________________________________________
Top of street segment elevation =   248.600(Ft.)
End of street segment elevation =   246.600(Ft.)
Length of street segment  =   195.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  26.000(Ft.)
Distance from crown to crossfall grade break  =  13.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0180
 Manning's N from grade break to crown =  0.0180
Estimated mean flow rate at midpoint of street =      0.282(CFS)
Depth of flow =   0.155(Ft.), Average velocity =   1.363(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   3.492(Ft.)
Flow velocity =   1.36(Ft/s)
Travel time =    2.38 min.     TC =    7.38  min.
 Adding area flow to street
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[COMMERCIAL area type                        ]
Rainfall intensity =      3.770(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.850
Subarea runoff =      1.666(CFS) for    0.520(Ac.)
Total runoff =      1.890(CFS)  Total area =        0.58(Ac.)
Street flow at end of street =      1.890(CFS)
Half street flow at end of street =      1.890(CFS)
Depth of flow =   0.276(Ft.), Average velocity =   1.888(Ft/s)
Flow width (from curb towards crown)=   9.570(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1045.000 to Point/Station     1050.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   245.430(Ft.)
Downstream point/station elevation =   245.300(Ft.)
Pipe length  =     8.45(Ft.)   Manning's N = 0.013
```

```
No. of pipes = 1  Required pipe flow  =     1.890(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.890(CFS)
Normal flow depth in pipe =    6.81(In.)
Flow top width inside pipe =    7.73(In.)
Critical Depth =    7.53(In.)
Pipe flow velocity =      5.27(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =     7.41 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1050.000 to Point/Station     1055.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Time of concentration =     7.41 min.
Rainfall intensity =      3.765(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.450
Subarea runoff =      0.169(CFS) for    0.100(Ac.)
Total runoff =      2.060(CFS)  Total area =        0.68(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1056.000 to Point/Station     1055.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[COMMERCIAL area type                    ]
Time of concentration =     7.41 min.
Rainfall intensity =      3.765(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.850
Subarea runoff =      0.768(CFS) for    0.240(Ac.)
Total runoff =      2.828(CFS)  Total area =        0.92(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1055.000 to Point/Station     1030.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   239.650(Ft.)
Downstream point/station elevation =   238.960(Ft.)
Pipe length  =    46.19(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.828(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.828(CFS)
Normal flow depth in pipe =    7.04(In.)
Flow top width inside pipe =   11.82(In.)
Critical Depth =    8.65(In.)
Pipe flow velocity =      5.90(Ft/s)
Travel time through pipe =    0.13 min.
Time of concentration (TC) =     7.54 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1055.000 to Point/Station     1030.000
```



```
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      0.920(Ac.)
Runoff from this stream =      2.828(CFS)
Time of concentration =    7.54 min.
Rainfall intensity =     3.740(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1        3.979      9.36                 3.456
2        2.828      7.54                 3.740
Qmax(1) =
          1.000 *    1.000 *     3.979) +
          0.924 *    1.000 *     2.828) + =       6.592
Qmax(2) =
          1.000 *    0.806 *     3.979) +
          1.000 *    1.000 *     2.828) + =       6.033

Total of 2 streams to confluence:
Flow rates before confluence point:
       3.979       2.828
Maximum flow rates at confluence using above data:
       6.592        6.033
Area of streams before confluence:
       1.260        0.920
Results of confluence:
Total flow rate =      6.592(CFS)
Time of concentration =     9.361 min.
Effective stream area after confluence =      2.180(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1030.000 to Point/Station     1060.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________________
Upstream point/station elevation =   238.960(Ft.)
Downstream point/station elevation =   233.000(Ft.)
Pipe length  =   397.33(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     6.592(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     6.592(CFS)
Normal flow depth in pipe =   10.45(In.)
Flow top width inside pipe =   13.79(In.)
Critical Depth =   12.40(In.)
Pipe flow velocity =      7.21(Ft/s)
Travel time through pipe =    0.92 min.
Time of concentration (TC) =    10.28 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1030.000 to Point/Station     1060.000
**** CONFLUENCE OF MAIN STREAMS ****
______________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =      2.180(Ac.)
Runoff from this stream =      6.592(CFS)
Time of concentration =   10.28 min.
Rainfall intensity =     3.341(In/Hr)
```

```
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1065.000 to Point/Station     1070.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[COMMERCIAL area type                        ]
Initial subarea flow distance  =   50.000(Ft.)
Highest elevation =  248.560(Ft.)
Lowest elevation =  248.200(Ft.)
Elevation difference =    0.360(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =     3.55 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.8500)*(  50.000^.5)/(   0.720^(1/3)]=   3.55
Setting time of concentration to 5 minutes
Rainfall intensity (I) =      4.389(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.850
Subarea runoff =      0.149(CFS)
Total initial stream area =        0.040(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1070.000 to Point/Station     1075.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   248.200(Ft.)
End of street segment elevation =   246.800(Ft.)
Length of street segment  =   240.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  26.000(Ft.)
Distance from crown to crossfall grade break  =  13.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0180
 Manning's N from grade break to crown =  0.0180
Estimated mean flow rate at midpoint of street =      0.206(CFS)
Depth of flow =   0.153(Ft.), Average velocity =   1.027(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   3.398(Ft.)
Flow velocity =   1.03(Ft/s)
Travel time =    3.89 min.     TC =    8.89  min.
 Adding area flow to street
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[COMMERCIAL area type                        ]
Rainfall intensity =      3.521(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.850
Subarea runoff =      2.274(CFS) for    0.760(Ac.)
Total runoff =      2.424(CFS)  Total area =        0.80(Ac.)
```



```
Street flow at end of street =      2.424(CFS)
Half street flow at end of street =      2.424(CFS)
Depth of flow =   0.324(Ft.), Average velocity =   1.607(Ft/s)
Flow width (from curb towards crown)=  11.929(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1075.000 to Point/Station     1080.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   244.090(Ft.)
Downstream point/station elevation =   243.500(Ft.)
Pipe length  =    39.03(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.424(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.424(CFS)
Normal flow depth in pipe =    6.38(In.)
Flow top width inside pipe =   11.98(In.)
Critical Depth =    8.00(In.)
Pipe flow velocity =      5.72(Ft/s)
Travel time through pipe =    0.11 min.
Time of concentration (TC) =     9.01 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1080.000 to Point/Station     1085.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[COMMERCIAL area type                        ]
Time of concentration =     9.01 min.
Rainfall intensity =      3.504(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.850
Subarea runoff =      1.817(CFS) for    0.610(Ac.)
Total runoff =      4.240(CFS)  Total area =        1.41(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1086.000 to Point/Station     1085.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[COMMERCIAL area type                        ]
Time of concentration =     9.01 min.
Rainfall intensity =      3.504(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.850
Subarea runoff =      2.502(CFS) for    0.840(Ac.)
Total runoff =      6.743(CFS)  Total area =        2.25(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1085.000 to Point/Station     1060.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   243.500(Ft.)
Downstream point/station elevation =   233.000(Ft.)
Pipe length  =   176.82(Ft.)   Manning's N = 0.013
```

```
No. of pipes = 1  Required pipe flow  =     6.743(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     6.743(CFS)
Normal flow depth in pipe =    7.95(In.)
Flow top width inside pipe =   11.35(In.)
Critical depth could not be calculated.
Pipe flow velocity =     12.21(Ft/s)
Travel time through pipe =    0.24 min.
Time of concentration (TC) =     9.25 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1085.000 to Point/Station     1060.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      2.250(Ac.)
Runoff from this stream =      6.743(CFS)
Time of concentration =    9.25 min.
Rainfall intensity =     3.471(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1        6.592     10.28                3.341
2        6.743      9.25                3.471
Qmax(1) =
           1.000 *    1.000 *     6.592) +
           0.962 *    1.000 *     6.743) + =      13.081
Qmax(2) =
           1.000 *    0.900 *     6.592) +
           1.000 *    1.000 *     6.743) + =      12.673

Total of 2 main streams to confluence:
Flow rates before confluence point:
       6.592       6.743
Maximum flow rates at confluence using above data:
       13.081       12.673
Area of streams before confluence:
        2.180        2.250


Results of confluence:
Total flow rate =     13.081(CFS)
Time of concentration =    10.280 min.
Effective stream area after confluence  =      4.430(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1060.000 to Point/Station     1090.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   233.000(Ft.)
Downstream point/station elevation =   232.130(Ft.)
Pipe length  =   103.90(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    13.081(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    13.081(CFS)
Normal flow depth in pipe =   15.61(In.)
Flow top width inside pipe =   18.35(In.)
```



```
Critical Depth =   16.16(In.)
Pipe flow velocity =      6.82(Ft/s)
Travel time through pipe =    0.25 min.
Time of concentration (TC) =    10.53 min.
End of computations, total study area =           4.430 (Ac.)
```

```
                San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2003 Version 6.3

Rational method hydrology  program based on
San Diego County Flood Control Division 1985 hydrology manual
        Rational Hydrology Study        Date: 07/18/18
------------------------------------------------------------------------
4308.00 SEABREEZE SENIOR LIVING
PROPOSED CONDITIONS
S1000P100
SYSTEM 1B
------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

------------------------------------------------------------------------


Program License Serial Number 4049

------------------------------------------------------------------------
Rational hydrology study storm event year is   100.0
English (in-lb) input data Units used
English (in) rainfall data used

Standard intensity of Appendix I-B used for year and
Elevation 0 - 1500 feet
Factor (to multiply * intensity)  =  1.000
Only used if inside City of San Diego
San Diego hydrology manual 'C' values used
Runoff coefficients by rational method


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1105.000 to Point/Station     1110.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[INDUSTRIAL area type                    ]
Initial subarea flow distance  =   70.000(Ft.)
Highest elevation =  251.400(Ft.)
Lowest elevation =  250.380(Ft.)
Elevation difference =    1.020(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =     1.99 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.9500)*(  70.000^.5)/(   1.457^(1/3)]=   1.99
Setting time of concentration to 5 minutes
Rainfall intensity (I) =      4.389(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.950
Subarea runoff =      0.167(CFS)
Total initial stream area =        0.040(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1110.000 to Point/Station     1115.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Top of street segment elevation =   250.380(Ft.)
```



```
End of street segment elevation =   247.110(Ft.)
Length of street segment  =   450.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  26.000(Ft.)
Distance from crown to crossfall grade break  =  13.000(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =   5.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   2.000(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0180
 Manning's N from grade break to crown =  0.0180
Estimated mean flow rate at midpoint of street =      0.225(CFS)
Depth of flow =   0.152(Ft.), Average velocity =   1.146(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   3.338(Ft.)
Flow velocity =   1.15(Ft/s)
Travel time =    6.54 min.     TC =   11.54  min.
 Adding area flow to street
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[COMMERCIAL area type                    ]
Rainfall intensity =      3.203(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.850
Subarea runoff =      1.906(CFS) for    0.700(Ac.)
Total runoff =      2.073(CFS)  Total area =        0.74(Ac.)
Street flow at end of street =      2.073(CFS)
Half street flow at end of street =      2.073(CFS)
Depth of flow =   0.299(Ft.), Average velocity =   1.687(Ft/s)
Flow width (from curb towards crown)=  10.694(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1115.000 to Point/Station     1120.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   244.380(Ft.)
Downstream point/station elevation =   243.000(Ft.)
Pipe length  =    91.82(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.073(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.073(CFS)
Normal flow depth in pipe =    5.82(In.)
Flow top width inside pipe =   11.99(In.)
Critical Depth =    7.38(In.)
Pipe flow velocity =      5.49(Ft/s)
Travel time through pipe =    0.28 min.
Time of concentration (TC) =    11.82 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1120.000 to Point/Station     1125.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
```

```
[MULTI - UNITS area type                    ]
Time of concentration =    11.82 min.
Rainfall intensity =      3.176(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.700
Subarea runoff =      2.601(CFS) for    1.170(Ac.)
Total runoff =      4.674(CFS)  Total area =        1.91(Ac.)
End of computations, total study area =          1.910 (Ac.)
```

```
                San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2003 Version 6.3

Rational method hydrology  program based on
San Diego County Flood Control Division 1985 hydrology manual
        Rational Hydrology Study        Date: 07/19/18
--------------------------------------------------------------------------
4308.00 SEABREEZE SENIOR LIVING
PROPOSED CONDITIONS
S1000P100
COMBINED SYSTEM
--------------------------------------------------------------------------
 *********   Hydrology Study Control Information **********

--------------------------------------------------------------------------


Program License Serial Number 4049

--------------------------------------------------------------------------
Rational hydrology study storm event year is   100.0
English (in-lb) input data Units used
English (in) rainfall data used

Standard intensity of Appendix I-B used for year and
Elevation 0 - 1500 feet
Factor (to multiply * intensity)  =  1.000
Only used if inside City of San Diego
San Diego hydrology manual 'C' values used
Runoff coefficients by rational method


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1095.000 to Point/Station     1095.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
______________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[SINGLE FAMILY area type                    ]
Rainfall intensity (I) =      2.688(In/Hr) for a   100.0 year storm
User specified values are as follows:
TC =  18.20 min.  Rain intensity =       2.69(In/Hr)
Total area =        8.750(Ac.)  Total runoff =    12.648(CFS)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1061.000 to Point/Station     1095.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Time of concentration =    18.20 min.
Rainfall intensity =      2.688(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.450
Subarea runoff =      0.520(CFS) for    0.430(Ac.)
Total runoff =     13.168(CFS)  Total area =        9.18(Ac.)
```



```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1095.000 to Point/Station     1090.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
______________________________________________________________________________
Upstream point/station elevation =   243.000(Ft.)
Downstream point/station elevation =   232.130(Ft.)
Pipe length  =   139.70(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    13.168(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    13.168(CFS)
Normal flow depth in pipe =    7.44(In.)
Flow top width inside pipe =   22.20(In.)
Critical Depth =   15.66(In.)
Pipe flow velocity =     15.87(Ft/s)
Travel time through pipe =    0.15 min.
Time of concentration (TC) =    18.35 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1095.000 to Point/Station     1090.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      9.180(Ac.)
Runoff from this stream =     13.168(CFS)
Time of concentration =   18.35 min.
Rainfall intensity =     2.679(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1090.000 to Point/Station     1090.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
______________________________________________________________________________
User specified 'C' value of 0.660 given for subarea
Rainfall intensity (I) =      3.341(In/Hr) for a   100.0 year storm
User specified values are as follows:
TC =  10.28 min.  Rain intensity =       3.34(In/Hr)
Total area =        4.420(Ac.)  Total runoff =     9.100(CFS)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1090.000 to Point/Station     1090.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      4.420(Ac.)
Runoff from this stream =      9.100(CFS)
Time of concentration =   10.28 min.
Rainfall intensity =     3.341(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1       13.168     18.35                 2.679
2        9.100     10.28                 3.341
Qmax(1) =
           1.000 *    1.000 *    13.168) +
           0.802 *    1.000 *     9.100) + =      20.465
Qmax(2) =
```

```
           1.000 *    0.560 *    13.168) +
           1.000 *    1.000 *     9.100) + =      16.478

Total of 2 streams to confluence:
Flow rates before confluence point:
      13.168       9.100
Maximum flow rates at confluence using above data:
       20.465       16.478
Area of streams before confluence:
        9.180        4.420
Results of confluence:
Total flow rate =     20.465(CFS)
Time of concentration =    18.347 min.
Effective stream area after confluence =     13.600(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1090.000 to Point/Station     1100.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =   231.630(Ft.)
Downstream point/station elevation =   230.670(Ft.)
Pipe length  =   103.05(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    20.465(CFS)
Given pipe size =     30.00(In.)
Calculated individual pipe flow  =    20.465(CFS)
Normal flow depth in pipe =   15.30(In.)
Flow top width inside pipe =   29.99(In.)
Critical Depth =   18.45(In.)
Pipe flow velocity =      8.13(Ft/s)
Travel time through pipe =    0.21 min.
Time of concentration (TC) =    18.56 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1090.000 to Point/Station     1100.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 1
Stream flow area =     13.600(Ac.)
Runoff from this stream =     20.465(CFS)
Time of concentration =   18.56 min.
Rainfall intensity =     2.666(In/Hr)
Program is now starting with Main Stream No. 2


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1125.000 to Point/Station     1125.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
________________________________________________________________________
User specified 'C' value of 0.610 given for subarea
Rainfall intensity (I) =      3.138(In/Hr) for a   100.0 year storm
User specified values are as follows:
TC =  12.21 min.  Rain intensity =       3.14(In/Hr)
Total area =        1.910(Ac.)  Total runoff =     0.940(CFS)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1125.000 to Point/Station     1130.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   243.000(Ft.)
```



```
Downstream point/station elevation =   240.680(Ft.)
Pipe length  =   154.95(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     0.940(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     0.940(CFS)
Normal flow depth in pipe =    4.31(In.)
Flow top width inside pipe =    8.99(In.)
Critical Depth =    5.33(In.)
Pipe flow velocity =      4.50(Ft/s)
Travel time through pipe =    0.57 min.
Time of concentration (TC) =    12.78 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1131.000 to Point/Station     1130.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Time of concentration =    12.78 min.
Rainfall intensity =      3.086(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.450
Subarea runoff =      0.208(CFS) for    0.150(Ac.)
Total runoff =      1.148(CFS)  Total area =        2.06(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1130.000 to Point/Station     1100.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
________________________________________________________________________
Upstream point/station elevation =   240.620(Ft.)
Downstream point/station elevation =   230.670(Ft.)
Pipe length  =    64.96(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.148(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     1.148(CFS)
Normal flow depth in pipe =    3.08(In.)
Flow top width inside pipe =    6.00(In.)
Critical depth could not be calculated.
Pipe flow velocity =     11.31(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =    12.88 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1130.000 to Point/Station     1100.000
**** CONFLUENCE OF MAIN STREAMS ****
________________________________________________________________________
The following data inside Main Stream is listed:
In Main Stream number: 2
Stream flow area =      2.060(Ac.)
Runoff from this stream =      1.148(CFS)
Time of concentration =   12.88 min.
Rainfall intensity =     3.077(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)               (In/Hr)
```

```
1       20.465     18.56                 2.666
2        1.148     12.88                 3.077
Qmax(1) =
           1.000 *    1.000 *    20.465) +
           0.866 *    1.000 *     1.148) + =      21.459
Qmax(2) =
           1.000 *    0.694 *    20.465) +
           1.000 *    1.000 *     1.148) + =      15.352

Total of 2 main streams to confluence:
Flow rates before confluence point:
      20.465       1.148
Maximum flow rates at confluence using above data:
       21.459       15.352
Area of streams before confluence:
       13.600        2.060


Results of confluence:
Total flow rate =     21.459(CFS)
Time of concentration =    18.558 min.
Effective stream area after confluence  =     15.660(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1100.000 to Point/Station     1135.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =   230.340(Ft.)
Downstream point/station elevation =   216.630(Ft.)
Pipe length  =    48.50(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    21.459(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    21.459(CFS)
Normal flow depth in pipe =    6.86(In.)
Flow top width inside pipe =   21.69(In.)
Critical Depth =   19.89(In.)
Pipe flow velocity =     28.93(Ft/s)
Travel time through pipe =    0.03 min.
Time of concentration (TC) =    18.59 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1136.000 to Point/Station     1135.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Time of concentration =    18.59 min.
Rainfall intensity =      2.664(In/Hr) for a   100.0 year storm
Runoff coefficient used for sub-area, Rational method,Q=KCIA, C = 0.450
Subarea runoff =      0.456(CFS) for    0.380(Ac.)
Total runoff =     21.915(CFS)  Total area =       16.04(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1135.000 to Point/Station     1140.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
________________________________________________________________________
Upstream point/station elevation =   215.500(Ft.)
```

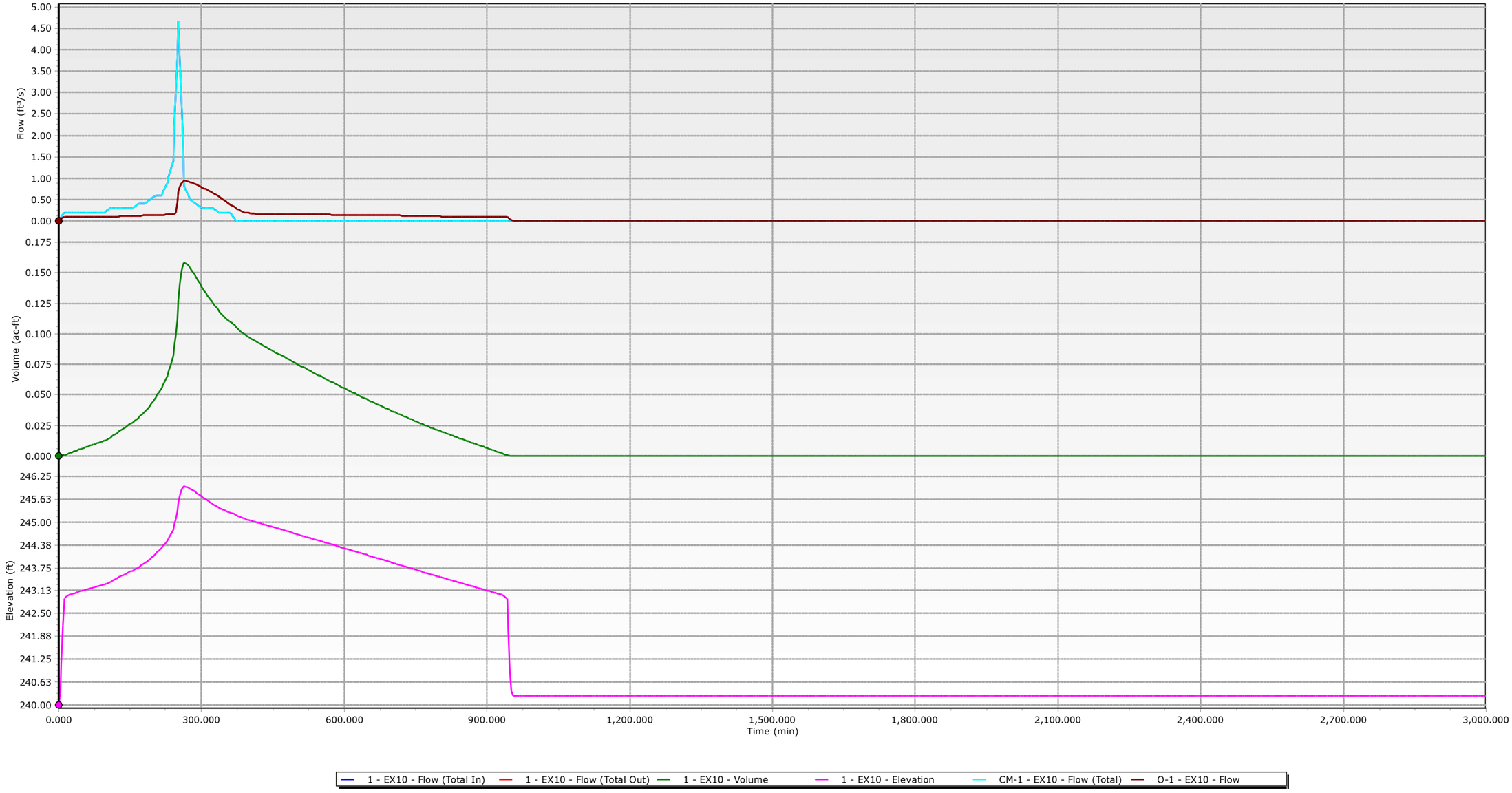


```
Downstream point/station elevation =   207.380(Ft.)
Pipe length  =    24.78(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    21.915(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    21.915(CFS)
Normal flow depth in pipe =    6.68(In.)
Flow top width inside pipe =   21.51(In.)
Critical Depth =   20.06(In.)
Pipe flow velocity =     30.69(Ft/s)
Travel time through pipe =    0.01 min.
Time of concentration (TC) =    18.60 min.
End of computations, total study area =          16.040 (Ac.)
```

APPENDIX 4

Preliminary Detention Calculations

Basin 4 100 Year



Basin 4

Project Summary	
Title	Basin 4
Engineer	PDC
Company	PDC
Date	7/11/2018

Notes

Basin 4

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (min)	Peak Flow (ft^3/s)
CM-1	EX10	0	0.261	252.000	4.67

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (min)	Peak Flow (ft^3/s)
O-1	EX10	0	0.261	264.000	0.94

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (min)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
1 (IN)	EX10	0	0.261	252.000	4.67	(N/A)	(N/A)
1 (OUT)	EX10	0	0.261	264.000	0.94	245.98	0.159

Basin 4

Subsection: Read Hydrograph
Label: CM-1

Return Event: 100 years
Storm Event:

Peak Discharge	4.67 ft³/s
Time to Peak	252.000 min
Hydrograph Volume	0.261 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 12.000 min
Time on left represents time for first value in each row.

Time (min)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.000	0.00	0.20	0.20	0.20	0.20
60.000	0.20	0.20	0.20	0.20	0.30
120.000	0.30	0.30	0.30	0.30	0.40
180.000	0.40	0.50	0.60	0.60	0.90
240.000	1.40	4.67	0.80	0.50	0.40
300.000	0.30	0.30	0.30	0.20	0.20
360.000	0.20	0.00	(N/A)	(N/A)	(N/A)

Basin 4

Subsection: Elevation-Area Volume Curve
Label: 1

Return Event: 100 years
Storm Event:

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
240.00	0.0	10.000	0.000	0.000	0.000
242.90	0.0	10.000	30.000	0.001	0.001
243.00	0.0	1,477.000	1,608.532	0.001	0.002
244.00	0.0	1,999.000	5,194.291	0.040	0.042
246.00	0.0	3,213.000	7,746.322	0.119	0.160
248.00	0.0	4,653.000	11,732.534	0.180	0.340

Basin 4

Subsection: Volume Equations | Return Event: 100 years
Label: 1 | Storm Event:

Pond Volume Equations
*** Incremental volume computed by the Conic Method for Reservoir Volumes.**

Volume = (1/3) * (EL2 - El1) * (Area1 + Area2 + sqr(Area1 * Area2))

where:	EL1, EL2	Lower and upper elevations of the increment
	Area1, Area2	Areas computed for EL1, EL2, respectively
	Volume	Incremental volume between EL1 and EL2

Basin 4

Subsection: Outlet Input Data
Label: Outlet#1

Return Event: 100 years
Storm Event:

Requested Pond Water Surface Elevations	
Minimum (Headwater)	240.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	248.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	2-Midflow orifice	Forward	TW	243.50	248.00
Orifice-Circular	3-Highflow orifice	Forward	TW	245.00	248.00
Inlet Box	Riser - 1	Forward	TW	246.00	248.00
Orifice-Circular	1-Underdrain orifice	Forward	TW	240.25	248.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Basin 4

Subsection: Outlet Input Data
Label: Outlet#1

Return Event: 100 years
Storm Event:

Structure ID: 1-Underdrain orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	240.25 ft
Orifice Diameter	1.5 in
Orifice Coefficient	0.600

Structure ID: 2-Midflow orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	243.50 ft
Orifice Diameter	1.0 in
Orifice Coefficient	0.600

Structure ID: 3-Highflow orifice Structure Type: Orifice-Circular	
Number of Openings	2
Elevation	245.00 ft
Orifice Diameter	4.0 in
Orifice Coefficient	0.600

Structure ID: Riser - 1 Structure Type: Inlet Box	
Number of Openings	1
Elevation	246.00 ft
Orifice Area	6.0 ft²
Orifice Coefficient	0.600
Weir Length	10.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft

Basin 4

Subsection: Outlet Input Data | Return Event: 100 years
Label: Outlet#1 | Storm Event:

Convergence Tolerances	
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Basin 4

Subsection: Composite Rating Curve
Label: Outlet#1

Return Event: 100 years
Storm Event:

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
240.00	0.00	(N/A)	0.00
240.10	0.00	(N/A)	0.00
240.20	0.00	(N/A)	0.00
240.25	0.00	(N/A)	0.00
240.30	0.00	(N/A)	0.00
240.40	0.02	(N/A)	0.00
240.50	0.03	(N/A)	0.00
240.60	0.03	(N/A)	0.00
240.70	0.04	(N/A)	0.00
240.80	0.04	(N/A)	0.00
240.90	0.05	(N/A)	0.00
241.00	0.05	(N/A)	0.00
241.10	0.05	(N/A)	0.00
241.20	0.06	(N/A)	0.00
241.30	0.06	(N/A)	0.00
241.40	0.06	(N/A)	0.00
241.50	0.06	(N/A)	0.00
241.60	0.07	(N/A)	0.00
241.70	0.07	(N/A)	0.00
241.80	0.07	(N/A)	0.00
241.90	0.07	(N/A)	0.00
242.00	0.08	(N/A)	0.00
242.10	0.08	(N/A)	0.00
242.20	0.08	(N/A)	0.00
242.30	0.08	(N/A)	0.00
242.40	0.09	(N/A)	0.00
242.50	0.09	(N/A)	0.00
242.60	0.09	(N/A)	0.00
242.70	0.09	(N/A)	0.00
242.80	0.09	(N/A)	0.00
242.90	0.10	(N/A)	0.00
243.00	0.10	(N/A)	0.00
243.10	0.10	(N/A)	0.00
243.20	0.10	(N/A)	0.00
243.30	0.10	(N/A)	0.00
243.40	0.10	(N/A)	0.00
243.50	0.11	(N/A)	0.00
243.60	0.11	(N/A)	0.00
243.70	0.12	(N/A)	0.00
243.80	0.12	(N/A)	0.00
243.90	0.13	(N/A)	0.00
244.00	0.13	(N/A)	0.00
244.10	0.13	(N/A)	0.00

Basin 4

Subsection: Composite Rating Curve
Label: Outlet#1

Return Event: 100 years
Storm Event:

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
244.20	0.14	(N/A)	0.00
244.30	0.14	(N/A)	0.00
244.40	0.14	(N/A)	0.00
244.50	0.15	(N/A)	0.00
244.60	0.15	(N/A)	0.00
244.70	0.15	(N/A)	0.00
244.80	0.15	(N/A)	0.00
244.90	0.16	(N/A)	0.00
245.00	0.16	(N/A)	0.00
245.10	0.20	(N/A)	0.00
245.20	0.30	(N/A)	0.00
245.30	0.45	(N/A)	0.00
245.40	0.57	(N/A)	0.00
245.50	0.66	(N/A)	0.00
245.60	0.73	(N/A)	0.00
245.70	0.79	(N/A)	0.00
245.80	0.85	(N/A)	0.00
245.90	0.90	(N/A)	0.00
246.00	0.95	(N/A)	0.00
246.10	1.94	(N/A)	0.00
246.20	3.72	(N/A)	0.00
246.30	6.01	(N/A)	0.00
246.40	8.71	(N/A)	0.00
246.50	11.77	(N/A)	0.00
246.60	15.14	(N/A)	0.00
246.70	18.81	(N/A)	0.00
246.80	22.74	(N/A)	0.00
246.90	26.92	(N/A)	0.00
247.00	30.22	(N/A)	0.00
247.10	31.66	(N/A)	0.00
247.20	33.04	(N/A)	0.00
247.30	34.36	(N/A)	0.00
247.40	35.63	(N/A)	0.00
247.50	36.86	(N/A)	0.00
247.60	38.05	(N/A)	0.00
247.70	39.20	(N/A)	0.00
247.80	40.32	(N/A)	0.00
247.90	41.41	(N/A)	0.00
248.00	42.47	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing

Basin 4

Subsection: Composite Rating Curve
Label: Outlet#1

Return Event: 100 years
Storm Event:

Composite Outflow Summary

Contributing Structures
None Contributing
None Contributing
1-Underdrain orifice
1-Underdrain orifice
1-Underdrain orifice
1-Underdrain orifice
1-Underdrain orifice
1-Underdrain orifice
1-Underdrain orifice
1-Underdrain orifice
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1-Underdrain orifice
1-Underdrain orifice
1-Underdrain orifice
1-Underdrain orifice
1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice

Basin 4

Subsection: Composite Rating Curve | Return Event: 100 years
Label: Outlet#1 | Storm Event:

Composite Outflow Summary

Contributing Structures
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice

Basin 4

Subsection: Composite Rating Curve — Return Event: 100 years
Label: Outlet#1 — Storm Event:

Composite Outflow Summary

Contributing Structures
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice
2-Midflow orifice + 3-Highflow orifice + Riser - 1 + 1-Underdrain orifice

Basin 4

Subsection: Elevation-Volume-Flow Table (Pond) | Return Event: 100 years
Label: 1 | Storm Event:

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	240.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	3.000 min

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
240.00	0.00	0.000	10.000	0.00	0.00	0.00
240.10	0.00	0.000	10.000	0.00	0.00	0.01
240.20	0.00	0.000	10.000	0.00	0.00	0.02
240.25	0.00	0.000	10.000	0.00	0.00	0.03
240.30	0.00	0.000	10.000	0.00	0.00	0.04
240.40	0.02	0.000	10.000	0.00	0.02	0.06
240.50	0.03	0.000	10.000	0.00	0.03	0.08
240.60	0.03	0.000	10.000	0.00	0.03	0.10
240.70	0.04	0.000	10.000	0.00	0.04	0.11
240.80	0.04	0.000	10.000	0.00	0.04	0.13
240.90	0.05	0.000	10.000	0.00	0.05	0.15
241.00	0.05	0.000	10.000	0.00	0.05	0.16
241.10	0.05	0.000	10.000	0.00	0.05	0.17
241.20	0.06	0.000	10.000	0.00	0.06	0.19
241.30	0.06	0.000	10.000	0.00	0.06	0.20
241.40	0.06	0.000	10.000	0.00	0.06	0.22
241.50	0.06	0.000	10.000	0.00	0.06	0.23
241.60	0.07	0.000	10.000	0.00	0.07	0.24
241.70	0.07	0.000	10.000	0.00	0.07	0.26
241.80	0.07	0.000	10.000	0.00	0.07	0.27
241.90	0.07	0.000	10.000	0.00	0.07	0.29
242.00	0.08	0.000	10.000	0.00	0.08	0.30
242.10	0.08	0.000	10.000	0.00	0.08	0.31
242.20	0.08	0.001	10.000	0.00	0.08	0.33
242.30	0.08	0.001	10.000	0.00	0.08	0.34
242.40	0.09	0.001	10.000	0.00	0.09	0.35
242.50	0.09	0.001	10.000	0.00	0.09	0.37
242.60	0.09	0.001	10.000	0.00	0.09	0.38
242.70	0.09	0.001	10.000	0.00	0.09	0.39

Basin 4

Subsection: Elevation-Volume-Flow Table (Pond) Return Event: 100 years

Label: 1 Storm Event:

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
242.80	0.09	0.001	10.000	0.00	0.09	0.40
242.90	0.10	0.001	10.000	0.00	0.10	0.42
243.00	0.10	0.002	1,477.000	0.00	0.10	1.01
243.10	0.10	0.005	1,525.652	0.00	0.10	2.68
243.20	0.10	0.009	1,575.093	0.00	0.10	4.41
243.30	0.10	0.013	1,625.322	0.00	0.10	6.19
243.40	0.10	0.016	1,676.340	0.00	0.10	8.02
243.50	0.11	0.020	1,728.145	0.00	0.11	9.92
243.60	0.11	0.024	1,780.740	0.00	0.11	11.87
243.70	0.12	0.028	1,834.122	0.00	0.12	13.89
243.80	0.12	0.033	1,888.293	0.00	0.12	15.96
243.90	0.13	0.037	1,943.252	0.00	0.13	18.09
244.00	0.13	0.042	1,999.000	0.00	0.13	20.29
244.10	0.13	0.046	2,052.891	0.00	0.13	22.54
244.20	0.14	0.051	2,107.498	0.00	0.14	24.86
244.30	0.14	0.056	2,162.822	0.00	0.14	27.23
244.40	0.14	0.061	2,218.863	0.00	0.14	29.67
244.50	0.15	0.066	2,275.621	0.00	0.15	32.17
244.60	0.15	0.071	2,333.095	0.00	0.15	34.73
244.70	0.15	0.077	2,391.286	0.00	0.15	37.36
244.80	0.15	0.082	2,450.194	0.00	0.15	40.05
244.90	0.16	0.088	2,509.819	0.00	0.16	42.81
245.00	0.16	0.094	2,570.161	0.00	0.16	45.63
245.10	0.20	0.100	2,631.219	0.00	0.20	48.56
245.20	0.30	0.106	2,692.994	0.00	0.30	51.62
245.30	0.45	0.112	2,755.486	0.00	0.45	54.79
245.40	0.57	0.119	2,818.695	0.00	0.57	58.02
245.50	0.66	0.125	2,882.621	0.00	0.66	61.27
245.60	0.73	0.132	2,947.263	0.00	0.73	64.58
245.70	0.79	0.139	3,012.622	0.00	0.79	67.95
245.80	0.85	0.146	3,078.698	0.00	0.85	71.39
245.90	0.90	0.153	3,145.491	0.00	0.90	74.90
246.00	0.95	0.160	3,213.000	0.00	0.95	78.49
246.10	1.94	0.168	3,278.686	0.00	1.94	83.09
246.20	3.72	0.175	3,345.036	0.00	3.72	88.55
246.30	6.01	0.183	3,412.051	0.00	6.01	94.59
246.40	8.71	0.191	3,479.731	0.00	8.71	101.12
246.50	11.77	0.199	3,548.075	0.00	11.77	108.08
246.60	15.14	0.207	3,617.084	0.00	15.14	115.43
246.70	18.81	0.216	3,686.758	0.00	18.81	123.15
246.80	22.74	0.224	3,757.097	0.00	22.74	131.22
246.90	26.92	0.233	3,828.100	0.00	26.92	139.62
247.00	30.22	0.242	3,899.767	0.00	30.22	147.21

Basin 4

Subsection: Elevation-Volume-Flow Table (Pond) Return Event: 100 years

Label: 1 Storm Event:

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
247.10	31.66	0.251	3,972.100	0.00	31.66	153.02
247.20	33.04	0.260	4,045.097	0.00	33.04	158.85
247.30	34.36	0.269	4,118.758	0.00	34.36	164.71
247.40	35.63	0.279	4,193.084	0.00	35.63	170.60
247.50	36.86	0.289	4,268.075	0.00	36.86	176.53
247.60	38.05	0.298	4,343.731	0.00	38.05	182.51
247.70	39.20	0.309	4,420.051	0.00	39.20	188.53
247.80	40.32	0.319	4,497.036	0.00	40.32	194.60
247.90	41.41	0.329	4,574.686	0.00	41.41	200.73
248.00	42.47	0.340	4,653.000	0.00	42.47	206.92

Basin 4

Subsection: Pond Inflow Summary
Label: 1 (IN)

Return Event: 100 years
Storm Event:

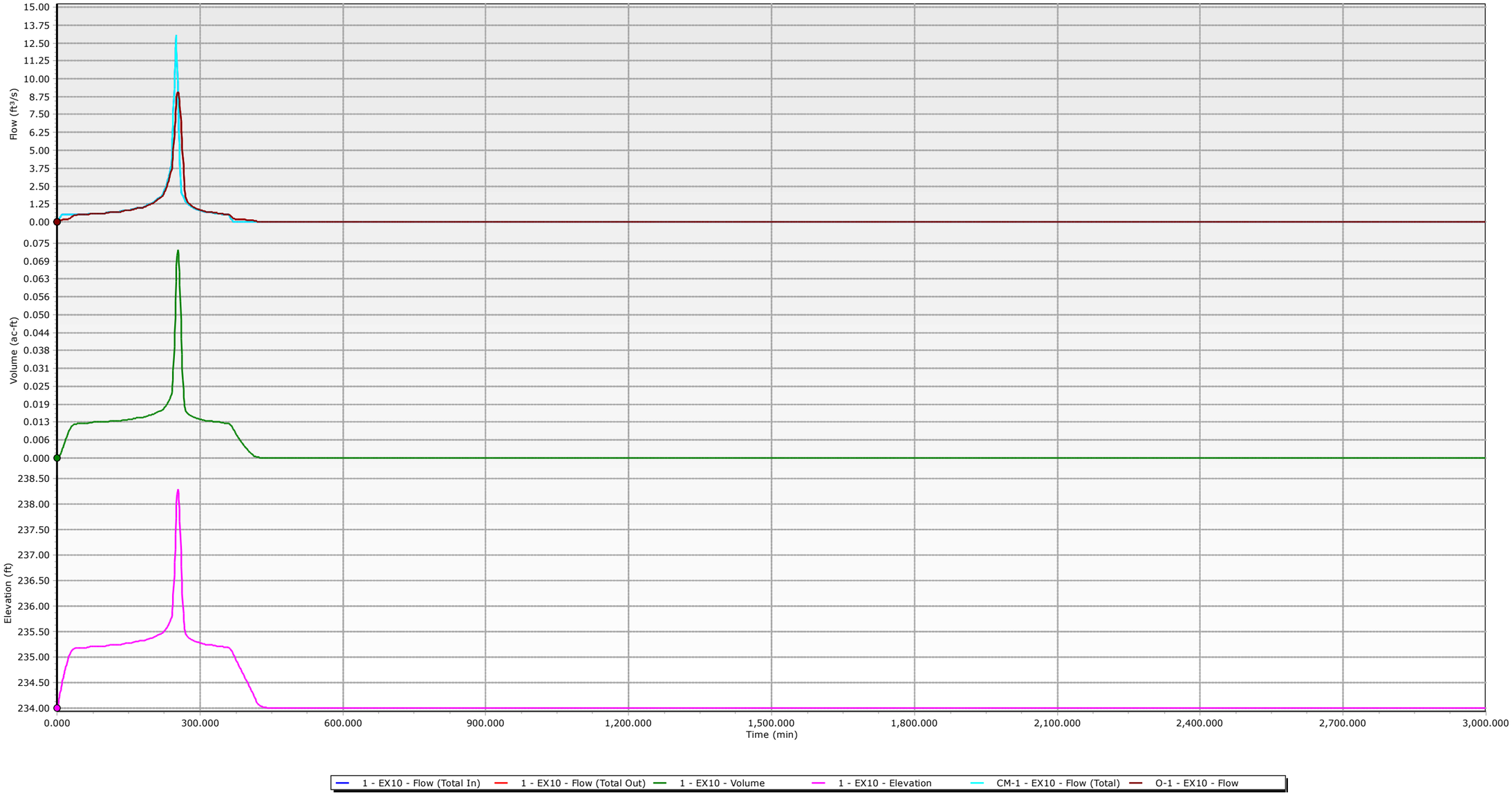
Summary for Hydrograph Addition at '1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	CM-1

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (min)	Flow (Peak) (ft^3/s)
Flow (From)	CM-1	0.261	252.000	4.67
Flow (In)	1	0.261	252.000	4.67

Northern Area 100 Year



Northern Area to Pipe Gallery

Project Summary	
Title	Northern Area
Engineer	PDC
Company	PDC
Date	7/12/2018

Notes

Northern Area to Pipe Gallery

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (min)	Peak Flow (ft³/s)
CM-1	EX10	0	0.652	250.000	13.05

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (min)	Peak Flow (ft³/s)
O-1	EX10	0	0.652	254.000	9.10

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (min)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
1 (IN)	EX10	0	0.652	250.000	13.05	(N/A)	(N/A)
1 (OUT)	EX10	0	0.652	254.000	9.10	238.29	0.073

Northern Area to Pipe Gallery

Subsection: Read Hydrograph
Label: CM-1

Return Event: 100 years
Storm Event:

Peak Discharge	13.05 ft³/s
Time to Peak	250.000 min
Hydrograph Volume	0.652 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 10.000 min
Time on left represents time for first value in each row.

Time (min)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.000	0.00	0.50	0.50	0.50	0.50
50.000	0.50	0.50	0.60	0.60	0.60
100.000	0.60	0.70	0.70	0.70	0.80
150.000	0.80	0.90	1.00	1.00	1.20
200.000	1.30	1.60	1.80	2.60	3.90
250.000	13.05	2.10	1.40	1.10	0.90
300.000	0.80	0.70	0.70	0.60	0.60
350.000	0.50	0.50	0.00	(N/A)	(N/A)

Northern Area to Pipe Gallery

Subsection: Pipe Volume
Label: 1

Return Event: 100 years
Storm Event:

Volume Results (Pipe)	
Pipe Storage Upstream Invert	234.20 ft
Pipe Storage Downstream Invert	234.00 ft
Pipe Storage Length	150.00 ft
Pipe Storage Diameter	72.0 in
Pipe Storage Number of Barrels	1
Pipe Storage Slice Width	0.25 ft
Pipe Storage Vertical Increment	0.25 ft

Elevation (ft)	Perpendicular Downstream Depth (ft)	Perpendicular Downstream Area (ft²)	Wetted Length (ft)	Filled Length (ft)	Perpendicular Upstream Depth (ft)	Perpendicular Upstream Area (ft²)	Total Volume (ac-ft)
234.00	0.00	0.0	0.00	0.00	0.00	0.0	0.000
234.25	0.25	0.4	150.00	0.00	0.05	0.0	0.001
234.50	0.50	1.1	150.00	0.00	0.30	0.5	0.003
234.75	0.75	2.0	150.00	0.00	0.55	1.3	0.006
235.00	1.00	3.1	150.00	0.00	0.80	2.2	0.009
235.25	1.25	4.3	150.00	0.00	1.05	3.3	0.013
235.50	1.50	5.5	150.00	0.00	1.30	4.5	0.017
235.75	1.75	6.9	150.00	0.00	1.55	5.8	0.022
236.00	2.00	8.2	150.00	0.00	1.80	7.1	0.026
236.25	2.25	9.7	150.00	0.00	2.05	8.5	0.031
236.50	2.50	11.1	150.00	0.00	2.30	10.0	0.036
236.75	2.75	12.6	150.00	0.00	2.55	11.4	0.041
237.00	3.00	14.1	150.00	0.00	2.80	12.9	0.047
237.25	3.25	15.6	150.00	0.00	3.05	14.4	0.052
237.50	3.50	17.1	150.00	0.00	3.30	15.9	0.057
237.75	3.75	18.6	150.00	0.00	3.55	17.4	0.062
238.00	4.00	20.0	150.00	0.00	3.80	18.9	0.067
238.25	4.25	21.4	150.00	0.00	4.05	20.3	0.072
238.50	4.50	22.7	150.00	0.00	4.30	21.7	0.077
238.75	4.75	24.0	150.00	0.00	4.55	23.0	0.081
239.00	5.00	25.2	150.00	0.00	4.80	24.2	0.085
239.25	5.25	26.2	150.00	0.00	5.05	25.4	0.089
239.50	5.50	27.1	150.00	0.00	5.30	26.4	0.092
239.75	5.75	27.9	150.00	0.00	5.55	27.3	0.095
240.00	6.00	28.3	150.00	0.00	5.80	28.0	0.097
240.20	6.00	28.3	150.00	150.00	6.00	28.3	0.097

Northern Area to Pipe Gallery

Subsection: Outlet Input Data
Label: Outlet#1

Return Event: 100 years
Storm Event:

Requested Pond Water Surface Elevations	
Minimum (Headwater)	234.00 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	240.20 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Mid-Orifices	Forward	TW	235.00	240.20
Inlet Box	Riser - 1	Forward	TW	239.00	240.20
Orifice-Circular	2-Lowflow orifice	Forward	TW	234.00	240.20
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: 2-Lowflow orifice Structure Type: Orifice-Circular	
Number of Openings	2
Elevation	234.00 ft
Orifice Diameter	2.0 in
Orifice Coefficient	0.600

Structure ID: Riser - 1 Structure Type: Inlet Box	
Number of Openings	1
Elevation	239.00 ft
Orifice Area	6.0 ft²
Orifice Coefficient	0.600
Weir Length	8.94 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Mid-Orifices Structure Type: Orifice-Circular	
Number of Openings	3
Elevation	235.00 ft
Orifice Diameter	8.0 in
Orifice Coefficient	0.600

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s

Northern Area to Pipe Gallery

Subsection: Outlet Input Data
Label: Outlet#1

Return Event: 100 years
Storm Event:

Convergence Tolerances	
Flow Tolerance (Maximum)	10.000 ft³/s

Northern Area to Pipe Gallery

Subsection: Composite Rating Curve
Label: Outlet#1

Return Event: 100 years
Storm Event:

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
234.00	0.00	(N/A)	0.00
234.10	0.02	(N/A)	0.00
234.20	0.07	(N/A)	0.00
234.30	0.10	(N/A)	0.00
234.40	0.12	(N/A)	0.00
234.50	0.14	(N/A)	0.00
234.60	0.15	(N/A)	0.00
234.70	0.16	(N/A)	0.00
234.80	0.18	(N/A)	0.00
234.90	0.19	(N/A)	0.00
235.00	0.20	(N/A)	0.00
235.10	0.29	(N/A)	0.00
235.20	0.54	(N/A)	0.00
235.30	0.91	(N/A)	0.00
235.40	1.40	(N/A)	0.00
235.50	1.98	(N/A)	0.00
235.60	2.62	(N/A)	0.00
235.70	3.32	(N/A)	0.00
235.80	3.72	(N/A)	0.00
235.90	4.08	(N/A)	0.00
236.00	4.41	(N/A)	0.00
236.10	4.71	(N/A)	0.00
236.20	5.00	(N/A)	0.00
236.30	5.27	(N/A)	0.00
236.40	5.53	(N/A)	0.00
236.50	5.77	(N/A)	0.00
236.60	6.01	(N/A)	0.00
236.70	6.23	(N/A)	0.00
236.80	6.45	(N/A)	0.00
236.90	6.66	(N/A)	0.00
237.00	6.87	(N/A)	0.00
237.10	7.06	(N/A)	0.00
237.20	7.26	(N/A)	0.00
237.30	7.44	(N/A)	0.00
237.40	7.63	(N/A)	0.00
237.50	7.81	(N/A)	0.00
237.60	7.98	(N/A)	0.00
237.70	8.15	(N/A)	0.00
237.80	8.32	(N/A)	0.00
237.90	8.49	(N/A)	0.00
238.00	8.65	(N/A)	0.00
238.10	8.80	(N/A)	0.00
238.20	8.96	(N/A)	0.00

Northern Area to Pipe Gallery

Subsection: Composite Rating Curve
Label: Outlet#1

Return Event: 100 years
Storm Event:

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
238.30	9.11	(N/A)	0.00
238.40	9.26	(N/A)	0.00
238.50	9.41	(N/A)	0.00
238.60	9.56	(N/A)	0.00
238.70	9.70	(N/A)	0.00
238.80	9.84	(N/A)	0.00
238.90	9.98	(N/A)	0.00
239.00	10.12	(N/A)	0.00
239.10	11.10	(N/A)	0.00
239.20	12.78	(N/A)	0.00
239.30	14.92	(N/A)	0.00
239.40	17.43	(N/A)	0.00
239.50	20.26	(N/A)	0.00
239.60	23.37	(N/A)	0.00
239.70	26.74	(N/A)	0.00
239.80	30.35	(N/A)	0.00
239.90	34.18	(N/A)	0.00
240.00	38.22	(N/A)	0.00
240.10	41.81	(N/A)	0.00
240.20	43.27	(N/A)	0.00

Contributing Structures
None Contributing
2-Lowflow orifice
2-Lowflow orifice
2-Lowflow orifice
2-Lowflow orifice
2-Lowflow orifice
2-Lowflow orifice
2-Lowflow orifice
2-Lowflow orifice
2-Lowflow orifice
2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice

Northern Area to Pipe Gallery

Subsection: Composite Rating Curve
Label: Outlet#1

Return Event: 100 years
Storm Event:

Composite Outflow Summary

Contributing Structures
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
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Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + 2-Lowflow orifice
Mid-Orifices + Riser - 1 + 2-Lowflow orifice
Mid-Orifices + Riser - 1 + 2-Lowflow orifice
Mid-Orifices + Riser - 1 + 2-Lowflow orifice
Mid-Orifices + Riser - 1 + 2-Lowflow orifice
Mid-Orifices + Riser - 1 + 2-Lowflow orifice
Mid-Orifices + Riser - 1 + 2-Lowflow orifice
Mid-Orifices + Riser - 1 + 2-Lowflow orifice

Northern Area to Pipe Gallery

Subsection: Composite Rating Curve
Label: Outlet#1

Return Event: 100 years
Storm Event:

Composite Outflow Summary

Contributing Structures
Mid-Orifices + Riser - 1 + 2-Lowflow orifice
Mid-Orifices + Riser - 1 + 2-Lowflow orifice
Mid-Orifices + Riser - 1 + 2-Lowflow orifice
Mid-Orifices + Riser - 1 + 2-Lowflow orifice
Mid-Orifices + Riser - 1 + 2-Lowflow orifice

Northern Area to Pipe Gallery

Subsection: Elevation-Volume-Flow Table (Pond) Return Event: 100 years

Label: 1 Storm Event:

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	234.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	1.000 min

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
234.00	0.00	0.000	0.000	0.00	0.00	0.00
234.10	0.02	0.000	0.000	0.00	0.02	0.42
234.20	0.07	0.001	0.000	0.00	0.07	0.87
234.30	0.10	0.001	0.000	0.00	0.10	1.71
234.40	0.12	0.002	0.000	0.00	0.12	2.96
234.50	0.14	0.003	0.000	0.00	0.14	4.21
234.60	0.15	0.004	0.000	0.00	0.15	5.91
234.70	0.16	0.005	0.000	0.00	0.16	7.62
234.80	0.18	0.006	0.000	0.00	0.18	9.48
234.90	0.19	0.008	0.000	0.00	0.19	11.50
235.00	0.20	0.009	0.000	0.00	0.20	13.51
235.10	0.29	0.011	0.000	0.00	0.29	15.86
235.20	0.54	0.012	0.000	0.00	0.54	18.36
235.30	0.91	0.014	0.000	0.00	0.91	21.09
235.40	1.40	0.016	0.000	0.00	1.40	24.03
235.50	1.98	0.017	0.000	0.00	1.98	27.06
235.60	2.62	0.019	0.000	0.00	2.62	30.31
235.70	3.32	0.021	0.000	0.00	3.32	33.62
235.80	3.72	0.023	0.000	0.00	3.72	36.69
235.90	4.08	0.025	0.000	0.00	4.08	39.79
236.00	4.41	0.026	0.000	0.00	4.41	42.85
236.10	4.71	0.028	0.000	0.00	4.71	45.99
236.20	5.00	0.030	0.000	0.00	5.00	49.12
236.30	5.27	0.032	0.000	0.00	5.27	52.26
236.40	5.53	0.034	0.000	0.00	5.53	55.43
236.50	5.77	0.036	0.000	0.00	5.77	58.58
236.60	6.01	0.038	0.000	0.00	6.01	61.78
236.70	6.23	0.040	0.000	0.00	6.23	64.96
236.80	6.45	0.042	0.000	0.00	6.45	68.16

Northern Area to Pipe Gallery

Subsection: Elevation-Volume-Flow Table (Pond) Return Event: 100 years

Label: 1 Storm Event:

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
236.90	6.66	0.045	0.000	0.00	6.66	71.36
237.00	6.87	0.047	0.000	0.00	6.87	74.55
237.10	7.06	0.049	0.000	0.00	7.06	77.75
237.20	7.26	0.051	0.000	0.00	7.26	80.94
237.30	7.44	0.053	0.000	0.00	7.44	84.12
237.40	7.63	0.055	0.000	0.00	7.63	87.29
237.50	7.81	0.057	0.000	0.00	7.81	90.46
237.60	7.98	0.059	0.000	0.00	7.98	93.58
237.70	8.15	0.061	0.000	0.00	8.15	96.71
237.80	8.32	0.063	0.000	0.00	8.32	99.80
237.90	8.49	0.065	0.000	0.00	8.49	102.86
238.00	8.65	0.067	0.000	0.00	8.65	105.92
238.10	8.80	0.069	0.000	0.00	8.80	108.89
238.20	8.96	0.071	0.000	0.00	8.96	111.87
238.30	9.11	0.073	0.000	0.00	9.11	114.78
238.40	9.26	0.075	0.000	0.00	9.26	117.65
238.50	9.41	0.077	0.000	0.00	9.41	120.51
238.60	9.56	0.078	0.000	0.00	9.56	123.24
238.70	9.70	0.080	0.000	0.00	9.70	125.96
238.80	9.84	0.082	0.000	0.00	9.84	128.60
238.90	9.98	0.083	0.000	0.00	9.98	131.16
239.00	10.12	0.085	0.000	0.00	10.12	133.71
239.10	11.10	0.087	0.000	0.00	11.10	136.90
239.20	12.78	0.088	0.000	0.00	12.78	140.80
239.30	14.92	0.090	0.000	0.00	14.92	145.02
239.40	17.43	0.091	0.000	0.00	17.43	149.47
239.50	20.26	0.092	0.000	0.00	20.26	154.25
239.60	23.37	0.093	0.000	0.00	23.37	158.97
239.70	26.74	0.094	0.000	0.00	26.74	163.95
239.80	30.35	0.095	0.000	0.00	30.35	168.92
239.90	34.18	0.096	0.000	0.00	34.18	173.86
240.00	38.22	0.097	0.000	0.00	38.22	179.01
240.10	41.81	0.097	0.000	0.00	41.81	182.89
240.20	43.27	0.097	0.000	0.00	43.27	184.64

Northern Area to Pipe Gallery

Subsection: Pond Inflow Summary
Label: 1 (IN)

Return Event: 100 years
Storm Event:

Summary for Hydrograph Addition at '1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	CM-1

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (min)	Flow (Peak) (ft^3/s)
Flow (From)	CM-1	0.652	250.000	13.05
Flow (In)	1	0.652	250.000	13.05

APPENDIX 5

Seabreeze Farms Drainage Excerpts

Project Design Consultants

SEABREEZE FARMS

VTM 96-7919

DRAINAGE STUDY

JANUARY 2000
SECOND SUBMITTAL

APPROVED
2/7/00
DEH

SEABREEZE FARMS

VTM 96-7919

DRAINAGE STUDY

JANUARY 2000
SECOND SUBMITTAL

Prepared for:
SEABREEZE, LLC
1815 Aston Avenue
Carlsbad, CA 92008

Prepared by:
PROJECT DESIGN CONSULTANTS
701 B Street, Suite 800
San Diego, CA 92101

PDC Job No. 1456.00

Peter D. Miessner, PE RCE 42592
Registration Expires 3/31/00

Prepared By: HN
Checked By: MS

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-1998 Version 5.1

Rational method hydrology program based on
San Diego County Flood Control Division 1985 hydrology manual
Rational Hydrology Study Date: 01/06/00

SEABREEZE FARMS - 1456.00
STORM DRAIN STUDY - RATIONAL HYDROLOGY PROGRAM
STORM DRAIN SYSTEM A - AT "H" STREET (FILE: S100)

********* Hydrology Study Control Information **********

Project Design Consultants, San Diego, CA - S/N 731

Rational hydrology study storm event year is 50.0
English (in-lb) input data Units used
English (in) rainfall data used

Standard intensity of Appendix I-B used for year and
Elevation 0 - 1500 feet
Factor (to multiply * intensity) = 1.000
Only used if inside City of San Diego
San Diego hydrology manual 'C' values used
Runoff coefficients by modified rational method

++
Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[SINGLE FAMILY area type]
Initial subarea flow distance = 125.000(Ft.)
Highest elevation = 290.200(Ft.)
Lowest elevation = 288.950(Ft.)
Elevation difference = 1.250(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) = 11.07 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.5500)*(125.000^.5)/(1.000^(1/3)]= 11.07
Rainfall intensity (I) = 3.258(In/Hr) for a 50.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.550
Subarea runoff = 0.448(CFS)
Total initial stream area = 0.250(Ac.)

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      101.000 to Point/Station      102.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   288.450(Ft.)
End of street segment elevation =   278.440(Ft.)
Length of street segment  =   670.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.670(Ft.)
Slope from gutter to grade break (v/hz) =   0.094
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.330(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0180
 Manning's N from grade break to crown =  0.0180
Estimated mean flow rate at midpoint of street =      3.046(CFS)
Depth of flow =   0.318(Ft.), Average velocity =   2.403(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  10.965(Ft.)
Flow velocity =   2.40(Ft/s)
Travel time =    4.65 min.     TC =   15.72  min.
 Adding area flow to street
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[SINGLE FAMILY area type                    ]
Rainfall intensity =      2.740(In/Hr) for a    50.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.550  CA =      1.733
Subarea runoff =      4.300(CFS) for      2.900(Ac.)
Total runoff =      4.748(CFS)      Total area =       3.150(Ac.)
Street flow at end of street =      4.748(CFS)
Half street flow at end of street =      4.748(CFS)
Depth of flow = 0.360(Ft.), Average velocity =   2.670(Ft/s)
Flow width (from curb towards crown)=  13.087(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      103.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   272.150(Ft.)
Downstream point/station elevation =   250.400(Ft.)
Pipe length  =   285.50(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow =     4.748(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     4.748(CFS)
Normal flow depth in pipe =    4.93(In.)
Flow top width inside pipe =   16.05(In.)
Critical Depth =   10.05(In.)
```

```
Pipe flow velocity =     12.10(Ft/s)
Travel time through pipe =    0.39 min.
Time of concentration (TC) =    16.11 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
----------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      3.150(Ac.)
Runoff from this stream =      4.748(CFS)
Time of concentration =   16.11 min.
Rainfall intensity =     2.707(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      110.000 to Point/Station      111.000
**** INITIAL AREA EVALUATION ****
----------------------------------------------------------------------------
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[SINGLE FAMILY area type                    ]
Initial subarea flow distance  =  125.000(Ft.)
Highest elevation =  290.200(Ft.)
Lowest elevation =  288.950(Ft.)
Elevation difference =    1.250(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =    11.07 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.5500)*( 125.000^.5)/( 1.000^(1/3)]=  11.07
Rainfall intensity (I) =      3.258(In/Hr) for a    50.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.550
Subarea runoff =      0.448(CFS)
Total initial stream area =        0.250(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      111.000 to Point/Station      112.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Top of street segment elevation =   288.450(Ft.)
End of street segment elevation =   280.300(Ft.)
Length of street segment  =   642.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.670(Ft.)
Slope from gutter to grade break (v/hz) =   0.094
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.330(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
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```
 Manning's N from gutter to grade break =  0.0180
 Manning's N from grade break to crown =  0.0180
Estimated mean flow rate at midpoint of street =      2.114(CFS)
Depth of flow =   0.294(Ft.), Average velocity =   2.073(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   9.770(Ft.)
Flow velocity =   2.07(Ft/s)
Travel time =    5.16 min.     TC =   16.23  min.
 Adding area flow to street
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[SINGLE FAMILY area type                    ]
Rainfall intensity =      2.697(In/Hr) for a    50.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.550  CA =      1.161
Subarea runoff =      2.681(CFS) for      1.860(Ac.)
Total runoff =      3.129(CFS)      Total area =       2.110(Ac.)
Street flow at end of street =      3.129(CFS)
Half street flow at end of street =      3.129(CFS)
Depth of flow =   0.327(Ft.), Average velocity =   2.272(Ft/s)
Flow width (from curb towards crown)=  11.453(Ft.)

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Process from Point/Station      112.000 to Point/Station      113.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Top of street segment elevation =   280.300(Ft.)
End of street segment elevation =   260.410(Ft.)
Length of street segment  =   250.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.670(Ft.)
Slope from gutter to grade break (v/hz) =   0.094
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.330(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0180
 Manning's N from grade break to crown =  0.0180
Estimated mean flow rate at midpoint of street =      3.263(CFS)
Depth of flow =   0.258(Ft.), Average velocity =   4.647(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   7.979(Ft.)
Flow velocity =   4.65(Ft/s)
Travel time =    0.90 min.     TC =   17.13  min.
 Adding area flow to street
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[SINGLE FAMILY area type                    ]
```

III. WARRANT FOR AN INLET OTC SEE NODE 113

```
Rainfall intensity =      2.624(In/Hr) for a    50.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.550  CA =      1.260
Subarea runoff =      0.176(CFS) for      0.180(Ac.)
Total runoff =      3.305(CFS)      Total area =       2.290(Ac.)
Street flow at end of street =      3.305(CFS)
Half street flow at end of street =      3.305(CFS)
Depth of flow =   0.259(Ft.), Average velocity =   4.660(Ft/s)
Flow width (from curb towards crown)=   8.024(Ft.)


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Process from Point/Station      113.000 to Point/Station      103.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   251.000(Ft.)
Downstream point/station elevation =   250.400(Ft.)
Pipe length  =    10.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.305(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     3.305(CFS)
Normal flow depth in pipe =    4.36(In.)
Flow top width inside pipe =   15.42(In.)
Critical Depth =    8.31(In.)
Pipe flow velocity =     10.01(Ft/s)
Travel time through pipe =    0.02 min.
Time of concentration (TC) =    17.14 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      113.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.290(Ac.)
Runoff from this stream =      3.305(CFS)
Time of concentration =   17.14 min.
Rainfall intensity =     2.623(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      120.000 to Point/Station      121.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[SINGLE FAMILY area type                    ]
Initial subarea flow distance  =  110.000(Ft.)
Highest elevation =  282.700(Ft.)
Lowest elevation =  281.600(Ft.)
Elevation difference =    1.100(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =    10.38 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.5500)*( 110.000^.5)/( 1.000^(1/3)]=  10.38
```

```
Rainfall intensity (I) =      3.362(In/Hr) for a    50.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.550
Subarea runoff =      0.462(CFS)
Total initial stream area =        0.250(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.000 to Point/Station      122.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   281.100(Ft.)
End of street segment elevation =   260.430(Ft.)
Length of street segment  =   400.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.670(Ft.)
Slope from gutter to grade break (v/hz) =   0.094
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.330(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0180
 Manning's N from grade break to crown =  0.0180
Estimated mean flow rate at midpoint of street =      1.165(CFS)
Depth of flow =   0.209(Ft.), Average velocity =   3.151(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   5.516(Ft.)
Flow velocity =   3.15(Ft/s)
Travel time =    2.12 min.     TC =   12.50  min.
 Adding area flow to street
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[SINGLE FAMILY area type                    ]
Rainfall intensity =      3.069(In/Hr) for a    50.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.550  CA =      0.556
Subarea runoff =      1.243(CFS) for      0.760(Ac.)
Total runoff =      1.705(CFS)      Total area =       1.010(Ac.)
Street flow at end of street =      1.705(CFS)
Half street flow at end of street =      1.705(CFS)
Depth of flow =   0.230(Ft.), Average velocity =   3.407(Ft/s)
Flow width (from curb towards crown)=   6.596(Ft.)


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Process from Point/Station      122.000 to Point/Station      103.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   250.900(Ft.)
Downstream point/station elevation =   250.400(Ft.)
Pipe length  =    25.00(Ft.)  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.705(CFS)
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```
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     1.705(CFS)
Normal flow depth in pipe =    4.12(In.)
Flow top width inside pipe =   15.12(In.)
Critical Depth =    5.88(In.)
Pipe flow velocity =      5.60(Ft/s)
Travel time through pipe =    0.07 min.
Time of concentration (TC) =    12.57 min.


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Process from Point/Station      122.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 3
Stream flow area =      1.010(Ac.)
Runoff from this stream =      1.705(CFS)
Time of concentration =   12.57 min.
Rainfall intensity =     3.060(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                  (In/Hr)


1        4.748     16.11               2.707
2        3.305     17.14               2.623
3        1.705     12.57               3.060
Qmax(1) =
         1.000 *    1.000 *     4.748) +
         1.000 *    0.940 *     3.305) +
         0.885 *    1.000 *     1.705) + =       9.362
Qmax(2) =
         0.969 *    1.000 *     4.748) +
         1.000 *    1.000 *     3.305) +
         0.857 *    1.000 *     1.705) + =       9.368
Qmax(3) =
         1.000 *    0.781 *     4.748) +
         1.000 *    0.733 *     3.305) +
         1.000 *    1.000 *     1.705) + =       7.835

Total of 3 streams to confluence:
Flow rates before confluence point:
       4.748       3.305       1.705
Maximum flow rates at confluence using above data:
        9.362        9.368        7.835
Area of streams before confluence:
        3.150        2.290        1.010
Results of confluence:
Total flow rate =      9.368(CFS)
Time of concentration =    17.144 min.
Effective stream area after confluence =      6.450(Ac.)


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Process from Point/Station      103.000 to Point/Station      104.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
```

```
Upstream point/station elevation =   250.070(Ft.)
Downstream point/station elevation =   247.840(Ft.)
Pipe length  =    63.87(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     9.368(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     9.368(CFS)
Normal flow depth in pipe =    8.75(In.)
Flow top width inside pipe =   17.99(In.)
Critical Depth =   14.19(In.)
Pipe flow velocity =     10.98(Ft/s)
Travel time through pipe =    0.10 min.
Time of concentration (TC) =    17.24 min.


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Process from Point/Station      104.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   247.510(Ft.)
Downstream point/station elevation =   247.000(Ft.)
Pipe length  =   103.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     9.368(CFS)
Given pipe size =     18.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
     0.964(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =      0.819(Ft.)
 Minor friction loss =      0.655(Ft.)    K-factor =   1.50
Pipe flow velocity =      5.30(Ft/s)
Travel time through pipe =    0.32 min.
Time of concentration (TC) =    17.56 min.


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Process from Point/Station      104.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      6.450(Ac.)
Runoff from this stream =      9.368(CFS)
Time of concentration =   17.56 min.
Rainfall intensity =     2.591(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      130.000 to Point/Station      131.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[SINGLE FAMILY area type                    ]
Initial subarea flow distance  =  150.000(Ft.)
Highest elevation =  265.900(Ft.)
Lowest elevation =  264.400(Ft.)
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```
Elevation difference =    1.500(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =    12.12 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.5500)*( 150.000^.5)/( 1.000^(1/3)]=  12.12
Rainfall intensity (I) =      3.115(In/Hr) for a    50.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.550
Subarea runoff =      0.685(CFS)
Total initial stream area =        0.400(Ac.)


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Process from Point/Station      131.000 to Point/Station      132.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Top of street segment elevation =   263.900(Ft.)
End of street segment elevation =   260.330(Ft.)
Length of street segment  =   440.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.670(Ft.)
Slope from gutter to grade break (v/hz) =   0.094
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [1] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.330(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0180
 Manning's N from grade break to crown =  0.0180
Estimated mean flow rate at midpoint of street =      2.313(CFS)
Depth of flow =   0.320(Ft.), Average velocity =   1.783(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =  11.098(Ft.)
Flow velocity =   1.78(Ft/s)
Travel time =    4.11 min.     TC =   16.24  min.
 Adding area flow to street
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[SINGLE FAMILY area type                    ]
Rainfall intensity =      2.696(In/Hr) for a    50.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.550  CA =      1.265
Subarea runoff =      2.725(CFS) for      1.900(Ac.)
Total runoff =      3.410(CFS)      Total area =       2.300(Ac.)
Street flow at end of street =      3.410(CFS)
Half street flow at end of street =      3.410(CFS)
Depth of flow =   0.358(Ft.), Average velocity =   1.956(Ft/s)
Flow width (from curb towards crown)=  12.956(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      132.000 to Point/Station      105.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
```

```
Upstream point/station elevation =   255.900(Ft.)
Downstream point/station elevation =   247.000(Ft.)
Pipe length  =    25.25(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.410(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     3.410(CFS)
Normal flow depth in pipe =    2.86(In.)
Flow top width inside pipe =   13.16(In.)
Critical Depth =    8.45(In.)
Pipe flow velocity =     18.89(Ft/s)
Travel time through pipe =    0.02 min.
Time of concentration (TC) =    16.26 min.


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Process from Point/Station      132.000 to Point/Station      105.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      2.300(Ac.)
Runoff from this stream =      3.410(CFS)
Time of concentration =   16.26 min.
Rainfall intensity =     2.694(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1        9.368     17.56               2.591
2        3.410     16.26               2.694
Qmax(1) =
         1.000 *    1.000 *     9.368) +
         0.962 *    1.000 *     3.410) + =      12.648
Qmax(2) =
         1.000 *    0.926 *     9.368) +
         1.000 *    1.000 *     3.410) + =      12.082

Total of 2 streams to confluence:
Flow rates before confluence point:
       9.368       3.410
Maximum flow rates at confluence using above data:
      12.648       12.082
Area of streams before confluence:
        6.450        2.300
Results of confluence:
Total flow rate =     12.648(CFS)
Time of concentration =    17.565 min.
Effective stream area after confluence =      8.750(Ac.)


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Process from Point/Station      105.000 to Point/Station      106.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   246.500(Ft.)
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```
Downstream point/station elevation =   245.790(Ft.)
Pipe length  =   142.13(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    12.648(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    12.648(CFS)
Normal flow depth in pipe =   16.10(In.)
Flow top width inside pipe =   22.55(In.)
Critical Depth =   15.36(In.)
Pipe flow velocity =      5.64(Ft/s)
Travel time through pipe =    0.42 min.
Time of concentration (TC) =    17.98 min.


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Process from Point/Station      106.000 to Point/Station      107.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   245.460(Ft.)
Downstream point/station elevation =   243.330(Ft.)
Pipe length  =    48.93(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    12.648(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    12.648(CFS)
Normal flow depth in pipe =    8.48(In.)
Flow top width inside pipe =   22.95(In.)
Critical Depth =   15.36(In.)
Pipe flow velocity =     12.73(Ft/s)
Travel time through pipe =    0.06 min.
Time of concentration (TC) =    18.05 min.


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Process from Point/Station      107.000 to Point/Station      108.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   243.000(Ft.)
Downstream point/station elevation =   232.130(Ft.)
Pipe length  =   139.70(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    12.648(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    12.648(CFS)
Normal flow depth in pipe =    7.29(In.)
Flow top width inside pipe =   22.07(In.)
Critical Depth =   15.36(In.)
Pipe flow velocity =     15.70(Ft/s)
Travel time through pipe =    0.15 min.
Time of concentration (TC) =    18.20 min.


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Process from Point/Station      107.000 to Point/Station      108.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      8.750(Ac.)
Runoff from this stream =     12.648(CFS)
Time of concentration =   18.20 min.
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Rainfall intensity =     2.545(In/Hr)

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Process from Point/Station      140.000 to Point/Station      141.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[INDUSTRIAL area type                          ]
Initial subarea flow distance  =  160.000(Ft.)
Highest elevation =  296.500(Ft.)
Lowest elevation =  296.000(Ft.)
Elevation difference =    0.500(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =     5.03 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.9500)*( 160.000^.5)/( 0.313^(1/3)]=   5.03
Rainfall intensity (I) =      4.863(In/Hr) for a    50.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.950
Subarea runoff =      0.924(CFS)
Total initial stream area =        0.200(Ac.)


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Process from Point/Station      141.000 to Point/Station      142.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Top of street segment elevation =   296.000(Ft.)
End of street segment elevation =   250.000(Ft.)
Length of street segment  =   550.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  17.000(Ft.)
Distance from crown to crossfall grade break  =  15.670(Ft.)
Slope from gutter to grade break (v/hz) =   0.094
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.330(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0180
 Manning's N from grade break to crown =  0.0180
Estimated mean flow rate at midpoint of street =      2.818(CFS)
Depth of flow =  0.206(Ft.), Average velocity =   3.969(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   5.381(Ft.)
Flow velocity =   3.97(Ft/s)
Travel time =    2.31 min.     TC =    7.34  min.
 Adding area flow to street
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
```

```
[INDUSTRIAL area type                                ]
Rainfall intensity =      3.997(In/Hr) for a    50.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.950  CA =      0.969
Subarea runoff =      2.949(CFS) for      0.820(Ac.)
Total runoff =      3.873(CFS)      Total area =       1.020(Ac.)
Street flow at end of street =      3.873(CFS)
Half street flow at end of street =      1.937(CFS)
Depth of flow =   0.224(Ft.), Average velocity =   4.232(Ft/s)
Flow width (from curb towards crown)=   6.263(Ft.)


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Process from Point/Station      142.000 to Point/Station      143.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   247.000(Ft.)
Downstream point/station elevation =   243.000(Ft.)
Pipe length  =   550.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.873(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =     3.873(CFS)
Normal flow depth in pipe =    8.27(In.)
Flow top width inside pipe =   17.94(In.)
Critical Depth =    9.04(In.)
Pipe flow velocity =      4.89(Ft/s)
Travel time through pipe =    1.88 min.
Time of concentration (TC) =     9.22 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      142.000 to Point/Station      143.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[SINGLE FAMILY area type                             ]
Time of concentration =     9.22 min.
Rainfall intensity =      3.566(In/Hr) for a    50.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.632  CA =      3.158
Subarea runoff =      7.388(CFS) for      3.980(Ac.)
Total runoff =     11.261(CFS)      Total area =       5.000(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      143.000 to Point/Station      108.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   243.000(Ft.)
Downstream point/station elevation =   231.700(Ft.)
Pipe length  =   283.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    11.261(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    11.261(CFS)
```

```
Normal flow depth in pipe =    8.16(In.)
Flow top width inside pipe =   22.74(In.)
Critical Depth =   14.46(In.)
Pipe flow velocity =     11.95(Ft/s)
Travel time through pipe =    0.39 min.
Time of concentration (TC) =     9.61 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      143.000 to Point/Station      108.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      5.000(Ac.)
Runoff from this stream =     11.261(CFS)
Time of concentration =    9.61 min.
Rainfall intensity =     3.493(In/Hr)
Summary of stream data:

Stream    Flow rate      TC             Rainfall Intensity
 No.        (CFS)       (min)                  (In/Hr)


1       12.648     18.20                2.545
2       11.261      9.61                3.493
Qmax(1) =
          1.000 *    1.000 *    12.648) +
          0.729 *    1.000 *    11.261) + =      20.853
Qmax(2) =
          1.000 *    0.528 *    12.648) +
          1.000 *    1.000 *    11.261) + =      17.943

Total of 2 streams to confluence:
Flow rates before confluence point:
      12.648      11.261
Maximum flow rates at confluence using above data:
       20.853       17.943
Area of streams before confluence:
        8.750        5.000
Results of confluence:
Total flow rate =     20.853(CFS)
Time of concentration =    18.197 min.
Effective stream area after confluence =     13.750(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      108.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   231.710(Ft.)
Downstream point/station elevation =   230.670(Ft.)
Pipe length  =   103.55(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    20.853(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =    20.853(CFS)
Normal flow depth in pipe =   18.14(In.)
Flow top width inside pipe =   20.62(In.)
```

```
Critical Depth =   19.63(In.)
Pipe flow velocity =      8.19(Ft/s)
Travel time through pipe =    0.21 min.
Time of concentration (TC) =    18.41 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      108.000 to Point/Station      109.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 1
Stream flow area =     13.750(Ac.)
Runoff from this stream =     20.853(CFS)
Time of concentration =   18.41 min.
Rainfall intensity =     2.530(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      150.000 to Point/Station      151.000
**** INITIAL AREA EVALUATION ****
------------------------------------------------------------------------------
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[SINGLE FAMILY area type                    ]
Initial subarea flow distance  =  390.000(Ft.)
Highest elevation =  260.000(Ft.)
Lowest elevation =  240.000(Ft.)
Elevation difference =   20.000(Ft.)
Time of concentration calculated by the urban
areas overland flow method (App X-C) =    11.34 min.
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.5500)*( 390.000^.5)/( 5.128^(1/3)]=  11.34
Rainfall intensity (I) =      3.220(In/Hr) for a    50.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.550
Subarea runoff =      2.709(CFS)
Total initial stream area =        1.530(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      151.000 to Point/Station      109.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   240.000(Ft.)
Downstream point/station elevation =   230.670(Ft.)
Pipe length  =   145.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.709(CFS)
Given pipe size =     24.00(In.)
Calculated individual pipe flow  =     2.709(CFS)
Normal flow depth in pipe =    3.55(In.)
Flow top width inside pipe =   17.04(In.)
Critical Depth =    6.88(In.)
Pipe flow velocity =      9.36(Ft/s)
Travel time through pipe =    0.26 min.
Time of concentration (TC) =    11.60 min.
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      151.000 to Point/Station      109.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      1.530(Ac.)
Runoff from this stream =      2.709(CFS)
Time of concentration =   11.60 min.
Rainfall intensity =     3.184(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1       20.853     18.41                2.530
2        2.709     11.60                3.184
Qmax(1) =
         1.000 *    1.000 *    20.853) +
         0.794 *    1.000 *     2.709) + =      23.005
Qmax(2) =
         1.000 *    0.630 *    20.853) +
         1.000 *    1.000 *     2.709) + =      15.845

Total of 2 streams to confluence:
Flow rates before confluence point:
      20.853       2.709
Maximum flow rates at confluence using above data:
       23.005       15.845
Area of streams before confluence:
       13.750        1.530
Results of confluence:
Total flow rate =     23.005(CFS)
Time of concentration =    18.408 min.
Effective stream area after confluence =     15.280(Ac.)
End of computations, total study area =          15.280 (Ac.)
```

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-1998 Version 5.1

Rational method hydrology program based on
San Diego County Flood Control Division 1985 hydrology manual
Rational Hydrology Study Date: 01/10/00

SEABREEZE FARMS - 1456.00
STORM DRAIN STUDY - RATIONAL HYDROLOGY PROGRAM
SYSTEM A AND OFFSIDE AREA - Q AT CONCENTRATION POINT "A"
FILE: S101

********* Hydrology Study Control Information **********

Project Design Consultants, San Diego, CA - S/N 731

Rational hydrology study storm event year is 50.0
English (in-lb) input data Units used
English (in) rainfall data used

Standard intensity of Appendix I-B used for year and
Elevation 0 - 1500 feet
Factor (to multiply * intensity) = 1.000
Only used if inside City of San Diego
San Diego hydrology manual 'C' values used
Runoff coefficients by modified rational method

++
Process from Point/Station 1000.000 to Point/Station 1001.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[RURAL(greater than 0.5 Ac, 0.2 ha) area type]
Time of concentration computed by the
natural watersheds nomograph (App X-A)
TC = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr) + 10 min.
Initial subarea flow distance = 550.000(Ft.)
Highest elevation = 300.000(Ft.)
Lowest elevation = 240.000(Ft.)
Elevation difference = 60.000(Ft.)
TC=[(11.9*0.1042^3)/(60.00)]^.385= 2.36 + 10 min. = 12.36 min.
Rainfall intensity (I) = 3.086(In/Hr) for a 50.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff = 5.138(CFS)
Total initial stream area = 3.700(Ac.)

++
Process from Point/Station 1001.000 to Point/Station 1002.000

```
Along Main Stream number: 2 in normal stream number 1
Stream flow area =      0.300(Ac.)
Runoff from this stream =      0.621(CFS)
Time of concentration =    5.59 min.
Rainfall intensity =     4.600(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1202.000 to Point/Station     1201.000
**** USER DEFINED FLOW INFORMATION AT A POINT ****
------------------------------------------------------------------------------
User specified 'C' value of 0.550 given for subarea
Rainfall intensity (I) =      2.530(In/Hr) for a    50.0 year storm
User specified values are as follows:
TC =  18.41 min.  Rain intensity =       2.53(In/Hr)
Total area =       15.280(Ac.)  Total runoff =    23.005(CFS)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station     1202.000 to Point/Station     1201.000
**** CONFLUENCE OF MINOR STREAMS ****
------------------------------------------------------------------------------
Along Main Stream number: 2 in normal stream number 2
Stream flow area =     15.280(Ac.)
Runoff from this stream =     23.005(CFS)
Time of concentration =   18.41 min.
Rainfall intensity =     2.530(In/Hr)
Summary of stream data:

Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                 (In/Hr)


1         0.621       5.59                 4.600
2        23.005      18.41                 2.530
Qmax(1) =
          1.000 *     1.000 *      0.621) +
          1.000 *     0.304 *     23.005) + =       7.610
Qmax(2) =
          0.550 *     1.000 *      0.621) +
          1.000 *     1.000 *     23.005) + =      23.346

Total of 2 streams to confluence:
Flow rates before confluence point:
       0.621      23.005
Maximum flow rates at confluence using above data:
        7.610       23.346
Area of streams before confluence:
        0.300       15.280
Results of confluence:
Total flow rate =     23.346(CFS)
Time of concentration =    18.410 min.
Effective stream area after confluence =     15.580(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
```

FUTURE SUB-AREA III
A-1
(±52 acres)

NOT A PART

x 315
HIGH POINT

EXISTING NEIGHBORHOOD 4
UNIT 6

SEAGROVE STREET

OPEN SPACE

CONCENTRATION POINT "A"
(EXISTING 42" RCP
82.94 CFS @ 70% FULL
PER DWG No 24864-10-D)

PERLMAN WAY

OPEN SPACE

CONCENTRATION POINT "B"
(EXISTING 30" RCP
43.59 CFS @ 46% FULL
PER DWG No 24864-4-D)

EXISTING NEIGHBORHOOD 4
UNIT 7

CARMEL KNOLLS DRIVE

MULTIFAMILY SITE

CONNECTION POINT "C"
EXISTING 66" RCP

PROPOSED Q BY SEABREEZE FARMS PROJECT=325 CFS @ 79% FULL
(EXISTING 66" RCP
303 CFS @ 74% FULL
PER DWG No 24864-3-D)

PRIVATE DRIVEWAY

CARMEL VALLEY ROAD

NOT A PART

NOT A PART

NOT A PART

LEGEND

- SUB-BASIN ACREAGE
- DRAINAGE NODE
- BASIN BOUNDARY

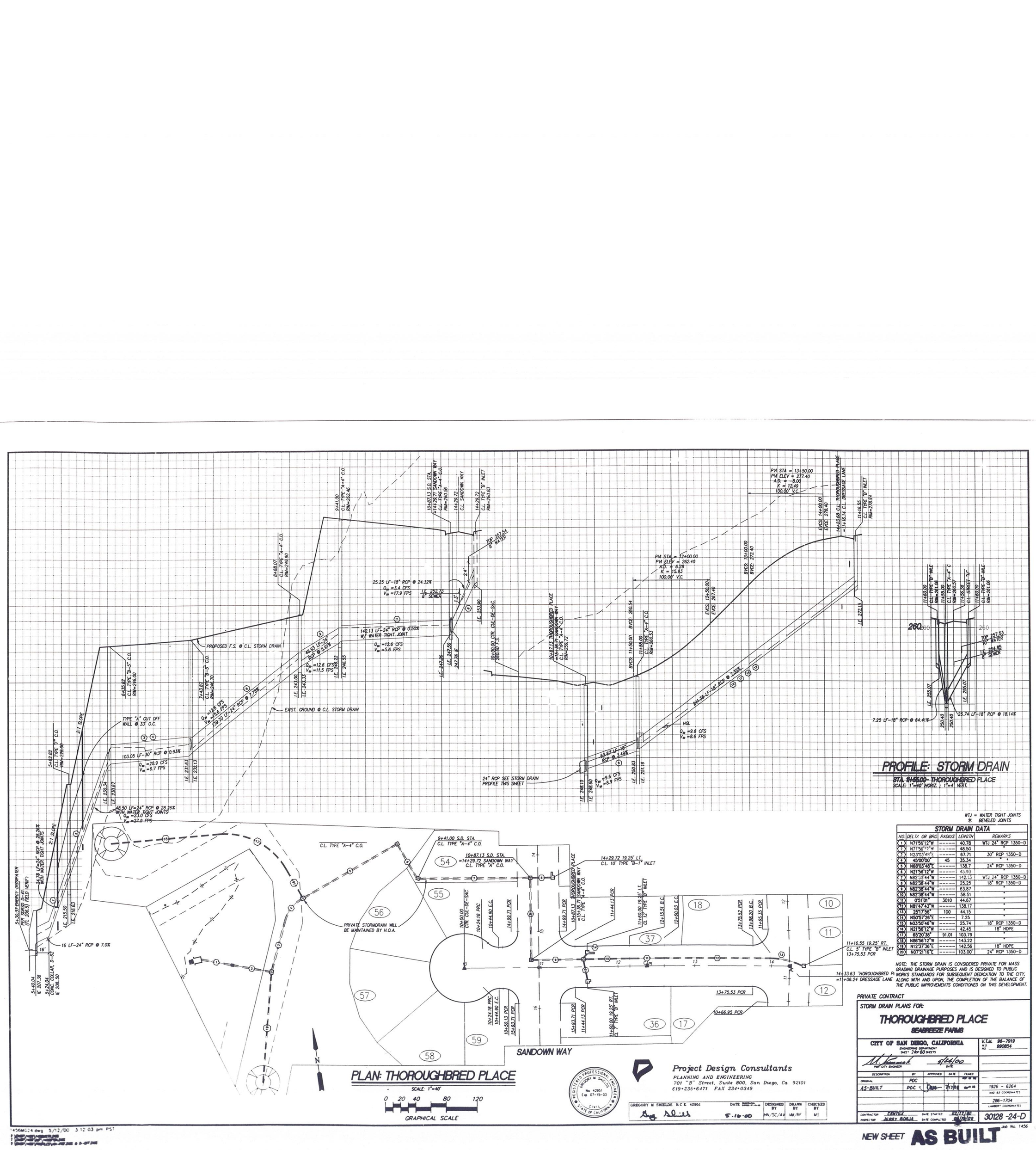
N

SCALE 1" = 100'

SEABREEZE FARMS
DRAINAGE BASIN EXHIBIT 'C'
VTM 96 7919

APPENDIX 6

Reference Drawing From DWG 30128-D



WTJ = WATER TIGHT JOINTS
* BEVELED JOINTS

STORM DRAIN DATA

NO	DELTA OR BRG	RADIUS	LENGTH	REMARKS
1	N71°56'12"W	------	40.78	WTJ 24" RCP 1350-D
2	N71°56'12"W	------	48.50	*
3	N23°03'48"E	------	67.71	30" RCP 1350-D
4	45°00'00"	45	35.34	*
5	N68°03'48"E	------	138.7	24" RCP 1350-D
6	N21°56'12"W	------	45.93	*
7	N82°33'44"W	------	142.13	WTJ 24" RCP 1350-D
8	N82°38'44"W	------	25.25	18" RCP 1350-D
9	N82°38'44"W	------	63.67	*
10	N82°38'44"W	------	58.51	*
11	0°51'01"	3010	44.67	*
12	N81°47'43"W	------	138.17	*
13	25°17'56"	100	44.15	*
14	N50°57'26"E	------	7.25	*
15	N03°50'46"W	------	25.74	18" RCP 1350-D
16	N21°56'12"W	------	42.45	18" HDPE
17	65°20'38"	91.01	103.79	*
18	N86°56'12"W	------	143.22	*
19	N12°37'36"E	------	142.56	18" HDPE
20	N07°21'16"E	------	103.00'	24" RCP 1350-D

NOTE: THE STORM DRAIN IS CONSIDERED PRIVATE FOR MASS GRADING DRAINAGE PURPOSES AND IS DESIGNED TO PUBLIC WORKS STANDARDS FOR SUBSEQUENT DEDICATION TO THE CITY, ALONG WITH AND UPON, THE COMPLETION OF THE BALANCE OF THE PUBLIC IMPROVEMENTS CONDITIONED ON THIS DEVELOPMENT.

PRIVATE CONTRACT

STORM DRAIN PLANS FOR:

THOROUGHBRED PLACE

SEABREEZE FARMS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING DEPARTMENT
SHEET 24 OF 60 SHEETS

V.T.M. 86-7919
W.O. 990854
M.O.

PWE CITY ENGINEER — DATE 5/24/00

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	PDC			
AS-BUILT	PDC	[illegible]	7/7/00	

1926 - 6264
HAD 83 COORDINATES
286-1704
LAMBERT COORDINATES

CONTRACTOR PENTEK — DATE STARTED 11/17/00
INSPECTOR JERRY BORJA — DATE COMPLETED 04/19/01

30128-24-D
Job No. 1456

NEW SHEET **AS BUILT**

REGISTERED PROFESSIONAL ENGINEER — GREGORY M. SHIELDS — No. 42951 — Exp. 07-15-03 — CIVIL — STATE OF CALIFORNIA

GREGORY M SHIELDS R.C.E. 42951 — DATE 5.16.00 — DESIGNED BY MN/SC/AV — DRAWN BY MN/RF — CHECKED BY MS

Project Design Consultants
PLANNING AND ENGINEERING
701 "B" Street, Suite 800, San Diego, Ca. 92101
619•235•6471 FAX 234•0349

1456MSC24.dwg 5/12/00 3:12:03 pm PST

FILMED FROM THE ORIGINAL BEST QUALITY OBTAINABLE TO ENSURE CLEAR BACKGROUND FREE FROM ANY & POOR QUALITY REPRODUCTION

APPENDIX 7

Exhibits

SYSTEM 1000
AREA=1.6 AC
Q(100)= 4.1 CFS
TC= 7.24 MIN

SYSTEM 2000
AREA=1.4 AC
Q(100)= 1.9 CFS
TC= 13.72 MIN

SYSTEM 3000
AREA=12.6 AC
Q(100)= 17.6 CFS
TC= 18.47 MIN

SYSTEM 4000
AREA=1.3 AC
Q(100)= 2.6 CFS
TC= 5.00 MIN

SYSTEM 5000
AREA=0.7 AC
Q(100)= 1.1 CFS
TC=9.31 MIN

0.16 AC
0.65 AC
0.81 AC
0.09 AC
0.07 AC
0.91 AC
1.96 AC
0.38 AC
0.74 AC
0.30 AC
0.71 AC
0.02 AC
0.05 AC
0.63 AC
0.63 AC
0.08 AC
0.64 AC

PIPE RUNON
Q = 12.6 CFS

USER DEFINED FLOW
AREA AT NODE 3015

SEABREEZE FARMS

COLT TERRACE
SANDOWN WAY
DRESSAGE LANE
THOROUGHBRED PL.
RIDER PLACE
SANDOWN WAY
COACH LANE

LEGEND

- PROPERTY LINE
- DRAINAGE SUBAREA
- DRAINAGE SUBAREA ACREAGE — X.XX AC
- FLOW DIRECTION
- DRAINAGE FLOWPATH
- RUN-ON DRAINAGE AREA FROM SEABREEZE FARMS DEVELOPMENT

NOTE: FOR INFORMATION REGARDING DRAINAGE FROM THE ADJACENT SEABREEZE FARMS DEVELOPMENT, REFER TO APPENDIX 5 FOR EXCERPTS FROM THE DRAINAGE STUDY.

N

SCALE: 1"=60'

JOB #: 4308.00

CREATED: 1/15/18

PREPARED BY:

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

CITY OF SAN DIEGO

SEABREEZE SENIOR LIVING

DRAINAGE MAP
EXISTING CONDITIONS
EXHIBIT B

Last save by GARRETT ANDERSON, File Name P:\4308\Engr\Reports\Drainage\EXH\4308 EX DR.dwg, Date Last Saved 7/19/2018 2:57:29 PM, Date Plotted Last 7/19/2018 2:59:13 PM

0.42 AC
0.48 AC
0.08 AC
0.06 AC
0.28 AC
0.52 AC
0.24 AC
0.10 AC
BASIN 2
0.84 AC
0.43 AC
0.61 AC
BASIN 3
0.04 AC
0.76 AC
UNDERGROUND DETENTION/HYDROMOD PIPE STORAGE
SYSTEM 1000 TOTAL
Q(100)= 22.0 CFS
TC= 18.60 MIN
0.38 AC
0.15 AC
FLOW CONTROL STRUCTURE
SYSTEM 1A
Q_{IN}= 13.1 CFS
Q_{OUT}= 9.1 CFS
1.17 AC
BASIN 4
0.74 AC
SYSTEM 1B
Q_{IN}= 4.7 CFS
Q_{OUT}= 0.9 CFS
0.04 AC
USER DEFINED FLOW AREA AT NODE 1095
SEABREEZE FARMS
PRIVATE DRIVEWAY
COLT TERRACE
THOROUGHBRED PL.
SANDOWN WAY
RIDER PLACE
COACH'S LANE
DRESSAGE LANE
STR. "H"
STR. "I"
STR. "F"
STR. "D"
STR. "E"
Obscured
pool
asph

LEGEND

- PROPERTY LINE
- DRAINAGE SUBAREA
- DRAINAGE SUBAREA ACREAGE — X.XX AC
- FLOW DIRECTION
- DRAINAGE FLOWPATH
- RUN-ON DRAINAGE AREA FROM SEABREEZE FARMS DEVELOPMENT

NOTE: FOR INFORMATION REGARDING DRAINAGE FROM THE ADJACENT SEABREEZE FARMS DEVELOPMENT, REFER TO APPENDIX 4 FOR EXCERPTS FROM THE DRAINAGE STUDY.

SCALE: 1"=50'

JOB #: 4308.00

CREATED: 1/17/18

PREPARED BY:

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

CITY OF SAN DIEGO

SEABREEZE SENIOR LIVING

PROPOSED CONDITIONS
DRAINAGE MAP
EXHIBIT C

P:\4308\Engr\Reports\Drainage\EXH\4308 PR DR.dwg 7/19/2018 3:25:12 PM