

Appendix L
Sewer Study

SANITARY SEWER STUDY
FOR

Solana Beach 101
Solana Beach, California

June 12, 2017
PDC Project No. 4242.00

Prepared for:

Zephyr
700 Second Street
Encinitas, CA 92024

Prepared by:

Project Design Consultants
701 B Street, Suite 800
San Diego, California 92101



Gregory M. Shields, PE RCE 42951
Registration Expires 03/31/18

Prepared By: MG
Checked By: RR

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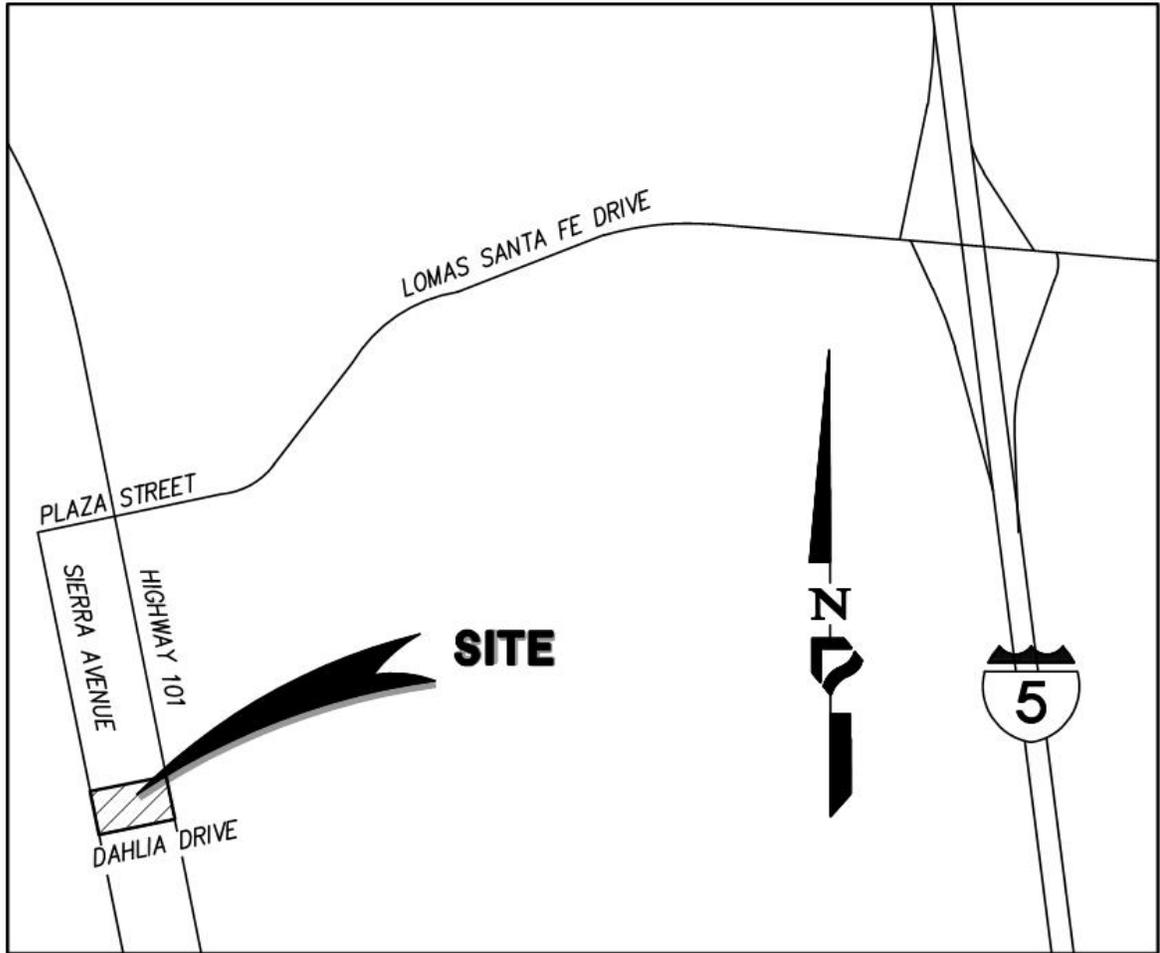
LIST OF ATTACHMENTS

| | |
|-------------------|--|
| EXHIBIT A | EXISTING AND PROPOSED WET UTILITIES |
| EXHIBIT B | EXISTING SEWER PIPE LAYOUT |
| APPENDIX A | EXISTING CONDITIONS SEWER FLOWS |
| APPENDIX B | PROPOSED CONDITIONS SEWER FLOWS |
| APPENDIX C | SOLANA BEACH RECORD DRAWINGS |

1.0 INTRODUCTION

This sewer report documents the design and calculations of the sanitary sewer facilities associated with the Solana Beach 101 Project. The Solana Beach 101 project consists of Three separate two-story office buildings (Buildings ‘A’, ‘B’, & ‘D’), one two-story mixed use restaurant/commercial with office ground floor (Building ‘C’), one two-story restaurant/retail building (Building ‘E’), a single one-story retail building (Building ‘F’), Three separate two-story residential buildings (Buildings ‘G’, ‘H’, & ‘I’) and a single one-story restaurant building (Building ‘J’). The gross existing project area is 1.95 acres. The net proposed project area is 1.79 acres. The project is located in the City of Solana Beach and is bounded on the north by the southern portion of block 24 of Solana Beach Map No. 1749, on the west by Sierra Avenue, on the south by Dahlia Drive, and on the east by Highway 101. (See Figure 1) The existing site zoning is C – General Commercial. All Square footages of the proposed buildings and unit counts for residential units are based off Architectural Development Permit submittal plan dated May 09th 2017.

Calculations provided herein were prepared under the guidelines stipulated by the City of Solana Beach Ordinance 458, which amended section 14.08.060 of chapter 14.08 of the Solana Beach municipal code.



VICINITY MAP
NOT TO SCALE

FIGURE 1.
PROJECT LOCATION MAP

2.0 EXISTING CONDITIONS

This project site is located within the Solana Beach drainage basin, which convey sewer flows to the Solana Beach sewer pump station. Ultimately sewage from this basin is treated and disposed of at the San Elijo joint powers authority water reclamation facility. The existing site consists of: an abandoned trailer park, two single family residential homes, commercial (real estate) building, and commercial (electric car charging / gas station) building. All existing conditions for this study are based on the design criteria per the Water Agency Standards (WAS) The criteria used for that study is in table 1 below.

Table 1. Sewer Design Criteria

| Parameter | Criteria |
|-------------------------------------|-----------------------------|
| Unit Sewage Generation Rates: | |
| <i>Commercial Office</i> | 1,500 gpd/g-ac ¹ |
| <i>Commercial Retail</i> | 1,500 gpd/g-ac ¹ |
| <i>Commercial Restaurant/Retail</i> | 1,500 gpd/g-ac ¹ |
| <i>Commercial Service Area</i> | 0 gpd/g-ac ¹ |
| <i>Commercial Loading Area</i> | 0 gpd/g-ac ¹ |
| <i>Multi-Family Residential</i> | 200 gpd/EDU ² |
| Maximum Peak Flow Depth (d/D) | |
| <i>Pipe Diameter ≤12"</i> | 0.50 |
| <i>Pipe Diameter >12"</i> | 0.75 |
| Mannings 'n' factor (VCP) | 0.013 |
| Peaking Factor | (See Figure 2.) |
| Minimum Peak Velocity | 2.0 fps |
| Maximum Peak Velocity | 10 fps |

Notes:

- (1) Gross acres (g-ac)
- (2) Equivalent Dwelling Unit (EDU) is generally assumed by the WAS as 220 gpd. Therefore, for purposes of this study, the EDU factor is 200 gpd/EDU ÷ 220 gpd = 0.91 EDU.

Based on the criteria presented in the WAS, the existing land use for the site is a trailer home community of 24 DUs, two single family residences (2 EDUs), a real estate office building, and a gas station. Using the WAS unit generation rates would result in an existing average daily sewer flow of 5,765 gpd, as shown in table 2 below.

Table 2. Wastewater Projections

| Land Use | Units (sf) | Quantity ¹ | Unit Generation Rate | Avg Daily Sewer Flow (gpd) | EDU ² |
|----------------------------------|------------|-----------------------|----------------------|----------------------------|------------------|
| Proposed Project Uses | | | | | |
| Commercial Office | 45,587 | 1.04 ac | 1,500 gpd/ac | 1560 | 7 |
| Commercial Restaurant/Retail | 15,376 | 0.35 ac | 1,500 gpd/ac | 525 | 2 |
| Multi-Family Residential | 33,472 | 25 DU | 200 gpd/EDU | 5,000 | 23 |
| TOTAL PROJECT | | | | 7,085 | 32 |
| Existing Uses | | | | | |
| Trailer Park | | 24 DU | 200 gpd/EDU | 4,800 | 22 |
| Single Family Residential | | 2 DU | 220 gpd/EDU | 440 | 2 |
| Commercial (Real Estate Office) | 4,356 | 0.10 ac | 1,500 gpd/ac | 150 | 1 |
| Commercial (Gas Station) | 10,890 | 0.25 ac | 1,500 gpd/ac | 375 | 2 |
| TOTAL EXISTING | | | | 5,765 | 26 |
| TOTAL WASTEWATER INCREASE | | | | 1,320 | 6 |

Note:

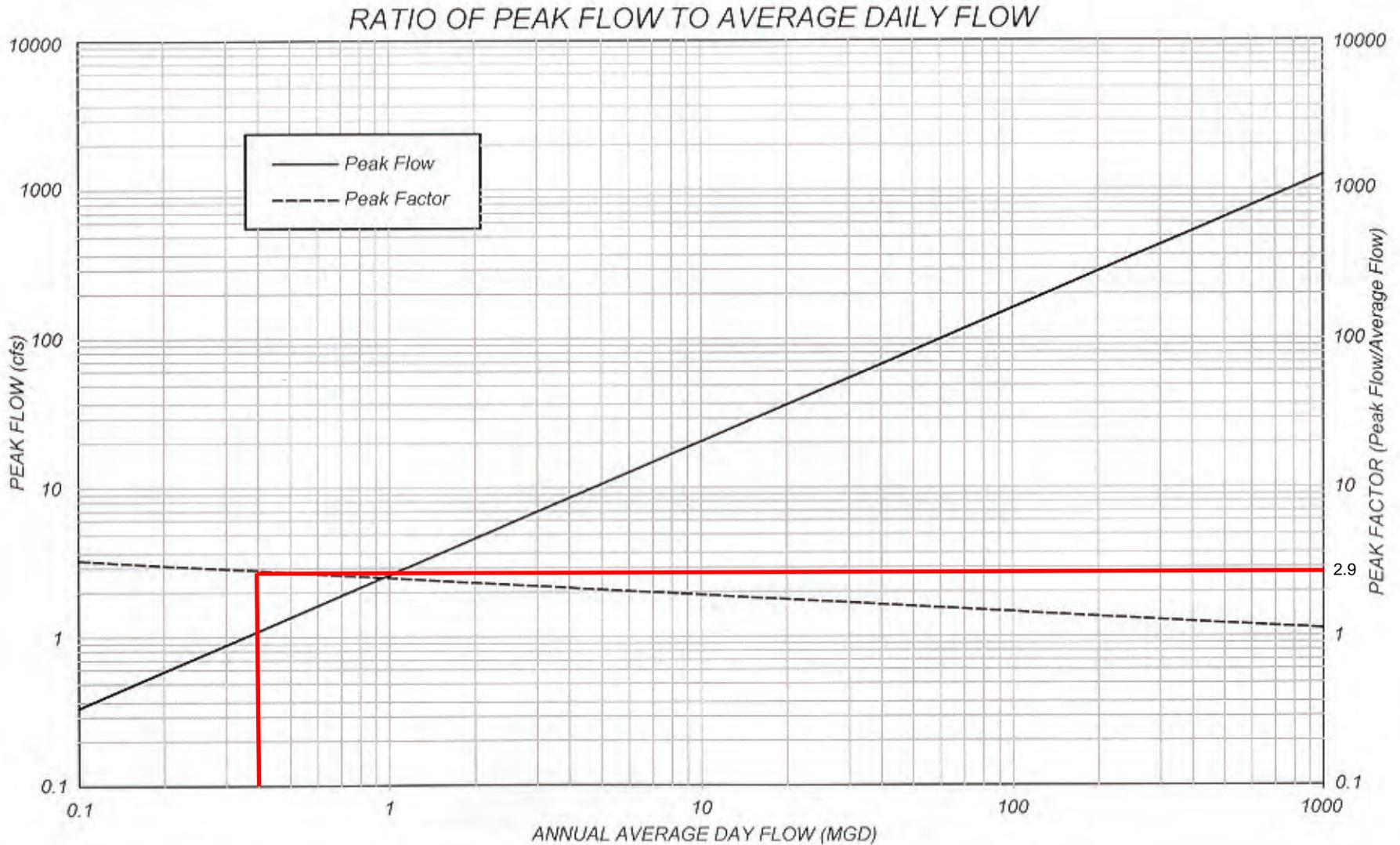
- (1) The total quantity for a given land use is assumed to be equal to the total gsf for that use, converted to acres.

According to the WAS, one Equivalent Dwelling Unit (EDU) is equal to one Dwelling Unit (DU) using 220 gpd.

Therefore, a unit using 200 gpd is approximately 0.91 EDU

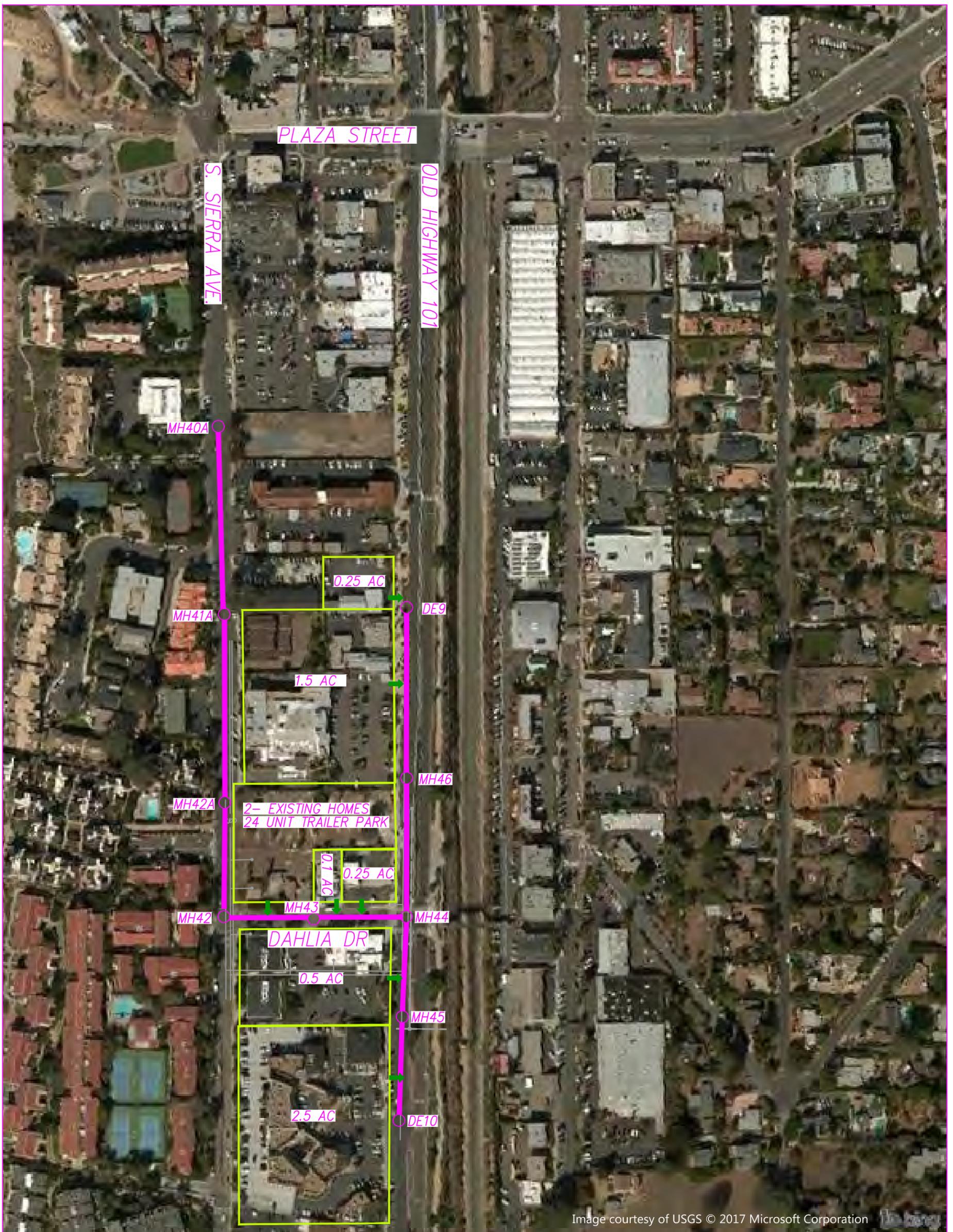
Per the wastewater assumptions (existing) above, approximately 0.020 MGD peak flow is generated by the existing project site. The offsite flows from the existing site are represented by Figure 3 and appendix A (Table A-1). The land use assumptions of the surrounding tributary areas of the existing sewer infrastructure modeled in Appendix A

were determined by means of a field visit. The existing system consists of a 6-inch Vitrified Clay Pipe (V.C.P.) in Highway 101 which flow south along the project site towards the intersection of Dalia Drive and Highway 101, an 8-inch V.C.P. in Dahlia Drive which flow west along the project site towards the intersection of Sierra Avenue, and parallel 8-inch and 10-inch V.C.P. sewer mains in Sierra Avenue which flow north along the project site towards Plaza Street.



WATER AGENCIES' DESIGN GUIDELINES

SEWER PLANNING
RATIO OF PEAK FLOW
TO AVERAGE DAILY FLOW
FIGURE 2



**FIGURE 3
EXISTING SEWER SYSTEM**

3.0 PROPOSED CONDITIONS

Exhibit “A” provides the sewer facility layout for existing and proposed sewer layout. The proposed system will connect to the existing sewer mains via the existing sewer laterals emanating from the site. Buildings ‘A’, ‘B’, ‘D’, & ‘G’ will discharge into the 10-inch VCP sewer main located in Sierra Avenue, the buildings ‘H’, ‘I’, & ‘J’ will discharge into the 8-inch VCP sewer main in Dahlia Drive, and the buildings ‘C’, ‘E’, & ‘F’ will discharge into the 6-inch VCP sewer main in Highway 101. According to Appendix B, the existing sewer system does not contribute enough flow to produce a velocity above 2.0 fps, by the additional sewage from the proposed development the sewer system is still not able to achieve a velocity above 2.0 fps, but the velocity is above 1.0 fps. Approximately 0.0216 MGD peak flow will be generated by the proposed project and is conveyed into the existing sewer facilities surrounding the project site (see table 2). This is an increase of approximately 0.0013 MGD peak flow compared to the existing site. This increase will result in the increased velocity of the system without exceeding the sewer capacity of the existing system. Since the existing downstream sewer system does not achieve slopes greater than 1.0% there would be no way to upgrade the system and increase the slopes without negatively affecting the downstream pipe slopes. The proposed sanitary sewer average daily and peak daily flow rates were computed based on the City of Solana Beach Ordinance 458, which supplemented the Solana Beach Municipal Code Chapter 14.08, section 14.08.060. Calculations are provided in Appendix B (Proposed Conditions Sewer Flows), and supplemented by Appendix D (Flow Master Calculations). The calculation results

indicate that the existing infrastructure contributing to the sewer system, combined with the proposed development will produce an estimated peak flow of 0.0466 MGD. (See the table below for contributions by individual street).

| Totals Peak flows to Sewer Mains (<i>Proposed Only</i>) | |
|--|--------------------------|
| <i>(Which Street Flows are directed to)</i> | <i>(Totals)</i> |
| Total Flows to Highway 101 | 0.0013 MGD |
| Total Flows to Dahlia Drive | 0.0079 MGD |
| Total Flows to Sierra Avenue | 0.0124 MGD |
| <u>Totals</u> | <u>0.0216 MGD</u> |

4.0 CONCLUSIONS

From the results of the analysis of the proposed on-site sewer facilities and existing facilities in the project area (see Appendices B, & D), it is clear that the proposed Solana Beach 101 will not adversely affect the existing sewer system downstream of the confluence at the project site's sewer main. The result of the analysis confirms that the proposed sewer system will adequately convey the peak flows generated by the developed site. Based on existing conditions, the site does not meet the required velocity of 2.0 fps but does improve the existing conditions and achieves a velocity greater than 1.0 fps and a Dn/D value less than 0.5.

| EXISTING CONDITIONS PEAK FLOWS TO SYSTEM FROM SITE | PROPOSED CONDITIONS PEAK FLOWS TO SYSTEM FROM SITE |
|---|---|
| 0.020 MGD | 0.0216MGD |

5.0 REFERENCES

- City of Solana Beach Ordinance 458, which amended section 14.08.060 of chapter 14.08 of the Solana Beach municipal code.
- Water Agency Standards design guidelines.
- Section 14.08.060 of chapter 14.08 of the City of Solana Beach municipal code.

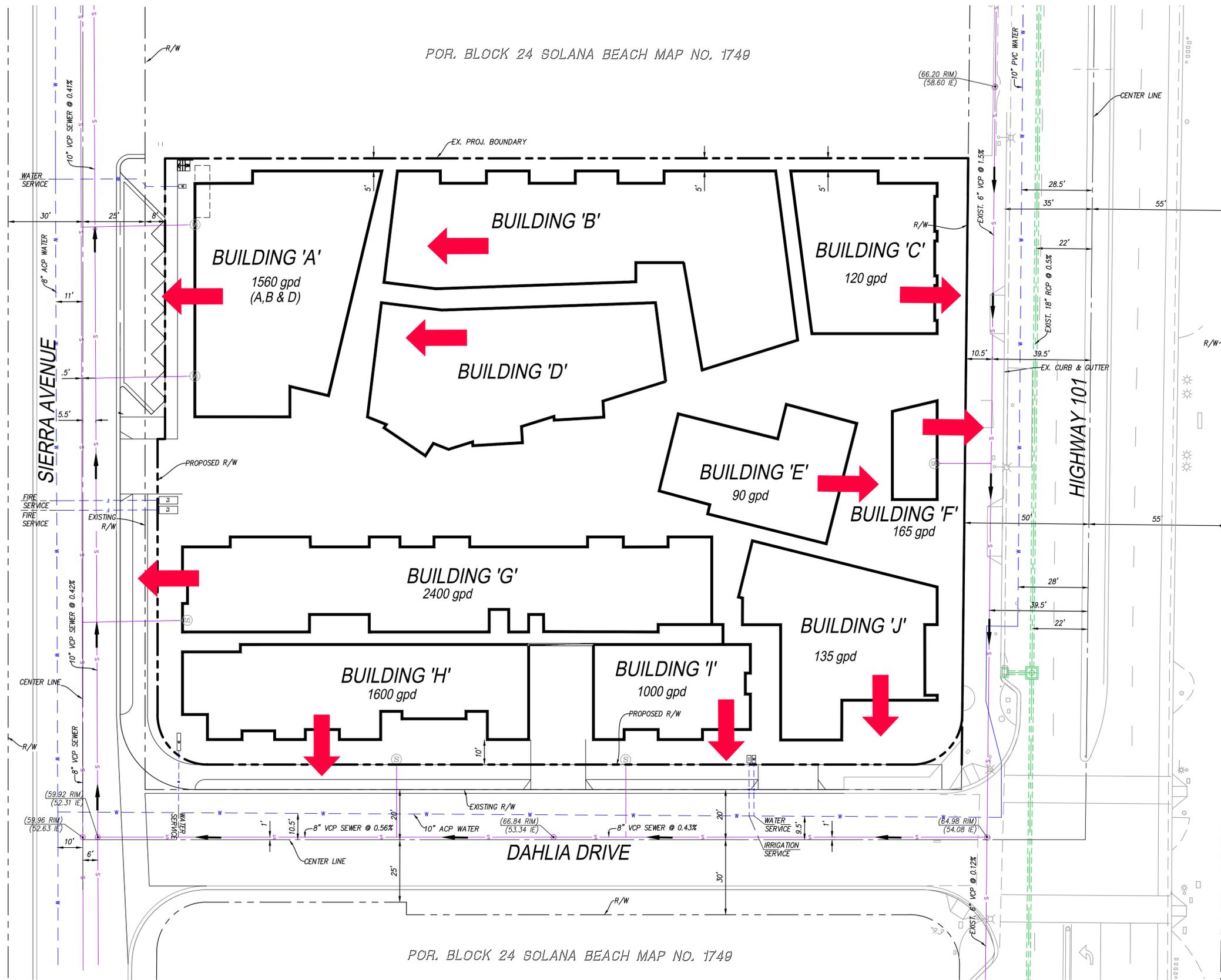
EXHIBIT 'A'

SEASCAPE SHORES MAP NO. 6941

SOLANA BEACH & TENNIS CLUB MAP NO. 7465

POR. BLOCK 24 SOLANA BEACH MAP NO. 1749

POR. BLOCK 24 SOLANA BEACH MAP NO. 1749



LEGEND

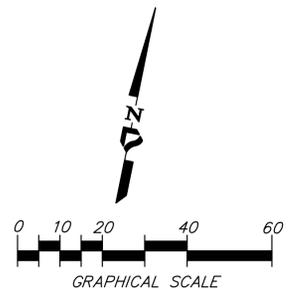
- EXISTING RIGHT OF WAY
- EXISTING LOT LINE
- EXISTING SURVEYED CENTERLINE
- EXISTING SEWER
- EXISTING WATER
- EXISTING GAS
- EXISTING WATER LATERAL
- EXISTING SEWER LATERAL
- PROPOSED PROPERTY LINE
- PROPOSED BUILDING FOOTPRINT AT STREET LEVEL
- PROPOSED WATER SERVICE
- PROPOSED FIRE SERVICE
- DIRECTION OF SEWAGE FLOW
- DIRECTION OF SEWAGE FLOW (BUILDINGS)

AVERAGE DAILY SWR FLOW

- HIGHWAY 101 – 375 GPD
- DAHLIA DRIVE – 2735 GPD
- SIERRA AVENUE – 3960 GPD

WET UTILITY EXHIBIT 'A'

DATE: 11-30-2016



Left side vertical text: Last save by PAUL RODRIGUEZ, File Name P:\4242.00\Eng\Reports\Sewer\Exhibit A - Wet Utility Exhibit.dwg, Date Last Saved 6/10/2017 3:21:05 PM, Date Plotted Last 6/10/2017 3:52:14 PM

EXHIBIT 'B'



LEGEND

-  Sewer Manhole
-  Gravity Sewer Main

- A Abandoned Trailer Park Community
- B Two Single Family Residential Homes
- C Commercial Building
- D Electric Car Charge Building



EXISTING SEWER SYSTEM

EXHIBIT B - EXISTING SEWER LAYOUT

APENDIX 'A'

APPENDIX A - ANALYSIS RESULTS

TABLE A-1 EXISTING SEWER FLOWS

| Pipe ID | Upstream MH | | | Downstream MH | | | Length | Diameter | Trib Avg Flow (gpd) ¹ | Cumulative Average Flow (gpd) | Peaking Factor | Peak Dry Weather Flow (gpd) ² | Peak Dry Weather Flow (cfs) | Slope (%) | Normal Depth (Inches) | d/D | Velocity (fps) |
|----------------|-------------|-------|-------|---------------|-------|-------|--------|----------|----------------------------------|-------------------------------|----------------|--|-----------------------------|-----------|-----------------------|------|----------------|
| | ID | Rim | Inv | ID | Rim | Inv | | | | | | | | | | | |
| 1 ¹ | DE9 | 68.00 | 60.84 | MH46 | 66.20 | 58.60 | 320.0 | 6 | 375 | 375 | 3.50 | 1,312.5 | 0.00 | 0.70 | 0.24 | 0.04 | 0.37 |
| 2 ² | MH46 | 66.20 | 58.60 | MH44 | 65.00 | 54.08 | 300.0 | 6 | 2,250 | 2,625 | 3.50 | 9,187.5 | 0.01 | 1.51 | 0.60 | 0.10 | 0.97 |
| 3 ³ | DE10 | 65.10 | 55.83 | MH45 | 64.30 | 54.51 | 330.0 | 8 | 3,750 | 3,750 | 3.50 | 13,125.0 | 0.02 | 0.40 | 0.96 | 0.11 | 0.83 |
| 4 ⁴ | MH45 | 64.30 | 54.51 | MH44 | 65.00 | 54.08 | 350.0 | 8 | 750 | 4,500 | 3.50 | 15,750.0 | 0.02 | 0.12 | 1.20 | 0.12 | 0.60 |
| 5 ⁵ | MH44 | 65.00 | 54.08 | MH43 | 61.00 | 53.34 | 171.0 | 8 | 375 | 7,500 | 3.50 | 26,250.0 | 0.04 | 0.43 | 1.32 | 0.16 | 1.06 |
| 6 ⁶ | MH43 | 61.00 | 53.34 | MH42 | 58.00 | 52.31 | 189.0 | 8 | 150 | 7,650 | 3.50 | 26,775.0 | 0.04 | 0.56 | 1.20 | 0.16 | 1.21 |
| 7 ⁷ | MH42 | 58.00 | 52.31 | MH41A | 58.00 | 49.53 | 498.7 | 10 | 4,804 | 12,454 | 1.96 | 24,409.8 | 0.04 | 0.42 | 1.20 | 0.46 | 1.08 |
| 8 | MH41A | 58.00 | 49.53 | MH40A | 57.00 | 47.10 | 596.6 | 10 | 0 | 12,454 | 1.96 | 24,409.8 | 0.04 | 0.41 | 1.20 | 0.46 | 1.08 |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

1. Flow at this location includes sewage generation for a 0.25-ac commercial development.
2. Flow at this location includes sewage generation for a 1.5-ac commercial development.
3. Flow at this location includes sewage generation for a 2.5-ac non-residential development.
4. Flow at this location includes sewage generation for a 0.5-ac commercial development.
5. Flow at this location includes sewage generation for a 0.25-ac commercial development (gas station).
6. Flow at this location includes sewage generation for a 0.1-ac commercial development (real estate building).
7. Flow at this location includes sewage generation for 2 existing single family homes and the 24-unit trailer park.

APENDIX 'B'

PROJECT DESIGN CONSULTANTS
 701 'B' STREET, SUITE 800
 SAN DIEGO, CA 92101

| |
|---------------|
| Highway101 |
| Dahlia Drive |
| Sierra Avenue |

PDC JOB : 4242.00

DATE: 6/12/17

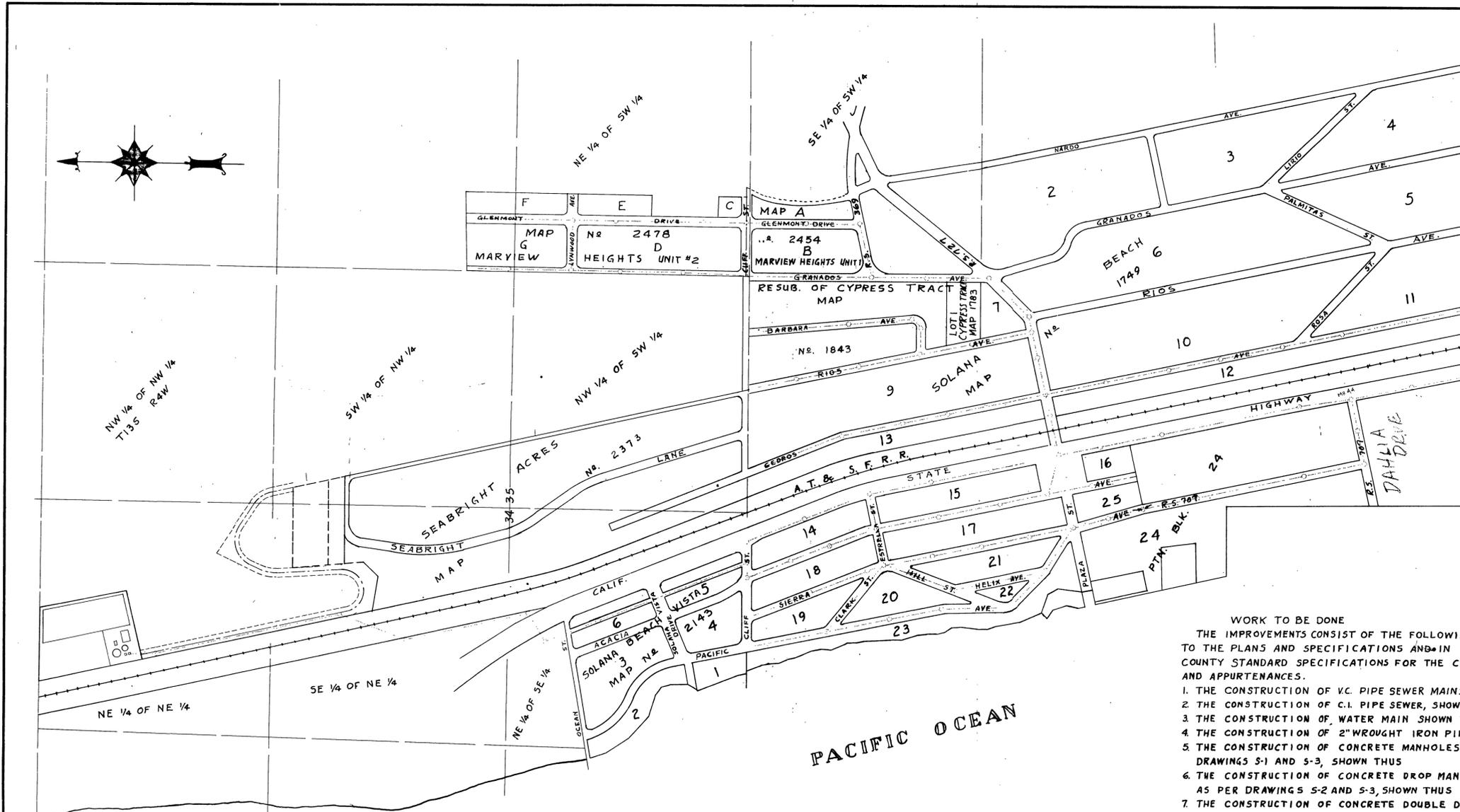
APENDIX 'B'
 PROPOSED CONDITION SEWER FLOW CALCULATIONS
 SOLANA BEACH 101

| MH / CO | | AVERAGE DAILY SWR FLOW (GAL/DAY) | PEAK/AVE RATIO | LINEAR PEAK DESIGN FLOW | | CUMULATIVE PEAK DESIGN FLOW | | LINE SIZE(D) (INCH.) | "FROM" | "TO" | PIPE LENGTH | DESIGN SLOPE % | dn (in) | dn/D | n | VELOCITY | |
|-------------|--------------|--|-------------------|----------------------------|--------|--------------------------------|--------|-------------------------|------------|------------|----------------|-------------------|------------|------|-------|----------|--|
| FROM | TO | | | GAL/DAY | C.F.S. | GAL/DAY | C.F.S. | | INVERT EL. | INVERT EL. | | | | | | F.P.S. | |
| DE9 | MH44 | | | | | | | | | | | | | | | | |
| DE9 | MH46 | 375 | 3.50 | 1,313 | 0.002 | 1313 | 0.002 | 6.00 | 60.84 | 58.60 | 320.00 | 0.70% | 0.28 | 0.05 | 0.013 | 0.59 | |
| MH 46 | MH44 | 2250 | 3.50 | 7,875 | 0.012 | 9188 | 0.014 | 6.00 | 58.60 | 54.08 | 300.00 | 1.51% | 0.59 | 0.10 | 0.130 | 1.39 | |
| MH46 | MH44 | 375 | 3.50 | 1,313 | 0.002 | 10500 | 0.016 | 6.00 | 58.60 | 54.08 | 300.00 | 1.51% | 0.63 | 0.11 | 0.013 | 1.45 | |
| DE10 | MH44 | | | | | | | | | | | | | | | | |
| DE10 | MH45 | 3750 | 3.50 | 13,125 | 0.020 | 13125 | 0.020 | 8.00 | 55.83 | 54.51 | 330.00 | 0.40% | 0.89 | 0.11 | 0.013 | 0.94 | |
| MH45 | MH44 | 750 | 3.50 | 2,625 | 0.004 | 15750 | 0.024 | 8.00 | 54.51 | 54.08 | 350.00 | 0.12% | 1.30 | 0.16 | 0.013 | 0.65 | |
| MH44 | MH42 | | | | | | | | | | | | | | | | |
| MH44 | MH43 | 1135 | 2.90 | 3,292 | 0.005 | 29542 | 0.046 | 8.00 | 54.08 | 53.34 | 171.00 | 0.43% | 1.23 | 0.15 | 0.013 | 1.23 | |
| MH43 | MH42 | 1600 | 2.90 | 4,640 | 0.007 | 34182 | 0.053 | 8.00 | 53.34 | 52.31 | 183.00 | 0.56% | 1.31 | 0.16 | 0.013 | 1.41 | |
| MH42 | MH41A | | | | | | | | | | | | | | | | |
| MH42 | MH42A | 2400 | 2.90 | 6,960 | 0.011 | 41142 | 0.064 | 10.00 | 52.31 | 49.53 | 658.20 | 0.42% | 1.54 | 0.15 | 0.013 | 1.35 | |
| MH42A | MH41A | 1560 | 3.50 | 5,460 | 0.008 | 46602 | 0.072 | 10.00 | 49.53 | 47.10 | 596.60 | 0.41% | 1.64 | 0.16 | 0.013 | 1.38 | |

* Green= Existing Sewer System (To Remain In Place)

* Magenta = Sewage Generation from project

APENDIX 'C'

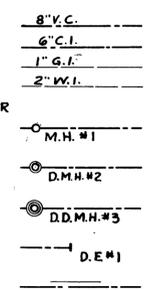


Byrl D. Phelps
 BYRL D. PHELPS, R.E. #1534
 ENGINEER OF WORK
 ROOM 434 UNION BLDG.
 SAN DIEGO, CALIFORNIA
 PHONE F 9-2075

| | | |
|------------|-------------------------------------|--------------|
| SHEET 1 | SOLANA BEACH SANITATION DISTRICT | 28 SHEETS |
|------------|-------------------------------------|--------------|

PLANS FOR A SEWER SYSTEM IN
 SOLANA BEACH, SAN DIEGO COUNTY, CALIF.
 GLENMONT DRIVE - between that certain County High-
 way shown on San Diego County Surveyors map titled "Road
 Survey 369" and 30' N. of & of Lynwood Avenue.
 GRANADOS AVENUE - between Plaza Street and 530'
 North of & Lynwood Avenue.
 BARBARA AVENUE - between North Boundary of Re-
 sub. of Cypress Tract and Rios Avenue.
 RIOS AVENUE - between Cliff street and Plaza Street
 CEDROS AVENUE - between Cliff street and south
 Boundary Line of Solana
 Beach.
 CALIFORNIA
 STATE HIGHWAY - opposite easement in NE 1/4 of
 SE 1/4 SEC. 34, and from Cliff street
 to the South Boundary Line of
 Solana Beach.
 ACACIA AVENUE - from Cliff street to 404.15'
 South of Plaza Street.
 SIERRA AVENUE - between Cliff St. and that certain County High-
 way shown on San Diego County Surveyors map titled "Road Survey 707".
 PACIFIC AVENUE - between Cliff street and Plaza
 street.
 OCEAN STREET - opposite alley in Block 6 of
 Solana Beach Vista.
 SOLANA VISTA DRIVE - opposite the alley in Block
 5 and 6 in Solana Beach Vista.
 CLIFF STREET - between Acacia Avenue and California
 State Highway and between Glenmont Drive and Granada
 Avenue.
 ESTRELLA STREET - between California State
 Highway and Sierra Avenue.
 CLARK STREET - between Sierra avenue and
 Pacific Avenue.
 HILL STREET - between Sierra Avenue and
 Helix Avenue.
 HELIX AVENUE - between Hill street and
 Pacific Avenue.
 PLAZA STREET - AND THE PLAZA [SOLANA BEACH] between
 Granada Avenue and Acacia Avenue.
 THAT CERTAIN COUNTY HIGHWAY shown on San Diego County
 Surveyors map titled "Road Survey 707".
 THAT CERTAIN COUNTY HIGHWAY shown on San Diego County
 Surveyors map titled "Road Survey 369" between Glenmont
 Drive and Granada Avenue.
 ALLEYS in Blocks 5 and 6 in Solana Beach
 Vista.
 EASEMENTS in SW 1/4 of NW 1/4 and NW 1/4 of
 NW 1/4 of SEC. 35 T.13S. R.4W.;
 and NE 1/4 of SE 1/4, SE 1/4 of NE 1/4
 and NE 1/4 of NE 1/4 of Sec. 34 T.13S.
 R.4W., and Block D, Lots 3 thru 23,
 Marview Heights Unit #2, and across
 right of way of Atchison, Topeka and
 Santa Fe Railway.
 PORTION OF NE 1/4 of NE 1/4 of Sec. 34 T.13S. R.4W.
 owned by Solana Beach Sanitation
 District (Sewage Treatment Plant
 Site.)

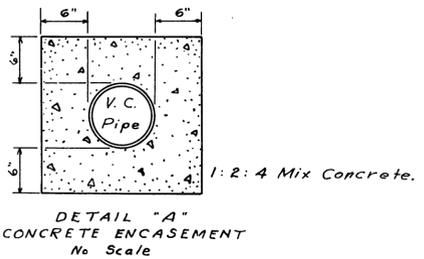
- WORK TO BE DONE
 THE IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE ACCORDING
 TO THE PLANS AND SPECIFICATIONS AND IN ACCORDANCE WITH THE SAN DIEGO
 COUNTY STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF SANITARY SEWERS
 AND APPURTENANCES.
1. THE CONSTRUCTION OF V.C. PIPE SEWER MAINS, SHOWN THUS
 2. THE CONSTRUCTION OF C.I. PIPE SEWER, SHOWN THUS
 3. THE CONSTRUCTION OF WATER MAIN SHOWN THUS
 4. THE CONSTRUCTION OF 2" WROUGHT IRON PIPE, SHOWN THUS
 5. THE CONSTRUCTION OF CONCRETE MANHOLES COMPLETE AS PER
 DRAWINGS S-1 AND S-3, SHOWN THUS
 6. THE CONSTRUCTION OF CONCRETE DROP MANHOLES COMPLETE
 AS PER DRAWINGS S-2 AND S-3, SHOWN THUS
 7. THE CONSTRUCTION OF CONCRETE DOUBLE DROP MANHOLES
 COMPLETE AS PER DRAWINGS S-2 AND S-3, SHOWN THUS
 8. THE CONSTRUCTION OF VITRIFIED CLAY SEWER DEAD ENDS
 PER DRAWING S-4, SHOWN THUS
 9. THE CONSTRUCTION OF CONCRETE ENCASEMENTS AS PER
 DETAIL "A", SHOWN THUS
 10. THE CONSTRUCTION OF A COMPLETE SEWAGE TREATMENT PLANT
 INCLUDING ROADS, LAGOON AND FENCE.



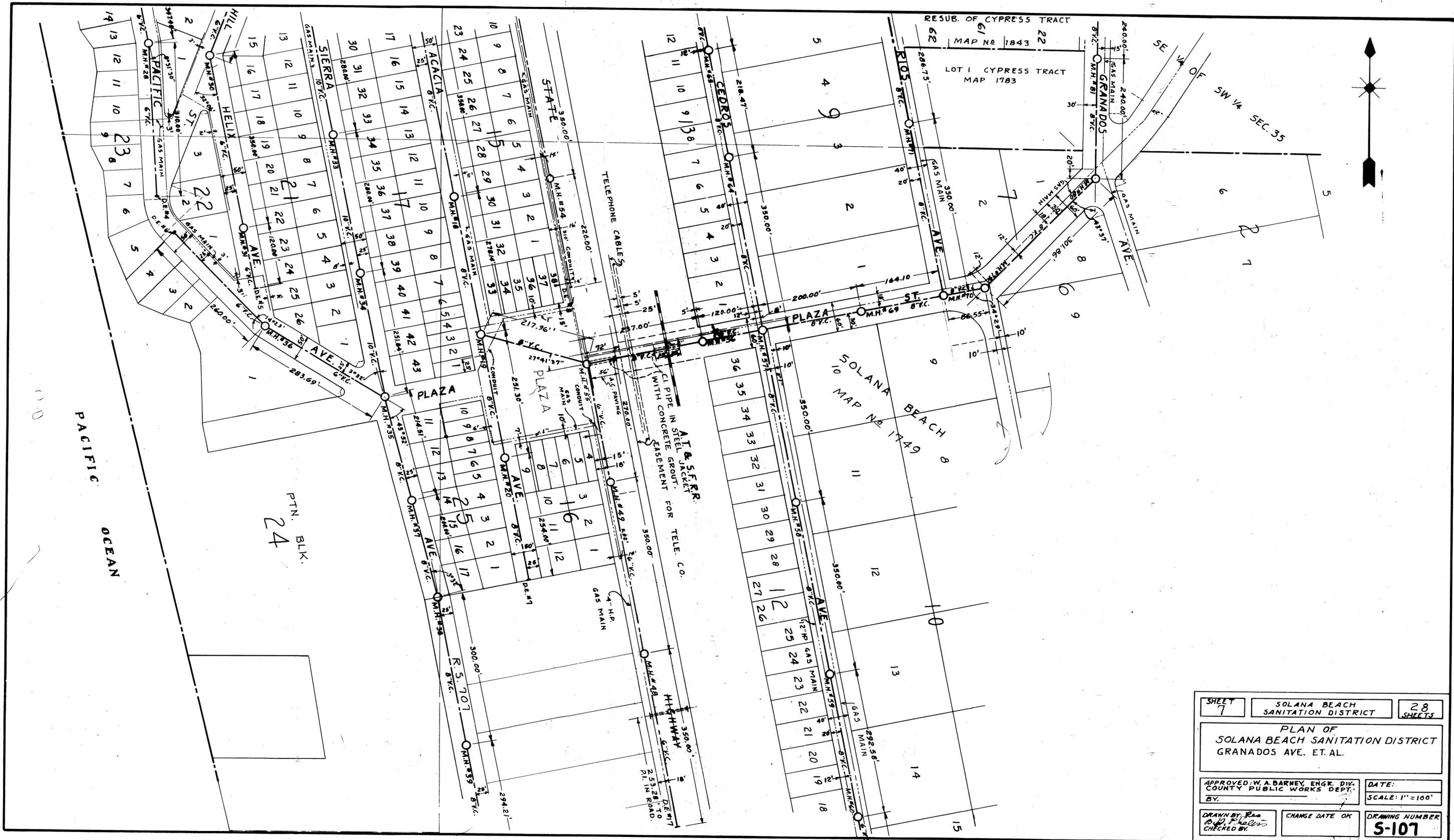
- EXISTING WORK
 EXISTING WATER LINES, SHOWN THUS
 EXISTING GAS LINE, SHOWN THUS
 EXISTING SEWER MAINS, SHOWN THUS
 EXISTING SEWER LATERALS, SHOWN THUS
 EXISTING TELEPHONE CABLES SHOWN THUS
 EXISTING ELECTRICAL CONDUIT, SHOWN THUS
- EXISTING 4" WATER MAIN
 EXISTING 3" GAS MAIN
 EXISTING 8" CONG. SEWER
 LATERAL
 TELE. CABLES
 ELECTRICAL CONDUIT

NOTES
 "D.E." MEANS "DEAD END."
 "F.L." MEANS "FLOW LINE."
 "E.S.P." ON PROFILE MEANS "SOUTHERN CALIFORNIA EXTRA STRENGTH
 VITRIFIED CLAY PIPE".
 ALL DISTANCES ON THE PLANS ARE HORIZONTAL DISTANCES UNLESS
 OTHERWISE SHOWN.
 GRADE ELEVATIONS, SHOWN THUS, "EL. 8.50", ARE IN FEET AND
 DECIMALS THEREOF ABOVE THE UNITED STATES GEOLOGICAL SURVEY
 DATUM PLANE.
 ALL POINTS BETWEEN DESIGNATED ELEVATIONS SHALL CONFORM TO
 A STRAIGHT LINE DRAWN BETWEEN SUCH DESIGNATED ELEVATIONS.
 B.M. = U.S.G.S. STATE HIGHWAY B.M. #22, ELEVATION 62.76, SOUTHERLY
 CORNER OF RAILROAD SIGNAL TOWER.
 ALL CORNERS OF CONCRETE WHICH ARE NOT TO BE COVERED BY
 EARTH SHALL BE CHAMFERED 1/4" UNLESS OTHERWISE NOTED.
 DIMENSIONS REGARDING THE INSTALLATIONS OF EQUIPMENT SHALL
 BE CHECKED WITH MANUFACTURERS CERTIFIED DRAWINGS.
 "V.C." MEANS VITRIFIED CLAY PIPE.
 "G.I." MEANS GALVANIZED IRON.
 "W.I." MEANS WROUGHT IRON PIPE.
 "R/W" MEANS RIGHT OF WAY.

MAP OF
SOLANA BEACH
 SCALE 1" = 400'



APPROVED: W. A. BARNEY, ENGR. DIV.
 COUNTY PUBLIC WORKS DEPT.
 BY: *W. A. Barney*
 DRAWN BY: Robert E. Only
 CHECKED BY: *B. D. Phelps*
 DATE: 1-21-49
 SCALE: AS SHOWN
 DRAWING NUMBER
S-101



| | | |
|---|-------------------------------------|--|
| SHEET 7 | SOLANA BEACH SANITATION DISTRICT | 28 SHEETS |
| PLAN OF SOLANA BEACH SANITATION DISTRICT GRANADOS AVE. ET AL. | | |
| APPROVED: W. A. BARNEY ENGR. DIV. COUNTY PUBLIC WORKS DEPT. | | DATE: SCALE: 1"=100' |
| DRAWN BY: <i>Paul R. Adams</i> CHECKED BY: | | CHANGE DATE OK DRAWING NUMBER 5-107 |

298-1683
 202-1683
 58-1-7

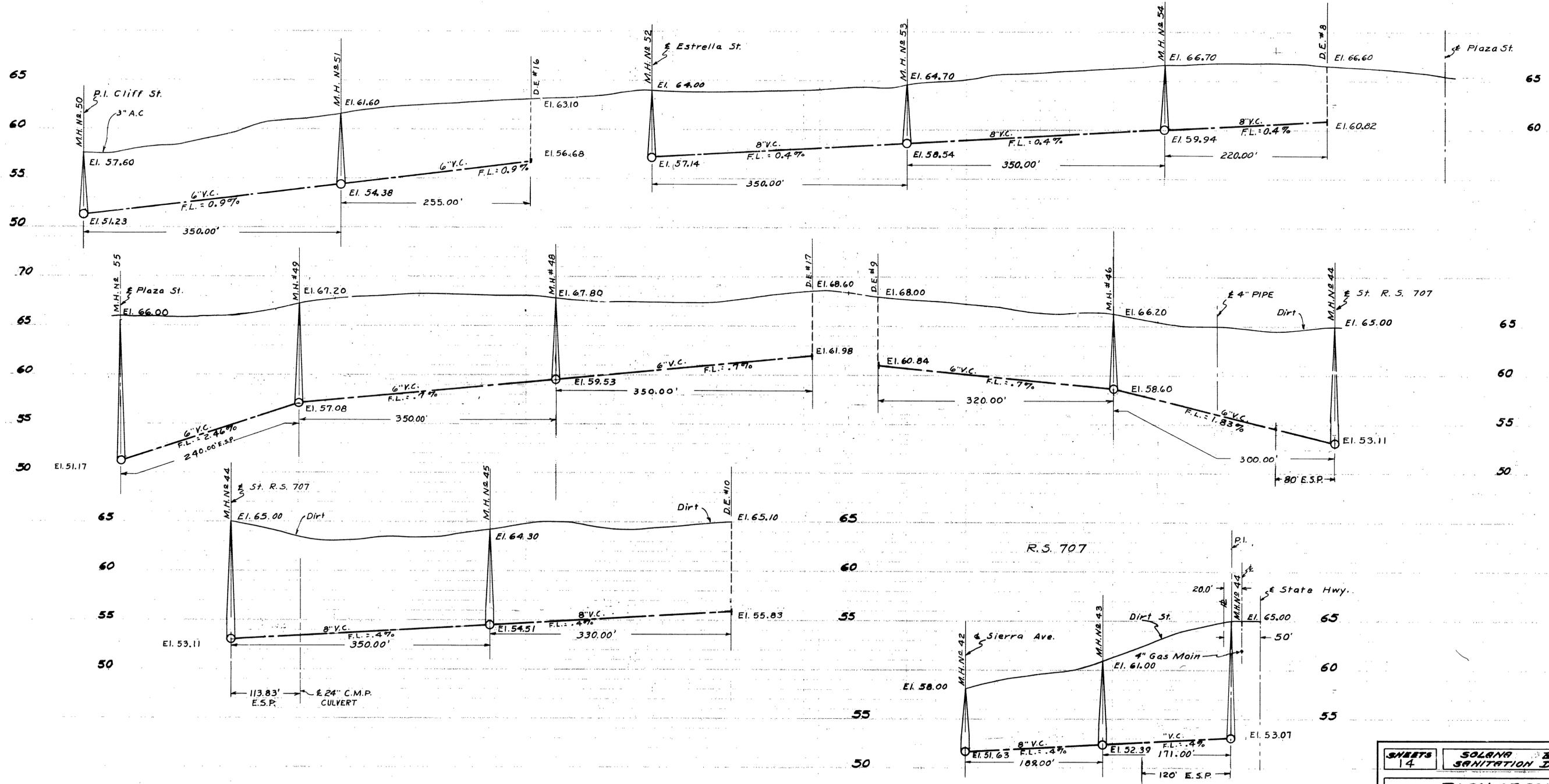
24



| | | |
|---|-------------------------------------|-------------------------|
| SHEET 8 | SOLANA BEACH SANITATION DISTRICT | 28 SHEETS |
| PLAN OF SOLANA BEACH SANITATION DISTRICT GRANADOS AVE. ET. AL. | | |
| APPROVED: W.A. BARNEY, ENGR. DIV. COUNTY PUBLIC WORKS DEPT. BY: | DATE: | SCALE: 1"=100' |
| DRAWN BY: R. P. [Signature] CHECKED BY: | CHANGE DATE OK | DRAWING NUMBER 5-108 |

3021683 001

STATE HIGHWAY



SEWER PROFILES

SCALE Horiz. 1" = 80'
Vert. 1" = 6'

| | | |
|---|-------------------------------------|-----------------------------|
| SHEETS 14 | SOLANA BEACH SANITATION DISTRICT | 28 SHEETS |
| PLAN OF SOLANA BEACH SANITATION DISTRICT PROFILES OF SEWER ON STATE HIGHWAY | | |
| APPROVED: W.A. BARNEY, ENGR. DIV. COUNTY PUBLIC WORKS DEPT. | | DATE SCALE 1/8" = 1' |
| DRAWN BY B. O. Phelps CHECKED BY | CHECKED DATE | DRAWING NO. 5-114 |

NOV 1 1955

PLANS FOR THE CONSTRUCTION OF A SANITARY SEWER SYSTEM IN

SIERRA AVENUE

SOLANA BEACH SANITATION DISTRICT

ABBREVIATIONS

| | |
|--|------------------------|
| Acrylonitrile Butadiene Styrene (Plastic Pipe) | A.B.S. |
| Asbestos Cement Pipe | A.C.P. |
| Asphaltic Concrete | A.C. |
| Bench Mark | B.M. |
| Cast Iron Pipe | C.I.P. |
| Concrete Encasement | Conc. Enc. |
| Construct | Const. |
| Corrugated Metal Pipe | C.M.F. |
| Crushed Rock Bedding | C.R.B. |
| Deflection Angle | $\Delta R \triangle L$ |
| Easement | Esmt. |
| Elevation | El. |
| Existing | Exist. |
| Field Book | F.B. |
| Gas Valve | G.V. |
| Manhole | M.H. |
| Percent | % |
| Plug | \textcircled{P} |
| Power Pole | P.P. |
| Property Line | R. |
| Reinforced Concrete Pipe | R.C.P. |
| Right of Way | R/W |
| Road Survey | R.S. |
| Septic Tank | S.T. |
| Telephone Pole | T.P. |
| Vitrified Clay Pipe | V.C.P. |
| Water Meter | W.M. |
| Water Valve | W.V. |

SYMBOLS OF EXISTING TOPO & IMPROVEMENTS

| | |
|------------------------|---------------------------|
| Sewer lines | S — S — S |
| Gas lines | G — G — G |
| Electric conduit | E — E — E |
| Telephone conduit | T — T — T |
| Water lines | W — W — W |
| Barbed or wire fence | - x - x - x - x - |
| Wood or rail fence | - o - o - o - o - |
| Concrete or block wall | - ■ - ■ - ■ - ■ - |
| Asphaltic Surface | - ▨ - ▨ - ▨ - ▨ - |
| Buildings | - [] - [] - [] - [] - |

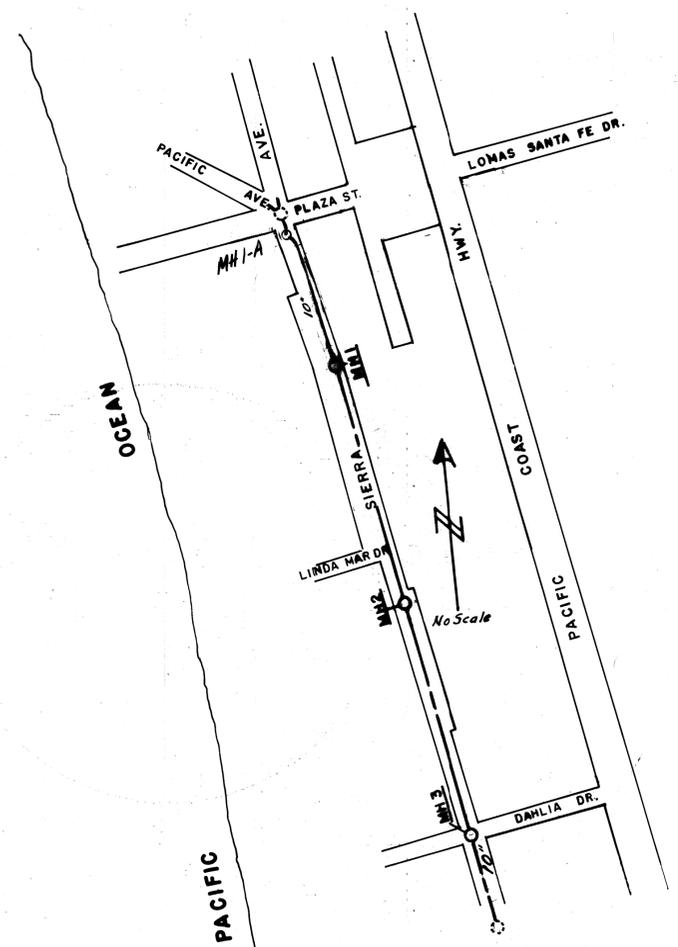
WORK TO BE DONE

The improvement consists of the following work to be done in accordance with these PLANS & SPECIFICATIONS attached hereto:

| | |
|------------------------------|-------|
| V.C.P. or A.B.S. | ————— |
| Crushed Rock Bedding, Type B | ————— |
| Concrete Encasement | ————— |
| Concrete Crotch | ————— |
| Concrete Arch Encasement | ————— |
| Standard Eccentric Manholes | ————— |

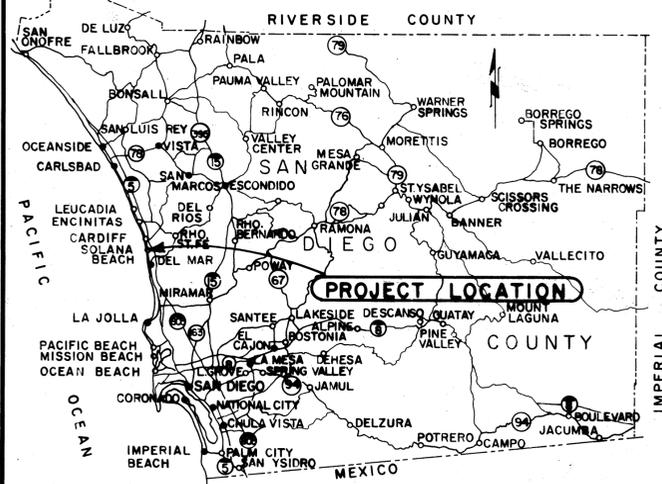
NOTES

- All distances shown on these plans are horizontal distances unless otherwise noted.
- Payment for this SEWER SYSTEM shall be based on horizontal centerline distances, measured to the inside face of manholes.
- Elevations shown 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, unless shown otherwise.
- All manholes shall be equipped with cast iron frames and covers, and wrought iron ladder rungs as shown on the STANDARD DETAILS.
- Underground existing utilities are shown according to records of the various utility companies. It shall be the responsibility of the CONTRACTOR to contact these companies for exact location and depths.



| Line No. | Description | Sheet No. |
|----------|--------------------------|-----------|
| | Title Sheet & Plot Plan. | 1 |
| | SIERRA AVE. RELIEF TRUNK | 2 |
| | STANDARD DETAILS | 3 |

REVISED TO
AS BUILT
CONDITIONS
[Signature]
Date 1-22-76

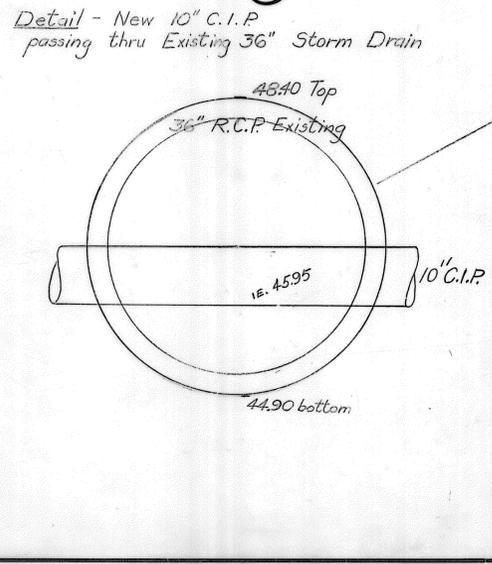
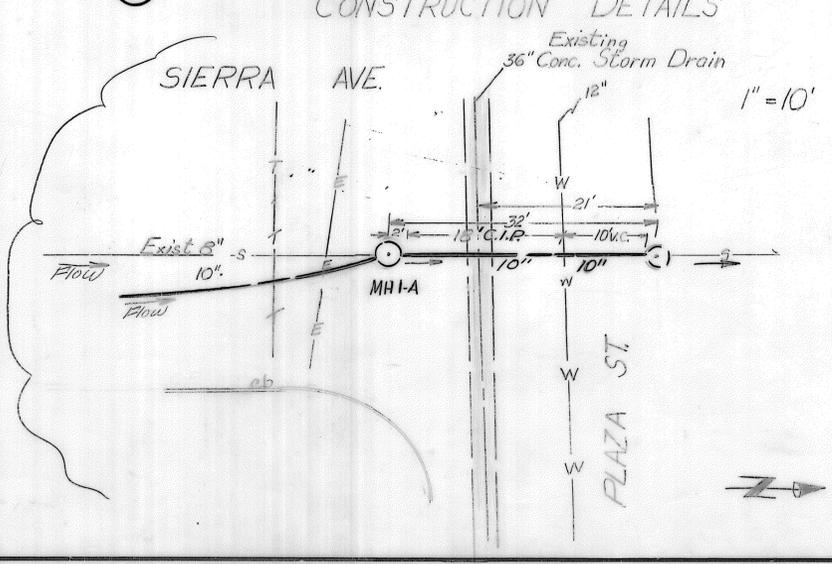
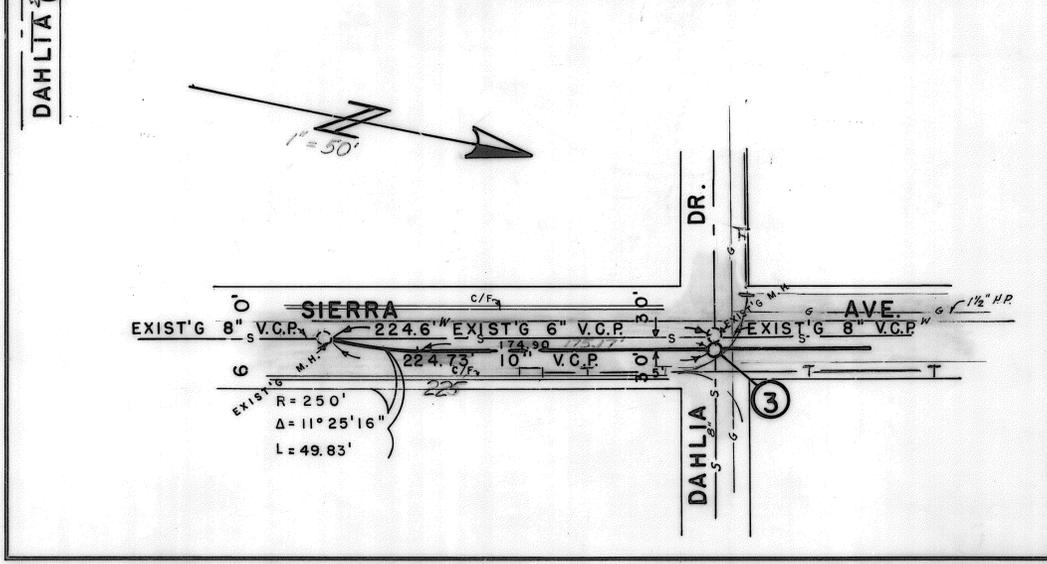
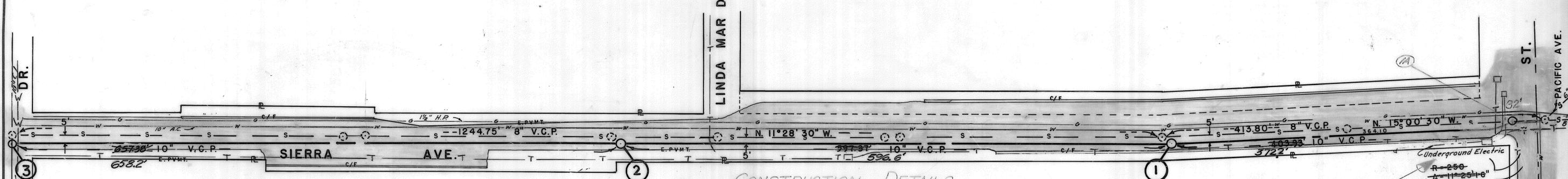
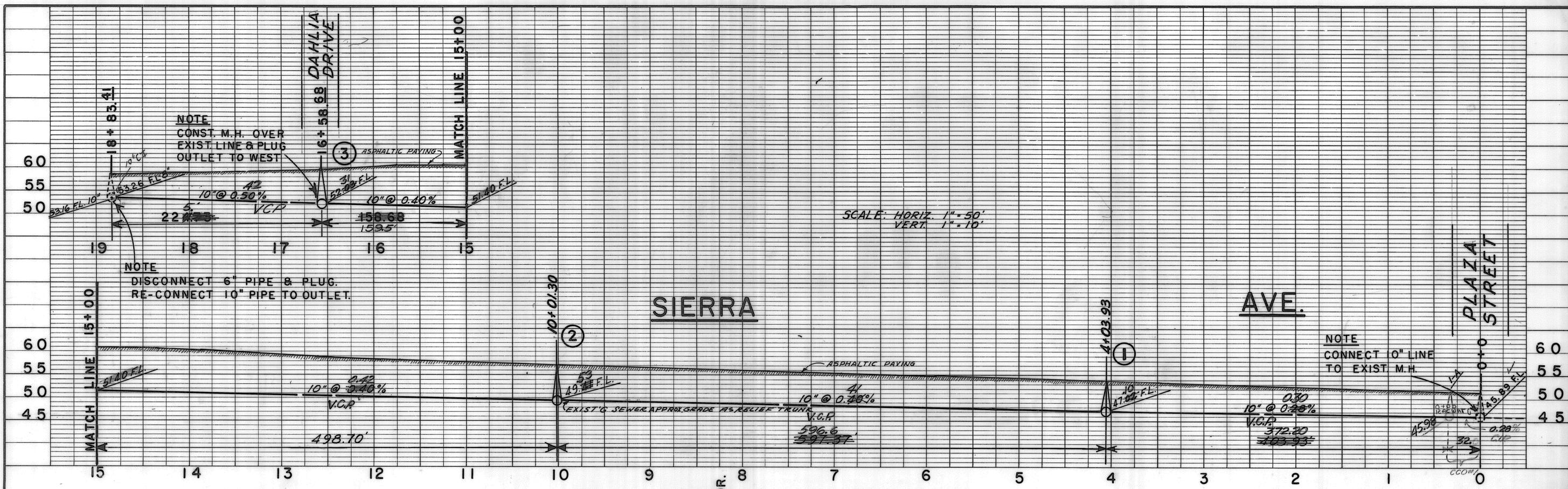


SOLANA BEACH SANITATION DIST.

DEPARTMENT OF SANITATION & FLOOD CONTROL
PUBLIC WORKS AGENCY
5555 OVERLAND AVENUE
SAN DIEGO, CALIFORNIA 92123

SIERRA-WESTSIDE SEWER RELIEF TRUNK

| | | | | | | | |
|-------------------------|------------------------|---------------------|----------------------------|---|--------------------------------|-------------|--------------|
| PROJECT NO. LM 9003 | DESIGNED <i>J.E.O.</i> | DRAWN <i>J.E.O.</i> | CHECKED <i>[Signature]</i> | RECOMMENDED FOR APPROVAL <i>[Signature]</i> | APPROVED BY <i>[Signature]</i> | DATE 2-1-73 | DWG. NO. |
| TITLE SHEET & PLOT PLAN | | | | | | | SHEET 1 OF 3 |



SOLANA BEACH SANITATION DIST.
 DEPARTMENT OF SANITATION & FLOOD CONTROL
 PUBLIC WORKS AGENCY
 5555 OVERLAND AVENUE
 COUNTY OF SAN DIEGO
 SAN DIEGO, CALIFORNIA 92123

SIERRA-WESTSIDE SEWER RELIEF TRUNK
SIERRA AVE.
 FROM 225' S/O DAHLIA TO PLAZA ST.

PROJECT NO. LM 9003
 DESIGNED J.E.O.
 DRAWN J.E.O.
 CHECKED [Signature]
 RECOMMENDED FOR APPROVAL [Signature]
 APPROVED BY [Signature] DATE 2-1-73

REVISOR TO AS BUILT CONDITIONS
 SS 1/10/8
 Date 1-23-75

DWG. NO. 2 SHEET OF 3