PRELIMINARY SEWER STUDY

FOR

TENTATIVE MAP / DESIGN REVIEW / COASTAL DEVELOPMENT PERMIT
SANTA FE SUBDIVISION
845 SANTA FE DRIVE, ENCINITAS, CA

MULTI-004398-2021 / SUB-004404-2021 / DR-004402-2021

CITY OF ENCINITAS, CA

PREPARED FOR:
845 SANTA FE DRIVE LLC
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ENCINITAS, CA 92024

PREPARED BY:

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PREPARED: AUGUST 2024

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BRYAN KNAPP, PE 86542 DATE

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

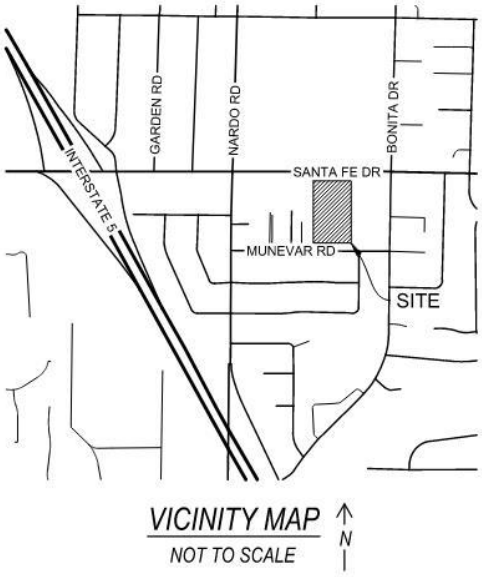
This Preliminary Sewer Study for the proposed development at 845 Santa Fe Drive has been prepared to analyze the sewer capacity for the existing and proposed project site. This sewer study estimates the preliminary sewer flow rates generated by the proposed development and presents the hydraulic calculations for the proposed sewer facilities, as well as includes a discussion of the existing public sewer facilities and the development's impact to the City's existing sewer system immediately downstream of the subject property.

1.2 Project Overview

The subject property is located directly south of San Dieguito Academy High School on Santa Fe Drive in the city of Encinitas. The site is bound by Santa Fe Drive to the north, an existing development containing a church to the west, an existing development consisting of multiple retail business including pickleball courts and onsite parking to the east, and Munevar Road to the south. Existing single family residential developments bound the subject property on both sides fronting Munevar Road. The existing site currently contains a community church consisting of two building structures and a surface parking lot on the north end, an existing playground in the center, and an existing single-family residential home on the south end. All existing structures are to be demolished. The subject property is zoned single-family residential (RR-8). The project proposes to create 35 new single-family lots and 8 new multifamily lots with 16 new multi-family duplex units on the approximately 5.2-acre site. This study analyzes the future impact of the site assuming 35 new single-family homes and 16 new multi-family homes will be contributing flow to the City's system.

A new 8” VCP public sewer main extension is proposed to serve the project and will connect to the existing 8” VCP public sewer main in Munevar Road as shown in record drawing UCS-1957A9A. The proposed 8” public sewer main will convey wastewater from all proposed residential lots on the subject property. Per best available record information, the existing 8” VCP sewer main in Munevar Road the project will connect to was constructed at a slope of 4.6%.

1.3 Vicinity Map



1.4 Design / Planning Criteria

The design for this sewer study was completed in accordance with the design criteria listed in the City of Encinitas' Engineering Design Manual (Revised October 2009) and City of Encinitas' Citywide Sewer Master Plan (May 2023). All gravity sewers have been designed to convey peak dry weather flows (PDWF), calculated in relation to average dry weather flows (ADWF) in accordance with Section 4.202.1 of the Engineering Design Manual. All sewer mains less than 16 inches in diameter should be designed to convey this flow when flowing half-full in accordance with Section 4.301. All sewer mains greater than 16 inches in diameter should be designed to convey this flow when flowing three-quarters full in accordance with Section 4.301. Table 1 below lists applicable design and planning criteria used for this study in accordance with the City of Encinitas Engineering Design Manual, October 2009 Version and City of Encinitas' Citywide Sewer Master Plan (May 2023).

DESIGN / PLANNING CRITERIA SUMMARY		
DESCRIPTION	CRITERIA	SOURCE
Single-Family Residential Sewer Flow (EDU)	*180 gpd / DU	2023 Citywide Sewer Master Plan
Multi-Family Residential Sewer Flow (EDU)	*110 gpd / DU	2023 Citywide Sewer Master Plan
Peak Dry Weather Flow Factor	$Q_{PK} = 2.64 \times (Q_{AVG})^{-.905}$	2009 Engineering Design Manual
Minimum Pipe Diameter	8-in	2009 Engineering Design Manual
Minimum Pipeline Slope	1.0%	2009 Engineering Design Manual
Minimum Velocity at Peak Flow	2.0 Ft / s	2009 Engineering Design Manual

Manning's Roughness Coefficient	0.013	2023 Citywide Sewer Master Plan
Maximum Depth-to-Diameter Ratio, Less Than 16"	0.5	2009 Engineering Design Manual
Maximum Depth-to-Diameter Ratio, 16" and Greater	0.75	2009 Engineering Design Manual

Table 1. Design / Planning Criteria Summary Information

*Residential sewer flow determined per Section 4.3.2 of the Encinitas' Citywide Sewer Master Plan. Daily per capita residential sewer flow based on 70 gallons per capita, per day (gpcd), 180 gallons per day per dwelling unit (gpd/du) for single-family developments, and 110 gallons per day per dwelling unit (gpd/du) for multi-family developments. Additionally, flow generation rates for multi-family developments were applied to schools within the extents of the study.

1.5 Onsite Sewer Flow Projections

The proposed onsite sewer flows generated by the development have been estimated in Equivalent Dwelling Units based on the proposed number of residential units for the project site. As mentioned above, the project proposes 35 new for-sale single-family lots and 8 new multi-family lots, with 16x new multi-family duplex units, which equate to a total of 51 Dwelling Units (DUs). City of Encinitas criteria for projected residential sewer flow demand is 180 gallons per day (gpd) / DU for single family and 110 gpd / DU for multi-family developments.

PROJECTED SEWER FLOWS					
LAND USE	QUANTITY	DEMAND FACTOR	AVERAGE DEMAND, GPD	PEAK DRY WEATHER, MGD	PEAK WET WEATHER, MGD
Single-Family Residential	35 units	180 gpd / DU	6,300	0.027	.084
Multi-Family Residential	16 units	110 gpd / DU	1,760	0.008	.025
Total	51 units		8,060	0.034	.105

Table 2. Projected Sewer Flows

Table 2 above shows the preliminary projected average sewer flows for the Santa Fe Drive subdivision project based on the proposed land use and unit count. The projected dry weather peak flow (PDWF) converted from the average flows for the project is 0.034 MGD (applying the ratio of dry weather peak flows to average flows per Section 4.202.1 of the City of Encinitas Engineering Design Manual), equating to 0.052 cfs. From there, a peaking factor of 3.1 for analyses within the Cardiff Pump station basin is applied to obtain a peak wet weather flow of (PWWF) of 0.105 mgd, equating to 0.163 cfs.

1.6 Existing Sewer Facilities

The existing City of Encinitas sewer system in the vicinity of the project consists primarily of gravity sewer pipelines. The proposed project will connect to sewer facilities in Munevar Road just south of the site, consisting of an 8-inch VCP gravity sewer line. Conveying flows just downstream from the Munevar Road system is an 8-inch VCP gravity sewer line in Mackinnon Avenue to the southwest of the subject parcel. This sewer line conveys flow south, ultimately reaching Manchester Avenue south of El Camino Real and collecting at the Cardiff Pump Station. The pump station then conveys flow westerly for treatment and disposal. These existing sewer facilities adjacent to the subject property can be seen in Appendix C of this study on the as-built record plan drawings.

Data was obtained calculating peak wet weather flows (PWWF) for all existing sewer pipes downstream from the proposed project connection point ultimately collecting at the Cardiff Pump Station. Future PWWF values for the year 2035 were also predicted for each downstream pipe. From here, PWWF is used to calculate existing/future depth-to-diameter ratio (d/D) within each downstream pipe. A Manning's roughness coefficient of 0.013 is applied to calculate flow conditions per recommendations in section 5.2 of the 2023 City Sewer Master Plan Update.
A table of existing and future (2035) PWWF and d/D for all downstream pipes can be seen in Appendix X of this study.

The existing sewer system connection point for proposed project flows is an 8" VCP main in Munevar Road with a 4.6% calculated slope, with an existing flow rate of 0.004 mgd, which equates to 0.006 cfs. An analysis of the system shows the 8" VCP sewer main flowing at a depth of approximately 0.24". The existing flow depth is 3 percent of the overall diameter of the main or 0.03 d/D ratio.
The predicted future (2035) flow rate of this pipe is unchanged (0.004 mg). The pipe flow is predicted to remain at 0.24" depth or 0.03 d/D ratio.

MUNEVAR ROAD CONNECTION PRE-PROJECT SEWER FLOWS					
	PEAK WET WEATHER, MGD	PEAK WET WEATHER, CFS	NORMAL DEPTH d (IN)	PIPE DIAMETER (IN)	DEPTH – DIAMETER RATIO (d/D)
Existing	0.004	0.006	0.24	8	0.03
Future (2035)	0.04	0.006	0.24	8	0.03

Table 3-X. Pre-Project Munevar Road Sewer Flows – MGD and CFS

Additionally, an analysis of all existing pipe conditions from the proposed project connection downstream to the Cardiff Pump Station was performed to determine the current flow depths and d/D ratios. Again, peak wet weather flows for each pipeline

were used to determine normal depths and resultant d/D ratios for each pipe. A significant portion of the downstream system was found to be at or exceeding maximum design d/D capacity of 0.5 for pipes under 16" in diameter. This is found to be the case in both pre-project conditions, existing and future (2035).

1.7 Conclusion and Recommendations

The existing City of Encinitas sewer system in Munevar Road adjacent the project consisting of an 8" VCP sewer main is adequately sized to handle the flows generated by the project site, applying the maximum depth-to-diameter ratio of 0.50 for mains less than 16" in diameter per the City of Encinitas Engineering Design Manual. The project proposes an additional 35 single-family and 16 multi-family dwelling units to connect to the existing sewer system, creating a projected 0.163 cfs increase to the existing 0.006 cfs peak wet weather flows. The resulting post-project condition is a normal depth flow of 1.36" which is 17% of the total diameter of the pipe. The resultant pipe flow depth-diameter (d/D) ratio of 0.17 is still far below its recommended design d/D capacity of 0.5. The impact remains unchanged when applied to Future (2035) pre-project flow predictions rather than existing pre-project conditions.

MUNEVAR ROAD CONNECTION POST–PROJECT SEWER FLOWS					
	PEAK WET WEATHER, MGD	PEAK WET WEATHER, CFS	NORMAL DEPTH d (IN)	PIPE DIAMETER (IN)	DEPTH – DIAMETER RATIO (d/D)
Existing + Project	0.109	0.163	1.36	8	0.17
Future (2035) + Project	0.109	0.163	1.36	8	0.17

Table 3-X. Post-Project Munevar Road Sewer Flows – MGD and CFS

Applying post-project flows to both existing and future (2035) pre-project conditions in the entire downstream system south to Cardiff Pump station, it is found that a significant portion of the system is already at or above 0.5 d/D. Furthermore, the flows created by the proposed project do not significantly impact these conditions. Specific post-project impacts to each downstream pipe in both existing and future (2035) conditions can be found in Appendix B of this study.

APPENDIX A

SEWER STUDY DESIGN CRITERIA: ENCINITAS 2009 ENGINEERING DESIGN MANUAL & 2023 CITYWIDE SEWER MASTER PLAN UPDATE

4.200 SEWER STUDY AND SEWER FLOWS.

A sewer study may be required at the discretion of the City Engineer when a proposed development intensifies land use from the existing condition, when the project has the potential to generate additional sewer flow, when the existing sewer infrastructure is insufficient to support the project, or when the sewer infrastructure is prone to failure due to the inadequacy of a portion of the sewer system.

The sewer study shall address:

A. The existing condition, in order to identify existing deficiencies in the system;

B. The condition with the proposed development, in order to identify additional deficiencies created by the proposed development; and

C. The General Plan ultimate land use condition, in order to identify the ultimate pipe size required for the ultimate improvements and condition.

The sewer study shall be submitted to the Engineering Department for review and approval. Most often, projects required by the Engineering Department to perform a study shall satisfactorily complete the study prior to the issuance of any discretionary permits for the project. The sewer study shall follow the methodology outlined in this chapter. If computer models are utilized to prepare the sewer study, the program name together with a brief description of the methodology, organization of the output data, and input parameters used in the program shall be provided to the City Engineer.

4.201 *GENERAL SEWER FLOW CONSIDERATIONS.*

Each service area will have unique characteristics which may preclude the use of a uniform approach to sewer flow calculations. However, the information presented in this manual shall be used for the preparation of the sewer flow

calculations unless a more detailed analysis is authorized by the City Engineer.

The following criteria shall be evaluated to project wastewater flows; each is discussed in greater detail later in this section.

A. Tributary Areas.
B. Estimation of Ultimate Population.
C. Ultimate Land Use.
D. Flow Types.
   1. Per-capita Flows
   2. Residential Flows
   3. Commercial Flows
   4. Industrial flows
E. Major Point Source Discharges.
F. Inflow and Ground Water Infiltration.

4.201.1 Tributary Area. The tributary area of a sewer shall include all areas that will contribute to the flow in the sewer system, including flows from the ultimately developed service area and basin to basin flow routings. Tributary areas may be limited by topography as well as natural or human-made boundaries. Flows to the point of connection at the main line shall be estimated and included. The boundaries of the tributary area used in the sewer design shall be submitted to the City on a plat also showing the topography of the area, any existing sewer facilities, and existing or proposed sewer connections.

4.201.2 Estimation of Ultimate Population. The population of the tributary area is the basis for the sewer design flow calculations. The population estimate shall be based upon the proposed development and the ultimate land use for the service area. The population shall be estimated as accurately as possible using the most recent information.

4.201.3 Ultimate Land Use. The type of land use defines both the population densities and the type of contributors within the areas tributary to the sewer. Land use considerations shall be based upon the ultimate use and zoning maps. A field

review shall be utilized to verify the reasonableness of the projections.

4.201.4 Flow Types. The type of contributor, residential, commercial, or industrial, determines the level of flow that may be anticipated from each contributor. The flow rates may be determined from the ultimate land use according to the table presented in Appendix 4.1 of this manual.

Industrial flow may vary significantly with industry type, size, and method of wastewater discharge. The design engineer shall identify any industrial uses within the service area and shall determine the magnitude of the industries' wastewater contributions to the sewer. The determination shall be reviewed and approved by the City Engineer.

4.201.5 Major Point Source Discharges. Major point source discharges include flows from institutional, industrial, and commercial establishments. Existing major point source discharges within the tributary area shall be identified, and the engineer shall confirm the exact discharge location of the major point source. Potential major discharges from future point sources shall also be incorporated into the design flows.

4.201.6 Inflow and Ground Water Infiltration. The sewer design capacity shall include an allowance for extraneous flows which inevitably become a part of total flow. These flows include ground water infiltration through defective pipes, joints, manholes, and cleanouts as well as inflow from cross connections.

4.202 *SEWER FLOW CALCULATIONS.*

All new or replacement sanitary sewers shall be designed with size and flow capacity as needed to accommodate the ultimate conditions of the areas they serve. In certain cases in which the flow in an existing sewer main is increased by proposed developments or improvements, the project may be required to upgrade the existing system.

4.202.1 Peaking Factor. The sewer design flows may be calculated based upon peak dry weather flows. Use of the following equation shows the relationship between average dry weather flows (ADWF) and peak dry weather flows (PDWF) expressed in cubic feet per second (CFS):

$$Q_{PDWF} = 2.64 \, (Q_{ADWF})^{0.9055}$$

4.202.2 Flow Contributions from Residential Populations. Flows from residential populations shall be based upon the ultimate density with the number of people per household determined as follows:

Residential Dwelling Unit = 3.5 people per unit

Accessory Unit = 70% of a dwelling unit =
(0 .70) x (3.5 people per unit) = 2.45 people per unit

Daily per capita residential sewer flow contributions shall be based upon 80 gallons per capita, per day (gpcd). The City of Encinitas bases sewer flow calculations on the concept of Equivalent Dwelling Units (EDUs) which converts various kinds of sewer usages to an equivalent multiple of residential dwelling unit usage.

1 EDU = (3.5 people/ residential dwelling unit) x 80 gpcd

Wastewater discharge fees are assessed as a predetermined sum per EDU multiplied by the number of EDUs of the proposed usage. Reference Municipal Code CHAPTER 18.08 for information on EDUs and Appendix 4.4 for information on the wastewater discharge fee.

4.202.3 Flow Contributions from Non-Residential Uses. Flow contributions from non-residential uses shall be determined consistent with the average daily sewer flow projections listed in Appendix 4.6.

4.202.4 Sewer Flow Table. The table included as 4.4 of this manual may be utilized for sewer flow calculations if, at the discretion of the City Engineer, the complexity and scope of the sewer study do not necessitate computer modeling.

4.300 SEWER SIZING AND MINIMUM REQUIREMENTS.

4.301 *SEWER DEPTH OF FLOW REQUIREMENTS.*

Sewer pipes shall not be designed to flow at full capacity in order to allow for the flowage of sewer gases. The gases flow in the space between the wastewater surface and the top of pipe. A sewer pipe full with wastewater inhibits the free flow of air and sewer gases, creating a pressure which pushes these gases through openings such as maintenance holes. The sewer gases may be combustible or toxic and have a strong undesirable odor. To avoid the odor problems associated with the sewer gases, sanitary sewers shall allow for the transport of the air and gases by designing the sewer to run less than full. Sewer mains and interceptors less than 16 inches in diameter shall be designed to flow a maximum of half (50%) full, and interceptor and trunk sewers of 16 inches or more in diameter shall be designed to flow a maximum of three-quarters (75%) full. At the discretion of the City Engineer, improvement to or upgrading of an existing sewer system may be required if the proposed development or improvements result in the sewer main flowing more than 50% full (75% for interceptor and trunk sewers 16 inches in diameter and larger).

4.302 *GENERAL SEWER DESIGN CRITERIA.*

The following general criteria apply to the design of sewer systems in the City.

A. Alignment. The preferred location of the sewer main is on the centerline. In cases in which a raised center median exists, the sewer shall be constructed outside of the median, unless otherwise approved by the City Engineer. Where the sewer is located along the street or alley centerline and the centerline is a curve, the sewer shall be constructed as a series of straight segments connected by manholes. Alternately, the sewer may be constructed along the centerline with a minimum radius of 200 feet and in accordance with the manufacturer's recommendations. Vertical curves and horizontal curves less than 200 feet are discouraged

and shall be approved in writing in advance by the City Engineer.

B. Depth. The sewer main shall be buried a minimum of 5 feet below grade to the top of the pipe and a maximum of 20 feet below grade. Deeper sewer mains may be constructed if allowed by the City Engineer in writing. An increase in depth will result in one or more of the following requirements: a stronger pipe material, special beddings, concrete encasement and/or additional easement width.

C. Structural Design Requirements. Structural design may be required by the City Engineer if the clearance between the sewer and another utility is 18 inches or less. When a sewer pipe crosses another pipe or utility trench, the sewer pipe section shall be designed to span the utility trench and must be continuous for a minimum of 10 feet on either side of the trench or pipe centerline. A detail to be used in the case in which pipes must cross is included in Appendix 4.3.

D. Location. Mainline sewers shall be located along street or alley centerline whenever possible. Sewers mains shall be located beneath the street pavement, not within the parkway. The sewer trench shall not be allowed to extend underneath the sidewalk or curb and gutter areas.

E. Manhole Construction. Manholes shall be designed and installed as per the current San Diego Regional Standard Drawing specification. The diameter of the base ring of manholes shall be 60 inches. The minimum diameter of the upper manhole rings shall be 36". The inside of the sewer manholes shall be coated with epoxy in order to prevent the deterioration caused by the sewer gases. In cases in which existing manholes must be raised, such as for a street pavement overlay, plastic riser rings shall not be allowed. Drop manholes shall not be allowed for public sewers; an alternative manhole design is included in Appendix 3.10 of this manual.

F. Manhole Locations. Manholes shall be provided at intersections of mains, at changes in slope, size, and horizontal or vertical alignment, and at a maximum of 350 feet on center. The use of horizontal and vertical curves is discouraged; the utilization of both a horizontal and a vertical curve or a reverse curve between manholes shall not be allowed. A manhole with a 5' stub or a cleanout, based on the City Engineer's discretion, shall be installed at the end of all sewers. Manholes shall be installed at the location of intersection of a proposed main with an existing one.

G. Material. Sewers shall be constructed of Polyvinyl Chloride (PVC) with a minimum rating of SDR 35. Alternate materials may be utilized with prior written approval from the City Engineer. All pipes shall be designed to withstand H-20 highway loading.

H. Private Sewer. Private sewer mains are not allowed unless approved in advance by the City Council. In the case in which a private sewer is accepted, the sewer shall be privately maintained and a private sewer easement shall be granted over the private sewer.

I. Radius. The minimum radius for a curved section of 8-inch pipe shall be 200 feet. Larger pipes may require a larger radius. The manufacturer's specifications showing that the sewer pipe joints can allow the deflection necessary to achieve the radius shall be provided to the City.

J. Separation From Water and Reclaimed Water Lines. For special designs and restrictions for locations in which a sewer must cross a water or reclaimed water main, please refer to Appendix 4.3.

K. Size. The sewer main shall be sized according to the provisions of this chapter. The minimum sewer main pipe size shall be an 8" inside diameter.

L. Slope. Sewer pipes shall be designed with a minimum slope of 1%, when possible. Where a 1% slope is not feasible, the City Engineer may allow a minimum of 0.4% slope.

Based on the analysis conducted, the City has relatively uniform wastewater generation for land use and population projections. To project flows based on projected future development, it is recommended that wastewater generation rates included in Table 4-F be applied.

Table 4-F Recommended Wastewater Unit Generation Rates

Category	Recommended Unit Generation Rate
Population	
Residential Population	70 gpcd
Land Use	
Single-Family	180 gpd / DU
Multi-Family Residential	110 gpd / DU
Mobile Home Park	80 gpd / DU
Commercial	400 gpd / acre
Industrial	400 gpd / acre

The City may need to consider updating the EDM to reflect the lower 70 gpcd. It should be noted that the rate may continue to decrease due to continued conservation efforts and the incorporation of Green Building Codes. Additionally, as the State allows agencies to permit accessory dwelling units as a method to achieve housing goals, the impact to the City's system will need to be evaluated to account for such additional flows.

5.0 SEWER COLLECTION SYSTEM DESIGN CRITERIA

The level of service that is provided to a community is directly related to compliance with applicable regulations and implementation of improvements planned and designed in accordance with accepted criteria. The capacity of the collection system is analyzed with a hydraulic model and findings are evaluated against established and verified design criteria to identify capacity deficiencies.

Included in this chapter is a description of the design criteria and hydraulic modeling methodology used to evaluate the collection system based on current flow conditions. The evaluation method employs the use of the InfoSWMM hydraulic modeling software, which performs hydraulic calculations with extended period simulations (EPS) and fully dynamic flow routing to calculate water depth in open channels and pipelines, velocities and headloss in force mains.

Also included is a description of the City's criteria associated with designing and operating the City's sewer system, the design criteria used for planning and design of new sewer infrastructure, and "trigger" criteria for evaluating capacity of existing and future infrastructure.

5.1 DESIGN CRITERIA BACKGROUND

The CSD and ESD collection system is operated and maintained by City staff. The City provides a level of service that complies with state and federal sanitary sewer regulations to assure the collection system is efficiently and effectively managed to meet public health and safety standards. The City has developed and adheres to the criteria included in its 2009 Engineering Design Manual (EDM) which serves to assist the professional design community and the general public by consolidating information related to the City's engineering standards. Chapter 4.0 of the manual includes specific requirements related to the City's sewer system.

The design criteria used in this Master Plan Update is based on existing City design standards. Similar to previous master plans, the peaking factors used in the hydraulic analysis are based on historical dry and wet weather peak flows observed from metering data, as previously presented in Chapter 4.0 of this Master Plan Update and discussed in more detail at the end of this chapter.

5.2 GRAVITY MAIN DESIGN CRITERIA

The primary evaluation criteria for gravity sewers are the depth of flow and velocity, which are calculated in the hydraulic model based on Manning's Equation. The capacity of each gravity sewer is based on the relative depth of flow within the respective pipeline reach. Gravity sewers are not typically designed to flow full, as unoccupied space at the top of the pipe is required for conveyance of sewage gasses and to provide contingent capacity for wet weather inflow and infiltration. Pipeline sizing is typically based on the pipeline flowing 75 percent full at the PWWF if the pipe is larger than 16-inches in diameter (d/D = 0.75). For a pipeline with a diameter of 16-inches, or smaller, a d/D factor of 0.50 is generally used.

Friction (roughness) factors for pipelines are a required input to the model. The factors vary with the material and the age of the pipe. A roughness factor as indicated by a Manning's coefficient ("n") of 0.013 is typically used to evaluate existing gravity sewers and for projection of future sizing needs. Previous studies have shown that this value typically accounts for the roughness of most pipes, joints,

APPENDIX B

HYDRAULICS:
MUNEVAR 8” VCP SEWER MAIN
&
DOWNSTREAM SEWER SYSTEM PWWF ANALYSIS

SEWER SYSTEM AREA CALCULATIONS

UPSTREAM FROM MACKINNON AVENUE CONNECTION

RR-2 ZONE (RURAL RESIDENTIAL 2) AREA	286,970 SF / 6.59 AC
R-3 ZONE (RESIDENTIAL 3) AREA	3,868,472 SF / 88.81 AC
R-5 ZONE (RESIDENTIAL 5) AREA	930,172 SF / 21.35 AC
R-8 ZONE (RESIDENTIAL 8) AREA	943,249 SF / 21.65 AC
R-11 ZONE (RESIDENTIAL 11) AREA	648,197 SF / 14.88 AC
P/SP (PUBLIC / SEMI-PUBLIC) AREA	3,196,529 SF / 73.38 AC

FROM MUNEVAR ROAD CONNECTION ONLY

R-8 ZONE (RESIDENTIAL 8) AREA	242,062 SF / 5.56 AC

LEGEND

- EXISTING LOT LINES
- CENTERLINE
- SEWER BASIN BOUNDARY (MACKINNON AVE CONNECTION)
- SEWER BASIN BOUNDARY (MUNEVAR RD ONLY)
- UPSTREAM SEWER SYSTEM
- RR-2 ZONE (RURAL RESIDENTIAL 2)
- R-3 ZONE (RESIDENTIAL 3)
- R-5 ZONE (RESIDENTIAL 5)
- R-8 ZONE (RESIDENTIAL 8)
- R-11 ZONE (RESIDENTIAL 11)
- P/SP (PUBLIC/SEMI-PUBLIC)

ENCINITAS BOULEVARD
OAKCREST PARK
OAKCREST PARK DRIVE
WESTLAKE STREET
REQUEZA STREET
CAMINO DE CROSTA
CAMINO EL ROCIO
LA VIA SAN JUAN
LA VIA GUADALUPE
SAN ANDRADE DRIVE
SAN ABELLA DRIVE
GUADALAJARA DRIVE
AVENIDA SAN CLEMENTE
BALFOUR DRIVE
ISLAND VIEW LANE
SCARLET WAY
BLUE JACK ROAD
WITHAM ROAD
CREST DRIVE
AHLRICH AVENUE
NARDO ROAD
BRAEBURN ROAD
BONITA DRIVE
HERDER LANE
CORONA WAY
MELBA ROAD
OCEAN KNOLLS ELEMENTARY
OAK CREST JUNIOR HIGH
SAN DEGUITO ACADEMY HIGH SCHOOL
SAN ROBERTA ROAD
ARCADIA ROAD
EVERGREEN DRIVE
BRASS WAY
ALOHA DRIVE
OCEANIC DRIVE
MONTE VISTA DRIVE
SANTA FE DRIVE
MACKINNON AVE
WINDSOR ROAD
BLUE SKY DRIVE
MUNEVAR ROAD
PROJECT SITE
845 SANTA FE DRIVE
SITE

PLSA
PLSAENGINEERING.COM

PLAN VIEW - SEWER NETWORK EXHIBIT
SCALE: 1" = 200'

EXISTING SEWER FLOWS (MUNEVAR)										
	AREA					AVERAGE DEMAND			PEAK DEMAND	
ZONE	SF	AC	RESIDENTIAL DU/AC	DU OR EDU	DEMAND FACTOR (GPD/DU)	GPD(180 GPD/DU OR EDU)	MGD	CFS	MGD	CFS
R-8	242,062	5.56	8	44	180	8,002	0.008	0.012	0.033	0.052
TOTAL SYSTEM	**242,062**	**5.56**		**44**		**8,002**	**0.008**	**0.012**	**0.033**	**0.052**

PROJECTED SEWER FLOWS							
			AVERAGE DEMAND			PEAK DEMAND	
LAND USE	QUANTITY (DU)	DEMAND FACTOR (GPD/DU)	GPD	MGD	CFS	MGD	CFS
SINGLE-FAMILY RESIDENTIAL	35	180	6,300	0.006	0.010	0.027	0.042
MULTI-FAMILY RESIDENTIAL	16	110	1,760	0.002	0.003	0.008	0.013
TOTAL	51		8,060	0.008	0.012	**0.034**	**0.052**

AVERAGE DRY WEATHER FLOWS (CFS)			
EXISTING	PROJECTED	TOTAL	PERCENTAGE INCREASE
0.012	0.012	0.025	**100.72**

PEAK DRY WEATHER FLOWS (CFS)			
EXISTING	PROJECTED	TOTAL	PERCENTAGE INCREASE
0.052	0.052	0.104	**100.66**

SEWER PIPE AT CONNECTION (MUNEVAR)					
TOTAL PEAK FLOW (CFS)					
EXISTING	DIAMETER (IN)	DESIGN SLOPE	DEPTH (IN)	DEPTH/DIA RATIO	VELOCITY (FPS)
0.052	8	4.00%	0.84	0.105	2.64
PROJECTED					
0.104	8	4.00%	1.2	0.15	3.14

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Jun 13 2024

EX. AND PROP. FLOWS - 8 INCH PVC SEWER MAIN AT 4.00% IN MUNEVAR AVENUE

Circular

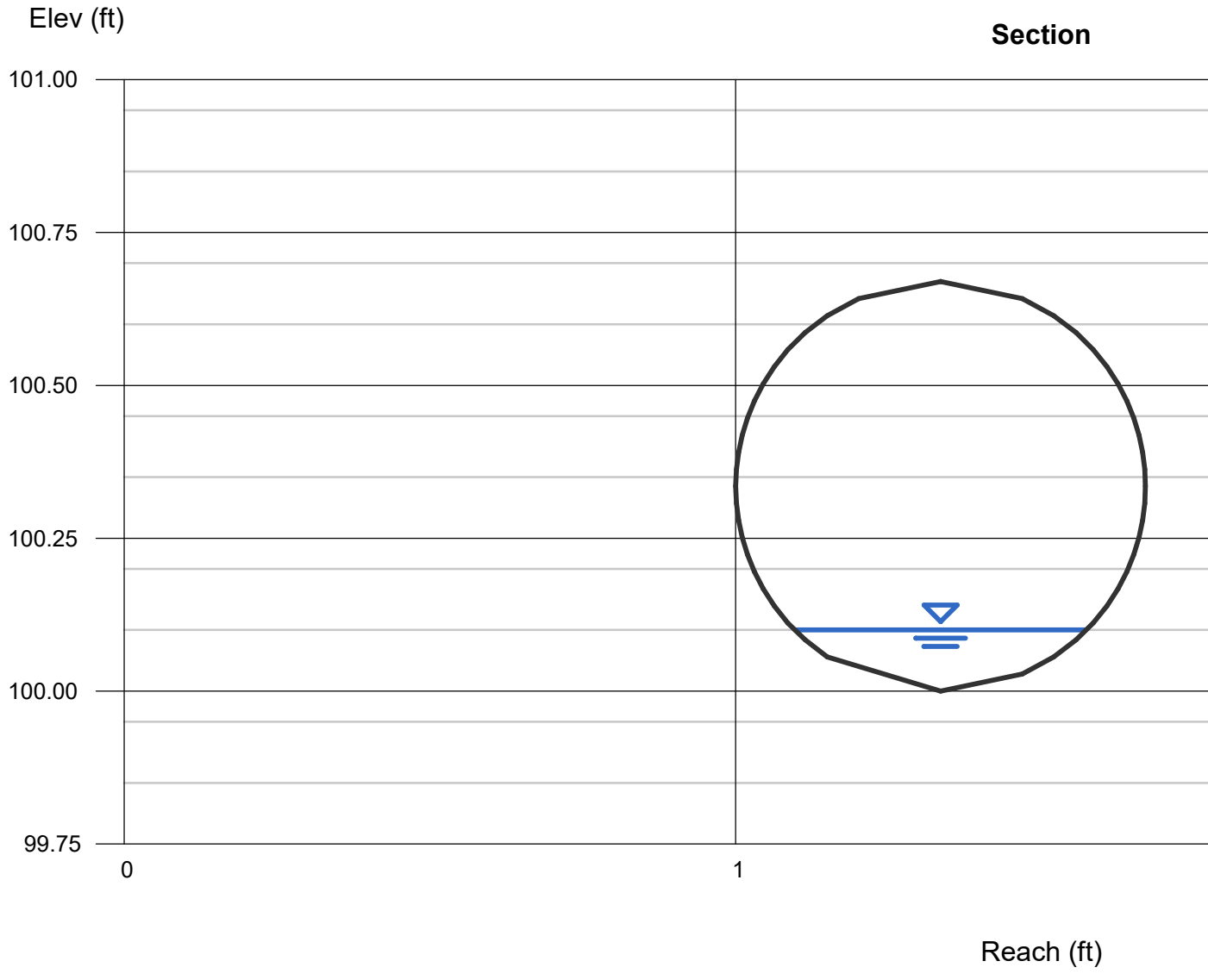
Diameter (ft)	= 0.67
Invert Elev (ft)	= 100.00
Slope (%)	= 4.00
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.10

Highlighted

Depth (ft)	= 0.10
Q (cfs)	= 0.100
Area (sqft)	= 0.03
Velocity (ft/s)	= 3.02
Wetted Perim (ft)	= 0.53
Crit Depth, Yc (ft)	= 0.15
Top Width (ft)	= 0.48
EGL (ft)	= 0.24



CITY OF ENCINITAS SEWER STUDY TEMPLATE

LINE	BASIN DESCRIPTION	POP PER D.U.	D.U.'S ADDED	NO. OF D.U.'S	POPULATION SERVED	TOTAL POP SRVD	PEAK/AVG RATIO	FLOW RES. MGD	FLOW RES. CFS	COM. FLOW	PEAK COM FLOW	TOTAL PEAK FLOW MGD
8" PVC @4.00	35 SINGLE FAMILY UNITS 16 MULTI-FAMILY UNITS		51				$Q_{PDWF} = 2.64 (Q_{ADWF})^{0.905}$ *EQUATION FOR PEAK DRY WEATHER FLOW TO AVERAGE DRY WEATHER FLOW	0.008 MGD	0.012 CFS			= 2.64*(0.008 MGD) ^0.905 = 0.034 MGD

TOTAL PEAK FLOW CFS	DIA IN	DESIGN SLOPE %	DEPTH IN	DEPT/DIA RATIO	VELOCITY FPS
= 0.052 CFS	8" VCP	4.00%	0.84	0.105	3.14

Please Note: A spreadsheet of the template that can be used for calculations is available from the Engineering Department upon request.

1 DU = 180 gpd single family
1 DU = 110 gpd multi-family

SEWER MANHOLES

1	2210SMANHL	28	1789SMANHL
2	2555SMANHL	27	1790SMANHL
3	2209SMANHL	28	1791SMANHL
4	2451SMANHL	29	1738SMANHL
5	2007SMANHL	30	1744SMANHL
6	2006SMANHL	31	1745SMANHL
7	2430SMANHL	32	1796SMANHL
8	3553SMANHL	33	1776SMANHL
9	2427SMANHL	34	1752SMANHL
10	2428SMANHL	35	1754SMANHL
11	2435SMANHL	36	1777SMANHL
12	2003SMANHL	37	1760SMANHL
13	2002SMANHL	38	1759SMANHL
14	4215SMANHL	39	1758SMANHL
15	2001SMANHL	40	1797SMANHL
16	2000SMANHL	41	1798SMANHL
17	2449SMANHL	42	1800SMANHL
18	1999SMANHL	43	1801SMANHL
19	1998SMANHL	44	1802SMANHL
20	1997SMANHL	45	2029SMANHL
21	1996SMANHL	46	2030SMANHL
22	3556SMANHL	47	3561SMANHL
23	1815SMANHL	48	3560SMANHL
24	1864SMANHL		
25	1793SMANHL		

845 SANTA FE DRIVE DOWNSTREAM SEWER SYSTEM

PLSA JOB NUMBER : 3376
SCALE : 1" = 200'
DATE : 08/22/2024

SHEET 1 OF 1

PLSA
PLSAENGINEERING.COM

J:\ACTIVE JOBS\3376 845 SANTA FE AVE\CIVIL\STUDIES\SEWER STUDY\Appendix

PIPE ID	Length (ft)	Diameter (in)	Upstream Invert	Downstream Invert	Calculated Slope (ft / ft)	Existing PWWF (mgd)	Existing PWWF (cfs)	Project PDWF (mgd)	Peaking Factor (PDWF to PWWF)	Project PWWF (mgd)	Project PWWF (cfs)	Existing + Project PWWF (mgd)	Existing + Project PWWF (cfs)	Percentage Increase (mgd) (Existing + Project)	Existing Hydraulic Radius Rh (ft)	Existing Normal Depth d (ft)	d/D (Existing)	Velocity (ft/sec) (Existing)	Existing + Project Hydraulic Radius Rh (ft)	Existing + Project Normal Depth d (ft)	d/D (Existing + Project)	d/D Percentage increase (Existing + Project)	Velocity (ft/sec) (Existing + Project)	Pass/Fail (Existing)	Pass/Fail (Existing + Project)
10962SMAIN	100.02	8	221.95	217.35	0.046	0.004	0.006	0.034	3.1	0.105	0.163	0.109	0.169	2635.0%	0.013	0.020	0.030	1.366	0.069	0.113	0.170	466.7%	4.142	PASS	PASS
12757SMAIN	288.29	8	217.35	210.41	0.024	0.006	0.009	0.034	3.1	0.105	0.163	0.111	0.172	1756.7%	0.022	0.033	0.050	1.378	0.080	0.133	0.200	300.0%	3.299	PASS	PASS
12758SMAIN	110.76	8	210.41	207.87	0.023	0.011	0.017	0.034	3.1	0.105	0.163	0.116	0.180	958.2%	0.026	0.040	0.060	1.518	0.084	0.140	0.210	250.0%	3.324	PASS	PASS
13073SMAIN	50.49	8	207.87	206.11	0.035	0.012	0.019	0.034	3.1	0.105	0.163	0.117	0.182	878.3%	0.026	0.040	0.060	1.873	0.077	0.127	0.190	216.7%	3.863	PASS	PASS
13079SMAIN	349.95	8	206.11	191.80	0.041	0.016	0.025	0.034	3.1	0.105	0.163	0.121	0.188	658.8%	0.030	0.047	0.070	2.239	0.073	0.120	0.180	157.1%	4.048	PASS	PASS
12093SMAIN	245.05	8	191.80	190.44	0.006	0.569	0.880	0.034	3.1	0.105	0.163	0.674	1.043	18.5%	0.202	0.513	0.770	3.049	0.167	0.667	1.000	29.9%	2.682	FAIL	FAIL
12069SMAIN	186.16	8	190.44	186.35	0.022	0.570	0.882	0.034	3.1	0.105	0.163	0.675	1.045	18.5%	0.165	0.327	0.490	5.091	0.175	0.360	0.540	10.2%	5.299	PASS	FAIL
15375SMAIN	14.87	10	182.28	182.17	0.007	0.551	0.852	0.034	3.1	0.105	0.163	0.656	1.015	19.1%	0.200	0.392	0.470	3.272	0.216	0.442	0.530	12.8%	3.443	PASS	FAIL
15374SMAIN	217.01	10	182.28	181.11	0.005	1.012	1.566	0.034	3.1	0.105	0.163	1.117	1.729	10.4%	0.253	0.692	0.830	3.237	0.208	0.833	1.000	20.5%	2.841	FAIL	FAIL
12014SMAIN	100.74	10	181.11	180.29	0.008	1.016	1.572	0.034	3.1	0.105	0.163	1.121	1.735	10.4%	0.243	0.558	0.670	3.982	0.250	0.608	0.730	9.0%	4.056	FAIL	FAIL
12061SMAIN	131.16	10	180.29	179.92	0.003	0.960	1.485	0.034	3.1	0.105	0.163	1.065	1.648	11.0%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL
9594SMAIN	411.58	10	179.09	177.78	0.003	0.962	1.488	0.034	3.1	0.105	0.163	1.067	1.651	11.0%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL
18736SMAIN	90.71	10	177.78	176.77	0.003			0.034	3.1	0.105	0.163	0.105													
9593SMAIN	343.30	10	177.78	176.77	0.003	0.963	1.490	0.034	3.1	0.105	0.163	1.068	1.653	10.9%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL
9592SMAIN	345.80	10	176.77	175.59	0.003	0.965	1.493	0.034	3.1	0.105	0.163	1.070	1.656	10.9%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL
12717SMAIN	24.66	10	175.59	175.50	0.004	0.966	1.494	0.034	3.1	0.105	0.163	1.071	1.657	10.9%	0.208	0.833	1.000	2.541	0.208	0.833	1.000	0.0%	2.541	FAIL	FAIL
12716SMAIN	320.95	10	175.50	174.39	0.003	0.969	1.499	0.034	3.1	0.105	0.163	1.074	1.662	10.9%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL
9589SMAIN	357.31	10	174.39	173.25	0.003	0.975	1.508	0.034	3.1	0.105	0.163	1.080	1.671	10.8%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL
9197SMAIN	283.57	10	173.25	172.40	0.003	0.979	1.515	0.034	3.1	0.105	0.163	1.084	1.678	10.8%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL
9196SMAIN	328.54	10	172.40	171.33	0.003	0.981	1.518	0.034	3.1	0.105	0.163	1.086	1.681	10.7%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL
15383SMAIN	140.15	10	171.33	169.68	0.012	1.042	1.612	0.034	3.1	0.105	0.163	1.147	1.775	10.1%	0.231	0.500	0.600	4.719	0.237	0.525	0.630	5.0%	4.794	FAIL	FAIL
15384SMAIN	59.70	10	169.68	169.00	0.011	1.044	1.615	0.034	3.1	0.105	0.163	1.149	1.778	10.1%	0.233	0.508	0.610	4.543	0.242	0.550	0.660	8.2%	4.651	FAIL	FAIL
9601SMAIN	164.37	10	169.00	166.81	0.013	1.046	1.618	0.034	3.1	0.105	0.163	1.151	1.781	10.1%	0.227	0.483	0.580	4.855	0.235	0.517	0.620	6.9%	4.965	FAIL	FAIL
9588SMAIN	401.04	10	166.81	161.72	0.013	1.048	1.621	0.034	3.1	0.105	0.163	1.153	1.784	10.1%	0.227	0.483	0.580	4.855	0.235	0.517	0.620	6.9%	4.965	FAIL	FAIL
8489SMAIN	254.16	10	161.72	148.86	0.051	1.064	1.646	0.034	3.1	0.105	0.163	1.169	1.809	9.9%	0.175	0.325	0.390	8.082	0.182	0.342	0.410	5.1%	8.284	PASS	PASS
8488SMAIN	124.68	10	148.86	140.39	0.068	1.080	1.671	0.034	3.1	0.105	0.163	1.185	1.834	9.8%	0.168	0.308	0.370	9.088	0.172	0.317	0.380	2.7%	9.212	PASS	PASS
8487SMAIN	130.68	10	140.39	129.69	0.082	1.084	1.677	0.034	3.1	0.105	0.163	1.189	1.840	9.7%	0.161	0.292	0.350	9.697	0.168	0.308	0.370	5.7%	9.979	PASS	PASS
8486SMAIN	323.81	10	129.69	126.60	0.010	1.086	1.680	0.034	3.1	0.105	0.163	1.191	1.843	9.7%	0.240	0.542	0.650	4.416	0.247	0.583	0.700	7.7%	4.498	FAIL	FAIL
8407SMAIN	327.01	10	126.60	123.60	0.009	1.088	1.683	0.034	3.1	0.105	0.163	1.193	1.846	9.7%	0.244	0.567	0.680	4.239	0.250	0.608	0.730	7.4%	4.302	FAIL	FAIL
8416SMAIN	125.50	10	123.60	104.14	0.155	1.123	1.737	0.034	3.1	0.105	0.163	1.228	1.900	9.4%	0.142	0.250	0.300	12.275	0.146	0.258	0.310	3.3%	12.497	PASS	PASS
8502SMAIN	72.13	10	104.14	98.69	0.076	1.141	1.765	0.034	3.1	0.105	0.163	1.246	1.928	9.2%	0.168	0.308	0.370	9.607	0.172	0.317	0.380	2.7%	9.738	PASS	PASS
8498SMAIN	69.89	12	98.69	96.40	0.033	1.141	1.765	0.034	3.1	0.105	0.163	1.246	1.928	9.2%	0.193	0.350	0.350	6.947	0.202	0.370	0.370	5.7%	7.149	PASS	PASS
8425SMAIN	448.31	12	96.40	95.05	0.003	1.142	1.767	0.034	3.1	0.105	0.163	1.247	1.930	9.2%	0.301	0.740	0.740	2.811	0.304	0.810	0.810	9.5%	2.833	FAIL	FAIL
8426SMAIN	400.69	12	95.05	93.85	0.003	1.143	1.768	0.034	3.1	0.105	0.163	1.248	1.931	9.2%	0.301	0.740	0.740	2.811	0.304	0.810	0.810	9.5%	2.833	FAIL	FAIL
8427SMAIN	408.48	12	93.85	92.62	0.003	1.143	1.768	0.034	3.1	0.105	0.163	1.248	1.931	9.2%	0.301	0.740	0.740	2.811	0.304	0.810	0.810	9.5%	2.833	FAIL	FAIL
8428SMAIN	210.95	12	92.62	79.70	0.061	1.144	1.770	0.034	3.1	0.105	0.163	1.249	1.933	9.2%	0.171	0.300	0.300	8.696	0.176	0.310	0.310	3.3%	8.853	PASS	PASS
8429SMAIN	51.72	12	79.70	79.55	0.003	1.144	1.770	0.034	3.1	0.105	0.163	1.249	1.933	9.2%	0.301	0.740	0.740	2.811	0.304	0.810	0.810	9.5%	2.833	FAIL	FAIL
8430SMAIN	411.41	12	79.55	78.32	0.003	1.145	1.771	0.034	3.1	0.105	0.163	1.250	1.934	9.2%	0.301	0.740	0.740	2.811	0.304	0.810	0.810	9.5%	2.833	FAIL	FAIL
8506SMAIN	360.90	12	78.32	77.24	0.003	1.146	1.773	0.034	3.1	0.105	0.163	1.251	1.936	9.2%	0.301	0.740	0.740	2.811	0.304	0.810	0.810	9.5%	2.833	FAIL	FAIL
8433SMAIN	238.59	12	77.24	76.52	0.003	1.147	1.774	0.034	3.1	0.105	0.163	1.252	1.937	9.2%	0.301	0.740	0.740	2.811	0.304	0.810	0.810	9.5%	2.833	FAIL	FAIL
8434SMAIN	408.38	12	76.52	51.18	0.062	1.148	1.776	0.034	3.1	0.105	0.163	1.253	1.939	9.2%	0.171	0.300	0.300	8.767	0.176	0.310	0.310	3.3%	8.925	PASS	PASS
8432SMAIN	391.16	12	51.18	28.56	0.058	1.148	1.776	0.034	3.1	0.105	0.163	1.253	1.939	9.2%	0.171	0.300	0.300	8.479	0.180	0.320	0.320	6.7%	8.782	PASS	PASS
8431SMAIN	58.82	12	28.56	18.71	0.167	1.149	1.778	0.034	3.1	0.105	0.163	1.254	1.941	9.2%	0.136	0.230	0.230	12.379	0.142	0.240	0.240	4.3%	12.688	PASS	PASS
9610SMAIN	140.65	15	18.71	17.37	0.010	2.281	3.529	0.034	3.1	0.105	0.163	2.386	3.692	4.6%	0.320	0.650	0.520	5.351	0.328	0.675	0.540	3.8%	5.432	FAIL	FAIL
9611SMAIN	164.00	15	17.37	16.12	0.008	2.282	3.530	0.034	3.1	0.105	0.163	2.387	3.693	4.6%	0.335	0.700	0.560	4.927	0.341	0.725	0.580	3.6%	4.990	FAIL	FAIL
15391SMAIN	157.61	15	16.12	15.82	0.002	2.282	3.530	0.034	3.1	0.105	0.163	2.387	3.693	4.6%	0.313	1.250	1.000	2.354	0.313	1.250	1.000	0.0%	2.354	FAIL	FAIL
15392SMAIN	126.88	15	15.82	15.56	0.002	2.286	3.536	0.034	3.1	0.105	0.163	2.391	3.699	4.6%	0.313	1.250	1.000	2.354	0.313	1.250	1.000	0.0%	2.354	FAIL	FAIL
15393SMAIN	244.33	15	15.56	10.00	0.023	2.287	3.538	0.034	3.1	0.105	0.163	2.392	3.701	4.6%	0.273	0.513	0.410	7.290	0.277	0.525	0.420	2.4%	7.375	PASS	PASS

Existing
Project
Existing + Project
Future
Future + Project

Future PWWF (mgd)(2035)	Future PWWF (cfs)(2035)	Future + Project PWWF (mgd)	Future + Project PWWF (cfs)	Percentage Increase (mgd) (Future + Project)	Future Hydraulic Radius Rh (ft)	Future Normal Depth d (ft)	d/D (Future)	Velocity (ft/sec) (Future)	Future + Project Hydraulic Radius Rh (ft)	Future + Project Normal Depth d (ft)	d/D (Future + Project)	d/D Percentage increase (Future + Project)	Velocity (ft/sec) (Future + Project)	Pass/Fail (Future)	Pass/Fail (Future + Project)	Street
0.004	0.006	0.109	0.169	2635.0%	0.013	0.020	0.030	1.366	0.069	0.113	0.170	466.7%	4.142	PASS	PASS	Munevar Rd
0.006	0.009	0.111	0.172	1756.7%	0.022	0.033	0.050	1.378	0.080	0.133	0.200	300.0%	3.299	PASS	PASS	Munevar Rd
0.011	0.017	0.116	0.180	958.2%	0.026	0.040	0.060	1.518	0.084	0.140	0.210	250.0%	3.324	PASS	PASS	Munevar Rd
0.012	0.019	0.117	0.182	878.3%	0.026	0.040	0.060	1.873	0.077	0.127	0.190	216.7%	3.863	PASS	PASS	Munevar Rd
0.016	0.025	0.121	0.188	658.8%	0.030	0.047	0.070	2.239	0.073	0.120	0.180	157.1%	4.048	PASS	PASS	Munevar Rd
0.583	0.902	0.688	1.065	18.1%	0.202	0.520	0.780	3.052	0.167	0.667	1.000	28.2%	2.682	FAIL	FAIL	Mackinnon Ave
0.584	0.903	0.689	1.067	18.0%	0.167	0.333	0.500	5.135	0.177	0.367	0.550	10.0%	5.337	PASS	FAIL	Cathy Ln
0.558	0.863	0.663	1.026	18.9%	0.203	0.400	0.480	3.302	0.216	0.442	0.530	10.4%	3.443	PASS	FAIL	Orkney Ln
1.026	1.587	1.131	1.750	10.3%	0.253	0.700	0.840	3.234	0.208	0.833	1.000	19.0%	2.841	FAIL	FAIL	Loch Lomond Dr
1.031	1.595	1.136	1.758	10.2%	0.244	0.567	0.680	3.997	0.250	0.608	0.730	7.4%	4.056	FAIL	FAIL	Loch Lomond Dr
0.974	1.507	1.079	1.670	10.8%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL	Loch Lomond Dr
0.975	1.508	1.080	1.671	10.8%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL	Somerset Ave
		0.105														Somerset Ave
0.976	1.510	1.081	1.673	10.8%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL	Somerset Ave
0.978	1.513	1.083	1.676	10.8%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL	Somerset Ave
0.979	1.515	1.084	1.678	10.8%	0.208	0.833	1.000	2.541	0.208	0.833	1.000	0.0%	2.541	FAIL	FAIL	Somerset Ave
0.982	1.519	1.087	1.682	10.7%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL	Somerset Ave
0.988	1.528	1.093	1.691	10.7%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL	Somerset Ave
0.994	1.538	1.099	1.701	10.6%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL	Somerset Ave
0.996	1.541	1.101	1.704	10.6%	0.208	0.833	1.000	2.200	0.208	0.833	1.000	0.0%	2.200	FAIL	FAIL	Somerset Ave
1.059	1.638	1.164	1.801	10.0%	0.231	0.500	0.600	4.719	0.239	0.533	0.640	6.7%	4.816	FAIL	FAIL	Brighton Ave
1.062	1.643	1.167	1.806	9.9%	0.235	0.517	0.620	4.567	0.242	0.550	0.660	6.5%	4.651	FAIL	FAIL	Brighton Ave
1.064	1.646	1.169	1.809	9.9%	0.229	0.492	0.590	4.884	0.235	0.517	0.620	5.1%	4.965	FAIL	FAIL	Cambridge Ave
1.065	1.648	1.170	1.811	9.9%	0.229	0.492	0.590	4.884	0.235	0.517	0.620	5.1%	4.965	FAIL	FAIL	Edinburg Ave
1.082	1.674	1.187	1.837	9.7%	0.179	0.333	0.400	8.184	0.185	0.350	0.420	5.0%	8.381	PASS	PASS	Birmingham Dr
1.098	1.699	1.203	1.862	9.6%	0.168	0.308	0.370	9.088	0.175	0.325	0.390	5.4%	9.333	PASS	PASS	Birmingham Dr
1.102	1.705	1.207	1.868	9.6%	0.161	0.292	0.350	9.697	0.168	0.308	0.370	5.7%	9.979	PASS	PASS	Birmingham Dr
1.104	1.708	1.209	1.871	9.5%	0.242	0.550	0.660	4.435	0.248	0.592	0.710	7.6%	4.512	FAIL	FAIL	Oxford Ave
1.106	1.711	1.211	1.874	9.5%	0.246	0.575	0.690	4.254	0.251	0.617	0.740	7.2%	4.311	FAIL	FAIL	Oxford Ave
1.141	1.765	1.246	1.928	9.2%	0.142	0.250	0.300	12.275	0.150	0.267	0.320	6.7%	12.713	PASS	PASS	Liverpool Dr
1.159	1.793	1.264	1.956	9.1%	0.168	0.308	0.370	9.607	0.175	0.325	0.390	5.4%	9.866	PASS	PASS	Liverpool Dr
1.159	1.793	1.264	1.956	9.1%	0.193	0.350	0.350	6.947	0.202	0.370	0.370	5.7%	7.149	PASS	PASS	Liverpool Dr
1.160	1.795	1.265	1.958	9.1%	0.302	0.750	0.750	2.816	0.304	0.820	0.820	9.3%	2.832	FAIL	FAIL	Montgomery Ave
1.161	1.796	1.266	1.959	9.1%	0.302	0.750	0.750	2.816	0.304	0.820	0.820	9.3%	2.832	FAIL	FAIL	Montgomery Ave
1.160	1.795	1.265	1.958	9.1%	0.302	0.750	0.750	2.816	0.304	0.820	0.820	9.3%	2.832	FAIL	FAIL	Montgomery Ave
1.161	1.796	1.266	1.959	9.1%	0.171	0.300	0.300	8.696	0.180	0.320	0.320	6.7%	9.006	PASS	PASS	Norfolk Dr
1.161	1.796	1.266	1.959	9.1%	0.302	0.750	0.750	2.816	0.304	0.820	0.820	9.3%	2.832	FAIL	FAIL	Manchester Ave
1.162	1.798	1.267	1.961	9.1%	0.302	0.750	0.750	2.816	0.304	0.820	0.820	9.3%	2.832	FAIL	FAIL	Manchester Ave
1.163	1.799	1.268	1.962	9.1%	0.302	0.750	0.750	2.816	0.304	0.820	0.820	9.3%	2.832	FAIL	FAIL	Manchester Ave
1.164	1.801	1.269	1.964	9.1%	0.302	0.750	0.750	2.816	0.304	0.820	0.820	9.3%	2.832	FAIL	FAIL	Manchester Ave
1.165	1.802	1.270	1.965	9.0%	0.171	0.300	0.300	8.767	0.176	0.310	0.310	3.3%	8.925	PASS	PASS	Manchester Ave
1.165	1.802	1.270	1.965	9.0%	0.176	0.310	0.310	8.632	0.180	0.320	0.320	3.2%	8.782	PASS	PASS	Manchester Ave
1.166	1.804	1.271	1.967	9.0%	0.136	0.230	0.230	12.379	0.142	0.240	0.240	4.3%	12.688	PASS	PASS	Manchester Ave
2.308	3.570	2.413	3.734	4.6%	0.324	0.663	0.530	5.392	0.328	0.675	0.540	1.9%	5.432	FAIL	FAIL	Manchester Ave
2.308	3.570	2.413	3.734	4.6%	0.335	0.700	0.560	4.927	0.341	0.725	0.580	3.6%	4.990	FAIL	FAIL	Manchester Ave
2.309	3.572	2.414	3.735	4.6%	0.313	1.250	1.000	2.354	0.313	1.250	1.000	0.0%	2.354	FAIL	FAIL	Manchester Ave
2.312	3.577	2.417	3.740	4.6%	0.313	1.250	1.000	2.354	0.313	1.250	1.000	0.0%	2.354	FAIL	FAIL	Manchester Ave
2.314	3.580	2.419	3.743	4.6%	0.273	0.513	0.410	7.290	0.277	0.525	0.420	2.4%	7.375	PASS	PASS	Manchester Ave

Existing
Project
Existing + Project
Future
Future + Project

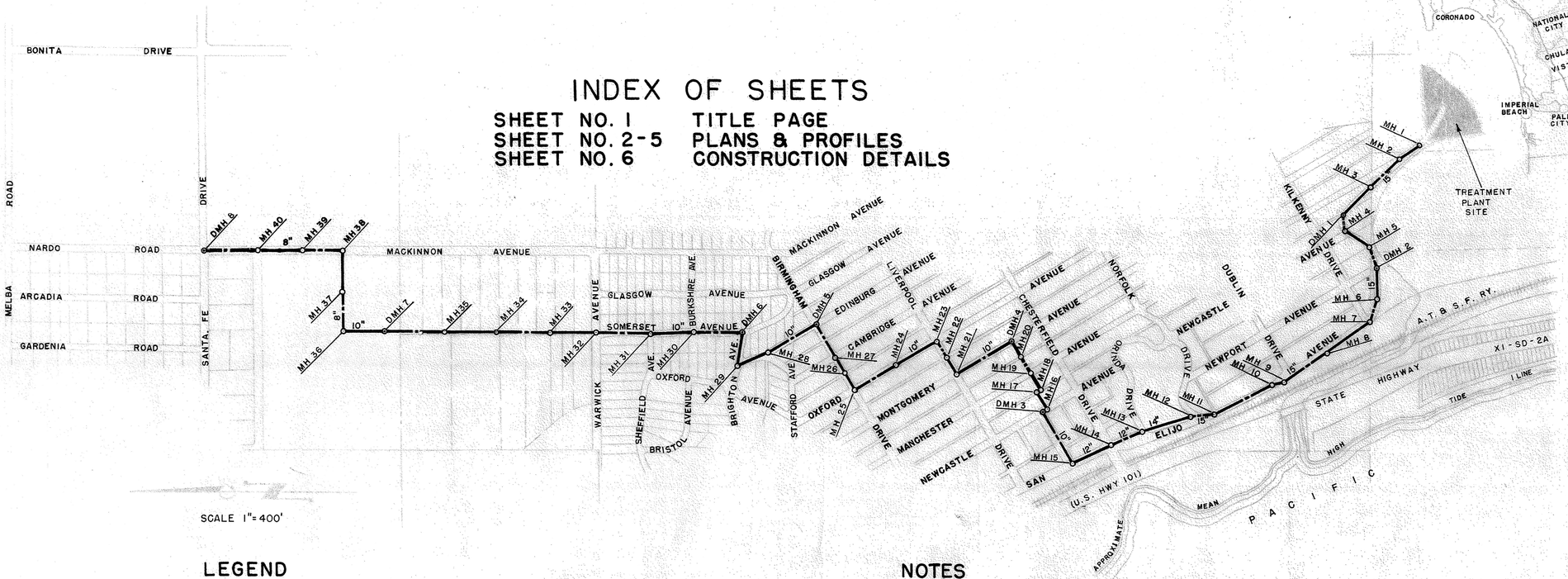
APPENDIX C

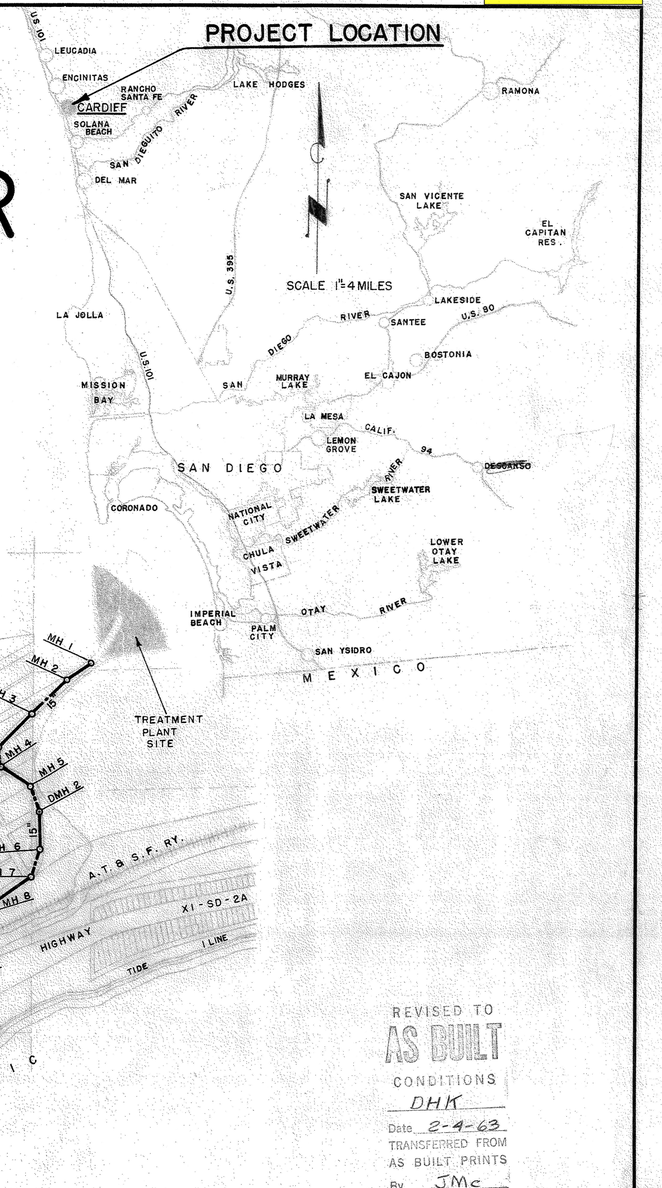
EXISTING SEWER AS-BUILTS & RECORD DRAWINGS

DID: 5920

CONSTRUCTION OF A TRUNK SEWER FOR THE CARDIFF SANITATION DISTRICT

INDEX OF SHEETS





LEGEND

- TRUNK SEWER
- STANDARD MANHOLE
- DROP MANHOLE
- STUB
- DEAD END
- WATER LINES (W)
- GAS LINES (G)
- TELEPHONE LINES (T)
- ABANDONED WATER LINES
- OIL SURFACING
- OIL MACADAM
- CULVERTS

NOTES

M.H. = MANHOLE
D.M.H. = DROP MANHOLE
EL. = ELEVATION
B.M. = BENCH MARK
F.L. = FLOW LINE

All distances shown on these plans are horizontal unless otherwise noted.
Elevations shown are in feet and decimals thereof above the U.S.G.S. datum plane.
Underground utilities shown on the plans are located in accordance with records of the various utility companies.

V.C.P. = VITRIFIED CLAY PIPE
C.I.P. = CAST IRON PIPE
C.M.P. = CORRUGATED METAL PIPE
C.M.P.A. = CORRUGATED METAL PIPE ARCH
R.C.P. = REINFORCED CONCRETE PIPE

Payment for sewer mains shall be based on horizontal centerline measured to the inside face of each manhole as noted "End of Sewer Main" on standard manhole details, sheet 6.

REVISED TO AS BUILT CONDITIONS
DHK
Date 2-9-63
TRANSFERRED FROM AS BUILT PRINTS
By JMc
Date 10-5-65

ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS
COUNTY OF SAN DIEGO
4005 ROSECRANS ST. SAN DIEGO 10, CALIFORNIA

CARDIFF SANITATION DISTRICT
TRUNK SEWER

TITLE SHEET

SCALE As Noted
DESIGNED W.L.S. W.P.S.
DRAWN A.C.O. R.D.B.
CHECKED
DATE 9/17/56
FIELD 111,117,118,119
BOOK 141,142,& A

PROJECT NO.
ENGINEERING W. O. 76-2906
SHEET 1 OF 6
FILE NO. 3-2

WARREN A. BARNEY CIVIL ENGINEER R. E. NO. 7119

REVISIONS: NO. | DESCRIPTION | DATE

PRECISION MICROFILMED OCT 28 1965

306-1693 UCS-1956 G17 CA-43-1

MACKINNON AVE.
20' EASEMENT (EAST-WEST)
20' EASEMENT (NORTH-SOUTH)
B.M. ELEV. 219.82
Fd. Spk. in P. Pole NE Cor. MacKinnon and Santa Fe.
B.M. ELEV. 211.47
Spk. in Tel. Pole #380631H on MacKinnon 300'± S. of Easement.
B.M. ELEV. 194.30
Spk. in P. Pole #121982 in front of House No. 1475 Somerset.
B.M. ELEV. 190.77
Spk. in P. Pole #28782 SE Cor. Somerset and Warwick.
D.M.H. 8 115+95.71
M.H. 40 112+30.89
M.H. 39 109+14.62
M.H. 38 106+71.73
M.H. 37 103+86.73
M.H. 36 101+19.73
D.M.H. 7 98+48.73
M.H. 35 94+38.83
M.H. 34 90+93.83
M.H. 33 87+48.83
Oil Surf. Pave.
Ground Line
F.L.=0.40% 8" V.C.P.
F.L.=1.56% 8" V.C.P.
F.L.=2.46% 8" V.C.P.
F.L.=1.40% 8" V.C.P.
F.L.=0.32% 10" V.C.P.
48'-43"x26" C.M.P.A.
19" Steel Water Pipe
PROFILE
Scale: Horizontal 1"=100' Vertical 1"=6'
Scale 1"=100'
SANTA FE AVE.
MACKINNON AVE.
GLASGOW AVE.
SOMERSET AVE.
WARWICK AVE.
FAITH AVE 60' ROAD EASEMENT
RECORD OF SURVEY MAP 2058
RECORD OF SURVEY MAP 1699
NW¼ OF NE¼, SEC. 22, T.13 S., R.4 W., S.B.B.M.
20' Easement
8" Stub
Abandoned 26" Wood Stave Water Line
30" C.C.P. Water Pipe
6" Gate Valve
See Sheet 4
REVISED TO AS BUILT CONDITIONS
Date 2-63
TRANSFERRED FROM AS BUILT PRINTS
By JMcG
Date 10-5-65
Underground utilities shown on the plans are located in accordance with records of the various utility companies.
ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS
COUNTY OF SAN DIEGO
4005 ROSECRANS ST. SAN DIEGO 10, CALIFORNIA
CARDIFF SANITATION DISTRICT
TRUNK SEWER
PLAN & PROFILE
Scale As Noted
Engineering W.O. 76-2906
Sheet 5 of 6
File No. 3-2
WARREN A. BARNEY CIVIL ENGINEER R.E. NO. 7119
PLAN-PROFILE PLATE B.
MICROFILMED OCT 28 1965
306-1683
UCS-1956 G17
CA-43-5

CONSTRUCTION OF A SEWER SYSTEM IN THE CARDIFF SANITATION DISTRICT AREA NO. 30

EXISTING IMPROVEMENTS

TRUNK SEWER SHOWN THUS
MANHOLES SHOWN THUS
DROP MANHOLES SHOWN THUS
CONCRETE CURB & GUTTER SHOWN THUS
OIL SURFACE PAVEMENT SHOWN THUS
CULVERTS SHOWN THUS
A.C. PAVE. OR OIL MACADAM SHOWN THUS
WATER MAINS SHOWN THUS (W)
GAS MAINS SHOWN THUS (G)
UNDERGROUND TELEPHONE LINES SHOWN THUS (T)

NOTE: UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE LOCATED IN ACCORDANCE WITH RECORDS OF THE VARIOUS UTILITY COMPANIES AND THE ENGINEER DOES NOT GUARANTEE THEIR ACCURACY.

WORK TO BE DONE

THE IMPROVEMENT CONSISTS OF THE FOLLOWING WORK TO BE DONE IN ACCORDANCE WITH THESE PLANS AND THE SPECIFICATIONS ATTACHED HERETO:

THE CONSTRUCTION OF V.C.P. SEWER MAIN, WITH SIZE INDICATED — 8"
THE CONSTRUCTION OF CONCRETE MANHOLES SHOWN THUS — M.H. 23
THE CONSTRUCTION OF CONCRETE DROP MANHOLES SHOWN THUS — D.M.H. 7
THE CONSTRUCTION OF V.C.P. DEAD ENDS SHOWN THUS — D.E. 3
THE CONSTRUCTION OF CONCRETE CUT-OFF WALL SHOWN THUS
THE CONSTRUCTION OF CONCRETE ENCASEMENT SHOWN THUS
THE CONSTRUCTION OF V.C.P. PLUGS SHOWN THUS

INDEX OF SHEETS

NOTES

EL. MEANS ELEVATION
F.L. MEANS FLOW LINE
M.H. MEANS MANHOLE
D.M.H. MEANS DROP MANHOLE
D.E. MEANS DEAD END
V.C.P. MEANS VITRIFIED CLAY PIPE
A.C. PAVE. MEANS ASPHALTIC CONCRETE PAVEMENT
OIL MAC. PAVE. MEANS OIL MACADAM PAVEMENT
OIL SURF. PAVE. MEANS OIL SURFACE PAVEMENT
B.M. MEANS BENCH MARK

ALL CONNECTIONS TO EXISTING MANHOLES IN THE TRUNK LINE ARE TO BE MADE TO STUBS PROVIDED.

DISTANCES SHOWN ON THESE PLANS ARE HORIZONTAL DISTANCES EXCEPT AS NOTED.

ALL MANHOLES TO BE EQUIPPED WITH CAST IRON FRAMES AND COVERS AS SHOWN IN CONSTRUCTION DETAILS, SHEET 24.

GRADE ELEVATIONS, SHOWN THUS: EL. 123.45, ARE IN FEET AND DECIMALS THEREOF ABOVE THE U.S.G.S. DATUM PLANE.

ALL POINTS BETWEEN DESIGNATED ELEVATIONS SHALL CONFORM TO A STRAIGHT LINE.

PAYMENT FOR SEWER MAIN SHALL BE BASED ON THE HORIZONTAL CENTERLINE DISTANCE MEASURED TO THE INSIDE FACE OF EACH MANHOLE NOTED AS "END OF SEWER MAIN" IN CONSTRUCTION DETAILS, SHEET 24.

REVISED TO
AS BUILT
CONDITIONS
DHK
Date 2-63

PLANS FOR THE CONSTRUCTION OF SEWERS, MANHOLES AND APPURTENANCES IN

Kilkenny Drive, between the Easterly line of San Elijo Avenue and the Westerly line of Oxford Avenue.
Dublin Drive, between the Easterly line of San Elijo Avenue and the Westerly line of Cambridge Avenue.
Norfolk Drive, between the Easterly line of San Elijo Avenue and the Easterly line of Edinburg Avenue.
Chesterfield Drive, between the Easterly line of San Elijo Avenue and the Westerly line of Edinburg Avenue.
Aberdeen Drive, between the Easterly line of San Elijo Avenue and the Westerly line of Newcastle Avenue.
Liverpool Drive, between the Westerly line of Newcastle Avenue and the Easterly line of Glasgow Avenue.
Birmingham Drive, between the Northerly prolongation of the Westerly line of Newcastle Avenue and the Easterly line of Mackinnon Avenue.
Newport Avenue, between the Northerly line of Kilkenny Drive and the Southerly boundary of Cardiff, Map 1298.
Newcastle Avenue, between the Northerly line of Birmingham Drive and the Northerly line of Orinda Drive.
Manchester Avenue, between the Northerly line of Rossini Drive East and the Southerly line of Kilkenny Drive.
Montgomery Avenue, between the Easterly line of San Elijo Avenue and the Southwesterly prolongation of the Southeasterly line of Lot F, Block 81, of Cardiff Villa Tract, Map 1469, and between the Northerly line of Rossini Drive East and the Westerly prolongation of the Southerly line of Lot 25, Block 1, of Cardiff, Map 1298.
Oxford Avenue, between the Northerly line of Liverpool Drive and the Northerly line of Kilkenny Drive and between the Easterly prolongation of the Southerly line of Lot 11 and the Easterly prolongation of the Southerly line of Lot 13 of Block 48 in Cardiff "A", Map 1334.
Cambridge Avenue, between the Northerly line of Cardiff "A", Map 1334, and the Southerly line of Norfolk Drive.
Edinburg Avenue, between the Northerly line of Birmingham Drive and the Southerly line of Norfolk Drive.
Glasgow Avenue, between the Southerly line of Warwick Avenue and the Northerly line of Chesterfield Drive.
Mackinnon Avenue, between the Easterly prolongation of the Northerly line of Warwick Avenue and the Southerly line of Birmingham Drive, and between the Westerly prolongation of the Northerly line of Sea Crest Vista Unit No. 1, Map 3503, and the Westerly prolongation of the Southerly line of Sea Crest Vista Unit No. 2, Map 3504.
Mozart Avenue, between the Easterly line of San Elijo Avenue and the Northwesterly prolongation of the Southwesterly line of Lot 5 of Kremer Park, Map 3412.
San Elijo Avenue, between the Westerly prolongation of the Northerly line of Cardiff Villa Tract, Map 1469, and the Westerly prolongation of the Southerly line of Aberdeen Drive.
All of Schubert Path as shown on Map 1469 of Cardiff Villa Tract.
All of Liszt Avenue as shown on Map 1469 of Cardiff Villa Tract.
Verdi Avenue, between the Westerly line of Summit Avenue and the Easterly line of San Elijo Avenue.
All of Haydn Drive as shown on Map 1469 of Cardiff Villa Tract.
Summit Avenue, as shown on Road Survey No. 1156, between the Northeasterly prolongation of the Southeasterly line of Lot 1 of Nance's Acres, Map 2884, and the Westerly prolongation of the Southerly line of Lot E in Block 84 of Cardiff Villa Tract, Map 1469.
Westminster Drive, between the Northerly line of Cardiff Villa Tract, Map 1469, and the Northerly line of Montgomery Avenue.

Rubenstein Drive, between the Easterly prolongation of the Northerly line of Lot 15 of Ridgeway Heights, Map 2163, and the Westerly prolongation of the Southerly line of Lot D in Block 87 of Cardiff Villa Tract, Map 1469.
Stafford Avenue, between the Northwesterly prolongation of the center line of Oxford Avenue and the Southwesterly prolongation of the Northwesterly line of Lot 6 in Block 95 of Cardiff Vista, Map 1547.
Somerset Avenue, between the Easterly prolongation of the Northerly line of Lot 1 in Block 101 of Cardiff Vista, Map 1547, and the Northerly line of Birmingham Drive.
All of Ocean Crest Road, as shown on Map 3504 of Sea Crest Vista Unit No. 2.
All of Cathy Lane, as shown on Map 3503 of Sea Crest Vista Unit No. 1.
Somerset Road, between the Easterly line of Mackinnon Avenue and the Northwesterly prolongation of the Easterly line of Lot 13 of Sea Crest Vista Unit No. 1, Map 3503.
All of Justin Road, as shown on Map 3503 of Sea Crest Vista Unit No. 1 and on Map 3504 of Sea Crest Vista Unit No. 2.
All of Faith Avenue as shown on Map 3575 of Brown Wanket Unit Subdivision No. 1.
Grange Hall Road, between the Westerly line of Windsor Road and the Southerly line of Blue Sky Drive.
Blue Sky Drive, between the Southerly line of Grange Hall Road and the Southerly line of Santa Fe Drive.
Windsor Road, between the Easterly prolongation of the Southerly line of Sea Crest Vista Unit No. 2, Map 3504, and the Southerly line of Santa Fe Drive.
Santa Fe Drive, between the Southerly prolongation of the Easterly line of Cardena Road and the Southerly prolongation of the Easterly line of Nardo Road, and between the Southerly prolongation of the Westerly line of Bonita Drive and the Northerly prolongation of the Easterly line of Lake Drive.
All of Arcadia Road as shown on Map 2130 of Avocado Acres No. 5.
Nardo Road, between the Southerly line of Santa Fe Drive and the Northerly line of Melba Road.
Bonita Drive, between the Southerly line of Santa Fe Drive and the Northerly line of Melba Road.
All of Evergreen Drive as shown on Map 2138 of Avocado Acres No. 7.
All of Aleha Drive as shown on Map 2138 of Avocado Acres No. 7.
Balour Drive, between the Southerly line of Santa Fe Drive and the Northerly line of Melba Road.
Lake Drive, between the Southerly line of Santa Fe Drive and the Southerly line of the Northerly 500 feet of the Northeast 1/4 of the Northwest 1/4 of Section 23, Township 13 South, Range 4 West, S.B.B.M.
Melba Road, between the Westerly line of Nardo Road and the Northerly prolongation of the Westerly line of Crest Road.
Alley West of Newport Avenue in Blocks 6 and 18 of Cardiff, Map 1298, between the Northerly line of Kilkenny Drive and the Westerly prolongation of the Northerly line of Lot 9 of said Block 18.
Alley West of Newcastle Avenue, in Blocks 7 and 17 of Cardiff, Map 1298, between the Northerly line of Kilkenny Drive and the Westerly prolongation of the Northerly line of Lot 10 of said Block 17.
Alley West of Manchester Avenue, in Blocks 3, 8 and 16 of Cardiff, Map 1298, between the Westerly prolongation of the Southerly line of Lot 9 of said Block 3 and the Southerly line of Norfolk Drive, and in Block 30 of said Cardiff between the Westerly prolongation of the Southerly line of Lot 15 and the Westerly prolongation of the Northerly line of Lot 13 of said Block 30.

Alley West of Montgomery Avenue, in Blocks 2, 9, 15, 22 and 29 of Cardiff, Map 1298, between the Westerly prolongation of the Southerly line of Lot 6 of said Block 2 and the Easterly prolongation of the Northerly line of Lot 41 of said Block 29.

Alley West of Oxford Avenue, in Blocks 1, 10, 14, 23 and 28 of Cardiff, Map 1298, and in Blocks 50, 37 and 48 of Cardiff "A", Map 1334, between the Westerly prolongation of the Southerly line of Lot 11 of said Block 1 of Cardiff, Map 1298, and the Westerly prolongation of the Southerly line of Lot 7 in said Block 48 of Cardiff "A", Map 1334.

Alley West of Cambridge Avenue, in Blocks 11, 13, 24 and 27 of Cardiff, Map 1298; in Blocks 57, 38 and 47 of Cardiff "A", Map 1334; and in Block 109 of Cardiff Vista, Map 1547, between the Westerly prolongation of the Southerly line of Lot 11 in said Block 11 of Cardiff, Map 1298, and the Southerly line of Stafford Avenue.

Alley West of Edinburg Avenue, in Blocks 12 and 25 of Cardiff, Map 1298, and in Blocks E and F of Cardiff "A", Map 1334, between the Westerly prolongation of the Southerly line of Lot 11 in said Block 12 of Cardiff, Map 1298, and the Westerly prolongation of the Northerly line of Lot 19 in said Block E of Cardiff "A", Map 1334.

Alley West of Mackinnon Avenue, in Block 44 of Cardiff "A", Map 1334, and in Block 107 of Cardiff Vista, Map 1547, between the Easterly prolongation of the Southerly line of Lot 28 in said Block 44 of Cardiff "A", Map 1334, and the Southerly line of Birmingham Drive.

Alley East of San Elijo Avenue, situated between Block 62 of Cardiff Villa Tract, Map 1469, and Block 31-1/2 of Tract 1369, Map 1369, from the Easterly prolongation of the Southerly line of Lot 7 of said Block 62 of Cardiff Villa Tract, Map 1469, and the Southerly line of Aberdeen Drive.

Easement in Lot 3 of Section 27, Township 13 South, Range 4 West, S.B.B.M., said easement being a strip of land 50 feet wide, the Northeasterly line of said strip being the Southeasterly prolongation of the Northeasterly line of Newport Avenue as shown on Map 1298 of Cardiff, said 50 foot strip being bounded on the North by the Southerly line of said Cardiff, Map 1298, and on the South by the Southerly line of that certain 40 foot County Road shown on Road Survey 1132, all as shown on sheet 4 of 24 of these plans.

Easement in Lots 2 and 3 of Kremer Park, as shown and dedicated on Map 3412 of said Kremer Park, said easement being a strip of land 10 feet wide, the Northerly and Westerly lines of said strip being described as follows:

Beginning at the Northwesterly corner of said Lot 2; thence North 44°11' East along the Northwesterly line of said lot to the most Northerly corner of said Lot 2, being also an angle point in the Westerly line of said Lot 3; thence North 9°31'15" East along the Westerly line of said Lot 3, a distance of 95.82 feet to an angle point in said line; thence North 9°31'15" East along the Northerly prolongation of said line to an intersection with a line which is parallel with and distant 10 feet Southwesterly at right angles from the Northeasterly line of said Lot 3; thence North 46°49' West along said parallel line to an intersection with the Southerly line of Mozart Avenue, all as shown on sheet 6 of 24 of these plans.

Easement in the Southeasterly 4.00 feet of Lot 12 and the Northwesterly 4.00 feet of Lot 13 in Block 48 of Cardiff "A", Map 1334, as shown on sheet 6 of 24 of these plans.

Easement in the Northeasterly 3.00 feet of the Northwesterly 15.10 feet of Lot E in Block 82 of Cardiff Villa Tract, Map 1469, as shown on sheet 7 of 24 of these plans.

Easement in the Northwesterly 4.00 feet of Lot E and the Southeasterly 4.00 feet of Lot F; in the Northeasterly 3.00 feet of Lot F and the Southwesterly 3.00 feet of Lot M; in the Northeasterly 3.00 feet of Lot L and the Northeasterly 3.00 feet of the Southeasterly 21.25 feet of Lot G; and in the Westerly 6.00 feet of Lot 1, all in Block 82 of Cardiff Villa Tract, Map 1469, all as shown on sheet 7 of 24 of these plans.

Easement in the Southerly 8.00 feet of Lot H in Block 76 of Cardiff Villa Tract, Map 1469, and in that portion of Lot J in said Block 76 lying Southerly of the Easterly prolongation of the Northerly line of the Southerly 8.00 feet of said Lot H, all as shown on sheet 7 of 24 of these plans.

Easement in the Northwest Quarter of the Northeast Quarter of Section 22, Township 13 South, Range 4 West, S.B.B.M., said easement being a strip of land 30.00 feet wide lying 20.00 feet Easterly and 10.00 feet Westerly of a line described as follows:

Beginning at the Southeasterly corner of said Northwest Quarter of the Northeast Quarter of Section 22, being a point in the center line of Road Survey 811, and being also the Northeasterly corner of Record of Survey No. 1299; thence Westerly along the Southerly line of said Northwest Quarter of the Northeast Quarter of Section 22 and along the Northerly line of said Record of Survey No. 1299 a distance of 565.00 feet; thence Northerly parallel with the Easterly line of said Northwest Quarter of the Northeast Quarter of Section 22 a distance of 406.00 feet to the true point of beginning; thence continuing Northerly along said parallel line to an intersection with the Southerly line of Brown Wanket Subdivision, Unit No. 1, Map 3575, all as shown on sheet 8 of 24 of these plans.

Easement in the Northerly 4.00 feet of Lots 44 and 53, and in the Southerly 4.00 feet of Lots 45 and 52 of Sea Crest Vista Unit No. 1, Map 3503, all as shown on sheet 9 of 24 of these plans.

Easement in the Northerly 5.00 feet of Lot 17 and the Southerly 5.00 feet of Lot 16; in the Westerly 5.00 feet of Lots 16, 15, 14, 13, 12 and 11; and in the Easterly 5.00 feet of Lots 6, 5, 4, 3, 2 and 1, in Block J of Avocado Acres No. 5, Map 2130, all as shown on sheet 10 of 24 of these plans.

Easement in the Easterly 20.00 feet of the Westerly 171.00 feet of Lots 7, 8, 9, 10, 11 and 12, in Block G of Palomares Annex, Map 2136, excepting therefrom the Easterly 10.00 feet of the Westerly 171.00 feet of the Southerly 135.67 feet of said Lot 10 in Block G, all as shown on sheet 11 of 24 of these plans.

Easement in Lot A of Brown Wanket Subdivision, Unit No. 1, Map 3575, said easement being a strip of land 30.00 feet wide lying 20.00 feet Easterly and 10.00 feet Westerly of a line described as follows:

Beginning at a point in the southerly line of said Lot A, said point being 30.00 feet distant thereon from the Southwesterly corner of said Lot A, thence North 0°01' East to the Northerly line of said Lot A, all as shown on sheet 8 of 24 of these plans.

INDEX TO PLAN AND PROFILE SHEETS:

Line	Plan Sheet	Prof. Sheet	Line	Plan Sheet	Prof. Sheet	Line	Plan Sheet	Prof. Sheet
A	4	12	E-11	7	15	AA	6,7	19
A-1	4	12	E-12	7	15	W-4	6	19
A-2	4	12	E-13	7	15	W-5	7	19
A-3	4	12	F	5,6	16	X	5	23
A-4	4	12	G	5	16	Y	8	19
A-5	4	12	H	5	16	Y-1	8	19
A-6	4	12	I	5,6	16	Y-2	8	19
A-7	4	12	J	4,5	16	Z	9	19
A-8	4	12	K	5	16	CC	9,11	20
A-9	4	12	L	5	16	CC-1	9	20
A-10	4	12	M	5	16	CC-2	9,10	21
A-11	4	12	N	5	16	CC-3	9,10	21
A-12	4	12	O	6	17	CC-4	9	21
A-13	4	12	O-1	6	17	CC-5	10	21
A-14	4	12	P	5,6	17	CC-6	10,11	21
B	4	13	Q	6	17	CC-7	11	21
B-1	4	13	Q-1	6	17	CC-8	11	21
B-2	4	13	Q-2	5,6	17	CC-9	11	21
B-3	4	13	Q-3	5	17	DD	9	20
C	4	13	Q-4	5	17	EE	10	22
D	5	14	Q-5	5	17	EE-1	10	23
E	5,6,7	13	Q-6	5	17	EE-2	10	23
E-1	6	14	R	5,6	17	FF	10,11	22
E-2	7	14	S	6	18	FF-1	10	23
E-3	7	14	T	6	18	FF-2	10,11	23
E-4	7	14	U	6	18	FF-3	11	23
E-5	7,8	14	U-1	5	18			
E-6	7	15	U-2	5	18	NOTE:	There are two lines designated AA or BB	
E-7	7	15	V	6	18			
E-8	7	15	W	7	18			
E-9	7-	15	W-1	7	18			
E-10	7	15	W-2	6	18			

ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS
COUNTY OF SAN DIEGO
4905 ROSECRANS ST. SAN DIEGO 10, CALIFORNIA

CARDIFF SANITATION DISTRICT
AREA NO. 30

TITLE SHEET

SCALE NONE
DESIGNED J.L.S.
DRAWN J.L.S.
CHECKED
DATE 1-9-57
FIELD 111,117,118
BOOK 119,141,142

PROJECT NO.
ENGINEERING W. O. 76-2904
SHEET 1 OF 24
FILE NO

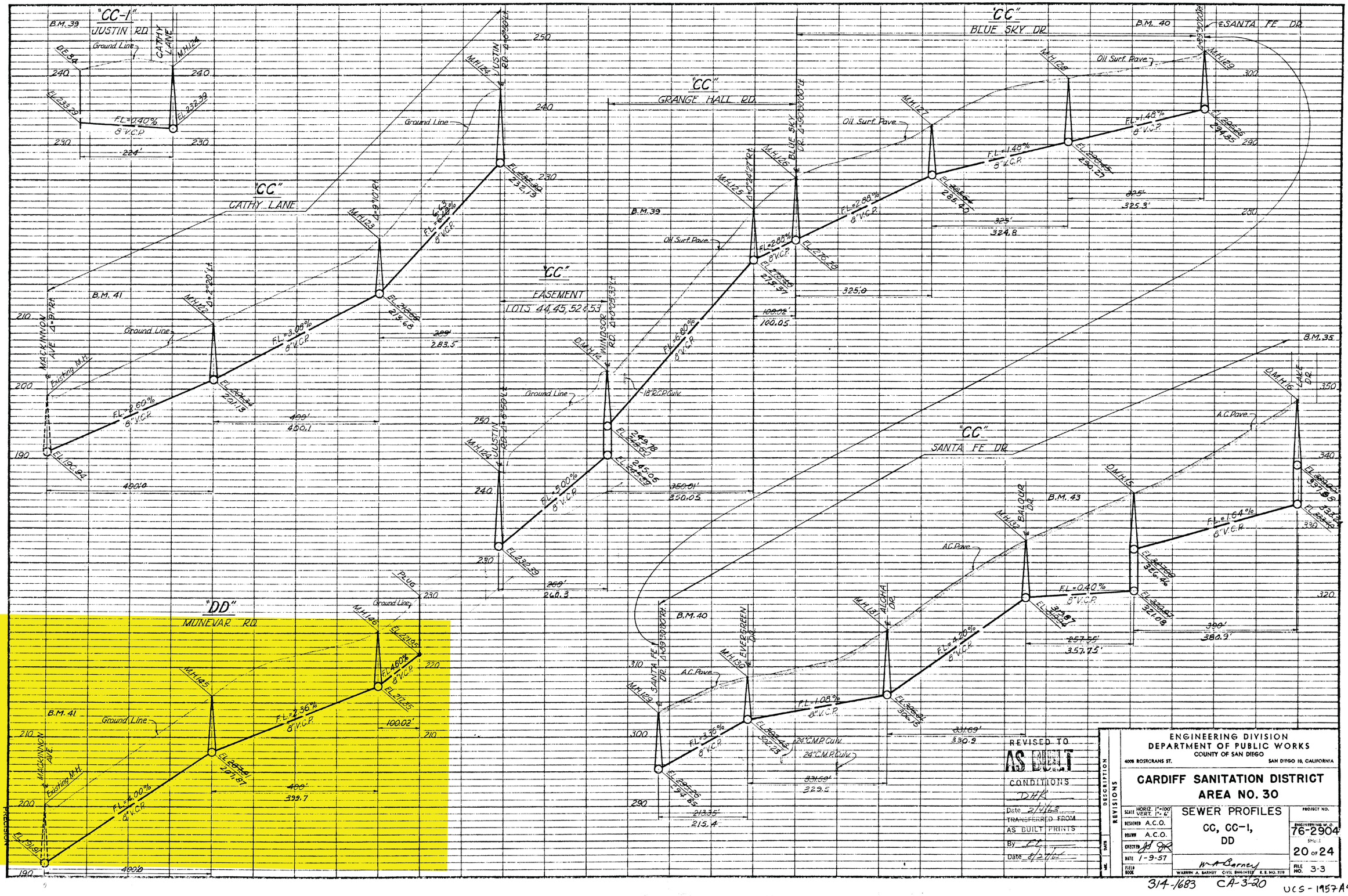
WARREN A. BARNEY CIVIL ENGINEER R.E. NO. 7119

NO. DATE DESCRIPTION REVISIONS

310-1683 CA-3-1
UCS-1957A9A

DIETZGEN 188 L. AGEPROOF


ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS
COUNTY OF SAN DIEGO
4005 ROSECRANS ST.
SAN DIEGO 10, CALIFORNIA
CARDIFF SANITATION DISTRICT
AREA NO. 30
GENERAL
SEWER PLAN
NORTH AREA
SCALE 1" = 200'
DATE 1-9-57
76-2904
SHEET 3 OF 24
FILE NO. 3-3
WARREN A. BARNEY CIVIL ENGINEER
REVISED TO
AS BUILT
CONDITIONS
DHK
Date 2-63
SAN DIEGUITO
UNION
HIGH SCHOOL
SE 1/4 OF SE 1/4
NW 1/4 OF SE 1/4
NE 1/4 OF SE 1/4
NW 1/4 OF SW 1/4
NE 1/4 OF SW 1/4
SECTION 10
SECTION 14
SECTION 15
SECTION 22
SECTION 23
T. 13 S.
R. 4 W.
MELBA RD.
SANTA FE DR.
NARDO RD.
BALOUR DR.
WOTAN DR.
CREST DR.
LAKE DR.
WINDSOR RD.
MACKINNON AVE.
GARDENA RD.
ARCADIA RD.
BONITA DR.
EVERGREEN DR.
ALOHA DR.
MUNEVAR RD.
CATHY LANE
JUSTIN
OCEAN CREST RD.
GRANGE HALL RD.
BLUE SKY
BERRYMAN
AVOCADO ACRES No. 5 MAP 2130
AVOCADO ACRES No. 7 MAP 2133
PALOMARES HEIGHTS ANNEX MAP 2186
PALOMARES HEIGHTS MAP 2114
BROWN WANKET SUB. UNIT NO. 1
MAP 3576
SEA CREST VISTA UNIT NO. 1
SEA CREST VISTA MAP 3503
SEA CREST VISTA UNIT NO. 2 MAP 3504
ASSESSMENT DISTRICT BOUNDARY
POR. NW 1/4 OF NW 1/4
SE 1/4 OF NE 1/4
SW 1/4 OF NW 1/4
NW 1/4 OF NE 1/4
SW 1/4 OF NE 1/4
R. of S. 1705
R. of S. 1426
R. of S. 2058
TRUNK SEWER
EXISTING
SEE SHEET 2
MICROFILMED
OCT 28 1965
314-1683
314-1689
318-1683
318-1689
UCS-1957A9A
C-3-3



REVISED TO AS BUILT CONDITIONS
DHA
Date 2/14/63
TRANSFERRED FROM AS BUILT PRINTS
By CL
Date 4/27/64

REVISIONS — DESCRIPTION — DATE — INIT.

ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS
COUNTY OF SAN DIEGO
4005 ROSECRANS ST. SAN DIEGO 10, CALIFORNIA

CARDIFF SANITATION DISTRICT AREA NO. 30

SEWER PROFILES
CC, CC-1, DD

SCALE	HORIZ. 1"=100' VERT. 1"=6'
DESIGNED	A.C.O.
DRAWN	A.C.O.
CHECKED	
DATE	1-9-57
FIELD BOOK	

PROJECT NO. 76-2904
ENGINEERING W.O. 20 OF 24
FILE NO. 3-3

WARREN A. BARNEY CIVIL ENGINEER R.E. NO. 7119

A-30

314-1683 CA-3-20 UCS-1957A9A

PRECISION MICROFILMED OCT 2 8 1965