11.12 Utilities Reports

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WATER SUPPLY ASSESSMENT

OCEANSIDE TRANSIT CENTER REDEVELOPMENT

DRAFT

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March 2023

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ACRONYMS AND ABBREVIATIONS

AF/AFY	acre-feet/acre-feet per year
CASGEM	California Statewide Groundwater Elevation Monitoring
CEQA	California Environmental Quality Act
City	City of Oceanside
CWC	California Water Code
DWR	California Department of Water Resources
EIR	Environmental Impact Report
gpd	gallons per day
gpcd	gallons per capita per day
gpm	gallons per minute
IID	Imperial Irrigation District
Mission Basin	Mission Valley Groundwater Basin
MWD	Metropolitan Water District of Southern California
NCTD	North County Transit District
Project	Oceanside Transit Center Redevelopment
QSA	Quantification Settlement Agreement
SB 610	Senate Bill 610
SDCWA	San Diego County Water Authority
SGMA	Sustainable Groundwater Management Act
SWP	State Water Project
TDS	Total Dissolved Solids
UWMP	Urban Water Management Plan
VID	Vista Irrigation District
WDF	Water Demand Factor
WSA	Water Supply Assessment

1 INTRODUCTION

This Water Supply Assessment (WSA) was prepared for the Oceanside Transit Center Redevelopment (Project) pursuant to California Water Code (CWC) Section 10910, as amended by Senate Bill 610 (SB 610). It identifies sources of water supply for the Project to determine if supply is adequate to meet the Project's water demand. A WSA under SB 610 must demonstrate there is sufficient water supply for the next 20 years, based on normal, single-dry, and multiple-dry years, to meet the demand of the Project, plus existing and planned future use, including agricultural and manufacturing uses. The water supply and demand information presented covers a 20-year period, in increments of 5 years.

This WSA will be included as part of the Environmental Impact Report (EIR) prepared for the Project pursuant to the California Environmental Quality Act (CEQA). CWC Section 10911 requires that the WSA be included in any environmental document pursuant to California Public Resources Code Division 13.

To fully comply with the requirements of SB 610, this report follows the organization of the *Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001* developed by the California Department of Water Resources (DWR). Section 2 of this report provides a description of the Project and Sections 3 through 7 provide the WSA under SB 610.

2 PROJECT DESCRIPTION

2.1 Project Location

The Project is located at the existing North County Transit District's (NCTD) Oceanside Transit Center at 235 South Tremont Street, Oceanside, California. The Project site is bounded by railroad right-of-way to the west, Seagaze Drive to the north, South Tremont Street to the east, and Missouri Avenue to the south. The Project regional location is shown in **Figure 1**.

The Project is situated within the City of Oceanside's (City) downtown core and is surrounded by commercial and residential land uses, with a mix of hospitality restaurant, retail, and entertainment uses, including the Regal Oceanside Cinema, as well as single-family and multi-family residential uses. The site vicinity map is shown in **Figure 2**.

2.2 Description of Project

The Project includes demolition of existing structures and the construction of a mixed-use transit-oriented community with office, retail, hotel, transit, community facilities, and multi-family residential uses, as well as public and private open space and associated parking and landscaping as shown in **Figure 3**. The Project consists of following on-site development:

- 547 residential apartment units and associated amenities
- 170-room boutique hotel with associated amenities
- 61,007-ft^2 NCTD Headquarters building
- 25,968 ft^2 of retail and food and beverage service
- 3,741-ft^2 modern intermodal transportation center with ancillary facilities
- 1,771-parking-space parking structure for public and private use

2.2.1 Residential Buildings

The Project includes 2 apartment buildings in the southern and central portions of the Project site. Each building will be 6 stories in height, ranging from 250 to 297 units, and will include ground floor retail and transit services. Two levels of underground parking and one level of lower ground parking will be included to support the on-site residents and their visitors.

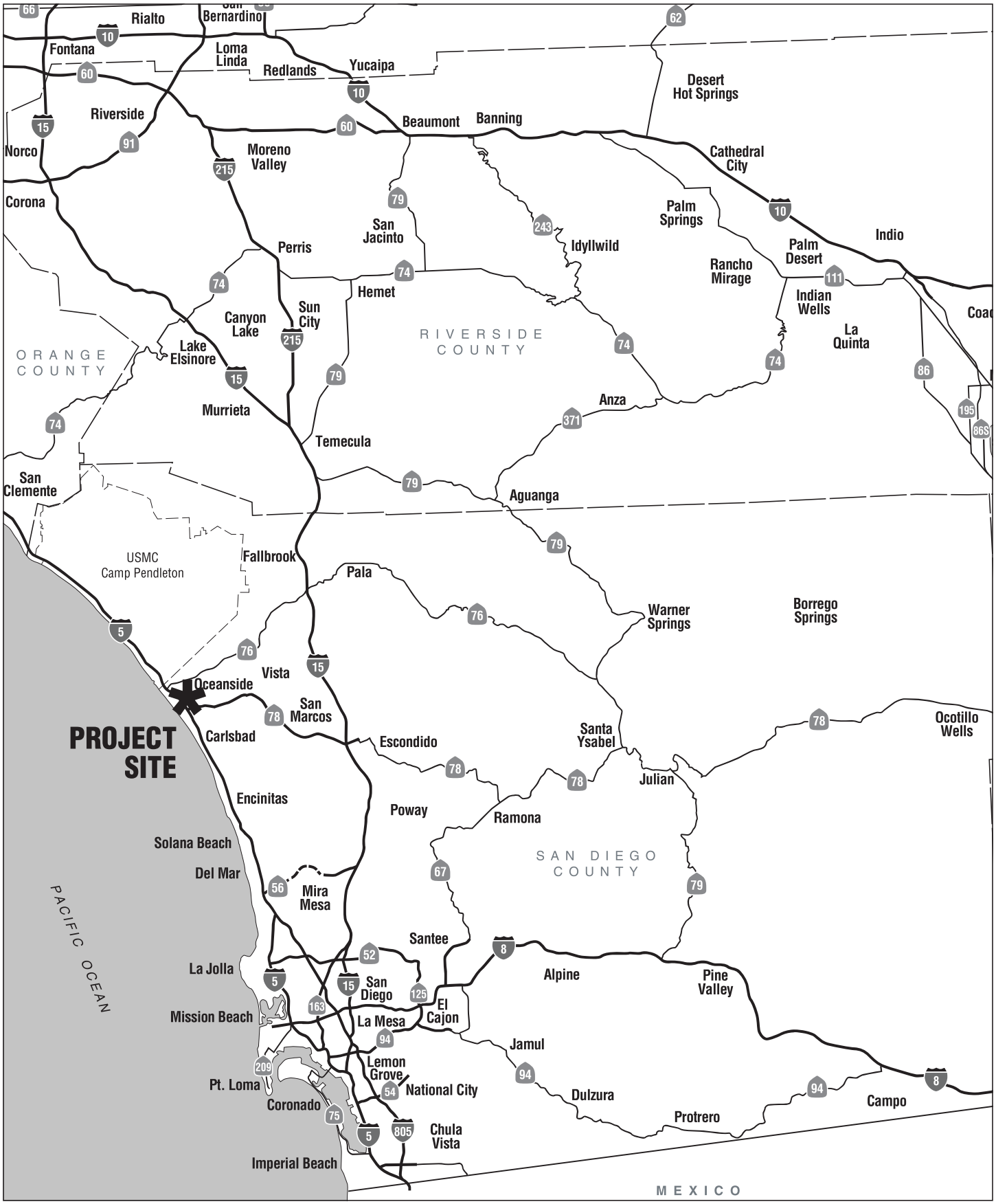
2.2.2 Hotel

The Project will include a 6-story boutique hotel with 170 rooms at the northern portion of the Project site, south of Seagaze Drive. The new hotel will include ground floor retail space, as well as private and common open space. The building will include 2 underground parking levels to support the new hotel.

2.2.3 NCTD Headquarters Building

The Project will include a modern headquarters for NCTD, replacing its general administration office located at 810 South Mission Avenue and the NCTD offices currently located on-site at 311 Tremont Street. The new headquarters will allow for consolidation of NCTD facilities and

operations, while on-site placement of the building will allow NCTD direct oversight of the transit station operations.



OCEANSIDE TRANSIT CENTER REDEVELOPMENT PROJECT
ENVIRONMENTAL IMPACT REPORT

Regional Vicinity

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Figure 1

Source: Google Earth Pro, September 2022

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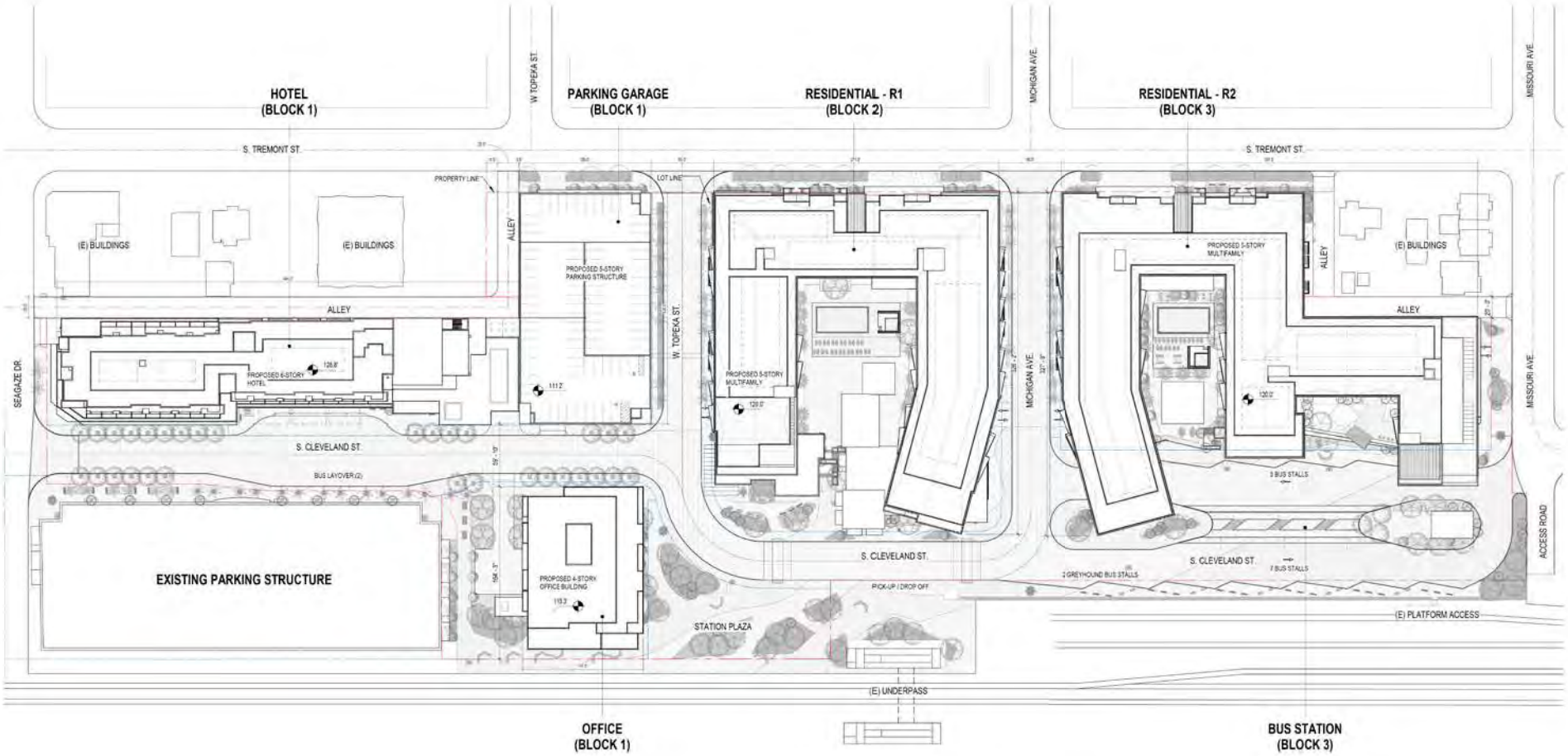
OCEANSIDE TRANSIT CENTER REDEVELOPMENT PROJECT
ENVIRONMENTAL IMPACT REPORT

Site Vicinity

Figure 2



Source: City of Oceanside Zoning Map

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OCEANSIDE TRANSIT CENTER REDEVELOPMENT PROJECT
ENVIRONMENTAL IMPACT REPORT

Overall Site Plan

Figure 3

3 WSA SUBJECT TO SENATE BILL 610

SB 610 seeks to improve the link between water supply availability and land use planning for large development projects. If the project is subject to CEQA, and if it is defined as a "project" defined by CWC Section 10912, a WSA must be prepared.

The following sections address the questions that must be answered by a WSA:

- Is the Project subject to CEQA?
- Is it a "project" as defined by CWC Section 10912?
- Is there a public water system to serve the Project?
- Is there a current Urban Water Management Plan (UWMP) that accounts for the Project demand?
- Is the projected water supply sufficient for the Project?

3.1 Is the Project Subject to CEQA?

CWC Section 10910 states:

(a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act Division 13 (commencing with Section 21000) of the Public Resources Code, under Section 21080 of the Public Resources Code shall comply with this part.

The Project will undergo environment review pursuant to the requirements of CEQA.

3.2 Is it a "Project" as Defined by CWC Section 10912?

CWC Section 10912 states:

For the purposes of this part, the following terms have the following meanings:

(a) "Project" means any of the following:
- *(1) A proposed residential development of more than 500 dwelling units.*
- *(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.*
- *(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.*
- *(4) A proposed hotel or motel, or both, having more than 500 rooms.*
- *(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.*
- *(6) A mixed-use project that includes one or more of the projects specified in this subdivision.*
- *(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.*

(b) If a public water system has fewer than 5,000 service connections, then "project" means any proposed residential, business, commercial, hotel or motel, or industrial

development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

The Project is a proposed residential development of more than 500 dwelling units. Therefore, it is considered a "project" under CWC Section 10912.

3.3 Is There a Public Water System to Serve the Project?

CWC Section 10912 states:

(c) "Public water system" means a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections. A public water system includes all of the following:

(1) Any collection, treatment, storage, and distribution facility under control of the operator of the system which is used primarily in connection with the system.

(2) Any collection or pretreatment storage facility not under the control of the operator that is used primarily in connection with the system.

(3) Any person who treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption.

The Project is located within the City's water service area. Therefore, it can be served by a new City service connection.

3.4 Is There a Current UWMP that Accounts for the Project Demand?

CWC Section 10910 states:

(c)

(1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the

projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

There is no current UWMP that accounts for the projected water demand associated with the Project. Therefore, a discussion of the water supplies from the potential sources is included in this WSA and is presented in Sections 4 through 7.

4 WATER DEMAND

4.1 Project Demand

The Project's water demand was calculated using the demand forecasting methodology described in the City's 2015 Water Master Plan (WMP). The WMP uses a combination of population- and land use-based demand forecasting. Current water demand is calculated using a land use-based method, while projected water demand is calculated using a combination of land use- and population-based method (Carollo, 2015).

For current water demand, the WMP developed water demand factors (WDF) for each land use. WDFs are estimated amounts of water usage per area for a given land use and were derived from billing records geospatially placed. For residential, an average gpd/DU of 392 was developed by combining the City's 2020 UWMP target of 137 gpcd with the 2021 Census average household of 2.86. For hotel and retail, an average unit demand of 115 gpd/room was developed in the WMP using historical billing records and water use numbers for several existing hotels. For commercial, the WDF is taken from Table 3.5 of the WMP and is measured in gpd/ac (Carollo, 2015). These WDFs were used to calculate the Project's current water demand. The current Project water demand is summarized in **Table 1**.

Table 1. Project Water Demand

Land Use	DU/Rooms	Building Area (ac)	WDF (gpd/DU, gpd/room, gpd/ac)	Water Demand (gpd)	Water Demand (AFY)
Residential	547	-	392	214,424	240
Hotel/Retail	170	-	115	19,550	22
Commercial	-	1.41	2,500	3,525	4
			Total	**237,499**	**266**

4.1.1 Projected Water Demand

The projected water demand associated with the Project was calculated based on factors derived from the projected water demand presented in the City's 2020 UWMP. The projected water demand in the City's 2020 UWMP uses the City's Water Conservation Master Plan, as well as demand models developed by Woodard & Curran and the Alliance for Water Efficiency Conservation Tracking Tool to project water use (Woodard & Curran, 2021). Factors were derived for each land use through year 2045. The projected water demand associated with the Project is summarized in **Table 2**.

Table 2. Projected Water Demand (AFY)

Land Use	2025	2030	2035	2040	2045
Residential	233	232	229	229	226
Hotel/Retail	22	22	22	21	21
Commercial	4	4	4	4	4
Total	**259**	**258**	**255**	**254**	**251**

4.2 City Demand

The City's water demand is categorized by sectors and includes residential, commercial, industrial, irrigation, and agricultural uses. Approximately 11% of the City's water demand was lost to non-revenue water and other losses. The City also sold water to customers in the Vista Irrigation District (VID). This water use is billed as single-family residential sector (Woodard & Curran, 2021). A summary of the City's existing water demand is shown in **Table 3**.

Table 3. City's Water Demand (2020)

Use Type	Water Volume (AFY)
Single-Family	9,788
Multi-Family	4,172
Commercial	1,818
Industrial	749
Landscape	4,014
Agricultural Irrigation	804
Sales/Transfers/Exchanges to other agencies	9
Losses	2,609
	23,963

Note: Data from City's 2020 UWMP.

4.2.1 City's Projected Water Demand

The City's projected water demand is based on the City's WCMP. As part of the WCMP, the City chose to assume it will implement a conservation program that includes water conservation, smart meters, as well as non-potable recycled water conservation Residential demand represents the highest projected water use. The City anticipates continuing to provide a similar level of service to VID customers (Woodard & Curran, 2021). The City's projected water demand through 2045 is summarized in **Table 4**.

Table 4. City's Projected Water Demand (AFY)

Land Use	2025	2030	2035	2040	2045
Single-Family	9,872	9,740	9,692	9,655	9,660
Multi-Family	4,298	4,316	4,377	4,379	4,431
Commercial	1,819	1,788	1,837	1,870	1,898
Industrial	932	1,001	1,040	1,069	1,092
Landscape	2,119	574	645	675	733
Agricultural Irrigation	557	232	232	232	233
Commercial	1,444	1,447	1,448	1,447	1,453
Total	**21,041**	**19,098**	**19,271**	**19,327**	**19,500**

Note: Data from City's 2020 UWMP.

5 WATER SUPPLY

5.1 City Supply

CWC Section 10910 states:

(d)

(1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.

(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

5.1.1 City's Existing Water Supply

The City's water supply is sourced from a combination of purchased water and groundwater. The City purchases water from the San Diego County Water Authority (SDCWA). SDCWA is a regional water wholesaler that supplies water to San Diego County and serves 24 member agencies, including the City. SDCWA's supply mix includes imported Colorado River water and State Water Project (SWP) water; and desalinated seawater. SDCWA purchases imported water from the Metropolitan Water District of Southern California (MWD), which receives its supplies primarily from the SWP and the Colorado River. Among 26 member agencies, SDCWA is MWD's largest customer. SDCWA also receives imported Colorado River water through transfers from the Imperial Irrigation District (IID) and conserved water from several canal-lining projects. In 1998, SDWCA entered into a transfer agreement with IID to purchase conserved agricultural water. Through this agreement and the execution of the 2003 Quantification Settlement Agreement (QSA) on the Colorado River, SDCWA will receive a volume that will increase annually and reach 200,000 AF by 2021 for 45 years, with an option to extend the agreement for an additional 30 years. SDCWA receives another 77,700 AFY of conserved water from lining of the All-American and Coachella Canals for 110 years (Woodard & Curran, 2021).

In October 2015, SDCWA began purchasing treated desalinated seawater from the Carlsbad Desalination Plant, which is operated by Poseidon Resources Group. This desalinated seawater

is blended into SDCWA's treated water supply before delivering to SDCWA's member agencies. Depending on where the City's connections to SDCWA's water system are located in relation to the Carlsbad Desalination Plant, the City may or may not receive desalinated seawater from SDCWA (Woodard & Curran, 2021).

The City's groundwater is drawn from the underlying Mission Valley Groundwater Basin (Mission Basin). The Mission Basin is described in detail in Section 5.2. A summary of the City's existing water supply in 2020 is provided in **Table 5**.

Table 5. City's Existing Water Supply (2020)

Water Supply	Supply Source	Water Volume (AFY)
Purchased Water	SDCWA	21,662
Groundwater	Mission Basin	2,302
	Total	**23,964**

Note: Data from City's 2020 UWMP.

5.1.2 City's Projected Water Supply

The City's projected water supply includes purchased water from SDCWA, expanded extraction and treatment of groundwater from the Mission Basin, and indirect potable reuse. The City is planning to expand its water supply through a project that will produce indirect potable reuse, or fully advanced treated (FAT) water. The project, known as Pure Water Oceanside, will produce 3,360 AFY of FAT water at the City's advanced water treatment facility. The water will then be injected into the Mission Basin, and eventually extracted and treated at the MBGPF. The Pure Water Oceanside project will reduce the City's reliance on purchased water from SDCWA. The City completed the first phase of construction of the Pure Water Oceanside project early 2022 (Woodard & Curran, 2021).

The MBGPF has the capacity to treat the additional water from Pure Water Oceanside. The MBGPF has a treatment capacity of up to 7,130 AFY, but currently operates at only 32% capacity. To plan for an increase in treatment capacity, the City conducted studies to determine the impact groundwater pumping has on local groundwater levels. The studies concluded that the additional pumping from the expansion of the MBGPF will not have significant impacts to the existing groundwater-dependent vegetation during dry-periods of up to 3 years (Woodard & Curran, 2021). The City's projected water supply is summarized in **Table 6**.

Table 6. City's Projected Water Supply (AFY)

Water Supply	Supply Description	2025	2030	2035	2040	2045
Purchased Water	SDCWA	14,881	9,578	9,751	9,807	9,980
Groundwater	Mission Basin	2,800	2,800	2,800	2,800	2,800
Indirect Potable Reuse Water	Pure Water Oceanside	3,360	6,720	6,720	6,720	6,720
	Total	**21,041**	**19,098**	**19,271**	**19,327**	**19,500**

Note: Data from City's 2020 UWMP.

5.2 Groundwater Supply

CWC Section 10910 states:

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631

5.2.1 Mission Basin

The Mission Basin is a subbasin of the San Luis Rey Valley Groundwater Basin and is situated in northwestern San Diego County. It extends from the Pacific Ocean to just past the eastern edge of the City and underlies the San Luis Rey River. The basin is primarily an alluvial basin with a storage capacity of 240,000 AF. There are currently no adjudicated areas in the basin, or

areas where groundwater rights of all overlying landowners and appropriators are determined by the court. The basin's high concentrations of total dissolved solids (TDS), which can range from 500 mg/L to 2,000 mg/L, require desalting before distribution (DWR, 2003).

The Mission Basin is classified as a “Very Low” priority basin, per DWR’s Sustainable Groundwater Management Act (SGMA) Basin Prioritization Dashboard, despite the San Luis Rey Valley Groundwater Basin designated as a medium priority basin by the California Statewide Groundwater Elevation Monitoring (CASGEM) program. As a result, the City is no longer looking to form a Groundwater Sustainability Agency (GSA), or the designation as a legally distinct basin, from the San Luis Rey Valley Groundwater Basin (Woodard & Curran, 2021).

5.2.2 Mission Basin Groundwater Purification Facility

The MBGPF is a desalting treatment facility that treats brackish groundwater extracted from the Mission Basin. Water is extracted through 8 wells, including 4 on-site wells located at the MBGPF site and 4 off-site wells located in the eastern portion of the basin. The MBGPF was first put into operation in 1992, with a capacity of 2.0 MGD, and later expanded in 2002 to reach its current capacity of 6.37 MGD, or 7,130 AFY. In order to maximize the use of this current capacity, the City is currently building 3 more production wells. Additionally, a third stage RO system is being built to produce more potable water while releasing less brine into the ocean via the Oceanside Ocean Outfall (Woodard & Curran, 2021). The City’s groundwater pumping over the last five years is presented in **Table 7**.

Table 7. City’s Groundwater Pumping Volumes (AFY)

Basin	2016	2017	2018	2019	2020
Mission Basin	2,313	1,491	2,749	2,450	2,302
Total	**2,313**	**1,491**	**2,749**	**2,450**	**2,302**

Note: Data from City’s 2020 UWMP.

6 WATER SUPPLY RELIABILITY

Many factors can affect water service reliability, including climate, such as drought and snow melt; environmental needs, such as minimum flow requirements for habitat; and cost, such as the cost to buy or produce water or the cost to expand systems to deliver water. Other factors include unplanned sudden events such as earthquakes, chemical spills, and power outages at the treatment or pumping facilities. The City has undergone reliability planning to prepare for these kinds of situations (Woodard & Curran, 2021).

The City is one of the 24 member agencies of SDCWA. Due to its member agency status, the City is allowed to directly purchase water from SDCWA for its needs. The City relies on SDCWA to do everything it can to guarantee there will be enough imported water available to meet future demand. SDCWA is implementing long-term strategies to diversify the region's supply sources, make significant investments in the region's water delivery and storage system, and increase water use efficiency (Woodard & Curran, 2021).

In order to maintain reliability during dry and multiple-dry years, SDCWA has made investments in carryover water, or water allocated to SDCWA but is not used in a given year. But even this source has proven not to be drought-proof and has prompted SDCWA to look into locally sourced supplies such as groundwater, recycled water, seawater desalination, and conservation. These efforts will reduce the demand of imported water from MWD. Currently, 10% the City's total supply is met by local sources. The City plans to increase this to 60% by 2030 (Woodard & Curran, 2021).

In addition to development of local sources, water conservation initiatives help improve supply reliability by lowering water demand. In 1991, the City enacted Ordinance No. 091-15 which established a water conservation program for the City. It has since been updated with ordinances in 2008 and 2015, and most recently in 2021 (Woodard & Curran, 2021).

7 IS THE PROJECTED WATER SUPPLY SUFFICIENT FOR THE PROJECT?

The main question to answer in a WSA is:

> *Will the water supplier's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection meet the projected water demand of the proposed project, in addition to the water supplier's existing and planned future uses, including agricultural and manufacturing uses?*

The following sections provide a comparison of normal, single-dry, and multiple dry year demand and supply for the City, including water demand associated with the Project.

7.1 Normal Year Supply and Demand

During normal water years, the City has sufficient supply to meet its customers' needs through 2045. This is based on the City's ongoing dedication to its active and passive conservation programs, the maintenance of its groundwater rights, the availability of additional imported water from SDCWA when needed, and indirect potable reuse (Woodard & Curran, 2021). The City's current and projected water supply and demand comparison, including the Project demand is presented in **Table 8**.

Table 8. Water Supply and Demand Comparison – Normal Year (AFY)

Supply/Demand	2025	2030	2035	2040	2045
Supply (City)	21,041	19,098	19,271	19,327	19,500
Supply (Additional from SDCWA)	259	258	255	254	251
Demand (City)	21,041	19,098	19,271	19,327	19,500
Demand (Project)	259	258	255	254	251
Difference (Supply Minus Demand)	**0**	**0**	**0**	**0**	**0**

Note: Data from City's 2020 UWMP.

7.2 Single-Dry Years Supply and Demand

The single-dry year scenario is based on 2015, which was the City's driest year on record. During single-dry years, the City estimates that demand will increase by 7%. The City will continue to supply customers with groundwater and anticipated indirect potable reuse water supplies. The supply of local sources during single-dry years will remain consistent with availability during normal years (Woodard & Curran, 2021).

To meet the remaining increase in demand during single-dry years, the City will purchase additional supply from SDCWA. The City anticipates that SDCWA will have enough supplies to support the additional purchases because SDCWA projects 100% reliability in a single-dry year. The City has sufficient supply to meet its customers' needs through 2045 in the event of a historically single-year drought (Woodard & Curran, 2021). The City's current and projected

water supply and demand comparison during single-dry years, including the Project demand is presented in **Table 9**.

Table 9. Water Supply and Demand Comparison – Single-Dry Year (AFY)

Supply/Demand	2025	2030	2035	2040	2045
Supply (City)	22,470	20,395	20,578	20,640	20,824
Supply (Additional from SDCWA)	277	276	272	271	268
Demand (City)	22,470	20,395	20,578	20,640	20,824
Demand (Project)	277	276	272	271	268
Difference (Supply Minus Demand)	**0**	**0**	**0**	**0**	**0**

Note: Data from City's 2020 UWMP.

7.3 Multiple-Dry Years Supply and Demand

The multiple-dry year scenario is based on 2011 to 2015, which is the driest 5-year historical sequence on record. During multiple-dry years, the City estimates that demand will increase approximately by 7% in year 1, 8% in years 2 through 4, and 9% in year 5. The City will continue to supply customers with groundwater and anticipated indirect potable reuse water supplies.

To meet the remaining increase in demand during multiple-dry years, the City will purchase additional supply from SDCWA. The City anticipates that SDCWA will have enough supplies to support the additional purchases because SDCWA anticipates 100% reliability in multiple-dry years due to the diversification of its supplies and availability of carryover water. The City has sufficient supply to meet its customers' needs through 2045 in multiple-dry years (Woodard & Curran, 2021). The City's current and projected water supply and demand comparison during multiple-dry years, including the Project demand is presented in **Table 10**.

Table 10. Water Supply and Demand Comparison – Multiple-Dry Years (AFY)

	Supply/Demand	2025	2030	2035	2040	2045
First Year	Supply (City)	22,573	20,488	20,673	20,735	20,920
	Supply (Additional from SDCWA)	278	277	274	273	269
	Demand (City)	22,573	20,488	20,673	20,735	20,920
	Demand (Project)	278	277	274	273	269
	Difference (Supply Minus Demand)	**0**	**0**	**0**	**0**	**0**
Second Year	Supply (City)	22,654	20,562	20,748	20,810	20,995
	Supply (Additional from SDCWA)	279	278	275	273	270
	Demand (City)	22,654	20,562	20,748	20,810	20,995
	Demand (Project)	279	278	275	273	270
	Difference (Supply Minus Demand)	**0**	**0**	**9**	**0**	**0**

	Supply/Demand	2025	2030	2035	2040	2045
Third Year	Supply (City)	22,737	20,638	20,823	20,886	21,072
	Supply (Additional from SDCWA)	280	279	276	274	271
	Demand (City)	22,737	20,638	20,823	20,886	21,072
	Demand (Project)	280	279	276	274	271
	Difference (Supply Minus Demand)	**0**	**0**	**0**	**0**	**0**
Fourth Year	Supply (City)	22,821	20,714	20,900	20,963	21,150
	Supply (Additional from SDCWA)	281	280	277	276	272
	Demand (City)	22,821	20,714	20,900	20,963	21,150
	Demand (Project)	281	280	277	276	272
	Difference (Supply Minus Demand)	**0**	**0**	**0**	**0**	**0**
Fifth Year	Supply (City)	22,851	20,741	20,928	20,991	21,178
	Supply (Additional from SDCWA)	281	280	277	276	273
	Demand (City)	22,851	20,741	20,928	20,991	21,178
	Demand (Project)	281	280	277	276	273
	Difference (Supply Minus Demand)	**0**	**0**	**0**	**0**	**0**

Note: Data from City's 2020 UWMP.

8 CONCLUSIONS

This WSA assessed the City's water supplies available during normal, single-dry, multiple-dry years to see if they can meet the projected water demand for the Project, in addition to the City's existing and planned future uses. The Project will add 267 AFY of water demand in the current year. The Project is located within the City's service area and can be served by a new service connection to the City's system.

The City has sufficient supply to meet the current and projected supply during normal, single-dry, and multiple-dry years. In single-dry and multiple-dry years, the City will purchase additional water from SDCWA. These additional purchases are anticipated to be accommodated for all years, since SDCWA projects 100% reliability in all future years. No supply deficit is anticipated.

9 REFERENCES

Carollo. 2015. *City of Oceanside 2015 Integrated Master Plan Vol. 1 Water Master Plan.*

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WATER AND SEWER CAPACITY STUDY FOR THE TREMONT SITE

North County Transit District (NCTD)
Oceanside Transit Center, 235 South Tremont Street, City of Oceanside, CA

September 8, 2022

Prepared for:

Toll Brothers
Apartment Living
23422 Mill Creek Drive, Suite 105
Laguna Hills, CA 92653

Prepared by:

Stantec Consulting Services Inc.
38 Technology Drive, Suite 100
Irvine, CA 92618

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1.0 INTRODUCTION

The proposed project site is in the Oceanside Transportation Center (OTC) located at 235 South Tremont Street. The Project site is approximately 10.2 acres, and is generally bound by Tremont Street to the east, AT&SF Railroad and Cleveland Street to the west, Seagaze Drive to the north, and Missouri Avenue to the south.

This study consists of an analysis of the proposed and existing water and sewer facilities that will support the proposed NTCD Oceanside Transit Center project, referred herein as the Tremont Site. The project site will be served by City's water and sewer system. The project location is shown on Figure 1-1 below.

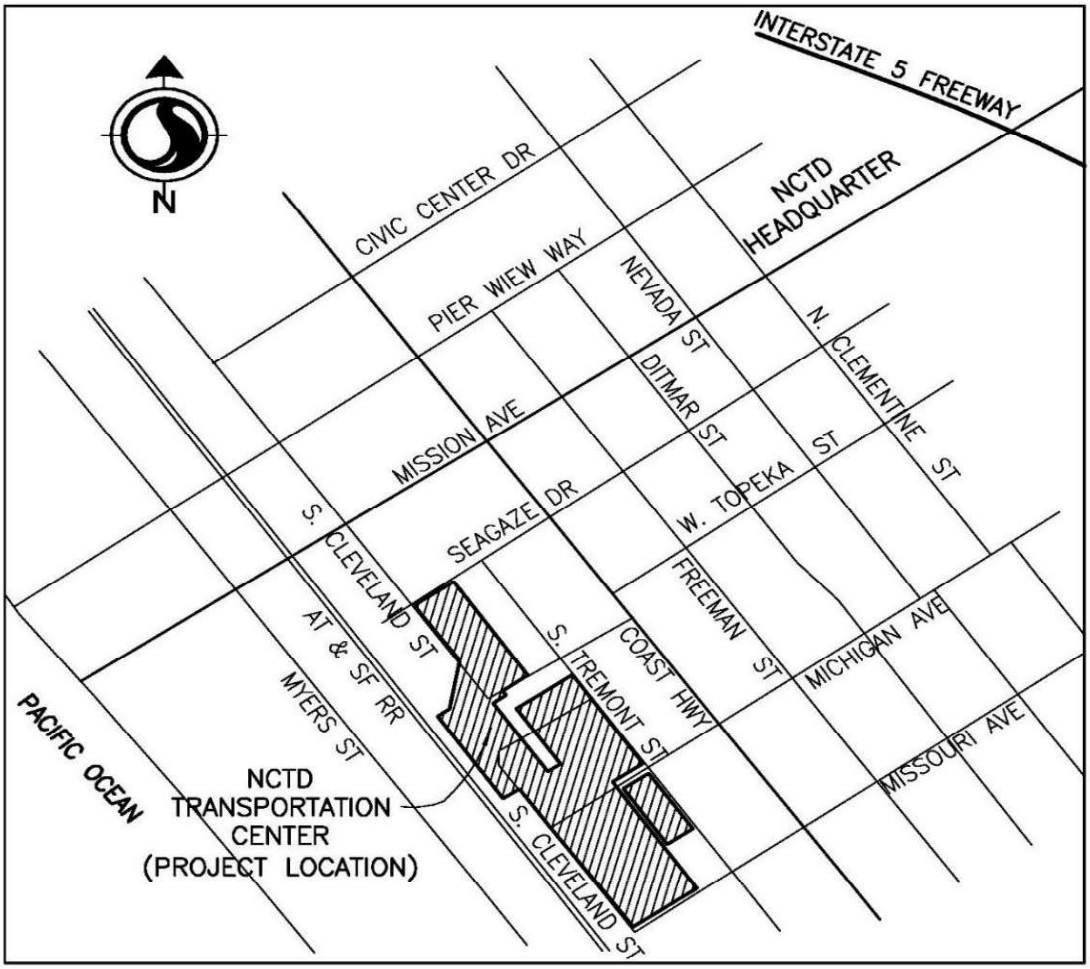


Figure 1-1: Location Map

2.0 LAND USE

The project site falls within several zones under the City of Oceanside Comprehensive Zoning Ordinance, as listed in Table 2-1. The project is a transit-oriented development and will be a mixed -use program generally consisting of a hotel with 141 rooms, multi-family residential buildings with 547 units, office buildings for NCTD, transit center, parking for transit riders, plus retail, cultural, entertainment, and indoor and outdoor amenity spaces.

Table 2-1 Existing Land Use and Zoning

Zoning Designation	Zoning Description
D-5 – Downtown District	High-density residential neighborhood
D-14 – Downtown District	Public transportation and railway uses
OP – Office Professional District	Low intensity office uses compatible with adjacent residential uses
PUT	Public utility and transportation
R-3	Residential district
D-5 – Downtown District	High-density residential neighborhood

The proposed land uses are shown in Table 2-2 below.

Table 2-2 Proposed Land Use

Land Use	Units/ Hotel Rooms	Building /Area (sf)
Hotel	141	79,100
Multi-Family Residential	547	530,300
Commercial Area (Office / Retail / Community)	-	94,025
Landscape Area (indoor and outdoor amenity)	-	121,200
Transit Center and Bus Transit	-	39,600
Parking	-	538,800
Infrastructure	-	15,900

The proposed project site tentative map is provided in Appendix A.

3.0 POTABLE WATER SYSTEM

3.1 POTABLE WATER DEMANDS

Potable water demands for the proposed project were estimated using water duty factors from the City of Oceanside 2015 Water and Sewer Master Plans, City's Water, Sewer, and Recycled water Design and Construction Manual. Table 3.1 below shows the estimated water demand for the project.

Table 3.1 Proposed Potable Water Demands

Land Use Description	Dwelling Units/ Rooms	Building/ Area (sf)	Average Day Demands (gpm) (1)	Maximum Day Demands (gpm) (2)	Peak Hour Demands (gpm) (2)
Hotel	141	79,100	11	22	34
Multi-Family Residential	547	530,300	58	117	176
Commercial (Office / Retail/Community)	-	94,025	3	6	8
Landscape Area (Indoor and outdoor Amenity) (3)	-	-	33	67	100
TOTAL NCTD Oceanside Project Potable Water Demand	**-**	**-**	**106**	**212**	**318**

(1) The duty factor used for hotel is 115 gpd/room per 2015 Water Master Plan. The duty factor of 154 gpd/du is used for multi-family residential. The duty factor of 1,850 gpd/ac was used for commercial area (office/retail/community).

(2) Max Day Demand= 2.0 * Ave Day Demand, Peak Hourly Demand = 3.0* Ave Day Demand, per the City of Oceanside Design Criteria.

(3) An irrigation demand of 100 gpm was given by the landscape designer, assuming (4) 1-inch meters each 25 gpm.

For this study it is assumed the landscape area irrigation demands will be supplied by the potable water system via separate irrigation meters. However, City of Oceanside is planning to convert the existing 16-inch Camp Pendleton Outfall line in Tremont Street from Seagaze Drive to Oceanside Boulevard to recycle water in the future. Therefore, when this recycled water is available the proposed project site irrigation demand will be supplied by the recycled water system. It is recommended to install the proposed irrigation meters on Tremont Street, so it can be easily connected to the future 16-recycled water line in Tremont Street.

3.2 HYDRAULIC ANALYSIS

Based on City's 2015 Water Master Plan, the project site is located in pressure zone Talone (320). Hydraulic boundary conditions were provided by fire flow tests that were performed at the site, and witnessed by the City of Oceanside Fire Department and Public Utilities Department. Fire flow test results with test fire hydrant location exhibits are provided in Appendix B. The existing system pressure and available fire flow were estimated per these fire flow tests.

The project approved fire master plan is not available, therefore, the City of Oceanside standard criteria of 4,000 gpm was assumed for the project site.

The potable water system computer analysis was performed using Innovyze InfoWater Pro modeling software. The fire flow test results were modeled as a supply reservoir and a pump to simulate the pressure and available fire flow to the area.

The model results indicate that during peak hour demands pressures range from 85 to 91 psi within vicinity of the project site. The resulting minimum service pressures meet the City's minimum pressure requirements.

The 4,000 gpm fire flow was applied to all the nodes in the project site, using InfoWater Pro fire flow simulation, which assumes flow going to one fire hydrant at a time. The minimum residual pressure on existing offsite fire hydrants is 50 psi. The maximum day plus fire flow condition was also analyzed with fire flows equally split between two (2) fire hydrants. Minimum residual pressure for maximum day plus fire on on-site fire hydrant node is 59 psi. The maximum velocity during a fire event is 10.1 fps in the proposed on-site pipelines and 11.6 fps in the existing offsite pipelines. The resulting residual pressures and maximum pipeline velocity comply with the City of Oceanside requirements. The modeling results are shown in Table 3.2 below:

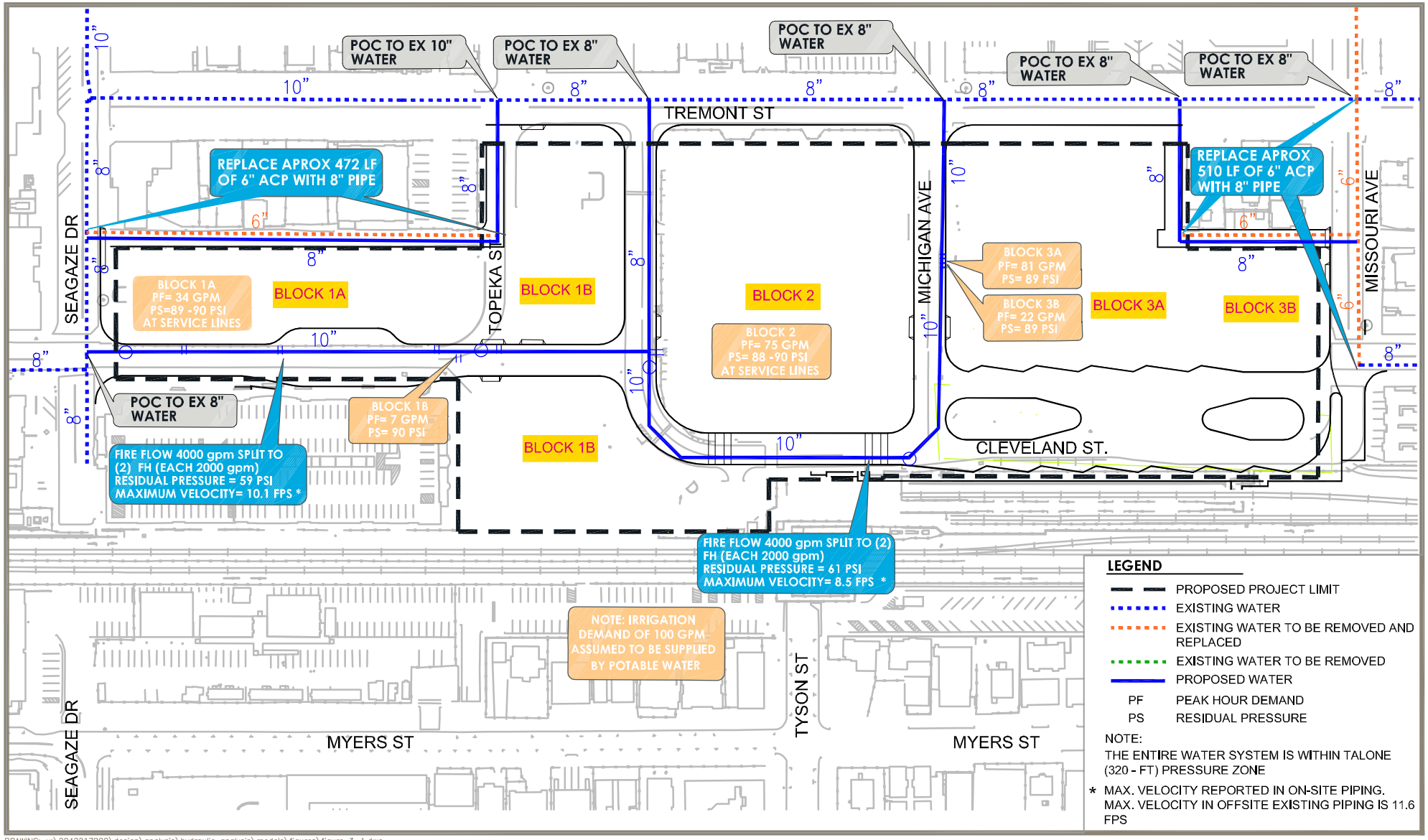
Table 3.2 Potable Water Hydraulic Modeling Results

Zone	Peak Hour Pressure Range	Max Day Demand Plus Fire Minimum Residual Pressure	Maximum Pipe Velocity
Proposed On-Site Pipelines	87 -90 psi	59 psi	10.1
Existing Off-Site Pipelines	85- 91 psi	50 psi	11.6

The hydraulic analysis revealed the need to upsize one offsite domestic water line in Missouri Ave from 6" ACP to 8" PVC. The existing 6" ACP water lines within the allies adjacent to the project site will also need to be replaced with 8" PVC. The minimum pressure and maximum velocity results reported In Table 3.2 are based on the 8-inch pipe upsizing.

All other offsite pipelines are of sufficient size to support the proposed uses. All on site public water is proposed to be 8-inch and 10-inch.

The proposed potable water system is shown on Figure 3-1.



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NCTD OCEANSIDE TRANSIT CENTER PROJECT
POTABLE WATER SYSTEM FACILITIES

FIGURE 3-1

4.0 SEWER COLLECTION SYSTEM

4.1 SEWER FLOW MONITORING

A sewer system capacity analysis was conducted to evaluate the capacity of the existing sewer system to accept the generated wastewater flows from the proposed project site. To facilitate the sewer system capacity analysis, flow monitoring was performed by ADS Environmental at two manhole locations downstream of the project site. Flow monitoring location # 1 was at the intersection of Pier View Way and S. Cleveland Street. The monitoring location #2 was at intersection of Tait Street and Witherby Street, upstream of the La Salina wastewater treatment plant. The measured flows from the flow monitoring location #1was used for this analysis. The flow monitoring location #2 includes a very large tributary area and includes majority of the City's collection system and was not evaluated for this study. Table 4.1 below shows the flow monitoring results.

Table 4.1 Summary of Flow Monitoring Results

Flow Monitoring Location	Pipe Diameter (in)	Maximum Depth (inch)	Average Flow (mgd)	Maximum Flow (mgd)	Maximum Velocity (fps)
Location #1 (Cleveland St at Pier View way)	10	2.22 (d/D=0.22)	0.043	0.075	1.23
Location #2 (Tait St at Witherby St, upstream of Treatment Plant)	33	19 (d/D=0.58)	3.914	6.553 (1)	3.06

(1) Generally peak flow ranges between 5.025 and 5.488 mgd.

The Flow monitoring locations and ADS flow monitoring report are provided in Appendix C.

4.2 SEWER FLOWS

The average day flows were calculated using generation factors from the City of Oceanside Sewer Master Plan and City's Water, Sewer, and Recycled water Design and Construction Manual.

Peak dry weather sewer flows from the proposed project site is anticipated to be approximately 0.396 cfs. Per the sewer flow monitoring data and using the City's duty factors the existing peak dry weather sewer flow from the existing areas within the offsite sewer Study Area is calculated to be 0.179 cfs.

Table 4.2 summarizes the estimated flows to be generated from the proposed project site and the existing areas within the offsite sewer Study Area. The limit of the offsite sewer Study Area is shown on Figure 4-2.

Table 4.2 Estimated Sewer Flows for the Study Area

Land Use Description	Dwelling Units/ Rooms	Building Area (sf)	Proposed Estimated Sewer flows		
			Average Day [1]		Peak [2] cfs
			gpd	cfs	
Proposed Sewer Flow					
Hotel	141	79,100	14,100	0.022	0.060
Multi-Family Residential	547	530,300	76,580	0.119	0.326
Commercial (Office / Retail)	-	94,025	2,159	0.003	0.010
Total NCTD Oceanside Project Proposed Sewer Flows	**-**	**-**	**92,839**	**0.144**	**0.396**
Existing Sewer Flows					
Sewer Flow Monitoring on existing 10-inch sewer	-	-	43,000	0.066	0.116
Multi -Family Residential	76	-	10,640	0.016	0.058
Commercial	-	44,465	1,021	0.002	0.005
Total Existing Sewer Flows	**-**	**-**	**54,661**	**0.084**	**0.179**
Total Sewer Flows from Study Area	**-**	**-**	**147,500**	**0.228**	**0.575**

(1) The generation factor used for hotel is 100 gpd/room per 2015 Sewer Master Plan. The generation factor of 140 gpd/du was used for multi-family residential. The generation factor of 1,000 gpd/ac was used for commercial area (office/retail).

(2) Based on City of Oceanside Design Guidelines a peaking factor of 2.75 for residential and hotel and a peaking factor of 2.9 for commercial areas were applied to proposed average flows. A peaking factor of 3.5 for existing residential and a peaking factor of 3.08 for existing commercial areas were applied to existing average flows.

4.3 SEWER ANALYSIS

The sewer analysis was conducted using Innovyze InfoSewer modeling software. A steady state peak dry weather flow hydraulic analysis was performed to verify the capacity of the proposed

on-site sewer and the existing off-site sewer systems within the offsite sewer Study Area. The sewer analysis was performed using the site plan available at the time of the analysis.

4.3.1 Onsite Public Sewer

The on-site sewer is proposed to be an 8-inch diameter pipe. The hydraulic analysis results are shown in Table 4.3 below.

Table 4.3 Onsite Sewer Hydraulic Analysis Results

Description	Location	Pipe Diameter (in)	Min. Slope	Max. d/D	Velocity (fps)
8-inch sewer (northeast of Michigan Ave)	Cleveland St	8	0.005	0.38	2.16
8-inch sewer (northwest of Topeka Street)	Cleveland St	8	0.005	0.27	1.80

Due to relatively low peak flows, the velocities in the 8-inch sewer pipes are less than 2 fps as shown in Table 4.3.

4.3.2 Offsite Public Sewer

Onsite sewer flows from the northwest side of the project site are conveyed to the existing offsite 10-inch pipe in Seagaze Street. The existing 10-inch sewer continues in Cleveland and Pier View Streets and connects to existing 21-inch trunk sewer in Myer Street. Onsite sewer flows from the northeast side of the project site are conveyed to the existing 8-inch sewer in Missouri Street, which is connected to the existing 8-inch sewer in Cleveland Street. The existing 8-inch sewer continues in Cleveland Street and connects to 12-inch sewer in Wisconsin Avenue. The existing 12-inch sewer continues in Wisconsin Avenue then connects to 16-inch sewer in Myer Street. For this study, the existing off-site 10-inch sewer and 8-inch sewer in Cleveland Street are evaluated up to Pier View and Wisconsin Street. The off-site sewer and limit of study area are shown on Figure 4-2. The hydraulic analysis results are shown in Table 4.4.

Table 4.4 Offsite Sewer Hydraulic Analysis Results

Description	Location	Pipe Diameter (in)	Min. Slope	Max. d/D	Velocity (fps)
Off-Site Existing 8-inch sewer (Between Missouri St and Wisconsin Ave)	Cleveland St	8	0.004	0.44	2.18
Off-Site Existing sewer (Between Seagaze Dr and Pier View Way))	Cleveland St	10	0.004	0.29	1.94

The hydraulic analysis shows that maximum d/D is less than 0.5 in all segments of offsite sewer within the study area and therefore, the flows from the proposed project site will not have a negative impact on the existing offsite public sewer system.

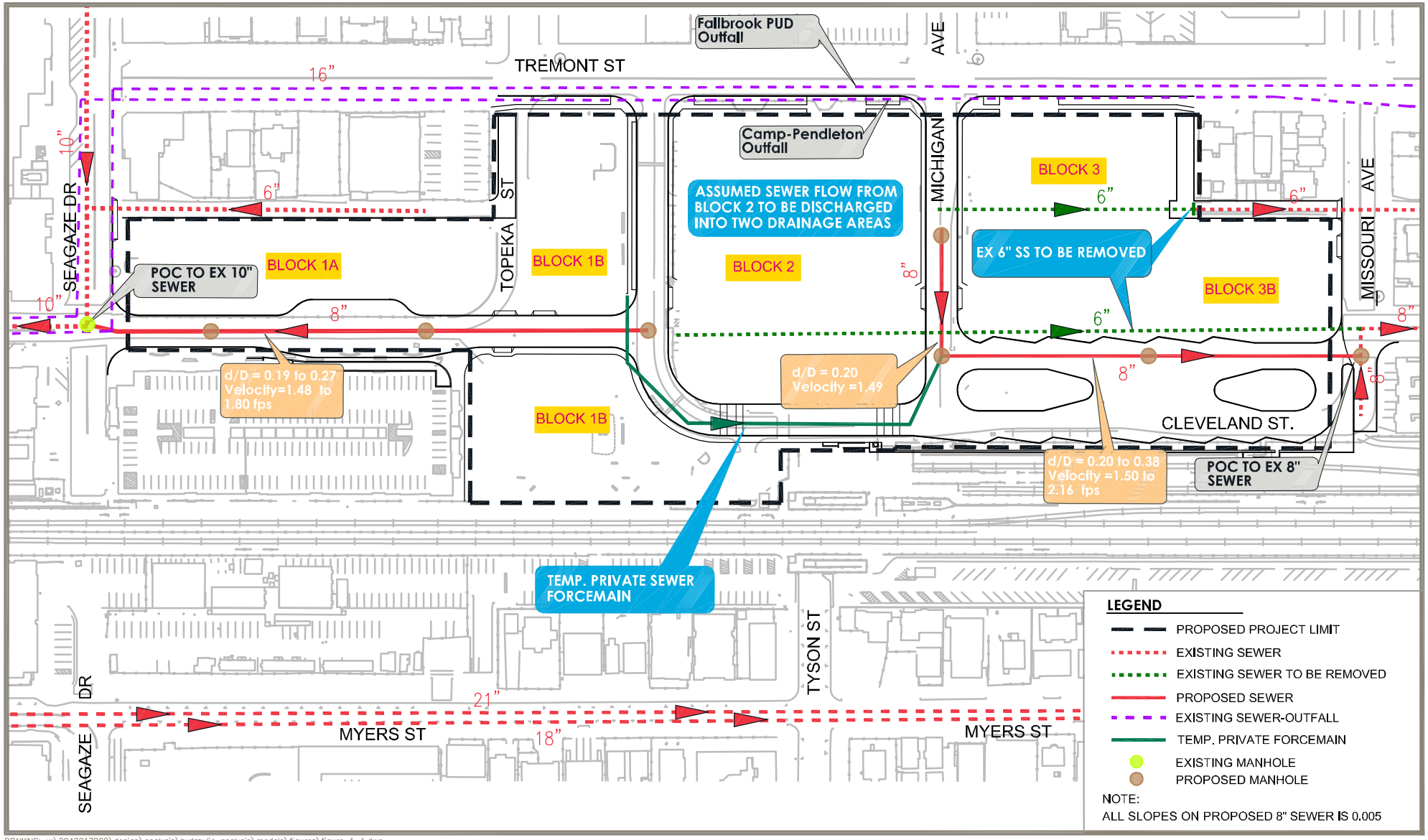
Figure 4-1 and Figure 4-2 show the proposed onsite and existing offsite sewer collection systems, respectively.

5.0 CONCLUSION

The NTCD Oceanside Transit Center project in Tremont site will result in an increase in potable water demands and generated wastewater flow as compared to the existing condition. However, as shown by the hydraulic analyses of the potable water and sewer system, the proposed NTCD Oceanside project will not adversely impact City of Oceanside existing water and sewer system facilities.

The proposed on-site potable water main pipelines range from 8-inch to 10-inch diameter. Per the hydraulic analysis and City of Oceanside requirements, approximately 310 LF of existing 6-inch ACP water main will require upsizing to 8-inch PVC pipe in Missouri Avenue. Approximately 472 LF of the existing 6-inch ACP water lines within the allies adjacent to the proposed project site will also need to be replaced with 8-inch PVC pipe.

Based on the sewer model results, the 8-inch and 10-inch sewer downstream of the proposed project site in Cleveland Street have sufficient capacity to accept the generated wastewater flows from the proposed project site and will not be negatively impacted by the proposed flow generation.



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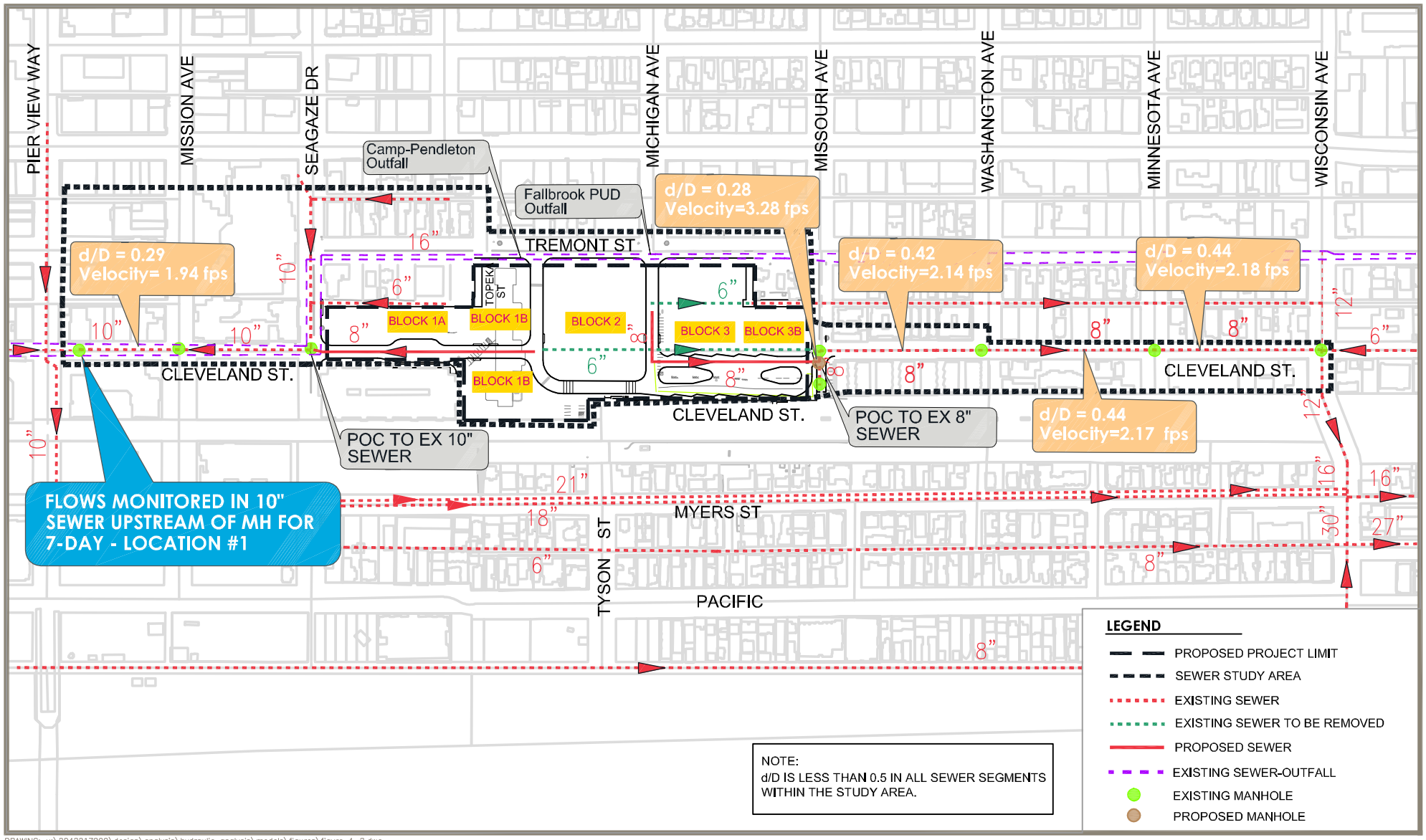
NCTD OCEANSIDE TRANSIT CENTER PROJECT
ONSITE SANITARY SEWER SYSTEM FACILITIES

FIGURE 4-1



NOTE:
d/D IS LESS THAN 0.5 IN ALL SEWER SEGMENTS WITHIN THE STUDY AREA.

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NCTD OCEANSIDE TRANSIT CENTER PROJECT
OFFSITE SANITARY SEWER SYSTEM FACILITIES

FIGURE 4-2

Appendix A

VESTING TENTATIVE MAP
NO. XXXX

NCTD OCEANSIDE TRANSIT CENTER, 235 SOUTH TREMONT STREET
CITY OF OCEANSIDE, CALIFORNIA

GENERAL NOTES:

1.	TOTAL AREA:	GROSS: 438,912 SF (10.06 ACRES)
2.	EXISTING ZONING:	D-5, D-14, OP, PUT, R-3, D-5
3.	PROPOSED ZONING:	D-1
4.	NUMBER OF EXISTING PARCELS:	8
5.	FEMA FLOOD INSURANCE RATE MAP NO.:	06073C0734J eff. 12/20/2019
6.	CONTOUR INTERVAL:	1 FT
7.	MAX. SLOPE GRADIENT:	10% MAX
8.	PERCENT OF PROJECT IN STREETS:	19.20% (1.93 ACRES)
9.	AMOUNT OF GRADING:	209,000 CY CUT; 805 CY FILL
10.	ASSESSORS PARCEL NUMBERS:	SEE SHEET 9

DESIGN NOTES:

1. ALL STREET DESIGN SHALL CONFORM TO THE CITY OF OCEANSIDE DESIGN STANDARDS AS REQUIRED BY THE CITY ENGINEER.
2. EASEMENTS SHALL BE PROVIDED, REMOVED OR RELOCATED AS REQUIRED BY THE CITY ENGINEER.
3. ALL PROPOSED UTILITIES SHALL BE UNDERGROUNDED AND EASEMENTS PROVIDED.
4. GEOTECHNICAL INVESTIGATION PREPARED BY: NOVA
5. THE DEVELOPER SHALL INSTALL STREET LIGHTS PER THE CITY OF OCEANSIDE ENGINEERING DEPARTMENT TRAFFIC DIVISION, THE STREET LIGHT DESIGN MANUAL AND THE CITY OF OCEANSIDE STANDARD DRAWING NO. M-4. STREET LIGHT LOCATIONS MAY VARY IN FINAL DESIGN.
6. ALL RETAINING WALLS IN EXCESS OF 4 FEET SHALL BE PLANTABLE.
7. ALL PROPOSED SEWER IS PUBLIC AND SHALL BE INSTALLED PER CITY OF OCEANSIDE STANDARDS.
8. ALL PROPOSED WATER IS PUBLIC AND SHALL BE INSTALLED PER CITY OF OCEANSIDE STANDARDS.
9. FINISH GRADES ARE APPROXIMATE AND SUBJECT TO CHANGE IN FINAL DESIGN, AS ALLOWED PER SUBSTANTIAL CONFORMITY.
10. ALL FUTURE DRIVEWAYS AND GEOMETRIC DESIGN SHALL BE DESIGNED IN COMPLIANCE WITH THE CITY OF OCEANSIDE ENGINEERS DESIGN STANDARDS.

BENCHMARK:

NATIONAL GEODETIC SURVEY DX3234, STAMPED PIER NO 2 1933

ELEVATION 28.65' (NAVD88)

AT THE END OF THE PIER EXTENDING WEST FROM THE WEST END OF THIRD STREET, APPROXIMATELY 420' WEST OF THE CENTER LINE OF PACIFIC STREET, SET IN THE TOP OF THE SOUTH CONCRETE CURBING ON THE PIER, 25.9' EAST OF THE STATION MARK

BASIS OF BEARINGS:

THE BASIS OF COORDINATES FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM (CCS83) ZONE VI, NAD 83 (2011.00 EPOCH), AS PER RECORD OF SURVEY 21787, FILED 8/21/2014 BY RBF CONSULTING, AS DETERMINED BY THE FOLLOWING CONTROL STATIONS:

3002 (DSME), 3004 (P474), 3005 (P478), 3006 (SBCC), 1004, 1005, 1006 AND 2102 (DX3432)

TOPOGRAPHY SOURCE:

THIS SURVEY IS BASED UPON AERIAL PHOTOGRAPHY FLOWN ON APRIL 2, 2021 BY R.J. LUNG AND ASSOCIATES.

LEGAL DESCRIPTION:

SEE SHEET 9

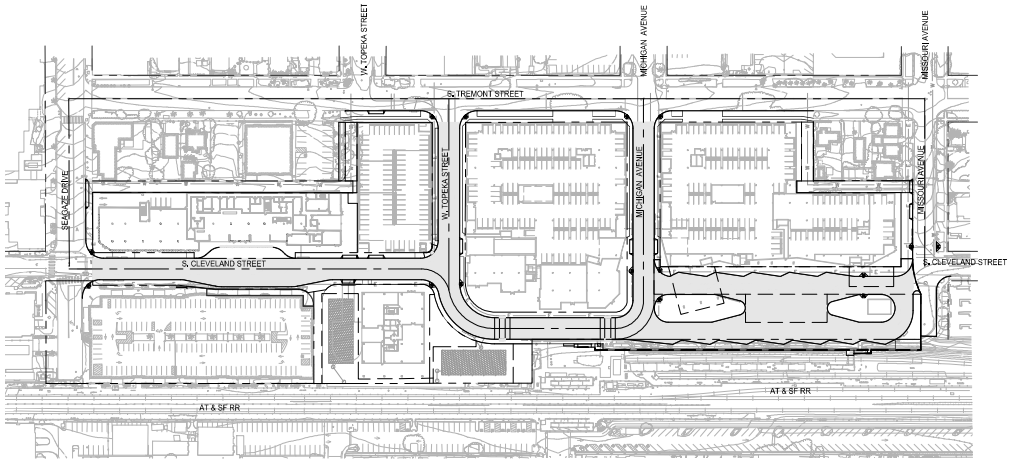
EASEMENTS:

SEE SHEET 10

SITE DATA:

1. SETBACKS:
   - BACKYARD: NONE
   - FRONT YARD: NONE
   - SIDE YARD: NONE
2. LANDSCAPE COVERAGE: 43,891 SF

LOT #	DESCRIPTION	AREA (ACRES)
1	HOTEL	1.09
2	PARKING STRUCTURE	0.73
3	RESIDENTIAL MIXED USE	2.03
4	RESIDENTIAL	1.90
5	NCTD BUS STATION	1.31
6	NCTD TRAIN PLATFORM PLAZA	0.33
7	NCTD OFFICE	0.76
TOTAL		8.16
PUBLIC R.O.W.		2.10
SUBTOTAL SUBDIVISION BOUNDARY		10.27
LOT 8	CITY OF OCEANSIDE PARKING STRUCTURE	1.74
TRACT MAP PROJECT AREA		12.00

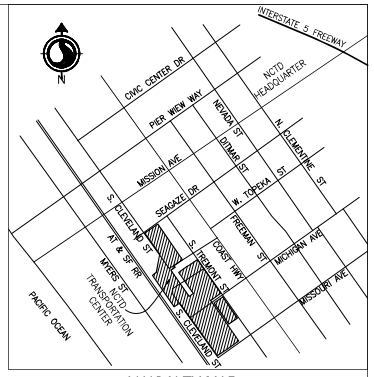


LOCATION MAP

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.



VINCINITY MAP
NOT TO SCALE

SHEET INDEX:

SHEET 1 – TITLE SHEET
SHEET 2 – SITE SECTIONS AND DETAILS
SHEET 3 – SITE SECTIONS AND DETAILS
SHEET 4 – MASTER TECHNICAL SITE PLAN
SHEET 5 – VESTING TENTATIVE TRACT MAP
SHEET 6 – PRELIMINARY GRADING & DRAINAGE
SHEET 7 – PRELIMINARY WET UTILITIES
SHEET 8 – FIRE ACCESS CIRCULATION PLAN
SHEET 9 – ENCUMBRANCE MAP
SHEET 10 – ENCUMBRANCE MAP

LEGEND:

- BOUNDARY LINE
- CENTER LINE
- CURB AND GUTTER
- DRIVEWAY
- EXIST. CONTOUR
- PROP. CONTOUR
- EASEMENT LINE
- RETAINING WALL
- EXIST. SEWER
- EXIST. WATER
- EXIST. STORM DRAIN
- EXIST. GAS
- EXIST. OVERHEAD POWER
- PROP. SEWER
- PROP. WATER
- PROP. STORM DRAIN
- PROP. GAS
- EXIST. FIRE HYDRANT

OWNER:

NORTH COUNTY TRANSIT DISTRICT
810 MISSION AVENUE
OCEANSIDE, CA 92054

DEVELOPER:

TOLL BROTHERS APARTMENT LIVING
MICHAEL MCCANN
23422 MILL CREEK DRIVE, SUITE 105
LAGUNA HILLS, CA 92653
(949) 370-8155

CIVIL ENGINEER:

STANTEC
EDWARD DAWSON GROVE
801 SOUTH FIGUEROA STREET, #300
LOS ANGELES, CA 90017-3007

EDWARD DAWSON GROVE RCE 61374 DATE

REGISTERED PROFESSIONAL ENGINEER EDWARD DAWSON GROVE No. C61374 STATE OF CALIFORNIA

ARCHITECT:

CALLISONRTKL INC
333 SOUTH HOPE STREET, SUITE C-200
LOS ANGELES, CA 90034

GEOTECHNICAL:

NOVA SERVICES
4373 VIEWRIDGE AVENUE, SUITE B
SAN DIEGO, CA 92123

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

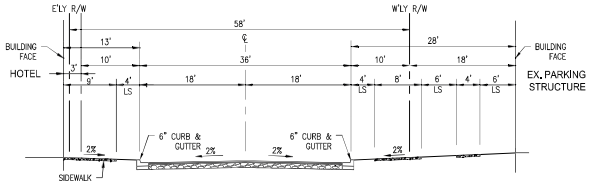
PREPARED BY:

Stantec
38 Technology Drive
Irvine, CA 92618
949-923-6000 stantec.com

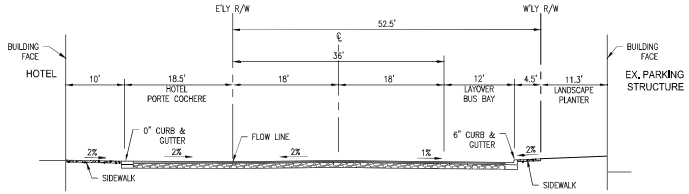
VESTING TENTATIVE TRACT MAP NO. XXXX
TITLE SHEET
NCTD OCEANSIDE TRANSIT CENTER, SOUTH TREMONT STREET
CITY OF OCEANSIDE, CALIFORNIA

SHEET 1 OF 10

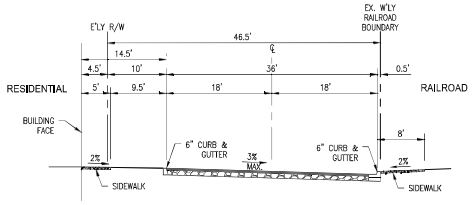
DRAWING: J:\204217900\drawing\sheet_files\217900c-1001tv.dwg PLOTTED: 8/22/2022 10:25 AM BY: Abourassar, Ramzi



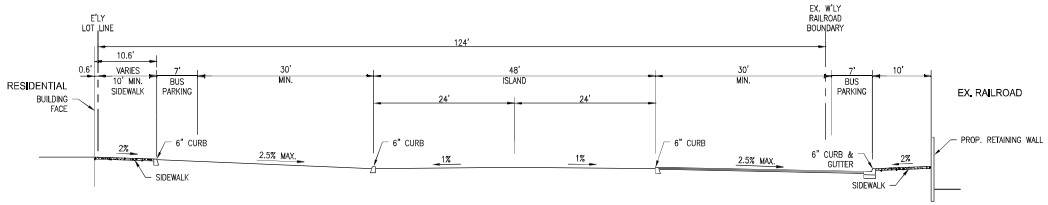
S. CLEVELAND STREET (PUBLIC) (A)
NTS
(NO PARKING EITHER SIDE)



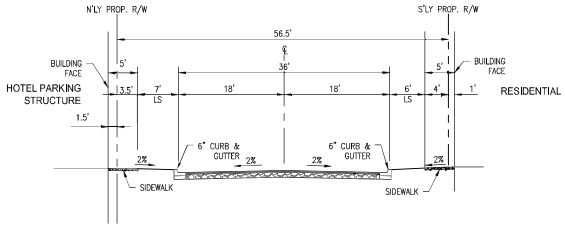
S. CLEVELAND STREET (PUBLIC) (B)
NTS
(NO PARKING EITHER SIDE)



S. CLEVELAND STREET (PUBLIC) (C)
NTS
(NO PARKING EITHER SIDE)



BUS TRANSIT CENTER LOT (D)
NTS



TOPEKA STREET (PUBLIC) (E)
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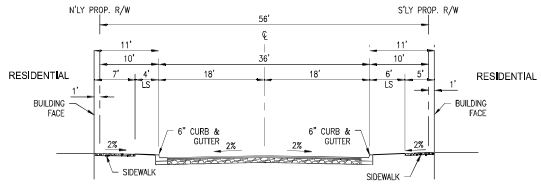
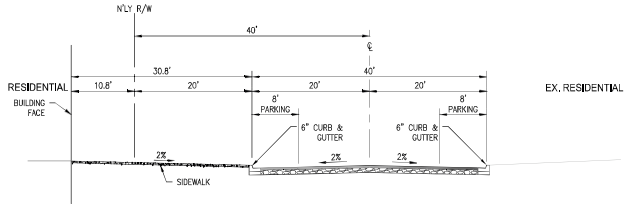
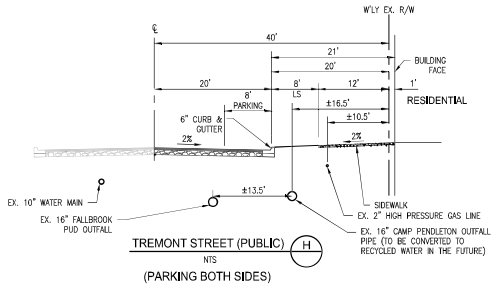
(NO PARKING EITHER SIDE)



MICHIGAN AVE. (PUBLIC) (F)
NTS
(NO PARKING EITHER SIDE)



MISSOURI AVE. (PUBLIC) (G)
NTS
(PARKING BOTH SIDES)



TREMONT STREET (PUBLIC) (H)
NTS
(PARKING BOTH SIDES)

PREPARED BY:

Stantec
38 Technology Drive
Irvine, CA 92618
949-923-6000 stantec.com

VESTING TENTATIVE TRACT MAP NO. XXXX
SITE SECTIONS AND DETAILS
NCTD OCEANSIDE TRANSIT CENTER, SOUTH TREMONT STREET
CITY OF OCEANSIDE, CALIFORNIA

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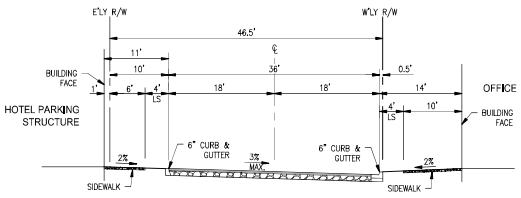
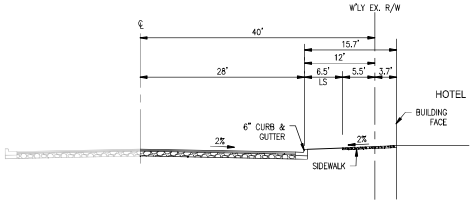
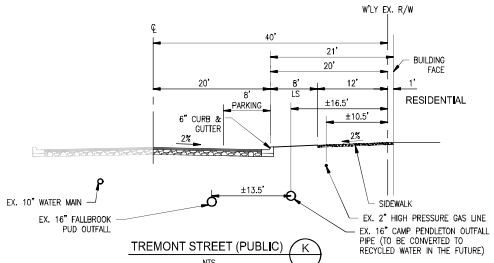


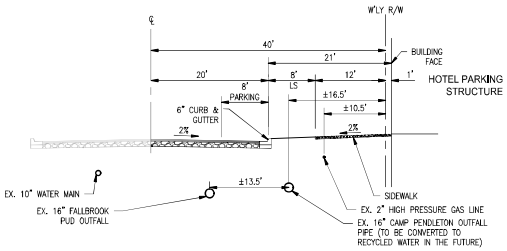
S. CLEVELAND STREET (PUBLIC) (I)
NTS
(NO PARKING EITHER SIDE)



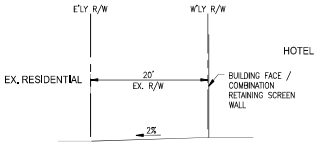
SEAGAZE DRIVE (PUBLIC) (J)
NTS
(NO PARKING EITHER SIDE)



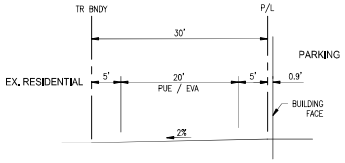
TREMONT STREET (PUBLIC) (K)
NTS
(PARKING BOTH SIDES)



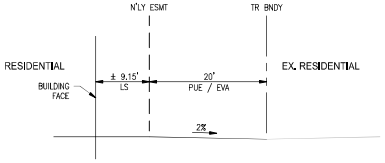
TREMONT STREET (PUBLIC) (L)
NTS
(PARKING BOTH SIDES)



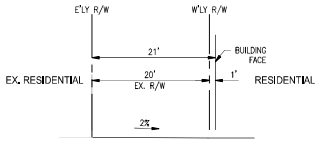
ALLEY (M)
NTS



PUBLIC UTILITY / EMERGENCY ACCESS EASEMENT (N)
NTS



PUBLIC UTILITY / EMERGENCY ACCESS EASEMENT (O)
NTS



ALLEY (P)
NTS

PREPARED BY:

Stantec
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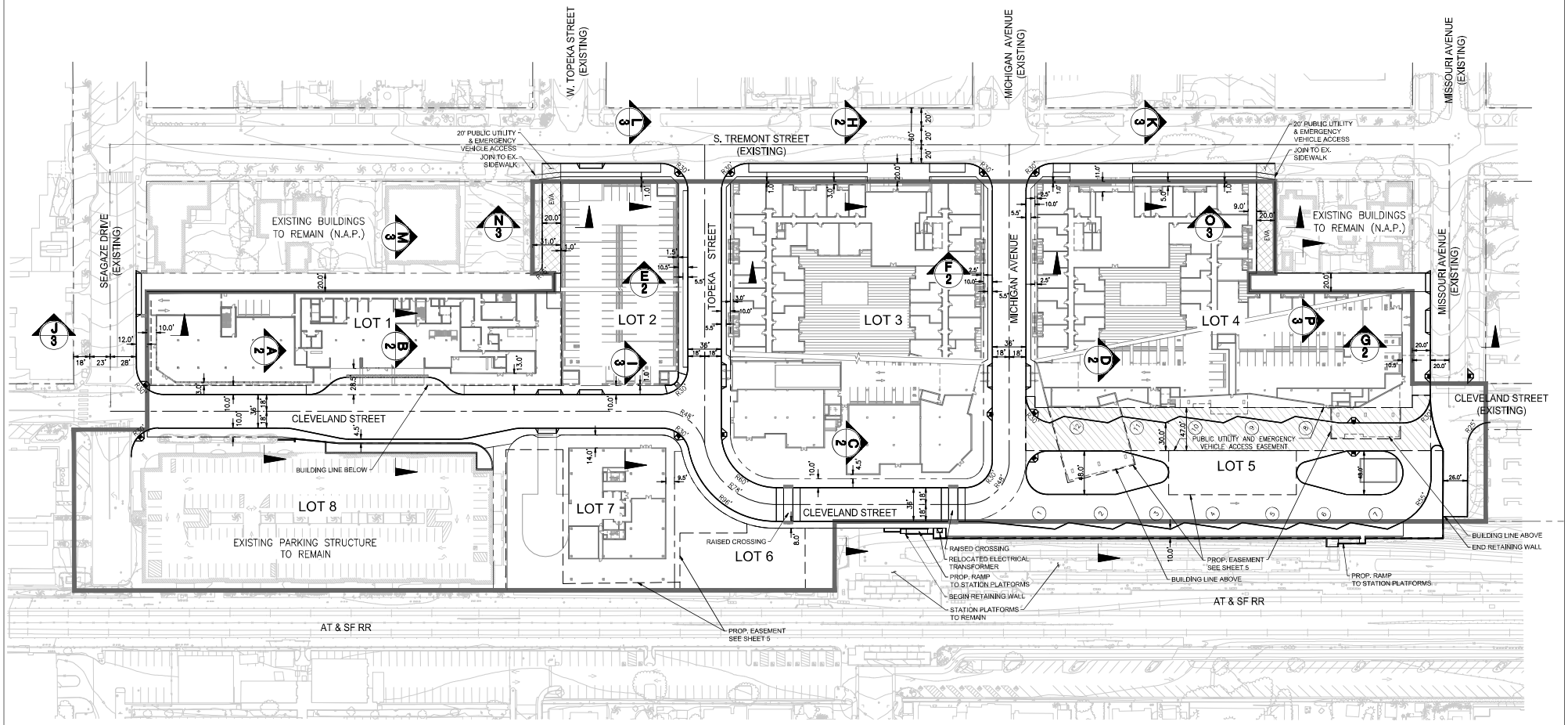
Irvine, CA 92618
949-923-6000 stantec.com

VESTING TENTATIVE TRACT MAP NO. XXXX
SITE SECTIONS AND DETAILS
NCTD OCEANSIDE TRANSIT CENTER, SOUTH TREMONT STREET
CITY OF OCEANSIDE, CALIFORNIA

DRAWING: \\us0300-prjfsd01\shared_projects\259231900\drawing\sheet_files\231900-1003tm.dwg PLOTTED: 8/22/2022 10:25 AM BY: Tu,Zhi, Ivan



LEGEND:

	BOUNDARY LINE	SS	EXIST. SEWER
	CENTER LINE	W	EXIST. WATER
	CURB AND GUTTER	SD	EXIST. STORM DRAIN
	DRIVEWAY	G	EXIST. GAS
54	EXIST. CONTOUR	E(OH)	EXIST. OVERHEAD POWER
54	PROP. CONTOUR	S	PROP. SEWER
	EASEMENT LINE	W	PROP. WATER
	RETAINING WALL	SD	PROP. STORM DRAIN
		G	PROP. GAS
			EXIST. FIRE HYDRANT

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

PREPARED BY:

Stantec
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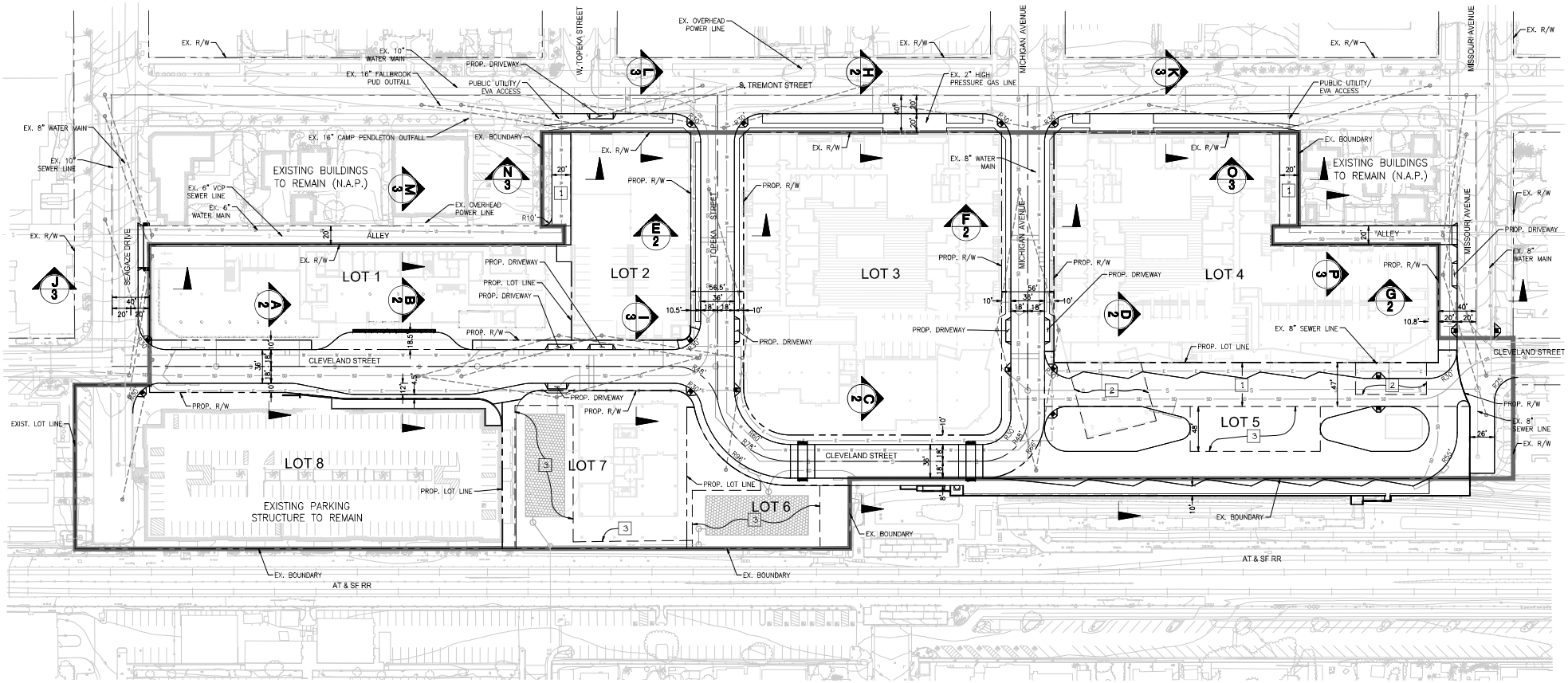
Irvine, CA 92618
949-923-6000 stantec.com

VESTING TENTATIVE TRACT MAP NO. XXXX
MASTER TECHNICAL SITE PLAN
NCTD OCEANSIDE TRANSIT CENTER, SOUTH TREMONT STREET
CITY OF OCEANSIDE, CALIFORNIA

SHEET 4 OF 10

DRAWING: u:\204221700\drawing\sheet_files\217900c-100Km.dwg PLOTTED: 8/22/2022 10:25 AM BY: Abourassar, Ramzi



SEE ENCUMBRANCE MAP SHEET 10 FOR EXISTING EASEMENTS AND RIGHT OF WAY TO BE QUITCLAIMED, OR ABANDONED

PROPOSED EASEMENTS

1. PUBLIC UTILITY AND EMERGENCY VEHICLE ACCESS
2. ENCROACHMENT EASEMENT IN FAVOR OF LOT 4
3. PUBLIC UTILITY EASEMENT

LEGEND:

BOUNDARY LINE	EXIST. SEWER
CENTER LINE	EXIST. WATER
CURB AND GUTTER	EXIST. STORM DRAIN
DRIVEWAY	EXIST. GAS
EXIST. CONTOUR	EXIST. OVERHEAD POWER
PROP. CONTOUR	PROP. SEWER
EASEMENT LINE	PROP. WATER
RETAINING WALL	PROP. STORM DRAIN
SIGHT VISIBILITY LINES	PROP. GAS
	EXIST. FIRE HYDRANT

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

PREPARED BY:

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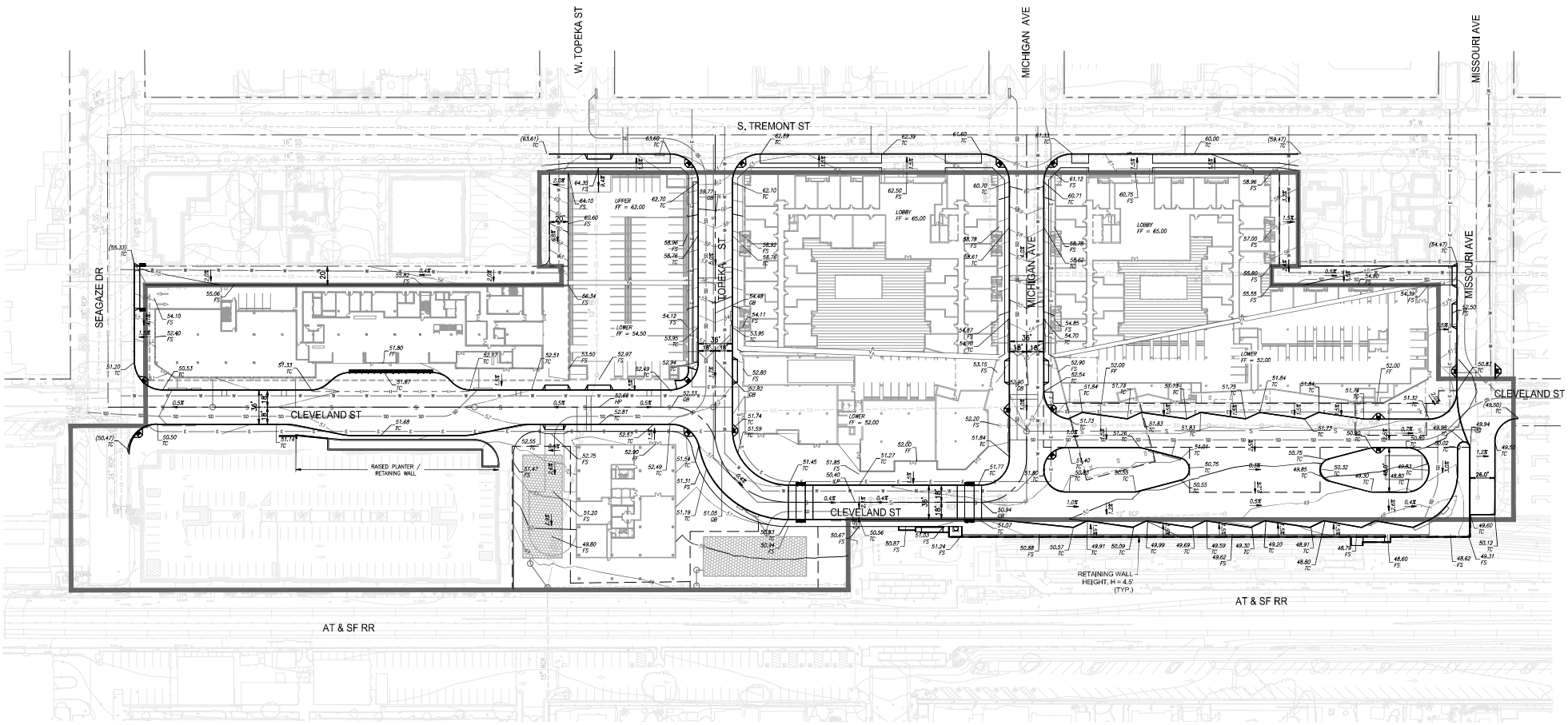
Irvine, CA 92618
949-923-6000 stantec.com

VESTING TENTATIVE TRACT MAP NO. XXXX
VESTING TENTATIVE TRACT MAP
NCTD OCEANSIDE TRANSIT CENTER, SOUTH TREMONT STREET
CITY OF OCEANSIDE, CALIFORNIA

SHEET 5 OF 10

DRAWING: J:\204217900\drawing\sheet_files\217900c-1005sv.dwg PLOTTED: 8/22/2022 10:25 AM BY: Abourassa, Raoul



GRADING NOTES:

1. TOTAL AMOUNT OF CUT: 209,000 CY; TOTAL AMOUNT OF FILL: 805 CY
2. RETAINING WALLS: LENGTH: 800 LF; MAX HEIGHT: 5 FT
3. VOLUMES ARE CALCULATED TO ESTIMATED BOTTOM OF FOUNDATION FLOOR FOR BUILDINGS AND SUBGRADE FOR ROAD/HARDSCAPES

LEGEND:

	BOUNDARY LINE	SS	EXIST. SEWER
	CENTER LINE	W	EXIST. WATER
	CURB AND GUTTER	SD	EXIST. STORM DRAIN
	DRIVEWAY	G	EXIST. GAS
54	EXIST. CONTOUR	E(OH)	EXIST. OVERHEAD POWER
54	PROP. CONTOUR	S	PROP. SEWER
	EASEMENT LINE	W	PROP. WATER
	RETAINING WALL	SD	PROP. STORM DRAIN
		G	PROP. GAS
			EXIST. FIRE HYDRANT

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

PREPARED BY:

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Irvine, CA 92618
949-923-6000 stantec.com

VESTING TENTATIVE TRACT MAP NO. XXXX
PRELIMINARY GRADING & DRAINAGE
NCTD OCEANSIDE TRANSIT CENTER, SOUTH TREMONT STREET
CITY OF OCEANSIDE, CALIFORNIA

SHEET 6 OF 10

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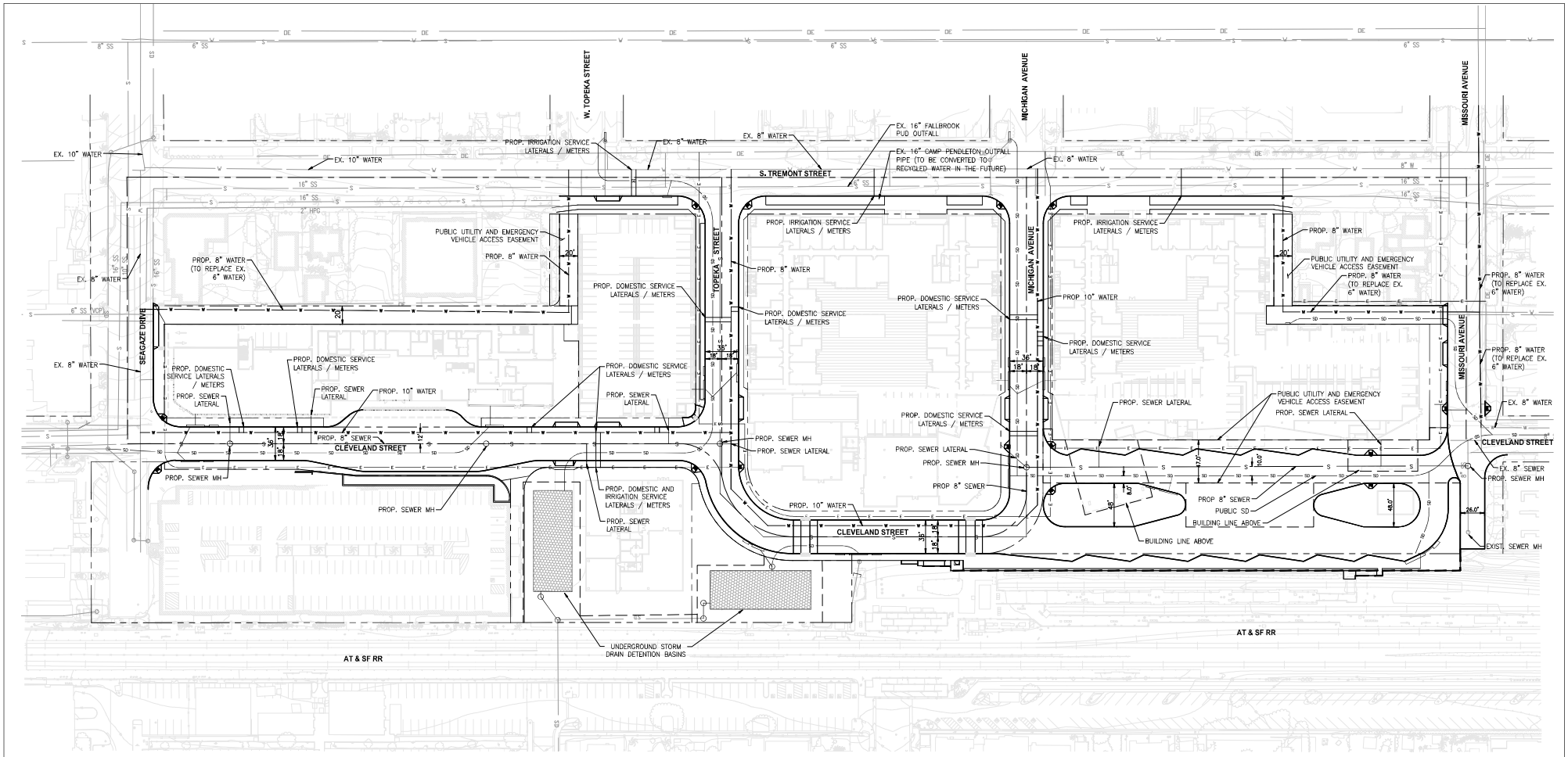

LEGEND:

	BOUNDARY LINE	SS	EXIST. SEWER
	CENTER LINE	W	EXIST. WATER
	CURB AND GUTTER	SD	EXIST. STORM DRAIN
	DRIVEWAY	G	EXIST. GAS
54	EXIST. CONTOUR	E(OH)	EXIST. OVERHEAD POWER
54	PROP. CONTOUR	S	PROP. SEWER
	EASEMENT LINE	W	PROP. WATER
	RETAINING WALL	SD	PROP. STORM DRAIN
		G	PROP. GAS
			EXIST. FIRE HYDRANT

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

PREPARED BY:

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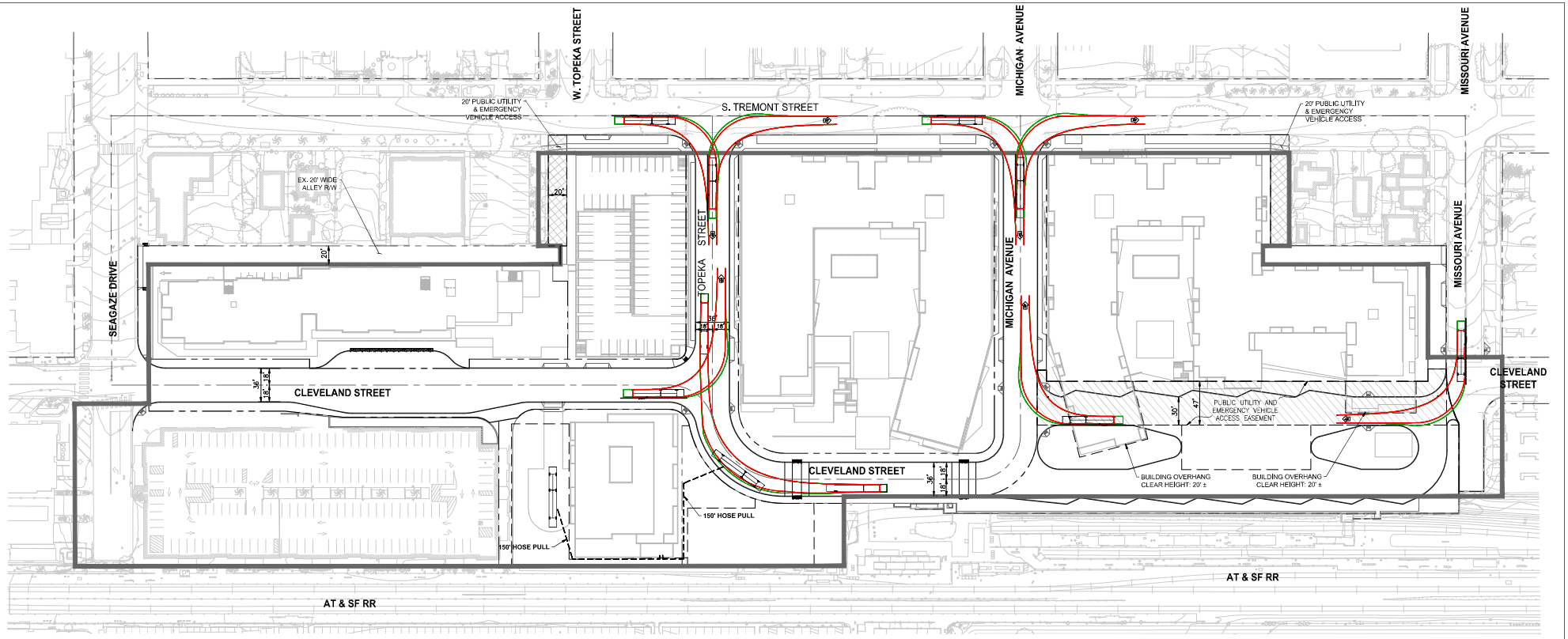
38 Technology Drive
Irvine, CA 92618
949-923-6000 stantec.com

VESTING TENTATIVE TRACT MAP NO. XXXX
PRELIMINARY WET UTILITIES
NCTD OCEANSIDE TRANSIT CENTER, SOUTH TREMONT STREET
CITY OF OCEANSIDE, CALIFORNIA

SHEET 7 OF 10

DRAWING: u:\204221790\drawing\sheet_files\217900c-1007tm.dwg PLOTTED: 8/22/2022 10:25 AM BY: Abourassar, Ramzi

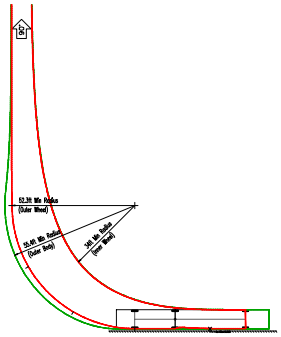


FIRE ACCESS NOTES

DESIGN VEHICLE

QUINTS F-21 Fire Truck

Overall Length	65.00 ft
Overall Width	8.16 ft
Overall Body Height	11.20 ft
Tractor Wheelbase	17.20 ft
Trailer Wheelbase	30.00 ft
Track Width	8.00 ft
Lock-to-lock time	5.00s
Max Wheel Angle	40.00°



90° TURNING TEMPLATE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND:

	BOUNDARY LINE		EASEMENT LINE	E(OH) E(OH)	EXIST. OVERHEAD POWER
	CENTER LINE		RETAINING WALL	S	PROP. SEWER
	CURB AND GUTTER	SS SS	EXIST. SEWER	W W	PROP. WATER
	DRIVEWAY	W W	EXIST. WATER	SD	PROP. STORM DRAIN
54	EXIST. CONTOUR	SD SD	EXIST. STORM DRAIN	G	PROP. GAS
54	PROP. CONTOUR	G G	EXIST. GAS		EXIST. FIRE HYDRANT

PREPARED BY:

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38 Technology Drive
Irvine, CA 92618
949-923-6000 stantec.com

VESTING TENTATIVE TRACT MAP NO. XXXX
FIRE ACCESS CIRCULATION PLAN
NCTD OCEANSIDE TRANSIT CENTER, SOUTH TREMONT STREET
CITY OF OCEANSIDE, CALIFORNIA

SHEET 8 OF 10

DRAWING: u:\2042217000\drawing\sheet_files\217900c-1008tm.dwg PLOTTED: 8/22/2022 10:25 AM BY: Abourasser, Ramzi

TITLE DIGEST

TITLE ITEMS REFERRED TO HEREON ARE BASED ON INFORMATION CONTAINED IN FIRST AMERICAN TITLE COMPANY PRELIMINARY REPORT NO. NHSC-6555761, DATED MARCH 30, 2021.

THE FOLLOWING DIGEST OF TITLE ITEMS HAS BEEN PREPARED FOR THE CONVENIENCE OF THE USER. FOR FULL PARTICULARS, PLEASE REFER TO THOSE DOCUMENTS REFERENCED THEREIN.

PLOTTABLE EASEMENTS OF RECORD ARE INDICATED HEREON AND REFER TO THE CORRESPONDING ITEM NUMBER IN THE REFERENCED REPORT.

VESTING INTEREST

THE ESTATE OR INTEREST IN THE LAND DESCRIBED IN THIS REPORT IS:

A FEE.

LEGAL DESCRIPTION

THE LAND REFERRED TO IN THIS REPORT IS SITUATED IN THE CITY OF OCEANSIDE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

TRACT I: (147-350-24-00 AND 147-350-25-00)

PARCEL 1:

LOTS 9 THROUGH 16, BLOCK 7, OCEANSIDE, IN THE CITY OF OCEANSIDE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 344, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, JULY 1, 1885, LOT 9, BLOCK 7, BRYAN'S ADDITION, ACCORDING TO MAP THEREOF NO. 219, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, MARCH 10, 1887.

PARCEL 2:

ALL OF BLOCK 8 OF BRYAN'S ADDITION, IN THE CITY OF OCEANSIDE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 219, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, MARCH 10, 1887.

TOGETHER WITH THOSE PORTIONS OF CLEVELAND STREET AND MICHIGAN AVENUE VACATED BY DOCUMENT RECORDED MARCH 14, 1994 AS INSTRUMENT NO. 94-0164097 WHICH WOULD REVERT TO SAID LAND BY OPERATION OF LAW.

PARCEL 3:

FRACTIONAL LOT 8 IN BLOCK 9 OF BRYAN'S ADDITION TO OCEANSIDE, IN THE CITY OF OCEANSIDE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 219, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, MARCH 10, 1887.

TOGETHER WITH THE NORTHERLY 20 FEET OF TOPEKA STREET AS VACATED AND CLOSED TO PUBLIC USE, LYING SOUTHEASTERLY OF AND ADJACENT TO SAID LOT.

PARCEL 4:

LOTS 1, 2, 3, 4 AND 5 IN BLOCK 10 OF BRYAN'S ADDITION, IN THE CITY OF OCEANSIDE, IN THE CITY OF OCEANSIDE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 219, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, MARCH 10, 1887.

ALSO THAT PORTION OF TOPEKA STREET LYING WESTERLY FROM CLEVELAND STREET AND NORTH OF AND ADJACENT TO SAID LOT 1, BLOCK 10, WHICH SAID PORTION OF TOPEKA STREETS WAS CLOSED TO PUBLIC USE BY RESOLUTION NO. 915, IN THE CITY COUNCIL OF THE CITY OF OCEANSIDE, CALIFORNIA.

ALSO TOGETHER WITH THOSE PORTIONS OF CLEVELAND STREET AND TYSON STREET VACATED BY DOCUMENT RECORDED MARCH 14, 1994 AS INSTRUMENT NO. 94-0164097 OF OFFICIAL RECORDS WHICH WOULD REVERT TO SAID LAND BY OPERATION OF LAW.

LEGAL DESCRIPTION (CONTINUED)

PARCEL 5:

THAT PORTION OF A TRACT OF LAND COMMONLY KNOWN AS THE DEPOT GROUNDS IN OCEANSIDE, TOGETHER WITH THAT CERTAIN 200.00 FOOT RIGHT-OF-WAY OF THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY LYING SOUTHEASTERLY OF SAID DEPOT GROUNDS, ALL IN THE CITY OF OCEANSIDE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 313, BY H.P VINCENT, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, JULY 19,
1886, DESCRIBED AS FOLLOWS:

BEGINNING AT THE MOST WESTERLY CORNER OF LOT 16, BLOCK 7 OF OCEANSIDE, ACCORDING TO MAP THEREOF NO. 344, FILED IN SAID COUNTY RECORDER'S OFFICE ON JULY 1, 1885; THENCE SOUTHEASTERLY ALONG THE SOUTHWESTERLY LINE OF SAID BLOCK 7 AND ITS SOUTHEASTERLY PROLONGATION 443.70 FEET, MORE OR LESS TO THE MOST EASTERLY CORNER OF SAID DEPOT GROUNDS; THENCE SOUTHWESTERLY ALONG THE SOUTHEASTERLY LINE OF SAID DEPOT GROUNDS, 150.00 FEET TO THE NORTHEASTERLY RIGHT-OF-WAY LINE OF THE ATCHISON, TOPEKA AND SANTA FE RAILROAD BEING ALSO THE NORTHWESTERLY PROLONGATION OF THE SOUTHWESTERLY LINE OF BLOCK 10 OF BRYAN'S ADDITION TO OCEANSIDE AS SHOWN ON MAP THEREOF NO. 219, FILED IN SAID COUNTY RECORDER'S OFFICE ON MARCH 10, 1887; THENCE SOUTHEASTERLY ALONG SAID PROLONGATION AND SAID SOUTHWESTERLY LINE TO THE MOST SOUTHERLY CORNER OF LOT 5 IN SAID BLOCK 10; THENCE SOUTHWESTERLY ALONG THE SOUTHWESTERLY PROLONGATION OF THE SOUTHEASTERLY LINE OF SAID LOT 5, A DISTANCE OF 75.00 FEET; THENCE NORTHWESTERLY ALONG A LINE THAT IS PARALLEL WITH AND 75.00 FEET SOUTHWESTERLY OF SAID SOUTHWESTERLY LINE OF BLOCK 10 OF BRYAN'S ADDITION, MAP NO. 219, A DISTANCE OF 371.70 FEET; THENCE AT RIGHT ANGLES, NORTHEASTERLY 47.00 FEET; THENCE ALONG A LINE THAT BEARS LEFT 45°00'00" FROM THE NORTHEASTERLY PROLONGATION OF THE LAST MENTIONED LINE, 181.02 FEET TO A POINT ON A LINE THAT IS PARALLEL WITH AND 50.00 FEET SOUTHWESTERLY OF THE SOUTHWESTERLY LINE OF SAID BLOCK 7 OF OCEANSIDE, MAP NO. 344; THENCE ALONG SAID PARALLEL LINE, NORTHWESTERLY TO A POINT ON THE SOUTHWESTERLY PROLONGATION OF THE NORTHWESTERLY LINE OF SAID LOT 16, BLOCK 7 OF MAP NO. 344; THENCE NORTHEASTERLY

TRACT II:

PARCEL 1: (APN 150-046-17-00)

LOTS 1, 2, 3, 4 AND 5 IN BLOCK 12 OF BRYAN'S ADDITION, IN THE CITY OF OCEANSIDE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 219, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, MARCH 10, 1887.

PARCEL 2: (APN 150-046-01-00 THROUGH 150-046-08-00)

LOTS 9 THROUGH 16 INCLUSIVE, IN BLOCK 12 OF BRYAN'S ADDITION, IN THE CITY OF OCEANSIDE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 219, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY MARCH 10, 1887.

EXCEPTING THEREFROM, ALL OIL, GAS AND OTHER HYDROCARBON SUBSTANCES IN AND UNDER ALL OF THE ABOVE DESCRIBED REAL PROPERTY, BUT WITHOUT ANY RIGHT TO PENETRATE, USE OR DISTURB THE SURFACE OF SAID PROPERTY OR ANY PORTION OF SAID PROPERTY WITHIN FIVE HUNDRED FEET (500') OF THE SURFACE THEREOF.

TOGETHER WITH PORTIONS OF CLEVELAND STREET AND MICHIGAN AVENUE VACATED BY DOCUMENT RECORDED MARCH 14, 1994 AS INSTRUMENT NO. 94-0164097 OF OFFICIAL RECORDS WHICH WOULD REVERT TO SAID LAND BY OPERATION OF LAW.

TRACT III:

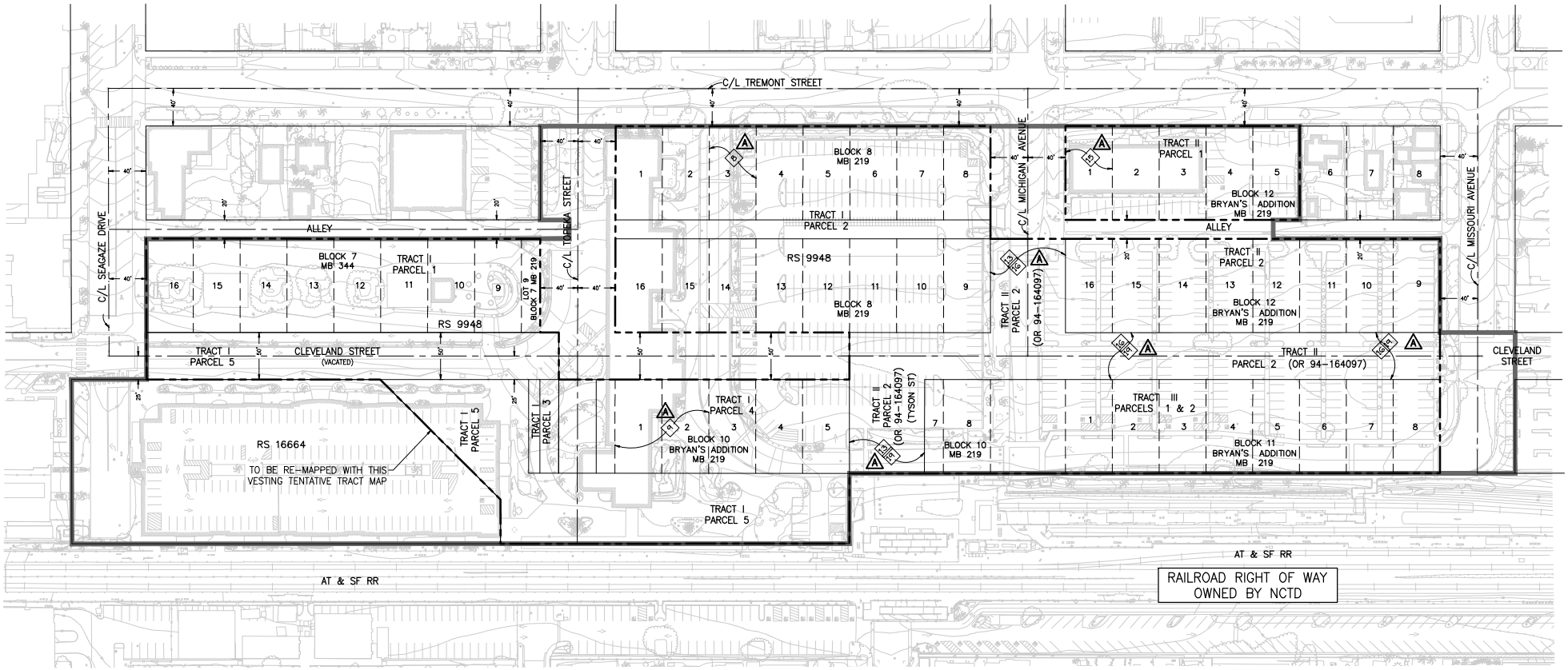
PARCEL 1: (APN 150-043-01-00 THROUGH 150-043-04-00)

ALL OF LOTS 7 AND 8 IN BLOCK 10 AND 11 OF LOTS 1, 2, 3 AND 4 IN BLOCK 11, ALL BEING BYRON'S ADDITION TO OCEANSIDE, IN THE CITY OF OCEANSIDE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 219, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, MARCH 10, 1887, TOGETHER WITH THAT PORTION OF MICHIGAN AVENUE (80.00 FEET WIDE) LYING ADJACENT TO AND BETWEEN SAID BLOCKS AS VACATED AND CLOSED TO PUBLIC USE ON DECEMBER 23, 1931 BY RESOLUTION NO. 633 OF THE CITY COUNCIL OF
THE CITY OF OCEANSIDE.

PREPARED BY:
Stantec
38 Technology Drive
Irvine, CA 92618
949-923-6000 stantec.com

VESTING TENTATIVE TRACT MAP NO. XXXX
ENCUMBRANCE MAP
NCTD OCEANSIDE TRANSIT CENTER, SOUTH TREMONT STREET
CITY OF OCEANSIDE, CALIFORNIA

DRAWING: \\us5300-sptnad1\shared_projects\204237900\drawing\sheet_files\217900c-1009tm.dwg PLOTTED: 8/22/2022 10:25 AM BY: Trujillo, Ivan



EXCEPTIONS

THE FOLLOWING MATTERS AFFECT TRACT I:

A 4 AN EASEMENT TO THE CITY OF OCEANSIDE FOR HIGHWAY PURPOSES RECORDED JUNE 29, 1922 IN BOOK 751, PAGE 282, DEEDS. (LOCATION OF THE EASEMENT IS INDETERMINATE FROM RECORD INFORMATION)

A 5 RESOLUTION NO. 2507 TO CHANGE STREET NAME TO TRANSIT STREET RECORDED MARCH 22, 1956 IN BOOK 6028, PAGE 360, OFFICIAL RECORDS.

A 6 THE FACT THAT THE LAND LIES WITHIN THE BOUNDARIES OF THE DOWNTOWN REDEVELOPMENT PROJECT AREA, AS DISCLOSED BY THE DOCUMENT RECORDED NOVEMBER 21, 1975 AS INSTRUMENT NO. 75-328187, OFFICIAL RECORDS. A MODIFICATION DOCUMENT RECORDED AUGUST 12, 1982 AS INSTRUMENT NO. 82-0248561, OFFICIAL RECORDS.

A 7 COVENANTS, CONDITIONS AND RESTRICTIONS IN A GRANT DEED RECORDED MAY 8, 1981 AS INSTRUMENT NO. 81-0142429, OFFICIAL RECORDS.

A 8 AN EASEMENT TO SAN DIEGO GAS AND ELECTRIC COMPANY FOR AN UNDERGROUND ELECTRICAL SYSTEM RECORDED FEBRUARY 16, 1983 AS INSTRUMENT NO. 83-050385, OFFICIAL RECORDS. (AFFECTS LOT 3, BLOCK 8, BRYAN'S ADDITION. EXACT LOCATION IS INDETERMINATE FROM RECORD INFORMATION)

A 9 A "MEMORANDUM OF LEASE" RECORDED MARCH 23, 1984 AS INSTRUMENT NO. 84-107078, OFFICIAL RECORDS. (AFFECTS LOTS 1 & 2, BLOCK 10, BRYAN'S ADDITION).

A 10 AN ORDER FOR POSSESSION, CASE NO. N18999, RECORDED AUGUST 2, 1984 AS INSTRUMENT NO. 84-294906, OFFICIAL RECORDS.

A 11 THE EFFECT OF RECORD OF SURVEY NO. 9948.

EXCEPTIONS (CONTINUED)

A 12 RESERVATIONS FROM RESOLUTION NO. 85-67 OVER PORTIONS OF VACATED TYSON STREET RECORDED MAY 31, 1985 AS INSTRUMENT NO. 85-193545, OFFICIAL RECORDS. (PORTION OVER AT & SF RR).

A 13 RESERVATION OF PUBLIC UTILITY EASEMENTS FROM RESOLUTION NO. R94-23 OVER PORTIONS OF VACATED TYSON STREET, CLEVELAND STREET AND MICHIGAN AVENUE RECORDED MARCH 14, 1994 AS INSTRUMENT NO. 94-164097, OFFICIAL RECORDS.

A 14 RIGHTS OF THE PUBLIC IN AND TO THAT PORTION OF THE LAND LYING WITHIN ANY ROAD, STREET, ALLEY OR HIGHWAY.

THE FOLLOWING MATTERS AFFECT TRACT II:

A 15 AN EASEMENT TO SAN DIEGO GAS AND ELECTRIC COMPANY FOR AN ELECTRICAL SYSTEM RECORDED JUNE 28, 1977 AS INSTRUMENT NO. 256810, OFFICIAL RECORDS. (AFFECTS LOT 1, BLOCK 12, BRYAN'S ADDITION. LOCATION OF THE EASEMENT IS INDETERMINATE FROM RECORD INFORMATION)

A 16 RESERVATION OF PUBLIC UTILITY EASEMENTS FROM RESOLUTION NO. R94-23 OVER PORTIONS OF VACATED TYSON STREET, CLEVELAND STREET AND MICHIGAN AVENUE RECORDED MARCH 14, 1994 AS INSTRUMENT NO. 94-164097, OFFICIAL RECORDS.

A 17 A "NOTICE OF COMPLETION FOR IFP# 19022-27890" RECORDED OCTOBER 4, 2019 AS INSTRUMENT NO. 2019-0443481, OFFICIAL RECORDS.

THE FOLLOWING MATTERS AFFECT TRACT III:

A 18 THE FACT THAT THE LAND LIES WITHIN THE BOUNDARIES OF THE DOWNTOWN REDEVELOPMENT PROJECT AREA, AS DISCLOSED BY THE DOCUMENT RECORDED JULY 6, 1978 AS INSTRUMENT NO. 78-282288, OFFICIAL RECORDS.

A 19 RESERVATION OF PUBLIC UTILITY EASEMENTS FROM RESOLUTION NO. R94-23 OVER PORTIONS OF VACATED TYSON STREET, CLEVELAND STREET AND MICHIGAN AVENUE RECORDED MARCH 14, 1994 AS INSTRUMENT NO. 94-164097, OFFICIAL RECORDS.

A 20 RIGHTS OF PARTIES IN POSSESSION.

EASEMENT / RIGHT OF WAY DISPOSITION NOTES

A EXISTING EASEMENTS AND RIGHT OF WAY TO BE QUITCLAIMED, OR ABANDONED

LEGEND:

	BOUNDARY LINE		EASEMENT LINE
	CENTER LINE		RETAINING WALL
	CURB AND GUTTER	SS	EXIST. SEWER
	DRIVEWAY	W	EXIST. WATER
54	EXIST. CONTOUR	SD	EXIST. STORM DRAIN
54	PROP. CONTOUR	G	EXIST. GAS
E(OH)	EXIST. OVERHEAD POWER		
S	PROP. SEWER		
	PROP. WATER		
SD	PROP. STORM DRAIN		
G	PROP. GAS		
	EXIST. FIRE HYDRANT		

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

PREPARED BY:

Stantec
38 Technology Drive
Irvine, CA 92618
949-923-6000 stantec.com

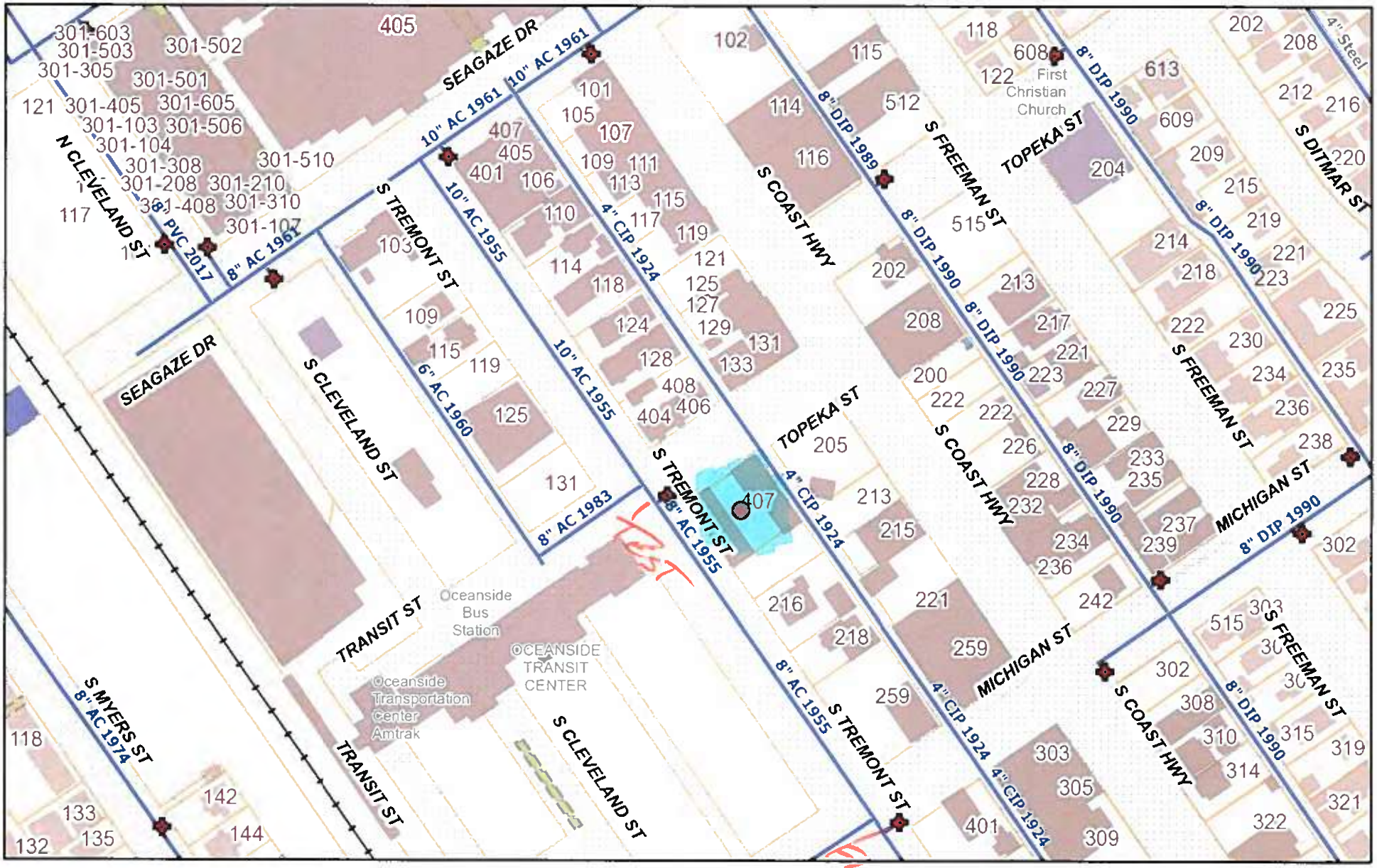
VESTING TENTATIVE TRACT MAP NO. XXXX
ENCUMBRANCE MAP
NCTD OCEANSIDE TRANSIT CENTER, SOUTH TREMONT STREET
CITY OF OCEANSIDE, CALIFORNIA

SHEET 10 OF 10

DRAWING: \\us5300-prtsvr01\shared_projects\204217900\drawing\sheet_files\217900c-1010sm.dwg PLOTTED: 8/22/2022 10:20 AM BY: Trujillo, Ivan

Appendix B

407 TOPEKA ST



August 9, 2021

1:2,000

0 90 180 360 ft

0 25 50 100 m

City of Oceanside, Water Utilities Department

Disclaimer: This map prepared solely for illustration purpose and is not to be relied upon for engineering drawings. Some information may not be accurate. The City of Oceanside assumes no responsibility arising from the use of this information.

FIRE CODE
FIRE HYDRANT FLOW DATA FORM
63 VIA PICO PLAZA #102
SAN CLEMENTE CA 92672

I. PROJECT INFORMATION (TO BE COMPLETED BY APPLICANT)

1. Applicant: _____ Ph: _____
2. Address: ~~212 N CLEMENTINE STREET OCEANSIDE CA~~ 407 TOPEKA
3. Building Address: _____ APN: _____
4. Nearest Cross Street/Distance to (ft): _____
5. Type of Construction of Single Largest Building N/A
6. Occupancy (Use of Single Largest Building): _____ Number of Stories: _____
7. Total Build Out of Single Largest Building _____ (sf)
8. Will the Building Be Sprinklered? _____

II. FLOW TEST DATA (TO BE COMPLETED BY APPLICANT)

Date of Test 8/26/21 Performed by MARCO -- ATTACH OFFICIAL TEST RESULTS--

Flowed City FH # _____ Witnessed by FIRE DEPT/WATER DISTRICT

Static Pressure: 85 (psi) Witnessed Signature _____

Residual Pressure: 78 (psi) @ City FH # _____

Pitot Pressure: 73 (psi) Outlet Size: 2.5" (in) Corresponding Flow: 1240 (gpm)

III. PUBLIC FIRE HYDRANT FIRE FLOW REQUIREMENTS (TO BE COMPLETED BY AFD)

Required Fire Flow _____ (gpm) at 20 psi

Flowing from _____ Fire Hydrant(s) for _____ (hrs)

IV. PRIVATE FIRE HYDRANT AND SPRINKLER SYSTEM REQUIREMENTS (IF APPLICABLE)

A. Private Fire Hydrant Fire Flow Requirements (To Be Completed by AFD)

Required Fire Flow _____ (gpm) at 20 psi

Flowing from _____ Fire Hydrant(s) for _____ (hrs)

B. Sprinkler System Requirements (To Be Completed by Sprinkler System Engineer)

Total Sprinkler Demand _____ (gpm)

Required Pressure @ Source _____ (psi)

Scanned with CamScanner

FIRE CODE
FIRE HYDRANT FLOW DATA FORM
63 VIA PICO PLAZA #102
SAN CLEMENTE CA 92672

I. PROJECT INFORMATION (TO BE COMPLETED BY APPLICANT)

1. Applicant: _____ Ph: _____
2. Address: ~~212 N CLEMENTINE STREET OCEANSIDE~~ CA 1301 SEAGAZE
3. Building Address: _____ APN: _____
4. Nearest Cross Street/Distance to (ft): _____
5. Type of Construction of Single Largest Building N/A
6. Occupancy (Use of Single Largest Building): _____ Number of Stories: _____
7. Total Build Out of Single Largest Building _____ (sf)
8. Will the Building Be Sprinklered? _____

II. FLOW TEST DATA (TO BE COMPLETED BY APPLICANT)

Date of Test 8/26/21 Performed by MARCO -- ATTACH OFFICIAL TEST RESULTS--

Flowed City FH # _____ Witnessed by FIRE DEPT/WATER DISTRICT

Static Pressure: 78 (psi) Witnessed Signature _____

Residual Pressure: 73 (psi) @ City FH # _____

Pitot Pressure: 70 (psi) Outlet Size: 2.5"(in) Corresponding Flow: 1219 (gpm)

III. PUBLIC FIRE HYDRANT FIRE FLOW REQUIREMENTS (TO BE COMPLETED BY AFD)

Required Fire Flow _____ (gpm) at 20 psi

Flowing from _____ Fire Hydrant(s) for _____ (hrs)

IV. PRIVATE FIRE HYDRANT AND SPRINKLER SYSTEM REQUIREMENTS (IF APPLICABLE)

A. Private Fire Hydrant Fire Flow Requirements (To Be Completed by AFD)

Required Fire Flow _____ (gpm) at 20 psi

Flowing from _____ Fire Hydrant(s) for _____ (hrs)

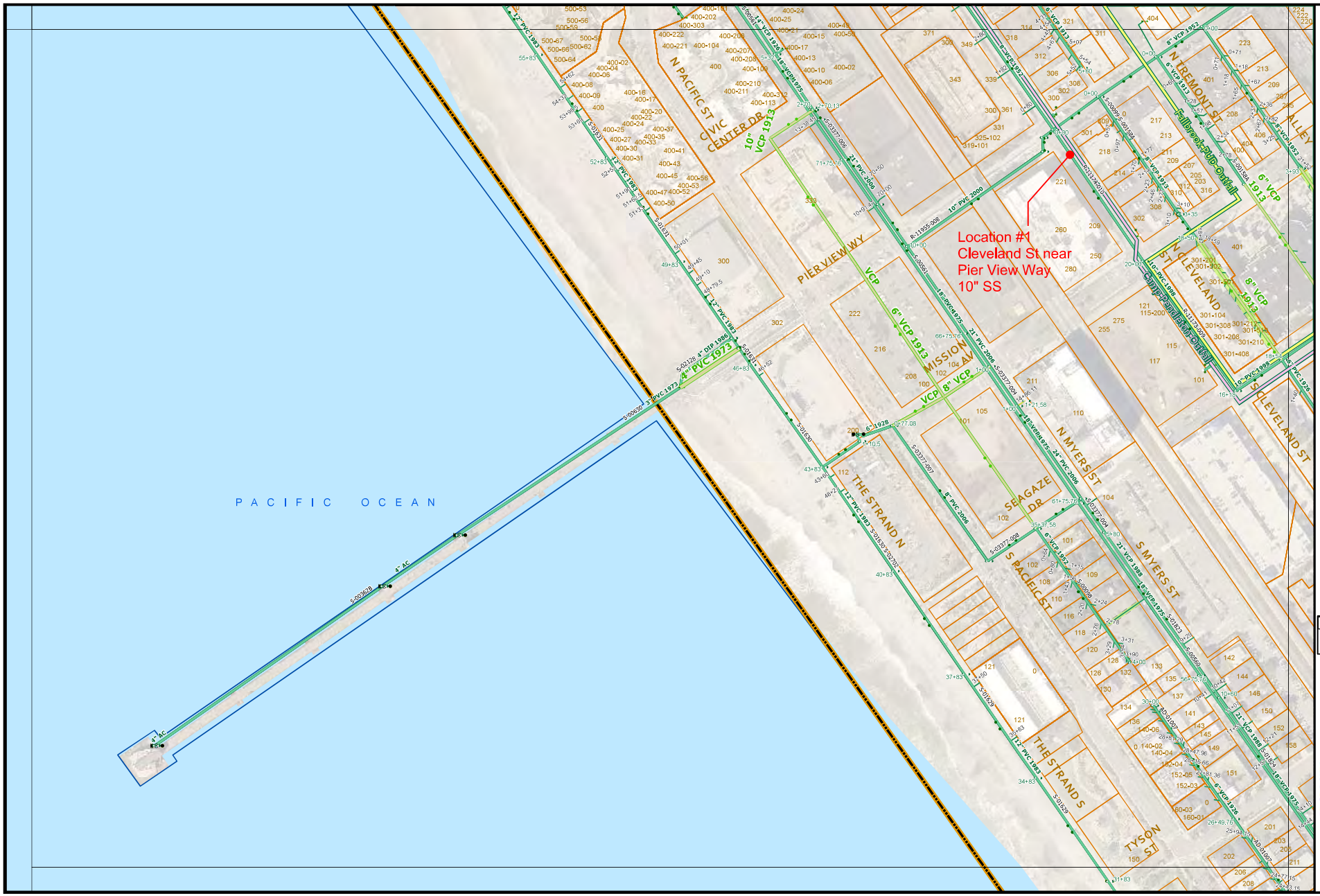
B. Sprinkler System Requirements (To Be Completed by Sprinkler System Engineer)

Total Sprinkler Demand _____ (gpm)

Required Pressure @ Source _____ (psi)

Scanned with CamScanner

Appendix C



11/26/2019

- THIS MAP PREPARED SOLELY FOR ILLUSTRATION PURPOSE & IS NOT TO BE RELIED UPON FOR ENGINEERING DRAWINGS.
- SOME INFORMATION MAY NOT BE ACCURATE.

Sewer Atlas Map No. D23

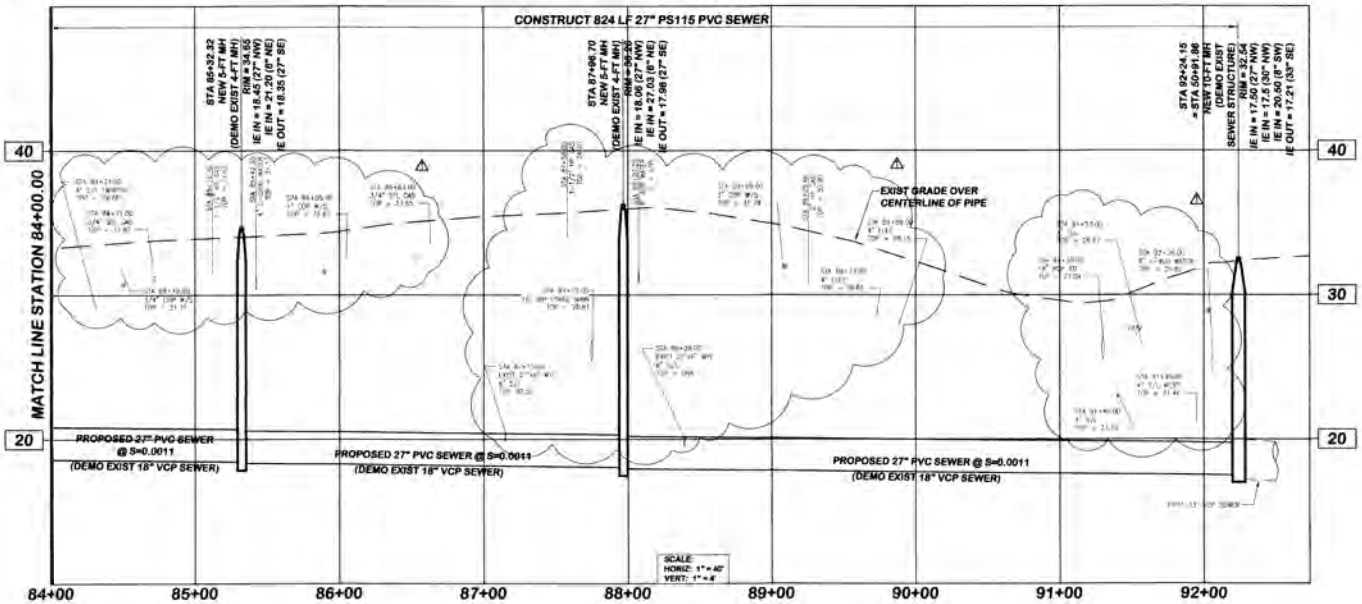
PAGE INDEX

C22	D22	E22
	D23	E23
	D24	E24

I

1" = 200'

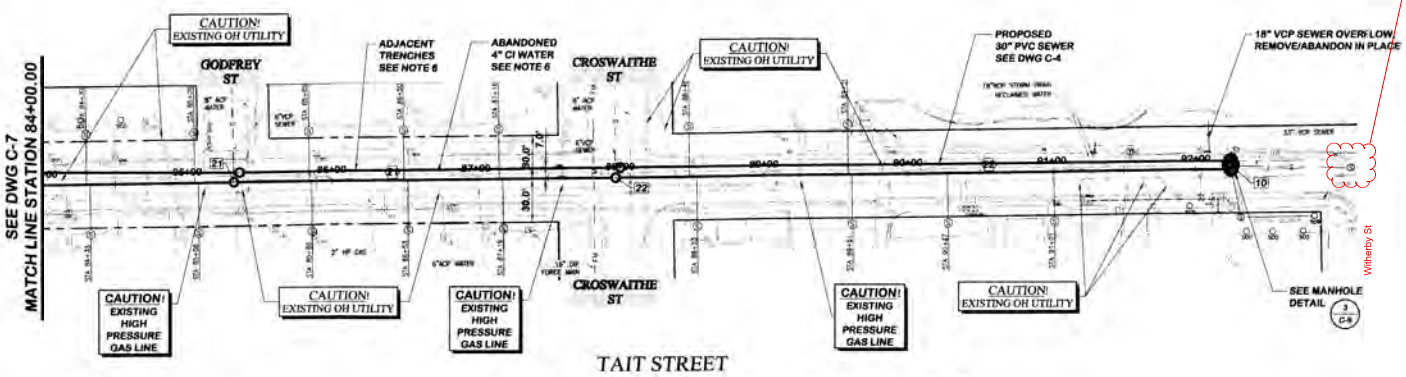
D23



NOTES:

1. UTILITY INFORMATION OBTAINED FROM AVAILABLE RECORD DRAWINGS OR UTILITY MAPS. VERTICAL ELEVATIONS ARE UNKNOWN. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS AND BEARING AND INCLINATIONS SUFFICIENTLY AHEAD OF SCHEDULE TO ALLOW TIME FOR DESIGN REVISIONS IF NECESSARY. SEE ADDITIONAL POTHOLING REQUIREMENTS ON SHEET G-3.
2. WATER SERVICES AND SEWER LATERALS ARE SHOWN IN THEIR APPROXIMATE LOCATION. ALL SERVICES SHALL BE KEPT ACTIVE UNLESS REQUIRED FOR CONSTRUCTION ACTIVITIES. SCHEDULED SERVICE INTERRUPTIONS SHALL BE IN ACCORDANCE WITH SECTION 01170. SERVICES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED TO THEIR ORIGINAL WORKING CONDITION AND TESTED PER CITY REQUIREMENTS IN ACCORDANCE WITH SECTION 01170 AT THE EXPENSE OF THE CONTRACTOR.
3. CONTRACTOR SHALL NOT USE ANY PUBLIC RIGHT-OF-WAY FOR STOCKPILING OR STAGING OF WORK WITHOUT WRITTEN APPROVAL OF THE CITY OF OCEANSIDE DEVELOPMENT SERVICES DEPARTMENT.
4. CONTRACTOR SHALL DEMOLISH/REMOVE THE EXISTING 4-FOOT MANHOLE AND INSTALL A NEW MANHOLE AT THE ELEVATIONS SHOWN.
5. CONTRACTOR SHALL DEMOLISH/REMOVE THE EXISTING 18" VCP SEWER AND INSTALL A NEW 27" PVC SEWER AT THE ELEVATIONS SHOWN.
6. FROM STA 82+65 TO STA 92+24, THE CONTRACTOR SHALL REMOVE AND LEGALLY DISPOSE OF THE EXISTING ABANDONED 4-INCH CAST IRON WATER LINE AND REPAIR THE TRENCH IN ACCORDANCE WITH DETAIL 3/C-9

Location 2



COORDINATE TABLE

NO	STATION	NORTHING	EASTING	DESCRIPTION
10	92+24.15	2010833.32	6218845.86	NEW 5-FT MH PER STD DWG S-6 - SEE NOTE 4
21	85+32.22	2011460.54	6218449.97	NEW 5-FT MH PER STD DWG S-6 - SEE NOTE 4
22	87+96.70	2011153.03	6218596.97	NEW 5-FT MH PER STD DWG S-6 - SEE NOTE 4

DATA TABLE

	△/BEARING	R	L	T	DESCRIPTION
20	SEE SHEET C-7				
21	S34° 38' 40"E	-	264.38'	-	27" PS115 PVC SEWER - SEE NOTE 5
22	S34° 43' 19"E	-	427.48'	-	27" PS115 PVC SEWER - SEE NOTE 5

C-8

SHEET 12 | CITY OF OCEANSIDE ENGINEERING DEPARTMENT | 15 SHEETS

MYERS / TAIT STREET SEWER LINE REPLACEMENT
(N0881/1300126)

TAIT ST PLAN & PROFILE
STA 84+00.00 TO 92+24.15

DESIGNED BY: PRM
DRAWN BY: DHN
CHECKED BY: ARC

Infrastructure
PREPARED UNDER THE DIRECT SUPERVISION OF:
301 Mission Avenue Suite 202
Oceanside, California 92054
T 760.529.0790 F 760.529.0785
www.ecorporation.com
04-05-12
DATE

SCALE: 1" = 40'
0 20' 40'

RECORD DRAWING

THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. THE INFORMATION IS NOT GUARANTEED AS CORRECT, ACCURATE, OR COMPLETE. USERS OF THIS RECORD DRAWING ARE ADVISED TO PERFORM INDEPENDENT VERIFICATION OF ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.

APPROVED CHANGES:

No.	DESCRIPTION	APP'D	DATE
A	AS-BUILT	SRA	1/18/16

BENCHMARK:
Description: SET BRASS CAP STAMPED "CITY BM 1-15" ON TOP OF CURB
Location: N.E.C. NORTHWESTERLY CURB RETURN AT INDIANIA STREET AND PACIFIC STREET
Record From: CITY OF OCEANSIDE BENCHMARK #1-15
Elev. 38.839' Datum: 1988 ADJUSTED ELEVATION

ENGINEER OF WORK: ARC M. OMESA RCE: 52663(a)
Infrastructure
Checked By: GSK
Approved Date: 3/3/16
PLAN NUMBER: S12-10001 -012

NCTD Oceanside Sewer Flow Monitoring

Final Report Submitted to **Stantec -** August 26, 2021

ADS ENVIRONMENTAL SERVICES

August 26, 2021

Mr. Ted Grove
Project Manager
Stantec
38 Technology Drive
Irvine, CA 92618-5312
ted.grove@stantec.com

SUBJECT: NCTD Oceanside Sewer Flow Monitoring

Dear Mr. Grove,

ADS is pleased to submit the final report for the above referenced project. The study was completed for Stantec on behalf of Oceanside, CA. The metering was conducted at two (2) locations. The monitoring period was Wednesday, August 11, 2021 to Tuesday, August 17, 2021.

The report contains depth, velocity, and quantity hydrographs as well as daily long tables for the metering period. An Excel file containing depth, quantity, and velocity entities for the monitoring location in 5-minute format is also provided.

In addition, we would be happy to further explain any details about the report that may seem unclear. Should you have any questions or comments, you may contact the Project Manager, Neil Volk at 858.571.0045.

It has been our pleasure to be of service to you in the performance of this project. Thank you for choosing ADS products and services to meet your flow monitoring needs.

Sincerely,
ADS ENVIRONMENTAL SERVICES

Jackie Crutcher
Data Manager, West Region

NCTD Oceanside Sewer Flow Monitoring

August 11, 2021 - August 17, 2021

Prepared For:

Stantec

Ted Grove
Project Manager
Stantec
38 Technology Drive
Irvine, CA 92618-5312
ted.grove@stantec.com

Prepared By:

ADS ENVIRONMENTAL SERVICES®

ADS, LLC
4820 Mercury St., Suite C
San Diego, CA 92111

ADS ENVIRONMENTAL SERVICES®

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Scattergraph 14
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Scope and Methodology

Introduction

Stantec entered into an agreement with ADS Environmental Services to conduct flow monitoring at (2) two locations in the Oceanside, CA Sanitary Collection System. The study was scheduled for a period of (7) seven calendar days. Once in place, the flow monitoring equipment was to be used to measure depth, velocity, and to quantify flows. The objective of this study was to confirm sanitary sewer flows and to determine line capacity.

Project Scope

The scope of this study involved using a flow monitor to quantify wastewater flow at the designated locations for the 7-day time period. Specifically, the study included the following key components.

- Investigate the proposed flow-monitoring site for adequate hydraulic conditions
- Flow monitor installation
- Flow monitor confirmations and data collections
- Flow data analysis

Equipment installation was completed on August 9, 2021. The monitoring period began on August 11, 2021 and was completed on August 17, 2021. Upon completion of the study, equipment was removed from the system.

Flow Monitoring Equipment

The ***ADS FlowShark Triton*** monitor was selected for this project. This flow monitor is an area velocity flow monitor that uses both the Continuity and Manning's equations to measure flow.

The ADS FlowShark Triton monitor consists of data acquisition sensors and a battery-powered microcomputer. The microcomputer includes a processor unit, data storage, and an on-board clock to control and synchronize the sensor recordings. The monitor was programmed to acquire and store depth of flow and velocity readings at 5-minute intervals.

The FS Triton monitor features cross-checking using multiple technologies in each sensor for continuous running of comparisons and tolerances. The FS Triton monitor can support two (2) sets of sensors. The sensor option used for this project was:

The Peak Combo Sensor installed at the bottom of the pipe includes three types of data acquisition technologies.

The ***up looking ultrasonic depth*** uses sound waves from two independent transceivers to measure the distance from the sensor upward toward the flow surface; applying the speed of sound in the water and the temperature measured by sensor to calculate depth.

The ***pressure depth*** is calculated by using a piezo-resistive crystal to determine the difference between hydrostatic and atmospheric pressure. The pressure sensor is temperature compensated and vented to the atmosphere through a desiccant filled breather tube.

To obtain ***peak velocity*****,** the sensor sends an ultrasonic signal at an angle upward through the widest cross-section of the oncoming flow. The signal is reflected by suspended particles, air bubbles, or organic matter with a frequency shift proportional to the velocity of the reflecting objects. The reflected signal is received by the sensor and processed using digital spectrum analysis to determine the peak flow velocity.

Installation

Installation of flow monitoring equipment typically proceeds in four steps. First, the site is investigated for safety and to determine physical and hydraulic suitability for the flow monitoring equipment. Second, the equipment is physically installed at the selected location. Third, the monitor is tested to assure proper operation of the velocity and depth of flow sensors and verify that the monitor clock is operational and synchronized to the master computer clock. Fourth, the depth and velocity sensors are confirmed and line confirmations are performed.

In pipes up to 42 inches in diameter, the sensors were mounted on expandable stainless-steel rings, inserted at least a foot upstream into influent pipes and tightened against the inside walls of the pipes. Influent pipe installations reduce the influences of turbulence and backwater often caused by changes in channel geometry in manholes.

Data Collection, Confirmation, and Quality Assurance

Data collects were done remotely via wireless connect on a weekly basis. As needed, during the monitoring period, field crews visit each monitoring location to verify proper monitor operation and document field conditions. The following quality assurance steps are taken to assure the integrity of the collected data:

Measure power supplies: monitors were powered by dry cell battery packs. Voltages were recorded and battery packs replaced, as necessary. Separate batteries provided back-up power to memory allowing primary batteries to be replaced without loss of data.

Clock synchronization: Field crews synchronized monitor clocks to master clocks.

Confirm depth and velocity readings: Field crews descended into meter manholes to manually measure depths and velocities and compare the meter readings to confirm that they agreed. The site met the criteria for confirmation for depth and velocity unless noted otherwise in the site commentary section. They also measured silt levels, if any, in the inverts of the pipes. Silt areas were subtracted from flow areas to compute true areas of flow.

Confirm average velocities through cross-sectional velocity profiles: Since ADS velocity sensors measure peak velocity, field crews collected cross-sectional velocity profiles in order to develop a relationship between peak and average velocity in lines that meet the hydraulic criteria.

Upload and Review Data: Data collected from the monitors were uploaded and reviewed by a Data Analyst for completeness, outliers and deviations in the flow patterns, which indicate system anomalies or equipment failure.

Flow Quantification Methods

There are two main equations used to measure open channel flow: the ***Continuity Equation*** and the ***Manning Equation.*** The Continuity Equation, which is considered the most accurate, can be used if both depth of flow and velocity are available. In cases where velocity measurements are not available or not practical to obtain, the Manning Equation can be used to estimate velocity from the depth data based on certain physical characteristics of the pipe (i.e. the slope and roughness of the pipe being measured). However, the Manning equation assumes uniform, steady flow hydraulic conditions with non-varying roughness, which are typically invalid assumptions in most sanitary sewers. The Continuity Equation was used exclusively for this study.

Continuity Equation

The Continuity Equation states that the flow quantity (Q) is equal to the wetted area (A) multiplied by the average velocity (V) of the flow.

$$Q = A * V$$

This equation is applicable in a variety of conditions including backwater, surcharge, and reverse flow.

Data Analysis and Presentation

Data Analysis

A flow monitor is typically programmed to collect data at 5-minute intervals throughout the monitoring period. The monitor stores raw data consisting of (1) the ultrasonic depth, (2) the peak velocity and (3) the pressure depth. The data is imported into ADS's proprietary software and is examined by a data analyst to verify its integrity. The data analyst also reviews the daily field reports and site visit records to identify conditions that would affect the collected data.

Velocity profiles and the line confirmation data developed by the field personnel are reviewed by the data analyst to identify inconsistencies and verify data integrity. Velocity profiles are reviewed and an average to peak velocity ratio is calculated for the site. This ratio is used in converting the peak velocity measured by the sensor to the average velocity used in the Continuity equation. The data analyst selects which depth sensor entity will be used to calculate the final depth information. Silt levels present at each site visit are reviewed and representative silt levels established.

Occasionally the velocity sensor's performance may be compromised resulting in invalid readings sporadically during the monitoring period. This is generally caused by excessive debris (silt) blocking the sensor's crystals, shallow flows (~< 1") that may drop below the top of the sensor or very clear flows lacking the particles needed to measure rate. In order to use the Continuity equation to quantify the flow during these periods, a Data Analyst and/or Engineer will use the site's historical pipe curve (depth vs. velocity) data along with valid field confirmations to reconstitute and replace the false velocity recordings with expected velocity readings for a given historical depth along the curve.

Selections for the above parameters can be constant or can change during the monitoring period. While the data analysis process is described in a linear manner, it often requires an iterative approach to accurately complete.

Data Presentation

This type of flow monitoring project generates a large volume of data. To facilitate review of the data, results have been provided in graphical and tabular formats. The flow data is presented graphically in the form of scattergraphs and hydrographs. Hydrographs are based on hourly averaging. Tables are provided in daily average format. These tables show the flow rate for each day, along with the daily minimum and maximums, the times they were observed, the total daily flow, and total flow for the month (or monitoring period). The following explanation of terms may aid in interpretation of the flow data table and hydrograph.

DEPTH - Final calculated depth measurement (in inches)

QUANTITY - Final calculated flow rate (in MGD)

VELOCITY - Final calculated flow velocity (in feet per second)

REPORT TOTAL - Total volume of flow recorded for the indicated time period (in MG)

Cleveland

Site Commentary

SITE INFORMATION

Pipe	Round (9.88 in H)
Silt	0.00 (in)

OBSERVATIONS

Site Cleveland functioned under normal conditions during the period **Wednesday, August 11, 2021 to Tuesday, August 17, 2021**. No surcharge conditions were experienced by this line. Review of the scattergraph shows that free flow conditions were maintained throughout the study period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted and support the relative accuracy of the flow monitor at this location.

Average flow depth, velocity, and quantity data observed during **Wednesday, August 11, 2021 to Tuesday, August 17, 2021**, along with observed minimum and maximum data, are provided in the following table. In regard to depth, the 1.81 average depth of flow represents approximately 18.3 percent of capacity.

Observed Flow Conditions			
Item	**DFINAL (in)**	**VFINAL (ft/s)**	**QFINAL (MGD - Total MG)**
Average	1.81	0.93	0.043
Minimum	1.25	0.50	0.013
Maximum	2.22	1.23	0.075
Min Time	08/15/2021 05:00:00	08/11/2021 03:00:00	08/15/2021 05:00:00
Max Time	08/15/2021 16:00:00	08/12/2021 10:00:00	08/15/2021 16:00:00

Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Values in the Observed Flow Conditions and data on the graphical reports are based on the one hour average.

DATA UPTIME

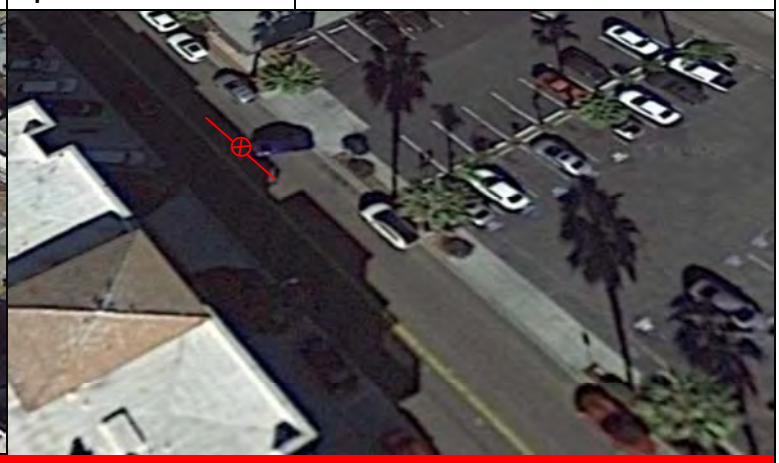
Data uptime observed during **Wednesday, August 11, 2021 to Tuesday, August 17, 2021** is provided in the following table:

Percent Uptime	
DFINAL (in)	100
VFINAL (ft/s)	100
QFINAL (MGD - Total MG)	100

ADS Site Report

Quality Form

Project Name: Oceanside Temp 2021	**Project No.** 22692.11.325	**City:** Ocenside, Ca	**FM Initials:** NL
Site Name: Cleveland	**Investigate Date:** 8/9/2021	**Monitor Type**	Area/Velocity
Address/Location: 218 N Cleveland		**Monitor Model**	ADS Triton+
		Data Acquisition	Wireless
		Manhole ID	N/A
Access: Drive	**Type of System:** Sanitary [X] Storm [ ] Combined [ ]	**Pipe Height:**	9.88"
		Pipe Width:	9.88"



Investigation Information:

Date/Time of Install	8/9/2021 @11:00 am
Site Hydraulics:	Good straight through flow
Upstream Input: (L/S, P/S)	N/A
Upstream Manhole:	N/A
Downstream Manhole:	N/A
Depth of Flow (DOF):	2.00" +/- -0.25
Peak Velocity	1.08 ft/s
Silt	
Notes:	

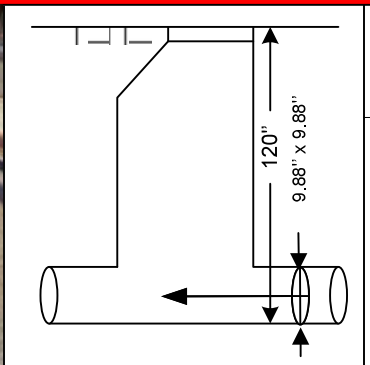
Manhole Information:

Manhole Depth:	120"			
Manhole Material / Condition	Concrete / Fair			
Pipe Material / Condition:	CVP / Good			
Land Use:	Residential [x]	Commercial [x]	Industrial [ ]	Trunk [ ]

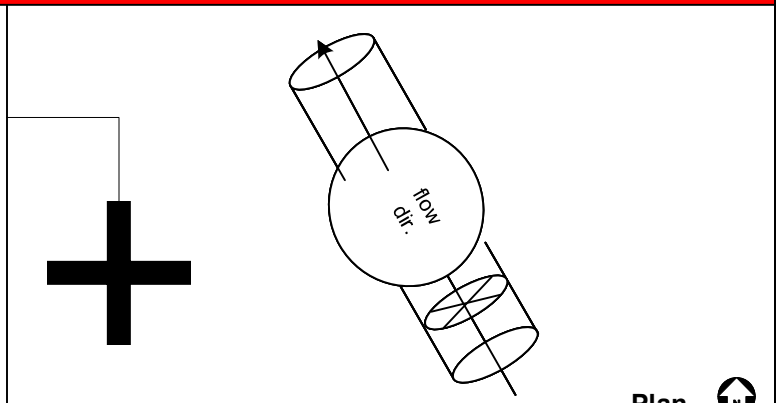
Safety Notes:

Site locate near an entrance of a parking lot in the middle of 2 lanes
Use TA-15 from WATCH manual

Other Information:



Cross Section



Plan

Installation Information	
Installation Type:	Standard
Sensors Devices:	CS4
Surcharge Height:	0
Rain Gauge Zone:	N/A

Backup	Yes	No	?	Distance
Trunk	[ ]	[x]	[ ]	
Lift / Pump Station	[ ]	[x]	[ ]	
WWTP	[ ]	[X]	[ ]	
Other	[X]	[ ]	[ ]	

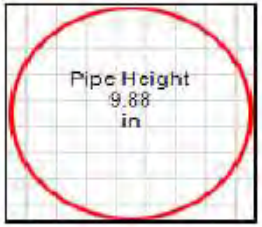
Additional Site Information / Comments:

Hydrograph Report

Cleveland

Flow Monitor

Cleveland



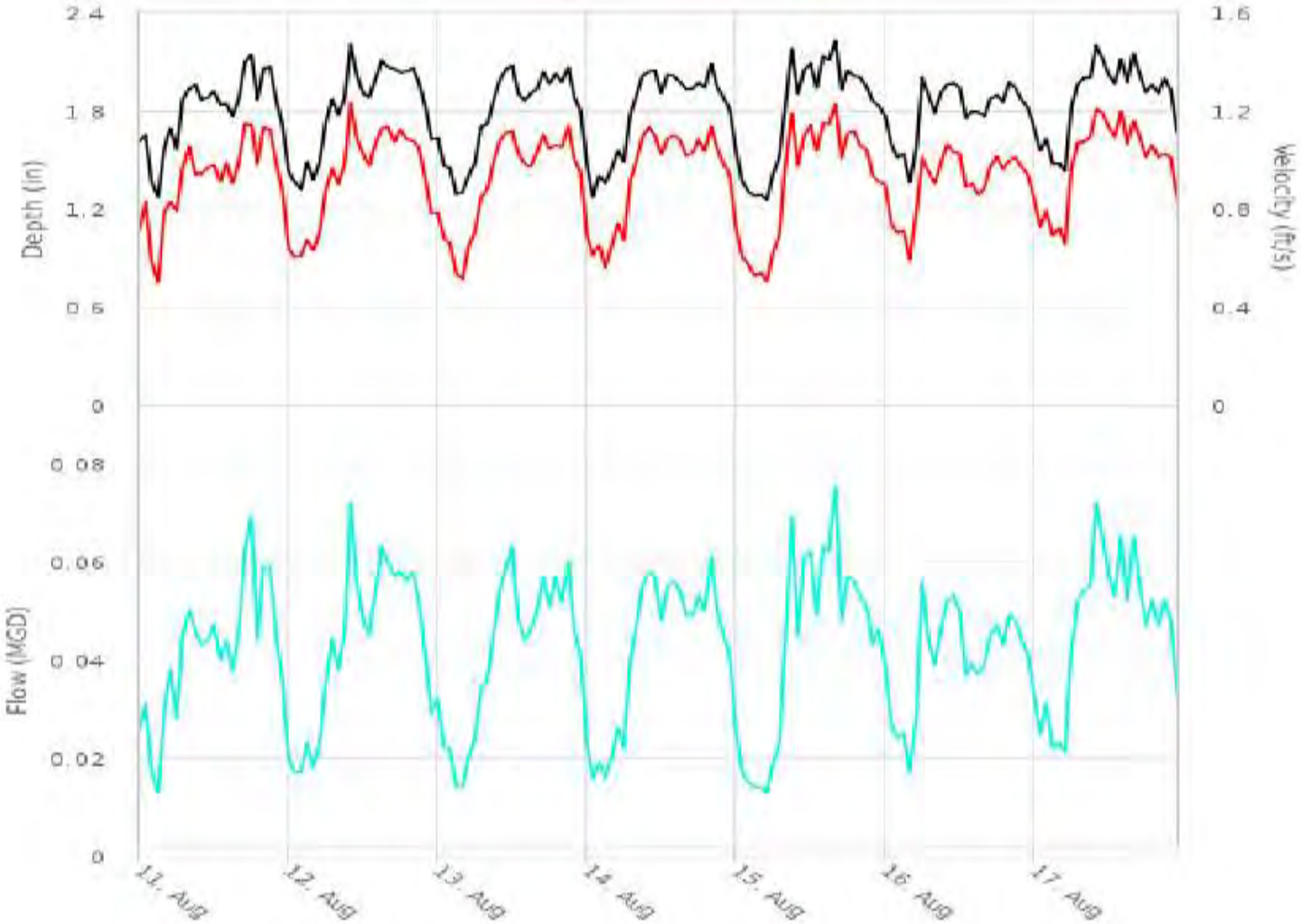
Report Period

08/11/2021
To
08/17/2021

Legend

- DFINAL
- VFINAL
- QFINAL
- RAIN FINAL

ADS ENVIRONMENTAL SERVICES

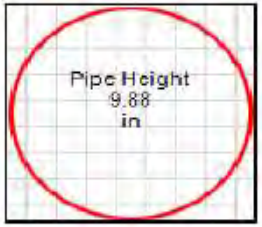


Scattergraph Report

Cleveland

Flow Monitor

Cleveland



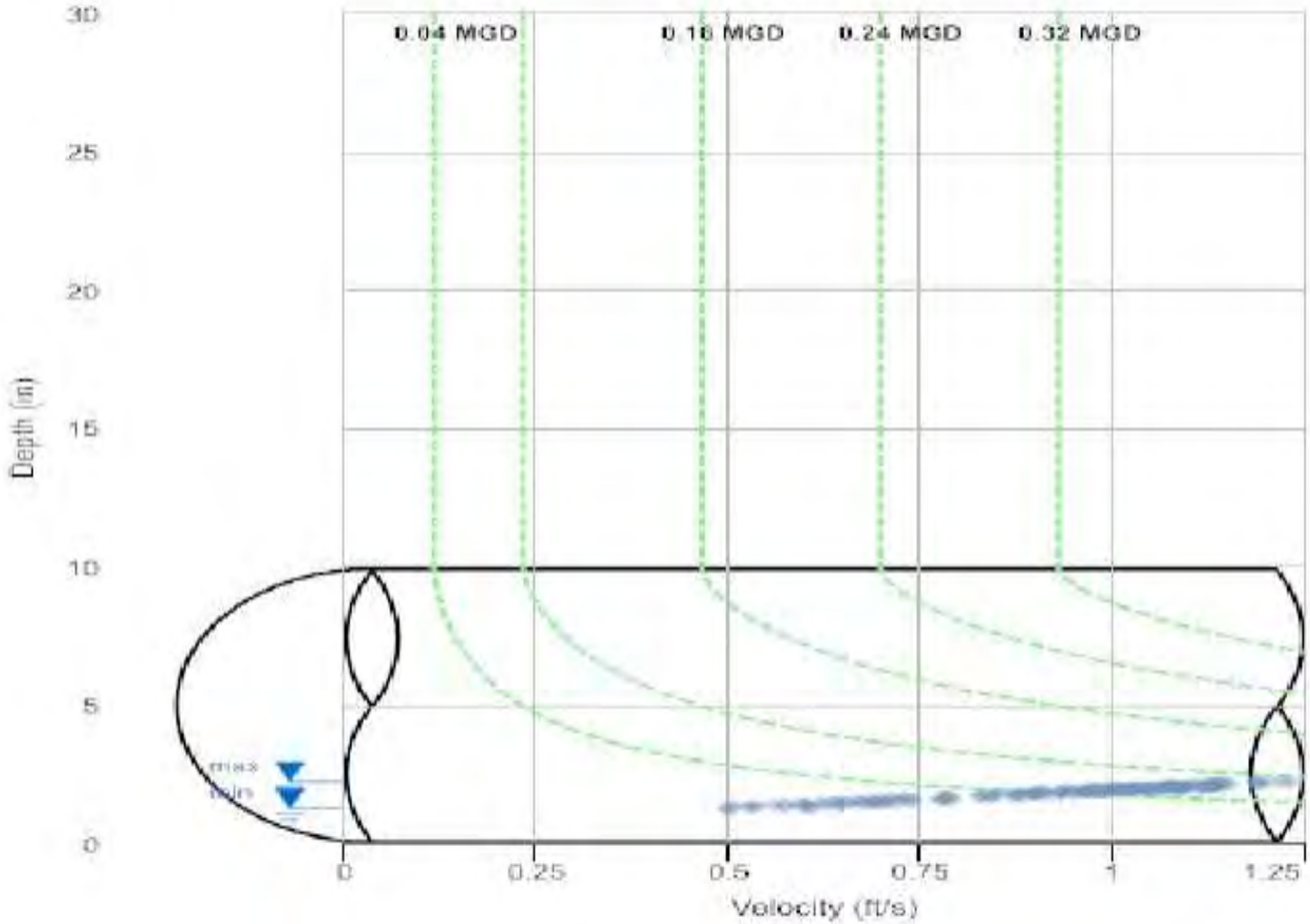
Report Period

08/11/2021
To
08/17/2021

Legend

- DFINAL - VFINAL
- Iso-Q™
- Min-Max Depth

ADS ENVIRONMENTAL SERVICES



Daily Tabular Report

08/11/2021 00:00 - 08/17/2021 23:59
ClevelandPipe: Round (9.88 in H), Silt0.00 in

	DFINAL (in)					VFINAL (ft/s)					QFINAL (MGD - Total MG)					
Date	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total
08/11/2021	03:30	1.23	18:15	3.64	1.80	03:45	0.42	18:15	1.85	0.92	03:45	0.012	18:15	0.213	0.042	0.042
08/12/2021	02:10	1.23	15:45	3.45	1.81	03:00	0.44	14:45	1.63	0.93	03:00	0.012	15:45	0.171	0.043	0.043
08/13/2021	03:30	1.23	12:50	3.67	1.78	03:35	0.42	12:50	1.79	0.91	03:35	0.011	12:50	0.208	0.041	0.041
08/14/2021	01:25	1.20	20:50	2.69	1.80	03:20	0.41	07:30	1.42	0.93	02:20	0.011	20:50	0.099	0.042	0.042
08/15/2021	04:55	1.21	16:00	3.41	1.79	02:20	0.39	16:00	1.90	0.91	05:35	0.010	16:00	0.200	0.043	0.043
08/16/2021	04:50	1.27	06:35	3.23	1.80	04:40	0.55	06:35	1.66	0.91	04:50	0.015	06:35	0.162	0.040	0.040
08/17/2021	05:00	1.30	10:20	3.27	1.87	05:30	0.47	10:20	1.69	0.99	05:30	0.013	10:20	0.168	0.047	0.047

08/11/2021 00:00 - 08/17/2021 23:59

	DFINAL (in)	VFINAL (ft/s)	QFINAL (MGD - Total MG)
Total			0.298
Average	1.81	0.93	0.043

Witherby

Site Commentary

SITE INFORMATION

Pipe	Elliptical (33.5 in H x 33.5 in W)
Silt	3.00 (in)

OBSERVATIONS

Site Witherby functioned under normal conditions during the period **Wednesday, August 11, 2021 to Tuesday, August 17, 2021**. No surcharge conditions were experienced by this line. The 3.0 inches of silt represents approx. 19 percent of the average depth of 15.84 inches. Review of the scattergraph shows that free flow conditions were maintained throughout the study period.

Flow depth and velocity measurements recorded by the flow monitor are consistent with field confirmations conducted and support the relative accuracy of the flow monitor at this location.

Average flow depth, velocity, and quantity data observed during **Wednesday, August 11, 2021 to Tuesday, August 17, 2021**, along with observed minimum and maximum data, are provided in the following table. In regard to depth, the 15.84 average depth of flow represents approximately 47.3 percent of capacity.

Observed Flow Conditions			
Item	**DFINAL (in)**	**VFINAL (ft/s)**	**QFINAL (MGD - Total MG)**
Average	15.84	2.28	3.914
Minimum	12.06	1.23	1.364
Maximum	19.00	3.06	6.553
Min Time	08/16/2021 03:00:00	08/16/2021 03:00:00	08/16/2021 03:00:00
Max Time	08/12/2021 22:00:00	08/12/2021 22:00:00	08/12/2021 22:00:00

Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Values in the Observed Flow Conditions and data on the graphical reports are based on the one hour average.

DATA UPTIME

Data uptime observed during **Wednesday, August 11, 2021 to Tuesday, August 17, 2021** is provided in the following table:

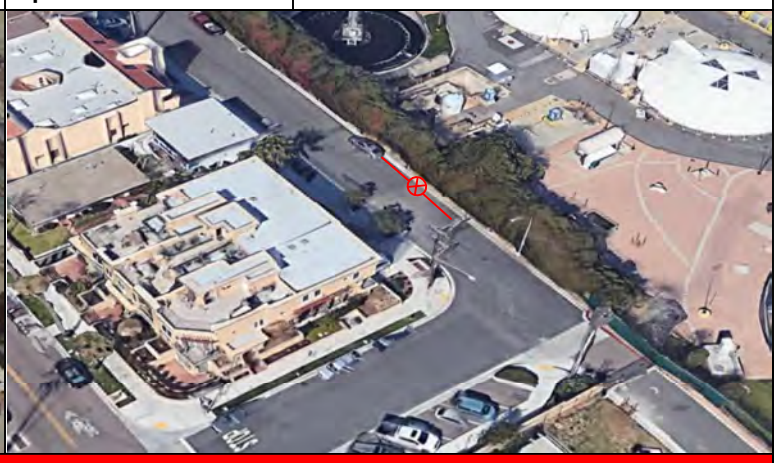
Percent Uptime	
DFINAL (in)	100
VFINAL (ft/s)	100
QFINAL (MGD - Total MG)	100

ADS Site Report

Quality Form

Project Name:	Oceanside Temp 2021	**Project No.** 22692.11.325	**City:**	Ocenside, Ca	**FM Initials:** NL
Site Name:	Witherby	**Investigate Date:**	8/9/2021		
Address/Location:	Tait st. & Witherby st.				
Access:	Drive	**Type of System:**	Sanitary [X]	Storm [ ]	Combined [ ]

Monitor Type	Area/Velocity
Monitor Model	ADS Triton+
Data Acquisition	Wireless
Manhole ID	N/A
Pipe Height:	33.5"
Pipe Width:	33.5"



Investigation Information:

Date/Time of Install	8/9/2021 @ 7:00 am
Site Hydraulics:	Silt and rocks present in flow
Upstream Input: (L/S, P/S)	N/A
Upstream Manhole:	N/A
Downstream Manhole:	N/A
Depth of Flow (DOF):	14.50" +/- -0.25
Peak Velocity	2.27 ft/s
Silt	3"
Notes:	Silt an rocks in pipe

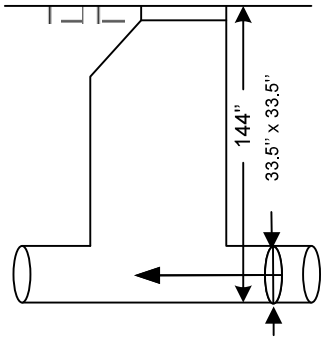
Manhole Information:

Manhole Depth:	144"			
Manhole Material / Condition	Concrete / Fair			
Pipe Material / Condition:	VCP / Good			
Land Use:	Residential [x]	Commercial [ ]	Industrial [ ]	Trunk [x]

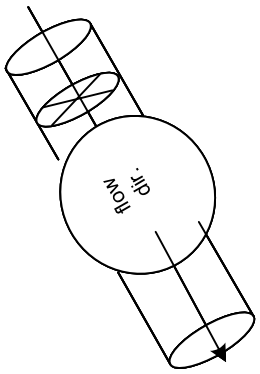
Safety Notes:

Minor Traffic control TA-3 From WATCH Manual

Other Information:



Cross Section



Plan

Installation Information	
Installation Type:	Standard
Sensors Devices:	CS4/CS5
Surcharge Height:	0
Rain Gauge Zone:	N/A

Backup	Yes	No	?	Distance
Trunk	x			
Lift / Pump Station		x		
WWTP		X		
Other		x		

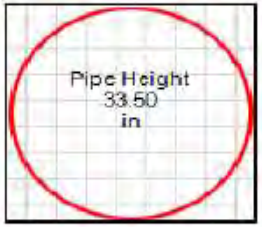
Additional Site Information / Comments:

Hydrograph Report

Witherby

Flow Monitor

Witherby



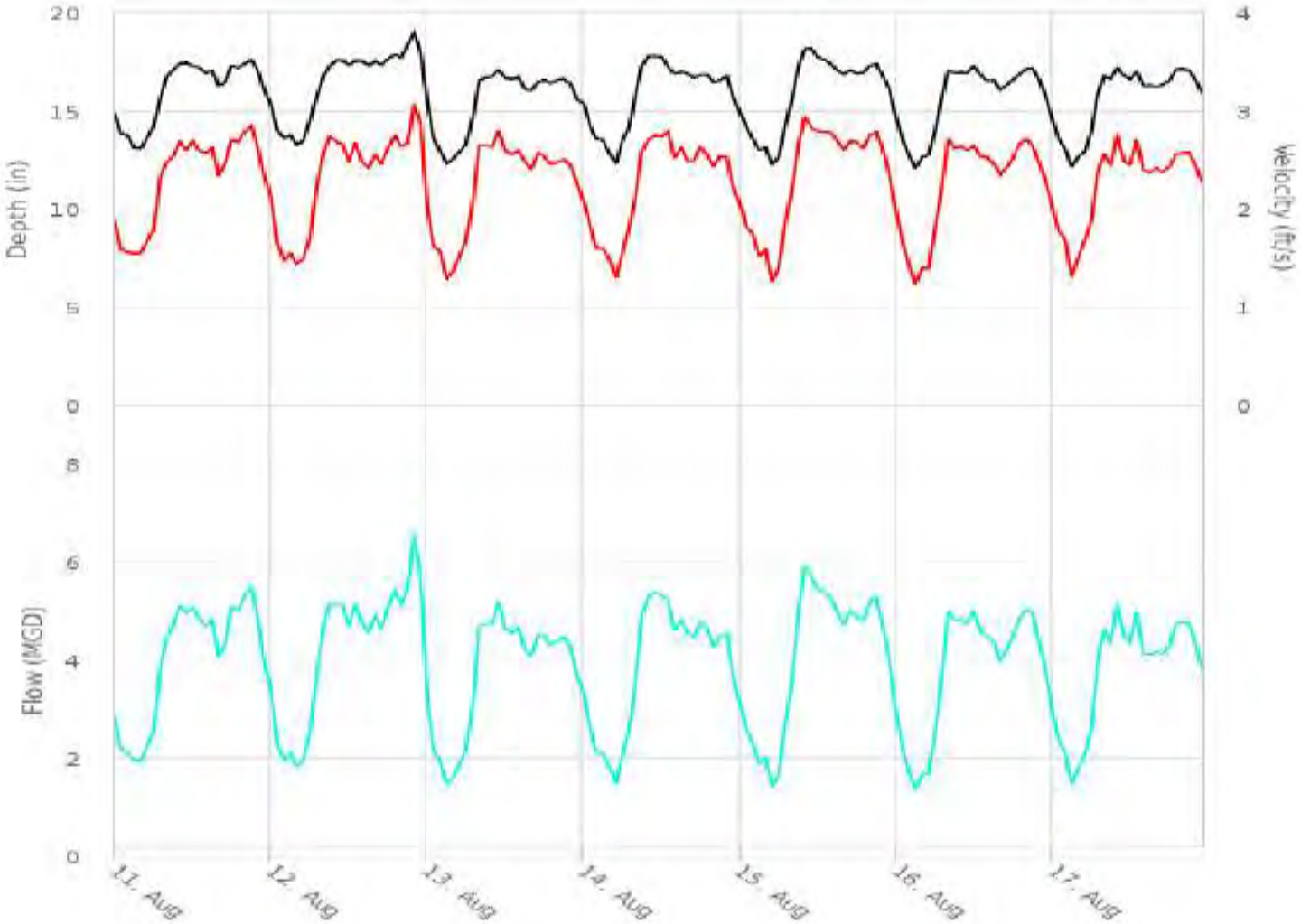
Report Period

08/11/2021
To
08/17/2021

Legend

- DFINAL
- VFINAL
- QFINAL
- RAIN FINAL

ADS ENVIRONMENTAL SERVICES



Scattergraph Report

Witherby

Flow Monitor

Witherby

Pipe Height
33.50
in

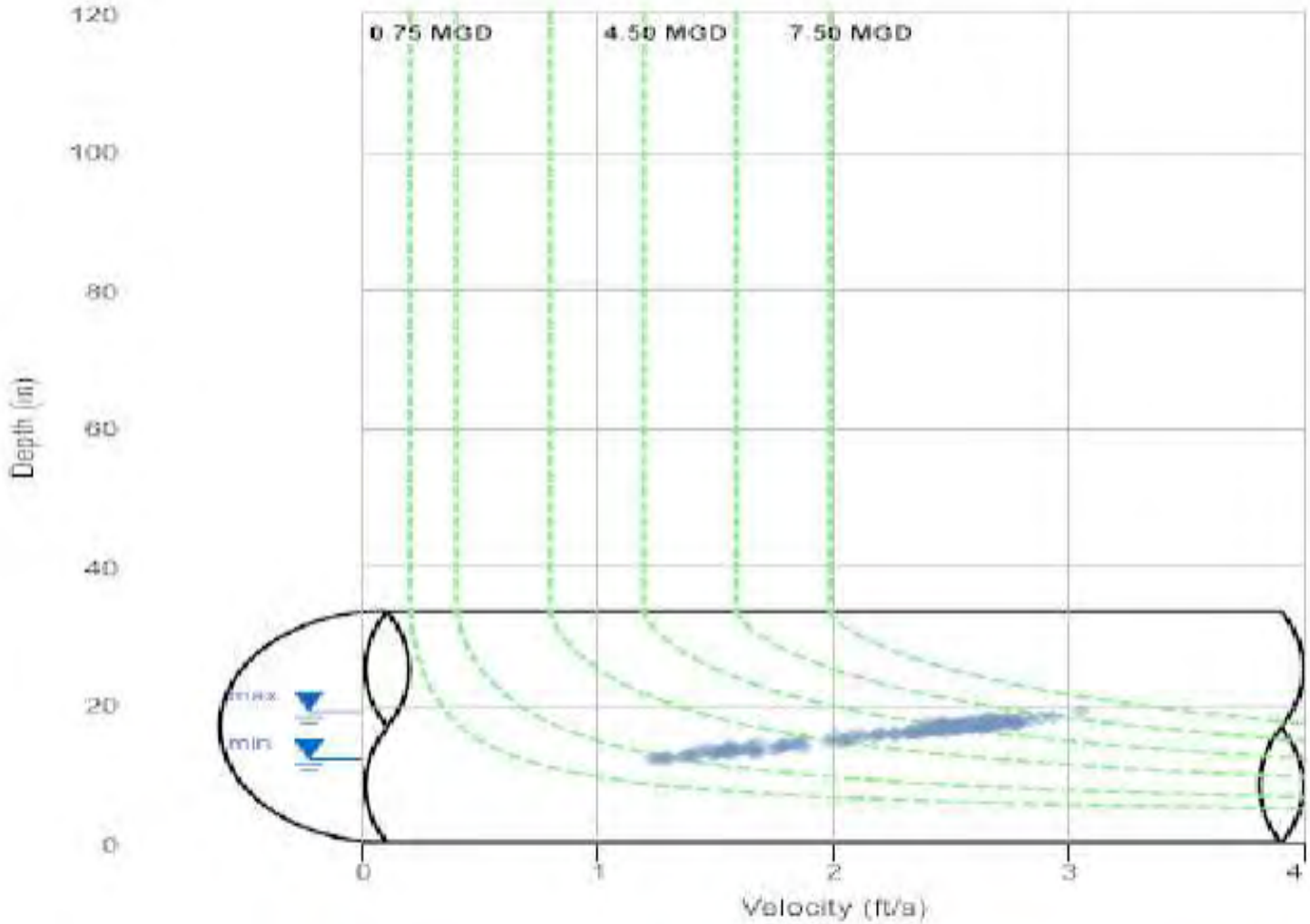
Report Period

08/11/2021
To
08/17/2021

Legend

- DFINAL - VFINAL
- Iso-Q™
- Min-Max Depth

ADS ENVIRONMENTAL SERVICES



Daily Tabular Report

08/11/2021 00:00 - 08/17/2021 23:59
WitherbyPipe: Elliptical (33.5 in H x 33.5 in W), Silt3.00 in

	DFINAL (in)					VFINAL (ft/s)					QFINAL (MGD - Total MG)					
Date	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total
08/11/2021	05:00	12.96	21:15	18.17	16.00	02:00	1.26	21:15	3.20	2.31	02:00	1.570	21:15	6.451	4.006	4.006
08/12/2021	04:30	13.14	22:30	19.58	16.47	03:00	1.35	22:30	3.39	2.33	04:30	1.754	22:30	7.538	4.231	4.231
08/13/2021	03:15	12.04	11:15	17.41	15.46	03:00	1.23	09:30	2.94	2.23	03:15	1.381	11:00	5.406	3.708	3.708
08/14/2021	05:45	12.11	10:15	17.93	15.80	04:45	1.19	13:30	2.88	2.25	05:45	1.332	11:30	5.637	3.850	3.850
08/15/2021	05:00	12.17	10:45	18.45	15.90	05:30	1.14	10:45	3.14	2.33	05:30	1.303	10:45	6.457	4.052	4.052
08/16/2021	04:00	11.80	12:15	17.71	15.62	03:45	1.11	09:00	2.96	2.24	03:45	1.193	09:00	5.678	3.789	3.789
08/17/2021	03:30	11.77	19:45	17.74	15.61	03:30	1.15	13:30	2.94	2.25	03:30	1.223	13:30	5.647	3.765	3.763

08/11/2021 00:00 - 08/17/2021 23:59

	DFINAL (in)	VFINAL (ft/s)	QFINAL (MGD - Total MG)
Total			27.398
Average	15.84	2.28	3.914