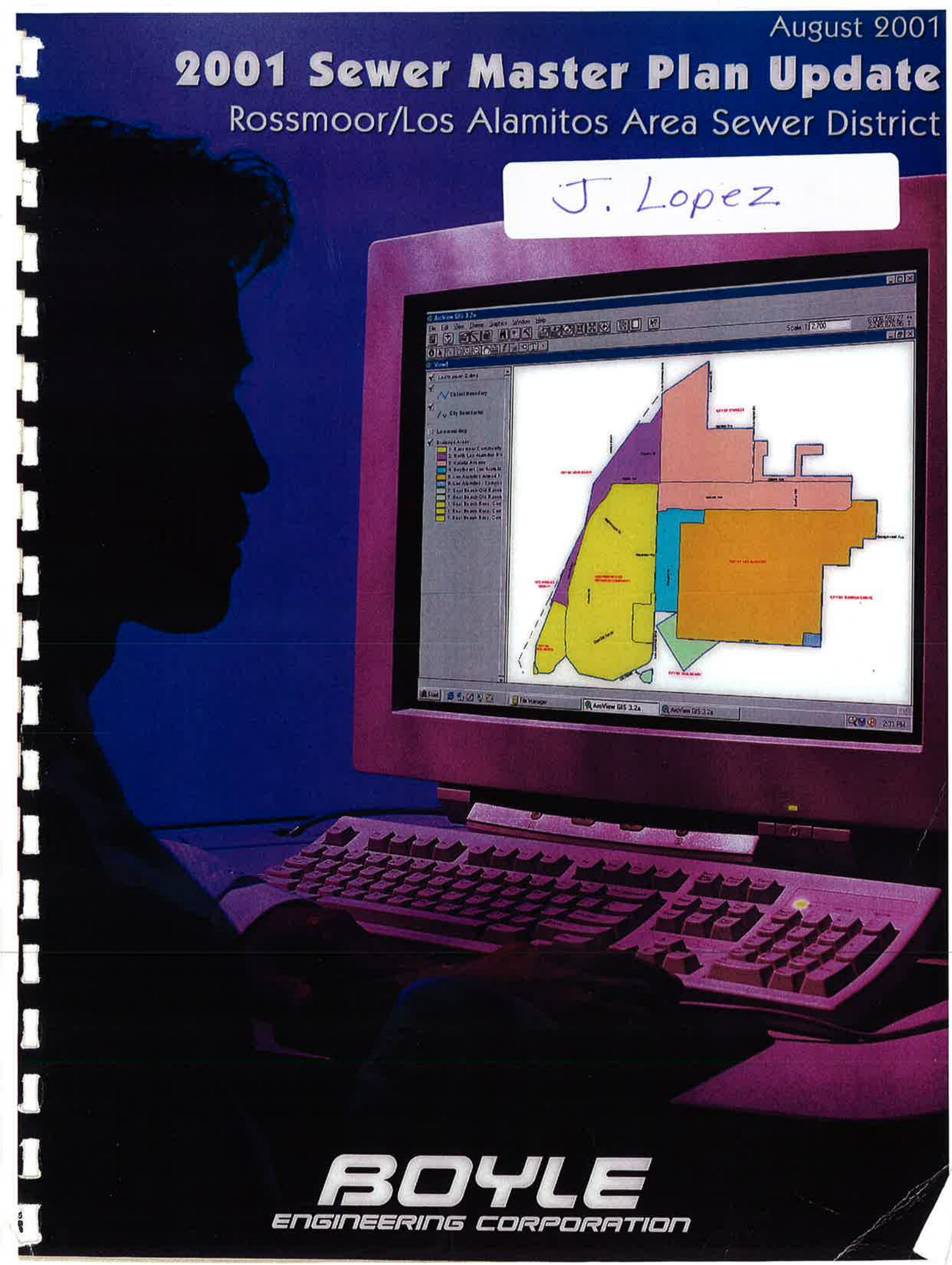
August 2001

2001 Sewer Master Plan Update

Rossmoor/Los Alamitos Area Sewer District

J. Lopez



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ENGINEERING CORPORATION

2001 Sewer System Master Plan Update

Rossmoor/Los Alamitos Area Sewer District

Boyle Engineering Corporation

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OC-L03-250-03

August 2001

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Preface

The Rossmoor/Los Alamitos Area Sewer District has been providing sewer collection service to the City of Los Alamitos and the unincorporated Rossmoor community in western Orange County since 1952. The District was originally formed under the name of the Los Alamitos County Water District and operated under this name until 19__ when the name was changed to the Rossmoor/Los Alamitos Area Sewer District to more accurately reflect the service that is being provided by the District. As development occurred, the collection was expanded to meet the needs of the District. Today the District operates 56.4 miles of gravity sewer mains to serve an area of 6.2 square miles (3,900 acres) of multiple land use.

This master plan update report presents a comprehensive plan to provide the District with a collection system that will efficiently serve the District to build out in accordance with the current land-use elements of the respective planning jurisdictions. This report analyzes the hydraulic capabilities of the system, assesses the condition of the sewer mains, and provides a master plan for capital facilities and operation and maintenance considerations.

The following were instrumental in preparation of the report:

BOARD OF DIRECTORS	- Jack Rosenthal, President Kathie Matsuyama Joseph Martin William Poe Charles Sylvia
DISTRICT STAFF	- Ann Crafton, Manager
LEGAL COUNSEL	- Omar Sandoval, Woodruff, Spradlin & Smart
BOYLE ENGINEERING	- Philip Stone Jesus Lopez Lisa Nelson

1.0 Executive Summary

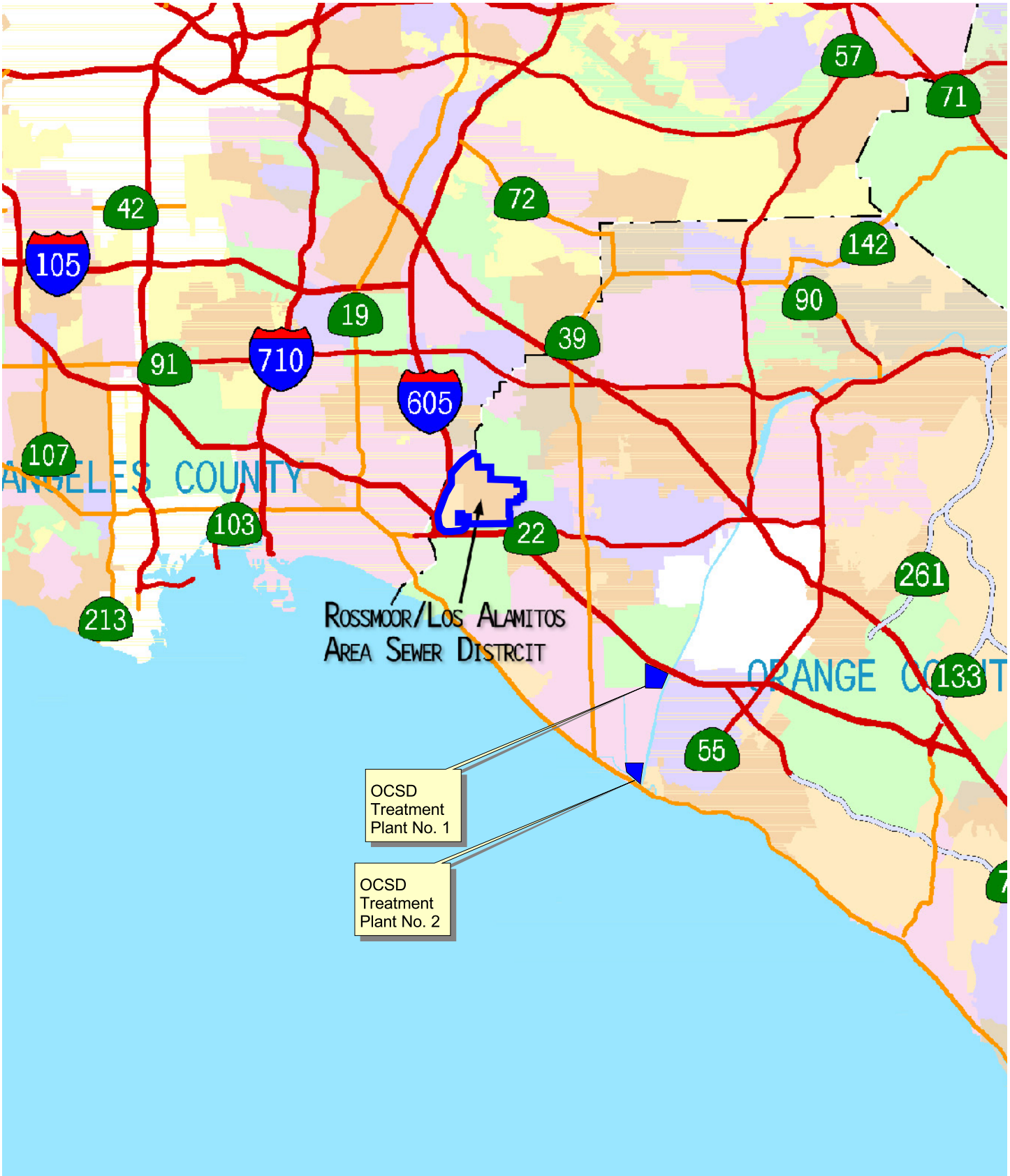
This report presents the results of a Sewer System Master Plan Update along with a Geographic Information System (GIS) prepared for the Rossmoor/Los Alamitos Area Sewer District (RLASD) by Boyle Engineering Corporation. The update contains recommendations regarding system deficiencies, rehabilitation needs, and inflow and infiltration reduction.

The RLASD's population is estimated at 24,780 for 2001. The sewer service boundary encompasses all of Los Alamitos, as well as portions of Seal Beach, Cypress, and the Rossmoor Area (County of Orange). The service area encompasses approximately 6.2 square miles and land use is predominately single family residential with the exception of the Armed Forces Reserve Center, which comprises 33percent of the total area. The RLASD is essential a fully developed community. Figure 1-1 is a vicinity map depicting the locations of the RLASD.

Sanitary sewer loadings were developed based upon land use from the Cities of Los Alamitos, Seal Beach, Cypress and the County of Orange. Flow monitoring was performed to observe current flows at various key locations in the system, to establish flow patterns, and to verify and adjust flow-generating criteria. The modeled sewer system includes the backbone sewers owned by RLASD and all of the Orange County Sanitation District (OCSD) trunks within the RLASD boundary, comprising a total of approximately 28 miles of modeled facilities. OCSD trunks were included to facilitate the sewer modeling process. For existing pipes, a flow depth criteria was established where pipes 12-inches and smaller are "deficient" if the D/d is greater than 67 percent. Pipes larger than 12-inches are "deficient" if the D/d is greater than 90 percent. By utilizing Boyle's Sewer Analysis program (BSWAN) to assist in performing open channel hydraulic calculations, pipe deficiencies were identified and remedial projects identified. With the development of cost data for projects to parallel or replace the deficient pipes, a system of prioritization was established to assist the RLASD in planning and budgeting for improvements. The recommended improvements are shown in Table 11-2.

The hydraulic analysis did not identify any capacity deficient sewers. A few reaches were identified with flow depths slightly higher than the desirable criteria, but not sufficient to warrant construction of new improvements. These reaches have been identified in the event land use planning changes in the future.

Overall, the condition of the existing sewer lines is good, with primary areas of concern being cracked pipes, root intrusion, and mineral deposits. Cleaning of the deposits and removal of the roots can be included as part of RLASD's annual maintenance contract. Twenty-seven cracks were identified as requiring repair, either by replacement or lining, at a probable cost of $143,500. The remaining, less critical cracks should be monitored in future sewer video inspections to ensure that the cracking has not progressed.



Rossmoor/Los Alamitos Area Sewer District

Vicinity Map

August 2001 | Figure 1-1

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2.0 Introduction

2.1 Background

The Rossmoor/Los Alamitos Area Sewer District (RLASD) has retained Boyle Engineering Corporation to prepare an updated Sewer System Master Plan. The most recent previous master plan was prepared for the District in 1985 by Boyle and is summarized in the report titled "1985 Sewer System Master Plan" (1985 Report). This report updates the 1985 Report.

The 1985 Report includes a description of the history of the district since its formation in 1952. The District was formed on May 5, 1952 as the Los Alamitos County Water District. Prior to that time Orange County had no means of sewage collection or disposal in West Orange County. The community of Los Alamitos was unincorporated. The lack of a sewage collection system and local septic tank failures caused problems for residents and restricted land development in the area. The solution was for the voters of the area agreeing to bond themselves under the Improvement Act of 1911 to construct a sewage collection system discharging to a pump station located in the rear yard of the present district office on Katella Avenue and by agreement with the Los Angeles County Sanitation District 19 to pump the sewage through a force main to District 19 facilities in Los Angeles County.

Since its formation, significant annexations occurred between 1954 and 1960 when the Rossmoor residential development took place and again around 1960 when the southeast corner of the Armed Forces Reserve Center and the Seal Beach College Park west housing developments were annexed. Through the 1970's small annexations occurred to match the city annexations.

In 1997 the Board of Directors changed the Districts name to the Rossmoor/Los Alamitos Area Sewer District to more accurately reflect the service that the District provides.

2.2 Study Area

The RLASD service area encompasses, in general, the City of Los Alamitos, the unincorporated Rossmoor Community, a portion of the City of Cypress, and the College Park Community and Rossmoor

Center in the City of Seal Beach. The service area encompasses 3,938 acres (6.2 square miles) and is shown on Figure 2-1. No annexations to the District have occurred since the 1985 Report.

The study area is a mature community comprised predominantly of residential development with some associated commercial and light industrial uses.

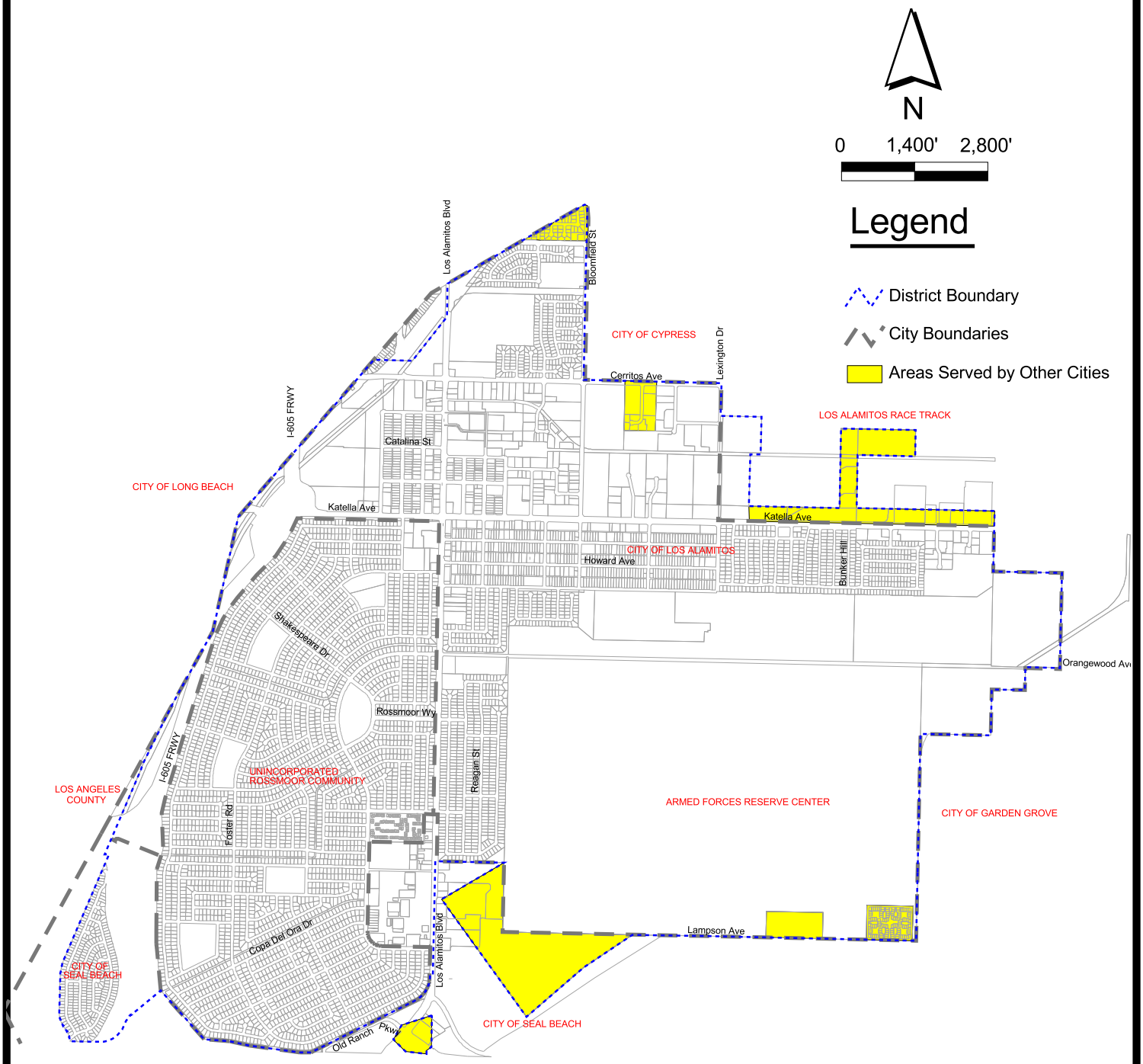
2.3 Study Intent

The intent of the master plan update is to provide a concise overview of the sewer system facilities and operation, current capacity deficiencies, facility improvements needed to provide capacity for ultimate flows, an assessment of the condition and rehabilitation needs, and an opinion of probable cost for projects. The plan acts as a tool for the District in establishing ongoing programs for facility rehabilitation, replacement and expansion.

2.4 Approach

This evaluation and update of the sewage system employs the following multi-step process:

- Review of current land use elements of the General Plans of the cities and county within the RLASD to facilitate development of sewage flow projects based on land use.
- Preparation of a geographic information system for the RLASD incorporated a detailed database of geometry that includes pipe sizes, slopes, manhole invert elevations, drawing reference numbers and construction dates for all sewer facilities.
- Unification of sewage loading and the system geometry in a mathematical hydraulic model.
- Identification of deficiencies based upon maximum use of existing hydraulic capacity and sizing of new facilities based upon the capacity criteria.
- Review closed circuit television inspection (CCTV) videotapes to assess the condition of the sewer system and identify deteriorated areas and areas of significant groundwater infiltration requiring repair/rehabilitation.



Rossmoor/Los Alamitos Area Sewer District

Study Area Map

August 2001 | Figure 2-1

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- Provide flow monitoring data to verify flow coefficients and the peak to average flow relationship, identify areas with high base flows that might be suspected of significant groundwater infiltration and prioritize projects.
- Development of a recommended long-term improvement plan to remedy deficiencies and strengthen the system to assure the RLASD of adequate capacity to allow for future growth and ultimate build-out.
- Preparation of opinion of probable construction cost for the proposed improvements.
- Preparation of project priorities for implementation of recommended improvements.

3.0 Collection System Description

3.1 System Overview

The RLASD sewer system currently provides service to approximately 3,938 acres (6.2 square miles). The sewage flow generated within the RLASD is discharged to trunk sewers of the Orange County Sanitation District (OCSD) for conveyance, treatment and disposal by OCSD. Two OCSD trunk sewers serve RLASD; the Los Alamitos Subtrunk Sewer following Bloomfield Avenue, Cerritos Avenue, Oak Street, Katella Avenue and Los Alamitos Boulevard and the Westside Relief Interceptor following Lexington Drive, Katella Avenue and Los Alamitos Boulevard.

3.2 Service Areas

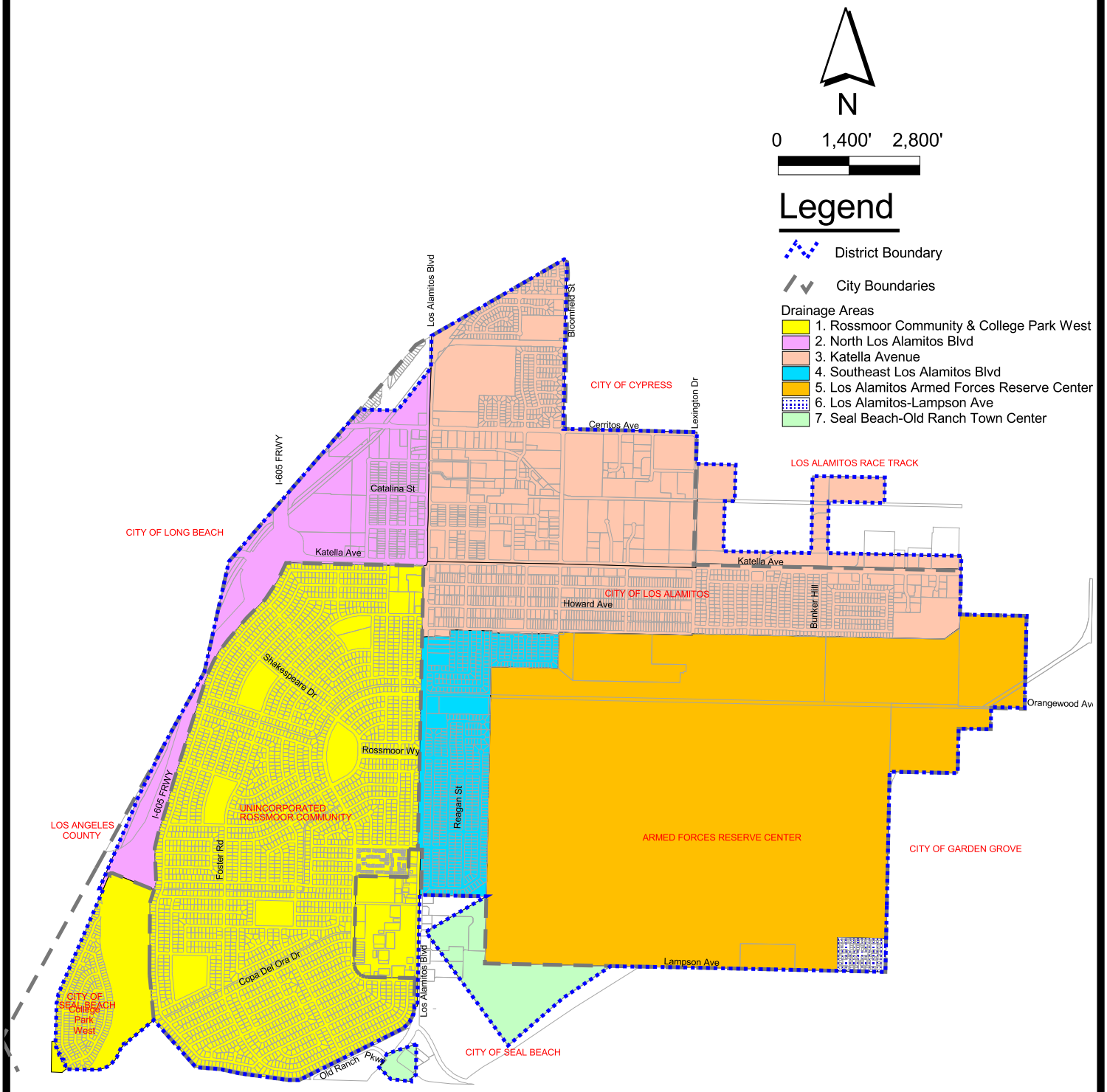
The RLASD is composed of seven major drainage areas that are defined by major discharge points to the OCSD trunk system. These are delineated on Figure 3-1 and described as follows:

1. Rossmoor Community: This residential area is bounded by Los Alamitos Boulevard, Katella Avenue and drains to the south to the OCSD's Westside Lift Station. Eight-inch collector sewers feed to larger lines in Bostonian Drive and Foster Road.

2. North Los Alamitos Boulevard: This area bounded by Katella Avenue on the south and Los Alamitos Boulevard on the east drains southerly to a twelve-inch trunk in Katella Avenue and along Los Alamitos Boulevard where it is discharged to the OCSD facilities at the Katella Avenue/Los Alamitos Boulevard intersection.

3. Katella Avenue: This area follows Katella Avenue from Los Alamitos Boulevard easterly to the District boundary. Sewage flow is in a westerly direction as 8-inch collectors discharge to the 12-inch trunk in Katella Avenue. Flow in the 12-inch trunk is diverted at several locations into the OCSD Westside Relief Interceptor.

4. Southeast Los Alamitos Boulevard: The area includes residential development east of Los Alamitos Boulevard and south of Farquhar Avenue. Flow is in a westerly direction with several discharge points to the OCSD trunk sewers in Los Alamitos Boulevard.



Rossmoor/Los Alamitos Area Sewer District

Major Drainage Area Map

August 2001 | Figure 3-1

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5. Los Alamitos Armed Forces Reserve Center: This area includes the entire Armed Forces Reserve Center and is served by a new 18-inch sewer in Orangewood Avenue. This sewer flows westerly discharging to an OCSD's Westside Relief Interceptor in Los Alamitos Boulevard.

6. Los Alamitos - Lampson: This is a small residential area located at the southeast corner of the City of Los Alamitos and flows south into the City of Seal Beach.

7. Seal Beach - Old Ranch Town Center: This is a small RLASD area located near the intersection of Old Ranch Parkway and Los Alamitos Blvd. and within the City of Seal Beach. The area is served by Seal Beach.

The entire system is gravity with the general drainage pattern from north to south.

The following areas within the RLASD are served to neighboring local sewering agencies:

- The District sewer in Los Vaqueros discharges to the City of Cypress sewer in Cerritos Boulevard. The December 8, 1977 agreement with the City of Cypress stipulates that the 12-acre parcel at the southeast corner of Cerritos Avenue and Bloomfield Street will be served by Cypress until the District constructs collections facilities in Cerritos Avenue. It provides for an average daily flow contribution of 0.06 cubic feet per second from this area.

- The northerly triangular tip of the RLASD between Bloomfield Street and Ball Road (Tract 4642) discharges northerly to the neighboring local collection system.

- In the south east corner of the District, tract 5868 discharges southerly to the City of Seal Beach system in Tulip Street.

- The District's area north of Katella Avenue and east of Lexington Drive is served by the City of Cypress through their sewer in Katella Avenue.

- The Old Ranch Town Center development on the east side of Los Alamitos Boulevard south of Rossmoor Center Way is served by

the City of Seal Beach in accordance with a 2000 agreement with the City of Seal Beach

- A parcel on the south side of the AFRC on Lampson Avenue is served by the City of Seal Beach system.

3.3 Gravity System

Within Drainage Areas 1 – 7, the RLASD's sewer system is comprised of 56.4 miles (297,740 lineal feet) and 1086 manholes. Table 3-1 summarizes the District's inventory by pipe size and length.

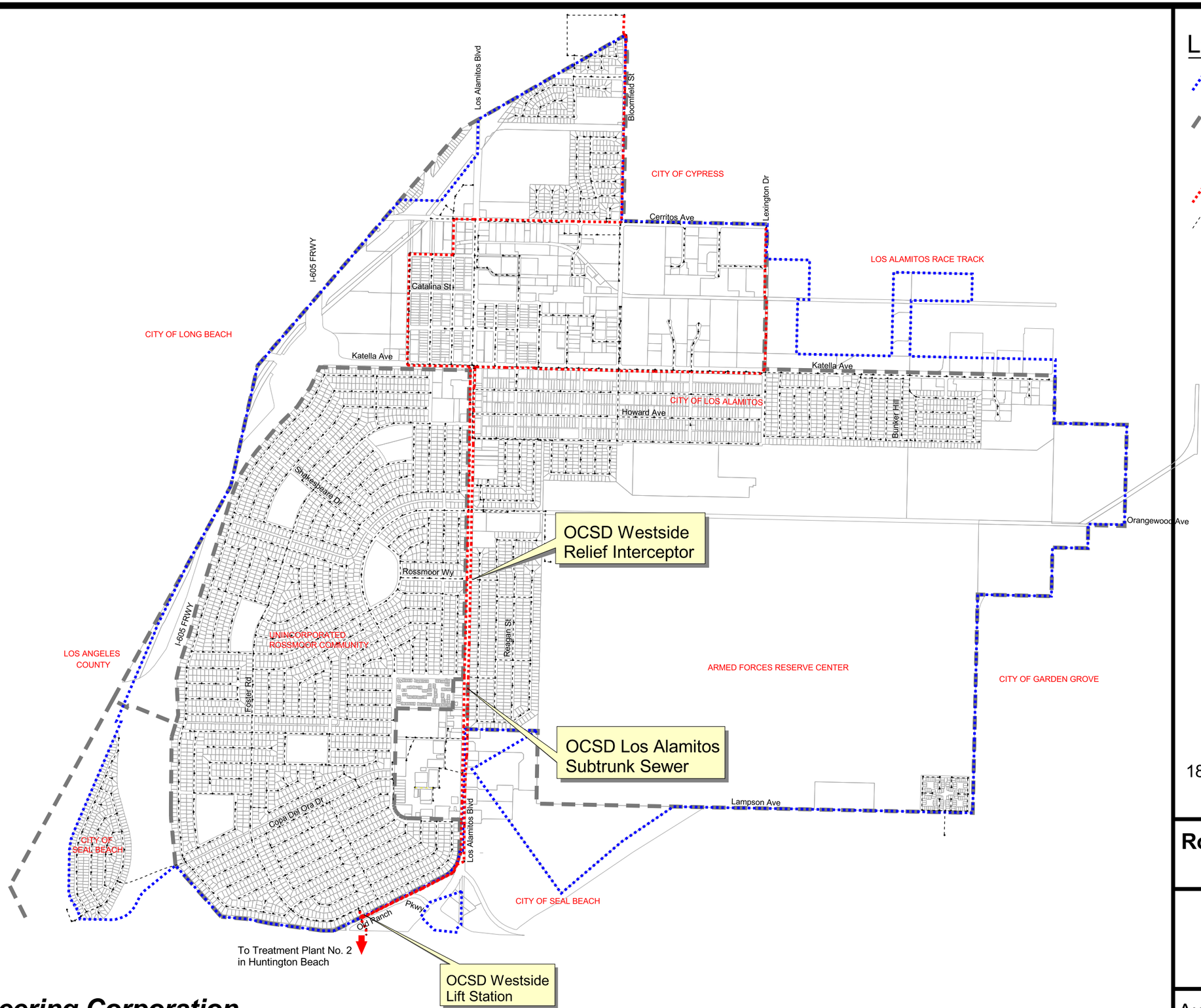
Table 3-1
2001 Sewer Facilities Inventory

Pipe Diameter	Approximate Length[1]	
(inches)	(Lineal Feet)	(Miles)
8	264,497	50.1
10	9,844	1.9
12	14,587	2.8
15	3,053	0.6
18	5,758	1.1
TOTAL	297,739	56.4

Notes:
1. Excludes all OCSD trunks, Long Beach, and Cypress sewers.

In the Technical Appendix is a Sewer Facilities Data Summary detailing the sewer facilities inventory for reference. The existing sewer system is illustrated on Figure 3-2.

The initial portion of the RLASD's sewer system was constructed in the 1950's and the system has expanded as development took place with most of the system in place by 1985. Figure 3-3 illustrates the years of installation of the respective portions of the sewer system. Table 3-2 further summarizes the age of the system facilities by length and diameter. Note that 72percent of the system was installed prior to 1960.



Legend

- District Boundary
- City Boundaries
- Manhole
- OCSD Trunk
- RLASD Sewer

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1800' 0 1800'

Rossmoor/Los Alamitos Area Sewer District

Existing Sewer System Map

August 2001 | Figure 3-2

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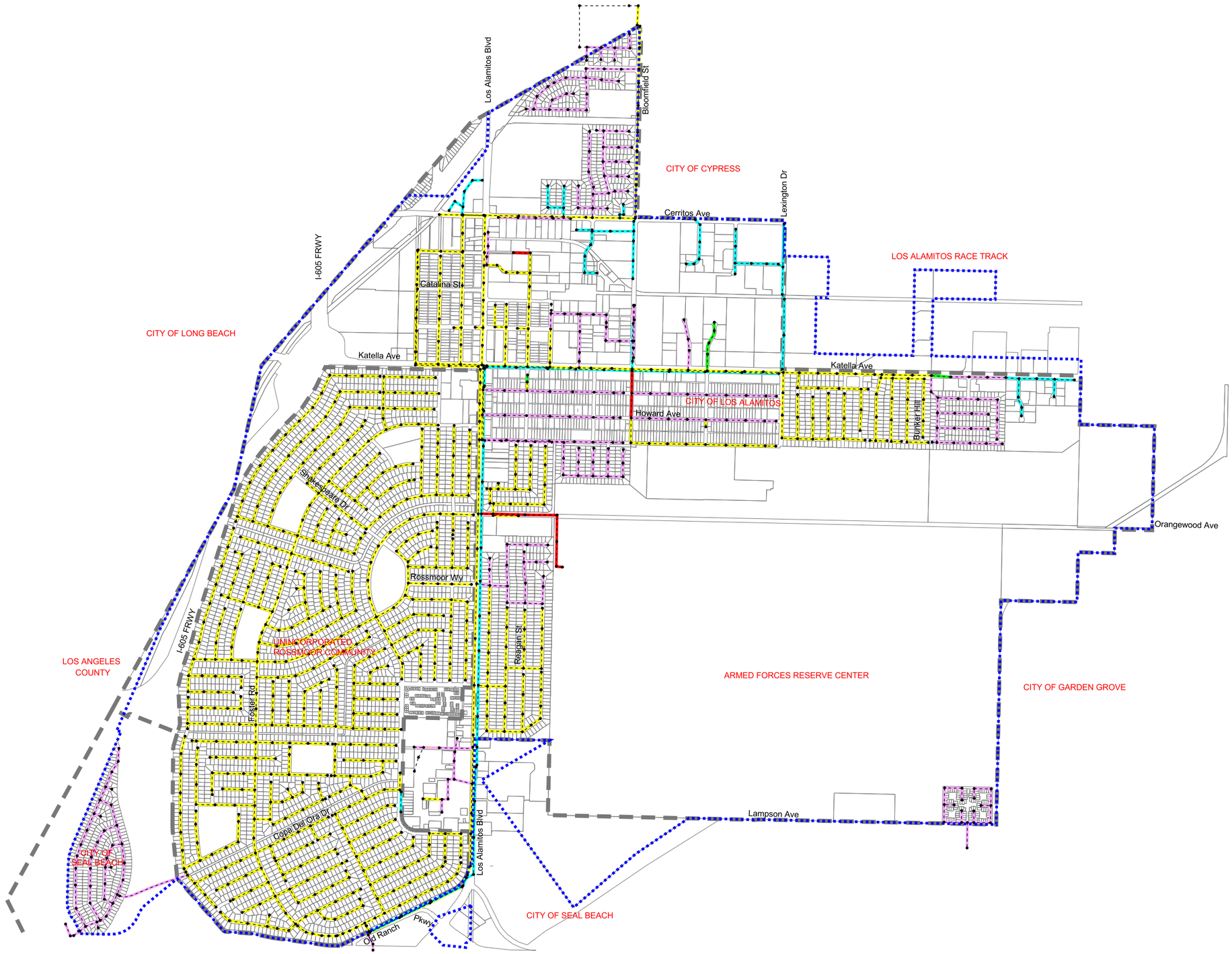

Legend

- Manholes
- RLASD Sewers

Pipe Age Map (Years)

- 1950 - 1960
- 1961 - 1970
- 1971 - 1980
- 1981 - 1990
- 1991 - 2001

- District Boundary
- City Boundaries

N

1800' 0 1800'

Rossmoor/Los Alamitos Area Sewer District

Pipe Age Map

August 2001 | Figure 3-3

Boyle Engineering Corporation

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Table 3-2
Facility Age Summary

Date of Construction	Length of Piping (lf) [1] 8"	10"	12"	15"	18"	Total
1954 – 1960	187,717	5,871	12,958	3,053	3,439	213,038
1961 – 1970	65,118	3,211	-	-	-	68,329
1971 – 1980	11,826	-	-	-	-	11,826
1981 – 1990	1,068	326	-	-	-	1,394
1991 - 2001	-	436	397	-	2,319	3,152
TOTAL	265,729	9,844	13,355	3,053	5,758	297,739

Notes:
1. Excludes all OCSD trunks, Long Beach, and Cypress sewers.

3.4 Orange County Sanitation District Facilities

The Orange County Sanitation District (OCSD) maintains two trunk sewers and the Westside Lift Station that serve the RLASD. The location of these OCSD facilities are shown on Figure 3-2. Drainage Area 1 is served by the OCSD's Westside Lift Station. The OCSD Los Alamitos Subtrunk Sewer serves RLASD Drainage Areas 2 and a portion of 3. The remainder of Drainage Area 3 and Drainage Area 4 & 5 are served by the OCSD's Westside Relief Interceptor. Flow from the OCSD's Los Alamitos Subtrunk, the Westside Relief Interceptor and the Westside Lift Station discharge to a junction structure on the Seal Beach Boulevard Interceptor just south of the Bixby Storm Channel at the south boundary of the Rossmoor community. Flow collected by these regional trunk sewer facilities is then conveyed to Treatment Plant No. 2 in Huntington Beach for treatment and disposal by OCSD

4.0 Land Use

4.1 General Plans

Land use serves as the basis for projecting sewage flow generation quantities. Land use planning within the RLASD is carried out by four jurisdictions – the Cities of Los Alamitos, Seal Beach and Cypress and the County of Orange. The land use elements of the General Plans for these agencies were gathered and provided the basis for this update. These include:

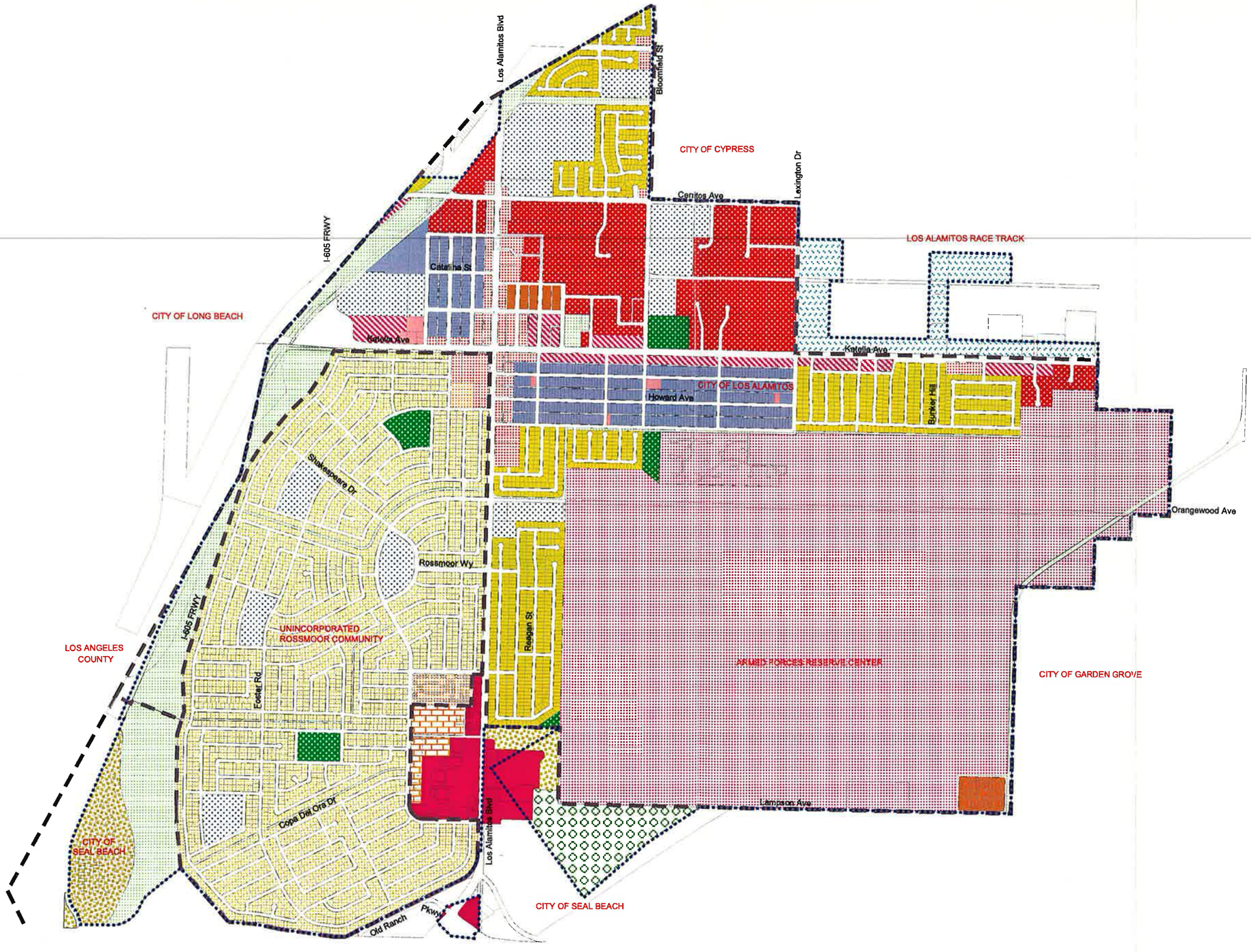
- City of Los Alamitos 2010 General Plan
- County of Orange Zoning Map dated November 13, 1999
- City of Seal Beach General Plan Land Use Map

These land use plans were examined and a consolidated land use plan developed for the RLASD service area. Figure 4-1 depicts this consolidated land use plan.

4.2 Land Use Classifications

There are three residential land use classifications ranging from 1 to 40 dwellings units per acre. In addition, there are commercial, industrial, office, institutional and open space classifications. Outside of the Armed Forces Reserve Center the largest single category is Single Family Residential, which accounts for 36 percent of the total District acreage. All residential land use categories combined make up 43 percent of the District's total acreage (excluding the Armed Forces Reserve Center).

The residential classifications of the county and each city have been delineated separately on Figure 4-1. Table 4-1 summarizes the typical densities of the various residential land use classifications.



Legend

- District Boundary
- City Boundaries

Land Use

City of Los Alamitos
- Single Family Res. (SFR)
- Limited Multiple Family Res. (LMFR)
- Multiple Family Res. (MFR)

Rossmoor (Orange County)
- Single Family Res. (SFR-OC)
- Multiple Family Res. (MFR-OC)

City of Seal Beach
- Low Density Res. (LDR-SB)
- High Density Res. (HDR-SB)

Other (Los Alamitos)
- Armed Forces Reserve Center (AFRC)
- Institutional (INST)
- Open Area (OA)
- Park (P)
- Planned Industrial (PI)
- Professional Office (PO)
- Retail Business (RB)
- School (S)

Other Rossmoor (Orange County)
- Open Area (OA-OC)
- Park (P-OC)
- Retail Business (RB-OC)
- School (S-OC)

Other (Seal Beach)
- General Com. (C-SB)
- Open Area (OA-SB)
- Golf Course (G-SB)

Other (Cypress)
- Race Track (RT-CYP)

- Public Right of Way (PR)

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1800' 0 1800'

Rossmoor/Los Alamitos Area Sewer District

Land Use Plan

August 2001 | Figure 4-1

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Table 4-1
Residential Land Use Classification Densities

Classification	Development Description	Density
City of Los Alamitos		(du/acre)
SFR	Single Family Residential	1-6
LMFR	Limited Multiple Family Residential	6-20
MFR	Multiple Family Residential	20-30
Rossmoor (Orange County)		
SFR-OC	Single Family Residential	1-6
MFR-OC	Multiple Family Residential	Up to 40
City of Seal Beach		
LDR-SB	Low Density Residential	1-9
HDR-SB	High Density Residential	17-32

Table 4-2 summarizes the total acreage of each land use type within the RLASD, and Table 4-3 summarizes the acreage of each classification found within each drainage area.

Table 4-2
Land Use Classifications within RLASD

Land Use Classifications	Description	Area (acres)
City of Los Alamitos		
SFR	Single Family Residential	245.6
LMFR	Limited Multiple Family Residential	18.2
MFR	Multiple Family Residential	132.6
AFRC	Armed Forces Reserve Center	1,303.8
INST	Institutional	6.0
OA	Open Area	156.6
P	Park	16.6
PI	Planned Industrial	222.3
PO	Professional Office	48.8
RB	Retail Business	49.9
S	School	126.5
PR	Public Right-of-Way	274.8
		2,601.8
Rossmoor (Orange County)		
SFR-OC	Single Family Residential	641.1
MFR-OC	Multiple Family Residential	16.9
OA-OC	Open Area	16.7
P-OC	Park	17.9
RB-OC	Retail Business	10.6
S-OC	School	43.4

PR	Public Right-of-Way	247.7
		994.2
City of Cypress		
RT-CYP	Race Track	78.7
		78.7
City of Seal Beach		
LDR-SB	Low Density Residential	63.0
HDR-SB	High Density Residential	19.8
C-SB	General Commercial	52.7
G-SB	Golf Course	58.8
OA-SB	Open Area	69.4
		263.7
	TOTAL	**3,938.5**

4.3 Population

The historical population figures are listed in Table 4-4. The 1996 population value is per the memorandum dated June 20,1996, titled "City Update to the General Plan". The City of Los Alamitos ultimate population is 14,588 per the memorandum. Population data for the year 2001 was obtained from the RLASD. The data shown for ultimate year were calculated using the sewer model land use acreages and maximum land use densities at buildout.

Table 4-4
RLASD
Historical Population Information

Year	Los Alamitos	Rossmoor	College Park West
1996	12,580	-	-
2001	12,580	11,000	1,
Ultimate	14,588	11,000	1,200

5.0 Design Criteria

5.1 Hydraulic Analysis

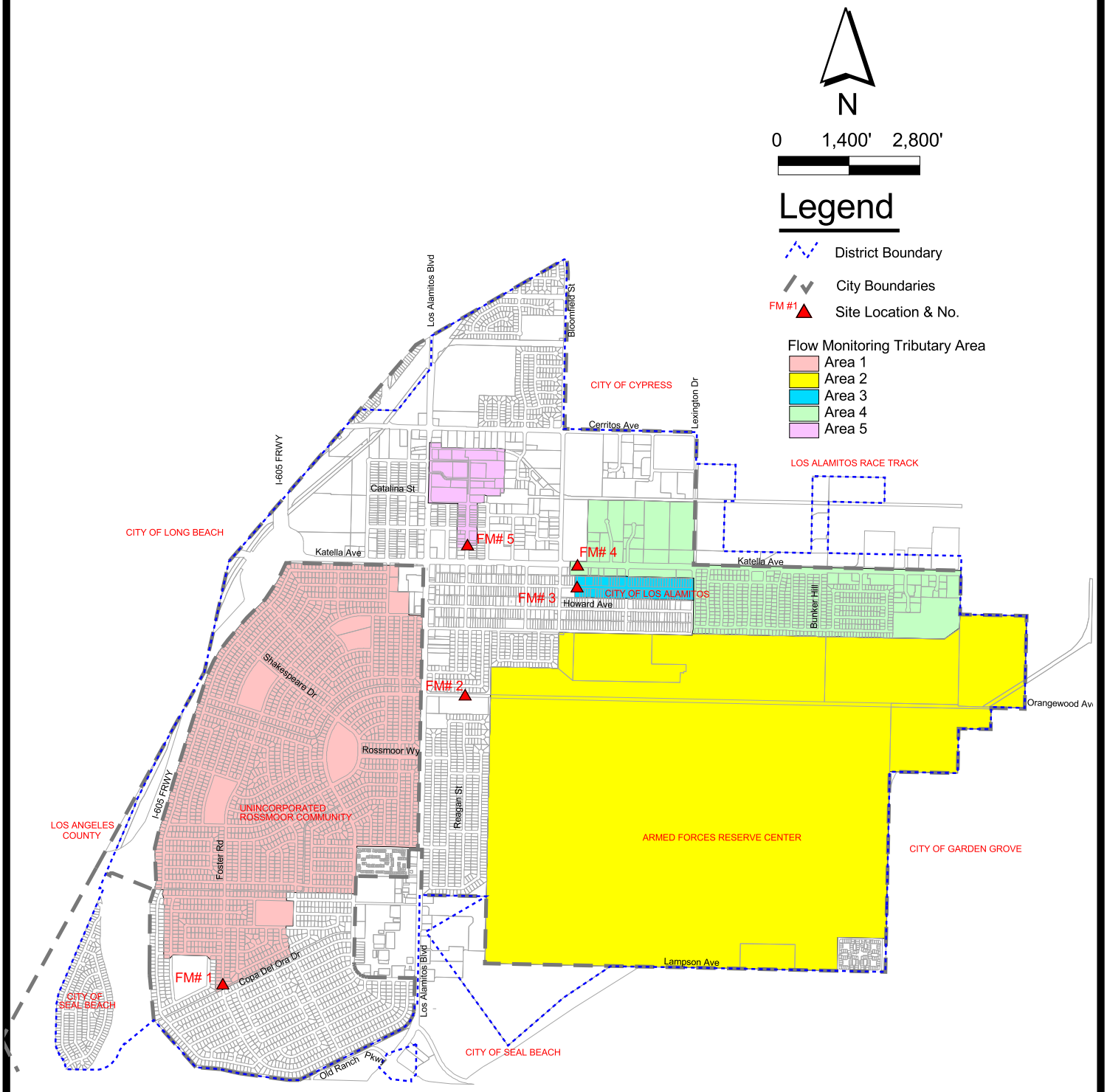
A hydraulic analysis of the gravity sewer system was conducted to determine whether capacity deficiencies exist under either current or build-out conditions. The analysis consists of projecting peak flows for each reach of the sewer main network, calculating the capacity of the respective reaches and comparing the projected flow to the capacity. The peak flow is calculated by applying a peak to average flow relationship to the average flow which is determined by applying average unit flow coefficients to the respective land uses within the tributary drainage area. The analysis was performed by Boyle's computerized program BSWAN (Sewer Analysis). . The program simulates normal-depth open channel flow in each pipe within the system based upon Manning's equation for open channel flow. Manning's friction factor "n" was assumed to be 0.013 for all modeled pipes in this report. The BSWAN program is linked to data files forming a part of the RLASD's GIS database.

5.2 Flow Monitoring

Flow monitoring was performed to provide data that was used to establish criteria that enabled to hydraulic analysis to reflect the actual conditions within the RLASD. Flow monitoring was conducted at five sites for a 7-day period by ADS Environmental Services from March 4, 2001 to March 10, 2001. This data was used to:

- Establish current flow levels.
- Verify or adjust flow coefficients.
- Establish flow patterns.
- Confirm peak-to-average flow relationships.
- Help prioritize recommended improvements.

The flow monitoring sites were selected to isolate particular land use classifications while providing a large enough area to observe and quantify the diurnal flow patterns. From the diurnal flow patterns the average daily unit flow coefficients are determined for the respective land use and the peak flow is used to establish a peak to average flow relationship. Figure 5-1 shows the locations of the monitoring sites and the associated tributary areas. Since a majority of the



Rossmoor/Los Alamitos Area Sewer District

Flow Monitoring Location Map

August 2001 | Figure 5-1

Boyle Engineering Corporation

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development within RLASD is residential, both single family and multiple units, and industrial, the site selection was focused on these land uses.

The full report is included in the Appendix. Table 5-1 summarizes the flow monitoring results.

Table 5-1
Flow Monitoring Results
Performed from 4/4/01 to 4/10/01

Site Number	Service Area No. & Name	Model Pipe Number	Pipe Size (in)	Qave (cfs)	Qpk (cfs)	Qpk/Qave	Max D/d
1	(1) Rossmoor Community	336A-336	18	1.22	2.42	1.99	90percent
2	(5) Los Alamitos Armed Forces Reserve Center	1032-1030	18	0.42	1.19	2.85	37percent
3	(3) Katella Avenue	105-135	8	0.16	0.36	2.25	59percent
4	(3) Katella Avenue	21-22	12	0.74	0.98	1.32	87percent
5	(3) Katella Avenue	811-27	8	0.04	0.09	2.14	25percent

5.3 Flow Coefficients

Estimates of average flow quantities for specific land use classifications are based upon unit flow coefficients applied to gross land area. The coefficients used in this report are shown in the tables below. These coefficients are based on a conservative analysis of the flow monitoring data summarized in Section 5.2 and by comparison with the criteria of other sewering agencies in Orange County. Table 5-2 summarizes unit flow coefficients for residential land use.

Table 5-2
Residential Unit Flow Coefficients

Land Use Classification	Density (DU/acre)	Flow Coefficient Average Daily Flow (cfs/acre)
City of Los Alamitos		
SFR	1-6	0.0024
LMFR	6-20	0.0060
MFR	20-30	0.0110
Rossmoor (Orange County)		

SFR-OC	1-6	0.0024
MFR-OC	up to 40	0.0090
City of Seal Beach		
LDR-SB	1-9	0.0024
HDR-SB	17-32	`0.0110

Table 5-3 summarizes unit flow coefficients used for non-residential land uses.

Table 5-3
Non-Residential Unit Flow Coefficients

Land Use Classification	Flow Coefficient Average Daily Flow (cfs/acre)
City of Los Alamitos	
Institutional (INST)	0.0050
Open Area (OA)	0.0000
Park (P)	0.0003
Planned Industrial (PI)	0.0060
Professional Office (PO)	0.0050
Retail Business (RB)	0.0050
School (S)	0.0050
Public R/W (PR)	0.0000
Rossmoor (Orange County)	
Open Area (OA-OC)	0.0000
Park (P-OC)	0.0003
Retail Business (RB-OC)	0.0050
School (S-OC)	0.0050
City of Seal Beach	
General Com. (C-SB)	0.0050
Golf Course (G-SB)	0.0003
Open Area (OA-SB)	0.0000

Special flow coefficients are estimates of average daily flow quantities that differ from typical development categories. These special cases result from large building sizes or high occupancy rates or unusually high industrial process water requirements and are input to the hydraulic model as point source loadings. Developments within the RLASD were evaluated to determine what should be considered point sources for the sewer model. Estimates of flow quantities for these special development types are summarized in Table 5-4.

Table 5-4
Special Development
Sewage Flow Generation Criteria

Land Use Classification	Area (acres)	Average Flow Coefficient (cfs/acre)	Peak Flow Coefficient (cfs/acre)
City of Los Alamitos			
AFRC	1,304	0.76	1.46

The average flow reported by the AFRC staff in the 1985 Report was 0.22 cfs and in 1995 the flow was projected to be 0.23 cfs in the Environmental Assessment / Initial Study for the Multiple Construction Project (MCP) Armed Forces Reserve Center, Los Alamitos, dated January 1997. Flow monitoring was performed for the AFRC as part of this report and the results show the average flow is 0.42 cfs and peak flow is 1.19 cfs. The flow increased by a 100percent since 1985 and 1995. The MCP improvements consist of adding and upgrading their facility to include additional parking, upgrade the maintenance shop, a new armory, a storage building and a Class IX facility. The point source flow used in sewer model and the above table, takes into consideration all of the new improvements.

5.4 Peaking Factor

Data was developed at five flow monitoring sites (Section 5.2) and evaluated to assist in establishing average flow coefficients, and to confirm peak-to-average flow relationships. By using the statistical "least square regression analysis" method, a best-fit curve empirical relationship was developed that indicates the following:

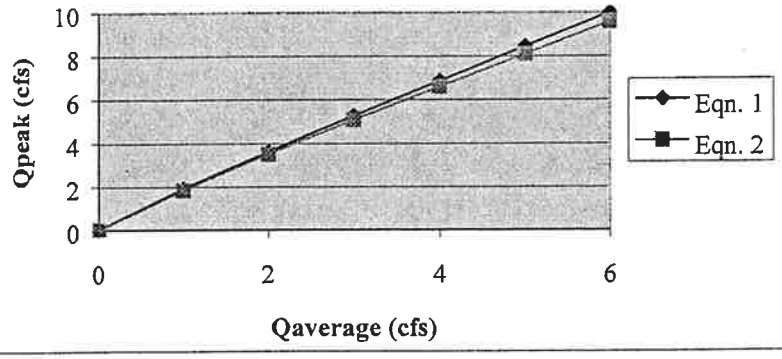
Equation 1: Qpeak = 1.89 * Qave $^{0.93}$ (Flow in cfs)
(2001 Flow Monitoring Data)

Peak flows are determined by summing all average flows tributary to a certain manhole and applying the peak-to-average flow relationship. As shown above, the calculated peaking factor from the flow monitoring data for this study is similar to the equation used in the 1985 Report shown below.

Equation 2: Qpeak = 1.84 * Qave $^{0.92}$ (Flow in cfs)
(1985 Report)

Equation 1 was used for the sewer modeling in this report. Figure 5-2 graphically shows the peak-to-average flow relationships for the two equations.

Figure 5-2
Peak-Average Flow Relationship



5.5 Capacity Definition

The hydraulic analysis of the gravity sewer master planning process is comprised of two elements:

a) Identifying the capacity of the existing sewer system to convey the projected peak daily flow that is routed to each existing sewer reach.

b) Sizing new facilities to transport the remaining projected flow.

The hydraulic analysis of the gravity sewer system is based on the following criteria:

- Flow calculations are based on the use of the Manning formula for open channel flow with a coefficient of friction, n = 0.013.
- Evaluation of pipeline capacity of existing lines and sizing of proposed sewers by limiting the peak flow depth to pipe diameter (D/d).

Within the RLASD two land use development conditions exist. One condition is where development is built out with no land use planning that would permit future redevelopment that could increase density, such as the Rossmoor community or the College Park West area of the City of Seal Beach. The other condition is where the land use elements of the general plans allows for future development that could increase the density of development, such as the Apartment Row area of the City of Los Alamitos. These two conditions have been considered in establishing the following pipe flow evaluation criteria:

Table 5-5

Capacity Flow Depth Criteria

	Maximum D/d		
	Existing		
Pipe Size (inches)	Fully Developed	Future Growth	New
Less than or equal to 12	0.67	0.67	0.50
Larger than 12	0.90	0.75	0.70

* D is the depth of flow & d is the pipe diameter

It should be noted that an indication of a capacity deficiency when compared to the capacity definition does not alone justify the construction of a new sewer. Judgment considering such items as the length of sewer reach effected and status of land use build out within the tributary area has been exercised to determine whether a deficiency is significant enough to warrant construction of a new facility. If, in fact, there was any surcharging, surcharging would generally occur only during peak flow conditions, which normally occur for short intervals (less than one hour).

Some reaches have been evaluated as having a marginal potential for a capacity deficiency, yet not warranting replacement or a parallel sewer based upon the computer analysis. These are identified for future observation and evaluation.

6.0 Development of GIS and Computer Model

6.1 Geographic Information System (GIS) Overview

A computer based geographic information system (GIS) has been developed for the RLASD. The GIS consolidates all the information required for preparation of the sewer master plan and data and information for daily operation, maintenance and administration of the District's sewer facilities. The system integrates the mapping graphics with non-graphic data and the BSWAN hydraulic model for viewing through the use of ESRI ArcView software. The GIS provides a graphical interface with the database for graphical viewing of relevant queried information.

The GIS is envisioned to be used in the following areas in support of District operations:

1. Provide mapping of the District's mainline sewer system.
2. Show the location of service lateral connections to the District's sewer mains. This capability can be expanded to create a map showing the location information graphically to hand out to property owners upon request.
3. Provide easy access to scanned electronic files of the record drawings and enable copies to be printed for distribution.
4. Maintain a history of the cleaning activities and problem areas.
5. Maintain a history of the CCTV inspection.
6. Maintain a database of problem areas history.
7. Provide hydraulic model analysis updates due to land use changes.

6.2 Record Drawings

The District's library of record drawings consists of approximately 460 sheets. These record drawings are, for the most part, sheets from the construction plans showing the plan, profile and details of the District's sewer facilities. These 460 sheets have been digitized by scanning to produce an electronic file of each record drawing. The electronic files in turn have been linked to the graphical mapping of

the sewer system as a part of the GIS. The viewer can click on a particular element of the system (pipe segment) and access the electronic file for viewing and printing a copy of the record drawing for that element.

6.3 Operation and Maintenance Information

Provisions have been made for operation and maintenance information to also be entered and maintained in the future as a part of the GIS database. This can be comprised of the following information:

- A history of cleaning dates for each pipe reach of the sewer system.
- A history of closed-circuit television (CCTV) inspection performed by date for each pipe reach of the sewer system.
- A history of problems for sewer pipes in the sewer system.
- The location of house lateral connections sewer manholes.

This information can be accessed by clicking on the particular facility element and viewing the stored data in tabular form.

The database can be further queried to display sewer model results, address locations, and provide a display of the as-built drawing for a particular pipe reach and allow you to print it.

6.4 Computer Hydraulic Model

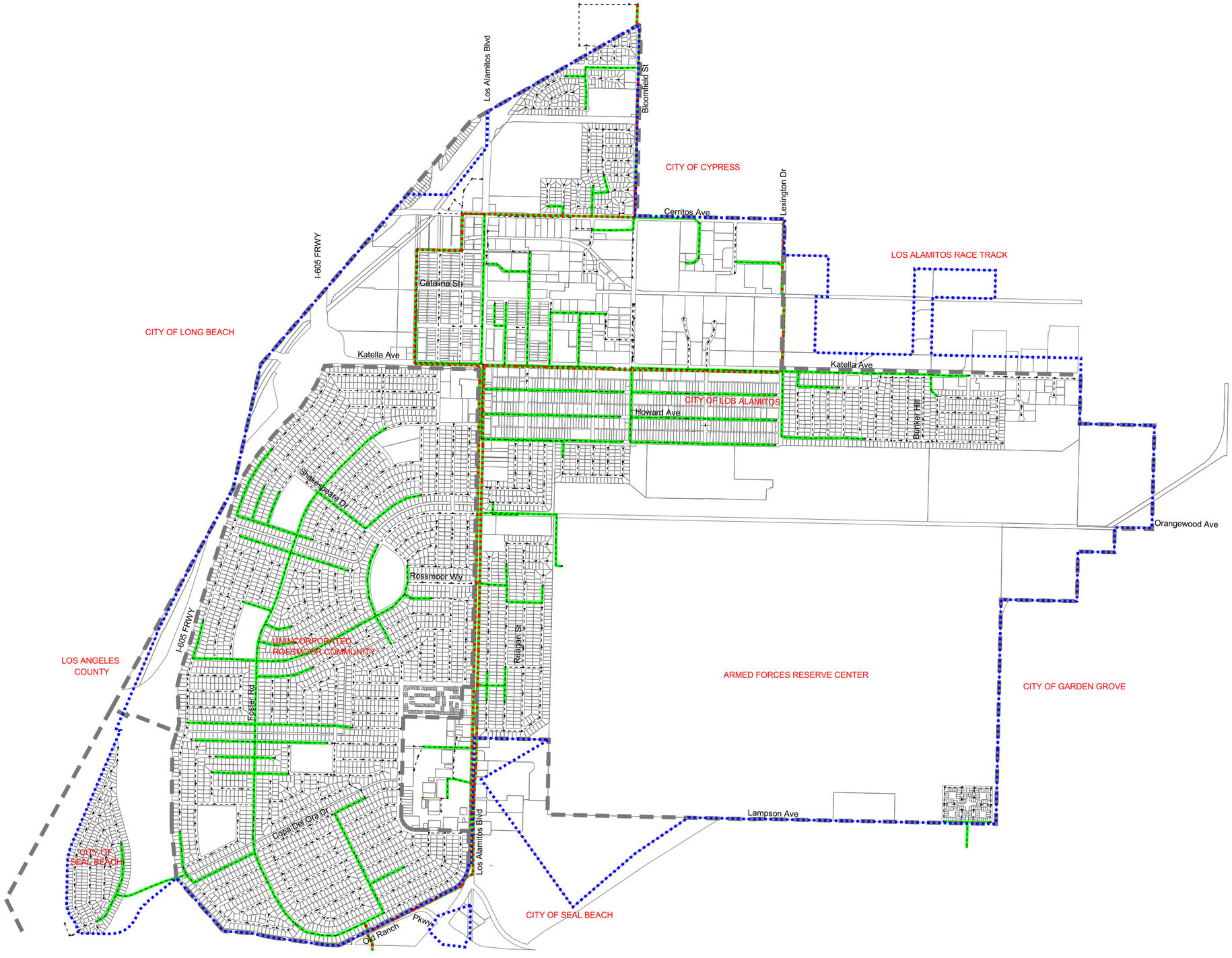
The sewer model was developed by making use of the GIS pipe/manhole system that was developed as part of this master plan update. With this data a backbone system that includes the major District sewers and the OCSD trunk sewers was established. The major District sewers are determined as those that service significant tributary areas in terms of flow. For instance, an 8-inch sewer at the minimum slope of 0.0024 (the RLASD minimum size and slope) has a calculated capacity to serve 650 single-family residences. Therefore, an 8-inch sewer whose service area is equal to or smaller need not be

included in the computer model. . Figure 6-1 identifies the backbone sewer system that was modeled. It was not necessary to model the remaining sewers because it was determined that an 8-inch sewer at a 0.0024 slope (the RLASD minimum diameter and slope) can handle a large tributary area (approximately 100 acres) and still maintain adequate sewage capacity.

Tributary areas and land use layers were then prepared and intersected to produce an area-loading table. With this area-loading table, flow coefficient are applied to the acreages to develop sewage flows at sewer manholes.

Extensive data collection was done, which involved researching pipe length, diameter, ground elevation, inverts, slope, contract number, date of construction, et cetera. This pipe and manhole geometry data was collected from the construction drawings and done for the entire RLASD sewer system. All of this non-graphic data was then linked to the to the GIS system for viewing with the use of the ArcView program.

To integrate all this data Boyle's BSWAN, Sewer Analysis Program was used. BSWAN consolidates all information required for the preparation, analysis, and generation of results for the sewer model. It reads the area-loading table and the sewer pipe geometry database to produce model results to identify sewer deficiencies. BSWAN also prepares two output file formats, text format and dbase format. By linking the results database to the GIS data with ArcView, results can graphically be viewed. The purpose of integrating the sewer model system is to consolidate all information necessary for analyzing and managing the sewer system and to provide a mechanism for updating graphic and non-graphic data.



Legend

- District Boundary
- City Boundaries
- Local Sewer
- Manhole

Modeled Sewer Pipe

- OCSD Trunk
- RLASD Sewer

N

1800' 0 1800'

Rossmoor/Los Alamitos Area Sewer District

Backbone Sewer System Map

August 2001 | Figure 6-1

Boyle Engineering Corporation

Y:\L03\250\CAD\FIGURES\Fig6-1.apr

7.0 Flow Projections

7.1 Flow Projection Approach

Flow projections are arrived at by applying the average unit flow coefficients developed in Section 5 to the respective land uses within the tributary drainage area for each manhole. The net result is a sanitary loading for each manhole tributary area. These are summarized in the Technical Appendix 2 in the Ultimate Land Use Area Loading table.

7.2 Existing Development

Flow projections for an existing calibrated sewer system model run were developed by adjusting flow factors using the flow monitoring report data. The RLASD area is fully developed with the exception of a few non-residential areas that could be redeveloped to produce higher sewage flows. For example, land use along Reagan Street is categorized as planned industrial, but is currently occupied by low sewage flow producers (large lumber yards) and the multiple family residential land use category just south of Katella Avenue between Los Alamitos Boulevard and Lexington Drive; it also has the potential to increase in density and create larger sewage flows. By using the flow monitoring data, land use acreages, the number of dwelling units per acres, and population data, existing and ultimate flow coefficients for the model were developed. Project improvements were then developed and prioritized according to the criteria in Section 8.3

7.3 Ultimate Build-Out

The flow projections for the ultimate build-out in accordance with the land use plan were calculated by utilizing the Land Use Area Loading tables in the Technical Appendix, assuming that all vacant areas are ultimately developed. Ultimate build-out is the condition when all parcels within a particular tributary service area are developed to the maximum permissible land use density. This ultimate loading is the basis for the hydraulic analysis discussed in Chapter 8.

Ultimate flow coefficients were developed with the flow monitoring report data and engineering judgment to determine the ultimate condition. The RLASD is essentially built-out, with the exception of the multiple family residential and planned industrial categories. Flow monitoring site 3 isolated the multiple family residential category and was used to developed two flow coefficients, to represent the existing

and ultimate condition (0.009 cfs/acre and 0.0110 cfs/acre). By determining the existing and ultimate dwelling unit count for the tributary area, an ultimate flow coefficient was projected. Flow monitoring site 1 also isolated a land use category (the single family residential). The maximum density allowed for this category is 6.0 dwelling units per acres; the calculated existing density is 5.4 dwelling units per acre. The tributary area acreage and counting the number of lots as shown the base map determined the existing number of dwelling units per acre.

Population information developed from acreages, number of dwelling units, and persons per dwelling unit were also used to confirm the flow data. As shown in Table 7-1 the population data developed is consistent with actual population data shown in Section 4.3.

Table 7-1

Population Data

			Existing		Ultimate	
Land Use Categories	**Area (acres)**	**People (persons/du)**	**Density (du/acre)**	**Population (people)**	**Density (du/acre)**	**Population (people)**
City of Los Alamitos						
SFR	245.6	2.74	5.4	3,634	6	4,038
LMFR	18.2	2.74	10	499	20	997
MFR	132.6	2.74	28	10,173	30	10,900
				14,306		15,935
Rossmoor (County of Orange)						
SFR-OC	641.1	2.74	6	10,540	6	10,540
MFR-OC	16.9	2.74	30	1,389	30	1,389
				11,929		11,929
City f Seal Beach						
LDR-SB[1]	63.0	2.74	6	1,036	6	1,036
HDR-SB	19.8	2.74	30	1,628	30	1,628
				2,664		2,664

1. This area is College Park West.

8.0 Hydraulic Analysis

8.1 Model Results

The RLASD sewer system was modeled with the use of Boyle's BSWAN Sewer Analysis Program. The Sewer Analysis Results are located in the Technical Appendix.

Table 8-1 is a summary of pipes that were found to exceed the desired D/d criteria by the sewer model as discussed in Section 5. These pipes are sorted by drainage areas and D/d ratios in ascending order. Approximately 10,350 linear feet of pipe falls in this category per the design criteria.

The following paragraphs detail the interpretation of the table column headings:

- Columns 1 and 2 – Upstream and Downstream Manhole numbers of the pipe reach. These correspond to the RLASD manhole designations.
- Columns 3 and 4 – Slope and diameter of existing pipes. This information was taken from record plans.
- Columns 5 and 6 – Peak and average pipe capacity. Peak and average capacity of a pipeline is as defined in Section 5, based upon the design depth to diameter limits.
- Column 7 – Area is the gross acreage of the area tributary to the upstream manhole. Area and coefficient are employed to calculate the sewage loads.
- Column 8 – Input flow is the sewage load tributary to the upstream manhole.
- Column 9 – Point Source is the sewage load that is inputted into the model based on known data.
- Column 10 – Average flow is the summation of the average flow from the previous upstream reach plus the flow input at the upstream manhole, representing the total average flow passing this reach.
- Column 11 – Peak flow is based on the corresponding average flow in Column 10, and the established peaking factor equation.
- Column 12 – The velocity is calculated at the peak flow condition.

- Column 13 – The depth to diameter ratio for the peak flow condition.
- Column 14 – The difference between pipe capacity at design D/d criteria and model-derived peak flow quantity is the "excess peak capacity".
- Column 15 – Pipe size required to replace a deficient pipe reach, based upon the established design criteria.
- Column 16 – Pipe size required to parallel a deficient pipe reach, based upon the established design criteria.

Since Table 8-1 is a summary of pipes that exceed the desired D/d criteria only, extracted from the hydraulic model output database and sorted by service area and D/d ratio, it is not possible to follow the computational sequence for a particular tributary area or pipe. The Technical Appendix contains complete output for representative model runs, which can be used for that purpose.

8.2 Sewer Reach Categorization

The hydraulic analysis criteria limits for existing conditions allow pipes that are greater than 12 inches a flow depth ratio of 90 percent, and pipes less than or equal to 12 inches are limited to a depth ratio of 67 percent. Pipes that fall outside of this criteria are shown in Table 8-1. As stated above, the criteria is the basis for identifying sewers that are reaching or exceeding capacity; however, a sewer pipe would not normally be replaced until actual flow depth problems occur or are imminent.

Sewers falling outside the desired D/d criteria by thc hydraulic analysis have been placed into three categories. Category A describes those sewers with depth ratios greater than 0.90 under existing and ultimate peak flow conditions and serving a built-out land use condition. Category B describes sewers with depth ratios less than 0.90 under the ultimate flow condition and serve a built-out land use condition. Category C covers those sewers where the depth ratio is less than 0.90 under the ultimate flow condition and where future development is possible

Category B and C Pipes exceed the hydraulic criteria but have depth ratios less than 0.90 under existing and ultimate flow conditions. Although the pipe exceeds the established criteria, a replacement pipe may not be necessary unless the actual flow depth ratio begins to exceed 0.90 for extended periods of time because:

- Hydraulically, the sewer remains fully functional because it is not surcharging under peak flow conditions.
- The established D/d criteria is for new or replacement pipes and is conservative to allow for uncertainties in future growth and provide a factor of safety for assumptions made.
- The RLASD is largely developed and additional flows are less likely.
- Construction of new facilities is expensive and may not be the best use of public money unless and until surcharging problems occur or are imminent.

Category A exceeds the desired depth ratio of 90percent, but is in an area that is built out with no plans for redevelopment. Only one area has been identified in this category. That is on Foster Road between Kempton Drive and Piedmont Avenue. The flow meter showed the peak flow depth ratio to be 0.91 during one day for less than an hour that day. This line, however, has not been a maintenance concern in the past, nor have any manhole overflows occurred. As a result, for the reasons listed above, relief is not considered necessary at this time.

Following is a table listing the sewers in the above three categories. Figure 8-1 illustrates the locations of these sewers.

Table 8-2

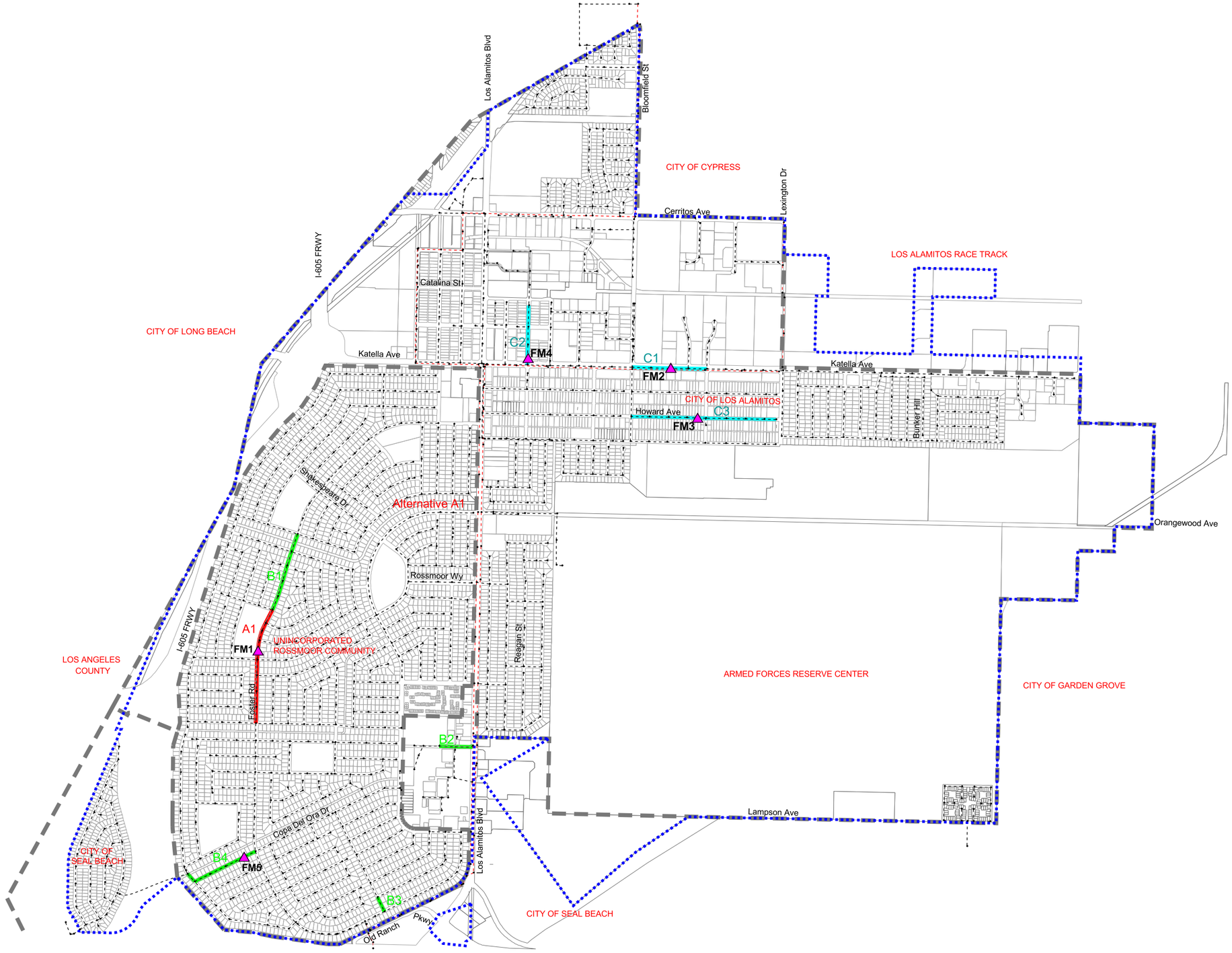
Categorization of Sewers

ID	Location	Category	Replace-Size (in)	Length (ft)
A1	Foster Rd. from Kempton Dr. to Piedmont Ave.	A	15"	2,054
B1	Foster Rd. from Piedmont Ave. to Silverwood Dr.	B	15"	1,408

Table 8-2

Categorization of Sewers

ID	Location	Category	Replace-Size (in)	Length (ft)
B2	Rossmoor Center Way from Los Alamitos Blvd to 580 feet west of Los Alamitos Blvd.	B	10"	582
B3	Silver Fox Rd. from Yellowtail Dr. to Rowena Dr.	B	10"	285
B4	Copa Del Oro Dr. from Foster Rd. to Martha Ann Dr.	B	10"	1,396
C1	Katella Ave. from Bloomfield St. to Noel St.	C	15"	1,321
C2	Reagan St. from Los Alamitos Blvd to Catalina St.	C	10"	1,042
C3	Howard Ave. from Bloomfield St. to Lexington Dr.	C	10"	2,560
Total				10,648



Legend

- "A" Category
- "B" Category
- "C" Category

See Table 8-2 for Category Listing

- Manholes
- Proposed Flow Monitoring Site
- District Boundary
- City Boundaries
- Local Sewer
- OCSD Trunk Sewer

N

1800' 0 1800'

Rossmoor/Los Alamitos Area Sewer District

Sewers Exceeding Desired Flow Depth Criteria

August 2001 | Figure 8-1

Boyle Engineering Corporation

Y:\L03\250\CAD\FIGURES\Fig8-1.apr

9.0 Condition Assessment and Rehabilitation Needs

9.1 Review of CCTV Inspection Reports

Over the past 10 years the RLASD has performed closed circuit television inspection on approximately 49percent of the total District system. During the fiscal year 2000/2001, Empire Pipe Cleaning performed CCTV video inspections of the remaining sewer pipes (over 143,000 lineal feet) and produced sixteen color videotapes with commentary and logs of the observations. These tapes will be kept on file at the RLASD's office for future reference.

The CCTV logs and tapes were reviewed to assess the general condition of the sewer system and identify areas requiring repair or rehabilitation.

9.2 Rehabilitation Needs

Overall, the sewer lines are in good shape. The three main types of items observed were:

- Cracks
- Roots
- Mineral Deposits

Included in the Technical Appendix is the complete log listing the location of each of these items and a yes/no assessment as to whether or not it requires further investigation and/or repair. Locations of segments with cracks, root intrusion, and mineral deposits are shown on Figures 9-1 and 9-2.

9.3 Rehabilitation Methods

Cracks

Cracking was identified at a variety of sites, primarily at the pipe joints. An assessment was made as to whether the crack required immediate repair or should merely be monitored. Cracked segments are shown as highlighted segments in red or yellow on Figure 9-1. The less critical "monitor" locations, delineated as green, should be reviewed in future sewer video inspections to ensure that the cracking

has not worsened. No groundwater infiltration was observed through any of the cracks.

A total of twenty-nine spot locations were identified as requiring repair within the next year, listed below in Table 9-1.

Table 9-1

From Manhole	To Manhole	# Cracked Segments	Method of Repair
951	953	3	Replacement
953	954	2	Replacement
954	956	2	Replacement
954	955	1	Replacement
36	37	1	Replacement
97	96	1	Replacement
85	86	1	Replacement
108	109	1	Replacement
154	155	1	Replacement
194	196	1	Replacement
220	219	1	Replacement
1021	1022	1	Replacement
545	546	1	Replacement
542	539	1	Replacement
542	543	3	Replacement
552	543	4	Lining
658	659	1	Replacement
491	490	1	Replacement
485	469	1	Replacement
409	410	1	Replacement
TOTAL:		29	

All but one reach has fewer than four cracked locations. For these locations, replacement of the particular pipe sections is recommended. In the one reach that has four separate cracked segments, it is recommended that the entire reach be lined. A probable opinion of cost is included in Chapter 11. It is likely that the cracks that were observed are old and the soil and bedding around the pipe have stabilized. Therefore, no further procedures should be necessary after the above cracks have been repaired.

Roots

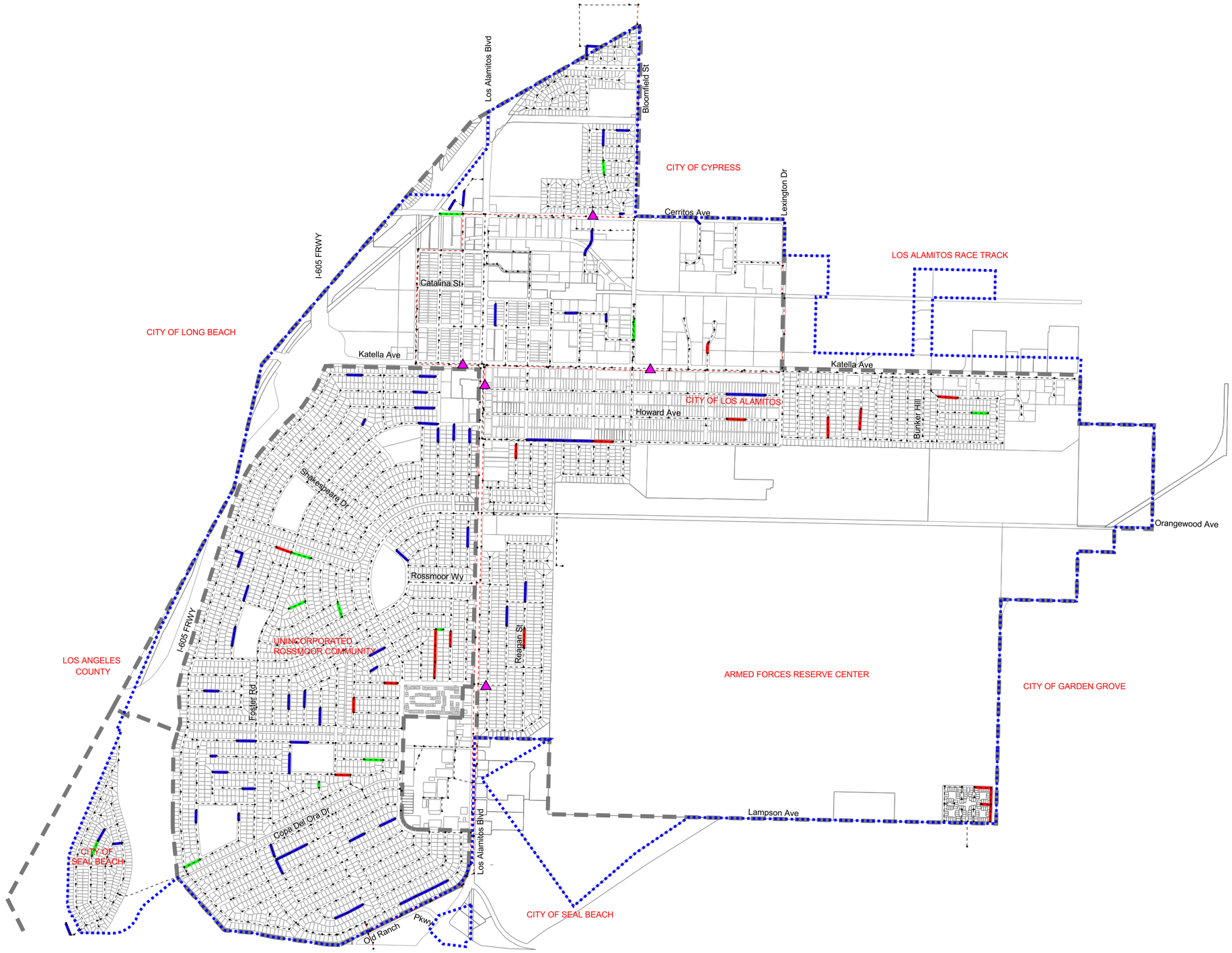
A number of the pipes have varying levels of root intrusion due to trees above. Locations are shown on Figure 9-1. The roots should be removed as a part of RLASD's annual maintenance contract. If the roots continue to recur or are particularly intrusive in specific locations, other options such as application of a foaming sewer root control product may be desirable.

Mineral Deposits

Mineral deposits were seen in different sewer reaches, hindering flow to various degrees. The locations of the deposits are shown on Figure 9-2. It is recommended that the deposits be removed as a part of RLASD's annual cleaning contract.

9.4 Future CCTV Needs

Continuing a program of CCTV inspection of the District's sewer mains is recommended to allow the District to stay abreast of the condition of the system as it continues to age. It is reasonable to expect the District's system has a useful life of at least another 30 years in view of the materials used in the construction of the system (vitrified clay pipe). We recommend that over the next 15 to 20 years at least 15,000 to 20,000 linear feet of sewer main be CCTV inspected each year. This will permit the entire system to be inspected over a 15 to 20 year period. The amount of sewer that is CCTV inspected in subsequent years may need to be accelerated as the system continues to age.



Legend

- Cracks need repair
- Roots need to be removed
- No immediate action
- Recommended I/I Flow Meter Location
- Manholes
- District Boundary
- City Boundaries
- Local Sewer
- OCSD Trunk Sewer

N

1800' 0 1800'

Rossmoor/Los Alamitos Area Sewer District

Recommended Actions

August 2001 | Figure 9-1

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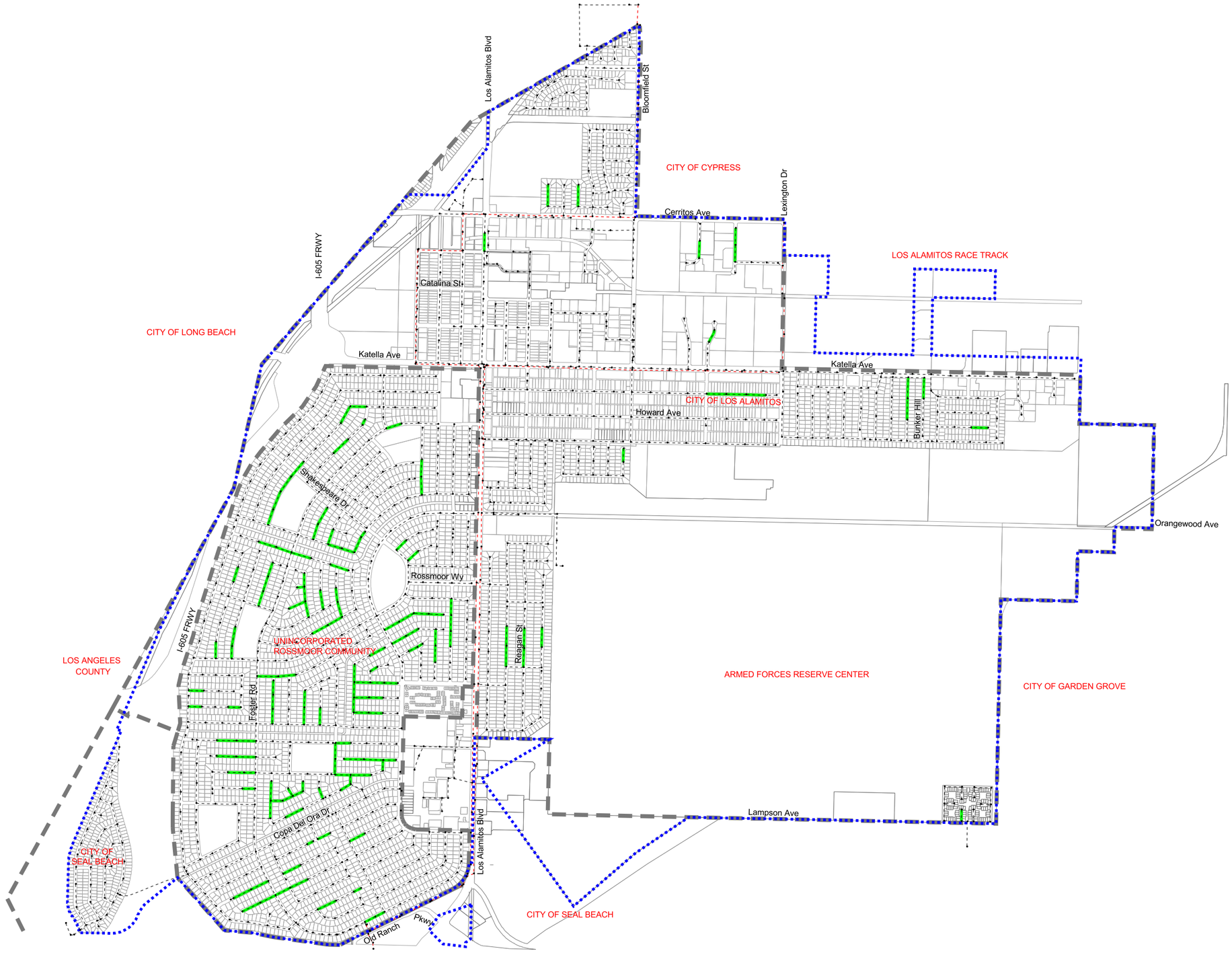

Legend

- Mineral Deposits
- Manholes
- District Boundary
- City Boundaries
- Local Sewer
- OCSD Trunk Sewer

N

1800' 0 1800'

Rossmoor/Los Alamitos Area Sewer District

Recommended Cleaning

August 2001 | Figure 9-2

Boyle Engineering Corporation

Y:\L03\250\CAD\FIGURES\Fig9-2.apr

10.0 Inflow and Infiltration (I/I)

10.1 Limited Scope of Study

The analysis of the impact of inflow and infiltration (I/I) upon the RLASD sewer system is limited within the scope of this sewer master plan. Inflow refers to stormwater entering the sewer system through such locations as manhole covers, roof drains, and yard and area drains. Infiltration, on the other hand, is groundwater entering the system through defective pipes, pipe joints, connections or manhole walls.

This study utilizes three sources of information to identify possible I/I contribution points. They are:

- The manhole inundation study
- Review of the CCTV inspection video tapes
- Flow monitoring observation

10.1 Manhole Inundation Study

A major source of inflow is suspected to be through openings such as vent-holes in the manhole covers that are located in areas that are subject to inundation during storms. One 24-inch manhole with three ¾" openings, which is the District's standard, results in an inflow of 3.3 gpm. The District has approximately 1000 manholes in the sewer collection system, a majority of which are located in public paved streets. Included in the Technical Appendix is the Manhole Inundation Investigation Project report with a list of twenty-one specific intersections within the City of Los Alamitos where local flooding historically occurs during storm events.

10.2 Review of CCTV Inspection Video Tapes

During the review of the CCTV inspection videotapes, no specific sites were observed as having significant inflow or infiltration.

10.3 Flow Monitoring Observations

Flow monitoring was performed at five monitoring site locations as shown in Figure 5-1 between March 4, 2001 and March 10, 2001. Rainfall did not occur during the flow-monitoring period so I/I could

not be evaluated during a storm event. Infiltration was also not evident for any of the flow monitoring sites. The hydrograph located in the Technical Appendix for site 4 shows that the base low flow depth during the nighttime is approximately 5-inches. Surrounding sewers that are tributary to the flow-monitoring site were examined by looking at the T.V. video inspection logs and tapes, but no significant inflow/infiltration was evident to account for the base flow. Katella Avenue does have a few restaurants that operate at night that may account for the base flows.

The OCSD has also conducted flow monitoring to evaluate inflow and infiltration problems that the trunk sewers upstream of the Westside Lift Station may be experiencing. The flow monitoring was done on the three trunk sewers that flow into the lift station. Site A monitored the sewer pipe just northwest of the lift station owned by the RLASD. This pipe collects sewage flow for the entire Rossmoor Area. The other two locations were off the OCSD's Los Alamitos Subtrunk and the City of Seal Beach's 18-inch trunk sewer, both located just south of the lift station. Flow monitoring data was collected for dry weather conditions (December 2, 2000 through December 15, 2000) and wet weather conditions (February 16, 2001 through March 1, 2001). The data did not indicate any significant flow increases between wet and dry weather flow conditions for Site A (Rossmoor Area). The maximum wet and dry weather flows are 3.68 cfs and 3.54 cfs, an increase of just 4percent.

10.4 Conclusions

For the twenty-one manholes identified in the City of Los Alamitos, it is recommended that the openings be plugged using standard three-quarter inch laboratory plugs by Empire Pipe Cleaning during a future sewer cleaning work. No manholes within Rossmoor are recommended for plugging, but upon completion of the County's new pump station, the RLASD should review the incidence of period flooding of manholes.

Wet weather flow monitoring by the OCSD indicates there is no significant inflow or infiltration in the Rossmoor area of the District. Additional wet weather flow metering is required to evaluate I/I in other portions of the District. Five meter sites for a period of at least 30 days during the storm season are recommended to evaluate the other portions of the District's sewer system. These sites were

selected to isolate representative portions of the remaining areas of the District and are shown on Figure 9-1.

11.0 Recommendations and Improvements

11.1 Hydraulic Recommendations

11.1.1 Categorization of Sewer Reaches

The D/d design criteria discussed in Section 5, results of the hydraulic model, and the classification system developed in Section 8 were all used to identify elements not strictly conforming to the analysis criteria. As explained, this alone does not warrant the construction of an improvement. Judgment must be applied to consider the status of land use build-out, condition of the existing facilities, and length of sewer affected. The overriding consideration is whether the identified pipes will cause problems in the system, such as surcharging, overflow, odor, etc.

No sewers within the RLASD have been identified as deficient in capacity. A few sewers, however, fall within the categories described in Section 8 and are shown in Figure 11-1. It is recommended the RLASD be aware of these reaches in the event planning or conditions change that could affect these particular reaches, at which time further review may be warranted. Following are comments relating to these sewer reaches:

Category A

Reach A1: This reach is located along Foster Road from Kempton Drive to Piedmont Avenue. This existing 10- and 12-inch sewer along Foster Road is the Rossmoor area's main collector. The flow monitoring data showed depth ratios up to 90 percent further downstream from this reach. A one time instantaneous depth was recorded slightly above 90 percent during the seven-day monitoring period and for a very short period. See the hydrograph and data for flow site 1 in the Technical Appendix. Since the depth ratio exceeded 90 percent for a short time period and only once, and the area has been built out for many years and no problems have occurred, no improvement is recommended at this time.

Category B

Reach B1: This reach is located along Foster Road from Piedmont Avenue to Silverwood Drive. This reach is located immediately upstream of the above A1 reach. The computer model shows the flow depth ratio (D/d ranges from 0.77 to 0.80) to be less than the

immediate downstream reach, although it is slightly greater than the desired D/d criteria.

Reach B2 – B4: While the model showed slightly higher D/d ratios than desired for these short reaches, the area served (Rossmoor) is built-out and flow problems have not occurred.

Category C

Reach C1 – C3: These reaches serve areas that are subject to additional development or re-development. The model projects flow depth ratios of between 0.57 to 0.80 at build out are in accordance with the current land use plan. These are acceptable flow depth ratios at ultimate development. There service areas should be monitored to insure development is in accordance with the current land use planning densities.

This categorization is the result of flow projections generated from land use as currently planned. RLASD should monitor actual development as it occurs and review its impact to these reaches as well as the entire sewer system.

Five flow monitoring sites are shown on Figure 8-1 covering the above identified locations. It is recommended the flow be continuously monitored at these five sites every five years for at least a two week period during the winter months. If the flow depth during the daily peak flow period is found to be surcharging the sewer at a depth in the manhole greater than two feet over the top of the pipe for several days, further investigation should be initiated to relieve the effected sewer main reach and provide additional capacity.

For budgeting purposes the cost of the flow monitoring for these five sites is estimated to be $13,000 each time at current prices. Over the next 15 years this would be $13,000 every five years.

11.2 Sewer Rehabilitation Improvements

An opinion of probable cost to repair cracked locations is included in Table 11.2-1. It is recommended these repairs be made within the next year. The spot repairs assume a three-person crew and backhoe, averaging about two repairs per eight-hour day, at a cost of about

$7,000 per site. There are a variety of lining options, and further investigation should be performed during design to determine which method(s) is most applicable.

Table 11.2-1

Recommended Method of Repair	Units	Opinion of Probable Cost
Replacement	25 sites	$125,000
Lining	292 LF	18,500
Appurt. & Cont.	25%	36,000
TOTAL		$179,500

These costs include a 25percent allowance for administration, legal and engineering. They are indexed to the ENR Construction Cost Index (CCI) for the Los Angeles area, March 2001 = 7072.60.

The removal of roots and minerals can be included as a part of RLASD's annual cleaning program during the next cleaning cycle for the respective areas. For budgeting, these costs are estimated to be:

Removal of Roots, 6,600 LF @ $0.40 / LF = $ 3,000

Removal of Minerals, 32,000 LF @ $0.40 / LF = $ 12,800

With respect to the mineral deposits, they have, undoubtedly, been collecting over the years as a result of a small amount of groundwater seeping through the joints. Actually, they help to seal the joint from significant infiltration. Once the excess is removed it is not expected to build up significantly for many years.

11.3 Additional Infiltration Flow Monitoring

Five locations have been identified in Subsection 10.4 for flow monitoring during wet weather periods to enable the identification of significant I/I contributions. The monitoring must take place during the storm season of the year when the likelihood of rain is greatest. The months of January through March are a good prospects in southern California. For budgeting, the estimated cost is $ 35,000.

11.4 Annual Operation and Maintenance Needs

The District has, over the past decade, cleaned 100% of the system annually. In addition, from 10,000 to 20,000 linear feet of the system has been CCTV inspected. RLASD has experienced few line blockages as compared to other local sewering agencies, indicating that the current cleaning method is effective. It is reasonable to expect that the District's system has a useful life of at least another 30 years. Therefore, since no major additions or expansions to the system are planned, it can be expected that these routine cleaning and CCTV inspection costs will remain constant over the next 15 years.

Continuing the same cleaning and CCTV schedule at the current prices, the average annual cost is estimated to be:

Cleaning - 298,000 LF @ $0.175	= $ 52,000
CCTV - 20,000 LF (included above)	= 0
Allowance for special cleaning/emergencies	= 5,000
TOTAL	= $ 57,000

11.5 Replacement Cost of Existing System

A conceptual level opinion of probable construction cost has been prepared for replacement of the District's sewer system based on current prices. The estimate is broken down by age categories to provide the District with order of magnitude costs for future financial planning. The costs are presented in the following table.

Table 11.5-1
Replacement Cost of Existing System

Date of Construction		Age (Years)	Opinion of Probable Construction Cost
1954 – 1960		41 – 47	
8"			$15,000,000
10"			600,000
12"			1,500,000
15"			500,000
18"			600,000
	Subtotal		18,200,000
1961 – 1970		31 – 40	
8"			5,200,000
10"			300,000
	Subtotal		5,500,000
1971 - 1980		21 – 30	
8"			1,000,000
1981 – 1990		11 - 20	
8"			900,000
10"			100,000
	Subtotal		1,000,000
1991 - 2001		1 - 10	
10" & 12"			100,000
18"			500,000
	Subtotal		500,000
	TOTAL		$26,300,000

APPENDIX Sewer System Master Plan Update

2001 Sewer System Master Plan Update Technical Appendix

Rossmoor/Los Alamitos Area Sewer District

Boyle Engineering Corporation

Project Manager Philip E. Stone, PE

Project Engineer Jesus Lopez, PE

OC-L03-250-03

August 2001

BOYLE 1501 Quail Street, Newport Beach, CA 92660

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Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
3	3	PI	13.371	0.00600	0.080
3	3	PO	5.343	0.00500	0.027
3	3	PR	9.552	0.00000	0.000
3	3	RB	3.200	0.00500	0.016
3	3	RT-CYP	0.063	0.00000	0.000
SUBTOTAL	3		31.529		0.123
3	4	PR	0.672	0.00000	0.000
3	4	RT-CYP	15.289	0.00000	0.000
SUBTOTAL	4		15.961		0.000
3	5	RT-CYP	30.457	0.00000	0.000
SUBTOTAL	5		30.457		0.000
3	8	PO	0.515	0.00500	0.003
3	8	PR	10.251	0.00000	0.000
3	8	SFR	23.586	0.00240	0.057
SUBTOTAL	8		34.352		0.059
3	11	RT-CYP	6.027	0.00000	0.000
SUBTOTAL	11		6.027		0.000
3	14	RT-CYP	15.076	0.00000	0.000
SUBTOTAL	14		15.076		0.000
3	17	PO	5.054	0.00500	0.025
3	17	PR	2.113	0.00000	0.000
SUBTOTAL	17		7.167		0.025
3	18	PI	38.434	0.00600	0.231
3	18	PR	4.693	0.00000	0.000
SUBTOTAL	18		43.127		0.231
3	19	P	3.334	0.00030	0.001
3	19	PI	15.661	0.00600	0.094
3	19	PO	2.042	0.00500	0.010
3	19	PR	2.888	0.00000	0.000
SUBTOTAL	19		23.925		0.105
3	21	PO	1.876	0.00500	0.009
3	21	PR	1.014	0.00000	0.000

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
SUBTOTAL	21		2.890		0.009
3	22	P	6.360	0.00030	0.002
3	22	PI	9.942	0.00600	0.060
3	22	PR	4.397	0.00000	0.000
3	22	S	7.233	0.00500	0.036
SUBTOTAL	22		27.932		0.098
3	23	PO	5.072	0.00500	0.025
3	23	PR	1.612	0.00000	0.000
SUBTOTAL	23		6.684		0.025
3	24	PO	2.102	0.00500	0.011
3	24	PR	0.929	0.00000	0.000
SUBTOTAL	24		3.031		0.011
3	26	PO	1.415	0.00500	0.007
3	26	PR	0.542	0.00000	0.000
SUBTOTAL	26		1.957		0.007
3	27	PO	0.592	0.00500	0.003
3	27	PR	0.829	0.00000	0.000
3	27	RB	1.055	0.00500	0.005
SUBTOTAL	27		2.476		0.008
3	28	PR	0.352	0.00000	0.000
3	28	RB	0.974	0.00500	0.005
SUBTOTAL	28		1.326		0.005
2	31	MFR	9.718	0.01100	0.107
2	31	OA	0.212	0.00000	0.000
2	31	PI	0.658	0.00600	0.004
2	31	PR	6.726	0.00000	0.000
2	31	RB	2.402	0.00500	0.012
SUBTOTAL	31		19.716		0.123
2	32	MFR	11.143	0.01100	0.122
2	32	OA	0.406	0.00000	0.000
2	32	PR	6.376	0.00000	0.000
2	32	RB	0.941	0.00500	0.005
SUBTOTAL	32		18.866		0.127
2	33	INST	0.542	0.00500	0.003

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
2	33	MFR	6.029	0.01100	0.066
2	33	OA	16.826	0.00000	0.000
2	33	PO	9.997	0.00500	0.050
2	33	PR	9.813	0.00000	0.000
2	33	S	18.888	0.00500	0.094
SUBTOTAL	33		62.095		0.213
3	37	AFRC	20.282	0.00000	0.000
3	37	PR	8.345	0.00000	0.000
3	37	SFR	23.194	0.00240	0.056
SUBTOTAL	37		51.821		0.056
3	75	PR	6.444	0.00000	0.000
3	75	SFR	19.211	0.00240	0.046
SUBTOTAL	75		25.655		0.046
3	81	PO	5.767	0.00500	0.029
3	81	PR	7.813	0.00000	0.000
3	81	SFR	5.557	0.00240	0.013
SUBTOTAL	81		19.137		0.042
3	93	PO	0.353	0.00500	0.002
3	93	PR	1.702	0.00000	0.000
3	93	SFR	2.681	0.00240	0.007
SUBTOTAL	93		4.736		0.008
3	98	INST	1.099	0.00500	0.006
3	98	MFR	19.645	0.01100	0.216
3	98	PO	0.009	0.00500	0.000
3	98	PR	5.789	0.00000	0.000
SUBTOTAL	98		26.542		0.222
3	106	INST	0.430	0.00500	0.002
3	106	MFR	20.608	0.01100	0.227
3	106	PR	5.786	0.00000	0.000
SUBTOTAL	106		26.824		0.229
3	125	MFR	10.549	0.01100	0.116
3	125	PR	5.274	0.00000	0.000
SUBTOTAL	125		15.823		0.116
3	136	INST	0.410	0.00500	0.002
3	136	MFR	17.039	0.01100	0.187

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
3	136	PO	0.015	0.00500	0.000
3	136	PR	5.599	0.00000	0.000
3	136	RB	1.436	0.00500	0.007
SUBTOTAL	136		24.499		0.197
1	144	PR	0.221	0.00000	0.000
1	144	RB-OC	8.447	0.00500	0.042
SUBTOTAL	144		8.668		0.042
3	145	PR	5.096	0.00000	0.000
3	145	RB	3.380	0.00500	0.017
SUBTOTAL	145		8.476		0.017
3	152	MFR	17.684	0.01100	0.194
3	152	PR	5.519	0.00000	0.000
3	152	RB	1.445	0.00500	0.007
SUBTOTAL	152		24.648		0.202
3	153	INST	0.289	0.00500	0.001
3	153	MFR	8.583	0.01100	0.094
3	153	OA	1.108	0.00000	0.000
3	153	PR	5.051	0.00000	0.000
3	153	RB	1.624	0.00500	0.008
SUBTOTAL	153		16.655		0.104
4	177	PR	4.877	0.00000	0.000
4	177	SFR	15.376	0.00240	0.037
SUBTOTAL	177		20.253		0.037
4	187	OA	2.207	0.00000	0.000
4	187	PR	9.834	0.00000	0.000
4	187	RB	5.751	0.00500	0.029
4	187	SFR	20.362	0.00240	0.049
SUBTOTAL	187		38.154		0.078
4	187B	PR	3.635	0.00000	0.000
4	187B	S	12.618	0.00500	0.063
SUBTOTAL	187B		16.253		0.063
4	204	PR	6.397	0.00000	0.000
4	204	SFR	12.996	0.00240	0.031
SUBTOTAL	204		19.393		0.031

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
4	210	PR	5.616	0.00000	0.000
4	210	SFR	20.202	0.00240	0.048
SUBTOTAL	210		25.818		0.048
4	212	PR	0.987	0.00000	0.000
4	212	SFR	3.056	0.00240	0.007
SUBTOTAL	212		4.043		0.007
4	228	PR	3.285	0.00000	0.000
4	228	SFR	11.046	0.00240	0.027
SUBTOTAL	228		14.331		0.027
4	243	P	1.472	0.00030	***.***
4	243	PR	8.181	0.00000	0.000
4	243	SFR	21.550	0.00240	0.052
SUBTOTAL	243		31.203		0.052
4	245	PR	5.753	0.00000	0.000
4	245	SFR	8.406	0.00240	0.020
SUBTOTAL	245		14.159		0.020
1	256	PR	5.376	0.00000	0.000
1	256	SFR-OC	14.230	0.00240	0.034
SUBTOTAL	256		19.606		0.034
1	258	HDR-SB	3.751	0.01100	0.041
1	258	OA-OC	1.025	0.00000	0.000
1	258	P-OC	0.001	0.00030	0.000
1	258	PR	9.591	0.00000	0.000
1	258	SFR-OC	23.146	0.00240	0.056
SUBTOTAL	258		37.514		0.097
1	269	C-SB	0.008	0.00500	0.000
1	269	PR	4.531	0.00000	0.000
1	269	SFR-OC	11.616	0.00240	0.028
SUBTOTAL	269		16.155		0.028
1	280	C-SB	6.311	0.00500	0.032
1	280	PR	6.091	0.00000	0.000
1	280	SFR-OC	11.553	0.00240	0.028
SUBTOTAL	280		23.955		0.059

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
1	284	PR	2.332	0.00000	0.000
1	284	SFR-OC	7.818	0.00240	0.019
SUBTOTAL	284		10.150		0.019
1	292	OA-OC	1.768	0.00000	0.000
1	292	PR	3.555	0.00000	0.000
1	292	SFR-OC	11.785	0.00240	0.028
SUBTOTAL	292		17.108		0.028
1	323	OA-OC	1.333	0.00000	0.000
1	323	PR	6.178	0.00000	0.000
1	323	SFR-OC	18.849	0.00240	0.045
SUBTOTAL	323		26.360		0.045
1	333	OA-OC	1.150	0.00000	0.000
1	333	PR	1.439	0.00000	0.000
1	333	SFR-OC	5.588	0.00240	0.013
SUBTOTAL	333		8.177		0.013
1	346	OA-OC	1.007	0.00000	0.000
1	346	PR	3.924	0.00000	0.000
1	346	SFR-OC	7.715	0.00240	0.019
1	346	S-OC	11.811	0.00500	0.059
SUBTOTAL	346		24.457		0.078
1	348	OA-OC	0.914	0.00000	0.000
1	348	PR	1.685	0.00000	0.000
1	348	SFR-OC	4.045	0.00240	0.010
SUBTOTAL	348		6.644		0.010
1	349	PR	1.340	0.00000	0.000
1	349	SFR-OC	4.869	0.00240	0.012
SUBTOTAL	349		6.209		0.012
1	352	PR	7.059	0.00000	0.000
1	352	SFR-OC	19.636	0.00240	0.047
SUBTOTAL	352		26.695		0.047
1	357	PR	3.304	0.00000	0.000
1	357	SFR-OC	10.632	0.00240	0.026
SUBTOTAL	357		13.936		0.026

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
1	365	PR	6.089	0.00000	0.000
1	365	SFR-OC	17.761	0.00240	0.043
SUBTOTAL	365		23.850		0.043
1	374	PR	2.050	0.00000	0.000
1	374	SFR-OC	5.986	0.00240	0.014
SUBTOTAL	374		8.036		0.014
1	381	PR	1.832	0.00000	0.000
1	381	SFR-OC	4.090	0.00240	0.010
SUBTOTAL	381		5.922		0.010
1	389	PR	1.386	0.00000	0.000
1	389	SFR-OC	4.304	0.00240	0.010
SUBTOTAL	389		5.690		0.010
1	392	PR	0.677	0.00000	0.000
1	392	SFR-OC	2.230	0.00240	0.005
SUBTOTAL	392		2.907		0.005
1	401	PR	1.932	0.00000	0.000
1	401	SFR-OC	5.491	0.00240	0.013
SUBTOTAL	401		7.423		0.013
1	406	P-OC	8.548	0.00030	0.003
1	406	PR	2.852	0.00000	0.000
1	406	SFR-OC	4.371	0.00240	0.011
SUBTOTAL	406		15.771		0.013
1	418	PR	1.329	0.00000	0.000
1	418	SFR-OC	4.155	0.00240	0.010
SUBTOTAL	418		5.484		0.010
1	424	PR	3.668	0.00000	0.000
1	424	SFR-OC	7.877	0.00240	0.019
1	424	S-OC	0.001	0.00500	0.000
SUBTOTAL	424		11.546		0.019
1	431	PR	3.298	0.00000	0.000
1	431	SFR-OC	10.710	0.00240	0.026
SUBTOTAL	431		14.008		0.026

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
1	433	OA-OC	1.282	0.00000	0.000
1	433	PR	5.187	0.00000	0.000
1	433	SFR-OC	17.069	0.00240	0.041
SUBTOTAL	433		23.538		0.041
1	444	OA-OC	0.944	0.00000	0.000
1	444	PR	4.584	0.00000	0.000
1	444	SFR-OC	13.398	0.00240	0.032
SUBTOTAL	444		18.926		0.032
1	450	OA-OC	0.436	0.00000	0.000
1	450	PR	2.777	0.00000	0.000
1	450	SFR-OC	8.696	0.00240	0.021
SUBTOTAL	450		11.909		0.021
1	452	OA-OC	0.489	0.00000	0.000
1	452	PR	5.406	0.00000	0.000
1	452	SFR-OC	15.293	0.00240	0.037
SUBTOTAL	452		21.188		0.037
1	454	OA-OC	1.355	0.00000	0.000
1	454	PR	9.485	0.00000	0.000
1	454	SFR-OC	23.559	0.00240	0.057
SUBTOTAL	454		34.399		0.057
1	478	PR	1.028	0.00000	0.000
1	478	SFR-OC	3.024	0.00240	0.007
SUBTOTAL	478		4.052		0.007
1	501	OA-OC	0.011	0.00000	0.000
1	501	PR	2.183	0.00000	0.000
1	501	SFR-OC	6.143	0.00240	0.015
SUBTOTAL	501		8.337		0.015
1	502	PR	1.835	0.00000	0.000
1	502	SFR-OC	4.592	0.00240	0.011
SUBTOTAL	502		6.427		0.011
1	513	PR	4.282	0.00000	0.000
1	513	SFR-OC	12.184	0.00240	0.029
SUBTOTAL	513		16.466		0.029

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
1	515	PR	2.311	0.00000	0.000
1	515	SFR-OC	9.974	0.00240	0.024
SUBTOTAL	515		12.285		0.024
1	523	PR	3.747	0.00000	0.000
1	523	SFR-OC	10.101	0.00240	0.024
SUBTOTAL	523		13.848		0.024
1	561	PR	6.649	0.00000	0.000
1	561	SFR-OC	17.420	0.00240	0.042
SUBTOTAL	561		24.069		0.042
1	565	PR	5.490	0.00000	0.000
1	565	SFR-OC	5.220	0.00240	0.012
1	565	S-OC	12.238	0.00500	0.061
SUBTOTAL	565		22.948		0.074
1	573	OA-OC	0.007	0.00000	0.000
1	573	PR	6.179	0.00000	0.000
1	573	SFR-OC	12.602	0.00240	0.030
SUBTOTAL	573		18.788		0.030
1	576	PR	7.128	0.00000	0.000
1	576	SFR-OC	19.309	0.00240	0.046
SUBTOTAL	576		26.437		0.046
1	606	OA-OC	0.007	0.00000	0.000
1	606	PR	5.358	0.00000	0.000
1	606	SFR-OC	15.896	0.00240	0.038
SUBTOTAL	606		21.261		0.038
1	611	PR	3.699	0.00000	0.000
1	611	SFR-OC	11.497	0.00240	0.028
SUBTOTAL	611		15.196		0.028
1	616	PR	4.572	0.00000	0.000
1	616	SFR-OC	14.777	0.00240	0.035
SUBTOTAL	616		19.349		0.035
1	625	PR	7.669	0.00000	0.000
1	625	SFR-OC	14.724	0.00240	0.035
1	625	S-OC	9.127	0.00500	0.046

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
SUBTOTAL	625		31.520		0.081
1	627	PR	2.026	0.00000	0.000
1	627	SFR-OC	5.124	0.00240	0.012
SUBTOTAL	627		7.150		0.012
1	656	PR	1.708	0.00000	0.000
1	656	SFR-OC	4.815	0.00240	0.012
SUBTOTAL	656		6.523		0.012
1	662	OA-OC	0.001	0.00000	0.000
1	662	PR	1.827	0.00000	0.000
1	662	SFR-OC	4.607	0.00240	0.011
SUBTOTAL	662		6.435		0.011
1	664	OA-OC	0.191	0.00000	0.000
1	664	PR	1.998	0.00000	0.000
1	664	SFR-OC	6.418	0.00240	0.015
SUBTOTAL	664		8.607		0.015
1	669	OA-OC	1.537	0.00000	0.000
1	669	PR	3.724	0.00000	0.000
1	669	SFR-OC	11.801	0.00240	0.028
SUBTOTAL	669		17.062		0.028
1	682	OA-OC	0.288	0.00000	0.000
1	682	PR	6.039	0.00000	0.000
1	682	SFR-OC	17.809	0.00240	0.043
SUBTOTAL	682		24.136		0.043
1	683	OA-OC	0.217	0.00000	0.000
1	683	PR	4.311	0.00000	0.000
1	683	SFR-OC	12.290	0.00240	0.030
SUBTOTAL	683		16.818		0.030
1	693	OA-OC	0.587	0.00000	0.000
1	693	PR	6.085	0.00000	0.000
1	693	SFR-OC	11.796	0.00240	0.028
1	693	S-OC	10.219	0.00500	0.051
SUBTOTAL	693		28.687		0.080
1	697	OA-OC	1.137	0.00000	0.000

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
1	697	PR	4.195	0.00000	0.000
1	697	SFR-OC	10.339	0.00240	0.025
SUBTOTAL	697		15.671		0.025
1	700	OA-OC	0.902	0.00000	0.000
1	700	PR	7.690	0.00000	0.000
1	700	SFR-OC	23.095	0.00240	0.055
SUBTOTAL	700		31.687		0.055
1	701	PR	4.228	0.00000	0.000
1	701	SFR-OC	13.804	0.00240	0.033
SUBTOTAL	701		18.032		0.033
1	705	P-OC	4.697	0.00030	0.001
1	705	PR	9.153	0.00000	0.000
1	705	SFR-OC	24.205	0.00240	0.058
SUBTOTAL	705		38.055		0.060
1	748	MFR-OC	3.935	0.00900	0.035
1	748	P-OC	4.682	0.00030	0.001
1	748	PR	8.104	0.00000	0.000
1	748	RB-OC	2.120	0.00500	0.011
1	748	SFR-OC	17.659	0.00240	0.042
SUBTOTAL	748		36.500		0.090
2	784	INST	3.217	0.00500	0.016
2	784	MFR	11.614	0.01100	0.128
2	784	OA	1.043	0.00000	0.000
2	784	PI	0.029	0.00600	***.***
2	784	PR	4.909	0.00000	0.000
2	784	RB	0.509	0.00500	0.003
2	784	S	4.949	0.00500	0.025
SUBTOTAL	784		26.270		0.171
2	798	MFR	0.007	0.01100	0.000
2	798	OA	0.078	0.00000	0.000
2	798	PR	4.764	0.00000	0.000
2	798	RB	5.288	0.00500	0.027
SUBTOTAL	798		10.137		0.027
3	803	PR	1.043	0.00000	0.000
3	803	RB	1.732	0.00500	0.009
SUBTOTAL	803		2.775		0.009

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
3	807	LMFR	0.003	0.00600	0.000
3	807	PR	0.997	0.00000	0.000
3	807	RB	1.254	0.00500	0.006
SUBTOTAL	807		2.254		0.006
3	808	LMFR	2.906	0.00600	0.018
3	808	PR	3.330	0.00000	0.000
3	808	RB	3.969	0.00500	0.020
SUBTOTAL	808		10.205		0.037
3	809	LMFR	2.903	0.00600	0.017
3	809	PI	3.248	0.00600	0.020
3	809	PO	3.873	0.00500	0.019
3	809	PR	5.111	0.00000	0.000
3	809	RB	2.546	0.00500	0.013
SUBTOTAL	809		17.681		0.069
3	812	PI	1.377	0.00600	0.008
3	812	PR	2.780	0.00000	0.000
3	812	RB	6.342	0.00500	0.032
SUBTOTAL	812		10.499		0.040
3	816	PI	19.422	0.00600	0.117
3	816	PR	1.459	0.00000	0.000
SUBTOTAL	816		20.881		0.117
2	822	OA	11.099	0.00000	0.000
2	822	PI	19.084	0.00600	0.115
2	822	PO	1.357	0.00500	0.007
2	822	PR	7.182	0.00000	0.000
2	822	RB	2.809	0.00500	0.014
2	822	SFR	1.560	0.00240	0.004
SUBTOTAL	822		43.091		0.139
3	827	LMFR	1.455	0.00600	0.009
3	827	OA	3.568	0.00000	0.000
3	827	PI	3.162	0.00600	0.019
3	827	PO	1.910	0.00500	0.010
3	827	PR	4.003	0.00000	0.000
SUBTOTAL	827		14.098		0.037
3	831	OA	1.245	0.00000	0.000
3	831	PI	10.445	0.00600	0.063
3	831	PO	1.460	0.00500	0.007

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
3	831	PR	3.154	0.00000	0.000
SUBTOTAL	831		16.304		0.070
3	843	OA	2.009	0.00000	0.000
3	843	PR	6.098	0.00000	0.000
3	843	SFR	14.647	0.00240	0.035
SUBTOTAL	843		22.754		0.035
3	853	OA	0.907	0.00000	0.000
3	853	PR	3.363	0.00000	0.000
3	853	S	9.579	0.00500	0.048
3	853	SFR	9.070	0.00240	0.022
SUBTOTAL	853		22.919		0.070
3	860	OA	0.162	0.00000	0.000
3	860	PR	1.492	0.00000	0.000
3	860	SFR	4.075	0.00240	0.010
SUBTOTAL	860		5.729		0.010
3	861	PR	2.798	0.00000	0.000
3	861	RB	1.463	0.00500	0.007
3	861	SFR	4.326	0.00240	0.010
SUBTOTAL	861		8.587		0.018
1	898	LDR-SB	16.772	0.00240	0.040
SUBTOTAL	898		16.772		0.040
1	906	LDR-SB	5.264	0.00240	0.013
SUBTOTAL	906		5.264		0.013
1	912	LDR-SB	9.108	0.00240	0.022
SUBTOTAL	912		9.108		0.022
1	914	LDR-SB	23.919	0.00240	0.057
1	914	OA-SB	1.089	0.00000	0.000
SUBTOTAL	914		25.008		0.057
3	925	OA	0.694	0.00000	0.000
3	925	PR	4.594	0.00000	0.000
3	925	SFR	10.845	0.00240	0.026
SUBTOTAL	925		16.133		0.026

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
1	936	C-SB	5.060	0.00500	0.025
1	936	HDR-SB	16.042	0.01100	0.177
1	936	PR	2.672	0.00000	0.000
SUBTOTAL	936		23.774		0.202
1	937	MFR-OC	13.009	0.00900	0.117
1	937	PR	1.026	0.00000	0.000
SUBTOTAL	937		14.035		0.117
3	944	PR	3.772	0.00000	0.000
3	944	S	21.655	0.00500	0.108
SUBTOTAL	944		25.427		0.108
6	956	LMFR	5.725	0.00600	0.034
6	956	OA	2.357	0.00000	0.000
SUBTOTAL	956		8.082		0.034
6	962	LMFR	5.248	0.00600	0.032
6	962	OA	1.146	0.00000	0.000
SUBTOTAL	962		6.394		0.032
1	972	C-SB	17.664	0.00500	0.088
1	972	PR	0.973	0.00000	0.000
SUBTOTAL	972		18.637		0.088
1	973	C-SB	6.198	0.00500	0.031
1	973	PR	1.264	0.00000	0.000
SUBTOTAL	973		7.462		0.031
1	978	OA-OC	0.062	0.00000	0.000
1	978	PR	9.347	0.00000	0.000
1	978	SFR-OC	23.367	0.00240	0.056
SUBTOTAL	978		32.776		0.056
5	979	AFRC	1,283.496	0.00000	0.760
5	979	OA	16.464	0.00000	0.000
5	979	P	5.423	0.00030	0.002
7	979	C-SB	13.982	0.00500	0.070
7	979	G-SB	58.832	0.00030	0.018
7	979	LDR-SB	7.905	0.00240	0.019
SUBTOTAL	979		1,386.102		0.868

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
3	993	PI	6.837	0.00600	0.041
3	993	PR	2.390	0.00000	0.000
3	993	S	3.855	0.00500	0.019
SUBTOTAL	993		13.082		0.060
3	1001	PR	2.131	0.00000	0.000
3	1001	SFR	6.029	0.00240	0.015
SUBTOTAL	1001		8.160		0.015
3	1008	PI	33.928	0.00600	0.204
3	1008	PR	4.097	0.00000	0.000
SUBTOTAL	1008		38.025		0.204
3	1014	PI	33.769	0.00600	0.203
3	1014	PR	7.954	0.00000	0.000
SUBTOTAL	1014		41.723		0.203
1	2000	OA-SB	68.349	0.00000	0.000
SUBTOTAL	2000		68.349		0.000
2	2001	OA	86.663	0.00000	0.000
2	2001	PR	6.311	0.00000	0.000
2	2001	SFR-OC	0.002	0.00240	0.000
SUBTOTAL	2001		92.976		0.000
7	2002	C-SB	3.462	0.00500	0.017
7	2002	PR	5.224	0.00000	0.000
SUBTOTAL	2002		8.686		0.017
8	2012	C-SB	14.183	0.00500	0.071
8	2012	LDR-SB	8.326	0.00240	0.020
SUBTOTAL	2012		22.509		0.091
3	2042	PR	0.885	0.00000	0.000
3	2042	RT-CYP	11.790	0.00000	0.000
SUBTOTAL	2042		12.675		0.000
3	2043	PI	3.260	0.00600	0.020
3	2043	PR	1.155	0.00000	0.000
SUBTOTAL	2043		4.415		0.020

Rossmoor/Los Alamitos
Area Sewer District
Ultimate Land Use Area Loading

Service Area	Manhole Number	Land Use Code	Area (acres)	Flow Area Factor (cfs/acre)	Area Load (cfs)
3	3032	OA	8.428	0.00000	0.000
3	3032	PR	3.225	0.00000	0.000
3	3032	RB	0.381	0.00500	0.002
3	3032	S	47.736	0.00500	0.239
SUBTOTAL	3032		59.770		0.241
3	3033	PI	9.716	0.00600	0.058
3	3033	PR	1.348	0.00000	0.000
SUBTOTAL	3033		11.064		0.058
3	3037	PR	1.203	0.00000	0.000
3	3037	RB	0.509	0.00500	0.003
3	3037	SFR	1.606	0.00240	0.004
SUBTOTAL	3037		3.318		0.006
3	3048	PR	4.344	0.00000	0.000
3	3048	RB	0.935	0.00500	0.005
3	3048	SFR	6.186	0.00240	0.015
SUBTOTAL	3048		11.465		0.020
TOTAL AREA			3,961.0		8.120

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
1	1	2	1-2		0.00200	10	325.0	20.41	19.76	30.4	T3140-10	1961	VCP	0.013	D-1027		LOS ALAMITOS
2	2	3	2-3		0.00200	10	325.0	19.76	19.11	30.1	T3140-02	1961	VCP	0.013	D-1027		LOS ALAMITOS
3	3	4	3-4	Y	0.00200	10	325.0	19.11	18.46	29.5	T3140-02	1961	VCP	0.013	D-1027		LOS ALAMITOS
4	4	5	4-5	Y	0.00282	10	326.0	18.37	17.45	29.1	S139-01	1989	VCP	0.013			LOS ALAMITOS
5	5	6	5-6	Y	0.00150	12	334.0	18.99	18.49	28.0	S115-06	1954	VCP	0.013	D-166		LOS ALAMITOS
6	6	7	6-7	Y	0.00150	12	333.0	18.49	17.99	28.0	S115-06	1954	VCP	0.013	D-166		LOS ALAMITOS
7	7	8	7-8	Y	0.00150	12	200.0	17.99	17.69	28.0	S115-06	1954	VCP	0.013	D-166	MH NOT SHOWN ON PLANS	LOS ALAMITOS
8	8	9	8-9	Y	0.00150	12	133.0	17.69	17.49	28.0	S115-06	1954	VCP	0.013	D-166		LOS ALAMITOS
9	9	10	9-10	Y	0.00150	12	333.0	17.49	16.99	28.0	S115-06	1954	VCP	0.013	D-166		LOS ALAMITOS
10	10	11	10-11	Y	0.00150	12	333.0	16.99	16.49	28.0	S115-06	1954	VCP	0.013	D-166		LOS ALAMITOS
11	11	12	11-12	Y	0.00150	12	333.0	16.49	15.99	27.5	S115-06	1954	VCP	0.013	D-166		LOS ALAMITOS
12	12	13	12-13	Y	0.00150	12	334.3	15.99	15.49	27.0	S115-06	1954	VCP	0.013	D-166		LOS ALAMITOS
13	13	14	13-14	Y	0.00150	12	307.1	15.49	15.03	27.0	S115-06	1954	VCP	0.013	D-166		LOS ALAMITOS
14	14	15	14-15	Y	0.00150	12	331.4	15.03	14.53	28.0	S115-05	1954	VCP	0.013	D-166		LOS ALAMITOS
15	15	16	15-16	Y	0.00150	12	330.0	14.53	14.04	28.0	S115-05	1954	VCP	0.013	D-166		LOS ALAMITOS
16	16	17	16-17	Y	0.00150	12	330.0	14.04	13.54	28.0	S115-05	1954	VCP	0.013	D-166		LOS ALAMITOS
17	17	18	17-18	Y	0.00150	12	329.5	13.54	13.05	27.9	S115-05	1954	VCP	0.013	D-166		LOS ALAMITOS
18	18	19	18-19	Y	0.00150	12	330.6	13.05	12.55	27.8	S115-05	1954	VCP	0.013	D-166		LOS ALAMITOS
19	19	20	19-20	Y	0.00150	12	330.0	12.55	12.06	27.0	S115-05	1954	VCP	0.013	D-166		LOS ALAMITOS
20	20	21	20-21	Y	0.00150	12	330.0	12.06	11.56	27.0	S115-05	1954	VCP	0.013	D-166		LOS ALAMITOS
21	21	22	21-22	Y	0.00150	12	330.0	11.56	11.07	26.8	S115-05	1954	VCP	0.013	D-166		LOS ALAMITOS
22	22	23	22-23		0.00150	12	363.8	11.07	10.52	26.0	S115-04	1954	VCP	0.013	D-166		LOS ALAMITOS
23	22	2033	22-2033	Y	0.06090	12	22.0	9.69	8.35	24.0	C3-21-1-13	1975	VCP	0.013	D-1874		LOS ALAMITOS
24	23	24	23-24	Y	0.00150	12	364.0	10.52	9.98	26.0	S115-04	1954	VCP	0.013	D-166		LOS ALAMITOS
25	24	25	24-25	Y	0.00150	12	200.0	9.98	9.68	25.5	S115-04	1954	VCP	0.013	D-166		LOS ALAMITOS
26	25	25A	25-25A	Y	0.00150	12	164.0	9.68	9.43	25.5	S115-04	1954	VCP	0.013	D-166	MH NOT SHOWN ON PLANS	LOS ALAMITOS
27	25A	26	25A-26	Y	0.00150	12	364.0	9.43	8.88	25.0	S115-04	1954	VCP	0.013	D-166		LOS ALAMITOS
28	26	27	26-27	Y	0.00150	12	395.0	8.88	8.29	25.0	S115-04	1954	VCP	0.013	D-166		LOS ALAMITOS
29	26A	26	26A-26	Y	0.00400	8	80.0	15.39	15.07	24.8	S112-07	1954	VCP	0.013	D-183		LOS ALAMITOS
30	27	28	27-28	Y	0.00150	12	395.1	8.29	7.70	24.2	S115-04	1954	VCP	0.013	D-166	MH NOT SHOWN ON PLANS	LOS ALAMITOS
31	28	29A	28-29A	Y	0.00150	12	332.3	7.70	7.20	24.0	S115-04	1954	VCP	0.013	D-166		LOS ALAMITOS
32	29A	2027	29A-2027	Y	0.00380	12	8.0	5.71	5.68	21.9	C3-21-1-17	1975	VCP	0.013	C3-21-1		LOS ALAMITOS
33	29A	29	29A-29		0.00150	12	50.0	7.12	7.13	24.0	S115-04	1954	VCP	0.013	D-166		LOS ALAMITOS
34	29	30	29-30		0.00150	12	31.9	7.13	7.18	23.8	S115-04	1954	VCP	0.013	D-166		LOS ALAMITOS
35	30	31	30-31	Y	0.00150	15	378.2	6.75	6.18	23.5	S115-03	1954	VCP	0.013	D-166		LOS ALAMITOS
36	31	32	31-32	Y	0.00150	15	395.1	6.18	5.59	23.0	S115-03	1954	VCP	0.013	D-166		LOS ALAMITOS
37	32	33	32-33	Y	0.00150	15	394.8	5.59	5.00	24.0	S115-03	1954	VCP	0.013	D-166		LOS ALAMITOS
38	33	785A	33-785A	Y	0.00150	15	209.0	4.90	4.15	18.0	S115-08	1954	VCP	0.013	D-166		LOS ALAMITOS
39	34	35	34-35		0.00200	8	352.0	20.82	20.12	27.7	T3140-03	1961	VCP	0.013	D-1027		LOS ALAMITOS

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
40	35	36	35-36		0.00200	8	352.0	20.12	19.42	27.0	T3140-03	1961	VCP	0.013	D-1027		LOS ALAMITOS
41	36	37	36-37		0.00200	8	343.0	19.42	18.71	36.4	T3140-03	1961	VCP	0.013	D-1027		LOS ALAMITOS
42	37	53	37-53	Y	0.00160	10	158.8	18.61	18.36	25.6	T3140-10	1961	VCP	0.013	D-1027		LOS ALAMITOS
43	38	39	38-39		0.00200	8	300.0	21.14	20.55	27.0	T3140-04	1961	VCP	0.013	D-1027		LOS ALAMITOS
44	39	40	39-40		0.00200	8	300.0	20.55	19.95	26.0	T3140-04	1961	VCP	0.013	D-1027		LOS ALAMITOS
45	40	41	40-41		0.00200	8	300.0	19.95	19.35	25.8	T3140-04	1961	VCP	0.013	D-1027		LOS ALAMITOS
46	41	37	41-37		0.00200	8	269.2	19.25	18.71	25.1	T3140-07	1961	VCP	0.013	D-1027		LOS ALAMITOS
47	42	34	42-34		0.00200	8	355.0	21.63	20.92	26.2	T3140-08	1961	VCP	0.013	D-1027		LOS ALAMITOS
48	43	42	43-42		0.00200	8	355.0	22.34	21.60	26.1	T3140-08	1961	VCP	0.013	D-1027		LOS ALAMITOS
49	44	45	44-45		0.00200	8	300.0	21.67	21.07	26.0	T3140-05	1961	VCP	0.013	D-1027		LOS ALAMITOS
50	45	46	45-46		0.00200	8	300.0	21.07	20.47	25.8	T3140-05	1961	VCP	0.013	D-1027		LOS ALAMITOS
51	46	47	46-47		0.00200	8	300.0	20.47	19.87	25.2	T3140-05	1961	VCP	0.013	D-1027		LOS ALAMITOS
52	47	41	47-41		0.00200	8	260.0	19.76	19.25	24.6	T3140-07	1961	VCP	0.013	D-1027		LOS ALAMITOS
53	48	49	48-49		0.00200	8	292.0	22.71	22.13	25.9	T3140-06	1961	VCP	0.013	D-1027		LOS ALAMITOS
54	49	50	49-50		0.00200	8	290.0	22.13	21.54	25.4	T3140-06	1961	VCP	0.013	D-1027		LOS ALAMITOS
55	50	51	50-51		0.00200	8	290.0	21.54	20.97	25.0	T3140-06	1961	VCP	0.013	D-1027		LOS ALAMITOS
56	51	52	51-52		0.00200	8	290.0	20.97	20.39	24.8	T3140-06	1961	VCP	0.013	D-1027		LOS ALAMITOS
57	52	47	52-47		0.00200	8	260.0	20.29	19.76	24.6	T3140-07	1961	VCP	0.013	D-1027		LOS ALAMITOS
58	53	5	53-5	Y	0.00160	10	287.5	18.26	17.80	28.2	T3140-10	1961	VCP	0.013	D-1027		LOS ALAMITOS
59	54	52	54-52		0.00200	8	98.5	20.59	20.39	26.5	T3140-05	1961	VCP	0.013	D-1027		LOS ALAMITOS
60	55	56	55-56		0.00200	8	379.8	22.25	21.49	27.7	T2314-04	1954	VCP	0.013	T2314		LOS ALAMITOS
61	56	57	56-57		0.00200	8	374.0	21.49	20.74	27.0	T2314-06	1954	VCP	0.013	T2314		LOS ALAMITOS
62	57	58	57-58		0.00200	8	375.0	20.74	19.99	27.7	T2314-06	1954	VCP	0.013	T2314		LOS ALAMITOS
63	58	59	58-59		0.00200	8	375.4	19.99	19.24	28.0	T2314-06	1954	VCP	0.013	T2314		LOS ALAMITOS
64	59	68	59-68		0.00200	8	280.0	19.24	18.68	28.2	T2314-02	1954	VCP	0.013	T2314		LOS ALAMITOS
65	60	61	60-61		0.00200	8	290.0	21.87	21.29	27.8	T2314-07	1954	VCP	0.013	T2314		LOS ALAMITOS
66	61	62	61-62		0.00200	8	375.0	21.29	20.54	28.0	T2314-07	1954	VCP	0.013	T2314		LOS ALAMITOS
67	62	63	62-63		0.00200	8	370.3	20.54	19.80	28.8	T2314-07	1954	VCP	0.013	T2314		LOS ALAMITOS
68	63	59	63-59		0.00200	8	280.0	19.80	19.24	28.4	T2314-02	1954	VCP	0.013	T2314		LOS ALAMITOS
69	64	65	64-65		0.00200	8	186.3	21.29	20.92	27.0	T2314-04	1954	VCP	0.013	T2314		LOS ALAMITOS
70	65	66	65-66		0.00200	8	380.9	20.92	20.16	26.8	T2314-05	1954	VCP	0.013	T2314		LOS ALAMITOS
71	66	67	66-67		0.00200	8	370.0	20.16	19.42	27.3	T2314-05	1954	VCP	0.013	T2314		LOS ALAMITOS
72	67	68	67-68		0.00200	8	369.6	19.42	18.68	27.7	T2314-05	1954	VCP	0.013	T2314		LOS ALAMITOS
73	68	74	68-74		0.00200	8	210.0	18.68	18.26	27.8	T2314-02	1954	VCP	0.013	T2314		LOS ALAMITOS
74	69	70	69-70		0.00200	8	201.0	20.90	20.50	26.7	T2314-04	1954	VCP	0.013	T2314		LOS ALAMITOS
75	70	72	70-72		0.00200	8	412.2	20.50	19.68	27.2	T2314-03	1954	VCP	0.013	T2314		LOS ALAMITOS
76	71	70	71-70		0.00200	8	92.4	20.68	20.50	26.3	T2314-04	1954	VCP	0.013	T2314		LOS ALAMITOS
77	72	73	72-73		0.00200	8	419.0	19.68	18.85	27.0	T2314-03	1954	VCP	0.013	T2314		LOS ALAMITOS
78	73	74	73-74		0.00200	8	294.0	18.85	18.26	27.4	T2314-03	1954	VCP	0.013	T2314		LOS ALAMITOS

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
79	74	8	74-8		0.00200	8	57.3	18.26	18.15	27.8	T2314-03	1954	VCP	0.013	T2314		LOS ALAMITOS
80	75	76	75-76	Y	0.00240	8	400.3	21.38	20.42	26.2	S112-15	1954	VCP	0.013	D-183		LOS ALAMITOS
81	76	86	76-86	Y	0.00240	8	270.0	20.42	19.77	26.0	S112-15	1954	VCP	0.013	D-183		LOS ALAMITOS
82	77	76	77-76		0.00200	8	362.0	21.24	20.52	26.0	S112-18	1954	VCP	0.013	D-183		LOS ALAMITOS
83	78	77	78-77		0.00200	8	361.0	21.96	21.24	26.1	S112-18	1954	VCP	0.013	D-183	PLANS INCORRECT UPINV	LOS ALAMITOS
84	79	80	79-80		0.00240	8	115.0	19.43	19.15	27.5	S112-15	1954	VCP	0.013	D-183		LOS ALAMITOS
85	80	81	80-81		0.00240	8	374.0	19.15	18.25	27.2	S112-15	1954	VCP	0.013	D-183		LOS ALAMITOS
86	81	82	81-82	Y	0.00240	8	373.0	18.25	17.35	27.0	S112-15	1954	VCP	0.013	D-183		LOS ALAMITOS
87	82	83	82-83	Y	0.00240	8	373.0	17.35	16.45	26.5	S112-15	1954	VCP	0.013	D-183		LOS ALAMITOS
88	83	13	83-13	Y	0.00200	8	264.0	16.35	15.82	26.0	S112-16	1954	VCP	0.013	D-183		LOS ALAMITOS
89	84	85	84-85		0.00200	8	366.0	21.23	20.50	27.0	S112-17	1954	VCP	0.013	D-183		LOS ALAMITOS
90	85	86	85-86		0.00200	8	367.0	20.50	19.77	26.0	S112-17	1954	VCP	0.013	D-183		LOS ALAMITOS
91	86	89	86-89	Y	0.00240	8	276.0	19.77	19.11	26.0	S112-15	1954	VCP	0.013	D-183		LOS ALAMITOS
92	87	88	87-88		0.00200	8	370.0	20.69	19.95	26.1	S112-17	1954	VCP	0.013	D-183		LOS ALAMITOS
93	88	89	88-89		0.00200	8	370.0	19.95	19.21	26.0	S112-17	1954	VCP	0.013	D-183		LOS ALAMITOS
94	89	92	89-92	Y	0.00240	8	272.5	19.21	18.56	26.0	S112-15	1954	VCP	0.013	D-183		LOS ALAMITOS
95	90	91	90-91		0.00200	8	390.0	20.02	19.24	26.0	S112-16	1954	VCP	0.013	D-183		LOS ALAMITOS
96	91	92	91-92		0.00200	8	390.0	19.24	18.46	25.5	S112-16	1954	VCP	0.013	D-183		LOS ALAMITOS
97	92	93	92-93	Y	0.00240	8	269.0	18.46	17.81	25.0	S112-15	1954	VCP	0.013	D-183		LOS ALAMITOS
98	93	94	93-94	Y	0.00200	8	400.0	17.71	16.91	26.9	S112-16	1954	VCP	0.013	D-183		LOS ALAMITOS
99	94	95	94-95	Y	0.00200	8	400.0	16.91	16.11	27.0	S112-16	1954	VCP	0.013	D-183		LOS ALAMITOS
100	95	14	95-14	Y	0.00200	8	358.7	16.11	15.39	27.2	S112-16	1954	VCP	0.013	D-183		LOS ALAMITOS
101	96	97	96-97		0.00200	8	370.0	20.73	19.99	26.1	S112-18	1954	VCP	0.013	D-183		LOS ALAMITOS
102	97	80	97-80		0.00200	8	370.0	19.99	19.25	27.0	S112-18	1954	VCP	0.013	D-183		LOS ALAMITOS
103	98	99	98-99	Y	0.00240	8	190.0	18.68	18.21	26.0	S112-09	1962	VCP	0.013	D-1021		LOS ALAMITOS
104	99	100	99-100	Y	0.00240	8	350.0	18.21	17.37	26.0	S112-09	1962	VCP	0.013	D-1021		LOS ALAMITOS
105	100	101	100-101	Y	0.00240	8	350.0	17.37	16.53	25.9	S112-09	1962	VCP	0.013	D-1021		LOS ALAMITOS
106	101	102	101-102	Y	0.00240	8	350.0	16.53	15.69	25.8	S112-09	1962	VCP	0.013	D-1021		LOS ALAMITOS
107	102	103	102-103	Y	0.00240	8	330.0	15.69	14.90	25.3	S112-09	1962	VCP	0.013	D-1021		LOS ALAMITOS
108	103	104	103-104	Y	0.00240	8	330.0	14.90	14.11	25.1	S112-09	1962	VCP	0.013	D-1021		LOS ALAMITOS
109	104	105	104-105	Y	0.00240	8	330.0	14.11	13.32	25.0	S112-09	1962	VCP	0.013	D-1021		LOS ALAMITOS
110	105	135	105-135	Y	0.00240	8	330.0	13.32	12.53	24.8	S112-09	1962	VCP	0.013	D-1021		LOS ALAMITOS
111	106	107	106-107	Y	0.00240	8	190.0	19.74	19.28	25.4	S112-11	1962	VCP	0.013	D-1021		LOS ALAMITOS
112	107	108	107-108	Y	0.00240	8	350.0	19.28	18.44	25.0	S112-11	1962	VCP	0.013	D-1021		LOS ALAMITOS
113	108	109	108-109	Y	0.00240	8	350.0	18.44	17.60	25.0	S112-11	1962	VCP	0.013	D-1021		LOS ALAMITOS
114	109	110	109-110	Y	0.00240	8	350.0	17.60	16.76	25.0	S112-11	1962	VCP	0.013	D-1021		LOS ALAMITOS
115	110	112	110-112	Y	0.00240	8	330.0	16.76	15.96	24.8	S112-11	1962	VCP	0.013	D-1021		LOS ALAMITOS
116	111	110	111-110		0.00500	8	127.0	17.50	16.86	24.2	S112-03	1954	VCP	0.013	D-183		LOS ALAMITOS
117	112	113	112-113	Y	0.00240	8	330.0	15.96	15.17	24.2	S112-11	1962	VCP	0.013	D-1021		LOS ALAMITOS

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
118	113	114	113-114	Y	0.00240	8	330.0	15.17	14.38	24.0	S112-11	1962	VCP	0.013	D-1021		LOS ALAMITOS
119	114	134	114-134	Y	0.00240	8	330.0	14.38	13.59	23.8	S112-11	1962	VCP	0.013	D-1021		LOS ALAMITOS
120	125	126	125-126	Y	0.00200	8	190.0	19.74	19.36	27.0	S112-13	1954	VCP	0.013	D-183		LOS ALAMITOS
121	126	127	126-127	Y	0.00200	8	350.0	19.36	18.66	24.0	S112-13	1954	VCP	0.013	D-183		LOS ALAMITOS
122	127	128	127-128	Y	0.00200	8	350.0	18.66	17.96	24.0	S112-13	1954	VCP	0.013	D-183		LOS ALAMITOS
123	128	129	128-129	Y	0.00200	8	350.0	17.96	17.26	23.5	S112-13	1954	VCP	0.013	D-183		LOS ALAMITOS
124	129	130	129-130	Y	0.00200	8	330.0	17.26	16.60	23.5	S112-13	1954	VCP	0.013	D-183		LOS ALAMITOS
125	130	131	130-131	Y	0.00200	8	330.0	16.60	15.94	23.0	S112-13	1954	VCP	0.013	D-183		LOS ALAMITOS
126	131	132	131-132	Y	0.00200	8	330.0	15.94	15.28	23.0	S112-13	1954	VCP	0.013	D-183		LOS ALAMITOS
127	132	133	132-133	Y	0.00200	8	330.0	15.28	14.62	23.0	S112-13	1954	VCP	0.013	D-183		LOS ALAMITOS
128	133	134	133-134	Y	0.00240	8	430.0	14.52	13.49	23.0	S112-14	1954	VCP	0.013	D-183		LOS ALAMITOS
129	134	135	134-135	Y	0.00230	10	436.2	11.63	10.63	22.0	S138-02	1991	VCP	0.013			LOS ALAMITOS
130	135	2033	135-2033	Y	0.00330	12	397.2	10.50	9.20	23.0	S138-02	1991	VCP	0.013			LOS ALAMITOS
131	136	137	136-137	Y	0.00240	8	173.0	16.35	15.93	24.0	S112-08	1962	VCP	0.013	D-1021		LOS ALAMITOS
132	137	138	137-138	Y	0.00240	8	350.0	15.93	15.09	24.0	S112-08	1962	VCP	0.013	D-1021		LOS ALAMITOS
133	138	139	138-139	Y	0.00240	8	375.0	15.09	14.19	24.8	S112-08	1962	VCP	0.013	D-1021		LOS ALAMITOS
134	139	140	139-140	Y	0.00240	8	400.0	14.19	13.23	23.0	S112-08	1962	VCP	0.013	D-1021		LOS ALAMITOS
135	140	141	140-141	Y	0.00240	8	410.0	13.23	12.25	23.8	S112-08	1962	VCP	0.013	D-1021		LOS ALAMITOS
136	141	143	141-143	Y	0.00240	8	390.0	12.25	11.31	23.0	S112-08	1962	VCP	0.013	D-1021		LOS ALAMITOS
137	142	141	142-141		0.00240	8	155.0	19.00	18.63	25.0	S112-19	1954	VCP	0.013	D-183		LOS ALAMITOS
138	143	144	143-144	Y	0.00240	8	387.5	11.31	10.38	22.5	S112-08	1962	VCP	0.013	D-1021		LOS ALAMITOS
139	144	144A	144-144A	Y	0.00660	12	375.4	10.05	7.57	23.0	S115-08	1954	VCP	0.013	D-166		LOS ALAMITOS
140	144A	2026	144A-2026	Y	0.01200	12	20.0	5.90	5.66	22.0	C3-21-1-11	1975	VCP	0.013	D-1874		LOS ALAMITOS
141	144A	29	144A-29		0.00660	12	52.0	7.57	7.23	22.0	C3-21-1-11	1975	VCP	0.013	D-1874		LOS ALAMITOS
142	145	144	145-144	Y	0.00200	12	440.0	10.93	10.05	23.5	S115-08	1954	VCP	0.013	S-115		LOS ALAMITOS
143	146	145	146-145	Y	0.00240	8	387.5	12.19	11.26	22.2	S112-10	1962	VCP	0.013	D-183		LOS ALAMITOS
144	147	146	147-146	Y	0.00240	8	390.0	13.13	12.19	23.0	S112-10	1962	VCP	0.013	D-183		LOS ALAMITOS
145	148	147	148-147	Y	0.00240	8	410.0	14.11	13.13	22.5	S112-10	1962	VCP	0.013	D-183		LOS ALAMITOS
146	149	148	149-148	Y	0.00240	8	400.0	15.07	14.11	23.0	S112-10	1962	VCP	0.013	D-183		LOS ALAMITOS
147	150	149	150-149	Y	0.00240	8	375.0	15.97	15.07	23.0	S112-10	1962	VCP	0.013	D-183		LOS ALAMITOS
148	151	150	151-150	Y	0.00240	8	350.0	16.81	15.97	23.0	S112-10	1962	VCP	0.013	D-183		LOS ALAMITOS
149	152	151	152-151	Y	0.00240	8	123.0	17.11	16.81	23.0	S112-10	1962	VCP	0.013	D-183		LOS ALAMITOS
150	153	154	153-154	Y	0.00200	8	173.0	17.12	16.77	22.8	S112-12	1962	VCP	0.013	D-183		LOS ALAMITOS
151	154	155	154-155	Y	0.00200	8	350.0	16.77	16.07	22.2	S112-12	1962	VCP	0.013	D-183		LOS ALAMITOS
152	155	156	155-156	Y	0.00200	8	375.0	16.07	15.32	22.0	S112-12	1962	VCP	0.013	D-183		LOS ALAMITOS
153	156	157	156-157	Y	0.00200	8	400.0	15.32	14.52	21.8	S112-12	1962	VCP	0.013	D-183		LOS ALAMITOS
154	157	158	157-158	Y	0.00200	8	410.0	14.52	13.70	21.5	S112-12	1962	VCP	0.013	D-183		LOS ALAMITOS
155	158	159	158-159	Y	0.00200	8	390.0	13.70	12.92	21.8	S112-12	1962	VCP	0.013	D-183		LOS ALAMITOS
156	159	160	159-160	Y	0.00200	8	387.5	12.92	12.14	21.2	S112-12	1962	VCP	0.013	D-183		LOS ALAMITOS

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
157	160	145	160-145	Y	0.00200	12	439.9	11.81	10.93	22.0	S115-08	1954	VCP	0.013	D-166		LOS ALAMITOS
158	161	162	161-162		0.00240	8	237.0	15.28	14.71	19.9	T5793-03	1965	VCP	0.013	T5793		LOS ALAMITOS
159	162	163	162-163		0.00240	8	240.0	14.71	14.13	20.2	T5793-03	1965	VCP	0.013	T5793		LOS ALAMITOS
160	163	166	163-166		0.00240	8	264.0	14.13	13.50	20.4	T5793-01	1965	VCP	0.013	T5793		LOS ALAMITOS
161	164	165	164-165		0.00240	8	245.0	14.67	14.08	21.2	T5793-02	1965	VCP	0.013	T5793		LOS ALAMITOS
162	165	166	165-166		0.00240	8	240.0	14.08	13.50	20.3	T5793-02	1965	VCP	0.013	T5793		LOS ALAMITOS
163	166	169	166-169		0.00400	8	137.0	13.40	12.34	20.0	T5793-01	1965	VCP	0.013	T5793		LOS ALAMITOS
164	167	168	167-168		0.00400	8	237.0	14.35	13.40	20.4	T5867-01	1965	VCP	0.013	T5867		LOS ALAMITOS
165	168	169	168-169		0.00400	8	240.0	13.40	12.44	1.9	T5867-01	1965	VCP	0.013	T5867		LOS ALAMITOS
166	169	179	169-179		0.00400	8	264.0	12.34	11.29	20.0	T5867-02	1965	VCP	0.013	T5867		LOS ALAMITOS
167	170	180	170-180		0.00400	8	237.0	13.30	12.35	20.0	T5867-03	1965	VCP	0.013	T5867		LOS ALAMITOS
168	171	3016	171-3016	Y	0.00530	8	104.0	1.97	1.42	20.3	T5867-05	1965	VCP	0.013	T5867		LOS ALAMITOS
169	172	171	172-171	Y	0.00400	8	270.0	3.23	2.07	20.2	T5867-05	1965	VCP	0.013	T5867		LOS ALAMITOS
170	173	172	173-172	Y	0.00400	8	300.0	4.43	3.23	19.8	T5867-05	1965	VCP	0.013	T5867		LOS ALAMITOS
171	174	173	174-173	Y	0.00400	8	300.0	5.62	4.43	19.3	T5867-06	1965	VCP	0.013	T5867		LOS ALAMITOS
172	175	174	175-174	Y	0.00400	8	300.0	6.83	5.63	18.8	T5867-06	1965	VCP	0.013	T5867		LOS ALAMITOS
173	175A	175	175A-175	Y	0.00400	8	210.9	7.67	6.86	20.3	T5867-06	1965	VCP	0.013	T5867		LOS ALAMITOS
174	177	175A	177-175A	Y	0.00400	8	300.0	8.97	7.77	19.1	T5867-03	1965	VCP	0.013	T5867		LOS ALAMITOS
175	178	177	178-177		0.00400	8	289.0	10.12	8.97	18.8	T5867-03	1965	VCP	0.013	T5867		LOS ALAMITOS
176	179	178	179-178		0.00400	8	264.1	11.29	10.23	19.1	T5867-02	1965	VCP	0.013	T5867		LOS ALAMITOS
177	180	179	180-179		0.00400	8	240.0	12.35	11.39	19.4	T5867-03	1965	VCP	0.013	T5867		LOS ALAMITOS
178	181	182	181-182		0.00200	8	330.0	15.70	15.04	19.8	T3368-07	1959	VCP	0.013	T3368		LOS ALAMITOS
179	182	183	182-183		0.00200	8	350.0	15.04	14.34	19.4	T3368-07	1959	VCP	0.013	T3368		LOS ALAMITOS
180	183	184	183-184		0.00200	8	350.0	14.34	13.64	18.9	T3368-07	1959	VCP	0.013	T3368		LOS ALAMITOS
181	184	185	184-185		0.00200	8	300.0	13.54	12.94	18.4	T3368-09	1959	VCP	0.013	T3368		LOS ALAMITOS
182	185	186	185-186		0.00200	8	300.0	12.94	12.34	17.9	T3368-09	1959	VCP	0.013	T3368		LOS ALAMITOS
183	186	187	186-187		0.00200	8	297.6	12.34	11.74	17.4	T3368-09	1959	VCP	0.013	T3368		LOS ALAMITOS
184	187	1028	187-1028	Y	0.00200	8	200.0	11.74	11.14	10.6	T3368-10	1959	VCP	0.013	T3368		LOS ALAMITOS
185	187A	1028	187A-1028	Y	0.00200	8	100.0	10.58	10.38	18.8	S141-02	1998	VCP	0.013	S-1217		LOS ALAMITOS
186	187B	187A	187B-187A	Y	0.00200	8	340.3	11.24	10.46	19.2	T3368-04	1959	VCP	0.013	T3368		LOS ALAMITOS
187	188	187	188-187		0.00200	8	57.8	11.86	11.74	16.8	T3368-09	1959	VCP	0.013	T3368		LOS ALAMITOS
188	189	190	189-190		0.00200	8	280.0	15.48	14.96	20.2	T3368-06	1959	VCP	0.013	T3368		LOS ALAMITOS
189	190	191	190-191		0.00200	8	260.0	14.96	14.44	19.6	T3368-06	1959	VCP	0.013	T3368		LOS ALAMITOS
190	191	192	191-192		0.00200	8	260.0	14.44	13.92	19.6	T3368-06	1959	VCP	0.013	T3368		LOS ALAMITOS
191	192	196	192-196		0.00200	8	260.0	13.92	13.35	18.6	T3368-08	1959	VCP	0.013	T3368		LOS ALAMITOS
192	193	194	193-194		0.00200	8	260.0	14.96	14.44	20.2	T3368-05	1959	VCP	0.013	T3368		LOS ALAMITOS
193	194	195	194-195		0.00200	8	260.0	14.44	13.92	19.0	T3368-05	1959	VCP	0.013	T3368		LOS ALAMITOS
194	195	196	195-196		0.00200	8	260.0	13.92	13.35	18.6	T3368-05	1959	VCP	0.013	T3368		LOS ALAMITOS
195	196	198	196-198		0.00200	8	309.3	13.35	12.73	18.2	T3368-08	1959	VCP	0.013	T3368		LOS ALAMITOS

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
196	198	199A	198-199A		0.00200	8	126.0	12.73	12.48	17.2	T3368-08	1959	VCP	0.013	T3368		LOS ALAMITOS
197	199	198	199-198		0.00200	8	121.0	13.07	12.83	17.9	T3368-08	1959	VCP	0.013	T3368		LOS ALAMITOS
198	199A	188	199A-188		0.00200	8	260.0	12.43	11.91	18.3	T3368-02	1959	VCP	0.013	T3368		LOS ALAMITOS
199	200	199A	200-199A		0.00200	8	70.0	12.62	12.48	20.0	T3368-08	1959	VCP	0.013	T3368		LOS ALAMITOS
200	201	202	201-202		0.00320	8	350.0	15.18	14.06	20.6	T3984-06	1962	VCP	0.013	D-868		LOS ALAMITOS
201	202	203	202-203		0.00320	8	350.0	14.06	12.84	20.2	T3984-06	1962	VCP	0.013	D-868		LOS ALAMITOS
202	203	204	203-204		0.00320	8	365.0	12.84	11.67	19.4	T3984-04	1962	VCP	0.013	D-868		LOS ALAMITOS
203	204	205	204-205	Y	0.00320	8	370.6	11.67	10.48	19.0	T3984-04	1962	VCP	0.013	D-868		LOS ALAMITOS
204	205	249	205-249	Y	0.00340	10	314.0	2.67	1.60	18.4	T3984-07	1962	VCP	0.013	D-868		LOS ALAMITOS
205	206	205	206-205	Y	0.00340	10	295.0	3.77	2.77	18.0	T3984-04	1962	VCP	0.013	D-868		LOS ALAMITOS
206	207	208	207-208		0.00360	8	355.0	12.60	11.33	17.8	T3985-04	1960	VCP	0.013	D-867		LOS ALAMITOS
207	208	209	208-209		0.00360	8	355.0	11.33	10.05	17.4	T3985-04	1960	VCP	0.013	D-867		LOS ALAMITOS
208	209	210	209-210		0.00360	8	355.0	10.05	8.77	17.2	T3985-04	1960	VCP	0.013	D-867		LOS ALAMITOS
209	210	211	210-211	Y	0.00240	8	331.0	8.77	7.98	16.6	T3483-04	1960	VCP	0.013	D-866		LOS ALAMITOS
210	211	244	211-244	Y	0.00910	8	314.0	7.88	5.02	16.2	T3483-08	1960	VCP	0.013	D-866		LOS ALAMITOS
211	212	211	212-211	Y	0.00780	8	290.0	10.22	7.98	16.0	T3483-04	1960	VCP	0.013	D-866		LOS ALAMITOS
212	212	213	212-213		0.00240	8	250.0	10.22	9.62	16.0	T3483-04	1960	VCP	0.013	D-866		LOS ALAMITOS
213	213	240	213-240		0.00600	8	250.6	9.62	8.12	15.8	T3483-04	1960	VCP	0.013	D-866		LOS ALAMITOS
214	214	215	214-215		0.00320	8	175.0	14.15	13.59	19.4	T3984-05	1962	VCP	0.013	D-868		LOS ALAMITOS
215	215	216	215-216		0.00320	8	376.0	13.59	12.39	19.2	T3984-05	1962	VCP	0.013	D-868		LOS ALAMITOS
216	216	217	216-217		0.00320	8	355.0	12.39	11.25	18.6	T3984-05	1962	VCP	0.013	D-868		LOS ALAMITOS
217	217	206	217-206	Y	0.00340	10	314.0	4.94	3.87	18.2	T3984-08	1962	VCP	0.013	D-868		LOS ALAMITOS
218	218	219	218-219		0.00280	8	350.0	12.60	11.62	18.2	T3985-05	1960	VCP	0.013	D-867		LOS ALAMITOS
219	219	220	219-220		0.00280	8	350.0	11.62	10.64	17.8	T3985-05	1960	VCP	0.013	D-867		LOS ALAMITOS
220	220	221	220-221		0.00280	8	330.0	10.64	9.72	17.6	T3985-05	1960	VCP	0.013	D-867		LOS ALAMITOS
221	221	210	221-210		0.00240	8	314.0	9.62	8.87	17.0	T3985-07	1960	VCP	0.013	D-867		LOS ALAMITOS
222	222	223	222-223		0.00240	8	350.0	11.58	10.74	16.8	T3483-05	1960	VCP	0.013	D-866		LOS ALAMITOS
223	223	224	223-224		0.00240	8	350.0	10.74	9.90	16.4	T3483-05	1960	VCP	0.013	D-866		LOS ALAMITOS
224	224	239	224-239		0.00340	8	304.3	9.90	8.87	16.2	T3483-05	1960	VCP	0.013	D-866		LOS ALAMITOS
225	225	215	225-215		0.00320	8	228.0	14.40	13.69	20.2	T3984-06	1962	VCP	0.013	D-868		LOS ALAMITOS
226	226	225	226-225		0.00320	8	178.0	14.97	14.40	20.2	T3984-08	1962	VCP	0.013	D-868		LOS ALAMITOS
227	227	228	227-228		0.00550	8	164.4	13.50	12.60	19.2	T3984-08	1962	VCP	0.013	D-868		LOS ALAMITOS
228	228	229	228-229	Y	0.00340	10	300.6	7.13	6.11	18.8	T3984-08	1962	VCP	0.013	D-868		LOS ALAMITOS
229	229	217	229-217	Y	0.00340	10	314.0	6.01	4.94	18.6	T3984-08	1962	VCP	0.013	D-868		LOS ALAMITOS
230	230	231	230-231		0.00240	8	355.0	13.02	12.17	18.6	T3985-06	1960	VCP	0.013	D-867		LOS ALAMITOS
231	231	232	231-232		0.00240	8	355.0	12.17	11.32	18.2	T3985-06	1960	VCP	0.013	D-867		LOS ALAMITOS
232	232	233	232-233		0.00240	8	350.6	11.32	10.48	17.4	T3985-06	1960	VCP	0.013	D-867		LOS ALAMITOS
233	233	221	233-221		0.00240	8	314.0	10.38	9.62	17.4	T3985-07	1960	VCP	0.013	D-867		LOS ALAMITOS
234	234	235	234-235		0.00240	8	308.4	11.78	11.04	17.2	T3483-06	1960	VCP	0.013	D-866		LOS ALAMITOS

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
235	235	236	235-236		0.00240	8	280.0	11.04	10.37	17.1	T3483-06	1960	VCP	0.013	D-866		LOS ALAMITOS
236	236	237	236-237		0.00240	8	232.4	10.37	9.81	16.7	T3483-06	1960	VCP	0.013	D-866		LOS ALAMITOS
237	237	238	237-238		0.00240	8	195.0	9.71	9.24	16.2	T3483-07	1960	VCP	0.013	D-866		LOS ALAMITOS
238	238	239	238-239		0.00240	8	194.1	9.27	8.77	16.0	T3483-07	1960	VCP	0.013	D-866		LOS ALAMITOS
239	239	240	239-240		0.00240	8	314.0	8.77	8.02	15.6	T3483-07	1960	VCP	0.013	D-866		LOS ALAMITOS
240	240	241	240-241		0.00240	8	314.0	8.02	7.27	15.4	T3483-07	1960	VCP	0.013	D-866		LOS ALAMITOS
241	241	242	241-242		0.00240	8	260.0	7.17	6.55	14.8	T3483-03	1960	VCP	0.013	D-866		LOS ALAMITOS
242	242	243	242-243		0.00240	8	260.0	6.55	5.93	15.4	T3483-03	1960	VCP	0.013	D-866		LOS ALAMITOS
243	243	244	243-244	Y	0.00300	8	270.0	5.93	5.12	15.8	T3483-03	1960	VCP	0.013	D-866		LOS ALAMITOS
244	244	2015	244-2015	Y	0.00240	8	251.3	5.02	4.42	16.0	T3483-08	1960	VCP	0.013	D-866		LOS ALAMITOS
245	245	244	245-244	Y	0.00240	8	233.0	9.17	8.61	16.4	T3483-03	1960	VCP	0.013	D-866		LOS ALAMITOS
246	246	245	246-245		0.00240	8	350.0	10.01	9.17	16.4	T3483-03	1960	VCP	0.013	D-867		LOS ALAMITOS
247	247	246	247-246		0.00240	8	350.0	10.85	10.01	16.4	T3985-03	1960	VCP	0.013	D-867		LOS ALAMITOS
248	248	247	248-247		0.00240	8	350.0	11.69	10.85	16.6	T3985-03	1960	VCP	0.013	D-867		LOS ALAMITOS
249	249	248	249-248		0.00240	8	350.0	12.53	11.69	17.9	T3985-03	1960	VCP	0.013	D-867		LOS ALAMITOS
250	249	3013	249-3013	Y	0.00370	10	252.1	1.60	0.65	17.8	T3984-07	1962	VCP	0.013	D-868		LOS ALAMITOS
251	250	249	250-249		0.00400	8	284.0	11.76	10.62	18.4	T3984-03	1962	VCP	0.013	D-868		LOS ALAMITOS
252	251	250	251-250		0.00400	8	185.0	12.50	11.76	18.8	T3984-03	1962	VCP	0.013	D-868		LOS ALAMITOS
253	252	253	252-253		0.00280	8	275.0	4.44	3.67	10.4	T3224-03	1957	VCP	0.013	D-870		ROSSMOOR
254	253	259	253-259		0.00280	8	273.4	3.57	2.81	10.6	T3224-11	1957	VCP	0.013	D-871		ROSSMOOR
255	253A	253	253A-253		0.00308	8	24.3	1.98	1.89	9.0	T9458-01	1977	VCP	0.013	T9458		ROSSMOOR
256	253B	253A	253B-253A		0.00308	8	364.0	3.10	1.98	10.0	T9458-01	1977	VCP	0.013	T9458		ROSSMOOR
257	254	283	254-283		0.00240	8	197.9	5.73	5.26	14.4	T3224-16	1957	VCP	0.013	D-375		ROSSMOOR
258	255	254	255-254		0.00240	8	280.0	6.50	5.83	16.2	T3224-04	1957	VCP	0.013	D-375		ROSSMOOR
259	256	260	256-260	Y	0.00240	8	279.7	0.25	-0.42	10.0	T3224-08	1957	VCP	0.013	D-375		ROSSMOOR
260	257	256	257-256	Y	0.00240	8	300.0	1.07	0.35	10.2	T3224-10	1957	VCP	0.013	D-375		ROSSMOOR
261	258	257	258-257	Y	0.00240	8	297.5	1.78	1.07	10.6	T3224-11	1957	VCP	0.013	D-375		ROSSMOOR
262	259	258	259-258		0.00280	8	365.9	2.81	1.78	11.0	T3224-11	1957	VCP	0.013	D-375		ROSSMOOR
263	260	265	260-265	Y	0.00240	8	279.5	-0.42	-1.09	11.0	T3224-08	1957	VCP	0.013	D-375		ROSSMOOR
264	261	260	261-260		0.00360	8	300.0	3.72	2.64	11.6	T3224-12	1957	VCP	0.013	D-375		ROSSMOOR
265	262	261	262-261		0.00360	8	300.0	4.80	3.72	12.0	T3224-12	1957	VCP	0.013	D-375		ROSSMOOR
266	263	262	263-262		0.00360	8	294.3	5.86	4.80	12.0	T3224-12	1957	VCP	0.013	D-375		ROSSMOOR
267	264	263	264-263		0.00360	8	130.7	6.33	5.86	11.8	T3224-12	1957	VCP	0.013	D-375		ROSSMOOR
268	265	269	265-269	Y	0.00240	8	279.2	-1.09	-1.76	12.0	T3224-17	1957	VCP	0.013	D-375		ROSSMOOR
269	266	265	266-265		0.00360	8	300.0	4.68	3.60	12.6	T3224-13	1957	VCP	0.013	D-375		ROSSMOOR
270	267	266	267-266		0.00360	8	300.0	5.76	4.68	13.0	T3224-13	1957	VCP	0.013	D-375		ROSSMOOR
271	268	267	268-267		0.00360	8	300.0	6.84	5.76	12.5	T3224-12	1957	VCP	0.013	D-375		ROSSMOOR
272	269	273	269-273	Y	0.00240	8	279.0	-1.76	-2.43	13.0	T3224-17	1957	VCP	0.013	D-375		ROSSMOOR
273	270	269	270-269		0.00360	8	325.0	5.25	4.08	13.5	T3224-14	1957	VCP	0.013	D-375		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
274	271	270	271-270		0.00360	8	325.0	6.42	5.25	13.6	T3224-14	1957	VCP	0.013	D-375		ROSSMOOR
275	272	271	272-271		0.00360	8	250.0	7.32	6.42	13.2	T3224-14	1957	VCP	0.013	D-375		ROSSMOOR
276	273	278	273-278	Y	0.00240	8	279.0	-2.43	-3.10	11.2	T3224-17	1957	VCP	0.013	D-375		ROSSMOOR
277	274	273	274-273		0.00360	8	330.0	4.82	3.63	11.9	T3224-15	1957	VCP	0.013	D-375		ROSSMOOR
278	275	274	275-274		0.00360	8	330.0	6.01	4.82	12.6	T3224-15	1957	VCP	0.013	D-375		ROSSMOOR
279	276	275	276-275		0.00360	8	325.6	7.18	6.01	13.4	T3224-15	1957	VCP	0.013	D-375		ROSSMOOR
280	277	276	277-276		0.00360	8	154.4	7.73	7.18	13.7	T3224-15	1957	VCP	0.013	D-375		ROSSMOOR
281	278	284	278-284	Y	0.00240	8	278.0	-3.10	-3.77	10.5	T3224-21	1957	VCP	0.013	D-375		ROSSMOOR
282	279	278	279-278	Y	0.00240	8	290.0	2.59	1.89	11.4	T3224-02	1957	VCP	0.013	D-375		ROSSMOOR
283	280	279	280-279	Y	0.00240	8	290.0	3.28	2.59	11.4	T3224-02	1957	VCP	0.013	D-375		ROSSMOOR
284	281	280	281-280		0.00240	8	290.0	3.98	3.28	11.9	T3224-16	1957	VCP	0.013	D-375		ROSSMOOR
285	282	281	282-281		0.00240	8	286.0	4.66	3.98	12.6	T3224-16	1957	VCP	0.013	D-375		ROSSMOOR
286	283	282	283-282		0.00240	8	199.0	5.26	4.78	13.6	T3224-16	1957	VCP	0.013	D-375		ROSSMOOR
287	284	292	284-292	Y	0.00240	8	285.0	-3.77	-4.45	10.0	T3224-21	1957	VCP	0.013	D-375		ROSSMOOR
288	285	284	285-284		0.00240	8	320.0	5.30	4.53	10.8	T3425-06	1959	VCP	0.013	D-691		ROSSMOOR
289	286	285	286-285		0.00240	8	320.0	6.07	5.30	11.6	T3425-06	1959	VCP	0.013	D-691		ROSSMOOR
290	287	286	287-286		0.00240	8	320.0	6.83	6.07	12.4	T3425-06	1959	VCP	0.013	D-691		ROSSMOOR
291	288	287	288-287		0.00240	8	319.7	7.60	6.83	13.2	T3425-05	1959	VCP	0.013	D-691		ROSSMOOR
292	289	288	289-288		0.00240	8	100.0	7.94	7.70	13.7	T3425-05	1959	VCP	0.013	D-691		ROSSMOOR
293	290	289	290-289		0.00240	8	66.0	8.10	7.94	13.6	T3425-05	1959	VCP	0.013	D-691	NO AS-BUILT	ROSSMOOR
294	290	291	290-291		0.00240	8	215.0	7.63	7.12	13.8	T3224-18	1957	VCP	0.013	D-375		ROSSMOOR
295	291	255	291-255		0.00240	8	215.0	7.12	6.60	14.6	T3224-18	1957	VCP	0.013	D-375		ROSSMOOR
296	292	337	292-337	Y	0.00200	10	190.8	-4.72	-5.10	9.8	T3224-22	1957	VCP	0.013	D-375		ROSSMOOR
297	293	292	293-292		0.01000	8	304.2	3.85	0.80	9.9	T3425-03	1959	VCP	0.013	D-691		ROSSMOOR
298	294	293	294-293		0.00240	8	315.0	4.60	3.85	10.5	T3425-03	1959	VCP	0.013	D-691		ROSSMOOR
299	295	294	295-294		0.00240	8	315.0	5.96	4.60	11.7	T3425-03	1959	VCP	0.013	D-691		ROSSMOOR
300	296	295	296-295		0.00240	8	316.0	6.12	5.96	11.7	T3425-04	1959	VCP	0.013	D-691		ROSSMOOR
301	298	296	298-296		0.00240	8	210.0	6.62	6.12	12.4	T3425-04	1959	VCP	0.013	D-691		ROSSMOOR
302	299	298	299-298		0.00240	8	210.0	7.13	6.62	13.0	T3425-04	1959	VCP	0.013	D-691		ROSSMOOR
303	300	301	300-301		0.00240	8	215.0	8.29	7.77	13.6	T3224-18	1957	VCP	0.013	D-375		ROSSMOOR
304	301	302	301-302		0.00240	8	210.0	7.77	7.27	14.6	T3224-18	1957	VCP	0.013	D-375		ROSSMOOR
305	302	255	302-255		0.00240	8	280.0	7.17	6.50	16.4	T3224-04	1957	VCP	0.013	D-375		ROSSMOOR
306	303	352	303-352		0.00240	8	295.0	1.90	1.19	9.0	T2572-12	1959	VCP	0.013	D-659		ROSSMOOR
307	304	303	304-303		0.00240	8	266.0	2.54	1.90	9.2	T2572-11	1959	VCP	0.013	D-659		ROSSMOOR
308	305	304	305-304		0.00240	8	280.0	3.21	2.54	8.8	T2572-11	1959	VCP	0.013	D-659		ROSSMOOR
309	306	305	306-305		0.00240	8	240.0	3.79	3.21	9.3	T2572-11	1959	VCP	0.013	D-659		ROSSMOOR
310	307	306	307-306		0.00240	8	350.0	4.63	3.79	10.0	T2572-11	1959	VCP	0.013	D-659		ROSSMOOR
311	308	306	308-306		0.00240	8	279.7	4.56	3.89	10.0	T2572-12	1959	VCP	0.013	D-659		ROSSMOOR
312	309	308	309-308		0.00240	8	234.9	5.22	4.66	10.4	T2572-13	1959	VCP	0.013	D-659		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
313	310	303	310-303		0.00240	8	233.7	2.55	2.00	9.5	T2572-14	1959	VCP	0.013	D-659		ROSSMOOR
314	310A	310	310A-310		0.00240	8	50.0	2.78	2.90	9.5	T2572-14	1959	VCP	0.013	D-659		ROSSMOOR
315	310B	310A	310B-310A		0.00240	8	265.9	3.42	2.78	10.0	T3477-01	1959	VCP	0.013	D-700		ROSSMOOR
316	310C	310D	310C-310D		0.00240	8	110.0	4.52	4.25	10.2	T3477-01	1959	VCP	0.013	D-700		ROSSMOOR
317	310D	310B	310D-310B		0.00240	8	350.0	4.25	3.42	10.3	T3477-01	1959	VCP	0.013	D-700		ROSSMOOR
318	311	310A	311-310A		0.00240	8	278.0	3.45	2.78	10.1	T2572-14	1959	VCP	0.013	D-659	MH NOT SHOWN ON PLANS	ROSSMOOR
319	311C	311	311C-311		0.00240	8	119.5	3.64	3.35	10.2	T2572-14	1959	VCP	0.013	D-659		ROSSMOOR
320	312	311	312-311		0.00240	8	350.0	4.29	3.45	10.6	T2572-10	1959	VCP	0.013	D-659		ROSSMOOR
321	313	312	313-312		0.00240	8	350.0	5.13	4.29	10.8	T2572-10	1959	VCP	0.013	D-659		ROSSMOOR
322	314	313	314-313		0.00240	8	330.9	5.92	5.13	11.0	T2572-10	1959	VCP	0.013	D-659		ROSSMOOR
323	314C	314	314C-314		0.00240	8	114.2	6.30	6.02	11.0	T2572-13	1959	VCP	0.013	D-659		ROSSMOOR
324	316	365	316-365		0.00240	8	285.0	3.29	2.61	10.6	T2572-08	1959	VCP	0.013	D-659		ROSSMOOR
325	317	316	317-316		0.00420	8	350.0	4.86	3.39	11.2	T2572-08	1959	VCP	0.013	D-659		ROSSMOOR
326	318	317	318-317		0.00240	8	330.0	5.70	4.86	11.6	T2572-08	1959	VCP	0.013	D-659		ROSSMOOR
327	319	316	319-316		0.00240	8	279.6	4.06	3.39	11.4	T2572-14	1959	VCP	0.013	D-659		ROSSMOOR
328	319A	318	319A-318		0.00240	8	330.9	6.50	5.70	11.5	T2572-08	1959	VCP	0.013	D-659		ROSSMOOR
329	319C	319A	319C-319A		0.00240	8	85.0	6.70	6.50	12.8	T2572-08	1959	VCP	0.013	D-659		ROSSMOOR
330	320	319	320-319		0.00240	8	340.0	4.97	4.16	11.8	T2572-07	1959	VCP	0.013	D-659		ROSSMOOR
331	321	320	321-320		0.00240	8	340.0	5.79	4.97	12.4	T2572-07	1959	VCP	0.013	D-659		ROSSMOOR
332	322	321	322-321		0.00240	8	333.0	6.59	5.79	12.0	T2572-07	1959	VCP	0.013	D-659		ROSSMOOR
333	322C	322	322C-322		0.00240	8	130.0	7.00	6.69	11.8	T2572-13	1959	VCP	0.013	D-659		ROSSMOOR
334	323	332A	323-332A	Y	0.00120	18	50.0	-8.66	-8.72	11.0	S109-02	1958	VCP	0.013	D-609		ROSSMOOR
335	324	323	324-323		0.00240	8	223.3	2.86	2.32	9.5	T2572-06	1959	VCP	0.013	D-659		ROSSMOOR
336	325	324	325-324		0.00240	8	231.5	3.42	2.86	9.9	T2572-05	1959	VCP	0.013	D-659		ROSSMOOR
337	326	325	326-325		0.00240	8	350.0	4.26	3.42	10.4	T2572-05	1959	VCP	0.013	D-659		ROSSMOOR
338	327	326	327-326		0.00240	8	350.0	5.10	4.26	11.10	T2572-05	1959	VCP	0.013	D-659		ROSSMOOR
339	327C	327	327C-327		0.00240	8	155.0	5.47	5.10	11.00	T2572-05	1959	VCP	0.013	D-659		ROSSMOOR
340	328	325	328-325		0.00240	8	174.0	3.94	3.52	10.31	T2572-06	1959	VCP	0.013	D-659		ROSSMOOR
341	329	328	329-328		0.00240	8	192.4	4.50	4.04	10.6	T3425-07	1959	VCP	0.013	D-691		ROSSMOOR
342	330	329	330-329		0.00240	8	252.7	5.21	4.60	11.0	T3425-07	1959	VCP	0.013	D-691		ROSSMOOR
343	331	330	331-330		0.00240	8	314.6	5.95	5.21	11.5	T3425-07	1959	VCP	0.013	D-691		ROSSMOOR
344	331C	331	331C-331		0.00240	8	125.0	6.36	6.05	11.4	T3425-07	1959	VCP	0.013	D-691		ROSSMOOR
345	332	333A	332-333A	Y	0.00120	18	120.0	-8.94	-9.08	11.2	S109-02	1958	VCP	0.013	D-609		ROSSMOOR
346	332A	332	332A-332	Y	0.00120	18	180.0	-8.72	-8.94	11.2	S109-02	1958	VCP	0.013	D-609		ROSSMOOR
347	333	334A	333-334A	Y	0.00120	18	140.0	-9.28	-9.44	10.0	S109-02	1958	VCP	0.013	D-609		ROSSMOOR
348	333A	333	333A-333	Y	0.00120	18	163.6	-9.08	-9.28	10.0	S109-02	1958	VCP	0.013	D-609		ROSSMOOR
349	334	334B	334-334B	Y	0.00120	18	21.0	-9.58	-9.61	10.0	S109-01	1958	VCP	0.013	D-609		ROSSMOOR
350	334A	334	334A-334	Y	0.00120	18	113.0	-9.44	-9.58	11.2	S109-01	1958	VCP	0.013	D-609		ROSSMOOR
351	334B	335A	334B-335A	Y	0.00120	18	104.0	-9.61	-9.73	10.0	S109-01	1958	VCP	0.013	D-609		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
352	335	336A	335-336A	Y	0.00120	18	163.0	-9.88	-10.08	10.0	S109-01	1958	VCP	0.013	D-609		ROSSMOOR
353	335A	335	335A-335	Y	0.00120	18	129.0	-9.73	-9.88	10.0	S109-01	1958	VCP	0.013	D-609		ROSSMOOR
354	336	1040	336-1040	Y	0.00200	18	54.0	-10.34	-10.45	12.0	D-587-02	1958	VCP	0.013	D-587	PS PLANS	ROSSMOOR
355	336A	336	336A-336	Y	0.00120	18	141.0	-10.00	-10.24	10.0	S109-01	1958	VCP	0.013	D-609		ROSSMOOR
356	337	336	337-336	Y	0.00200	10	200.0	-5.10	-5.50	10.0	T3224-22	1957	VCP	0.013	D-375		ROSSMOOR
357	338	339	338-339		0.00240	8	264.8	4.60	3.96	19.8	T3019-14	1959	VCP	0.013	D-672		ROSSMOOR
358	339	340	339-340		0.00240	8	327.6	3.86	3.07	9.5	T3019-14	1959	VCP	0.013	D-672		ROSSMOOR
359	340	341	340-341		0.00280	8	314.1	2.88	2.00	8.8	T3019-14	1959	VCP	0.013	D-672		ROSSMOOR
360	341	346	341-346		0.00240	8	321.1	1.90	1.13	8.1	T3019-12	1959	VCP	0.013	D-672		ROSSMOOR
361	342	341	342-341		0.00240	8	232.6	2.56	2.00	8.5	T3019-12	1959	VCP	0.013	D-672		ROSSMOOR
362	343	342	343-342		0.00240	8	280.0	3.23	2.56	9.0	T3019-12	1959	VCP	0.013	D-672		ROSSMOOR
363	344	343	344-343		0.00240	8	232.6	3.79	3.23	9.3	T3019-12	1959	VCP	0.013	D-672		ROSSMOOR
364	345	344	345-344		0.00240	8	350.0	4.73	3.89	10.2	T3019-13	1959	VCP	0.013	D-672		ROSSMOOR
365	345C	345	345C-345		0.00240	8	135.3	5.05	4.73	10.0	T3019-13	1959	VCP	0.013	D-672		ROSSMOOR
366	346	347A	346-347A	Y	0.00240	8	128.4	-1.72	-2.03	7.4	T3019-03	1959	VCP	0.013	D-672		ROSSMOOR
367	347	348	347-348	Y	0.00240	8	193.5	-2.31	-2.60	7.2	T3019-04	1959	VCP	0.013	D-672		ROSSMOOR
368	347A	347	347A-347	Y	0.00240	8	115.0	-2.03	-2.31	7.2	T3019-04	1959	VCP	0.013	D-672		ROSSMOOR
369	348	349	348-349	Y	0.00240	8	302.7	-2.70	-3.43	7.6	T3019-16	1959	VCP	0.013	D-672		ROSSMOOR
370	349	350	349-350	Y	0.00240	8	300.0	-3.43	-4.15	8.0	T3019-16	1959	VCP	0.013	D-672		ROSSMOOR
371	350	351	350-351	Y	0.00400	8	300.0	-4.15	-5.36	8.5	T3019-16	1959	VCP	0.013	D-672		ROSSMOOR
372	351	352	351-352	Y	0.00240	8	300.0	-5.36	-6.08	10.0	T3019-16	1959	VCP	0.013	D-672	T3019-16/T2572-09	ROSSMOOR
373	352	357	352-357	Y	0.00120	18	281.4	-6.91	-7.25	5.5	S109-03	1958	VCP	0.013	D-609		ROSSMOOR
374	353	348	353-348		0.00240	8	278.8	2.17	1.50	8.2	T3019-04	1959	VCP	0.013	D-672		ROSSMOOR
375	354	355	354-355		0.00240	8	305.0	2.64	1.91	8.5	T3019-17	1959	VCP	0.013	D-672		ROSSMOOR
376	355	356	355-356		0.00240	8	280.0	1.91	1.23	9.0	T3019-17	1959	VCP	0.013	D-672		ROSSMOOR
377	356	357	356-357		0.00240	8	295.0	1.23	0.50	9.3	T3019-17	1959	VCP	0.013	D-672	T3019-17/T2572-09	ROSSMOOR
378	357	361	357-361	Y	0.00120	18	279.5	-7.25	-7.59	9.1	S109-03	1958	VCP	0.013	D-609		ROSSMOOR
379	358	353	358-353		0.00240	8	290.0	2.87	2.17	8.6	T3019-04	1959	VCP	0.013	D-672		ROSSMOOR
380	359	360	359-360		0.00240	8	350.0	2.18	1.34	9.0	T3019-18	1959	VCP	0.013	D-672		ROSSMOOR
381	359C	359	359C-359		0.00240	8	125.0	2.48	2.18	8.9	T3019-18	1959	VCP	0.013	D-672		ROSSMOOR
382	360	361	360-361		0.00240	8	350.0	1.34	0.50	9.5	T3019-18	1959	VCP	0.013	D-672	T3019-18/T2572-09	ROSSMOOR
383	361	365	361-365	Y	0.00120	18	279.2	-7.59	-7.93	9.6	S109-03	1958	VCP	0.013	D-609		ROSSMOOR
384	362	367	362-367		0.00240	8	219.5	2.91	2.38	8.3	T3019-04	1959	VCP	0.013	D-672		ROSSMOOR
385	363	364	363-364		0.00600	8	346.0	3.30	1.23	9.0	T3019-19	1959	VCP	0.013	D-672		ROSSMOOR
386	364	365	364-365		0.00240	8	305.0	1.23	0.50	9.8	T3019-19	1959	VCP	0.013	D-672	T3019-19/T2572-09	ROSSMOOR
387	365	366	365-366	Y	0.00120	18	344.2	-7.93	-8.34	10.1	S109-02	1958	VCP	0.013	D-609		ROSSMOOR
388	366	323	366-323	Y	0.00120	18	267.9	-8.34	-8.66	9.5	S109-02	1958	VCP	0.013	D-609		ROSSMOOR
389	367	368	367-368		0.00240	8	322.8	2.28	1.51	8.2	T3019-04	1959	VCP	0.013	D-672	T3019-04/05	ROSSMOOR
390	368	369	368-369		0.00240	8	349.1	1.51	0.67	8.8	T3019-05	1959	VCP	0.013	D-672		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
391	369	370	369-370		0.00240	8	185.0	0.57	0.13	9.4	T3019-05	1959	VCP	0.013	D-672		ROSSMOOR
392	370	371	370-371		0.00800	8	203.1	0.13	-1.49	9.0	T3019-05	1959	VCP	0.013	D-672		ROSSMOOR
393	371	323	371-323		0.00240	8	168.5	-1.59	-2.00	8.7	T3019-08	1959	VCP	0.013	D-672	T3019-08/T2572-06	ROSSMOOR
394	372	369	372-369		0.00240	8	201.6	4.00	3.52	10.0	T3019-09	1959	VCP	0.013	D-672		ROSSMOOR
395	373	387	373-387		0.00240	8	305.5	4.09	3.35	10.3	T3019-02	1959	VCP	0.013	D-672		ROSSMOOR
396	374	375	374-375	Y	0.00240	8	350.0	4.90	4.06	10.9	T3019-06	1959	VCP	0.013	D-672		ROSSMOOR
397	374C	374	374C-374		0.00240	8	83.2	5.10	4.90	10.8	T3019-06	1959	VCP	0.013	D-672		ROSSMOOR
398	375	376	375-376	Y	0.00520	8	350.0	4.06	2.24	11.5	T3019-06	1959	VCP	0.013	D-672		ROSSMOOR
399	376	377	376-377	Y	0.00240	8	350.0	2.24	1.40	12.0	T3019-06	1959	VCP	0.013	D-672	T3019-06/T2572-20	ROSSMOOR
400	377	391	377-391	Y	0.00120	15	280.0	-4.56	-4.90	11.5	S109-05	1958	VCP	0.013	D-609		ROSSMOOR
401	378	377	378-377	Y	0.00240	8	300.0	5.47	4.75	11.8	T2572-19	1959	VCP	0.013	D-659	T2572-19/20	ROSSMOOR
402	379	378	379-378	Y	0.00240	8	300.0	6.18	5.47	12.3	T2572-19	1959	VCP	0.013	D-659		ROSSMOOR
403	380	379	380-379	Y	0.00240	8	335.0	7.00	6.18	12.8	T2572-19	1959	VCP	0.013	D-659		ROSSMOOR
404	381	380	381-380	Y	0.00240	8	335.0	7.80	7.00	12.7	T2572-19	1959	VCP	0.013	D-659		ROSSMOOR
405	382	394	382-394		0.00240	8	280.0	5.51	4.84	12.8	T3224-08	1957	VCP	0.013	D-375		ROSSMOOR
406	382A	382	382A-382		0.00240	8	70.0	5.78	5.61	12.6	T3224-06	1957	VCP	0.013	D-375		ROSSMOOR
407	383	382	383-382		0.00240	8	270.0	6.26	5.61	13.0	T3224-06	1957	VCP	0.013	D-375		ROSSMOOR
408	384	383	384-383		0.00240	8	270.0	6.91	6.26	13.6	T3224-06	1957	VCP	0.013	D-375		ROSSMOOR
409	385	384	385-384		0.00240	8	270.0	7.55	6.91	13.8	T3224-06	1957	VCP	0.013	D-375		ROSSMOOR
410	386	385	386-385		0.00240	8	270.0	8.20	7.55	13.2	T3224-06	1957	VCP	0.013	D-375		ROSSMOOR
411	387	399	387-399		0.00240	8	350.0	3.25	2.41	10.8	T3019-02	1959	VCP	0.013	D-672		ROSSMOOR
412	388	400	388-400		0.00240	8	294.9	6.02	5.31	11.3	T3019-15	1959	VCP	0.013	D-672		ROSSMOOR
413	389	390	389-390	Y	0.00800	8	350.0	5.04	2.24	11.9	T3019-07	1959	VCP	0.013	D-672		ROSSMOOR
414	389C	389	389C-389		0.00800	8	105.0	5.88	5.04	11.8	T3019-07	1959	VCP	0.013	D-672		ROSSMOOR
415	390	391	390-391	Y	0.00240	8	350.0	2.24	1.40	11.6	T3019-07	1959	VCP	0.013	D-672	T3019-07/T2572-20	ROSSMOOR
416	391	404	391-404	Y	0.00120	15	280.0	-4.90	-5.24	10.9	S109-05	1958	VCP	0.013	D-609		ROSSMOOR
417	392	391	392-391	Y	0.00240	8	337.0	6.10	5.26	11.7	T2572-20	1959	VCP	0.013	D-659		ROSSMOOR
418	393	406	393-406		0.00240	8	350.0	6.11	5.27	11.4	T2572-18	1959	VCP	0.013	D-659		ROSSMOOR
419	394	409	394-409		0.00240	8	280.0	4.84	4.17	13.4	T3224-08	1957	VCP	0.013	D-375		ROSSMOOR
420	395	396	395-396		0.00240	8	350.0	7.05	6.21	12.4	T3224-07	1957	VCP	0.013	D-375		ROSSMOOR
421	396	397	396-397		0.00240	8	350.0	6.21	5.37	12.2	T3224-07	1957	VCP	0.013	D-375		ROSSMOOR
422	397	412	397-412		0.00240	8	197.3	5.27	4.80	11.4	T3224-09	1957	VCP	0.013	D-375		ROSSMOOR
423	398	397	398-397		0.00240	8	230.0	5.37	5.92	11.6	T3224-07	1957	VCP	0.013	D-375		ROSSMOOR
424	399	413	399-413		0.00240	8	350.0	2.41	1.57	10.3	T3019-02	1959	VCP	0.013	D-672		ROSSMOOR
425	400	414	400-414		0.00240	8	350.0	5.31	4.47	11.0	T3019-15	1959	VCP	0.013	D-672		ROSSMOOR
426	401	402	401-402	Y	0.00240	8	266.9	4.22	3.58	11.5	T3019-08	1959	VCP	0.013	D-672		ROSSMOOR
427	402	403	402-403	Y	0.00800	8	287.0	3.58	1.28	11.2	T3019-08	1959	VCP	0.013	D-672		ROSSMOOR
428	403	404	403-404	Y	0.00240	8	201.5	1.28	0.80	10.8	T3019-08	1959	VCP	0.013	D-672	T3019-08/T2572-18	ROSSMOOR
429	404	418	404-418	Y	0.00120	15	280.0	-5.24	-5.57	10.3	S109-04	1958	VCP	0.013	D-609		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
430	405	404	405-404	Y	0.00240	8	285.0	4.41	3.72	10.5	T2572-17	1959	VCP	0.013	D-659		ROSSMOOR
431	406	405	406-405	Y	0.00240	8	315.0	5.17	4.41	10.9	T2572-17	1959	VCP	0.013	D-659		ROSSMOOR
432	407	406	407-406		0.00240	8	350.0	6.01	5.17	11.5	T2572-17	1959	VCP	0.013	D-659		ROSSMOOR
433	408	407	408-407		0.00240	8	325.0	6.78	6.01	11.8	T2572-17	1959	VCP	0.013	D-659		ROSSMOOR
434	409	410	409-410		0.00240	8	280.0	4.07	3.40	10.8	T3224-09	1957	VCP	0.013	D-375		ROSSMOOR
435	409A	409	409A-409		0.00240	8	54.5	4.20	4.07	11.8	T3224-09	1957	VCP	0.013	D-375		ROSSMOOR
436	410	442	410-442		0.00240	8	171.9	3.30	2.89	11.2	T3224-10	1957	VCP	0.013	D-375		ROSSMOOR
437	411	410	411-410		0.00240	8	351.0	4.24	3.40	11.6	T3224-09	1957	VCP	0.013	D-375		ROSSMOOR
438	412	411	412-411		0.00240	8	232.3	4.80	4.24	11.9	T3224-09	1957	VCP	0.013	D-375		ROSSMOOR
439	413	430	413-430		0.00240	8	350.0	1.57	0.73	9.7	T3019-02	1959	VCP	0.013	D-672	T3019-02/03	ROSSMOOR
440	414	421	414-421		0.00240	8	350.0	4.47	3.63	0.6	T3019-14	1959	VCP	0.013	D-672	T3019-14/15	ROSSMOOR
441	415	401	415-401		0.00240	8	307.4	5.06	4.32	11.0	T3019-09	1959	VCP	0.013	D-672		ROSSMOOR
442	415C	415	415C-415		0.00240	8	80.0	5.25	5.06	10.8	T3019-09	1959	VCP	0.013	D-672		ROSSMOOR
443	416	417	416-417		0.01000	8	350.0	4.83	1.33	10.8	T3019-10	1959	VCP	0.013	D-672		ROSSMOOR
444	417	418	417-418		0.00240	8	220.5	1.33	0.80	10.2	T3019-10	1959	VCP	0.013	D-672		ROSSMOOR
445	418	424	418-424	Y	0.00120	15	280.0	-5.57	-5.91	9.7	S109-04	1958	VCP	0.013	D-609		ROSSMOOR
446	419	425	419-425		0.00240	8	350.0	2.88	2.04	10.0	T2572-16	1959	VCP	0.013	D-659		ROSSMOOR
447	420	427	420-427		0.00240	8	165.7	3.62	3.22	10.9	T2572-16	1959	VCP	0.013	D-659		ROSSMOOR
448	421	422	421-422		0.00240	8	329.0	3.53	2.74	9.9	T3019-11	1959	VCP	0.013	D-672		ROSSMOOR
449	422	423	422-423		0.00600	8	350.0	2.74	0.64	10.5	T3019-11	1959	VCP	0.013	D-672		ROSSMOOR
450	423	424	423-424		0.00240	8	350.0	0.64	-0.20	10.0	T3019-11	1959	VCP	0.013	D-672	T3019-11/T2572-22	ROSSMOOR
451	424	433	424-433	Y	0.00120	15	238.0	-5.91	-6.20	9.2	S109-04	1958	VCP	0.013	D-609		ROSSMOOR
452	425	434	425-434		0.00240	8	308.0	2.04	1.30	9.5	T2572-16	1959	VCP	0.013	D-659		ROSSMOOR
453	426	425	426-425		0.00240	8	207.4	2.63	2.14	10.0	T2572-21	1959	VCP	0.013	D-659		ROSSMOOR
454	427	426	427-426		0.00240	8	200.7	3.22	2.74	10.3	T2572-21	1959	VCP	0.013	D-659		ROSSMOOR
455	428	427	428-427		0.00240	8	198.8	3.59	3.12	10.6	T2572-21	1959	VCP	0.013	D-659		ROSSMOOR
456	428C	428	428C-428		0.00240	8	171.1	4.10	3.69	11.0	T2572-21	1959	VCP	0.013	D-659		ROSSMOOR
457	429	439	429-439		0.00240	8	208.7	4.61	4.11	10.2	T2572-22	1959	VCP	0.013	D-659		ROSSMOOR
458	429C	429	429C-429		0.00240	8	105.4	4.86	4.61	10.4	T2572-22	1959	VCP	0.013	D-659		ROSSMOOR
459	430	431	430-431		0.00240	8	350.0	0.73	-0.09	9.0	T3019-03	1959	VCP	0.013	D-672		ROSSMOOR
460	431	432	431-432	Y	0.00240	8	305.4	-0.09	-0.83	8.5	T3019-03	1959	VCP	0.013	D-673		ROSSMOOR
461	432	346	432-346	Y	0.00240	8	327.2	-0.83	-1.62	8.2	T3019-03	1959	VCP	0.013	D-674		ROSSMOOR
462	433	435	433-435	Y	0.00120	18	324.0	-6.20	-6.58	8.8	S109-04	1958	VCP	0.013	D-609		ROSSMOOR
463	434	433	434-433		0.00240	8	285.0	1.18	0.50	9.0	T2572-22	1959	VCP	0.013	D-659		ROSSMOOR
464	435	352	435-352	Y	0.00120	18	278.7	-6.58	-6.91	5.9	S109-03	1958	VCP	0.013	D-609		ROSSMOOR
465	436	434	436-434		0.00240	8	102.6	1.55	1.30	8.9	T2572-16	1959	VCP	0.013	D-659		ROSSMOOR
466	437	436	437-436		0.00240	8	311.6	2.40	1.65	9.0	T2572-15	1959	VCP	0.013	D-659		ROSSMOOR
467	438	437	438-437		0.00240	8	350.0	3.24	2.40	9.6	T2572-15	1959	VCP	0.013	D-659		ROSSMOOR
468	439	438	439-438		0.00240	8	320.0	4.01	3.24	10.1	T2572-15	1959	VCP	0.013	D-659		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
469	439C	439	439C-439		0.00240	8	33.0	4.09	4.01	10.0	T2572-15	1959	VCP	0.013	D-659		ROSSMOOR
470	440	441	440-441		0.00240	8	215.0	3.91	3.39	9.8	T3224-10	1957	VCP	0.013	D-375		ROSSMOOR
471	441	442	441-442		0.00240	8	210.0	3.39	2.89	10.0	T3224-10	1957	VCP	0.013	D-375		ROSSMOOR
472	442	443	442-443		0.00240	8	224.3	2.79	2.25	14.2	T3224-05	1957	VCP	0.013	D-375		ROSSMOOR
473	443	258	443-258		0.00240	8	153.9	2.25	1.88	11.0	T3224-05	1957	VCP	0.013	D-375		ROSSMOOR
474	444	445	444-445	Y	0.00240	8	302.4	2.77	2.05	10.7	T3189-17	1956	VCP	0.013	D-336		ROSSMOOR
475	444C	444	444C-444		0.00240	8	100.0	3.11	2.87	10.4	T3189-03	1956	VCP	0.013	D-336		ROSSMOOR
476	445	446	445-446	Y	0.00240	8	303.0	2.05	1.32	11.2	T3189-17	1956	VCP	0.013	D-336		ROSSMOOR
477	446	447	446-447	Y	0.00240	8	302.0	1.32	0.60	11.7	T3189-18	1956	VCP	0.013	D-336		ROSSMOOR
478	447	448	447-448	Y	0.00240	8	303.0	0.60	-0.13	11.8	T3189-18	1956	VCP	0.013	D-336		ROSSMOOR
479	448	377	448-377	Y	0.00120	15	310.0	-3.89	-4.56	10.0	S109-05	1958	VCP	0.013	D-609	GRADE BREAK	ROSSMOOR
480	449	448	449-448	Y	0.00240	8	285.0	0.56	-0.13	11.8	T3189-18	1956	VCP	0.013	D-336		ROSSMOOR
481	450	449	450-449	Y	0.00240	8	280.0	1.23	0.56	12.2	T3189-18	1956	VCP	0.013	D-336		ROSSMOOR
482	451	450	451-450	Y	0.00240	8	280.0	1.90	1.23	11.8	T3189-18	1956	VCP	0.013	D-336		ROSSMOOR
483	452	451	452-451	Y	0.00240	8	280.0	2.58	1.90	12.2	T3189-19	1956	VCP	0.013	D-336		ROSSMOOR
484	453	452	453-452	Y	0.00240	8	280.0	3.25	2.58	12.4	T3189-19	1956	VCP	0.013	D-336		ROSSMOOR
485	454	453	454-453	Y	0.00240	8	309.6	3.99	3.25	12.6	T3189-19	1956	VCP	0.013	D-336		ROSSMOOR
486	455	454	455-454		0.00240	8	280.0	4.66	3.99	12.0	T3072-08	1956	VCP	0.013	D-317		ROSSMOOR
487	456	455	456-455		0.00240	8	280.0	5.33	4.66	12.6	T3072-08	1956	VCP	0.013	D-317		ROSSMOOR
488	457	456	457-456		0.00240	8	290.0	6.03	5.33	12.9	T3072-08	1956	VCP	0.013	D-317		ROSSMOOR
489	458	444	458-444		0.00240	8	280.0	3.55	2.87	11.1	T3189-03	1956	VCP	0.013	D-336		ROSSMOOR
490	458C	458	458C-458		0.00240	8	180.0	3.98	3.55	11.6	T3189-03	1956	VCP	0.013	D-336		ROSSMOOR
491	459	458	459-458		0.00240	8	233.0	4.21	3.65	11.8	T3189-15	1956	VCP	0.013	D-336		ROSSMOOR
492	460	459	460-459		0.00240	8	233.0	4.77	4.21	12.0	T3189-15	1956	VCP	0.013	D-336		ROSSMOOR
493	461	460	461-460		0.00240	8	233.0	5.33	4.77	12.4	T3189-15	1956	VCP	0.013	D-336		ROSSMOOR
494	462	461	462-461		0.00240	8	236.4	5.89	5.33	12.9	T3189-15	1956	VCP	0.013	D-336		ROSSMOOR
495	464	449	464-449		0.00240	8	257.0	4.87	4.25	12.3	T3189-05	1956	VCP	0.013	D-336		ROSSMOOR
496	465	450	465-450		0.00240	8	260.0	5.15	4.52	12.7	T3189-06	1956	VCP	0.013	D-336		ROSSMOOR
497	466	451	466-451		0.00240	8	303.0	4.73	4.01	12.1	T3189-07	1956	VCP	0.013	D-336		ROSSMOOR
498	467	452	467-452		0.00240	8	310.0	5.82	5.08	12.7	T3189-08	1956	VCP	0.013	D-336		ROSSMOOR
499	468	453	468-453		0.00240	8	350.0	4.19	3.35	13.3	T3189-09	1956	VCP	0.013	D-336		ROSSMOOR
500	469	454	469-454		0.00240	8	267.0	4.72	4.09	12.4	T3072-02	1956	VCP	0.013	D-317		ROSSMOOR
501	470	469	470-469		0.00400	8	258.0	5.85	4.82	12.8	T3072-07	1956	VCP	0.013	D-317		ROSSMOOR
502	471	470	471-470		0.00400	8	260.0	6.88	5.85	13.2	T3072-07	1956	VCP	0.013	D-317		ROSSMOOR
503	472	471	472-471		0.00400	8	260.0	7.91	6.88	13.6	T3072-07	1956	VCP	0.013	D-317		ROSSMOOR
504	473	506	473-506		0.00240	8	280.0	4.17	3.50	11.9	T3189-03	1956	VCP	0.013	D-336		ROSSMOOR
505	474	473	474-473		0.00240	8	265.0	4.90	4.27	12.1	T3189-14	1956	VCP	0.013	D-336		ROSSMOOR
506	475	474	475-474		0.00240	8	265.0	5.54	4.90	12.5	T3189-14	1956	VCP	0.013	D-336		ROSSMOOR
507	476	475	476-475		0.00240	8	266.7	6.18	5.54	13.0	T3189-14	1956	VCP	0.013	D-336		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
508	477	462	477-462		0.00240	8	211.0	6.50	5.99	13.4	T3189-02	1956	VCP	0.013	D-336		ROSSMOOR
509	478	483	478-483	Y	0.00200	12	280.0	-2.77	-3.33	12.4	T3189-04	1956	VCP	0.013	D-336		ROSSMOOR
510	479	464	479-464		0.00240	8	257.0	5.48	4.87	12.7	T3189-05	1956	VCP	0.013	D-336		ROSSMOOR
511	480	465	480-465		0.00240	8	260.0	5.77	5.15	13.1	T3189-06	1956	VCP	0.013	D-336		ROSSMOOR
512	481	466	481-466		0.00240	8	303.3	5.46	4.73	12.7	T3189-07	1956	VCP	0.013	D-336		ROSSMOOR
513	482	467	482-467		0.00240	8	309.9	6.57	5.82	13.2	T3189-08	1956	VCP	0.013	D-336		ROSSMOOR
514	483	448	483-448	Y	0.00200	12	280.0	-3.33	-3.89	11.8	T3189-04	1956	VCP	0.013	D-336		ROSSMOOR
515	483A	468	483A-468		0.00240	8	350.0	5.03	4.19	13.3	T3189-09	1956	VCP	0.013	D-336		ROSSMOOR
516	484	485	484-485		0.00240	8	265.0	6.00	5.36	13.2	T3072-02	1956	VCP	0.013	D-317		ROSSMOOR
517	485	469	485-469		0.00240	8	270.0	5.36	4.72	13.0	T3072-02	1956	VCP	0.013	D-317		ROSSMOOR
518	486	485	486-485		0.00400	8	258.0	6.49	5.46	13.4	T3072-06	1956	VCP	0.013	D-317		ROSSMOOR
519	487	486	487-486		0.00400	8	258.0	7.52	6.49	13.8	T3072-06	1956	VCP	0.013	D-317		ROSSMOOR
520	488	487	488-487		0.00400	8	260.0	8.55	7.52	14.2	T3072-06	1956	VCP	0.013	D-317		ROSSMOOR
521	489	484	489-484		0.00240	8	280.0	6.77	6.10	13.2	T3072-04	1956	VCP	0.013	D-317		ROSSMOOR
522	490	489	490-489		0.00240	8	245.0	7.36	6.77	13.6	T3072-04	1956	VCP	0.013	D-317		ROSSMOOR
523	491	490	491-490		0.00240	8	250.0	7.95	7.36	14.0	T3072-04	1956	VCP	0.013	D-317		ROSSMOOR
524	492	481	492-481		0.00240	8	350.0	6.40	5.56	13.4	T3189-07	1956	VCP	0.013	D-336		ROSSMOOR
525	492A	492	492A-492		0.00240	8	124.0	6.70	6.40	13.6	T3189-07	1956	VCP	0.013	D-336		ROSSMOOR
526	493	494	493-494		0.00240	8	181.5	8.22	7.79	14.4	T3129-06	1956	VCP	0.013	D-322		ROSSMOOR
527	494	495	494-495		0.00240	8	141.0	7.79	7.45	13.8	T3129-06	1956	VCP	0.013	D-322		ROSSMOOR
528	495	489	495-489		0.00240	8	198.8	7.35	6.87	13.6	T3072-06	1956	VCP	0.013	D-317	T3072-06/T3129-06	ROSSMOOR
529	496	497	496-497		0.00240	8	300.0	8.33	7.61	13.8	T3129-11	1956	VCP	0.013	D-322		ROSSMOOR
530	497	498	497-498		0.00240	8	302.3	7.61	6.88	14.2	T3129-11	1956	VCP	0.013	D-322		ROSSMOOR
531	498	484	498-484		0.00240	8	323.0	6.78	6.00	13.5	T3129-11	1956	VCP	0.013	D-322		ROSSMOOR
532	499	483A	499-483A		0.00240	8	283.8	5.71	5.03	13.8	T3189-09	1956	VCP	0.013	D-336		ROSSMOOR
533	499C	499	499C-499		0.00240	8	95.8	5.94	5.71	13.9	T3189-10	1956	VCP	0.013	D-336		ROSSMOOR
534	500	501	500-501		0.00240	8	350.0	7.20	6.36	14.2	T3189-16	1956	VCP	0.013	D-336		ROSSMOOR
535	501	502	501-502	Y	0.00240	8	333.0	6.36	5.56	14.4	T3189-16	1956	VCP	0.013	D-336		ROSSMOOR
536	502	512	502-512	Y	0.00240	8	333.0	5.56	4.76	13.9	T3189-16	1956	VCP	0.013	D-336		ROSSMOOR
537	503	480	503-480		0.00240	8	262.0	6.40	5.77	13.5	T3189-06	1956	VCP	0.013	D-336		ROSSMOOR
538	505	510	505-510		0.00240	8	201.0	6.43	5.94	13.4	T3189-02	1956	VCP	0.013	D-336		ROSSMOOR
539	506	513	506-513		0.00640	8	300.8	3.50	1.58	11.3	T3189-03	1956	VCP	0.013	D-336		ROSSMOOR
540	507	506	507-506		0.00240	8	236.4	4.17	3.60	11.8	T3189-13	1956	VCP	0.013	D-336		ROSSMOOR
541	508	507	508-507		0.00240	8	233.0	4.73	4.17	12.0	T3189-13	1956	VCP	0.013	D-336		ROSSMOOR
542	509	508	509-508		0.00240	8	233.0	5.28	4.73	12.3	T3189-13	1956	VCP	0.013	D-336		ROSSMOOR
543	510	509	510-509		0.00240	8	233.0	5.84	5.28	12.9	T3189-13	1956	VCP	0.013	D-336		ROSSMOOR
544	511	478	511-478	Y	0.00200	12	280.0	-2.21	-2.77	12.9	T3189-04	1956	VCP	0.013	D-336		ROSSMOOR
545	512	511	512-511	Y	0.00240	8	348.5	4.76	3.92	13.4	T3189-16	1956	VCP	0.013	D-336		ROSSMOOR
546	513	514	513-514	Y	0.00240	8	195.4	1.50	1.03	10.8	T3189-11	1956	VCP	0.013	D-336		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
547	514	515	514-515	Y	0.00240	8	195.0	1.03	0.56	10.8	T3189-11	1956	VCP	0.013	D-336		ROSSMOOR
548	515	516	515-516	Y	0.00240	8	280.0	0.56	-0.11	11.2	T3189-11	1956	VCP	0.013	D-336		ROSSMOOR
549	516	517	516-517	Y	0.00240	8	186.3	-0.11	-0.56	11.7	T3189-11	1956	VCP	0.013	D-336		ROSSMOOR
550	517	518	517-518	Y	0.00240	8	274.2	-0.56	-1.22	12.1	T3189-11	1956	VCP	0.013	D-336		ROSSMOOR
551	518	511	518-511	Y	0.00200	12	280.0	-1.65	-2.21	12.6	T3189-04	1956	VCP	0.013	D-336		ROSSMOOR
552	519	518	519-518	Y	0.00200	10	305.0	-0.77	-1.38	13.2	T3189-12	1956	VCP	0.013	D-336		ROSSMOOR
553	520	519	520-519	Y	0.00200	10	331.0	-0.11	-0.77	13.8	T3189-12	1956	VCP	0.013	D-336		ROSSMOOR
554	522	520	522-520	Y	0.00200	10	280.5	0.45	-0.11	14.2	T3189-12	1956	VCP	0.013	D-336		ROSSMOOR
555	522A	533	522A-533		0.00240	8	265.0	8.00	7.36	14.6	T3129-09	1956	VCP	0.013	D-322		ROSSMOOR
556	523	522	523-522	Y	0.00200	10	305.0	1.06	0.45	14.7	T3189-12	1956	VCP	0.013	D-336		ROSSMOOR
557	524	523	524-523	Y	0.00200	10	358.0	1.77	1.06	15.2	T3189-10	1956	VCP	0.013	D-336	T3189-10/T3129-13	ROSSMOOR
558	525	524	525-524	Y	0.00200	10	356.0	2.48	1.77	14.9	T3129-13	1956	VCP	0.013	D-322		ROSSMOOR
559	526	529	526-529		0.00240	8	121.0	9.50	9.21	15.0	T3129-18	1956	VCP	0.013	D-322		ROSSMOOR
560	527	500	527-500		0.00240	8	265.0	7.83	7.20	14.6	T3189-08	1956	VCP	0.013	D-336	T3189-08/T3129-10	ROSSMOOR
561	528	527	528-527		0.00240	8	265.0	8.47	7.83	15.1	T3129-10	1956	VCP	0.013	D-322		ROSSMOOR
562	529	528	529-528		0.00240	8	264.0	9.10	8.47	15.6	T3129-10	1956	VCP	0.013	D-322		ROSSMOOR
563	530	525	530-525	Y	0.00200	10	356.0	3.20	2.48	14.3	T3129-13	1956	VCP	0.013	D-322		ROSSMOOR
564	531	530	531-530	Y	0.00800	8	286.0	5.76	3.45	13.7	T3129-10	1956	VCP	0.013	D-322	T3129-10/09	ROSSMOOR
565	532	978	532-978		0.00240	8	266.0	7.16	6.43	14.3	T3129-09	1956	VCP	0.013	D-322		ROSSMOOR
566	533	532	533-532		0.00240	8	123.8	7.36	7.06	14.5	T3129-09	1956	VCP	0.013	D-322		ROSSMOOR
567	534	532	534-532		0.00247	8	185.0	7.60	7.16	14.4	T3129-18	1956	VCP	0.013	D-322		ROSSMOOR
568	535	536	535-536		0.00240	8	223.7	9.53	8.99	15.2	T3129-18	1956	VCP	0.013	D-322		ROSSMOOR
569	536	537	536-537		0.00240	8	224.0	8.99	8.45	15.6	T3129-08	1956	VCP	0.013	D-322		ROSSMOOR
570	537	538	537-538		0.00240	8	127.1	8.45	8.15	15.2	T3129-08	1956	VCP	0.013	D-322		ROSSMOOR
571	538	534	538-534		0.00240	8	185.0	8.05	7.60	14.8	T3129-18	1956	VCP	0.013	D-322		ROSSMOOR
572	538C	538	538C-538		0.00240	8	85.0	8.25	8.05	15.0	T3129-18	1956	VCP	0.013	D-322		ROSSMOOR
573	539	542	539-542		0.00240	8	291.0	10.76	10.06	15.8	T3129-07	1956	VCP	0.013	D-322		ROSSMOOR
574	540	544	540-544		0.00240	8	283.0	10.50	9.82	16.3	T3129-05	1956	VCP	0.013	D-322		ROSSMOOR
575	541	547	541-547		0.00240	8	351.0	12.00	11.16	18.5	T3129-04	1956	VCP	0.013	D-322		ROSSMOOR
576	542	543	542-543		0.00240	8	291.0	10.06	9.36	15.8	T3129-07	1956	VCP	0.013	D-322		ROSSMOOR
577	543	552	543-552		0.00240	8	291.0	9.36	8.66	15.4	T3129-07	1956	VCP	0.013	D-322		ROSSMOOR
578	544	545	544-545		0.00240	8	283.0	9.82	9.14	16.8	T3129-05	1956	VCP	0.013	D-322		ROSSMOOR
579	545	546	545-546		0.00240	8	283.0	9.14	8.46	16.4	T3129-05	1956	VCP	0.013	D-322		ROSSMOOR
580	546	554	546-554		0.00240	8	283.0	8.46	7.78	16.0	T3129-05	1956	VCP	0.013	D-322		ROSSMOOR
581	547	548	547-548		0.00240	8	350.0	11.16	10.32	18.4	T3129-04	1956	VCP	0.013	D-322		ROSSMOOR
582	548	549	548-549		0.00240	8	350.0	10.32	9.48	17.3	T3129-04	1956	VCP	0.013	D-322		ROSSMOOR
583	549	555	549-555		0.00480	8	347.0	9.48	7.81	17.2	T3129-04	1956	VCP	0.013	D-322	T3129-04/08	ROSSMOOR
584	550	978	550-978		0.00240	8	269.8	7.18	6.53	14.0	T3129-12	1956	VCP	0.013	D-322		ROSSMOOR
585	551	550	551-550		0.00240	8	270.0	7.82	7.18	14.4	T3129-12	1956	VCP	0.013	D-322		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
586	552	551	552-551		0.00240	8	305.6	8.56	7.82	15.0	T3129-12	1956	VCP	0.013	D-322		ROSSMOOR
587	553	552	553-552		0.00240	8	131.0	8.87	8.56	15.0	T3129-12	1956	VCP	0.013	D-322		ROSSMOOR
588	554	560	554-560		0.00240	8	283.0	7.78	7.10	15.1	T3129-05	1956	VCP	0.013	D-322	T3129-05/06	ROSSMOOR
589	555	560	555-560		0.00240	8	276.5	7.66	7.00	17.0	T3129-16	1956	VCP	0.013	D-322		ROSSMOOR
590	556	531	556-531		0.00240	8	296.8	6.57	5.86	14.0	T3129-17	1956	VCP	0.013	D-322		ROSSMOOR
591	557	556	557-556		0.00240	8	297.0	7.28	6.57	14.4	T3129-17	1956	VCP	0.013	D-322		ROSSMOOR
592	558	557	558-557		0.00240	8	264.0	7.92	7.28	14.8	T3129-17	1956	VCP	0.013	D-322		ROSSMOOR
593	559	558	559-558		0.00240	8	263.9	8.55	7.92	15.3	T3129-17	1956	VCP	0.013	D-322		ROSSMOOR
594	560	561	560-561		0.00240	8	346.7	7.00	6.17	16.1	T3129-16	1956	VCP	0.013	D-322		ROSSMOOR
595	561	562	561-562	Y	0.00240	8	347.0	6.17	5.34	16.0	T3129-16	1956	VCP	0.013	D-322		ROSSMOOR
596	562	564	562-564	Y	0.00240	8	144.9	5.34	4.99	15.4	T3129-16	1956	VCP	0.013	D-322		ROSSMOOR
597	563	530	563-530	Y	0.00240	8	338.0	4.17	3.36	14.9	T3129-13	1956	VCP	0.013	D-322	T3129-13/14	ROSSMOOR
598	564	563	564-563	Y	0.00240	8	299.5	4.89	4.17	15.5	T3129-14	1956	VCP	0.013	D-322		ROSSMOOR
599	565	564	565-564	Y	0.00240	8	222.8	9.20	8.67	16.0	T3129-14	1956	VCP	0.013	D-322		ROSSMOOR
600	566	565	566-565		0.00720	8	259.0	11.16	9.30	17.0	T3129-15	1956	VCP	0.013	D-322		ROSSMOOR
601	567	566	567-566		0.00720	8	258.0	13.02	11.16	17.7	T3129-15	1956	VCP	0.013	D-322		ROSSMOOR
602	568	567	568-567		0.00720	8	258.0	14.88	13.02	19.3	T3129-15	1956	VCP	0.013	D-322		ROSSMOOR
603	569	568	569-568		0.00240	8	334.0	15.70	14.88	20.1	T3129-15	1956	VCP	0.013	D-322		ROSSMOOR
604	570	530	570-530	Y	0.00240	8	211.8	4.27	3.45	15.0	T3129-10	1957	VCP	0.013	D-370	T3129-10/T3292-08	ROSSMOOR
605	571	570	571-570	Y	0.00280	8	319.7	5.16	4.27	15.4	T3292-08	1957	VCP	0.013	D-370		ROSSMOOR
606	572	571	572-571	Y	0.00280	8	319.7	6.06	5.16	16.0	T3292-08	1957	VCP	0.013	D-370		ROSSMOOR
607	573	572	573-572	Y	0.00280	8	319.7	6.95	6.06	16.2	T3292-08	1957	VCP	0.013	D-370	T3292-08/09	ROSSMOOR
608	574	575	574-575		0.00240	8	276.5	10.78	10.11	16.6	T3292-10	1957	VCP	0.013	D-370		ROSSMOOR
609	575	576	575-576		0.00240	8	85.6	10.11	9.91	17.0	T3292-10	1957	VCP	0.013	D-370		LOS ALAMITOS
610	576	565	576-565	Y	0.00240	8	293.1	10.01	9.30	16.8	T3129-14	1957	VCP	0.013	D-370	T3129-14/T3292-10	ROSSMOOR
611	577	576	577-576		0.00240	8	233.2	10.62	10.06	16.9	T3292-09	1957	VCP	0.013	D-370	T3292-09/T1680-10	ROSSMOOR
612	578	577	578-577		0.00240	8	247.6	11.22	10.62	17.4	T1680-10	1958	VCP	0.013	D-387		ROSSMOOR
613	579	578	579-578		0.00240	8	280.0	11.99	11.32	17.9	T1680-10	1958	VCP	0.013	D-387		ROSSMOOR
614	580	579	580-579		0.00240	8	266.0	12.63	11.99	18.8	T1680-10	1958	VCP	0.013	D-387		ROSSMOOR
615	581	573	581-573		0.00280	8	319.7	7.85	6.95	16.6	T1680-13	1957	VCP	0.013	D-370	T1680-13/T3292-08	ROSSMOOR
616	582	581	582-581		0.00240	8	350.0	8.69	7.85	17.3	T1680-13	1958	VCP	0.013	D-387		ROSSMOOR
617	583	582	583-582		0.00240	8	350.0	9.52	8.69	17.9	T1680-13	1958	VCP	0.013	D-387		ROSSMOOR
618	584	574	584-574		0.00240	8	250.0	11.48	10.88	17.0	T1680-12	1957	VCP	0.013	D-387	T1680-12/T3292-09	ROSSMOOR
619	585	584	585-584		0.00240	8	250.0	12.08	11.48	17.5	T1680-12	1958	VCP	0.013	D-387		ROSSMOOR
620	586	585	586-585		0.00240	8	250.0	12.68	12.08	18.0	T1680-12	1958	VCP	0.013	D-387		ROSSMOOR
621	587	575	587-575		0.00240	8	256.0	10.82	10.21	17.4	T1680-11	1958	VCP	0.013	D-387		ROSSMOOR
622	588	587	588-587		0.00240	8	250.0	11.42	10.82	17.8	T1680-11	1958	VCP	0.013	D-387		ROSSMOOR
623	589	578	589-578		0.00240	8	350.0	12.16	11.32	17.9	T1680-08	1958	VCP	0.013	D-387		ROSSMOOR
624	590	580	590-580		0.00240	8	350.0	13.47	12.63	19.2	T1680-04	1958	VCP	0.013	D-387		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
625	590B	589	590B-589		0.00240	8	350.0	13.00	12.16	18.4	T1680-08	1958	VCP	0.013	D-387		ROSSMOOR
626	590C	590B	590C-590B		0.00240	8	100.0	13.24	13.00	18.6	T1680-08	1958	VCP	0.013	D-387		ROSSMOOR
627	591	583	591-583		0.00240	8	258.3	10.15	9.52	18.4	T1680-13	1958	VCP	0.013	D-387		ROSSMOOR
628	592	591	592-591		0.00240	8	231.3	10.71	10.15	18.4	T1680-13	1958	VCP	0.013	D-387	T1680-13/14	ROSSMOOR
629	593	592	593-592		0.00240	8	294.0	11.53	10.81	18.2	T1680-06	1958	VCP	0.013	D-387	T1680-06/07	ROSSMOOR
630	593C	593	593C-593		0.00240	8	73.4	11.71	11.53	18.4	T1680-06	1958	VCP	0.013	D-387		ROSSMOOR
631	594	595	594-595		0.00240	8	250.0	13.20	12.60	18.5	T1680-06	1958	VCP	0.013	D-387		ROSSMOOR
632	595	579	595-579		0.00240	8	255.0	12.60	11.99	18.4	T1680-06	1958	VCP	0.013	D-387		ROSSMOOR
633	597	590	597-590		0.00240	8	350.0	14.31	13.47	19.7	T1680-04	1958	VCP	0.013	D-387		ROSSMOOR
634	597C	597	597C-597		0.00240	8	98.0	14.55	14.31	20.3	T1680-04	1958	VCP	0.013	D-387		ROSSMOOR
635	598	592	598-592		0.00240	8	359.0	11.57	10.71	16.4	T1680-14	1958	VCP	0.013	D-387		ROSSMOOR
636	599	513	599-513	Y	0.00240	8	325.0	2.36	1.58	11.2	T3225-02	1957	VCP	0.013	D-353		ROSSMOOR
637	600	515	600-515		0.00240	8	290.0	1.36	0.66	11.7	T3225-04	1957	VCP	0.013	D-353		ROSSMOOR
638	601	516	601-516		0.00240	8	190.0	0.51	-0.11	12.1	T3225-06	1957	VCP	0.013	D-353		ROSSMOOR
639	602	518	602-518	Y	0.00200	10	155.1	-1.17	-1.48	12.8	T3189-05	1956	VCP	0.013	D-336		ROSSMOOR
640	603	602	603-602	Y	0.00200	10	184.3	-0.80	-1.17	13.1	T3292-03	1957	VCP	0.013	D-370		ROSSMOOR
641	604	603	604-603	Y	0.00200	10	170.3	-0.46	-0.80	13.4	T3292-03	1957	VCP	0.013	D-370		ROSSMOOR
642	605	603	605-603	Y	0.00360	8	314.4	3.12	1.99	13.7	T3292-11	1957	VCP	0.013	D-370		ROSSMOOR
643	606	605	606-605	Y	0.00360	8	346.6	4.36	3.12	14.2	T3292-11	1957	VCP	0.013	D-370		ROSSMOOR
644	607	606	607-606		0.00360	8	308.0	5.47	4.36	14.6	T3292-11	1957	VCP	0.013	D-370		ROSSMOOR
645	608	607	608-607		0.00360	8	308.0	6.58	5.47	15.2	T3292-11	1957	VCP	0.013	D-370	T3292-11/12	ROSSMOOR
646	609	608	609-608		0.00360	8	308.4	7.69	6.58	15.7	T3292-12	1957	VCP	0.013	D-370		ROSSMOOR
647	610	609	610-609		0.00360	8	284.6	8.72	7.69	16.3	T3292-12	1957	VCP	0.013	D-370		ROSSMOOR
648	611	599	611-599	Y	0.00600	8	350.0	4.46	2.36	11.8	T3225-02	1957	VCP	0.013	D-353		ROSSMOOR
649	612	600	612-600		0.01400	8	350.0	6.26	1.36	12.2	T3225-02	1957	VCP	0.013	D-353		ROSSMOOR
650	613	601	613-601		0.01800	8	350.0	6.81	0.51	12.8	T3225-06	1957	VCP	0.013	D-370		ROSSMOOR
651	614	604	614-604	Y	0.00200	10	160.9	-0.14	-0.46	13.8	T3292-03	1957	VCP	0.013	D-370		ROSSMOOR
652	615	614	615-614	Y	0.00360	8	250.0	4.63	3.73	14.2	T3292-12	1957	VCP	0.013	D-370		ROSSMOOR
653	616	615	616-615	Y	0.00360	8	220.8	5.42	4.63	14.6	T3292-03	1957	VCP	0.013	D-370		ROSSMOOR
654	617	616	617-616		0.00360	8	351.2	6.68	5.42	15.2	T3292-13	1957	VCP	0.013	D-370		ROSSMOOR
655	618	617	618-617		0.00360	8	289.9	7.73	6.68	15.8	T3292-13	1957	VCP	0.013	D-370		ROSSMOOR
656	619	618	619-618		0.00360	8	131.7	8.20	7.73	16.0	T3292-13	1957	VCP	0.013	D-370		ROSSMOOR
657	620	609	620-609		0.00360	8	278.3	8.79	7.79	16.4	T3292-07	1957	VCP	0.013	D-370		ROSSMOOR
658	621	611	621-611		0.00240	8	350.0	5.30	4.46	11.8	T3225-02	1957	VCP	0.013	D-353		ROSSMOOR
659	622	612	622-612		0.00240	8	350.0	7.10	6.26	12.3	T3225-04	1957	VCP	0.013	D-353		ROSSMOOR
660	623	613	623-613		0.00240	8	350.0	7.65	6.81	12.7	T3225-01	1957	VCP	0.013	D-353		ROSSMOOR
661	624A	624	624A-624		0.00240	8	135.0	5.53	5.21	11.6	T3225-08	1957	VCP	0.013	D-353		ROSSMOOR
662	624	625	624-625		0.00240	8	280.0	5.21	4.54	11.7	T3224-18	1957	VCP	0.013	D-375		ROSSMOOR
663	625	626	625-626	Y	0.00240	8	280.0	4.54	3.87	12.3	T3225-08	1957	VCP	0.013	D-353		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
664	626	627	626-627	Y	0.00240	8	263.6	3.87	3.24	13.0	T3292-14	1957	VCP	0.013	D-370		ROSSMOOR
665	627	614	627-614	Y	0.00200	10	263.1	0.39	-0.14	13.2	T3292-03	1957	VCP	0.013	D-370		ROSSMOOR
666	628	629	628-629		0.00360	8	325.0	9.08	7.89	16.4	T3292-15	1957	VCP	0.013	D-370		ROSSMOOR
667	629	617	629-617		0.00360	8	280.4	7.79	6.78	15.6	T3292-05	1957	VCP	0.013	D-370		ROSSMOOR
668	630	618	630-618		0.00360	8	339.0	9.05	7.83	15.8	T3292-06	1957	VCP	0.013	D-370		ROSSMOOR
669	631	620	631-620		0.00360	8	250.8	9.70	8.79	16.4	T3292-07	1957	VCP	0.013	D-370		ROSSMOOR
670	632	610	632-610		0.00360	8	339.6	10.04	8.82	16.0	T3292-17	1957	VCP	0.013	D-370		ROSSMOOR
671	633	621	633-621		0.00240	8	350.0	6.14	5.30	11.8	T3225-02	1957	VCP	0.013	D-353	T3225-02/03	ROSSMOOR
672	634	624	634-624		0.00400	8	270.0	6.39	5.31	12.4	T3225-04	1957	VCP	0.013	D-353	T3225-04/05	ROSSMOOR
673	635	625	635-625		0.00740	8	300.0	6.86	4.64	12.9	T3225-07	1957	VCP	0.013	D-353	T3225-07/06	ROSSMOOR
674	636	626	636-626		0.00520	8	268.0	5.36	3.97	13.4	T3292-02	1957	VCP	0.013	D-370		ROSSMOOR
675	637	627	637-627	Y	0.00200	10	266.7	0.92	0.39	14.2	T3292-03	1957	VCP	0.013	D-370	T3292-03/04	ROSSMOOR
676	638	639	638-639		0.00360	8	129.2	9.30	8.84	16.8	T3292-05	1957	VCP	0.013	D-370		ROSSMOOR
677	639	629	639-629		0.00360	8	264.7	8.74	7.79	16.2	T3292-05	1957	VCP	0.013	D-370		ROSSMOOR
678	640	633	640-633		0.00240	8	350.0	6.98	6.14	12.4	T3225-03	1957	VCP	0.013	D-353		ROSSMOOR
679	640A	640	640A-640		0.00240	8	350.0	7.82	6.98	13.0	T3225-03	1957	VCP	0.013	D-353		ROSSMOOR
680	641	634	641-634		0.00240	8	270.0	7.04	6.39	12.8	T3225-05	1957	VCP	0.013	D-353		ROSSMOOR
681	642	635	642-635		0.00240	8	300.0	7.58	6.86	13.3	T3225-07	1957	VCP	0.013	D-353		ROSSMOOR
682	643	636	643-636		0.00520	8	268.0	6.76	5.36	13.8	T3292-02	1957	VCP	0.013	D-353		ROSSMOOR
683	644	637	644-637	Y	0.00200	10	272.0	1.46	0.92	14.6	T3292-04	1957	VCP	0.013	D-370		ROSSMOOR
684	646	641	646-641		0.00240	8	265.0	7.69	7.04	13.2	T3225-05	1957	VCP	0.013	D-353		ROSSMOOR
685	646A	646	646A-646		0.00240	8	140.0	8.13	7.79	13.2	T3225-05	1957	VCP	0.013	D-353		ROSSMOOR
686	647	642	647-642		0.00240	8	315.0	8.34	7.58	13.8	T3225-07	1957	VCP	0.013	D-353		ROSSMOOR
687	648	643	648-643		0.00520	8	269.0	8.16	6.76	14.2	T3292-02	1957	VCP	0.013	D-370		ROSSMOOR
688	649	648	649-648		0.00520	8	145.0	9.01	8.26	14.6	T3292-15	1957	VCP	0.013	D-370		ROSSMOOR
689	650	644	650-644	Y	0.00200	10	272.0	2.01	1.46	15.0	T3292-04	1957	VCP	0.013	D-370		ROSSMOOR
690	651	652	651-652		0.00360	8	169.0	10.33	9.72	15.2	T3292-15	1957	VCP	0.013	D-370		ROSSMOOR
691	652	639	652-639		0.00360	8	245.0	9.62	8.74	15.4	T3292-05	1957	VCP	0.013	D-370		ROSSMOOR
692	653	630	653-630		0.00360	8	339.1	10.27	9.05	15.4	T3292-06	1957	VCP	0.013	D-370		ROSSMOOR
693	654	631	654-631		0.00360	8	247.6	10.59	9.70	16.0	T3292-07	1957	VCP	0.013	D-370		ROSSMOOR
694	655	640A	655-640A		0.00240	8	350.0	8.66	7.82	13.6	T3225-03	1957	VCP	0.013	D-353		ROSSMOOR
695	656	657	656-657	Y	0.00360	8	335.0	8.95	7.74	13.7	T3225-08	1957	VCP	0.013	D-353		ROSSMOOR
696	657	658	657-658	Y	0.00360	8	335.0	7.74	6.54	14.2	T3225-08	1957	VCP	0.013	D-353	T3225-08/T3292-16	ROSSMOOR
697	658	659	658-659	Y	0.00360	8	300.0	6.54	5.46	14.8	T3292-16	1957	VCP	0.013	D-370		ROSSMOOR
698	659	650	659-650	Y	0.00200	10	272.0	2.55	2.01	14.7	T3292-04	1957	VCP	0.013	D-370		ROSSMOOR
699	660	659	660-659	Y	0.00360	8	353.0	6.47	5.20	15.3	T3292-16	1957	VCP	0.013	D-370		ROSSMOOR
700	661	660	661-660	Y	0.00360	8	353.0	7.74	6.47	15.5	T3292-16	1957	VCP	0.013	D-370		ROSSMOOR
701	662	661	662-661	Y	0.00360	8	354.0	9.02	7.74	16.0	T3292-17	1957	VCP	0.013	D-370		ROSSMOOR
702	663	632	663-632		0.00360	8	351.6	11.30	10.04	16.2	T3292-17	1957	VCP	0.013	D-370		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Material	Manning "n"	Drawing No.	Comment	Owner
'03	664	665	664-665	Y	0.00240	8	280.0	6.08	5.40	14.0	T1680-32	1958	VCP	0.013	D-387		ROSSMOOR
'04	664A	664	664A-664		0.00240	8	95.0	6.31	6.08	13.8	T1680-14	1958	VCP	0.013	D-387		ROSSMOOR
'05	665	666	665-666	Y	0.00240	8	280.0	5.40	4.73	14.5	T1680-32	1958	VCP	0.013	D-387		ROSSMOOR
'06	666	667	666-667	Y	0.00240	8	277.0	4.63	3.97	15.0	T1680-32	1958	VCP	0.013	D-387		ROSSMOOR
'07	667	668	667-668	Y	0.00240	8	278.0	3.97	3.30	15.2	T1680-32	1958	VCP	0.013	D-387		ROSSMOOR
'08	668	659	668-659	Y	0.00200	10	325.0	3.20	2.55	14.7	T1680-23	1958	VCP	0.013	D-387	T1680-23/T3292-09	ROSSMOOR
'09	669	668	669-668	Y	0.00240	8	285.0	7.63	6.95	15.4	T1680-33	1958	VCP	0.013	D-387	T1680-33/32	ROSSMOOR
'10	670	669	670-669		0.00240	8	280.0	8.31	7.63	15.7	T1680-33	1958	VCP	0.013	D-387		ROSSMOOR
'11	671	670	671-670		0.00240	8	243.0	8.89	8.31	15.2	T1680-33	1958	VCP	0.013	D-387		ROSSMOOR
'12	672	671	672-671		0.00240	8	242.0	9.47	8.89	15.4	T1680-33	1958	VCP	0.013	D-387		ROSSMOOR
'13	673	672	673-672		0.00240	8	295.8	10.28	9.57	15.8	T1680-14	1958	VCP	0.013	D-387		ROSSMOOR
'14	673C	673	673C-673		0.00240	8	118.3	10.56	10.28	15.9	T1680-14	1958	VCP	0.013	D-387		ROSSMOOR
'15	674	664	674-664	Y	0.00240	8	290.4	6.78	6.08	14.7	T1680-14	1958	VCP	0.013	D-387	T1680-14/28	ROSSMOOR
'16	675	665	675-665	Y	0.00240	8	290.4	6.09	5.40	15.2	T1680-27	1958	VCP	0.013	D-387		ROSSMOOR
'17	676	666	676-666	Y	0.00240	8	290.4	5.43	4.73	15.5	T1680-26	1958	VCP	0.013	D-387		ROSSMOOR
'18	677	668	677-668	Y	0.00200	10	290.4	3.78	3.20	15.3	T1680-23	1958	VCP	0.013	D-387		ROSSMOOR
'19	678	669	678-669		0.00500	8	290.4	9.18	7.73	15.9	T1680-21	1958	VCP	0.013	D-387		ROSSMOOR
'20	679	670	679-670		0.00240	8	280.0	9.08	8.41	16.3	T1680-19	1958	VCP	0.013	D-387		ROSSMOOR
'21	680	679	680-679		0.00500	8	235.4	10.36	9.18	17.0	T1680-25	1958	VCP	0.013	D-387		ROSSMOOR
'22	681	674	681-674	Y	0.00240	8	350.0	7.62	6.78	15.6	T1680-28	1958	VCP	0.013	D-387		ROSSMOOR
'23	682	675	682-675	Y	0.00240	8	350.0	6.94	6.09	16.2	T1680-27	1958	VCP	0.013	D-387		ROSSMOOR
'24	683	676	683-676	Y	0.00240	8	329.0	6.22	5.43	16.1	T1680-26	1958	VCP	0.013	D-387		ROSSMOOR
'25	684	677	684-677	Y	0.00200	10	291.8	4.36	3.78	15.7	T1680-23	1958	VCP	0.013	D-387		ROSSMOOR
'26	685	678	685-678		0.00240	8	329.4	9.97	9.18	16.4	T1680-21	1958	VCP	0.013	D-387		ROSSMOOR
'27	686	679	686-679		0.00240	8	231.1	9.63	9.08	16.5	T1680-19	1958	VCP	0.013	D-387		ROSSMOOR
'28	687	694	687-694	Y	0.00240	8	360.0	6.78	5.91	16.7	T1680-30	1958	VCP	0.013	D-387		ROSSMOOR
'29	688	687	688-687	Y	0.00240	8	336.6	7.60	6.78	16.0	T1680-30	1958	VCP	0.013	D-387		ROSSMOOR
'30	689	681	689-681	Y	0.00240	8	350.0	8.46	7.62	16.6	T1680-28	1958	VCP	0.013	D-387		ROSSMOOR
'31	690	682	690-682		0.00240	8	350.0	7.78	6.94	17.0	T1680-27	1958	VCP	0.013	D-387		ROSSMOOR
'32	691	683	691-683		0.00240	8	329.0	7.01	6.22	16.5	T1680-26	1958	VCP	0.013	D-387		ROSSMOOR
'33	692	693	692-693		0.00240	8	275.0	9.01	8.35	16.8	T1680-31	1958	VCP	0.013	D-387		ROSSMOOR
'34	693	684	693-684	Y	0.00200	10	264.8	4.89	4.36	16.1	T1680-23	1958	VCP	0.013	D-387		ROSSMOOR
'35	694	693	694-693	Y	0.00240	8	360.0	5.92	5.05	16.6	T1680-30	1958	VCP	0.013	D-387		ROSSMOOR
'36	695	706	695-706		0.00240	8	280.0	8.63	7.95	17.3	T1680-29	1958	VCP	0.013	D-387		ROSSMOOR
'37	696	695	696-695		0.00240	8	335.0	9.43	8.63	16.8	T1680-29	1958	VCP	0.013	D-387		ROSSMOOR
'38	697	688	697-688	Y	0.00240	8	330.3	8.49	7.70	16.6	T1680-15	1958	VCP	0.013	D-387		ROSSMOOR
'39	698	697	698-697	Y	0.00240	8	260.0	9.86	9.23	17.1	T1680-16	1958	VCP	0.013	D-387		ROSSMOOR
'40	699	698	699-698	Y	0.00240	8	264.9	10.49	9.86	16.7	T1680-15	1958	VCP	0.013	D-387		ROSSMOOR
'41	700	699	700-699	Y	0.00240	8	266.6	11.23	10.59	17.9	T1680-15	1958	VCP	0.013	D-387		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
742	701	689	701-689	Y	0.00240	8	350.0	9.30	8.46	16.5	T1680-28	1958	VCP	0.013	D-387		ROSSMOOR
743	702	690	702-690		0.00240	8	349.1	8.61	7.78	17.1	T1680-27	1958	VCP	0.013	D-387	T1680-27/T2601-05	ROSSMOOR
744	703	691	703-691		0.00240	8	350.0	7.86	7.01	17.2	T1680-26	1958	VCP	0.013	D-387	T1680-26/T2601-08	ROSSMOOR
745	704	692	704-692		0.00240	8	347.6	9.94	9.11	17.1	T1680-11	1958	VCP	0.013	D-387		ROSSMOOR
746	705	693	705-693	Y	0.00240	8	280.4	7.15	6.48	16.7	T1680-23	1958	VCP	0.013	D-387	T1680-23/24	ROSSMOOR
747	706	705	706-705		0.00240	8	293.0	7.95	7.25	17.3	T1680-29	1958	VCP	0.013	D-387		ROSSMOOR
748	707	695	707-695		0.00240	8	315.9	9.49	8.73	18.0	T1680-19	1958	VCP	0.013	D-387		ROSSMOOR
749	708	707	708-707		0.00240	8	255.0	10.20	9.59	18.6	T1680-18	1958	VCP	0.013	D-387		ROSSMOOR
750	709	708	709-708		0.00240	8	284.5	10.88	10.20	18.2	T1680-18	1958	VCP	0.013	D-387		ROSSMOOR
751	710	709	710-709		0.00240	8	350.0	11.72	10.88	17.7	T1680-18	1958	VCP	0.013	D-387		ROSSMOOR
752	710C	710	710C-710		0.00240	8	100.0	11.96	11.72	17.5	T1680-18	1958	VCP	0.013	D-387		ROSSMOOR
753	711	701	711-701		0.00240	8	350.0	10.14	9.30	17.0	T1680-28	1958	VCP	0.013	D-387	T1680-28/T2601-02	ROSSMOOR
754	712	702	712-702		0.00720	8	324.5	10.95	8.61	17.6	T2601-05	1960	VCP	0.013	D-745		ROSSMOOR
755	713	703	713-703		0.01160	8	307.1	11.41	7.86	17.7	T2601-08	1960	VCP	0.013	D-745		ROSSMOOR
756	714	704	714-704		0.00600	8	349.9	12.04	9.94	17.9	T2601-11	1960	VCP	0.013	D-745		ROSSMOOR
757	715	705	715-705	Y	0.00240	8	296.2	7.86	7.15	17.3	T1680-24	1958	VCP	0.013	D-387		ROSSMOOR
758	716	706	716-706		0.00240	8	347.8	12.30	11.46	18.0	T1680-22	1958	VCP	0.013	D-387		ROSSMOOR
759	717	707	717-707		0.00240	8	343.4	10.31	9.49	18.5	T1680-20	1958	VCP	0.013	D-745	T1680-20/19	ROSSMOOR
760	718	711	718-711		0.00240	8	345.0	10.97	10.14	17.6	T2601-02	1960	VCP	0.013	D-745		ROSSMOOR
761	719	712	719-712		0.00240	8	304.7	11.68	10.95	18.0	T2601-05	1960	VCP	0.013	D-745		ROSSMOOR
762	720	713	720-713		0.00240	8	332.3	12.21	11.41	18.2	T2601-08	1960	VCP	0.013	D-745		ROSSMOOR
763	721	714	721-714		0.00240	8	350.0	12.88	12.04	18.5	T2601-11	1960	VCP	0.013	D-745		ROSSMOOR
764	722	715	722-715	Y	0.00240	8	350.0	8.70	7.86	17.9	T1680-24	1958	VCP	0.013	D-387		ROSSMOOR
765	723	716	723-716		0.00240	8	292.4	13.00	12.30	18.5	T1680-22	1958	VCP	0.013	D-387		ROSSMOOR
766	724	717	724-717		0.00240	8	286.7	11.00	10.31	18.4	T1680-20	1958	VCP	0.013	D-387		ROSSMOOR
767	725	724	725-724		0.00240	8	313.6	11.75	11.00	17.9	T1680-20	1958	VCP	0.013	D-387		ROSSMOOR
768	726	700	726-700		0.00240	8	323.2	11.37	10.59	17.2	T1680-16	1958	VCP	0.013	D-387		ROSSMOOR
769	727	700	727-700		0.00240	8	266.9	11.13	10.49	17.9	T1680-16	1958	VCP	0.013	D-387		ROSSMOOR
770	728	727	728-727		0.00240	8	230.0	11.80	11.23	17.7	T1680-16	1958	VCP	0.013	D-387	T1680-16/17	ROSSMOOR
771	729	728	729-728		0.00240	8	280.0	12.58	11.90	19.0	T1680-17	1958	VCP	0.013	D-387		ROSSMOOR
772	731	728	731-728		0.00240	8	350.0	12.74	11.90	18.4	T1680-07	1958	VCP	0.013	D-387		ROSSMOOR
773	732A	727	732A-727		0.00240	8	350.0	12.07	11.23	18.7	T1680-09	1958	VCP	0.013	D-387		ROSSMOOR
774	732	729	732-729		0.00240	8	350.0	13.42	12.58	11.9	T1680-05	1958	VCP	0.013	D-387		ROSSMOOR
775	733	726	733-726		0.00240	8	325.0	12.15	11.37	17.8	T1680-17	1958	VCP	0.013	D-387		ROSSMOOR
776	734	731	734-731		0.00240	8	346.3	13.57	12.74	18.8	T1680-07	1958	VCP	0.013	D-387	T1680-07/T2601-18	ROSSMOOR
777	735	732	735-732		0.00240	8	346.3	14.25	13.42	20.7	T1680-09	1958	VCP	0.013	D-387	T1680-09/T2601-18	ROSSMOOR
778	736	733	736-733		0.00240	8	219.0	12.68	12.15	18.2	T2601-16	1960	VCP	0.013	D-745		ROSSMOOR
779	737	736	737-736		0.00240	8	318.0	13.44	12.68	18.6	T2601-16	1960	VCP	0.013	D-745		ROSSMOOR
780	738	739	738-739		0.00240	8	252.0	14.12	13.51	19.8	T2601-16	1960	VCP	0.013	D-745		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
781	739	740	739-740		0.00240	8	255.3	13.51	12.89	19.5	T2601-16	1960	VCP	0.013	D-745		ROSSMOOR
782	740	732A	740-732A		0.00240	8	300.0	12.89	12.07	19.2	T2601-16	1960	VCP	0.013	D-745	T2601-16/T1680-09	ROSSMOOR
783	741	734	741-734		0.00240	8	263.0	14.21	13.57	19.2	T2601-18	1960	VCP	0.013	D-745		ROSSMOOR
784	742	735	742-735		0.00240	8	216.0	14.77	14.25	21.0	T2601-18	1960	VCP	0.013	D-745		ROSSMOOR
785	743	742	743-742		0.00240	8	246.0	15.37	14.77	21.4	T2601-18	1960	VCP	0.013	D-745		ROSSMOOR
786	744	741	744-741		0.00240	8	272.0	14.86	14.21	20.8	T2601-18	1960	VCP	0.013	D-745		ROSSMOOR
787	745	750	745-750		0.00240	8	350.0	12.65	11.81	20.0	T2601-12	1960	VCP	0.013	D-745	T2601-12/13	ROSSMOOR
788	746	723	746-723		0.00240	8	292.0	13.70	13.00	19.0	T1680-22	1958	VCP	0.013	D-387		ROSSMOOR
789	747	722	747-722	Y	0.00240	8	350.0	9.54	8.70	18.6	T1680-24	1958	VCP	0.013	D-387		ROSSMOOR
790	748	747	748-747	Y	0.00240	8	255.8	10.42	9.81	19.2	T2601-12	1960	VCP	0.013	D-745		ROSSMOOR
791	749	748	749-748		0.00240	8	281.1	11.09	10.42	19.5	T2601-12	1960	VCP	0.013	D-745		ROSSMOOR
792	750	749	750-749		0.00240	8	300.4	11.81	11.09	19.0	T2601-12	1960	VCP	0.013	D-745		ROSSMOOR
793	751	718	751-718		0.00240	8	340.9	11.79	10.97	18.2	T2601-02	1960	VCP	0.013	D-745		ROSSMOOR
794	752	719	752-719		0.00240	8	321.5	12.45	11.68	18.6	T2601-05	1960	VCP	0.013	D-745		ROSSMOOR
795	753	720	753-720		0.00240	8	311.6	12.95	12.21	18.8	T2601-08	1960	VCP	0.013	D-745	T2601-08/09	ROSSMOOR
796	754	721	754-721		0.00240	8	350.0	13.72	12.88	19.0	T2601-08	1960	VCP	0.013	D-745	T2601-08/11	ROSSMOOR
797	755	751	755-751		0.00240	8	294.9	12.50	11.79	18.8	T2601-02	1960	VCP	0.013	D-745	T2601-02/03	ROSSMOOR
798	756	752	756-752		0.00240	8	308.1	13.19	12.45	19.2	T2601-05	1960	VCP	0.013	D-745		ROSSMOOR
799	757	753	757-753		0.00240	8	335.6	13.76	12.96	19.3	T2601-09	1960	VCP	0.013	D-745		ROSSMOOR
800	758	754	758-754		0.00240	8	218.0	14.24	13.72	19.5	T2601-08	1960	VCP	0.013	D-745		ROSSMOOR
801	759	748	759-748		0.00680	8	207.3	11.93	10.52	19.7	T2601-14	1960	VCP	0.013	D-745		ROSSMOOR
802	760	757	760-757		0.00240	8	295.0	14.57	13.86	19.8	T2601-09	1960	VCP	0.013	D-745		ROSSMOOR
803	761	760	761-760		0.00240	8	223.4	15.10	14.57	20.0	T2601-09	1960	VCP	0.013	D-745	T2601-09/10	ROSSMOOR
804	762	759	762-759		0.00240	8	178.2	12.36	11.93	20.0	T2601-14	1960	VCP	0.013	D-745		ROSSMOOR
805	763	762	763-762		0.00960	8	200.0	14.38	12.46	20.6	T2601-10	1960	VCP	0.013	D-745		ROSSMOOR
806	764	763	764-763		0.00240	8	350.0	15.22	14.38	21.1	T2601-10	1960	VCP	0.013	D-745		ROSSMOOR
807	765	764	765-764		0.00240	8	359.9	16.09	15.22	20.9	T2601-10	1960	VCP	0.013	D-745		ROSSMOOR
808	766	756	766-756		0.00240	8	215.5	13.71	13.19	19.5	T2601-06	1960	VCP	0.013	D-745		ROSSMOOR
809	767	766	767-766		0.00240	8	319.2	14.58	13.81	20.0	T2601-06	1960	VCP	0.013	D-745		ROSSMOOR
810	768	767	768-767		0.00240	8	380.0	15.49	14.58	20.7	T2601-07	1960	VCP	0.013	D-745	T2601-07/06	ROSSMOOR
811	769	755	769-755		0.00240	8	350.0	13.34	12.50	19.4	T2601-03	1960	VCP	0.013	D-745		ROSSMOOR
812	770	769	770-769		0.00240	8	289.9	14.14	13.44	19.8	T2601-03	1960	VCP	0.013	D-745		ROSSMOOR
813	771	770	771-770		0.00240	8	280.0	14.81	14.14	20.3	T2601-03	1960	VCP	0.013	D-745		ROSSMOOR
814	772	771	772-771		0.00240	8	300.0	15.53	14.81	20.8	T2601-04	1960	VCP	0.013	D-745	T2601-04/03	ROSSMOOR
815	773	774	773-774		0.00240	8	280.0	13.70	13.03	20.8	T2601-14	1960	VCP	0.013	D-745		ROSSMOOR
816	774	762	774-762		0.00240	8	280.0	13.03	12.36	20.9	T2601-14	1960	VCP	0.013	D-745		ROSSMOOR
817	775	774	775-774		0.00920	8	200.0	14.97	13.13	21.2	T2601-07	1960	VCP	0.013	D-745		ROSSMOOR
818	776	775	776-775		0.00240	8	320.0	15.74	14.97	21.8	T2601-07	1960	VCP	0.013	D-745		ROSSMOOR
819	777	776	777-776		0.00240	8	238.0	16.32	15.74	21.6	T2601-07	1960	VCP	0.013	D-745		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
820	778	773	778-773		0.00240	8	320.0	14.57	13.80	21.4	T2601-04	1960	VCP	0.013	D-745		ROSSMOOR
821	779	778	779-778		0.00240	8	300.0	15.29	14.57	21.6	T2601-04	1960	VCP	0.013	D-745		ROSSMOOR
822	780	779	780-779		0.00240	8	290.0	15.99	15.29	21.3	T2601-04	1960	VCP	0.013	D-745		ROSSMOOR
823	781	782	781-782		0.00240	8	305.0	16.32	15.59	23.5	S112-02	1960	VCP	0.013	D-745		LOS ALAMITOS
824	781A	777	781A-777		0.00240	8	224.0	16.86	16.32	21.2	T2601-07	1960	VCP	0.013	D-745		ROSSMOOR
825	782	783	782-783		0.00240	8	380.0	15.59	14.68	23.0	S112-02	1954	VCP	0.013	D-183		LOS ALAMITOS
826	783	784	783-784		0.00240	8	370.0	14.68	13.79	21.5	S112-02	1954	VCP	0.013	D-183		LOS ALAMITOS
827	784	785	784-785	Y	0.00240	8	370.0	13.79	12.90	22.1	S112-02	1954	VCP	0.013	D-183		LOS ALAMITOS
828	785	785A	785-785A	Y	0.00240	8	371.0	12.90	12.01	22.0	S112-02	1954	VCP	0.013	D-183		LOS ALAMITOS
829	785A	3024	785A-3024	Y	0.29000	15	8.0	4.49	2.16	18.0	S115-08	1954	VCP	0.013	D-166	SEE OCSD 3-8 PLANS	LOS ALAMITOS
830	786	787	786-787		0.00240	8	305.0	16.83	16.10	23.0	S112-03	1954	VCP	0.013	D-166		LOS ALAMITOS
831	787	788	787-788		0.00240	8	400.0	16.10	15.14	23.0	S112-03	1954	VCP	0.013	D-183		LOS ALAMITOS
832	788	789	788-789		0.00240	8	400.0	15.14	14.18	23.0	S112-03	1954	VCP	0.013	D-183		LOS ALAMITOS
833	789	790	789-790		0.00240	8	400.0	14.18	13.22	22.9	S112-03	1954	VCP	0.013	D-183		LOS ALAMITOS
834	790	32	790-32		0.00240	8	400.0	13.22	12.26	23.0	S112-03	1954	VCP	0.013	D-183		LOS ALAMITOS
835	791	792	791-792		0.00240	8	255.0	18.06	17.46	23.9	S112-04	1954	VCP	0.013	D-183		LOS ALAMITOS
836	792	793	792-793		0.00240	8	350.0	17.46	16.62	23.5	S112-04	1954	VCP	0.013	D-183		LOS ALAMITOS
837	793	794	793-794		0.00240	8	350.0	16.62	15.78	23.0	S112-04	1954	VCP	0.013	D-183		LOS ALAMITOS
838	794	795	794-795		0.00240	8	400.0	15.78	14.81	23.0	S112-04	1954	VCP	0.013	D-183		LOS ALAMITOS
839	795	796	795-796		0.00240	8	295.0	14.81	14.10	23.6	S112-04	1954	VCP	0.013	D-183		LOS ALAMITOS
840	795C	795	795C-795		0.01380	8	135.0	17.00	15.14	23.0	S112-04	1954	VCP	0.013	D-183		LOS ALAMITOS
841	796	31	796-31		0.00240	8	350.0	14.10	13.26	24.0	S112-04	1954	VCP	0.013	D-183		LOS ALAMITOS
842	797	798	797-798	Y	0.00200	12	232.1	12.46	12.00	26.0	S112-14	1954	VCP	0.013	D-166		LOS ALAMITOS
843	798	799	798-799	Y	0.00200	12	303.9	12.00	11.39	25.5	S112-04	1954	VCP	0.013	D-166		LOS ALAMITOS
844	799	800	799-800	Y	0.00200	12	304.0	11.39	10.78	25.7	S115-07	1954	VCP	0.013	D-166		LOS ALAMITOS
845	800	801	800-801	Y	0.00200	12	243.4	10.78	10.30	25.5	S115-07	1954	VCP	0.013	D-166		LOS ALAMITOS
846	801	802	801-802	Y	0.00200	12	244.0	10.30	9.81	24.9	S115-07	1954	VCP	0.013	D-166		LOS ALAMITOS
847	802	803	802-803	Y	0.00200	12	313.6	9.81	9.18	24.5	S115-07	1954	VCP	0.013	D-166		LOS ALAMITOS
848	802C	802	802C-802		0.00240	8	128.0	18.00	17.69	24.0	S112-14	1954	VCP	0.013	D-183		LOS ALAMITOS
849	803	30	803-30	Y	0.00580	12	346.5	9.18	7.17	24.0	S115-07	1954	VCP	0.013	D-166		LOS ALAMITOS
850	804	28	804-28	Y	0.00240	8	342.0	17.02	16.20	23.5	S112-05	1954	VCP	0.013	D-166		LOS ALAMITOS
851	805	804	805-804	Y	0.00240	8	353.0	17.87	17.02	24.0	S112-05	1954	VCP	0.013	D-166		LOS ALAMITOS
852	806	805	806-805	Y	0.00240	8	195.0	18.44	17.97	24.0	S112-05	1954	VCP	0.013	D-183		LOS ALAMITOS
853	807	806	807-806	Y	0.00240	8	402.0	19.50	18.54	25.0	S112-05	1954	VCP	0.013	D-183		LOS ALAMITOS
854	808	805	808-805	Y	0.00240	8	402.0	18.83	17.87	24.0	S112-05	1954	VCP	0.013	D-183		LOS ALAMITOS
855	809	810	809-810	Y	0.00240	8	370.0	16.49	15.60	25.0	S112-06	1954	VCP	0.013	D-183		LOS ALAMITOS
856	810A	810	810A-810		0.00240	8	150.0	15.96	15.60	24.0	S102-01	1957	VCP	1.013	D-407		LOS ALAMITOS
857	810	811	810-811	Y	0.00240	8	330.0	15.60	14.81	24.5	S112-06	1954	VCP	0.013	D-183		LOS ALAMITOS
858	811	27	811-27	Y	0.00240	8	342.0	14.81	13.99	24.2	S112-06	1954	VCP	0.013	D-183		LOS ALAMITOS

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
859	812	813	812-813	Y	0.00240	8	180.0	19.99	19.56	24.3	S112-07	1954	VCP	0.013	D-183		LOS ALAMITOS
860	812A	812B	812A-812B		0.00240	8	249.5	20.56	19.41	24.9	S1795-1	1968	VCP	0.013	S-1795		LOS ALAMITOS
861	812B	812C	812B-812C		0.00240	8	190.0	19.41	18.96	24.4	S1795-1	1968	VCP	0.013	S-1795		LOS ALAMITOS
862	812C	812	812C-812		0.00240	8	140.0	18.96	18.62	23.6	S1795-1	1968	VCP	0.013	S-1795		LOS ALAMITOS
863	813	814	813-814	Y	0.00240	8	205.0	19.56	19.07	25.2	S112-07	1954	VCP	0.013	S-112		LOS ALAMITOS
864	814	815	814-815	Y	0.00240	8	200.0	19.07	18.59	25.5	S112-07	1954	VCP	0.013	S-112		LOS ALAMITOS
865	815	817	815-817	Y	0.00240	8	219.2	18.59	18.06	25.9	S112-07	1954	VCP	0.013	S-112		LOS ALAMITOS
866	816	817	816-817	Y	0.00240	8	350.0	18.80	17.96	26.0	S112-06	1954	VCP	0.013	D-183		LOS ALAMITOS
867	817	818	817-818	Y	0.00240	8	255.0	17.96	17.35	25.9	S112-06	1954	VCP	0.013	D-183		LOS ALAMITOS
868	818	809	818-809	Y	0.00240	8	360.0	17.35	16.49	25.5	S112-06	1954	VCP	0.013	D-183		LOS ALAMITOS
869	819	797	819-797	Y	0.00200	12	326.5	13.12	12.46	27.0	S115-07	1954	VCP	0.013	D-166		LOS ALAMITOS
870	820	821	820-821		0.00240	8	395.0	15.97	15.02	26.1	S112-19	1954	VCP	0.013	D-183		LOS ALAMITOS
871	821	822	821-822		0.00240	8	382.0	15.02	14.10	26.0	S112-19	1954	VCP	0.013	D-183		LOS ALAMITOS
872	822	819	822-819	Y	0.00200	12	326.6	13.77	13.12	27.0	S115-07	1954	VCP	0.013	D-166		LOS ALAMITOS
873	823	26A	823-26A	Y	0.00240	8	250.0	15.99	15.39	24.8	S112-07	1954	VCP	0.013	D-183	MH NOT SHOWN ON PLANS	LOS ALAMITOS
874	824	823	824-823	Y	0.00240	8	330.0	16.78	15.99	24.5	S112-07	1954	VCP	0.013	D-183		LOS ALAMITOS
875	825	824	825-824	Y	0.00240	8	280.0	16.26	15.60	23.2	T3896-03	1961	VCP	0.013	D-914		LOS ALAMITOS
876	826	825	826-825	Y	0.00240	8	237.0	16.83	16.26	23.0	T3896-03	1961	VCP	0.013	D-914		LOS ALAMITOS
877	825B	825	825B-825		0.00240	8	55.8						VCP	0.013		NO AS-BUILT PLAN	LOS ALAMITOS
878	825C	825B	825C-825B		0.00240	8	107.0						VCP	0.013		NO AS-BUILT PLAN	LOS ALAMITOS
879	827	826	827-826	Y	0.00240	8	237.0	17.40	16.83	22.2	T3896-03	1961	VCP	0.013	D-914		LOS ALAMITOS
880	828	829	828-829	Y	0.00400	8	315.1	14.81	13.55	22.2	T5354-03	1964	VCP	0.013	T5354		LOS ALAMITOS
881	828A	828	828A-828	Y	0.00400	8	234.0	15.84	14.91	22.8	T5354-02	1964	VCP	0.013	T5354		LOS ALAMITOS
882	829	830	829-830	Y	0.00400	8	315.1	13.55	12.29	21.6	T5354-03	1964	VCP	0.013	T5354		LOS ALAMITOS
883	830	830A	830-830A	Y	0.01210	8	160.0	12.29	10.35	21.2	T5354-03	1964	VCP	0.013	T5354	MH NOT SHOWN ON PLANS	LOS ALAMITOS
884	830A	25	830A-25	Y	0.01210	8	155.1	10.35	8.47	21.2	T5354-03	1964	VCP	0.013	T5354		LOS ALAMITOS
885	831	828A	831-828A	Y	0.00400	8	234.0	16.78	15.84	23.0	T5354-02	1964	VCP	0.013	T5354		LOS ALAMITOS
886	832	831	832-831		0.00400	8	129.0	17.40	16.88	23.6	T5354-02	1964	VCP	0.013	T5354		LOS ALAMITOS
887	832	832A	832-832A		0.00240	8	220.0	18.16	17.64	23.7	T6428-01	1967	VCP	0.013	T6428	NO AS-BUILT PLAN	LOS ALAMITOS
888	832A	832B	832A-832B		0.02400	8	220.0	17.64	17.11	23.7	T6428-02	1967	VCP	0.013	T6428		LOS ALAMITOS
889	832B	832C	832B-832C		0.00240	8	275.0	17.01	16.35	23.6	T6428-03	1967	VCP	0.013	T6428		LOS ALAMITOS
890	832C	967	832C-967		0.00240	8	217.0	16.35	15.83	23.6	T6428-03	1967	VCP	0.013	T6428		LOS ALAMITOS
891	833	834	833-834		0.00400	8	240.0	17.89	16.93	23.6	T5354-04	1964	VCP	0.013	T5354		LOS ALAMITOS
892	834	835	834-835		0.00360	8	320.0	17.02	15.87	24.5	T6428-02	1967	VCP	0.013	T6428		LOS ALAMITOS
893	835	835A	835-835A		0.00320	8	50.0	15.87	15.70	24.0	T6428-02	1967	VCP	0.013	T6428		LOS ALAMITOS
894	835A	835B	835A-835B		0.00320	8	160.0	15.83	15.32	24.0	T6428-02	1967	VCP	0.013	T6428		LOS ALAMITOS
895	835B	968	835B-968		0.06200	8	55.0	14.74	11.40	24.5	S126-02	1973	VCP	0.013	S-126		LOS ALAMITOS
896	836	837	836-837		0.00400	8	372.0	17.77	16.28	24.3	T5992-08	1966	VCP	0.013	T5992		LOS ALAMITOS
897	837	838	837-838		0.01880	8	258.0	16.28	11.33	23.6	T5992-08	1966	VCP	0.013	T5992		LOS ALAMITOS

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Material	Manning "n"	Drawing No.	Comment	Owner
898	838	3037	838-3037	Y	0.01320	8	166.9	11.23	9.03	23.2	T5992-02	1966	VCP	0.013	T5992		LOS ALAMITOS
899	839	838	839-838		0.02360	8	254.1	17.11	11.23	23.7	T5992-05	1966	VCP	0.013	T5992		LOS ALAMITOS
900	840	838	840-838	Y	0.00400	8	249.0	12.23	11.23	32.4	T5992-02	1966	VCP	0.013	T5992		LOS ALAMITOS
901	841	840	841-840	Y	0.00400	8	286.4	13.53	12.39	23.9	T5992-07	1966	VCP	0.013	T5992		LOS ALAMITOS
902	841A	841	841A-841		0.03200	8	116.6	17.26	13.53	24.2	T5992-07	1966	VCP	1.013	T5992		LOS ALAMITOS
903	842	841A	842-841A		0.00400	8	210.0	18.10	17.26	24.6	T5992-04	1966	VCP	0.013	T5992		LOS ALAMITOS
904	843	841	843-841	Y	0.00400	8	311.3	14.88	13.63	24.5	T5992-06	1966	VCP	0.013	T5992		LOS ALAMITOS
905	843A	843	843A-843		0.00920	8	251.8	17.30	14.98	25.2	T5992-07	1966	VCP	0.013	T5992		LOS ALAMITOS
906	844	843A	844-843A		0.00920	8	160.0	18.77	17.30	25.3	T5992-07	1966	VCP	0.013	T5992	MH NOT SHOWN ON PLANS	LOS ALAMITOS
907	845	843	845-843		0.00400	8	257.1	15.91	14.88	25.0	T5992-06	1966	VCP	0.013	T5992		LOS ALAMITOS
908	845A	845	845A-845		0.01120	8	225.0	18.53	16.01	25.5	T5992-05	1966	VCP	0.013	T5992		LOS ALAMITOS
909	846	845A	846-845A		0.00400	8	212.0	19.38	18.53	25.9	T5992-05	1966	VCP	0.013	T5992		LOS ALAMITOS
910	847	845	847-845		0.00400	8	258.0	16.94	15.91	25.5	T5992-06	1966	VCP	0.013	T5992		LOS ALAMITOS
911	847A	847	847A-847		0.00760	8	250.0	18.94	17.04	26.1	T5992-03	1966	VCP	0.013	T5992		LOS ALAMITOS
912	848	847A	848-847A		0.00400	8	247.1	19.93	18.94	26.5	T5992-03	1966	VCP	0.013	T5992		LOS ALAMITOS
913	849	850	849-850		0.00400	8	135.2	18.29	17.75	22.8	T4925-05	1963	VCP	0.013	P-121		LOS ALAMITOS
914	850	851	850-851		0.00200	8	276.0	17.75	17.20	23.4	T4925-05	1963	VCP	0.013	P-121		LOS ALAMITOS
915	851	852	851-852		0.00200	8	328.3	17.20	16.54	24.0	T4925-05	1963	VCP	0.013	P-121		LOS ALAMITOS
916	852	853	852-853		0.00200	8	330.0	16.54	15.88	24.4	T4925-05	1963	VCP	0.013	P-121		LOS ALAMITOS
917	853	853A	853-853A	Y	0.00200	8	285.0	15.78	15.20	25.0	T4925-03	1963	VCP	0.013	P-121		LOS ALAMITOS
918	853A	861	853A-861	Y	0.00200	8	283.4	15.20	14.64	25.8	T4925-03	1963	VCP	0.013	P-121		LOS ALAMITOS
919	854	850	854-850		0.00464	8	225.3	18.90	17.85	25.0	T4925-06	1963	VCP	0.013	P-121		LOS ALAMITOS
920	854	855	854-855		0.00400	8	193.3	18.90	18.13	25.0	T4925-06	1963	VCP	0.013	P-121		LOS ALAMITOS
921	855	856	855-856		0.00400	8	198.9	18.13	17.33	25.3	T4925-06	1963	VCP	0.013	P-121		LOS ALAMITOS
922	856	860	856-860		0.00400	8	234.9	17.33	16.39	25.7	T4925-06	1963	VCP	0.013	P-121		LOS ALAMITOS
923	857	851	857-851		0.01000	8	166.8	18.97	17.30	26.0	T4925-08	1963	VCP	0.013	P-121		LOS ALAMITOS
924	858	857	858-857		0.00400	8	286.0	20.11	18.97	27.0	T4925-08	1963	VCP	0.013	P-121		LOS ALAMITOS
925	859	858	859-858		0.00400	8	118.7	20.58	20.11	27.4	T4925-08	1963	VCP	0.013	P-121		LOS ALAMITOS
926	860	861	860-861	Y	0.00474	8	350.0	16.39	14.74	26.0	T4925-07	1963	VCP	0.013	P-121		LOS ALAMITOS
927	861	864	861-864	Y	0.00200	8	170.0	14.64	14.30	26.6	T4925-03	1963	VCP	0.013	P-121		LOS ALAMITOS
928	862	861	862-861		0.00400	8	272.0	20.79	19.71	27.3	T4925-07	1963	VCP	0.013	P-121		LOS ALAMITOS
929	863	862	863-862		0.00400	8	303.0	22.00	20.79	28.0	T4925-07	1963	VCP	0.013	P-121		LOS ALAMITOS
930	864	865	864-865	Y	0.00200	8	310.0	14.20	13.58	28.0	T4925-02	1963	VCP	0.013	P-121		LOS ALAMITOS
931	865	866	865-866	Y	0.00200	8	310.0	13.58	12.96	28.4	T4925-02	1963	VCP	0.013	P-121		LOS ALAMITOS
932	866	3044	866-3044	Y	0.00200	8	319.3	12.96	12.32	28.6	T4925-02	1963	VCP	0.013	P-121	T4925-02/03	LOS ALAMITOS
933	867	877	867-877		0.00240	8	731.0						VCP	0.013	T26812		LONG BEACH
934	868	867	868-867		0.00240	8	127.5						VCP	0.013	T26812		LONG BEACH
935	869	868	869-868		0.00320	8	254.227	20.92		26.9	T4642-04	1962	VCP	0.013	T4642		LONG BEACH
936	870	869	870-869		0.00400	8	240	21.88	20.92	27.8	T4642-04	1962	VCP	0.013	T4642		LOS ALAMITOS

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
937	871	871A	871-871A		0.01500	8	144.0	22.76	20.58	27.8	T4642-02	1962	VCP	0.013	T4642		LOS ALAMITOS
938	871A	868	871A-868		0.00400	8	140.0	20.58	20.02	27.6	T4642-02	1962	VCP	0.013	T4642		LONG BEACH
939	872	869	872-869		0.00500	8	216.0	21.99	20.92	27.2	T4642-02	1962	VCP	0.013	T4642		LOS ALAMITOS
940	873	870	873-870		0.00500	8	215.0	22.95	21.88	28.4	T4642-02	1962	VCP	0.013	T4642		LOS ALAMITOS
941	874	870	874-870		0.00400	8	265.0	22.95	21.88	28.6	T4642-04	1962	VCP	0.013	T4642		LOS ALAMITOS
942	876	874	876-874		0.00400	8	265.0	24.00	22.95	29.2	T4642-04	1962	VCP	0.013	T4642		LOS ALAMITOS
943	877	878	877-878		0.00240	8	877.5						VCP	0.013	T26812		LONG BEACH
944	878	3048	878-3048		0.00240	8	157.5						VCP	0.013	T26812		LONG BEACH
945	879	880	879-880		0.00200	8	236.2	5.74	5.27	10.0	T5723-01	1965	VCP	0.013	T5723		SEAL BEACH
946	880	881	880-881		0.00200	8	209.4	5.27	4.85	9.4	T5723-01	1965	VCP	0.013	T5723		SEAL BEACH
947	881	882	881-882		0.00200	8	286.0	4.85	4.28	9.6	T5847-07	1965	VCP	0.013	T5847		SEAL BEACH
948	882	884	882-884		0.00200	8	255.3	4.28	3.79	8.6	T5847-07	1965	VCP	0.013	T5847		SEAL BEACH
949	883	882	883-882		0.00200	8	108.0	4.60	4.38	8.9	T5847-13	1965	VCP	0.013	T5847		SEAL BEACH
950	884	885	884-885		0.00200	8	213.1	3.67	3.24	8.1	T5847-13	1965	VCP	0.013	T5847		SEAL BEACH
951	885	894	885-894		0.00200	8	377.2	3.14	2.39	8.9	T5847-04	1965	VCP	0.013	T5847		SEAL BEACH
952	886	884	886-884		0.00200	8	323.0	4.30	3.77	8.3	T5847-06	1965	VCP	0.013	T5847		SEAL BEACH
953	887	886	887-886		0.00200	8	114.3	4.63	4.40	8.7	T5847-07	1965	VCP	0.013	T5847		SEAL BEACH
954	888	886	888-886		0.00200	8	323.0	4.95	4.30	8.7	T5847-06	1965	VCP	0.013	T5847		SEAL BEACH
955	888	889	888-889		0.00200	8	323.0	5.21	4.56	8.7	T5847-06	1965	VCP	0.013	T5847		SEAL BEACH
956	889	890	889-890		0.00200	8	159.0	4.56	4.25	8.3	T5847-06	1965	VCP	0.013	T5847		SEAL BEACH
957	890	891	890-891		0.00200	8	217.8	4.25	3.80	8.1	T5847-06	1965	VCP	0.013	T5847	T5847-06/05	SEAL BEACH
958	891	892	891-892		0.00200	8	350.0	3.80	3.10	7.7	T5847-05	1965	VCP	0.013	T5847		SEAL BEACH
959	892	893	892-893		0.00200	8	361.1	3.10	2.38	7.2	T5847-05	1965	VCP	0.013	T5847		SEAL BEACH
960	893	917	893-917		0.00200	8	356.5	2.38	1.67	6.6	T5847-05	1965	VCP	0.013	T5847		SEAL BEACH
961	894	898	894-898		0.00200	8	346.5	2.39	1.80	3.3	T5847-04	1965	VCP	0.013	T5847		SEAL BEACH
962	895	894	895-894		0.00200	8	241.5	2.97	2.49	7.9	T5847-10	1965	VCP	0.013	T5847		SEAL BEACH
963	896	895	896-895		0.00200	8	237.9	3.45	2.97	7.5	T5847-10	1965	VCP	0.013	T5847		SEAL BEACH
964	897	896	897-896		0.00200	8	281.1	4.01	3.45	7.0	T5847-10	1965	VCP	0.013	T5847		SEAL BEACH
965	897	901	897-901		0.00200	8	203.3	3.56	3.15	7.0	T5847-09	1965	VCP	0.013	T5847		SEAL BEACH
966	898	905	898-905	Y	0.00200	8	330.0	1.70	1.04	7.6	T5847-03	1965	VCP	0.013	T5847		SEAL BEACH
967	899	898	899-898		0.00480	8	172.9	2.63	1.80	8.1	T5847-11	1965	VCP	0.013	T5847		SEAL BEACH
968	899	900	899-900		0.00200	8	260.4	2.73	2.21	8.1	T5847-12	1965	VCP	0.013	T5847		SEAL BEACH
969	900	903	900-903		0.00200	8	155.3	2.21	1.90	7.5	T5847-12	1965	VCP	0.013	T5847		SEAL BEACH
970	901	902	901-902		0.00200	8	308.5	3.15	2.53	6.6	T5847-09	1965	VCP	0.013	T5847		SEAL BEACH
971	902	908	902-908		0.00200	8	300.0	2.53	1.93	6.0	T5847-09	1965	VCP	0.013	T5847		SEAL BEACH
972	903	904A	903-904A		0.00200	8	280.0	1.90	1.34	7.2	T5847-12	1965	VCP	0.013	T5847		SEAL BEACH
973	904	903	904-903		0.00500	8	97.0	2.48	2.00	7.6	T5847-11	1965	VCP	0.013	T5847		SEAL BEACH
974	904A	909	904A-909		0.00200	8	279.9	1.34	0.78	6.9	T5847-12	1965	VCP	0.013	T5847		SEAL BEACH
975	905	906	905-906	Y	0.00200	8	302.0	1.04	0.44	7.0	T5847-03	1965	VCP	0.013	T5847		SEAL BEACH

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
976	906	910	906-910	Y	0.00200	8	275.0	0.44	-0.11	6.6	T5847-03	1965	VCP	0.013	T5847		SEAL BEACH
977	908	913A	908-913A		0.00200	8	360.0	1.83	1.11	5.5	T5847-08	1965	VCP	0.013	T5847		SEAL BEACH
978	909	912	909-912		0.00200	8	168.0	0.68	0.35	6.3	T5847-11	1965	VCP	0.013	T5847		SEAL BEACH
979	910	911	910-911	Y	0.00300	12	50.0	-0.44	-0.59	6.1	T5847-13	1965	VCP	0.013	T5847		SEAL BEACH
980	911	347	911-347	Y	0.00200	12	1,080.0	0.59	1.57	6.8	S142-02	1965	VCP	0.013	G839		SEAL BEACH
981	912	910	912-910	Y	0.00200	8	179.1	0.25	-0.11	5.7	T5847-03	1965	VCP	0.013	T5847		SEAL BEACH
982	912A	912	912A-912	Y	0.00200	8	244.0	1.37	0.25	5.6	T5847-02	1965	VCP	0.013	T5847	T5847-02/03	SEAL BEACH
983	913	914	913-914		0.00200	8	108.0	1.37	1.15	5.6	T5847-08	1965	VCP	0.013	T5847		SEAL BEACH
984	913A	912A	913A-912A	Y	0.00200	8	134.0	1.01	0.74	5.0	T5847-02	1965	VCP	0.013	T5847		SEAL BEACH
985	914	913A	914-913A	Y	0.00200	8	68.3	1.15	1.01	5.0	T5847-02	1965	VCP	0.013	T5847		SEAL BEACH
986	917	914	917-914		0.00200	8	211.1	1.57	1.15	5.6	T5847-02	1965	VCP	0.013	T5847		SEAL BEACH
987	918	917	918-917		0.00200	8	126.9	1.82	1.57	6.6	T5847-02	1965	VCP	0.013	T5847		SEAL BEACH
988	918A	918	918A-918		0.01030	8	134.0	3.20	1.82	8.1	T5847-16	1965	VCP	0.013	T5847	SIPHON	SEAL BEACH
989	918B	918A	918B-918A		0.00200	8	71.8	3.34	3.20	8.1	T5847-02	1965	VCP	0.013	T5847		SEAL BEACH
990	918C	918B	918C-918B		0.00200	8	232.7	3.89	3.42	7.8	T5847-04A	1965	VCP	0.013	T5847		SEAL BEACH
991	919	920A	919-920A		0.00400	8	212.0	19.89	19.07	26.4	T5992-04	1966	VCP	0.013	T5992		LOS ALAMITOS
992	920	847	920-847		0.00400	8	275.0	18.04	16.94	25.5	T5992-06	1966	VCP	0.013	T5992		LOS ALAMITOS
993	920A	920	920A-920		0.00400	8	225.0	19.04	18.14	26.0	T5992-04	1966	VCP	0.013	T5992		LOS ALAMITOS
994	921	920	921-920		0.00440	8	133.8	18.73	18.14	25.3	T5992-04	1966	VCP	0.013	T5992		LOS ALAMITOS
995	922	923	922-923		0.00400	8	355.4	18.56	17.14	25.1	T5992-03	1966	VCP	0.013	T5992		LOS ALAMITOS
996	923	924	923-924		0.00400	8	350.0	17.14	15.74	24.1	T5992-02	1966	VCP	0.013	T5992		LOS ALAMITOS
997	924	925	924-925		0.00400	8	300.0	15.74	14.54	24.1	T5992-02	1966	VCP	0.013	T5992		LOS ALAMITOS
998	925	840	925-840	Y	0.02120	8	109.1	14.54	12.39	23.7	T5992-02	1966	VCP	0.013	T5992		LOS ALAMITOS
999	926	927	926-927		0.00400	8	160.0	19.07	18.42	24.2	S128-01	1974	VCP	0.013	S-128		LOS ALAMITOS
000	927	928	927-928		0.00400	8	245.0	18.32	17.32	24.8	S128-01	1974	VCP	0.013	S-128		LOS ALAMITOS
001	928	929	928-929		0.00400	8	275.0	17.22	16.09	25.0	S128-01	1974	VCP	0.013	S-128		LOS ALAMITOS
002	929	821	929-821		0.07040	8	134.0	16.09	6.83	24.8	S128-01	1974	VCP	0.013	S-128		LOS ALAMITOS
003	930	929	930-929		0.00400	8	177.7	16.90	16.19	25.7	S128-02	1974	VCP	0.013	S-128		LOS ALAMITOS
004	931	930	931-930		0.01000	8	195.0	18.95	17.00	24.2	S128-02	1974	VCP	0.013	S-128		LOS ALAMITOS
005	932	933	932-933		0.00400	8	350.0	15.10	13.71	22.7	S125-01	1970	VCP	0.013	S-125		LOS ALAMITOS
006	933	934	933-934		0.00400	8	196.4	13.71	12.92	21.9	S125-01	1970	VCP	0.013	S-125		LOS ALAMITOS
007	934	19	934-19		0.00400	8	350.0	12.92	11.52	21.5	S125-01	1970	VCP	0.013	S-125		LOS ALAMITOS
008	935	936	935-936		0.00400	8	100.0	5.80	5.40	12.1	S107-01	1970	VCP	0.013	S-107		SEAL BEACH
009	936	937	936-937	Y	0.00400	8	180.0	5.40	4.70	13.4	S107-01	1970	VCP	0.013	S-107		SEAL BEACH
010	936A	936	936A-936		0.00400	8	191.2						VCP	0.013		NO PLAN	SEAL BEACH
011	936B	936A	936B-936A		0.00400	8	256.2						VCP	0.013		NO PLAN	SEAL BEACH
012	937	938	937-938	Y	0.00400	8	280.0	4.60	3.48	14.6	S107-01	1970	VCP	0.013	S-107		SEAL BEACH
013	938	3009	938-3009	Y	0.00400	8	301.9	3.38	2.18	14.6	S107-01	1970	VCP	0.013	S-107		SEAL BEACH
014	939	940	939-940		0.00320	8	350.0	18.92	17.80	24.8	S111-02	1962	VCP	0.013	D-1032		LOS ALAMITOS

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
1015	940	3033	940-3033		0.37800	8	30.0	17.80	6.47	25.5	S111-02	1962	VCP	0.013	S-111		LOS ALAMITOS
1016	941	940	941-940		0.00320	8	310.0	18.79	17.80	25.8	S111-02	1962	VCP	0.013	D-1032		LOS ALAMITOS
1017	942	941	942-941		0.00320	8	310.0	19.78	18.79	25.3	S111-02	1962	VCP	0.013	D-1032		LOS ALAMITOS
1018	943	942	943-942		0.00320	8	308.0	20.77	19.78	26.0	S111-02	1962	VCP	0.013	D-1032		LOS ALAMITOS
1019	944	944A	944-944A	Y	0.04890	8	63.4	12.47	9.37	26.0	S117-01	1972	VCP	0.013	S-117		LOS ALAMITOS
1020	944A	982A	944A-982A	Y	0.00092	27	301.0	8.39	8.11	26.0	C3-8-10	1959	VCP	0.013	C3-8		OCSD
1021	945	945A	945-945A		0.00400	8	180.0	13.87	13.15	25.7	S117-01	1972	VCP	0.013	S-117		LOS ALAMITOS
1022	945A	944	945A-944	Y	0.00400	8	170.0	13.15	12.47	25.8	S117-01	1972	VCP	0.013	S-117		LOS ALAMITOS
1023	946	945	946-945		0.00400	8	350.0	15.27	13.87	24.6	S117-01	1973	VCP	0.013	S-117		LOS ALAMITOS
1024	947	946	947-946		0.00400	8	312.0	16.54	15.29	24.4	S116-01	1973	VCP	0.013	S-116		LOS ALAMITOS
1025	948	963	948-963		0.00200	8	299.0	18.23	17.63	23.2	T5868-04	1969	VCP	0.013	T5868		LOS ALAMITOS
1026	949	950	949-950		0.00200	8	206.0	19.44	19.03	24.0	T5868-07	1969	VCP	0.013	T5868		LOS ALAMITOS
1027	950	948	950-948		0.00200	8	300.0	18.93	18.33	22.7	T5868-05	1969	VCP	0.013	T5868		LOS ALAMITOS
1028	951	953	951-953		0.00200	8	300.0	18.98	18.38	22.3	T5868-05	1969	VCP	0.013	T5868		LOS ALAMITOS
1029	952	951	952-951		0.00200	8	169.0	19.42	19.08	23.4	T5868-07	1969	VCP	0.013	T5868		LOS ALAMITOS
1030	953	954	953-954		0.00200	8	299.0	18.28	17.67	21.8	T5868-03	1969	VCP	0.013	T5868		LOS ALAMITOS
1031	954	956	954-956		0.00200	8	309.0	17.67	17.06	21.2	T5868-03	1969	VCP	0.013	T5868		LOS ALAMITOS
1032	955	954	955-954		0.00200	8	175.0	18.12	17.77	21.6	T5868-03	1969	VCP	0.013	T5868		LOS ALAMITOS
1033	956	958	956-958	Y	0.00200	8	300.0	17.06	16.46	21.6	T5868-02	1969	VCP	0.013	T5868		LOS ALAMITOS
1034	957	958	957-958		0.00400	8	210.0	17.30	16.46	22.4	T5868-06	1969	VCP	0.013	T5868		LOS ALAMITOS
1035	958	959	958-959	Y	0.00200	8	125.0	16.36	16.11	22.2	T5868-02	1969	VCP	0.013	T5868		LOS ALAMITOS
1036	959	981	959-981	Y	0.00200	8	450.0	16.01	15.11	22.5	T5868-02	1969	VCP	0.013	T5868	SEE ALSO T5961	LOS ALAMITOS
1037	960	959	960-959	Y	0.00200	8	89.0	16.29	16.11	22.8	T5868-02	1969	VCP	0.013	T5868		LOS ALAMITOS
1038	961	960	961-960		0.00400	8	206.0	17.21	16.39	22.4	T5868-06	1969	VCP	0.013	T5868		LOS ALAMITOS
1039	962	960	962-960	Y	0.00200	8	310.0	17.01	16.39	22.0	T5868-02	1969	VCP	0.013	T5868		LOS ALAMITOS
1040	963	962	963-962		0.00200	8	310.0	17.63	17.01	23.4	T5868-04	1969	VCP	0.013	T5868		LOS ALAMITOS
1041	964	963	964-963		0.00400	8	175.0	18.43	17.73	23.2	T5868-04	1969	VCP	0.013	T5868		LOS ALAMITOS
1042	965	966	965-966		0.00400	8	240.0	17.89	16.93	24.8	T5368-04	1964	VCP	0.013	T5354		LOS ALAMITOS
1043	966	967	966-967		0.00400	8	307.0	16.82	15.59	24.6	S126-02	1973	VCP	0.013	S-126		LOS ALAMITOS
1044	967	968	967-968		0.00400	8	340.0	15.57	14.21	24.2	S126-02	1973	VCP	0.013	S-126		LOS ALAMITOS
1045	968	22	968-22		0.01000	8	147.0	11.30	9.87	24.4	S126-02	1973	VCP	0.013	S-126		LOS ALAMITOS
1046	969	970	969-970		0.01000	8	355.0	10.52	6.97		S105-01	1970	VCP	0.013	S-105		SEAL BEACH
1047	970	972	970-972		0.00400	8	66.0	6.97	6.51		S105-01	1970	VCP	0.013	S-105		SEAL BEACH
1048	971	970	971-970		0.00400	8	223.0	7.86	6.97		S105-01	1970	VCP	0.013	S-105		SEAL BEACH
1049	972	973	972-973	Y	0.00400	8	345.0	6.51	5.03		S105-01	1970	VCP	0.013	S-105		SEAL BEACH
1050	973	974A	973-974A	Y	0.00400	8	121.0	5.03	4.45		S105-01	1970	VCP	0.013	S-105		SEAL BEACH
1051	974	479	974-479		0.00240	8	257.0	6.10	5.48	13.1	T3189-05	1956	VCP	0.013	D-336		ROSSMOOR
1052	974A	3008	974A-3008	Y	0.00240	8	327.0				S105-01	1970	VCP	0.013	S-105	NO INV OR SLOPE	SEAL BEACH
1053	975	393	975-393		0.00240	8	140.0	6.45	6.11	11.8	T2572-18	1959	VCP	0.013	D-659		ROSSMOOR

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
054	975A	974A	975A-974A		0.00400	8	325.0	5.85	4.45		S105-01	1970	VCP	0.013	S-105		SEAL BEACH
055	976A	975A	976A-975A		0.00240	8	161.3				S105-01	1970	VCP	0.013	S-105	NO INV OR SLOPE	SEAL BEACH
056	976	256	976-256		0.00240	8	70.0	0.52	0.25	10.0	T3224-10	1957	VCP	0.013	D-375		ROSSMOOR
057	977	976A	977-976A		0.00240	8	241.2				S105-01	1970	VCP	0.013	S-105	NO INV OR SLOPE	SEAL BEACH
058	978	531	978-531	Y	0.00240	8	276.0	6.43	5.76	13.8	T3129-09	1956	VCP	0.013	D-322		ROSSMOOR
059	979	1036	979-1036	Y	0.00140	18	105.0	6.95	6.79	19.4	S141-02	1998	VCP	0.013	S-1217		LOS ALAMITOS
060	982	982A	982-982A		0.00800	8	48.0	10.17	9.77	26.9	T9537-01	1977	VCP	0.013	T9537		LOS ALAMITOS
061	982A	3037	982A-3037	Y	0.00092	27	478.0	8.11	7.66	26.0	C3-8-09	1959	VCP	0.013	C3-8-09		OCSD
062	983	982	983-982		0.15000	8	47.0	17.45	10.17	26.0	T9537-01	1977	VCP	0.013	T9537		LOS ALAMITOS
063	984	983	984-983		0.00400	8	182.0	18.38	17.65	27.0	T9537-01	1977	VCP	0.013	T9537		LOS ALAMITOS
064	985	1	985-1		0.00240	8	232.0	20.91	20.35	30.2	S130-01	1976	VCP	0.013	S-130		LOS ALAMITOS
065	986	985	986-985		0.00240	8	314.0	21.76	21.01	30.6	S130-01	1976	VCP	0.013	S-130		LOS ALAMITOS
066	987	986	987-986		0.00240	8	319.2	22.63	21.86	31.0	S130-01	1976	VCP	0.013	S-130		LOS ALAMITOS
067	988	987	988-987		0.00240	8	350.0	23.57	22.73	31.6	S130-01	1976	VCP	0.013	S-130		LOS ALAMITOS
068	989	985	989-985		0.00240	8	332.0	21.80	21.01	30.4	S129-01	1977	VCP	0.013	S-129		LOS ALAMITOS
069	990	989	990-989		0.00240	8	181.0	22.30	21.86	30.0	S129-01	1977	VCP	0.013	S-129		LOS ALAMITOS
070	991	990	991-990		0.00240	8	148.0	22.76	22.40	29.8	S129-01	1977	VCP	0.013	S-129		LOS ALAMITOS
071	992	987	992-987		0.01000	8	297.0	25.70	22.83	32.4	S130-01	1977	VCP	0.013	S-130		LOS ALAMITOS
072	993	994	993-994	Y	0.00400	8	129.0	18.90	18.38	25.8	S124-02	1977	VCP	0.013	D-18-113		LOS ALAMITOS
073	994	995	994-995	Y	0.00400	8	120.3	18.38	17.90	26.2	S124-02	1977	VCP	0.013	D-18-113		LOS ALAMITOS
074	995	996	995-996	Y	0.00400	8	298.8	17.90	16.71	26.4	S124-02	1977	VCP	0.013	D-18-113		LOS ALAMITOS
075	996	997	996-997	Y	0.00400	8	300.0	16.71	15.50	26.9	S124-02	1977	VCP	0.013	D-18-113		LOS ALAMITOS
076	997	998	997-998	Y	0.02890	8	143.1	15.50	11.37	26.4	S124-02	1977	VCP	0.013	D-18-113		LOS ALAMITOS
077	998	944A	998-944A	Y	0.00240	8	1,058.3						VCP	0.013			CYPRESS
078	999	1002	999-1002		0.00400	8	376.0	91.63	90.13	99.9	T9978-02	1977	VCP	0.013	T9978		LOS ALAMITOS
079	1000	1001	1000-1001		0.00400	8	371.0	93.00	91.52	100.4	T9978-01	1977	VCP	0.013	T9978		LOS ALAMITOS
080	1001	1002	1001-1002	Y	0.00400	8	272.0	91.32	90.23	99.8	T9978-01	1977	VCP	0.013	T9978		LOS ALAMITOS
081	1002	1003	1002-1003	Y	0.04860	8	159.5	90.13	82.28	99.2	T9978-02	1977	VCP	0.013	T9978		LOS ALAMITOS
082	1003	3034	1003-3034	Y	0.00092	27	200.0	7.18	7.00	26.0	C3-8-09	1959	VCP	0.013	C3-8		OCSD
083	1004	1105	1004-1105		0.00240	8	213.0	18.21	17.69	25.0	S123-04	1978	VCP	0.013	S-123		LOS ALAMITOS
084	1006	1007	1006-1007		0.00240	8	206.0	16.70	16.21	25.8	S123-04	1978	VCP	0.013	S-123	S123-04/03	LOS ALAMITOS
085	1007	1008	1007-1008		0.00240	8	218.8	16.11	15.58	26.2	S123-03	1978	VCP	0.013	S-123		LOS ALAMITOS
086	1008	1009	1008-1009	Y	0.00240	8	332.0	15.38	14.58	25.8	S123-04	1978	VCP	0.013	S-123		LOS ALAMITOS
087	1009	945A	1009-945A	Y	0.00240	8	395.4	14.48	13.53	26.4	S123-04	1978	VCP	0.013	S-123		LOS ALAMITOS
088	1010	1008	1010-1008		0.00400	8	63.5	15.83	15.58	25.8	S123-03	1978	VCP	0.013	S-123		LOS ALAMITOS
089	1011	1010	1011-1010		0.01400	8	259.4	19.97	15.83	26.0	S123-03	1978	VCP	0.013	S-123		LOS ALAMITOS
090	1012	1013	1012-1013		0.00500	8	296.0	17.89	16.39	26.0	S113-02	1980	VCP	0.013	S-113		LOS ALAMITOS
091	1013	1014	1013-1014		0.00500	8	296.0	16.39	14.89	25.6	S113-02	1980	VCP	0.013	S-113		LOS ALAMITOS
092	1014	1015	1014-1015	Y	0.00400	8	285.2	14.89	13.74	25.1	S113-03	1980	VCP	0.013	S-113		LOS ALAMITOS

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (f/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
1093	1015	1016	1015-1016	Y	0.00400	8	268.0	13.74	12.65	25.9	S113-03	1980	VCP	0.013	S-113		LOS ALAMITOS
1094	1016	1017	1016-1017	Y	0.00400	8	202.2	12.65	11.84	26.5	S113-03	1980	VCP	0.013	S-113		LOS ALAMITOS
1095	1017	2042	1017-2042	Y	0.00400	8	99.1	11.84	11.44	26.1	S113-03	1980	VCP	0.013	S-113		LOS ALAMITOS
1096	1018	1014	1018-1014		0.00400	8	183.1	15.62	14.89	24.7	S113-02	1980	VCP	0.013	S-113		LOS ALAMITOS
1097	1019	1020	1019-1020		0.00500	8	146.0	17.35	16.60	25.0	S114-02	1986	VCP	0.013	S-114		LOS ALAMITOS
1098	1020	1021	1020-1021		0.00500	8	213.2	16.60	15.53	25.6	S114-02	1986	VCP	0.013	S-114		LOS ALAMITOS
1099	1021	1022	1021-1022		0.00500	8	209.0	15.53	14.45	25.0	S114-02	1986	VCP	0.013	S-114		LOS ALAMITOS
1100	1022	18	1022-18		0.00935	8	285.5	14.45	11.78	24.6	S114-02	1986	VCP	0.013	S-114		LOS ALAMITOS
1101	1023	142	1023-142		0.00400	8	114.0	16.06	15.60	21.2	S140-01	1986	VCP	0.013	PR85-0131		LOS ALAMITOS
1102	1028	2019	1028-2019	Y	0.00140	18	202.0	3.87	3.58	19.0	S141-02	1998	VCP	0.013	S-1217		LOS ALAMITOS
1103	1030	1028	1030-1028	Y	0.00140	18	559.0	4.66	3.87	20.0	S141-02	1998	VCP	0.013	S-1217		LOS ALAMITOS
1104	1032	1030	1032-1030	Y	0.00140	18	560.0	5.45	4.66	21.4	S141-03	1998	VCP	0.013	S-1217		LOS ALAMITOS
1105	1034	1032	1034-1032	Y	0.00140	18	461.0	6.14	5.45	19.8	S141-03	1998	VCP	0.013	S-1217		LOS ALAMITOS
1106	1036	1034	1036-1034	Y	0.00150	18	432.0	6.79	6.14	20.0	S141-04	1998	VCP	0.013	S-1217		LOS ALAMITOS
1107	1040	4002	1040-4002	Y	0.57500	18	6.0	-10.55	-14.00	10.3	D-587-02	1958	VCP	0.013	D-587	PS PLANS	ROSSMOOR
1108	1105	1006	1105-1006		0.00240	8	287.0	17.49	16.80	25.1	S123-04	1978	VCP	0.013	S-123		LOS ALAMITOS
1109	2001	2000	2001-2000	Y	0.00052	51	364.0	-3.06	-3.25	11.0	C3-11-06	1969	VCP	0.013	D-1539		OCSD
1110	2002	2001	2002-2001	Y	0.00052	51	175.2	-2.97	-3.06	12.8	C3-11-06	1969	VCP	0.013	D-1539		OCSD
1111	2003	2002	2003-2002	Y	0.00066	39	78.0	-2.28	-2.33	11.6	C3-21-1-02	1975	VCP	0.013	D-1874		OCSD
1112	2004	2003	2004-2003	Y	0.00066	39	627.0	-1.87	-2.28	11.8	C3-21-1-02	1975	VCP	0.013	D-1874		OCSD
1113	2005	2004	2005-2004	Y	0.00066	39	585.0	-1.48	-1.87	12.2	C3-21-1-03	1975	VCP	0.013	D-1874		OCSD
1114	2006	2005	2006-2005	Y	0.00066	39	600.0	-1.09	-1.48	13.4	C3-21-1-03	1975	VCP	0.013	D-1874		OCSD
1115	2007	2006	2007-2006	Y	0.00066	39	150.0	-0.99	-1.09	14.6	C3-21-1-03	1975	VCP	0.013	D-1874		OCSD
1116	2008	2007	2008-2007	Y	0.00066	39	126.2	-0.91	-0.99	15.6	C3-21-1-03	1975	VCP	0.013	D-1874		OCSD
1117	2009	2008	2009-2008	Y	0.00066	39	675.0	-0.46	-0.91	13.2	C3-21-1-04	1975	VCP	0.013	D-1874		OCSD
1118	2010	2009	2010-2009	Y	0.00066	39	635.0	0.04	-0.46	13.8	C3-21-1-04	1975	VCP	0.013	D-1874		OCSD
1119	2011	2010	2011-2010	Y	0.00036	39	600.0	0.28	0.06	14.6	C3-21-1-05	1975	VCP	0.013	D-1874		OCSD
1120	2012	2011	2012-2011	Y	0.00036	39	38.0	0.29	0.28	14.7	C3-21-1-05	1975	VCP	0.013	D-1874		OCSD
1121	2013	2012	2013-2012	Y	0.00036	39	302.1	0.40	0.29	15.0	C3-21-1-05	1975	VCP	0.013	D-1874		OCSD
1122	2014	2013	2014-2013	Y	0.00036	39	540.0	0.59	0.40	15.9	C3-21-1-06	1975	VCP	0.013	D-1874		OCSD
1123	2015	2014	2015-2014	Y	0.00036	39	563.5	0.80	0.59	16.6	C3-21-1-06	1975	VCP	0.013	D-1874		OCSD
1124	2016	2015	2016-2015	Y	0.00047	36	611.5	1.34	1.05	17.2	C3-21-1-07	1975	VCP	0.013	D-1874		OCSD
1125	2017	2016	2017-2016	Y	0.00047	36	615.0	1.63	1.34	17.6	C3-21-1-07	1975	VCP	0.013	D-1874		OCSD
1126	2050	2017	2050-2017	Y	0.00047	36	610.0	1.91	1.63	18.2	C3-21-1-08	1975	VCP	0.013	D-1874		OCSD
1127	2018	2050	2018-2050	Y	0.00047	36	590.0	2.19	1.91	19.1	C3-21-1-08	1975	VCP	0.013	D-1874		OCSD
1128	2019	2018	2019-2018	Y	0.00047	36	596.0	2.47	2.19	19.2	C3-21-1-09	1975	VCP	0.013	D-1874		OCSD
1129	2020	2019	2020-2019	Y	0.00046	36	574.0	2.73	2.47	19.6	C3-21-1-09	1975	VCP	0.013	D-1874		OCSD
1130	2021	2020	2021-2020	Y	0.00046	36	630.0	3.02	2.73	20.2	C3-21-1-10	1975	VCP	0.013	D-1874		OCSD
1131	2022	2021	2022-2021	Y	0.00046	36	620.0	3.31	3.02	20.8	C3-21-1-10	1975	VCP	0.013	D-1874		OCSD

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

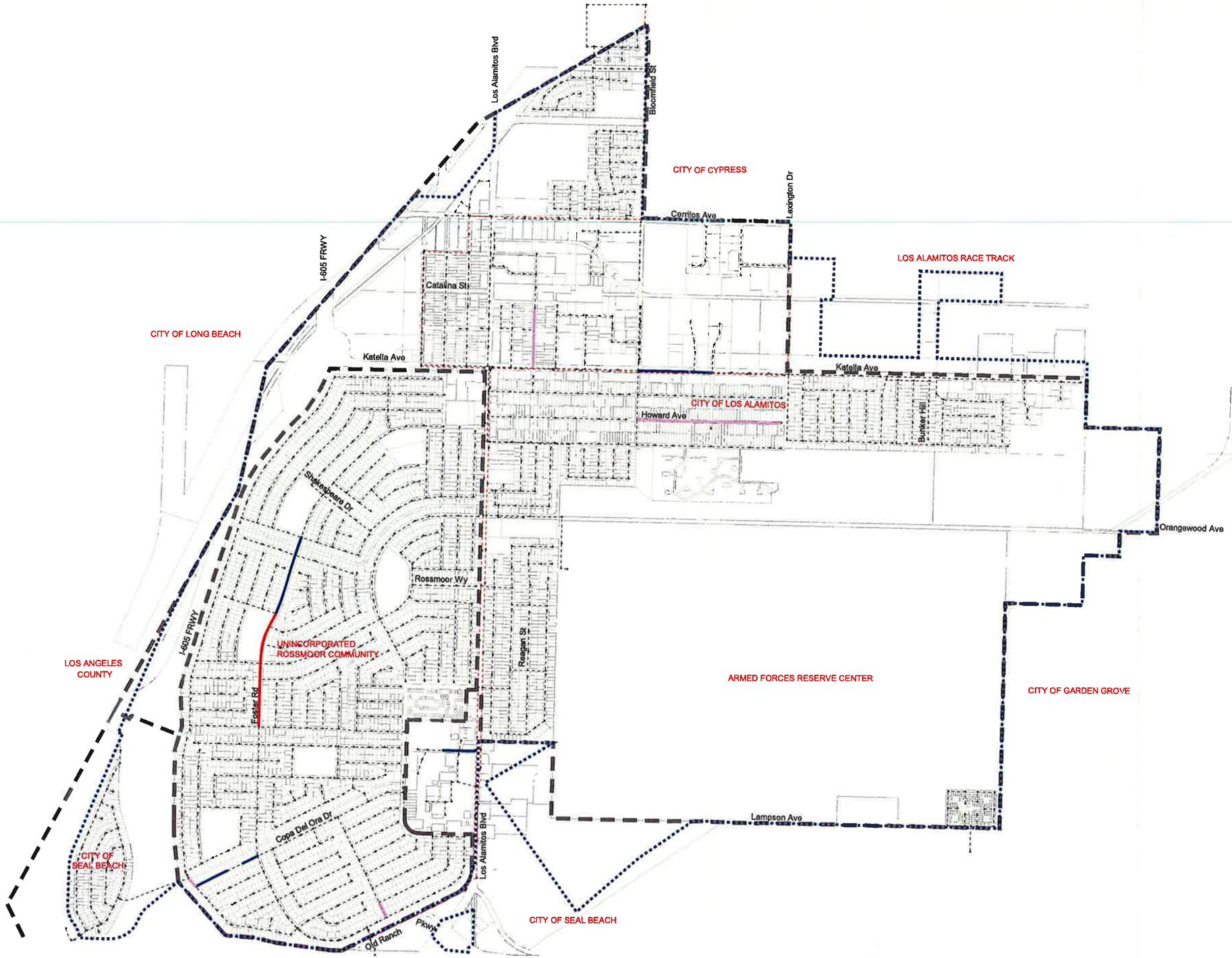
SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
32	2023	2022	2023-2022	Y	0.00046	36	26.0	3.32	3.31	20.7	C3-21-1-10	1975	VCP	0.013	D-1874		OCSD
33	2024	2023	2024-2023	Y	0.00046	36	395.0	3.50	3.32	21.7	C3-21-1-10	1975	VCP	0.013	D-1874		OCSD
34	2025	2024	2025-2024	Y	0.00046	36	26.0	3.51	3.50	21.8	C3-21-1-11	1975	VCP	0.013	D-1874		OCSD
35	2026	2025	2026-2025	Y	0.00046	36	308.0	3.66	3.51	22.1	C3-21-1-11	1975	VCP	0.013	D-1874		OCSD
36	2027	2026	2027-2026	Y	0.00046	36	57.0	3.68	3.66	21.9	C3-21-1-11	1975	VCP	0.013	D-1874		OCSD
37	2028	2027	2028-2027	Y	0.00104	30	520.0	4.72	4.18	22.2	C3-21-1-11	1975	VCP	0.013	D-1874		OCSD
38	2029	2028	2029-2028	Y	0.00104	30	530.0	5.27	4.72	22.8	C3-21-1-12	1975	VCP	0.013	D-1874		OCSD
39	2030	2029	2030-2029	Y	0.00104	30	32.0	5.31	5.27	22.8	C3-21-1-12	1975	VCP	0.013	D-1874		OCSD
40	2031	2030	2031-2030	Y	0.00104	30	487.3	5.81	5.31	23.1	C3-21-1-12	1975	VCP	0.013	D-1874		OCSD
41	2032	2031	2032-2031	Y	0.00104	30	500.0	6.33	5.81	23.2	C3-21-1-13	1975	VCP	0.013	D-1874		OCSD
42	2033	2032	2033-2032	Y	0.00104	30	497.0	6.85	6.33	24.0	C3-21-1-13	1975	VCP	0.013	D-1874		OCSD
43	2034	2033	2034-2033	Y	0.00072	30	653.0	7.32	6.85	24.8	C3-21-1-13	1975	VCP	0.013	D-1874		OCSD
44	2035	2034	2035-2034	Y	0.00072	30	625.0	7.77	7.32	25.1	C3-21-1-14	1975	VCP	0.013	D-1874		OCSD
45	2036	2035	2036-2035	Y	0.00072	30	650.0	8.24	7.77	25.6	C3-21-1-15	1975	VCP	0.013	D-1874		OCSD
46	2037	2036	2037-2036	Y	0.00072	30	655.0	8.71	8.24	26.7	C3-21-1-15	1975	VCP	0.013	D-1874		OCSD
47	2038	2037	2038-2037	Y	0.00072	30	93.0	8.78	8.71	26.5	C3-21-1-15	1975	VCP	0.013	D-1874		OCSD
48	2039	2038	2039-2038	Y	0.00063	30	602.2	9.21	8.83	25.2	C3-21-2-02	1976	VCP	0.013	D-1859		OCSD
49	2040	2039	2040-2039	Y	0.00063	30	635.0	9.61	9.21	26.4	C3-21-2-02	1976	VCP	0.013	D-1859		OCSD
50	2041	2040	2041-2040	Y	0.00063	30	79.7	9.66	9.61	26.8	C3-21-2-03	1976	VCP	0.013	D-1859		OCSD
51	2042	2041	2042-2041	Y	0.00063	30	490.0	9.97	9.66	27.2	C3-21-2-03	1976	VCP	0.013	D-1859		OCSD
52	2043	2042	2043-2042	Y	0.00063	30	766.9	10.45	9.97	27.5	C3-21-2-03	1976	VCP	0.013	D-1859		OCSD
53	3000	4003	3000-4003	Y	0.05600	24	10.0	-9.57	-10.13	11.2	C3-8-03	1959	VCP	0.013	C3-8		OCSD
54	3001	3000	3001-3000	Y	0.00084	30	530.0	-7.95	-8.46	11.0	C3-8-03	1959	VCP	0.013	C3-8		OCSD
55	3002	3001	3002-3001	Y	0.00084	30	598.5	-7.44	-7.95	11.8	C3-8-03	1959	VCP	0.013	C3-8		OCSD
56	3003	3002	3003-3002	Y	0.00084	30	601.6	-6.94	-7.44	12.5	C3-8-03	1959	VCP	0.013	C3-8		OCSD
57	3004	3003	3004-3003	Y	0.00084	30	229.9	-6.76	-6.94	13.0	C3-8-03	1959	VCP	0.013	C3-8		OCSD
58	3005	3004	3005-3004	Y	0.00084	30	161.5	-6.62	-6.76	13.0	C3-8-03	1959	VCP	0.013	C3-8		OCSD
59	3006	3005	3006-3005	Y	0.00084	30	588.6	-6.10	-6.62	14.0	C3-8-04	1959	VCP	0.013	C3-8		OCSD
60	3007	3006	3007-3006	Y	0.00084	30	350.0	-5.81	-6.10	14.5	C3-8-04	1959	VCP	0.013	C3-8		OCSD
61	3008	3007	3008-3007	Y	0.00084	30	500.6	-5.38	-5.81	15.0	C3-8-04	1959	VCP	0.013	C3-8		OCSD
62	3009	3008	3009-3008	Y	0.00084	30	500.0	-4.96	-5.38	15.5	C3-8-04	1959	VCP	0.013	C3-8		OCSD
63	3010	3009	3010-3009	Y	0.00084	30	366.5	-4.65	-4.96	16.0	C3-8-04	1959	VCP	0.013	C3-8		OCSD
64	3011	3010	3011-3010	Y	0.00084	30	874.5	-3.91	-4.65	17.0	C3-8-05	1959	VCP	0.013	C3-8		OCSD
65	3012	3011	3012-3011	Y	0.00084	30	893.0	-3.16	-3.91	18.0	C3-8-05	1959	VCP	0.013	C3-8		OCSD
66	3013	3012	3013-3012	Y	0.00084	30	894.0	-2.41	-3.16	18.0	C3-8-05	1959	VCP	0.013	C3-8		OCSD
67	3014	3013	3014-3013	Y	0.00084	30	617.0	-1.89	-2.41	19.0	C3-8-05	1959	VCP	0.013	C3-8		OCSD
68	3050	3014	3050-3014	Y	0.00084	30	611.4	-1.37	-1.89	19.2	C3-8-09	1959	VCP	0.013	C3-8		OCSD
69	3015	3050	3015-3050	Y	0.00080	30	661.1	-0.85	-1.37	20.0	C3-8-06	1959	VCP	0.013	C3-8		OCSD
70	3016	3015	3016-3015	Y	0.00080	30	661.0	-0.32	-0.85	21.0	C3-8-06	1959	VCP	0.013	C3-8		OCSD

ROSSMOOR / LOS ALAMITOS AREA SEWER DISTRICT

SEWER FACILITIES DATA SUMMARY

No.	USMH	DSMH	Pipe Link	Modeled Pipe	Slope (ft/ft)	Diameter (in)	Length (ft)	US Invert	DS Invert	US Ground Elev.	Contract	Year	Mat-erial	Manning "n"	Drawing No.	Comment	Owner
1171	3017	3016	3017-3016	Y	0.00080	30	400.0	0.00	-0.32	21.0	C3-8-06	1959	VCP	0.013	C3-8		OCSD
1172	3018	3017	3018-3017	Y	0.00080	30	232.0	0.19	0.00	21.2	C3-8-06	1959	VCP	0.013	C3-8		OCSD
1173	3019	3018	3019-3018	Y	0.00080	30	300.0	0.43	0.19	22.0	C3-8-06	1959	VCP	0.013	C3-8		OCSD
1174	3020	3019	3020-3019	Y	0.00080	30	298.5	0.65	0.43	22.2	C3-8-07	1959	VCP	0.013	C3-8		OCSD
1175	3021	3020	3021-3020	Y	0.00080	30	73.3	0.73	0.65	22.0	C3-8-07	1959	VCP	0.013	C3-8		OCSD
1176	3022	3021	3022-3021	Y	0.00080	30	560.2	1.18	0.73	21.0	C3-8-07	1959	VCP	0.013	C3-8		OCSD
1177	3023	3022	3023-3022	Y	0.00080	30	560.2	1.62	1.18	20.5	C3-8-07	1959	VCP	0.013	C3-8		OCSD
1178	3024	3023	3024-3023	Y	0.00080	30	232.8	1.91	1.72	19.5	C3-8-07	1959	VCP	0.013	C3-8		OCSD
1179	3025	3024	3025-3024	Y	0.00096	27	593.0	2.73	2.16	21.0	C3-8-07	1959	VCP	0.013	C3-8		OCSD
1180	3026	3025	3026-3025	Y	0.00096	27	593.0	3.30	2.73	20.5	C3-8-08	1959	VCP	0.013	C3-8		OCSD
1181	3027	3026	3027-3026	Y	0.00096	27	598.5	3.87	3.30	20.5	C3-8-08	1959	VCP	0.013	C3-8		OCSD
1182	3028	3027	3028-3027	Y	0.00096	27	414.5	4.37	3.97	22.0	C3-8-08	1959	VCP	0.013	C3-8		OCSD
1183	3029	3028	3029-3028	Y	0.00096	27	375.5	4.73	4.37	22.5	C3-8-08	1959	VCP	0.013	C3-8		OCSD
1184	3030	3029	3030-3029	Y	0.00096	27	328.0	5.14	4.83	23.0	C3-8-08	1959	VCP	0.013	C3-8		OCSD
1185	3031	3030	3031-3030	Y	0.00096	27	326.1	5.46	5.14	24.8	C3-8-08	1959	VCP	0.013	C3-8		OCSD
1186	3032	3031	3032-3031	Y	0.00096	27	362.0	5.91	5.56	25.0	C3-8-09	1959	VCP	0.013	C3-8		OCSD
1187	3033	3032	3033-3032	Y	0.00092	27	605.4	6.47	5.91	25.8	C3-8-09	1959	VCP	0.013	C3-8		OCSD
1188	3034	3033	3034-3033	Y	0.00092	27	585.0	7.00	6.47	26.2	C3-8-09	1959	VCP	0.013	C3-8		OCSD
1189	3036	1003	3036-1003	Y	0.00092	27	402.0	7.55	7.18	26.0	C3-8-09	1959	VCP	0.013	C3-8		OCSD
1190	3037	3036	3037-3036	Y	0.00092	27	120.0	7.66	7.55	21.0	C3-8-06	1959	VCP	0.013	C3-8		OCSD
1191	3038	944A	3038-944A	Y	0.00100	24	549.0	9.19	8.64	26.2	C3-8-10	1959	VCP	0.013	C3-8		OCSD
1192	3039	3038	3039-3038	Y	0.00100	24	547.0	9.73	9.19	27.0	C3-8-10	1959	VCP	0.013	C3-8		OCSD
1193	3040	3039	3040-3039	Y	0.00100	24	320.0	10.05	9.73	28.0	C3-8-10	1959	VCP	0.013	C3-8		OCSD
1194	3041	3040	3041-3040	Y	0.00100	24	209.0	10.26	10.05	33.0	C3-8-10	1959	VCP	0.013	C3-8		OCSD
1195	3042	3041	3042-3041	Y	0.00100	24	155.0	10.43	10.26	33.4	C3-8-10	1959	VCP	0.013	C3-8		OCSD
1196	3043	3042	3043-3042	Y	0.00100	24	432.3	10.85	10.43	27.2	C3-8-10	1959	VCP	0.013	C3-8		OCSD
1197	3044	3043	3044-3043	Y	0.00100	24	435.8	11.29	10.85	28.0	C3-8-10	1959	VCP	0.013	C3-8		OCSD
1198	3045	3044	3045-3044	Y	0.00114	21	376.7	11.87	11.44	28.2	C3-8-11	1959	VCP	0.013	C3-8		OCSD
1199	3046	3045	3046-3045	Y	0.00114	21	376.7	12.30	11.87	28.0	C3-8-11	1959	VCP	0.013	C3-8		OCSD
1200	3047	3046	3047-3046	Y	0.00114	21	52.0	12.36	12.30	28.0	C3-8-11	1959	VCP	0.013	C3-8		OCSD
1201	3048	3047	3048-3047	Y	0.00114	21	575.6	13.01	12.36	28.8	C3-8-11	1959	VCP	0.013	C3-8		OCSD
1202	4003	4002	4003-4002	Y	0.05600	24	93.1	-10.13	-15.34	11.2	C3-8-03	1959	VCP	0.013	C3-8		OCSD
1203	4002	2002	4002-2002	Y	0.10000	20	135.0		-1.80		D-572	1958	VCP	0.013	D-572	DO NOT HAVE FM PLANS	OCSD
1204	2003	4003	2003-4003		0.59830	21	14.5	-2.30	-11.00	12.0	C3-21-1-17	1975	VCP	1.013	D-1874		OCSD



Legend

Ultimate D/d Ratios

- 0.67 - 0.69
- 0.7 - 0.79
- 0.8 - 0.89
- 0.9 - 1.0

Manholes

District Boundary

City Boundaries

Local Sewer
OCSD Trunk Sewer

N

1800' 0 1800

Rossmoor/Los Alamitos Area Sewer District

Ultimate Condition
D/d Ratio Map

August 2001 | Figure 1

Boyle Engineering Corporation

Y:\L03\250\CAD\FIGURES\Fig11-1.a

Sewer Analysis Results

Ultimate Condition

ID		Slope	Diameter	Peak Capacity	Average Capacity	Area	Input Flow	Point Source	Average Flow	Peak Design Flow	Design Velocity	Depth Ratio	Excess Capacity	Replace Diameter	Parallel Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
3	4	0.00200	10	0.77	0.38	31.49	0.12	0.00	0.12	0.27	1.54	0.36	0.26	0	0
4	5	0.00282	10	0.92	0.46	16.00	0.00	0.00	0.12	0.27	1.76	0.33	0.34	0	0
5	6	0.00150	12	1.09	0.55	30.46	0.00	0.00	0.18	0.38	1.51	0.36	0.37	0	0
6	7	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.18	0.38	1.51	0.36	0.37	0	0
7	8	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.18	0.38	1.51	0.36	0.37	0	0
8	9	0.00150	12	1.09	0.55	34.36	0.06	0.00	0.24	0.50	1.63	0.41	0.31	0	0
9	10	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.24	0.50	1.63	0.41	0.31	0	0
10	11	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.24	0.50	1.63	0.41	0.31	0	0
11	12	0.00150	12	1.09	0.55	6.03	0.00	0.00	0.24	0.50	1.63	0.41	0.31	0	0
12	13	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.24	0.50	1.63	0.41	0.31	0	0
13	14	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.28	0.58	1.68	0.45	0.27	0	0
14	15	0.00150	12	1.09	0.55	15.08	0.00	0.00	0.34	0.68	1.75	0.49	0.22	0	0
15	16	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.34	0.68	1.75	0.49	0.22	0	0
16	17	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.34	0.68	1.75	0.49	0.22	0	0
17	18	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.34	0.68	1.75	0.49	0.22	0	0
18	19	0.00150	12	1.09	0.55	50.27	0.26	0.00	0.59	1.16	1.97	0.70	0.00	15	12
19	20	0.00150	12	1.09	0.55	23.93	0.11	0.00	0.70	1.35	2.00	0.80	0.00	15	12
20	21	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.70	1.35	2.00	0.80	0.00	15	12
21	22	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.70	1.35	2.00	0.80	0.00	15	12
22	2033	0.06090	12	6.94	4.05	30.82	0.11	0.00	0.80	1.54	8.30	0.28	3.25	0	0
23	24	0.00150	12	1.09	0.55	6.68	0.03	0.00	0.03	0.06	0.89	0.15	0.53	0	0
24	25	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.03	0.06	0.89	0.15	0.53	0	0
25	25A	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.11	0.23	1.30	0.28	0.45	0	0
25A	26	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.11	0.23	1.30	0.28	0.45	0	0
26A	26	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.04	0.10	1.52	0.25	0.25	0	0
26	27	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.15	0.32	1.45	0.33	0.40	0	0
27	28	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.38	0.78	1.81	0.54	0.17	0	0
28	29A	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.43	0.87	1.85	0.57	0.12	0	0
29A	2027	0.00380	12	1.73	0.91	0.00	0.00	0.00	0.43	0.87	2.63	0.44	0.48	0	0
30	31	0.00150	15	2.67	1.45	0.00	0.00	0.00	0.17	0.37	1.47	0.26	1.27	0	0
31	32	0.00150	15	2.67	1.45	19.72	0.12	0.00	0.30	0.61	1.70	0.34	1.15	0	0
32	33	0.00150	15	2.67	1.45	18.87	0.13	0.00	0.42	0.85	1.84	0.40	1.02	0	0
33	785A	0.00150	15	2.67	1.45	62.10	0.21	0.00	0.64	1.25	2.04	0.50	0.81	0	0
37	53	0.00160	10	0.69	0.34	51.82	0.06	0.00	0.06	0.13	1.16	0.26	0.28	0	0
53	5	0.00160	10	0.69	0.34	0.00	0.00	0.00	0.06	0.13	1.16	0.26	0.28	0	0
75	76	0.00240	8	0.47	0.22	25.65	0.05	0.00	0.05	0.11	1.29	0.29	0.18	0	0
76	86	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.05	0.11	1.29	0.29	0.18	0	0
81	82	0.00240	8	0.47	0.22	19.14	0.04	0.00	0.04	0.10	1.26	0.28	0.18	0	0
82	83	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.10	1.26	0.28	0.18	0	0
83	13	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.04	0.10	1.18	0.29	0.16	0	0
86	89	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.05	0.11	1.29	0.29	0.18	0	0

Sewer Analysis Results

Ultimate Condition

ID		Slope	Diameter	Peak Capacity	Average Capacity	Area	Input Flow	Point Source	Average Flow	Peak Design Flow	Design Velocity	Depth Ratio	Excess Capacity	Replace Diameter	Parallel Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
89	92	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.05	0.11	1.29	0.29	0.18	0	0
92	93	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.05	0.11	1.29	0.29	0.18	0	0
93	94	0.00200	8	0.43	0.20	4.75	0.01	0.00	0.05	0.13	1.24	0.32	0.15	0	0
94	95	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.05	0.13	1.24	0.32	0.15	0	0
95	14	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.05	0.13	1.24	0.32	0.15	0	0
98	99	0.00240	8	0.47	0.22	26.54	0.22	0.00	0.22	0.47	1.88	0.67	0.00	0	0
99	100	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.22	0.47	1.88	0.67	0.00	0	0
100	101	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.22	0.47	1.88	0.67	0.00	0	0
101	102	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.22	0.47	1.88	0.67	0.00	0	0
102	103	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.22	0.47	1.88	0.67	0.00	0	0
103	104	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.22	0.47	1.88	0.67	0.00	0	0
104	105	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.22	0.47	1.88	0.67	0.00	0	0
105	135	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.22	0.47	1.88	0.67	0.00	0	0
106	107	0.00240	8	0.47	0.22	26.82	0.23	0.00	0.23	0.48	1.89	0.68	0.00	10	8
107	108	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.23	0.48	1.89	0.68	0.00	10	8
108	109	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.23	0.48	1.89	0.68	0.00	10	8
109	110	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.23	0.48	1.89	0.68	0.00	10	8
110	112	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.23	0.48	1.89	0.68	0.00	10	8
112	113	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.23	0.48	1.89	0.68	0.00	10	8
113	114	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.23	0.48	1.89	0.68	0.00	10	8
114	134	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.23	0.48	1.89	0.68	0.00	10	8
125	126	0.00200	8	0.43	0.20	15.82	0.12	0.00	0.12	0.26	1.52	0.48	0.09	0	0
126	127	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.12	0.26	1.52	0.48	0.09	0	0
127	128	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.12	0.26	1.52	0.48	0.09	0	0
128	129	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.12	0.26	1.52	0.48	0.09	0	0
129	130	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.12	0.26	1.52	0.48	0.09	0	0
130	131	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.12	0.26	1.52	0.48	0.09	0	0
131	132	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.12	0.26	1.52	0.48	0.09	0	0
132	133	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.12	0.26	1.52	0.48	0.09	0	0
133	134	0.00240	8	0.47	0.22	44.83	0.00	0.00	0.12	0.26	1.64	0.47	0.10	0	0
134	135	0.00230	10	0.83	0.41	0.00	0.00	0.00	0.35	0.71	2.06	0.60	0.07	0	0
135	2033	0.00330	12	1.62	0.84	0.00	0.00	0.00	0.57	1.12	2.68	0.53	0.28	0	0
136	137	0.00240	8	0.47	0.22	24.50	0.20	0.00	0.20	0.42	1.83	0.61	0.03	0	0
137	138	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.20	0.42	1.83	0.61	0.03	0	0
138	139	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.20	0.42	1.83	0.61	0.03	0	0
139	140	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.20	0.42	1.83	0.61	0.03	0	0
140	141	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.20	0.42	1.83	0.61	0.03	0	0
141	143	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.20	0.42	1.83	0.61	0.03	0	0
143	144	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.20	0.42	1.83	0.61	0.03	0	0
144	144A	0.00660	12	2.28	1.23	8.67	0.04	0.00	0.56	1.11	3.41	0.43	0.66	0	0
144A	2026	0.01200	12	3.08	1.69	0.00	0.00	0.00	0.56	1.11	4.27	0.37	1.13	0	0

Sewer Analysis Results

Ultimate Condition

ID		Slope	Diameter	Peak Capacity	Average Capacity	Area	Input Flow	Point Source	Average Flow	Peak Design Flow	Design Velocity	Depth Ratio	Excess Capacity	Replace Diameter	Parallel Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
145	144	0.00200	12	1.26	0.65	8.25	0.02	0.00	0.33	0.67	1.94	0.45	0.32	0	0
146	145	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.20	0.43	1.84	0.62	0.02	0	0
147	146	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.20	0.43	1.84	0.62	0.02	0	0
148	147	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.20	0.43	1.84	0.62	0.02	0	0
149	148	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.20	0.43	1.84	0.62	0.02	0	0
150	149	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.20	0.43	1.84	0.62	0.02	0	0
151	150	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.20	0.43	1.84	0.62	0.02	0	0
152	151	0.00240	8	0.47	0.22	24.65	0.20	0.00	0.20	0.43	1.84	0.62	0.02	0	0
153	154	0.00200	8	0.43	0.20	18.12	0.11	0.00	0.11	0.24	1.50	0.47	0.10	0	0
154	155	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.11	0.24	1.50	0.47	0.10	0	0
155	156	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.11	0.24	1.50	0.47	0.10	0	0
156	157	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.11	0.24	1.50	0.47	0.10	0	0
157	158	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.11	0.24	1.50	0.47	0.10	0	0
158	159	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.11	0.24	1.50	0.47	0.10	0	0
159	160	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.11	0.24	1.50	0.47	0.10	0	0
160	145	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.11	0.24	1.46	0.26	0.54	0	0
171	3016	0.00530	8	0.69	0.34	0.00	0.00	0.00	0.04	0.09	1.57	0.20	0.30	0	0
172	171	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.04	0.09	1.47	0.23	0.26	0	0
173	172	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.04	0.09	1.47	0.23	0.26	0	0
174	173	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.04	0.09	1.47	0.23	0.26	0	0
175A	175	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.04	0.09	1.47	0.23	0.26	0	0
175	174	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.04	0.09	1.47	0.23	0.26	0	0
177	175A	0.00400	8	0.60	0.29	20.25	0.04	0.00	0.04	0.09	1.47	0.23	0.26	0	0
187B	187A	0.00200	8	0.43	0.20	16.25	0.06	0.00	0.06	0.14	1.30	0.35	0.14	0	0
187A	1028	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.06	0.14	1.30	0.35	0.14	0	0
187	1028	0.00200	8	0.43	0.20	36.67	0.08	0.00	0.08	0.17	1.36	0.38	0.13	0	0
204	205	0.00320	8	0.54	0.26	19.39	0.03	0.00	0.03	0.08	1.32	0.23	0.23	0	0
205	249	0.00340	10	1.01	0.51	0.00	0.00	0.00	0.06	0.13	1.52	0.22	0.45	0	0
206	205	0.00340	10	1.01	0.51	0.00	0.00	0.00	0.03	0.06	1.19	0.15	0.48	0	0
210	211	0.00240	8	0.47	0.22	25.82	0.05	0.00	0.05	0.11	1.29	0.29	0.17	0	0
211	244	0.00910	8	0.91	0.46	0.00	0.00	0.00	0.06	0.13	2.22	0.23	0.40	0	0
212	211	0.00780	8	0.84	0.42	4.04	0.01	0.00	0.01	0.02	1.12	0.09	0.41	0	0
217	206	0.00340	10	1.01	0.51	0.00	0.00	0.00	0.03	0.06	1.19	0.15	0.48	0	0
228	229	0.00340	10	1.01	0.51	14.33	0.03	0.00	0.03	0.06	1.19	0.15	0.48	0	0
229	217	0.00340	10	1.01	0.51	0.00	0.00	0.00	0.03	0.06	1.19	0.15	0.48	0	0
243	244	0.00300	8	0.52	0.25	31.20	0.05	0.00	0.05	0.12	1.45	0.29	0.20	0	0
244	2015	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.13	0.28	1.67	0.48	0.09	0	0
245	244	0.00240	8	0.47	0.22	14.16	0.02	0.00	0.02	0.05	1.05	0.20	0.20	0	0
249	3013	0.00370	10	1.05	0.53	0.00	0.00	0.00	0.06	0.13	1.58	0.22	0.47	0	0
256	260	0.00240	8	0.47	0.22	19.61	0.03	0.00	0.13	0.29	1.69	0.49	0.09	0	0
257	256	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.10	0.22	1.57	0.42	0.13	0	0

Sewer Analysis Results

Ultimate Condition

ID		Slope	Diameter	Peak Capacity	Average Capacity	Area	Input Flow	Point Source	Average Flow	Peak Design Flow	Design Velocity	Depth Ratio	Excess Capacity	Replace Diameter	Parallel Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
258	257	0.00240	8	0.47	0.22	37.51	0.10	0.00	0.10	0.22	1.57	0.42	0.13	0	0
260	265	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.13	0.29	1.69	0.49	0.09	0	0
265	269	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.13	0.29	1.69	0.49	0.09	0	0
269	273	0.00240	8	0.47	0.22	16.16	0.03	0.00	0.16	0.34	1.77	0.55	0.06	0	0
273	278	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.16	0.34	1.77	0.55	0.06	0	0
278	284	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.22	0.46	1.88	0.67	0.00	0	0
279	278	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.06	0.14	1.36	0.32	0.16	0	0
280	279	0.00240	8	0.47	0.22	23.96	0.06	0.00	0.06	0.14	1.36	0.32	0.16	0	0
284	292	0.00240	8	0.47	0.22	10.15	0.02	0.00	0.24	0.50	1.90	0.70	0.00	10	8
292	337	0.00200	10	0.77	0.38	17.11	0.03	0.00	0.27	0.55	1.85	0.54	0.12	0	0
323	332A	0.00120	18	3.88	2.17	26.36	0.05	0.00	1.74	3.16	2.32	0.72	0.43	0	0
332A	332	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.74	3.16	2.32	0.72	0.43	0	0
332	333A	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.74	3.16	2.32	0.72	0.43	0	0
333A	333	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.74	3.16	2.32	0.72	0.43	0	0
333	334A	0.00120	18	3.88	2.17	8.18	0.01	0.00	1.75	3.18	2.32	0.72	0.42	0	0
334A	334	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.75	3.18	2.32	0.72	0.42	0	0
334	334B	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.75	3.18	2.32	0.72	0.42	0	0
334B	335A	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.75	3.18	2.32	0.72	0.42	0	0
335A	335	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.75	3.18	2.32	0.72	0.42	0	0
335	336A	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.75	3.18	2.32	0.72	0.42	0	0
336A	336	0.00120	18	3.88	2.17	0.00	0.00	0.00	2.01	3.63	2.94	0.66	0.84	0	0
336	1040	0.00200	18	5.01	2.85	0.00	0.00	0.00	0.27	0.55	1.85	0.54	0.12	0	0
337	336	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.10	0.23	1.59	0.44	0.12	0	0
346	347A	0.00240	8	0.47	0.22	24.46	0.08	0.00	0.10	0.23	1.59	0.44	0.12	0	0
347A	347	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.24	0.49	1.90	0.70	0.00	10	8
347	348	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.25	0.51	1.91	0.73	0.00	10	8
348	349	0.00240	8	0.47	0.22	6.64	0.01	0.00	0.26	0.53	1.92	0.74	0.00	10	8
349	350	0.00240	8	0.47	0.22	6.21	0.01	0.00	0.26	0.53	2.36	0.61	0.04	0	0
350	351	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.26	0.53	1.92	0.74	0.00	10	8
351	352	0.00240	8	0.47	0.22	0.00	0.00	0.00	1.62	2.96	2.30	0.69	0.54	0	0
352	357	0.00120	18	3.88	2.17	26.70	0.05	0.00	1.65	3.01	2.30	0.69	0.52	0	0
357	361	0.00120	18	3.88	2.17	13.94	0.03	0.00	1.65	3.01	2.30	0.69	0.52	0	0
361	365	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.69	3.08	2.31	0.70	0.48	0	0
365	366	0.00120	18	3.88	2.17	23.85	0.04	0.00	1.69	3.08	2.31	0.70	0.48	0	0
366	323	0.00120	18	3.88	2.17	0.00	0.00	0.00	0.01	0.04	0.96	0.17	0.21	0	0
374	375	0.00240	8	0.47	0.22	8.04	0.01	0.00	0.01	0.04	1.27	0.15	0.32	0	0
375	376	0.00520	8	0.69	0.34	0.00	0.00	0.00	0.01	0.04	0.96	0.17	0.21	0	0
376	377	0.00240	8	0.47	0.22	0.00	0.00	0.00	1.21	2.25	2.08	0.83	0.08	0	0
377	391	0.00120	15	2.39	1.28	0.00	0.00	0.00	0.01	0.03	0.75	0.12	0.21	0	0
378	377	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.03	0.75	0.12	0.21	0	0
379	378	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.03	0.75	0.12	0.21	0	0

Sewer Analysis Results

Ultimate Condition

ID		Slope	Diameter	Peak Capacity	Average Capacity	Area	Input Flow	Point Source	Average Flow	Peak Design Flow	Design Velocity	Depth Ratio	Excess Capacity	Replace Diameter	Parallel Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
380	379	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.03	0.75	0.12	0.21	0	0
381	380	0.00240	8	0.47	0.22	5.92	0.01	0.00	0.01	0.03	0.75	0.12	0.21	0	0
389	390	0.00800	8	0.85	0.43	5.69	0.01	0.00	0.01	0.03	1.37	0.12	0.41	0	0
390	391	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.03	0.86	0.15	0.21	0	0
391	404	0.00120	15	2.39	1.28	0.00	0.00	0.00	1.22	2.28	2.08	0.84	0.06	0	0
392	391	0.00240	8	0.47	0.22	2.91	0.01	0.00	0.01	0.01	0.75	0.12	0.22	0	0
401	402	0.00240	8	0.47	0.22	7.42	0.01	0.00	0.01	0.03	0.96	0.17	0.21	0	0
402	403	0.00800	8	0.85	0.43	0.00	0.00	0.00	0.01	0.03	1.37	0.12	0.41	0	0
403	404	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.03	0.96	0.17	0.21	0	0
404	418	0.00120	15	2.39	1.28	0.00	0.00	0.00	1.25	2.32	2.07	0.86	0.04	0	0
405	404	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.03	0.96	0.17	0.21	0	0
406	405	0.00240	8	0.47	0.22	15.77	0.01	0.00	0.01	0.03	0.96	0.17	0.21	0	0
418	424	0.00120	15	2.39	1.28	5.48	0.01	0.00	1.26	2.34	2.07	0.87	0.03	0	0
424	433	0.00120	15	2.39	1.28	11.55	0.02	0.00	1.28	2.37	2.06	0.89	0.01	0	0
431	432	0.00240	8	0.47	0.22	14.01	0.03	0.00	0.03	0.06	1.14	0.23	0.20	0	0
432	346	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.06	1.14	0.23	0.20	0	0
433	435	0.00120	18	3.88	2.17	23.54	0.04	0.00	1.32	2.44	2.21	0.60	0.85	0	0
435	352	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.32	2.44	2.21	0.60	0.85	0	0
444	445	0.00240	8	0.47	0.22	18.93	0.03	0.00	0.03	0.08	1.14	0.23	0.19	0	0
445	446	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.08	1.14	0.23	0.19	0	0
446	447	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.08	1.14	0.23	0.19	0	0
447	448	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.08	1.14	0.23	0.19	0	0
448	377	0.00120	15	2.39	1.28	0.00	0.00	0.00	1.18	2.21	2.08	0.81	0.10	0	0
449	448	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.11	0.25	1.62	0.45	0.11	0	0
450	449	0.00240	8	0.47	0.22	11.91	0.02	0.00	0.11	0.25	1.62	0.45	0.11	0	0
451	450	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.09	0.21	1.54	0.41	0.13	0	0
452	451	0.00240	8	0.47	0.22	21.19	0.04	0.00	0.09	0.21	1.54	0.41	0.13	0	0
453	452	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.06	0.13	1.36	0.32	0.17	0	0
454	453	0.00240	8	0.47	0.22	37.48	0.06	0.00	0.06	0.13	1.36	0.32	0.17	0	0
478	483	0.00200	12	1.26	0.65	4.05	0.01	0.00	1.04	1.95	2.49	1.00	0.00	15	15
483	448	0.00200	12	1.26	0.65	0.00	0.00	0.00	1.04	1.95	2.49	1.00	0.00	15	15
501	502	0.00240	8	0.47	0.22	8.34	0.01	0.00	0.01	0.04	0.96	0.17	0.21	0	0
502	512	0.00240	8	0.47	0.22	6.43	0.01	0.00	0.03	0.06	1.14	0.23	0.20	0	0
511	478	0.00200	12	1.26	0.65	0.00	0.00	0.00	1.03	1.94	2.47	1.00	0.00	15	15
512	511	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.06	1.14	0.23	0.20	0	0
513	514	0.00240	8	0.47	0.22	16.47	0.03	0.00	0.06	0.13	1.36	0.32	0.17	0	0
514	515	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.06	0.13	1.36	0.32	0.17	0	0
515	516	0.00240	8	0.47	0.22	12.29	0.02	0.00	0.08	0.18	1.49	0.38	0.14	0	0
516	517	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.08	0.18	1.49	0.38	0.14	0	0
517	518	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.08	0.18	1.49	0.38	0.14	0	0
518	511	0.00200	12	1.26	0.65	0.00	0.00	0.00	1.00	1.89	2.41	1.00	0.00	15	15

Sewer Analysis Results

Ultimate Condition

ID		Slope	Diameter	Peak Capacity	Average Capacity	Area	Input Flow	Point Source	Average Flow	Peak Design Flow	Design Velocity	Depth Ratio	Excess Capacity	Replace Diameter	Parallel Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
519	518	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.27	0.56	1.85	0.54	0.11	0	0
520	519	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.27	0.56	1.85	0.54	0.11	0	0
522	520	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.27	0.56	1.85	0.54	0.11	0	0
523	522	0.00200	10	0.77	0.38	13.85	0.02	0.00	0.27	0.56	1.85	0.54	0.11	0	0
524	523	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.25	0.52	1.81	0.52	0.13	0	0
525	524	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.25	0.52	1.81	0.52	0.13	0	0
530	525	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.25	0.52	1.81	0.52	0.13	0	0
531	530	0.00800	8	0.85	0.43	0.00	0.00	0.00	0.06	0.13	2.08	0.23	0.37	0	0
561	562	0.00240	8	0.47	0.22	24.07	0.04	0.00	0.04	0.10	1.26	0.28	0.18	0	0
562	564	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.10	1.26	0.28	0.18	0	0
563	530	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.16	0.35	1.77	0.55	0.06	0	0
564	563	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.16	0.35	1.77	0.55	0.06	0	0
565	564	0.00240	8	0.47	0.22	22.95	0.07	0.00	0.12	0.26	1.64	0.47	0.10	0	0
570	530	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.07	1.14	0.23	0.19	0	0
571	570	0.00280	8	0.50	0.24	0.00	0.00	0.00	0.03	0.07	1.23	0.23	0.21	0	0
572	571	0.00280	8	0.50	0.24	0.00	0.00	0.00	0.03	0.07	1.23	0.23	0.21	0	0
573	572	0.00280	8	0.50	0.24	18.79	0.03	0.00	0.03	0.07	1.23	0.23	0.21	0	0
576	565	0.00240	8	0.47	0.22	26.44	0.05	0.00	0.05	0.11	1.29	0.29	0.18	0	0
599	513	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.07	1.14	0.23	0.19	0	0
602	518	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.65	1.26	2.32	1.00	0.00	15	12
603	602	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.65	1.26	2.32	1.00	0.00	15	12
604	603	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.61	1.19	2.19	1.00	0.00	15	12
605	603	0.00360	8	0.57	0.28	0.00	0.00	0.00	0.04	0.09	1.40	0.23	0.24	0	0
606	605	0.00360	8	0.57	0.28	21.26	0.04	0.00	0.04	0.09	1.40	0.23	0.24	0	0
611	599	0.00600	8	0.74	0.36	15.20	0.03	0.00	0.03	0.07	1.52	0.17	0.34	0	0
614	604	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.61	1.19	2.19	1.00	0.00	15	12
615	614	0.00360	8	0.57	0.28	0.00	0.00	0.00	0.04	0.08	1.40	0.23	0.24	0	0
616	615	0.00360	8	0.57	0.28	19.35	0.04	0.00	0.04	0.08	1.40	0.23	0.24	0	0
625	626	0.00240	8	0.47	0.22	31.52	0.08	0.00	0.08	0.18	1.49	0.38	0.14	0	0
626	627	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.08	0.18	1.49	0.38	0.14	0	0
627	614	0.00200	10	0.77	0.38	7.15	0.01	0.00	0.57	1.13	2.07	1.00	0.00	15	12
637	627	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.48	0.96	2.05	0.80	0.00	15	10
644	637	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.48	0.96	2.05	0.80	0.00	15	10
650	644	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.48	0.96	2.05	0.80	0.00	15	10
656	657	0.00360	8	0.57	0.28	6.52	0.01	0.00	0.01	0.03	1.05	0.15	0.27	0	0
657	658	0.00360	8	0.57	0.28	0.00	0.00	0.00	0.01	0.03	1.05	0.15	0.27	0	0
658	659	0.00360	8	0.57	0.28	0.00	0.00	0.00	0.01	0.03	1.05	0.15	0.27	0	0
659	650	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.48	0.96	2.05	0.80	0.00	15	10
660	659	0.00360	8	0.57	0.28	0.00	0.00	0.00	0.01	0.03	0.92	0.12	0.27	0	0
661	660	0.00360	8	0.57	0.28	0.00	0.00	0.00	0.01	0.03	0.92	0.12	0.27	0	0
662	661	0.00360	8	0.57	0.28	6.44	0.01	0.00	0.01	0.03	0.92	0.12	0.27	0	0

Sewer Analysis Results

Ultimate Condition

ID		Slope	Diameter	Peak Capacity	Average Capacity	Area	Input Flow	Point Source	Average Flow	Peak Design Flow	Design Velocity	Depth Ratio	Excess Capacity	Replace Diameter	Parallel Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
664	665	0.00240	8	0.47	0.22	8.61	0.02	0.00	0.05	0.11	1.29	0.29	0.17	0	0
665	666	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.09	0.20	1.54	0.41	0.13	0	0
666	667	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.12	0.27	1.64	0.47	0.10	0	0
667	668	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.12	0.27	1.64	0.47	0.10	0	0
668	659	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.46	0.92	2.04	0.77	0.00	15	10
669	668	0.00240	8	0.47	0.22	17.06	0.03	0.00	0.03	0.07	1.14	0.23	0.19	0	0
674	664	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.08	1.18	0.25	0.19	0	0
675	665	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.10	1.29	0.29	0.18	0	0
676	666	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.07	1.14	0.23	0.19	0	0
677	668	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.31	0.63	1.91	0.58	0.07	0	0
681	674	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.08	1.18	0.25	0.19	0	0
682	675	0.00240	8	0.47	0.22	24.14	0.04	0.00	0.04	0.10	1.29	0.29	0.18	0	0
683	676	0.00240	8	0.47	0.22	16.82	0.03	0.00	0.03	0.07	1.14	0.23	0.19	0	0
684	677	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.31	0.63	1.91	0.58	0.07	0	0
687	694	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.08	0.18	1.49	0.38	0.14	0	0
688	687	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.08	0.18	1.49	0.38	0.14	0	0
689	681	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.08	1.18	0.25	0.19	0	0
693	684	0.00200	10	0.77	0.38	28.69	0.08	0.00	0.31	0.63	1.91	0.58	0.07	0	0
694	693	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.08	0.18	1.49	0.38	0.14	0	0
697	688	0.00240	8	0.47	0.22	15.67	0.02	0.00	0.08	0.18	1.49	0.38	0.14	0	0
698	697	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.06	0.13	1.36	0.32	0.17	0	0
699	698	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.06	0.13	1.36	0.32	0.17	0	0
700	699	0.00240	8	0.47	0.22	31.70	0.06	0.00	0.06	0.13	1.36	0.32	0.17	0	0
701	689	0.00240	8	0.47	0.22	18.03	0.03	0.00	0.03	0.08	1.18	0.25	0.19	0	0
705	693	0.00240	8	0.47	0.22	38.06	0.06	0.00	0.15	0.32	1.73	0.52	0.07	0	0
715	705	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.09	0.20	1.54	0.41	0.13	0	0
722	715	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.09	0.20	1.54	0.41	0.13	0	0
747	722	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.09	0.20	1.54	0.41	0.13	0	0
748	747	0.00240	8	0.47	0.22	36.50	0.09	0.00	0.09	0.20	1.54	0.41	0.13	0	0
784	785	0.00240	8	0.47	0.22	26.27	0.17	0.00	0.17	0.37	1.78	0.57	0.05	0	0
785	785A	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.17	0.37	1.78	0.57	0.05	0	0
785A	3024	0.29000	15	37.08	24.54	0.00	0.00	0.00	0.81	1.55	13.92	0.14	23.73	0	0
797	798	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.14	0.30	1.55	0.29	0.51	0	0
798	799	0.00200	12	1.26	0.65	13.14	0.04	0.00	0.17	0.37	1.67	0.33	0.47	0	0
799	800	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.17	0.37	1.67	0.33	0.47	0	0
800	801	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.17	0.37	1.67	0.33	0.47	0	0
801	802	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.17	0.37	1.67	0.33	0.47	0	0
802	803	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.17	0.37	1.67	0.33	0.47	0	0
803	30	0.00580	12	2.14	1.14	0.00	0.00	0.00	0.17	0.37	2.40	0.25	0.97	0	0
804	28	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.05	0.11	1.29	0.29	0.17	0	0
805	804	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.05	0.11	1.29	0.29	0.17	0	0

Sewer Analysis Results

Ultimate Condition

ID		Slope	Diameter	Peak Capacity	Average Capacity	Area	Input Flow	Point Source	Average Flow	Peak Design Flow	Design Velocity	Depth Ratio	Excess Capacity	Replace Diameter	Parallel Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
806	805	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.02	0.75	0.12	0.22	0	0
807	806	0.00240	8	0.47	0.22	2.25	0.01	0.00	0.01	0.02	0.75	0.12	0.22	0	0
808	805	0.00240	8	0.47	0.22	11.53	0.04	0.00	0.04	0.10	1.26	0.28	0.18	0	0
809	810	0.00240	8	0.47	0.22	20.16	0.08	0.00	0.23	0.49	1.90	0.70	0.00	10	8
810	811	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.23	0.49	1.90	0.70	0.00	10	8
811	27	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.23	0.49	1.90	0.70	0.00	10	8
812	813	0.00240	8	0.47	0.22	10.50	0.04	0.00	0.04	0.09	1.22	0.26	0.18	0	0
813	814	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.09	1.22	0.26	0.18	0	0
814	815	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.09	1.22	0.26	0.18	0	0
815	817	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.09	1.22	0.26	0.18	0	0
816	817	0.00240	8	0.47	0.22	20.88	0.12	0.00	0.12	0.26	1.64	0.47	0.11	0	0
817	818	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.16	0.34	1.75	0.54	0.07	0	0
818	809	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.16	0.34	1.75	0.54	0.07	0	0
819	797	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.14	0.30	1.55	0.29	0.51	0	0
822	819	0.00200	12	1.26	0.65	43.09	0.14	0.00	0.14	0.30	1.55	0.29	0.51	0	0
823	26A	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.10	1.29	0.29	0.18	0	0
824	823	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.10	1.29	0.29	0.18	0	0
825	824	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.10	1.29	0.29	0.18	0	0
826	825	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.10	1.29	0.29	0.18	0	0
827	826	0.00240	8	0.47	0.22	16.06	0.04	0.00	0.04	0.10	1.29	0.29	0.18	0	0
828A	828	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.08	0.18	1.80	0.33	0.21	0	0
828	829	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.08	0.18	1.80	0.33	0.21	0	0
829	830	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.08	0.18	1.80	0.33	0.21	0	0
830	830A	0.01210	8	1.05	0.53	0.00	0.00	0.00	0.08	0.18	2.65	0.25	0.45	0	0
830A	25	0.01210	8	1.05	0.53	0.00	0.00	0.00	0.08	0.18	2.65	0.25	0.45	0	0
831	828A	0.00400	8	0.60	0.29	19.34	0.08	0.00	0.08	0.18	1.80	0.33	0.21	0	0
838	3037	0.01320	8	1.10	0.56	0.00	0.00	0.00	0.06	0.14	2.57	0.22	0.50	0	0
840	838	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.06	0.14	1.67	0.29	0.23	0	0
841	840	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.04	0.08	1.47	0.23	0.26	0	0
843	841	0.00400	8	0.60	0.29	22.75	0.04	0.00	0.04	0.08	1.47	0.23	0.26	0	0
853	853A	0.00200	8	0.43	0.20	22.92	0.07	0.00	0.07	0.16	1.36	0.38	0.13	0	0
853A	861	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.07	0.16	1.36	0.38	0.13	0	0
860	861	0.00474	8	0.66	0.32	5.73	0.01	0.00	0.01	0.03	1.05	0.12	0.31	0	0
861	864	0.00200	8	0.43	0.20	8.59	0.02	0.00	0.10	0.22	1.46	0.44	0.10	0	0
864	865	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.10	0.22	1.46	0.44	0.10	0	0
865	866	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.10	0.22	1.46	0.44	0.10	0	0
866	3044	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.10	0.22	1.46	0.44	0.10	0	0
898	905	0.00200	8	0.43	0.20	16.77	0.04	0.00	0.04	0.10	1.18	0.29	0.16	0	0
905	906	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.04	0.10	1.18	0.29	0.16	0	0
906	910	0.00200	8	0.43	0.20	5.26	0.01	0.00	0.05	0.12	1.24	0.32	0.15	0	0
910	911	0.00300	12	1.54	0.80	0.00	0.00	0.00	0.13	0.29	1.79	0.26	0.67	0	0

Sewer Analysis Results
Ultimate Condition

ID		Slope	Diameter	Peak Capacity	Average Capacity	Area	Input Flow	Point Source	Average Flow	Peak Design Flow	Design Velocity	Depth Ratio	Excess Capacity	Replace Diameter	Parallel Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
911	347	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.13	0.29	1.55	0.29	0.51	0	0
912A	912	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.06	0.13	1.30	0.35	0.14	0	0
912	910	0.00200	8	0.43	0.20	9.11	0.02	0.00	0.08	0.18	1.41	0.41	0.12	0	0
913A	912A	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.06	0.13	1.30	0.35	0.14	0	0
914	913A	0.00200	8	0.43	0.20	25.01	0.06	0.00	0.06	0.13	1.30	0.35	0.14	0	0
925	840	0.02120	8	1.39	0.72	16.13	0.03	0.00	0.03	0.06	2.39	0.13	0.69	0	0
936	937	0.00400	8	0.60	0.29	21.72	0.20	0.00	0.20	0.43	2.26	0.54	0.09	0	0
937	938	0.00400	8	0.60	0.29	13.01	0.12	0.00	0.32	0.65	2.46	0.71	0.00	10	8
938	3009	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.32	0.65	2.46	0.71	0.00	10	8
944	944A	0.04890	8	2.11	1.13	25.43	0.11	0.00	0.31	0.64	6.30	0.33	0.81	0	0
944A	982A	0.00092	27	10.01	6.01	0.00	0.00	0.00	0.49	0.97	1.53	0.22	5.52	0	0
945A	944	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.20	0.43	2.26	0.54	0.09	0	0
956	958	0.00200	8	0.43	0.20	8.08	0.03	0.00	0.03	0.08	1.11	0.26	0.17	0	0
958	959	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.03	0.08	1.11	0.26	0.17	0	0
959	981	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.07	0.15	1.33	0.36	0.14	0	0
960	959	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.03	0.08	1.11	0.26	0.17	0	0
962	960	0.00200	8	0.43	0.20	6.39	0.03	0.00	0.03	0.08	1.11	0.26	0.17	0	0
972	973	0.00400	8	0.60	0.29	18.64	0.09	0.00	0.09	0.20	1.84	0.35	0.20	0	0
973	974A	0.00400	8	0.60	0.29	7.46	0.03	0.00	0.12	0.26	1.99	0.41	0.17	0	0
974A	3008	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.12	0.26	1.64	0.47	0.10	0	0
978	531	0.00240	8	0.47	0.22	32.78	0.06	0.00	0.06	0.13	1.36	0.32	0.17	0	0
979	1036	0.00140	18	4.19	2.35	1341.28	0.11	1.46	0.11	1.70	2.14	0.46	2.25	0	0
982A	3037	0.00092	27	10.01	6.01	0.00	0.00	0.00	0.49	0.97	1.53	0.22	5.52	0	0
993	994	0.00400	8	0.60	0.29	13.08	0.06	0.00	0.06	0.14	1.67	0.29	0.23	0	0
994	995	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.06	0.14	1.67	0.29	0.23	0	0
995	996	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.06	0.14	1.67	0.29	0.23	0	0
996	997	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.06	0.14	1.67	0.29	0.23	0	0
997	998	0.02890	8	1.62	0.85	0.00	0.00	0.00	0.06	0.14	3.33	0.17	0.79	0	0
998	944A	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.06	0.14	1.36	0.32	0.16	0	0
1001	1002	0.00400	8	0.60	0.29	8.16	0.01	0.00	0.01	0.04	1.11	0.15	0.28	0	0
1002	1003	0.04860	8	2.10	1.12	0.00	0.00	0.00	0.01	0.04	2.81	0.09	1.11	0	0
1003	3034	0.00092	27	10.01	6.01	0.00	0.00	0.00	0.57	1.12	1.62	0.24	5.43	0	0
1008	1009	0.00240	8	0.47	0.22	38.03	0.20	0.00	0.20	0.43	1.86	0.64	0.02	0	0
1009	945A	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.20	0.43	1.86	0.64	0.02	0	0
1014	1015	0.00400	8	0.60	0.29	41.72	0.20	0.00	0.20	0.43	2.26	0.54	0.09	0	0
1015	1016	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.20	0.43	2.26	0.54	0.09	0	0
1016	1017	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.20	0.43	2.26	0.54	0.09	0	0
1017	2042	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.20	0.43	2.26	0.54	0.09	0	0
1028	2019	0.00140	18	4.19	2.35	0.00	0.00	0.00	0.25	1.97	2.23	0.50	2.11	0	0
1030	1028	0.00140	18	4.19	2.35	0.00	0.00	0.00	0.11	1.70	2.14	0.46	2.25	0	0
1032	1030	0.00140	18	4.19	2.35	0.00	0.00	0.00	0.11	1.70	2.14	0.46	2.25	0	0

Sewer Analysis Results

Ultimate Condition

ID		Slope	Diameter	Peak Capacity	Average Capacity	Area	Input Flow	Point Source	Average Flow	Peak Design Flow	Design Velocity	Depth Ratio	Excess Capacity	Replace Diameter	Parallel Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
1034	1032	0.00140	18	4.19	2.35	0.00	0.00	0.00	0.11	1.70	2.14	0.46	2.25	0	0
1036	1034	0.00150	18	4.34	2.44	0.00	0.00	0.00	0.11	1.70	2.20	0.45	2.33	0	0
1040	4002	0.57500	18	84.89	59.81	0.00	0.00	0.00	2.01	3.63	22.84	0.15	57.80	0	0
2001	2000	0.00052	51	41.04	27.37	92.98	0.00	0.00	7.30	13.47	2.48	0.41	20.07	0	0
2002	2001	0.00052	51	41.04	27.37	8.69	0.02	0.00	7.30	13.47	2.48	0.41	20.07	0	0
2003	2002	0.00066	39	22.61	14.42	0.00	0.00	0.00	3.06	6.80	2.27	0.39	11.36	0	0
2004	2003	0.00066	39	22.61	14.42	0.00	0.00	0.00	3.06	6.80	2.27	0.39	11.36	0	0
2005	2004	0.00066	39	22.61	14.42	0.00	0.00	0.00	3.06	6.80	2.27	0.39	11.36	0	0
2006	2005	0.00066	39	22.61	14.42	0.00	0.00	0.00	3.06	6.80	2.27	0.39	11.36	0	0
2007	2006	0.00066	39	22.61	14.42	0.00	0.00	0.00	3.06	6.80	2.27	0.39	11.36	0	0
2008	2007	0.00066	39	22.61	14.42	0.00	0.00	0.00	3.06	6.80	2.27	0.39	11.36	0	0
2009	2008	0.00066	39	22.61	14.42	0.00	0.00	0.00	3.06	6.80	2.27	0.39	11.36	0	0
2010	2009	0.00066	39	22.61	14.42	0.00	0.00	0.00	3.06	6.80	2.27	0.39	11.36	0	0
2011	2010	0.00036	39	16.70	10.41	0.00	0.00	0.00	3.06	6.80	1.82	0.46	7.35	0	0
2012	2011	0.00036	39	16.70	10.41	22.51	0.09	0.00	3.06	6.80	1.82	0.46	7.35	0	0
2013	2012	0.00036	39	16.70	10.41	0.00	0.00	0.00	2.97	6.66	1.81	0.46	7.44	0	0
2014	2013	0.00036	39	16.70	10.41	0.00	0.00	0.00	2.97	6.66	1.81	0.46	7.44	0	0
2015	2014	0.00036	39	16.70	10.41	0.00	0.00	0.00	2.97	6.66	1.81	0.46	7.44	0	0
2016	2015	0.00047	36	15.41	9.55	0.00	0.00	0.00	2.84	6.45	1.99	0.47	6.71	0	0
2017	2016	0.00047	36	15.41	9.55	0.00	0.00	0.00	2.84	6.45	1.99	0.47	6.71	0	0
2018	2050	0.00047	36	15.41	9.55	0.00	0.00	0.00	2.84	6.45	1.99	0.47	6.71	0	0
2019	2018	0.00047	36	15.41	9.55	0.00	0.00	0.00	2.84	6.45	1.99	0.47	6.71	0	0
2020	2019	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.59	4.58	1.80	0.39	6.85	0	0
2021	2020	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.59	4.58	1.80	0.39	6.85	0	0
2022	2021	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.59	4.58	1.80	0.39	6.85	0	0
2023	2022	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.59	4.58	1.80	0.39	6.85	0	0
2024	2023	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.59	4.58	1.80	0.39	6.85	0	0
2025	2024	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.59	4.58	1.80	0.39	6.85	0	0
2026	2025	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.03	3.65	1.69	0.34	7.41	0	0
2027	2026	0.00046	36	15.25	9.44	0.00	0.00	0.00	1.59	2.92	2.15	0.32	7.08	0	0
2028	2027	0.00104	30	14.10	8.68	0.00	0.00	0.00	1.59	2.92	2.15	0.32	7.08	0	0
2029	2028	0.00104	30	14.10	8.68	0.00	0.00	0.00	1.59	2.92	2.15	0.32	7.08	0	0
2030	2029	0.00104	30	14.10	8.68	0.00	0.00	0.00	1.59	2.92	2.15	0.32	7.08	0	0
2031	2030	0.00104	30	14.10	8.68	0.00	0.00	0.00	1.59	2.92	2.15	0.32	7.08	0	0
2032	2031	0.00104	30	14.10	8.68	0.00	0.00	0.00	1.59	2.92	2.15	0.32	7.08	0	0
2033	2032	0.00104	30	14.10	8.68	0.00	0.00	0.00	1.59	2.92	2.15	0.32	7.08	0	0
2034	2033	0.00072	30	11.73	7.12	0.00	0.00	0.00	0.22	0.47	1.12	0.14	6.90	0	0
2035	2034	0.00072	30	11.73	7.12	0.00	0.00	0.00	0.22	0.47	1.12	0.14	6.90	0	0
2036	2035	0.00072	30	11.73	7.12	0.00	0.00	0.00	0.22	0.47	1.12	0.14	6.90	0	0
2037	2036	0.00072	30	11.73	7.12	0.00	0.00	0.00	0.22	0.47	1.12	0.14	6.90	0	0
2038	2037	0.00072	30	11.73	7.12	0.00	0.00	0.00	0.22	0.47	1.12	0.14	6.90	0	0

Sewer Analysis Results
Ultimate Condition

ID		Slope	Diameter	Peak Capacity	Average Capacity	Area	Input Flow	Point Source	Average Flow	Peak Design Flow	Design Velocity	Depth Ratio	Excess Capacity	Replace Diameter	Parallel Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
2039	2038	0.00063	30	10.97	6.63	0.00	0.00	0.00	0.22	0.47	1.06	0.15	6.41	0	0
2040	2039	0.00063	30	10.97	6.63	0.00	0.00	0.00	0.22	0.47	1.06	0.15	6.41	0	0
2041	2040	0.00063	30	10.97	6.63	0.00	0.00	0.00	0.22	0.47	1.06	0.15	6.41	0	0
2042	2041	0.00063	30	10.97	6.63	12.68	0.00	0.00	0.22	0.47	1.06	0.15	6.41	0	0
2043	2042	0.00063	30	10.97	6.63	4.42	0.02	0.00	0.02	0.05	0.54	0.05	6.61	0	0
2050	2017	0.00047	36	15.41	9.55	0.00	0.00	0.00	2.84	6.45	1.99	0.47	6.71	0	0
3000	4003	0.05600	24	57.06	39.02	0.00	0.00	0.00	2.21	3.96	9.89	0.19	36.80	0	0
3001	3000	0.00084	30	12.67	7.74	0.00	0.00	0.00	2.21	3.96	2.17	0.40	5.52	0	0
3002	3001	0.00084	30	12.67	7.74	0.00	0.00	0.00	2.21	3.96	2.17	0.40	5.52	0	0
3003	3002	0.00084	30	12.67	7.74	0.00	0.00	0.00	2.21	3.96	2.17	0.40	5.52	0	0
3004	3003	0.00084	30	12.67	7.74	0.00	0.00	0.00	2.21	3.96	2.17	0.40	5.52	0	0
3005	3004	0.00084	30	12.67	7.74	0.00	0.00	0.00	2.21	3.96	2.17	0.40	5.52	0	0
3006	3005	0.00084	30	12.67	7.74	0.00	0.00	0.00	2.21	3.96	2.17	0.40	5.52	0	0
3007	3006	0.00084	30	12.67	7.74	0.00	0.00	0.00	2.21	3.96	2.17	0.40	5.52	0	0
3008	3007	0.00084	30	12.67	7.74	0.00	0.00	0.00	2.21	3.96	2.17	0.40	5.52	0	0
3009	3008	0.00084	30	12.67	7.74	0.00	0.00	0.00	2.09	3.76	2.15	0.39	5.64	0	0
3010	3009	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.77	3.22	2.06	0.36	5.96	0	0
3011	3010	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.77	3.22	2.06	0.36	5.96	0	0
3012	3011	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.77	3.22	2.06	0.36	5.96	0	0
3013	3012	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.77	3.22	2.06	0.36	5.96	0	0
3014	3013	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.72	3.12	2.05	0.35	6.02	0	0
3015	3050	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.72	3.12	2.00	0.35	5.82	0	0
3016	3015	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.72	3.12	2.00	0.35	5.82	0	0
3017	3016	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.68	3.06	2.00	0.35	5.86	0	0
3018	3017	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.68	3.06	2.00	0.35	5.86	0	0
3019	3018	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.68	3.06	2.00	0.35	5.86	0	0
3020	3019	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.68	3.06	2.00	0.35	5.86	0	0
3021	3020	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.68	3.06	2.00	0.35	5.86	0	0
3022	3021	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.68	3.06	2.00	0.35	5.86	0	0
3023	3022	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.68	3.06	2.00	0.35	5.86	0	0
3024	3023	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.68	3.06	2.00	0.35	5.86	0	0
3025	3024	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.87	1.66	1.82	0.28	5.27	0	0
3026	3025	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.87	1.66	1.82	0.28	5.27	0	0
3027	3026	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.87	1.66	1.82	0.28	5.27	0	0
3028	3027	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.87	1.66	1.82	0.28	5.27	0	0
3029	3028	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.87	1.66	1.82	0.28	5.27	0	0
3030	3029	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.87	1.66	1.82	0.28	5.27	0	0
3031	3030	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.87	1.66	1.82	0.28	5.27	0	0
3032	3031	0.00096	27	10.23	6.14	59.77	0.24	0.00	0.87	1.66	1.82	0.28	5.27	0	0
3033	3032	0.00092	27	10.01	6.01	11.06	0.06	0.00	0.63	1.23	1.62	0.24	5.38	0	0
3034	3033	0.00092	27	10.01	6.01	0.00	0.00	0.00	0.57	1.12	1.62	0.24	5.43	0	0

Sewer Analysis Results															
Ultimate Condition															
				Peak	Average		Input	Point	Average	Peak Design	Design	Depth	Excess	Replace	Parallel
ID		Slope	Diameter	Capacity	Capacity	Area	Flow	Source	Flow	Flow	Velocity	Ratio	Capacity	Diameter	Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
3036	1003	0.00092	27	10.01	6.01	0.00	0.00	0.00	0.56	1.10	1.56	0.23	5.45	0	0
3037	3036	0.00092	27	10.01	6.01	3.32	0.01	0.00	0.56	1.10	1.56	0.23	5.45	0	0
3038	944A	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3039	3038	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3040	3039	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3041	3040	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3042	3041	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3043	3042	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3044	3043	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3045	3044	0.00114	21	5.70	3.28	0.00	0.00	0.00	0.02	0.05	0.73	0.07	3.26	0	0
3046	3045	0.00114	21	5.70	3.28	0.00	0.00	0.00	0.02	0.05	0.73	0.07	3.26	0	0
3047	3046	0.00114	21	5.70	3.28	0.00	0.00	0.00	0.02	0.05	0.73	0.07	3.26	0	0
3048	3047	0.00114	21	5.70	3.28	11.47	0.02	0.00	0.02	0.05	0.73	0.07	3.26	0	0
3050	3014	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.72	3.12	2.05	0.35	6.02	0	0
4002	2002	0.10000	20	46.89	31.59	0.00	0.00	0.00	4.23	7.22	14.72	0.27	27.36	0	0
4003	4002	0.05600	24	57.06	39.02	0.00	0.00	0.00	2.21	3.96	9.89	0.19	36.80	0	0

```
TITLE
UNITS
ANALYSIS
DESIGN
PEAKING
LANDUSE
PAGESIZE
DBFIN
***WARNING*** Can't find heading/identifier in OPTIONS file: GEOMHEADINGS     DNINV
***WARNING*** Can't find heading/identifier in OPTIONS file: GEOMHEADINGS     UPINV
Completed options reading from Y:\L03\250\CAD\BSWAN\ULT1.OPT
***Processing DBF Geometry data
***WARNING*** DISCONNECTED STRIP AT MHs  981  959
***Processing DBF Sanitary Loading data
***Processing DBF Label data
DBFOUT
DBF file output will be sent to Y:\L03\250\CAD\BSWAN\OUTPUT\ULT1
RUN
```

Boyle Engineering Corporation

Summary of SWAN Units and Factors
****

UNITS

Length = feet
Diameter = inches
Flow = cfs
Elevation = feet
Area = acres
Pressure = psi
Head = feet

DESIGN CRITERIA
---

d/D	diam
.50	12.
.75	57.
.93	99.

ANALYSIS CRITERIA
---

d/D	diam
.67	12.
.90	57.
.93	99.

PEAKING FACTORS

K = 1.89
Ro = .93

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Ultimate Condition)

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
1014	1015	.00400	8	.60	.29	41.7	.20	.00	.20	.43	2.3	.54	.09			1014-1015
1015	1016	.00400	8	.60	.29	.0	.00	.00	.20	.43	2.3	.54	.09			1015-1016
1016	1017	.00400	8	.60	.29	.0	.00	.00	.20	.43	2.3	.54	.09			1016-1017
1017	2042	.00400	8	.60	.29	.0	.00	.00	.20	.43	2.3	.54	.09			1017-2042
+ + + END OF STRIP + + +																
1001	1002	.00400	8	.60	.29	8.2	.01	.00	.01	.04	1.1	.15	.28			1001-1002
1002	1003	.04860	8	2.10	1.12	.0	.00	.00	.01	.04	2.8	.09	1.11			1002-1003
+ + + END OF STRIP + + +																
993	994	.00400	8	.60	.29	13.1	.06	.00	.06	.14	1.7	.29	.23			993-994
994	995	.00400	8	.60	.29	.0	.00	.00	.06	.14	1.7	.29	.23			994-995
995	996	.00400	8	.60	.29	.0	.00	.00	.06	.14	1.7	.29	.23			995-996
996	997	.00400	8	.60	.29	.0	.00	.00	.06	.14	1.7	.29	.23			996-997
997	998	.02890	8	1.62	.85	.0	.00	.00	.06	.14	3.3	.17	.79			997-998
998	944A	.00240	8	.47	.22	.0	.00	.00	.06	.14	1.4	.32	.16			998-944A
+ + + END OF STRIP + + +																
972	973	.00400	8	.60	.29	18.6	.09	.00	.09	.20	1.8	.35	.20			972-973
973	974A	.00400	8	.60	.29	7.5	.03	.00	.12	.26	2.0	.41	.17			973-974A
974A	3008	.00240	8	.47	.22	.0	.00	.00	.12	.26	1.6	.47	.10			974A-3008
+ + + END OF STRIP + + +																
962	960	.00200	8	.43	.20	6.4	.03	.00	.03	.08	1.1	.26	.17			962-960
960	959	.00200	8	.43	.20	.0	.00	.00	.03	.08	1.1	.26	.17			960-959
+ + + END OF STRIP + + +																
956	958	.00200	8	.43	.20	8.1	.03	.00	.03	.08	1.1	.26	.17			956-958
958	959	.00200	8	.43	.20	.0	.00	.00	.03	.08	1.1	.26	.17			958-959
960 959	959 981	.00200	8	.43	.20	.0	.00	.00	.03 .07	.00 U .15	1.3	.36	.14			959-981
+ + + END OF STRIP + + +																
1008	1009	.00240	8	.47	.22	38.0	.20	.00	.20	.43	1.9	.64	.02			1008-1009
1009	945A	.00240	8	.47	.22	.0	.00	.00	.20	.43	1.9	.64	.02			1009-945A
945A	944	.00400	8	.60	.29	.0	.00	.00	.20	.43	2.3	.54	.09			945A-944
944	944A	.04890	8	2.11	1.13	25.4	.11	.00	.31	.64	6.3	.33	.81			944-944A
+ + + END OF STRIP + + +																
936	937	.00400	8	.60	.29	21.7	.20	.00	.20	.43	2.3	.54	.09			936-937
937	938	.00400	8	.60	.29	13.0	.12	.00	.32	.65	2.5	.71		10	8	937-938
938	3009	.00400	8	.60	.29	.0	.00	.00	.32	.65	2.5	.71		10	8	938-3009
+ + + END OF STRIP + + +																
925	840	.02120	8	1.39	.72	16.1	.03	.00	.03	.06	2.4	.13	.69			925-840
+ + + END OF STRIP + + +																
914	913A	.00200	8	.43	.20	25.0	.06	.00	.06	.13	1.3	.35	.14			914-913A
913A	912A	.00200	8	.43	.20	.0	.00	.00	.06	.13	1.3	.35	.14			913A-912A
912A	912	.00200	8	.43	.20	.0	.00	.00	.06	.13	1.3	.35	.14			912A-912
912	910	.00200	8	.43	.20	9.1	.02	.00	.08	.18	1.4	.41	.12			912-910

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MH Up	MH Down	Slope	Diameter	Capacities: Peak	Capacities: Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
END OF STRIP																
860	861	.00474	8	.66	.32	5.7	.01	.00	.01	.03	1.1	.12	.31			860-861
END OF STRIP																
853	853A	.00200	8	.43	.20	22.9	.07	.00	.07	.16	1.4	.38	.13			853-853A
853A	861	.00200	8	.43	.20	.0	.00	.00	.07	.16	1.4	.38	.13			853A-861
860	861								.01	.00 U						
861	864	.00200	8	.43	.20	8.6	.02	.00	.10	.22	1.5	.44	.10			861-864
864	865	.00200	8	.43	.20	.0	.00	.00	.10	.22	1.5	.44	.10			864-865
865	866	.00200	8	.43	.20	.0	.00	.00	.10	.22	1.5	.44	.10			865-866
866	3044	.00200	8	.43	.20	.0	.00	.00	.10	.22	1.5	.44	.10			866-3044
END OF STRIP																
843	841	.00400	8	.60	.29	22.8	.04	.00	.04	.08	1.5	.23	.26			843-841
841	840	.00400	8	.60	.29	.0	.00	.00	.04	.08	1.5	.23	.26			841-840
925	840								.03	.00 U						
840	838	.00400	8	.60	.29	.0	.00	.00	.06	.14	1.7	.29	.23			840-838
838	3037	.01320	8	1.10	.56	.0	.00	.00	.06	.14	2.6	.22	.50			838-3037
END OF STRIP																
831	828A	.00400	8	.60	.29	19.3	.08	.00	.08	.18	1.8	.33	.21			831-828A
828A	828	.00400	8	.60	.29	.0	.00	.00	.08	.18	1.8	.33	.21			828A-828
828	829	.00400	8	.60	.29	.0	.00	.00	.08	.18	1.8	.33	.21			828-829
829	830	.00400	8	.60	.29	.0	.00	.00	.08	.18	1.8	.33	.21			829-830
830	830A	.01210	8	1.05	.53	.0	.00	.00	.08	.18	2.6	.25	.45			830-830A
830A	25	.01210	8	1.05	.53	.0	.00	.00	.08	.18	2.6	.25	.45			830A-25
END OF STRIP																
816	817	.00240	8	.47	.22	20.9	.12	.00	.12	.26	1.6	.47	.11			816-817
END OF STRIP																
812	813	.00240	8	.47	.22	10.5	.04	.00	.04	.09	1.2	.26	.18			812-813
813	814	.00240	8	.47	.22	.0	.00	.00	.04	.09	1.2	.26	.18			813-814
814	815	.00240	8	.47	.22	.0	.00	.00	.04	.09	1.2	.26	.18			814-815
815	817	.00240	8	.47	.22	.0	.00	.00	.04	.09	1.2	.26	.18			815-817
816	817								.12	.00 U						
817	818	.00240	8	.47	.22	.0	.00	.00	.16	.34	1.7	.54	.07			817-818
818	809	.00240	8	.47	.22	.0	.00	.00	.16	.34	1.7	.54	.07			818-809
809	810	.00240	8	.47	.22	20.2	.08	.00	.23	.49	1.9	.70		10	8	809-810
810	811	.00240	8	.47	.22	.0	.00	.00	.23	.49	1.9	.70		10	8	810-811
811	27	.00240	8	.47	.22	.0	.00	.00	.23	.49	1.9	.70		10	8	811-27
END OF STRIP																
808	805	.00240	8	.47	.22	11.5	.04	.00	.04	.10	1.3	.28	.18			808-805
END OF STRIP																
807	806	.00240	8	.47	.22	2.3	.01	.00	.01	.02	.7	.12	.22			807-806
806	805	.00240	8	.47	.22	.0	.00	.00	.01	.02	.7	.12	.22			806-805
808	805								.04	.00 U						
805	804	.00240	8	.47	.22	.0	.00	.00	.05	.11	1.3	.29	.17			805-804

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MH Up	MH Down	Slope	Diameter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Capac: Repl. Rel'f	Identification
804	28	.00240	8	.47	.22	.0	.00	.00	.05	.11	1.3	.29	.17		804-28
+ + + END OF STRIP + + +															
84	785	.00240	8	.47	.22	26.3	.17	.00	.17	.37	1.8	.57	.05		784-785
785	785A	.00240	8	.47	.22	.0	.00	.00	.17	.37	1.8	.57	.05		785-785A
+ + + END OF STRIP + + +															
748	747	.00240	8	.47	.22	36.5	.09	.00	.09	.20	1.5	.41	.13		748-747
747	722	.00240	8	.47	.22	.0	.00	.00	.09	.20	1.5	.41	.13		747-722
722	715	.00240	8	.47	.22	.0	.00	.00	.09	.20	1.5	.41	.13		722-715
715	705	.00240	8	.47	.22	.0	.00	.00	.09	.20	1.5	.41	.13		715-705
705	693	.00240	8	.47	.22	38.1	.06	.00	.15	.32	1.7	.52	.07		705-693
+ + + END OF STRIP + + +															
683	676	.00240	8	.47	.22	16.8	.03	.00	.03	.07	1.1	.23	.19		683-676
676	666	.00240	8	.47	.22	.0	.00	.00	.03	.07	1.1	.23	.19		676-666
+ + + END OF STRIP + + +															
682	675	.00240	8	.47	.22	24.1	.04	.00	.04	.10	1.3	.29	.18		682-675
675	665	.00240	8	.47	.22	.0	.00	.00	.04	.10	1.3	.29	.18		675-665
+ + + END OF STRIP + + +															
669	668	.00240	8	.47	.22	17.1	.03	.00	.03	.07	1.1	.23	.19		669-668
+ + + END OF STRIP + + +															
701	689	.00240	8	.47	.22	18.0	.03	.00	.03	.08	1.2	.25	.19		701-689
689	681	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.2	.25	.19		689-681
681	674	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.2	.25	.19		681-674
674	664	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.2	.25	.19		674-664
664	665	.00240	8	.47	.22	8.6	.02	.00	.05	.11	1.3	.29	.17		664-665
675 665	665 666	.00240	8	.47	.22	.0	.00	.00	.04 .09	.00 U .20	1.5	.41	.13		665-666
676 666	666 667	.00240	8	.47	.22	.0	.00	.00	.03 .12	.00 U .27	1.6	.47	.10		666-667
667	668	.00240	8	.47	.22	.0	.00	.00	.12	.27	1.6	.47	.10		667-668
+ + + END OF STRIP + + +															
662	661	.00360	8	.57	.28	6.4	.01	.00	.01	.03	.9	.12	.27		662-661
661	660	.00360	8	.57	.28	.0	.00	.00	.01	.03	.9	.12	.27		661-660
660	659	.00360	8	.57	.28	.0	.00	.00	.01	.03	.9	.12	.27		660-659
+ + + END OF STRIP + + +															
656	657	.00360	8	.57	.28	6.5	.01	.00	.01	.03	1.1	.15	.27		656-657
657	658	.00360	8	.57	.28	.0	.00	.00	.01	.03	1.1	.15	.27		657-658
658	659	.00360	8	.57	.28	.0	.00	.00	.01	.03	1.1	.15	.27		658-659
+ + + END OF STRIP + + +															
625	626	.00240	8	.47	.22	31.5	.08	.00	.08	.18	1.5	.38	.14		625-626
626	627	.00240	8	.47	.22	.0	.00	.00	.08	.18	1.5	.38	.14		626-627
+ + + END OF STRIP + + +															
616	615	.00360	8	.57	.28	19.3	.04	.00	.04	.08	1.4	.23	.24		616-615

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MH Up	MH Down	Slope	Diameter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
804	28	.00240	8	.47	.22	.0	.00	.00	.05	.11	1.3	.29	.17			804-28
+ + + +								END OF STRIP	+ + + +							
784	785	.00240	8	.47	.22	26.3	.17	.00	.17	.37	1.8	.57	.05			784-785
785	785A	.00240	8	.47	.22	.0	.00	.00	.17	.37	1.8	.57	.05			785-785A
+ + + +								END OF STRIP	+ + + +							
748	747	.00240	8	.47	.22	36.5	.09	.00	.09	.20	1.5	.41	.13			748-747
747	722	.00240	8	.47	.22	.0	.00	.00	.09	.20	1.5	.41	.13			747-722
722	715	.00240	8	.47	.22	.0	.00	.00	.09	.20	1.5	.41	.13			722-715
715	705	.00240	8	.47	.22	.0	.00	.00	.09	.20	1.5	.41	.13			715-705
705	693	.00240	8	.47	.22	38.1	.06	.00	.15	.32	1.7	.52	.07			705-693
+ + + +								END OF STRIP	+ + + +							
683	676	.00240	8	.47	.22	16.8	.03	.00	.03	.07	1.1	.23	.19			683-676
676	666	.00240	8	.47	.22	.0	.00	.00	.03	.07	1.1	.23	.19			676-666
+ + + +								END OF STRIP	+ + + +							
682	675	.00240	8	.47	.22	24.1	.04	.00	.04	.10	1.3	.29	.18			682-675
675	665	.00240	8	.47	.22	.0	.00	.00	.04	.10	1.3	.29	.18			675-665
+ + + +								END OF STRIP	+ + + +							
669	668	.00240	8	.47	.22	17.1	.03	.00	.03	.07	1.1	.23	.19			669-668
+ + + +								END OF STRIP	+ + + +							
701	689	.00240	8	.47	.22	18.0	.03	.00	.03	.08	1.2	.25	.19			701-689
689	681	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.2	.25	.19			689-681
681	674	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.2	.25	.19			681-674
674	664	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.2	.25	.19			674-664
664	665	.00240	8	.47	.22	8.6	.02	.00	.05	.11	1.3	.29	.17			664-665
675 665	665 666	.00240	8	.47	.22	.0	.00	.00	.04 .09	.00 U .20	1.5	.41	.13			665-666
676 666	666 667	.00240	8	.47	.22	.0	.00	.00	.03 .12	.00 U .27	1.6	.47	.10			666-667
667	668	.00240	8	.47	.22	.0	.00	.00	.12	.27	1.6	.47	.10			667-668
+ + + +								END OF STRIP	+ + + +							
662	661	.00360	8	.57	.28	6.4	.01	.00	.01	.03	.9	.12	.27			662-661
661	660	.00360	8	.57	.28	.0	.00	.00	.01	.03	.9	.12	.27			661-660
660	659	.00360	8	.57	.28	.0	.00	.00	.01	.03	.9	.12	.27			660-659
+ + + +								END OF STRIP	+ + + +							
656	657	.00360	8	.57	.28	6.5	.01	.00	.01	.03	1.1	.15	.27			656-657
657	658	.00360	8	.57	.28	.0	.00	.00	.01	.03	1.1	.15	.27			657-658
658	659	.00360	8	.57	.28	.0	.00	.00	.01	.03	1.1	.15	.27			658-659
+ + + +								END OF STRIP	+ + + +							
625	626	.00240	8	.47	.22	31.5	.08	.00	.08	.18	1.5	.38	.14			625-626
626	627	.00240	8	.47	.22	.0	.00	.00	.08	.18	1.5	.38	.14			626-627
+ + + +								END OF STRIP	+ + + +							
616	615	.00360	8	.57	.28	19.3	.04	.00	.04	.08	1.4	.23	.24			616-615

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
615	614	.00360	8	.57	.28	.0	.00	.00	.04	.08	1.4	.23	.24			615-614
+ + + END OF STRIP + + +																
606	605	.00360	8	.57	.28	21.3	.04	.00	.04	.09	1.4	.23	.24			606-605
605	603	.00360	8	.57	.28	.0	.00	.00	.04	.09	1.4	.23	.24			605-603
+ + + END OF STRIP + + +																
573	572	.00280	8	.50	.24	18.8	.03	.00	.03	.07	1.2	.23	.21			573-572
572	571	.00280	8	.50	.24	.0	.00	.00	.03	.07	1.2	.23	.21			572-571
571	570	.00280	8	.50	.24	.0	.00	.00	.03	.07	1.2	.23	.21			571-570
570	530	.00240	8	.47	.22	.0	.00	.00	.03	.07	1.1	.23	.19			570-530
+ + + END OF STRIP + + +																
576	565	.00240	8	.47	.22	26.4	.05	.00	.05	.11	1.3	.29	.18			576-565
565	564	.00240	8	.47	.22	22.9	.07	.00	.12	.26	1.6	.47	.10			565-564
+ + + END OF STRIP + + +																
561	562	.00240	8	.47	.22	24.1	.04	.00	.04	.10	1.3	.28	.18			561-562
562	564	.00240	8	.47	.22	.0	.00	.00	.04	.10	1.3	.28	.18			562-564
565	564								.12	.00 U						
564	563	.00240	8	.47	.22	.0	.00	.00	.16	.35	1.8	.55	.06			564-563
563	530	.00240	8	.47	.22	.0	.00	.00	.16	.35	1.8	.55	.06			563-530
+ + + END OF STRIP + + +																
611	599	.00600	8	.74	.36	15.2	.03	.00	.03	.07	1.5	.17	.34			611-599
599	513	.00240	8	.47	.22	.0	.00	.00	.03	.07	1.1	.23	.19			599-513
513	514	.00240	8	.47	.22	16.5	.03	.00	.06	.13	1.4	.32	.17			513-514
514	515	.00240	8	.47	.22	.0	.00	.00	.06	.13	1.4	.32	.17			514-515
515	516	.00240	8	.47	.22	12.3	.02	.00	.08	.18	1.5	.38	.14			515-516
516	517	.00240	8	.47	.22	.0	.00	.00	.08	.18	1.5	.38	.14			516-517
517	518	.00240	8	.47	.22	.0	.00	.00	.08	.18	1.5	.38	.14			517-518
+ + + END OF STRIP + + +																
501	502	.00240	8	.47	.22	8.3	.01	.00	.01	.04	1.0	.17	.21			501-502
502	512	.00240	8	.47	.22	6.4	.01	.00	.03	.06	1.1	.23	.20			502-512
512	511	.00240	8	.47	.22	.0	.00	.00	.03	.06	1.1	.23	.20			512-511
+ + + END OF STRIP + + +																
454	453	.00240	8	.47	.22	37.5	.06	.00	.06	.13	1.4	.32	.17			454-453
453	452	.00240	8	.47	.22	.0	.00	.00	.06	.13	1.4	.32	.17			453-452
452	451	.00240	8	.47	.22	21.2	.04	.00	.09	.21	1.5	.41	.13			452-451
451	450	.00240	8	.47	.22	.0	.00	.00	.09	.21	1.5	.41	.13			451-450
450	449	.00240	8	.47	.22	11.9	.02	.00	.11	.25	1.6	.45	.11			450-449
449	448	.00240	8	.47	.22	.0	.00	.00	.11	.25	1.6	.45	.11			449-448
+ + + END OF STRIP + + +																
444	445	.00240	8	.47	.22	18.9	.03	.00	.03	.08	1.1	.23	.19			444-445
445	446	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.1	.23	.19			445-446
446	447	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.1	.23	.19			446-447
447	448	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.1	.23	.19			447-448

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Ultimate Condition)

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Capacities: Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
END OF STRIP																
406	405	.00240	8	.47	.22	15.8	.01	.00	.01	.03	1.0	.17	.21			406-405
405	404	.00240	8	.47	.22	.0	.00	.00	.01	.03	1.0	.17	.21			405-404
END OF STRIP																
401	402	.00240	8	.47	.22	7.4	.01	.00	.01	.03	1.0	.17	.21			401-402
402	403	.00800	8	.85	.43	.0	.00	.00	.01	.03	1.4	.12	.41			402-403
403	404	.00240	8	.47	.22	.0	.00	.00	.01	.03	1.0	.17	.21			403-404
END OF STRIP																
392	391	.00240	8	.47	.22	2.9	.01	.00	.01	.01	.7	.12	.22			392-391
END OF STRIP																
389	390	.00800	8	.85	.43	5.7	.01	.00	.01	.03	1.4	.12	.41			389-390
390	391	.00240	8	.47	.22	.0	.00	.00	.01	.03	.9	.15	.21			390-391
END OF STRIP																
381	380	.00240	8	.47	.22	5.9	.01	.00	.01	.03	.7	.12	.21			381-380
380	379	.00240	8	.47	.22	.0	.00	.00	.01	.03	.7	.12	.21			380-379
379	378	.00240	8	.47	.22	.0	.00	.00	.01	.03	.7	.12	.21			379-378
378	377	.00240	8	.47	.22	.0	.00	.00	.01	.03	.7	.12	.21			378-377
END OF STRIP																
374	375	.00240	8	.47	.22	8.0	.01	.00	.01	.04	1.0	.17	.21			374-375
375	376	.00520	8	.69	.34	.0	.00	.00	.01	.04	1.3	.15	.32			375-376
376	377	.00240	8	.47	.22	.0	.00	.00	.01	.04	1.0	.17	.21			376-377
END OF STRIP																
431	432	.00240	8	.47	.22	14.0	.03	.00	.03	.06	1.1	.23	.20			431-432
432	346	.00240	8	.47	.22	.0	.00	.00	.03	.06	1.1	.23	.20			432-346
346	347A	.00240	8	.47	.22	24.5	.08	.00	.10	.23	1.6	.44	.12			346-347A
347A	347	.00240	8	.47	.22	.0	.00	.00	.10	.23	1.6	.44	.12			347A-347
END OF STRIP																
280	279	.00240	8	.47	.22	24.0	.06	.00	.06	.14	1.4	.32	.16			280-279
279	278	.00240	8	.47	.22	.0	.00	.00	.06	.14	1.4	.32	.16			279-278
END OF STRIP																
245	244	.00240	8	.47	.22	14.2	.02	.00	.02	.05	1.1	.20	.20			245-244
END OF STRIP																
243	244	.00300	8	.52	.25	31.2	.05	.00	.05	.12	1.4	.29	.20			243-244
END OF STRIP																
212	211	.00780	8	.84	.42	4.0	.01	.00	.01	.02	1.1	.09	.41			212-211
END OF STRIP																
210	211	.00240	8	.47	.22	25.8	.05	.00	.05	.11	1.3	.29	.17			210-211
212	211								.01	.00 U						
211	244	.00910	8	.91	.46	.0	.00	.00	.06	.13	2.2	.23	.40			211-244
243	244								.05	.00 U						
245	244								.02	.00 U						
244	2015	.00240	8	.47	.22	.0	.00	.00	.13	.28	1.7	.48	.09			244-2015
END OF STRIP																

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Ultimate Condition)

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
204	205	.00320	8	.54	.26	19.4	.03	.00	.03	.08	1.3	.23	.23			204-205
+ + + + + + END OF STRIP + + + + + +																
187B	187A	.00200	8	.43	.20	16.3	.06	.00	.06	.14	1.3	.35	.14			187B-187A
187A	1028	.00200	8	.43	.20	.0	.00	.00	.06	.14	1.3	.35	.14			187A-1028
+ + + + + + END OF STRIP + + + + + +																
187	1028	.00200	8	.43	.20	36.7	.08	.00	.08	.17	1.4	.38	.13			187-1028
+ + + + + + END OF STRIP + + + + + +																
177	175A	.00400	8	.60	.29	20.3	.04	.00	.04	.09	1.5	.23	.26			177-175A
175A	175	.00400	8	.60	.29	.0	.00	.00	.04	.09	1.5	.23	.26			175A-175
175	174	.00400	8	.60	.29	.0	.00	.00	.04	.09	1.5	.23	.26			175-174
174	173	.00400	8	.60	.29	.0	.00	.00	.04	.09	1.5	.23	.26			174-173
173	172	.00400	8	.60	.29	.0	.00	.00	.04	.09	1.5	.23	.26			173-172
172	171	.00400	8	.60	.29	.0	.00	.00	.04	.09	1.5	.23	.26			172-171
171	3016	.00530	8	.69	.34	.0	.00	.00	.04	.09	1.6	.20	.30			171-3016
+ + + + + + END OF STRIP + + + + + +																
152	151	.00240	8	.47	.22	24.6	.20	.00	.20	.43	1.8	.62	.02			152-151
151	150	.00240	8	.47	.22	.0	.00	.00	.20	.43	1.8	.62	.02			151-150
150	149	.00240	8	.47	.22	.0	.00	.00	.20	.43	1.8	.62	.02			150-149
149	148	.00240	8	.47	.22	.0	.00	.00	.20	.43	1.8	.62	.02			149-148
148	147	.00240	8	.47	.22	.0	.00	.00	.20	.43	1.8	.62	.02			148-147
147	146	.00240	8	.47	.22	.0	.00	.00	.20	.43	1.8	.62	.02			147-146
146	145	.00240	8	.47	.22	.0	.00	.00	.20	.43	1.8	.62	.02			146-145
+ + + + + + END OF STRIP + + + + + +																
136	137	.00240	8	.47	.22	24.5	.20	.00	.20	.42	1.8	.61	.03			136-137
137	138	.00240	8	.47	.22	.0	.00	.00	.20	.42	1.8	.61	.03			137-138
138	139	.00240	8	.47	.22	.0	.00	.00	.20	.42	1.8	.61	.03			138-139
139	140	.00240	8	.47	.22	.0	.00	.00	.20	.42	1.8	.61	.03			139-140
140	141	.00240	8	.47	.22	.0	.00	.00	.20	.42	1.8	.61	.03			140-141
141	143	.00240	8	.47	.22	.0	.00	.00	.20	.42	1.8	.61	.03			141-143
143	144	.00240	8	.47	.22	.0	.00	.00	.20	.42	1.8	.61	.03			143-144
+ + + + + + END OF STRIP + + + + + +																
125	126	.00200	8	.43	.20	15.8	.12	.00	.12	.26	1.5	.48	.09			125-126
126	127	.00200	8	.43	.20	.0	.00	.00	.12	.26	1.5	.48	.09			126-127
127	128	.00200	8	.43	.20	.0	.00	.00	.12	.26	1.5	.48	.09			127-128
128	129	.00200	8	.43	.20	.0	.00	.00	.12	.26	1.5	.48	.09			128-129
129	130	.00200	8	.43	.20	.0	.00	.00	.12	.26	1.5	.48	.09			129-130
130	131	.00200	8	.43	.20	.0	.00	.00	.12	.26	1.5	.48	.09			130-131
131	132	.00200	8	.43	.20	.0	.00	.00	.12	.26	1.5	.48	.09			131-132
132	133	.00200	8	.43	.20	.0	.00	.00	.12	.26	1.5	.48	.09			132-133
133	134	.00240	8	.47	.22	44.8	.00	.00	.12	.26	1.6	.47	.10			133-134
+ + + + + + END OF STRIP + + + + + +																

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Ultimate Condition)

MH Up	MH Down	Slope	Dia- meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel- ocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
98	99	.00240	8	.47	.22	26.5	.22	.00	.22	.47	1.9	.67	.00			98-99
99	100	.00240	8	.47	.22	.0	.00	.00	.22	.47	1.9	.67	.00			99-100
100	101	.00240	8	.47	.22	.0	.00	.00	.22	.47	1.9	.67	.00			100-101
101	102	.00240	8	.47	.22	.0	.00	.00	.22	.47	1.9	.67	.00			101-102
102	103	.00240	8	.47	.22	.0	.00	.00	.22	.47	1.9	.67	.00			102-103
103	104	.00240	8	.47	.22	.0	.00	.00	.22	.47	1.9	.67	.00			103-104
104	105	.00240	8	.47	.22	.0	.00	.00	.22	.47	1.9	.67	.00			104-105
105	135	.00240	8	.47	.22	.0	.00	.00	.22	.47	1.9	.67	.00			105-135
+ END OF STRIP +																
81	82	.00240	8	.47	.22	19.1	.04	.00	.04	.10	1.3	.28	.18			81-82
82	83	.00240	8	.47	.22	.0	.00	.00	.04	.10	1.3	.28	.18			82-83
83	13	.00200	8	.43	.20	.0	.00	.00	.04	.10	1.2	.29	.16			83-13
+ END OF STRIP +																
75	76	.00240	8	.47	.22	25.7	.05	.00	.05	.11	1.3	.29	.18			75-76
76	86	.00240	8	.47	.22	.0	.00	.00	.05	.11	1.3	.29	.18			76-86
86	89	.00240	8	.47	.22	.0	.00	.00	.05	.11	1.3	.29	.18			86-89
89	92	.00240	8	.47	.22	.0	.00	.00	.05	.11	1.3	.29	.18			89-92
92	93	.00240	8	.47	.22	.0	.00	.00	.05	.11	1.3	.29	.18			92-93
93	94	.00200	8	.43	.20	4.8	.01	.00	.05	.13	1.2	.32	.15			93-94
94	95	.00200	8	.43	.20	.0	.00	.00	.05	.13	1.2	.32	.15			94-95
95	14	.00200	8	.43	.20	.0	.00	.00	.05	.13	1.2	.32	.15			95-14
+ END OF STRIP +																
827	826	.00240	8	.47	.22	16.1	.04	.00	.04	.10	1.3	.29	.18			827-826
826	825	.00240	8	.47	.22	.0	.00	.00	.04	.10	1.3	.29	.18			826-825
825	824	.00240	8	.47	.22	.0	.00	.00	.04	.10	1.3	.29	.18			825-824
824	823	.00240	8	.47	.22	.0	.00	.00	.04	.10	1.3	.29	.18			824-823
823	26A	.00240	8	.47	.22	.0	.00	.00	.04	.10	1.3	.29	.18			823-26A
26A	26	.00400	8	.60	.29	.0	.00	.00	.04	.10	1.5	.25	.25			26A-26
+ END OF STRIP +																
700	699	.00240	8	.47	.22	31.7	.06	.00	.06	.13	1.4	.32	.17			700-699
699	698	.00240	8	.47	.22	.0	.00	.00	.06	.13	1.4	.32	.17			699-698
698	697	.00240	8	.47	.22	.0	.00	.00	.06	.13	1.4	.32	.17			698-697
697	688	.00240	8	.47	.22	15.7	.02	.00	.08	.18	1.5	.38	.14			697-688
688	687	.00240	8	.47	.22	.0	.00	.00	.08	.18	1.5	.38	.14			688-687
687	694	.00240	8	.47	.22	.0	.00	.00	.08	.18	1.5	.38	.14			687-694
694	693	.00240	8	.47	.22	.0	.00	.00	.08	.18	1.5	.38	.14			694-693
705	693								.15	.00 U						
693	684	.00200	10	.77	.38	28.7	.08	.00	.31	.63	1.9	.58	.07			693-684
684	677	.00200	10	.77	.38	.0	.00	.00	.31	.63	1.9	.58	.07			684-677
677	668	.00200	10	.77	.38	.0	.00	.00	.31	.63	1.9	.58	.07			677-668
667	668								.12	.00 U						
669	668								.03	.00 U						
668	659	.00200	10	.77	.38	.0	.00	.00	.46	.92	2.0	.77		15	10	668-659

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
658	659								.01	.00 U						
660	659								.01	.00 U						
659	650	.00200	10	.77	.38	.0	.00	.00	.48	.96	2.0	.80		15	10	659-650
650	644	.00200	10	.77	.38	.0	.00	.00	.48	.96	2.0	.80		15	10	650-644
644	637	.00200	10	.77	.38	.0	.00	.00	.48	.96	2.0	.80		15	10	644-637
637	627	.00200	10	.77	.38	.0	.00	.00	.48	.96	2.0	.80		15	10	637-627
626	627								.08	.00 U						
627	614	.00200	10	.77	.38	7.2	.01	.00	.57	1.13	2.1	>1.0		15	12	627-614
615	614								.04	.00 U						
614	604	.00200	10	.77	.38	.0	.00	.00	.61	1.19	2.2	>1.0		15	12	614-604
604	603	.00200	10	.77	.38	.0	.00	.00	.61	1.19	2.2	>1.0		15	12	604-603
605	603								.04	.00 U						
603	602	.00200	10	.77	.38	.0	.00	.00	.65	1.26	2.3	>1.0		15	12	603-602
602	518	.00200	10	.77	.38	.0	.00	.00	.65	1.26	2.3	>1.0		15	12	602-518
+ + + + END OF STRIP + + + +																
258	257	.00240	8	.47	.22	37.5	.10	.00	.10	.22	1.6	.42	.13			258-257
257	256	.00240	8	.47	.22	.0	.00	.00	.10	.22	1.6	.42	.13			257-256
256	260	.00240	8	.47	.22	19.6	.03	.00	.13	.29	1.7	.49	.09			256-260
260	265	.00240	8	.47	.22	.0	.00	.00	.13	.29	1.7	.49	.09			260-265
265	269	.00240	8	.47	.22	.0	.00	.00	.13	.29	1.7	.49	.09			265-269
269	273	.00240	8	.47	.22	16.2	.03	.00	.16	.34	1.8	.55	.06			269-273
273	278	.00240	8	.47	.22	.0	.00	.00	.16	.34	1.8	.55	.06			273-278
279	278								.06	.00 U						
278	284	.00240	8	.47	.22	.0	.00	.00	.22	.46	1.9	.67	.00			278-284
284	292	.00240	8	.47	.22	10.2	.02	.00	.24	.50	1.9	.70		10	8	284-292
292	337	.00200	10	.77	.38	17.1	.03	.00	.27	.55	1.9	.54	.12			292-337
337	336	.00200	10	.77	.38	.0	.00	.00	.27	.55	1.9	.54	.12			337-336
+ + + + END OF STRIP + + + +																
228	229	.00340	10	1.01	.51	14.3	.03	.00	.03	.06	1.2	.15	.48			228-229
229	217	.00340	10	1.01	.51	.0	.00	.00	.03	.06	1.2	.15	.48			229-217
217	206	.00340	10	1.01	.51	.0	.00	.00	.03	.06	1.2	.15	.48			217-206
206	205	.00340	10	1.01	.51	.0	.00	.00	.03	.06	1.2	.15	.48			206-205
204	205								.03	.00 U						
205	249	.00340	10	1.01	.51	.0	.00	.00	.06	.13	1.5	.22	.45			205-249
249	3013	.00370	10	1.05	.53	.0	.00	.00	.06	.13	1.6	.22	.47			249-3013
+ + + + END OF STRIP + + + +																
37	53	.00160	10	.69	.34	51.8	.06	.00	.06	.13	1.2	.26	.28			37-53
53	5	.00160	10	.69	.34	.0	.00	.00	.06	.13	1.2	.26	.28			53-5
+ + + + END OF STRIP + + + +																
898	905	.00200	8	.43	.20	16.8	.04	.00	.04	.10	1.2	.29	.16			898-905
905	906	.00200	8	.43	.20	.0	.00	.00	.04	.10	1.2	.29	.16			905-906
906	910	.00200	8	.43	.20	5.3	.01	.00	.05	.12	1.2	.32	.15			906-910
912	910								.08	.00 U						
910	911	.00300	12	1.54	.80	.0	.00	.00	.13	.29	1.8	.26	.67			910-911
911	347	.00200	12	1.26	.65	.0	.00	.00	.13	.29	1.5	.29	.51			911-347

B ·le Engineering Corporation
S ·er Analysis Sanitary Load Applications
(·timate Condition)

MH Up	MH Down	Slope	Dia-meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel-ocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
·7A 347	347 348	.00240	8	.47	.22	.0	.00	.00	.10 .24	.00 U .49	1.9	.70		10	8	347-348
·48	349	.00240	8	.47	.22	6.6	.01	.00	.25	.51	1.9	.73		10	8	348-349
·49	350	.00240	8	.47	.22	6.2	.01	.00	.26	.53	1.9	.74		10	8	349-350
350	351	.00400	8	.60	.29	.0	.00	.00	.26	.53	2.4	.61	.04			350-351
351	352	.00240	8	.47	.22	.0	.00	.00	.26	.53	1.9	.74		10	8	351-352

+ END OF STRIP +

MH Up	MH Down	Slope	Dia-meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel-ocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
153	154	.00200	8	.43	.20	18.1	.11	.00	.11	.24	1.5	.47	.10			153-154
154	155	.00200	8	.43	.20	.0	.00	.00	.11	.24	1.5	.47	.10			154-155
155	156	.00200	8	.43	.20	.0	.00	.00	.11	.24	1.5	.47	.10			155-156
156	157	.00200	8	.43	.20	.0	.00	.00	.11	.24	1.5	.47	.10			156-157
157	158	.00200	8	.43	.20	.0	.00	.00	.11	.24	1.5	.47	.10			157-158
158	159	.00200	8	.43	.20	.0	.00	.00	.11	.24	1.5	.47	.10			158-159
159	160	.00200	8	.43	.20	.0	.00	.00	.11	.24	1.5	.47	.10			159-160
160	145	.00200	12	1.26	.65	.0	.00	.00	.11	.24	1.5	.26	.54			160-145
146 145	145 144	.00200	12	1.26	.65	8.2	.02	.00	.20 .33	.00 U .67	1.9	.45	.32			145-144
143 144	144 144A	.00660	12	2.28	1.23	8.7	.04	.00	.20 .56	.00 U 1.11	3.4	.43	.66			144-144A
144A	2026	.01200	12	3.08	1.69	.0	.00	.00	.56	1.11	4.3	.37	1.13			144A-2026

+ END OF STRIP +

MH Up	MH Down	Slope	Dia-meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel-ocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
106	107	.00240	8	.47	.22	26.8	.23	.00	.23	.48	1.9	.68		10	8	106-107
107	108	.00240	8	.47	.22	.0	.00	.00	.23	.48	1.9	.68		10	8	107-108
108	109	.00240	8	.47	.22	.0	.00	.00	.23	.48	1.9	.68		10	8	108-109
109	110	.00240	8	.47	.22	.0	.00	.00	.23	.48	1.9	.68		10	8	109-110
110	112	.00240	8	.47	.22	.0	.00	.00	.23	.48	1.9	.68		10	8	110-112
112	113	.00240	8	.47	.22	.0	.00	.00	.23	.48	1.9	.68		10	8	112-113
113	114	.00240	8	.47	.22	.0	.00	.00	.23	.48	1.9	.68		10	8	113-114
114	134	.00240	8	.47	.22	.0	.00	.00	.23	.48	1.9	.68		10	8	114-134
133 134	134 135	.00230	10	.83	.41	.0	.00	.00	.12 .35	.00 U .71	2.1	.60	.07			134-135
105 135	135 2033	.00330	12	1.62	.84	.0	.00	.00	.22 .57	.00 U 1.12	2.7	.53	.28			135-2033

+ END OF STRIP +

MH Up	MH Down	Slope	Dia-meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel-ocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
23	24	.00150	12	1.09	.55	6.7	.03	.00	.03	.06	.9	.15	.53			23-24
24	25	.00150	12	1.09	.55	.0	.00	.00	.03	.06	.9	.15	.53			24-25
830A 25	25 25A	.00150	12	1.09	.55	.0	.00	.00	.08 .11	.00 U .23	1.3	.28	.45			25-25A
25A	26	.00150	12	1.09	.55	.0	.00	.00	.11	.23	1.3	.28	.45			25A-26
26A 26	26 27	.00150	12	1.09	.55	.0	.00	.00	.04 .15	.00 U .32	1.4	.33	.40			26-27
811 27	27 28	.00150	12	1.09	.55	.0	.00	.00	.23 .38	.00 U .78	1.8	.54	.17			27-28
804 28	28 29A	.00150	12	1.09	.55	.0	.00	.00	.05 .43	.00 U .87	1.8	.57	.12			28-29A
29A	2027	.00380	12	1.73	.91	.0	.00	.00	.43	.87	2.6	.44	.48			29A-2027

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Ultimate Condition)

MH Up	MH Down	Slope	Dia-meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel-ocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
+ + + + + + + + END OF STRIP + + + + + + + +																
3	4	.00200	10	.77	.38	31.5	.12	.00	.12	.27	1.5	.36	.26			3-4
4	5	.00282	10	.92	.46	16.0	.00	.00	.12	.27	1.8	.33	.34			4-5
53	5								.06	.00 U						
5	6	.00150	12	1.09	.55	30.5	.00	.00	.18	.38	1.5	.36	.37			5-6
6	7	.00150	12	1.09	.55	.0	.00	.00	.18	.38	1.5	.36	.37			6-7
7	8	.00150	12	1.09	.55	.0	.00	.00	.18	.38	1.5	.36	.37			7-8
8	9	.00150	12	1.09	.55	34.4	.06	.00	.24	.50	1.6	.41	.31			8-9
9	10	.00150	12	1.09	.55	.0	.00	.00	.24	.50	1.6	.41	.31			9-10
10	11	.00150	12	1.09	.55	.0	.00	.00	.24	.50	1.6	.41	.31			10-11
11	12	.00150	12	1.09	.55	6.0	.00	.00	.24	.50	1.6	.41	.31			11-12
12	13	.00150	12	1.09	.55	.0	.00	.00	.24	.50	1.6	.41	.31			12-13
83	13								.04	.00 U						
13	14	.00150	12	1.09	.55	.0	.00	.00	.28	.58	1.7	.45	.27			13-14
95	14								.05	.00 U						
14	15	.00150	12	1.09	.55	15.1	.00	.00	.34	.68	1.7	.49	.22			14-15
15	16	.00150	12	1.09	.55	.0	.00	.00	.34	.68	1.7	.49	.22			15-16
16	17	.00150	12	1.09	.55	.0	.00	.00	.34	.68	1.7	.49	.22			16-17
17	18	.00150	12	1.09	.55	.0	.00	.00	.34	.68	1.7	.49	.22			17-18
18	19	.00150	12	1.09	.55	50.3	.26	.00	.59	1.16	2.0	.70		15	12	18-19
19	20	.00150	12	1.09	.55	23.9	.11	.00	.70	1.35	2.0	.80		15	12	19-20
20	21	.00150	12	1.09	.55	.0	.00	.00	.70	1.35	2.0	.80		15	12	20-21
21	22	.00150	12	1.09	.55	.0	.00	.00	.70	1.35	2.0	.80		15	12	21-22
22	2033	.06090	12	6.94	4.05	30.8	.11	.00	.80	1.54	8.3	.28	3.25			22-2033
+ + + + + + + + END OF STRIP + + + + + + + +																
822	819	.00200	12	1.26	.65	43.1	.14	.00	.14	.30	1.5	.29	.51			822-819
819	797	.00200	12	1.26	.65	.0	.00	.00	.14	.30	1.5	.29	.51			819-797
797	798	.00200	12	1.26	.65	.0	.00	.00	.14	.30	1.5	.29	.51			797-798
798	799	.00200	12	1.26	.65	13.1	.04	.00	.17	.37	1.7	.33	.47			798-799
799	800	.00200	12	1.26	.65	.0	.00	.00	.17	.37	1.7	.33	.47			799-800
800	801	.00200	12	1.26	.65	.0	.00	.00	.17	.37	1.7	.33	.47			800-801
801	802	.00200	12	1.26	.65	.0	.00	.00	.17	.37	1.7	.33	.47			801-802
802	803	.00200	12	1.26	.65	.0	.00	.00	.17	.37	1.7	.33	.47			802-803
803	30	.00580	12	2.14	1.14	.0	.00	.00	.17	.37	2.4	.25	.97			803-30
30	31	.00150	15	2.67	1.45	.0	.00	.00	.17	.37	1.5	.26	1.27			30-31
31	32	.00150	15	2.67	1.45	19.7	.12	.00	.30	.61	1.7	.34	1.15			31-32
32	33	.00150	15	2.67	1.45	18.9	.13	.00	.42	.85	1.8	.40	1.02			32-33
33	785A	.00150	15	2.67	1.45	62.1	.21	.00	.64	1.25	2.0	.50	.81			33-785A
785	785A								.17	.00 U						
785A	3024	.29000	15	37.08	24.54	.0	.00	.00	.81	1.55	13.9	.14	23.73			785A-3024
+ + + + + + + + END OF STRIP + + + + + + + +																
978	531	.00240	8	.47	.22	32.8	.06	.00	.06	.13	1.4	.32	.17			978-531
531	530	.00800	8	.85	.43	.0	.00	.00	.06	.13	2.1	.23	.37			531-530

E yle Engineering Corporation
S ver Analysis Sanitary Load Applications
(Ultimate Condition)

H p	MH Down	Slope	Dia- meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel- ocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
563	530								.16	.00 U						
570	530								.03	.00 U						
530	525	.00200	10	.77	.38	.0	.00	.00	.25	.52	1.8	.52	.13			530-525
525	524	.00200	10	.77	.38	.0	.00	.00	.25	.52	1.8	.52	.13			525-524
524	523	.00200	10	.77	.38	.0	.00	.00	.25	.52	1.8	.52	.13			524-523
523	522	.00200	10	.77	.38	13.8	.02	.00	.27	.56	1.9	.54	.11			523-522
522	520	.00200	10	.77	.38	.0	.00	.00	.27	.56	1.9	.54	.11			522-520
520	519	.00200	10	.77	.38	.0	.00	.00	.27	.56	1.9	.54	.11			520-519
519	518	.00200	10	.77	.38	.0	.00	.00	.27	.56	1.9	.54	.11			519-518
517	518								.08	.00 U						
602	518								.65	.00 U						
518	511	.00200	12	1.26	.65	.0	.00	.00	1.00	1.89	2.4	>1.0		15	15	518-511
512	511								.03	.00 U						
511	478	.00200	12	1.26	.65	.0	.00	.00	1.03	1.94	2.5	>1.0		15	15	511-478
478	483	.00200	12	1.26	.65	4.1	.01	.00	1.04	1.95	2.5	>1.0		15	15	478-483
483	448	.00200	12	1.26	.65	.0	.00	.00	1.04	1.95	2.5	>1.0		15	15	483-448
447	448								.03	.00 U						
449	448								.11	.00 U						
448	377	.00120	15	2.38	1.28	.0	.00	.00	1.18	2.21	2.1	.81	.10			448-377
376	377								.01	.00 U						
378	377								.01	.00 U						
377	391	.00120	15	2.38	1.28	.0	.00	.00	1.21	2.25	2.1	.83	.08			377-391
390	391								.01	.00 U						
392	391								.01	.00 U						
391	404	.00120	15	2.38	1.28	.0	.00	.00	1.22	2.28	2.1	.84	.06			391-404
403	404								.01	.00 U						
405	404								.01	.00 U						
404	418	.00120	15	2.38	1.28	.0	.00	.00	1.25	2.32	2.1	.86	.04			404-418
418	424	.00120	15	2.38	1.28	5.5	.01	.00	1.26	2.34	2.1	.87	.03			418-424
424	433	.00120	15	2.38	1.28	11.5	.02	.00	1.28	2.37	2.1	.89	.01			424-433
433	435	.00120	18	3.88	2.17	23.5	.04	.00	1.32	2.44	2.2	.60	.85			433-435
435	352	.00120	18	3.88	2.17	.0	.00	.00	1.32	2.44	2.2	.60	.85			435-352
351	352								.26	.00 U						
352	357	.00120	18	3.88	2.17	26.7	.05	.00	1.62	2.96	2.3	.69	.54			352-357
357	361	.00120	18	3.88	2.17	13.9	.03	.00	1.65	3.01	2.3	.69	.52			357-361
361	365	.00120	18	3.88	2.17	.0	.00	.00	1.65	3.01	2.3	.69	.52			361-365
365	366	.00120	18	3.88	2.17	23.9	.04	.00	1.69	3.08	2.3	.70	.48			365-366
366	323	.00120	18	3.88	2.17	.0	.00	.00	1.69	3.08	2.3	.70	.48			366-323
323	332A	.00120	18	3.88	2.17	26.4	.05	.00	1.74	3.16	2.3	.72	.43			323-332A
332A	332	.00120	18	3.88	2.17	.0	.00	.00	1.74	3.16	2.3	.72	.43			332A-332
332	333A	.00120	18	3.88	2.17	.0	.00	.00	1.74	3.16	2.3	.72	.43			332-333A
333A	333	.00120	18	3.88	2.17	.0	.00	.00	1.74	3.16	2.3	.72	.43			333A-333
333	334A	.00120	18	3.88	2.17	8.2	.01	.00	1.75	3.18	2.3	.72	.42			333-334A
334A	334	.00120	18	3.88	2.17	.0	.00	.00	1.75	3.18	2.3	.72	.42			334A-334
334	334B	.00120	18	3.88	2.17	.0	.00	.00	1.75	3.18	2.3	.72	.42			334-334B
334B	335A	.00120	18	3.88	2.17	.0	.00	.00	1.75	3.18	2.3	.72	.42			334B-335A
335A	335	.00120	18	3.88	2.17	.0	.00	.00	1.75	3.18	2.3	.72	.42			335A-335
335	336A	.00120	18	3.88	2.17	.0	.00	.00	1.75	3.18	2.3	.72	.42			335-336A

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Ultimate Condition)

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Capac: Repl.	Rel'f	Identification
336A	336	.00120	18	3.88	2.17	.0	.00	.00	1.75	3.18	2.3	.72	.42			336A-336
337	336								.27	.00 U						
336	1040	.00200	18	5.01	2.85	.0	.00	.00	2.01	3.63	2.9	.66	.84			336-1040
1040	4002	.57500	18	84.89	59.81	.0	.00	.00	2.01	3.63	22.8	.15	57.80			1040-4002
+ + + + + + END OF STRIP + + + + + +																
979	1036	.00140	18	4.19	2.35	.0	.00	1.46		1.46 U						
						1341.3	.11	.00	.11	1.70	2.1	.46	2.25			979-1036
1036	1034	.00150	18	4.34	2.44	.0	.00	.00	.11	1.70	2.2	.45	2.33			1036-1034
1034	1032	.00140	18	4.19	2.35	.0	.00	.00	.11	1.70	2.1	.46	2.25			1034-1032
1032	1030	.00140	18	4.19	2.35	.0	.00	.00	.11	1.70	2.1	.46	2.25			1032-1030
1030	1028	.00140	18	4.19	2.35	.0	.00	.00	.11	1.70	2.1	.46	2.25			1030-1028
187	1028								.08	.00 U						
187A	1028								.06	.00 U						
1028	2019	.00140	18	4.19	2.35	.0	.00	.00	.25	1.97	2.2	.50	2.11			1028-2019
+ + + + + + END OF STRIP + + + + + +																
3048	3047	.00114	21	5.70	3.28	11.5	.02	.00	.02	.05	.7	.07	3.26			3048-3047
3047	3046	.00114	21	5.70	3.28	.0	.00	.00	.02	.05	.7	.07	3.26			3047-3046
3046	3045	.00114	21	5.70	3.28	.0	.00	.00	.02	.05	.7	.07	3.26			3046-3045
3045	3044	.00114	21	5.70	3.28	.0	.00	.00	.02	.05	.7	.07	3.26			3045-3044
866	3044								.10	.00 U						
3044	3043	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3044-3043
3043	3042	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3043-3042
3042	3041	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3042-3041
3041	3040	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3041-3040
3040	3039	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3040-3039
3039	3038	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3039-3038
3038	944A	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3038-944A
944	944A								.31	.00 U						
998	944A								.06	.00 U						
944A	982A	.00092	27	10.01	6.01	.0	.00	.00	.49	.97	1.5	.22	5.52			944A-982A
982A	3037	.00092	27	10.01	6.01	.0	.00	.00	.49	.97	1.5	.22	5.52			982A-3037
838	3037								.06	.00 U						
3037	3036	.00092	27	10.01	6.01	3.3	.01	.00	.56	1.10	1.6	.23	5.45			3037-3036
3036	1003	.00092	27	10.01	6.01	.0	.00	.00	.56	1.10	1.6	.23	5.45			3036-1003
1002	1003								.01	.00 U						
1003	3034	.00092	27	10.01	6.01	.0	.00	.00	.57	1.12	1.6	.24	5.43			1003 3034
3034	3033	.00092	27	10.01	6.01	.0	.00	.00	.57	1.12	1.6	.24	5.43			3034-3033
3033	3032	.00092	27	10.01	6.01	11.1	.06	.00	.63	1.23	1.6	.24	5.38			3033-3032
3032	3031	.00096	27	10.23	6.14	59.8	.24	.00	.87	1.66	1.8	.28	5.27			3032-3031
3031	3030	.00096	27	10.23	6.14	.0	.00	.00	.87	1.66	1.8	.28	5.27			3031-3030
3030	3029	.00096	27	10.23	6.14	.0	.00	.00	.87	1.66	1.8	.28	5.27			3030-3029
3029	3028	.00096	27	10.23	6.14	.0	.00	.00	.87	1.66	1.8	.28	5.27			3029-3028
3028	3027	.00096	27	10.23	6.14	.0	.00	.00	.87	1.66	1.8	.28	5.27			3028-3027
3027	3026	.00096	27	10.23	6.14	.0	.00	.00	.87	1.66	1.8	.28	5.27			3027-3026
3026	3025	.00096	27	10.23	6.14	.0	.00	.00	.87	1.66	1.8	.28	5.27			3026-3025
3025	3024	.00096	27	10.23	6.14	.0	.00	.00	.87	1.66	1.8	.28	5.27			3025-3024

c le Engineering Corporation
ϵ er Analysis Sanitary Load Applications
Ultimate Condition)

MH	Down	Slope	Dia-meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel-ocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
785A	3024								.81	.00 U						
24	3023	.00080	30	12.36	7.54	.0	.00	.00	1.68	3.06	2.0	.35	5.86			3024-3023
23	3022	.00080	30	12.36	7.54	.0	.00	.00	1.68	3.06	2.0	.35	5.86			3023-3022
3022	3021	.00080	30	12.36	7.54	.0	.00	.00	1.68	3.06	2.0	.35	5.86			3022-3021
21	3020	.00080	30	12.36	7.54	.0	.00	.00	1.68	3.06	2.0	.35	5.86			3021-3020
20	3019	.00080	30	12.36	7.54	.0	.00	.00	1.68	3.06	2.0	.35	5.86			3020-3019
019	3018	.00080	30	12.36	7.54	.0	.00	.00	1.68	3.06	2.0	.35	5.86			3019-3018
018	3017	.00080	30	12.36	7.54	.0	.00	.00	1.68	3.06	2.0	.35	5.86			3018-3017
3017	3016	.00080	30	12.36	7.54	.0	.00	.00	1.68	3.06	2.0	.35	5.86			3017-3016
171	3016								.04	.00 U						
016	3015	.00080	30	12.36	7.54	.0	.00	.00	1.72	3.12	2.0	.35	5.82			3016-3015
3015	3050	.00080	30	12.36	7.54	.0	.00	.00	1.72	3.12	2.0	.35	5.82			3015-3050
050	3014	.00084	30	12.67	7.74	.0	.00	.00	1.72	3.12	2.0	.35	6.02			3050-3014
014	3013	.00084	30	12.67	7.74	.0	.00	.00	1.72	3.12	2.0	.35	6.02			3014-3013
249	3013								.06	.00 U						
3013	3012	.00084	30	12.67	7.74	.0	.00	.00	1.77	3.22	2.1	.36	5.96			3013-3012
3012	3011	.00084	30	12.67	7.74	.0	.00	.00	1.77	3.22	2.1	.36	5.96			3012-3011
3011	3010	.00084	30	12.67	7.74	.0	.00	.00	1.77	3.22	2.1	.36	5.96			3011-3010
3010	3009	.00084	30	12.67	7.74	.0	.00	.00	1.77	3.22	2.1	.36	5.96			3010-3009
938	3009								.32	.00 U						
3009	3008	.00084	30	12.67	7.74	.0	.00	.00	2.09	3.76	2.2	.39	5.64			3009-3008
974A	3008								.12	.00 U						
3008	3007	.00084	30	12.67	7.74	.0	.00	.00	2.21	3.96	2.2	.40	5.52			3008-3007
3007	3006	.00084	30	12.67	7.74	.0	.00	.00	2.21	3.96	2.2	.40	5.52			3007-3006
3006	3005	.00084	30	12.67	7.74	.0	.00	.00	2.21	3.96	2.2	.40	5.52			3006-3005
3005	3004	.00084	30	12.67	7.74	.0	.00	.00	2.21	3.96	2.2	.40	5.52			3005-3004
3004	3003	.00084	30	12.67	7.74	.0	.00	.00	2.21	3.96	2.2	.40	5.52			3004-3003
3003	3002	.00084	30	12.67	7.74	.0	.00	.00	2.21	3.96	2.2	.40	5.52			3003-3002
3002	3001	.00084	30	12.67	7.74	.0	.00	.00	2.21	3.96	2.2	.40	5.52			3002-3001
3001	3000	.00084	30	12.67	7.74	.0	.00	.00	2.21	3.96	2.2	.40	5.52			3001-3000
3000	4003	.05600	24	57.06	39.01	.0	.00	.00	2.21	3.96	9.9	.19	36.80			3000-4003
4003	4002	.05600	24	57.06	39.01	.0	.00	.00	2.21	3.96	9.9	.19	36.80			4003-4002
1040	4002								2.01	.00 U						
4002	2002	.10000	20	46.89	31.59	.0	.00	.00	4.23	7.22	14.7	.27	27.36			4002-2002
+ + + + + END OF STRIP + + + + +																
2043	2042	.00063	30	10.97	6.63	4.4	.02	.00	.02	.05	.5	.05	6.61			2043-2042
1017	2042								.20	.00 U						
2042	2041	.00063	30	10.97	6.63	12.7	.00	.00	.22	.47	1.1	.15	6.40			2042-2041
2041	2040	.00063	30	10.97	6.63	.0	.00	.00	.22	.47	1.1	.15	6.40			2041-2040
2040	2039	.00063	30	10.97	6.63	.0	.00	.00	.22	.47	1.1	.15	6.40			2040-2039
2039	2038	.00063	30	10.97	6.63	.0	.00	.00	.22	.47	1.1	.15	6.40			2039-2038
2038	2037	.00072	30	11.73	7.12	.0	.00	.00	.22	.47	1.1	.14	6.90			2038-2037
2037	2036	.00072	30	11.73	7.12	.0	.00	.00	.22	.47	1.1	.14	6.90			2037-2036
2036	2035	.00072	30	11.73	7.12	.0	.00	.00	.22	.47	1.1	.14	6.90			2036-2035
2035	2034	.00072	30	11.73	7.12	.0	.00	.00	.22	.47	1.1	.14	6.90			2035-2034

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Ultimate Condition)

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Capacities: Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Capac: Repl.	Rel'f	Identification
2034	2033	.00072	30	11.73	7.12	.0	.00	.00	.22	.47	1.1	.14	6.90			2034-2033
22	2033								.80	.00 U						
35	2033								.57	.00 U						
033	2032	.00104	30	14.10	8.68	.0	.00	.00	1.59	2.92	2.2	.32	7.08			2033-2032
032	2031	.00104	30	14.10	8.68	.0	.00	.00	1.59	2.92	2.2	.32	7.08			2032-2031
031	2030	.00104	30	14.10	8.68	.0	.00	.00	1.59	2.92	2.2	.32	7.08			2031-2030
2030	2029	.00104	30	14.10	8.68	.0	.00	.00	1.59	2.92	2.2	.32	7.08			2030-2029
029	2028	.00104	30	14.10	8.68	.0	.00	.00	1.59	2.92	2.2	.32	7.08			2029-2028
028	2027	.00104	30	14.10	8.68	.0	.00	.00	1.59	2.92	2.2	.32	7.08			2028-2027
29A	2027								.43	.00 U						
027	2026	.00046	36	15.25	9.44	.0	.00	.00	2.03	3.65	1.7	.34	7.41			2027-2026
44A	2026								.56	.00 U						
2026	2025	.00046	36	15.25	9.44	.0	.00	.00	2.59	4.58	1.8	.39	6.85			2026-2025
2025	2024	.00046	36	15.25	9.44	.0	.00	.00	2.59	4.58	1.8	.39	6.85			2025-2024
2024	2023	.00046	36	15.25	9.44	.0	.00	.00	2.59	4.58	1.8	.39	6.85			2024-2023
2023	2022	.00046	36	15.25	9.44	.0	.00	.00	2.59	4.58	1.8	.39	6.85			2023-2022
2022	2021	.00046	36	15.25	9.44	.0	.00	.00	2.59	4.58	1.8	.39	6.85			2022-2021
2021	2020	.00046	36	15.25	9.44	.0	.00	.00	2.59	4.58	1.8	.39	6.85			2021-2020
2020	2019	.00046	36	15.25	9.44	.0	.00	.00	2.59	4.58	1.8	.39	6.85			2020-2019
1028	2019								.25	1.46 U						
2019	2018	.00047	36	15.41	9.55	.0	.00	.00	2.84	6.45	2.0	.47	6.71			2019-2018
2018	2050	.00047	36	15.41	9.55	.0	.00	.00	2.84	6.45	2.0	.47	6.71			2018-2050
2050	2017	.00047	36	15.41	9.55	.0	.00	.00	2.84	6.45	2.0	.47	6.71			2050-2017
2017	2016	.00047	36	15.41	9.55	.0	.00	.00	2.84	6.45	2.0	.47	6.71			2017-2016
2016	2015	.00047	36	15.41	9.55	.0	.00	.00	2.84	6.45	2.0	.47	6.71			2016-2015
244	2015								.13	.00 U						
2015	2014	.00036	39	16.70	10.41	.0	.00	.00	2.97	6.66	1.8	.46	7.44			2015-2014
2014	2013	.00036	39	16.70	10.41	.0	.00	.00	2.97	6.66	1.8	.46	7.44			2014-2013
2013	2012	.00036	39	16.70	10.41	.0	.00	.00	2.97	6.66	1.8	.46	7.44			2013-2012
2012	2011	.00036	39	16.70	10.41	22.5	.09	.00	3.06	6.80	1.8	.46	7.35			2012-2011
2011	2010	.00036	39	16.70	10.41	.0	.00	.00	3.06	6.80	1.8	.46	7.35			2011-2010
2010	2009	.00066	39	22.61	14.42	.0	.00	.00	3.06	6.80	2.3	.39	11.36			2010-2009
2009	2008	.00066	39	22.61	14.42	.0	.00	.00	3.06	6.80	2.3	.39	11.36			2009-2008
2008	2007	.00066	39	22.61	14.42	.0	.00	.00	3.06	6.80	2.3	.39	11.36			2008-2007
2007	2006	.00066	39	22.61	14.42	.0	.00	.00	3.06	6.80	2.3	.39	11.36			2007-2006
2006	2005	.00066	39	22.61	14.42	.0	.00	.00	3.06	6.80	2.3	.39	11.36			2006-2005
2005	2004	.00066	39	22.61	14.42	.0	.00	.00	3.06	6.80	2.3	.39	11.36			2005-2004
2004	2003	.00066	39	22.61	14.42	.0	.00	.00	3.06	6.80	2.3	.39	11.36			2004-2003
2003	2002	.00066	39	22.61	14.42	.0	.00	.00	3.06	6.80	2.3	.39	11.36			2003-2002
4002	2002								4.23	.00 U						
2002	2001	.00052	51	41.04	27.37	8.7	.02	.00	7.30	13.47	2.5	.41	20.07			2002-2001
2001	2000	.00052	51	41.04	27.37	93.0	.00	.00	7.30	13.47	2.5	.41	20.07			2001-2000

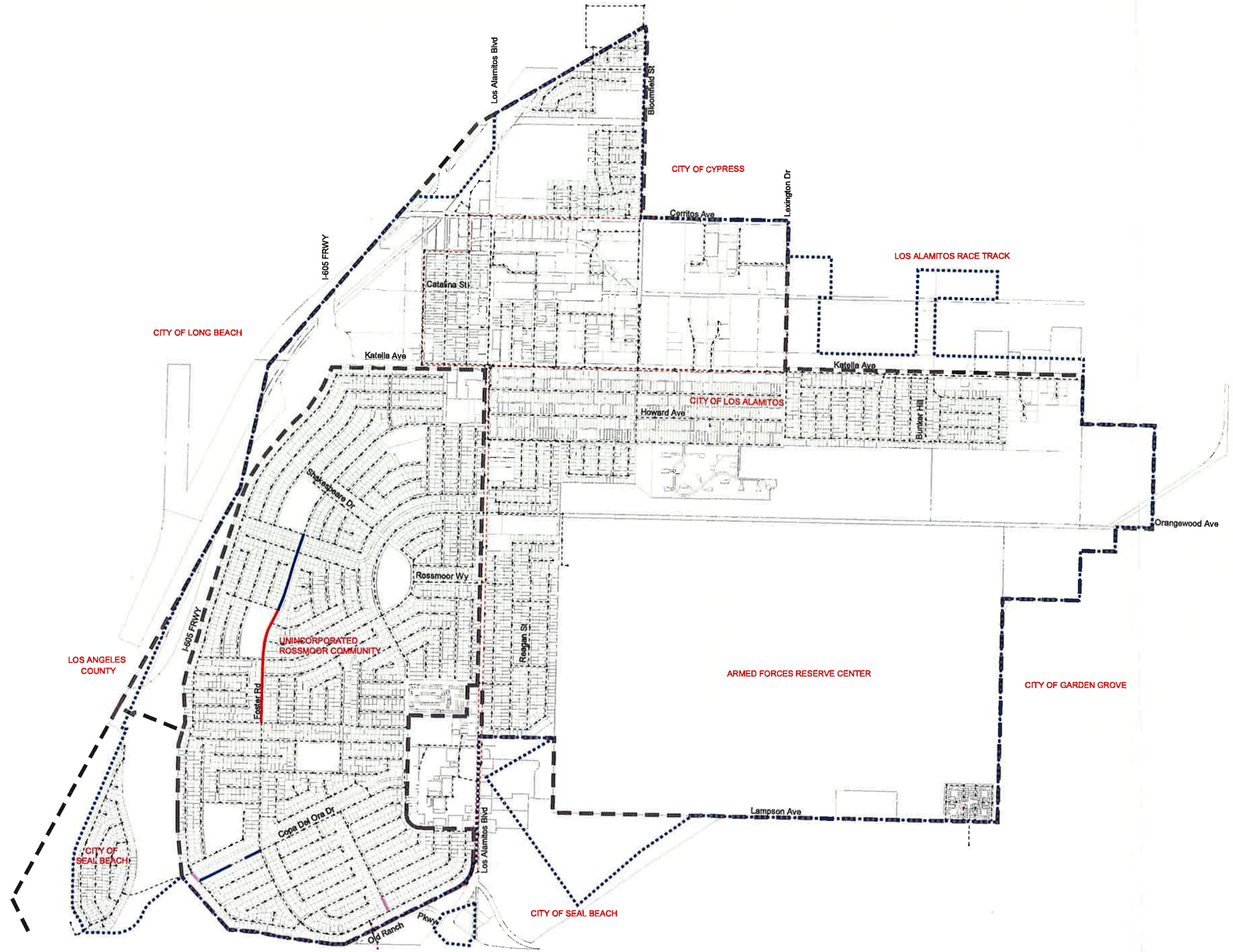
\+ END OF AREA +

Boyle Engineering Corporation

Land Use Area Summary

SFR	245.59
SFR-OC	641.08
LDR-SB	71.29
LMFR	18.24
MFR	132.62
MFR-OC	16.94
HDR-SB	19.79
AFRC	1303.78
INST	5.99
OA	156.61
P	16.59
PI	222.34
PO	48.75
RB	49.95
S	126.52
OA-OC	16.65
P-OC	17.93
RB-OC	10.57
S-OC	43.40
C-SB	66.87
G-SB	58.83
OA-SB	69.44
RT-CYP	78.72
PR	522.49
	3960.97

END



Legend

Existing D/d Ratios

- 0.67 - 0.69
- 0.7 - 0.79
- 0.8 - 0.89
- 0.9 - 1.0

- Manholes
- District Boundary
- City Boundaries
- Local Sewer
- OCSD Trunk Sewer

N

1800' 0 1800'

Rossmoor/Los Alamitos Area Sewer District

Existing Condition D/d Ratio Map

August 2001 | Figure 2

Boyle Engineering Corporation

Y:\L03\250\CAD\FIGURES\Fig11-1.apr

Sewer Analysis Results

Existing Condition

USMH	DSMH	Slope (ft/ft)	Diameter (inches)	Peak Capacity (cfs)	Average Capacity (cfs)	Area (acres)	Input Flow (cfs)	Point Source (cfs)	Average Flow (cfs)	Peak Design Flow (cfs)	Design Velocity (fps)	Depth Ratio (D/d)	Excess Capacity (cfs)	Replace Diameter (in)	Parallel Diameter (in)
3	4	0.00200	10	0.77	0.38	31.49	0.09	0.00	0.09	0.20	1.41	0.31	0.29	0	0
4	5	0.00282	10	0.92	0.46	16.00	0.00	0.00	0.09	0.20	1.58	0.28	0.37	0	0
5	6	0.00150	12	1.09	0.55	30.46	0.00	0.00	0.15	0.32	1.45	0.33	0.41	0	0
6	7	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.15	0.32	1.45	0.33	0.41	0	0
7	8	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.15	0.32	1.45	0.33	0.41	0	0
8	9	0.00150	12	1.09	0.55	34.36	0.06	0.00	0.21	0.43	1.57	0.39	0.35	0	0
9	10	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.21	0.43	1.57	0.39	0.35	0	0
10	11	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.21	0.43	1.57	0.39	0.35	0	0
11	12	0.00150	12	1.09	0.55	6.03	0.00	0.00	0.21	0.43	1.57	0.39	0.35	0	0
12	13	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.21	0.43	1.57	0.39	0.35	0	0
13	14	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.24	0.51	1.63	0.42	0.31	0	0
14	15	0.00150	12	1.09	0.55	15.08	0.00	0.00	0.30	0.61	1.70	0.47	0.26	0	0
15	16	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.30	0.61	1.70	0.47	0.26	0	0
16	17	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.30	0.61	1.70	0.47	0.26	0	0
17	18	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.30	0.61	1.70	0.47	0.26	0	0
18	19	0.00150	12	1.09	0.55	50.27	0.17	0.00	0.47	0.94	1.88	0.60	0.08	0	0
19	20	0.00150	12	1.09	0.55	23.93	0.07	0.00	0.54	1.07	1.93	0.66	0.01	0	0
20	21	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.54	1.07	1.93	0.66	0.01	0	0
21	22	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.54	1.07	1.93	0.66	0.01	0	0
22	2033	0.06090	12	6.94	4.05	30.82	0.09	0.00	0.63	1.23	7.79	0.25	3.42	0	0
23	24	0.00150	12	1.09	0.55	6.68	0.02	0.00	0.02	0.05	0.83	0.13	0.53	0	0
24	25	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.02	0.05	0.83	0.13	0.53	0	0
25	25A	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.08	0.17	1.22	0.24	0.48	0	0
25A	26	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.08	0.17	1.22	0.24	0.48	0	0
26A	26	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.03	0.07	1.36	0.20	0.26	0	0
26	27	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.11	0.24	1.30	0.28	0.45	0	0
27	28	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.28	0.58	1.68	0.45	0.27	0	0
28	29A	0.00150	12	1.09	0.55	0.00	0.00	0.00	0.32	0.65	1.73	0.49	0.23	0	0
29A	2027	0.00380	12	1.73	0.91	0.00	0.00	0.00	0.32	0.65	2.40	0.37	0.59	0	0
30	31	0.00150	15	2.67	1.45	0.00	0.00	0.00	0.14	0.29	1.37	0.23	1.31	0	0
31	32	0.00150	15	2.67	1.45	19.72	0.10	0.00	0.24	0.50	1.58	0.30	1.21	0	0
32	33	0.00150	15	2.67	1.45	18.87	0.11	0.00	0.34	0.70	1.75	0.36	1.11	0	0
33	785A	0.00150	15	2.67	1.45	62.10	0.19	0.00	0.53	1.05	1.96	0.45	0.91	0	0
37	53	0.00160	10	0.69	0.34	51.82	0.06	0.00	0.06	0.13	1.16	0.26	0.28	0	0
53	5	0.00160	10	0.69	0.34	0.00	0.00	0.00	0.06	0.13	1.16	0.26	0.28	0	0
75	76	0.00240	8	0.47	0.22	25.65	0.05	0.00	0.05	0.11	1.29	0.29	0.18	0	0
76	86	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.05	0.11	1.29	0.29	0.18	0	0
81	82	0.00240	8	0.47	0.22	19.14	0.04	0.00	0.04	0.09	1.22	0.26	0.19	0	0
82	83	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.09	1.22	0.26	0.19	0	0
83	13	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.04	0.09	1.11	0.26	0.17	0	0
86	89	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.05	0.11	1.29	0.29	0.18	0	0

Sewer Analysis Results Existing Condition															
				Peak	Average		Input	Point	Average	Peak Design	Design	Depth	Excess	Replace	Parallel
		Slope	Diameter	Capacity	Capacity	Area	Flow	Source	Flow	Flow	Velocity	Ratio	Capacity	Diameter	Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
89	92	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.05	0.11	1.29	0.29	0.18	0	0
92	93	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.05	0.11	1.29	0.29	0.18	0	0
93	94	0.00200	8	0.43	0.20	4.75	0.01	0.00	0.05	0.13	1.24	0.32	0.15	0	0
94	95	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.05	0.13	1.24	0.32	0.15	0	0
95	14	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.05	0.13	1.24	0.32	0.15	0	0
98	99	0.00240	8	0.47	0.22	26.54	0.18	0.00	0.18	0.39	1.81	0.60	0.04	0	0
99	100	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.18	0.39	1.81	0.60	0.04	0	0
100	101	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.18	0.39	1.81	0.60	0.04	0	0
101	102	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.18	0.39	1.81	0.60	0.04	0	0
102	103	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.18	0.39	1.81	0.60	0.04	0	0
103	104	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.18	0.39	1.81	0.60	0.04	0	0
104	105	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.18	0.39	1.81	0.60	0.04	0	0
105	135	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.18	0.39	1.81	0.60	0.04	0	0
106	107	0.00240	8	0.47	0.22	26.82	0.19	0.00	0.19	0.40	1.81	0.60	0.03	0	0
107	108	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.19	0.40	1.81	0.60	0.03	0	0
108	109	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.19	0.40	1.81	0.60	0.03	0	0
109	110	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.19	0.40	1.81	0.60	0.03	0	0
110	112	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.19	0.40	1.81	0.60	0.03	0	0
112	113	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.19	0.40	1.81	0.60	0.03	0	0
113	114	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.19	0.40	1.81	0.60	0.03	0	0
114	134	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.19	0.40	1.81	0.60	0.03	0	0
125	126	0.00200	8	0.43	0.20	15.82	0.10	0.00	0.10	0.21	1.46	0.44	0.11	0	0
126	127	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.10	0.21	1.46	0.44	0.11	0	0
127	128	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.10	0.21	1.46	0.44	0.11	0	0
128	129	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.10	0.21	1.46	0.44	0.11	0	0
129	130	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.10	0.21	1.46	0.44	0.11	0	0
130	131	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.10	0.21	1.46	0.44	0.11	0	0
131	132	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.10	0.21	1.46	0.44	0.11	0	0
132	133	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.10	0.21	1.46	0.44	0.11	0	0
133	134	0.00240	8	0.47	0.22	44.83	0.00	0.00	0.10	0.22	1.57	0.42	0.13	0	0
134	135	0.00230	10	0.83	0.41	0.00	0.00	0.00	0.28	0.59	1.98	0.54	0.13	0	0
135	2033	0.00330	12	1.62	0.84	0.00	0.00	0.00	0.47	0.93	2.56	0.47	0.38	0	0
136	137	0.00240	8	0.47	0.22	24.50	0.16	0.00	0.16	0.35	1.77	0.55	0.06	0	0
137	138	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.16	0.35	1.77	0.55	0.06	0	0
138	139	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.16	0.35	1.77	0.55	0.06	0	0
139	140	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.16	0.35	1.77	0.55	0.06	0	0
140	141	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.16	0.35	1.77	0.55	0.06	0	0
141	143	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.16	0.35	1.77	0.55	0.06	0	0
143	144	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.16	0.35	1.77	0.55	0.06	0	0
144	144A	0.00660	12	2.28	1.23	8.67	0.04	0.00	0.48	0.95	3.29	0.40	0.75	0	0
144A	2026	0.01200	12	3.08	1.69	0.00	0.00	0.00	0.48	0.95	4.09	0.34	1.21	0	0

Sewer Analysis Results

Existing Condition

USMH	DSMH	Slope (ft/ft)	Diameter (inches)	Peak Capacity (cfs)	Average Capacity (cfs)	Area (acres)	Input Flow (cfs)	Point Source (cfs)	Average Flow (cfs)	Peak Design Flow (cfs)	Design Velocity (fps)	Depth Ratio (D/d)	Excess Capacity (cfs)	Replace Diameter (in)	Parallel Diameter (in)
145	144	0.00200	12	1.26	0.65	8.25	0.02	0.00	0.27	0.56	1.88	0.41	0.37	0	0
146	145	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.17	0.36	1.77	0.55	0.06	0	0
147	146	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.17	0.36	1.77	0.55	0.06	0	0
148	147	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.17	0.36	1.77	0.55	0.06	0	0
149	148	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.17	0.36	1.77	0.55	0.06	0	0
150	149	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.17	0.36	1.77	0.55	0.06	0	0
151	150	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.17	0.36	1.77	0.55	0.06	0	0
152	151	0.00240	8	0.47	0.22	24.65	0.17	0.00	0.17	0.36	1.77	0.55	0.06	0	0
153	154	0.00200	8	0.43	0.20	18.12	0.09	0.00	0.09	0.20	1.43	0.42	0.11	0	0
154	155	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.09	0.20	1.43	0.42	0.11	0	0
155	156	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.09	0.20	1.43	0.42	0.11	0	0
156	157	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.09	0.20	1.43	0.42	0.11	0	0
157	158	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.09	0.20	1.43	0.42	0.11	0	0
158	159	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.09	0.20	1.43	0.42	0.11	0	0
159	160	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.09	0.20	1.41	0.24	0.56	0	0
160	145	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.09	0.20	1.57	0.20	0.30	0	0
171	3016	0.00530	8	0.69	0.34	0.00	0.00	0.00	0.04	0.09	1.47	0.23	0.26	0	0
172	171	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.04	0.09	1.47	0.23	0.26	0	0
173	172	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.04	0.09	1.47	0.23	0.26	0	0
174	173	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.04	0.09	1.47	0.23	0.26	0	0
175A	175	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.04	0.09	1.47	0.23	0.26	0	0
175	174	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.04	0.09	1.47	0.23	0.26	0	0
177	175A	0.00400	8	0.60	0.29	20.25	0.04	0.00	0.04	0.09	1.47	0.23	0.26	0	0
187B	187A	0.00200	8	0.43	0.20	16.25	0.06	0.00	0.06	0.14	1.30	0.35	0.14	0	0
187A	1028	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.06	0.14	1.30	0.35	0.14	0	0
187	1028	0.00200	8	0.43	0.20	36.67	0.08	0.00	0.08	0.17	1.36	0.38	0.13	0	0
204	205	0.00320	8	0.54	0.26	19.39	0.03	0.00	0.03	0.08	1.32	0.23	0.23	0	0
205	249	0.00340	10	1.01	0.51	0.00	0.00	0.00	0.06	0.13	1.52	0.22	0.45	0	0
206	205	0.00340	10	1.01	0.51	0.00	0.00	0.00	0.03	0.06	1.19	0.15	0.48	0	0
210	211	0.00240	8	0.47	0.22	25.82	0.05	0.00	0.05	0.11	1.29	0.29	0.17	0	0
211	244	0.00910	8	0.91	0.46	0.00	0.00	0.00	0.06	0.13	2.22	0.23	0.40	0	0
212	211	0.00780	8	0.84	0.42	4.04	0.01	0.00	0.01	0.02	1.12	0.09	0.41	0	0
217	206	0.00340	10	1.01	0.51	0.00	0.00	0.00	0.03	0.06	1.19	0.15	0.48	0	0
228	229	0.00340	10	1.01	0.51	14.33	0.03	0.00	0.03	0.06	1.19	0.15	0.48	0	0
229	217	0.00340	10	1.01	0.51	0.00	0.00	0.00	0.03	0.06	1.19	0.15	0.48	0	0
243	244	0.00300	8	0.52	0.25	31.20	0.05	0.00	0.05	0.12	1.45	0.29	0.20	0	0
244	2015	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.13	0.28	1.67	0.48	0.09	0	0
245	244	0.00240	8	0.47	0.22	14.16	0.02	0.00	0.02	0.05	1.05	0.20	0.20	0	0
249	3013	0.00370	10	1.05	0.53	0.00	0.00	0.00	0.06	0.13	1.58	0.22	0.47	0	0
256	260	0.00240	8	0.47	0.22	19.61	0.03	0.00	0.12	0.27	1.67	0.48	0.10	0	0
257	256	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.09	0.20	1.54	0.41	0.13	0	0

Sewer Analysis Results

Existing Condition

USMH	DSMH	Slope (ft/ft)	Diameter (inches)	Peak Capacity (cfs)	Average Capacity (cfs)	Area (acres)	Input Flow (cfs)	Point Source (cfs)	Average Flow (cfs)	Peak Design Flow (cfs)	Design Velocity (fps)	Depth Ratio (D/d)	Excess Capacity (cfs)	Replace Diameter (in)	Parallel Diameter (in)
258	257	0.00240	8	0.47	0.22	37.51	0.09	0.00	0.09	0.20	1.54	0.41	0.13	0	0
260	265	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.12	0.27	1.67	0.48	0.10	0	0
265	269	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.12	0.27	1.67	0.48	0.10	0	0
269	273	0.00240	8	0.47	0.22	16.16	0.03	0.00	0.15	0.33	1.73	0.52	0.07	0	0
273	278	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.15	0.33	1.73	0.52	0.07	0	0
278	284	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.21	0.44	1.86	0.64	0.01	0	0
279	278	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.06	0.14	1.36	0.32	0.16	0	0
280	279	0.00240	8	0.47	0.22	23.96	0.06	0.00	0.06	0.14	1.36	0.32	0.16	0	0
284	292	0.00240	8	0.47	0.22	10.15	0.02	0.00	0.23	0.48	1.89	0.68	0.00	10	8
292	337	0.00200	10	0.77	0.38	17.11	0.03	0.00	0.26	0.54	1.83	0.52	0.12	0	0
323	332A	0.00120	18	3.88	2.17	26.36	0.05	0.00	1.74	3.16	2.32	0.72	0.43	0	0
332A	332	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.74	3.16	2.32	0.72	0.43	0	0
332	333A	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.74	3.16	2.32	0.72	0.43	0	0
333A	333	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.74	3.16	2.32	0.72	0.43	0	0
333	334A	0.00120	18	3.88	2.17	8.18	0.01	0.00	1.75	3.18	2.32	0.72	0.42	0	0
334A	334	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.75	3.18	2.32	0.72	0.42	0	0
334	334B	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.75	3.18	2.32	0.72	0.42	0	0
334B	335A	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.75	3.18	2.32	0.72	0.42	0	0
335A	335	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.75	3.18	2.32	0.72	0.42	0	0
335	336A	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.75	3.18	2.32	0.72	0.42	0	0
336A	336	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.75	3.18	2.32	0.72	0.42	0	0
336	1040	0.00200	18	5.01	2.85	0.00	0.00	0.00	2.01	3.61	2.94	0.66	0.84	0	0
337	336	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.26	0.54	1.83	0.52	0.12	0	0
346	347A	0.00240	8	0.47	0.22	24.46	0.08	0.00	0.10	0.23	1.59	0.44	0.12	0	0
347A	347	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.10	0.23	1.59	0.44	0.12	0	0
347	348	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.24	0.49	1.90	0.70	0.00	10	8
348	349	0.00240	8	0.47	0.22	6.64	0.01	0.00	0.25	0.51	1.91	0.73	0.00	10	8
349	350	0.00240	8	0.47	0.22	6.21	0.01	0.00	0.26	0.53	1.92	0.74	0.00	10	8
350	351	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.26	0.53	2.36	0.61	0.04	0	0
351	352	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.26	0.53	1.92	0.74	0.00	10	8
352	357	0.00120	18	3.88	2.17	26.70	0.05	0.00	1.62	2.96	2.30	0.69	0.54	0	0
357	361	0.00120	18	3.88	2.17	13.94	0.03	0.00	1.65	3.01	2.30	0.69	0.52	0	0
361	365	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.65	3.01	2.30	0.69	0.52	0	0
365	366	0.00120	18	3.88	2.17	23.85	0.04	0.00	1.69	3.08	2.31	0.70	0.48	0	0
366	323	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.69	3.08	2.31	0.70	0.48	0	0
374	375	0.00240	3	0.47	0.22	8.04	0.01	0.00	0.01	0.04	0.96	0.17	0.21	0	0
375	376	0.00520	8	0.69	0.34	0.00	0.00	0.00	0.01	0.04	1.27	0.15	0.32	0	0
376	377	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.04	0.96	0.17	0.21	0	0
377	391	0.00120	15	2.39	1.28	0.00	0.00	0.00	1.21	2.25	2.08	0.83	0.08	0	0
378	377	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.03	0.75	0.12	0.21	0	0
379	378	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.03	0.75	0.12	0.21	0	0

Sewer Analysis Results

Existing Condition

USMH	DSMH	Slope (ft/ft)	Diameter (inches)	Peak Capacity (cfs)	Average Capacity (cfs)	Area (acres)	Input Flow (cfs)	Point Source (cfs)	Average Flow (cfs)	Peak Design Flow (cfs)	Design Velocity (fps)	Depth Ratio (D/d)	Excess Capacity (cfs)	Replace Diameter (in)	Parallel Diameter (in)
380	379	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.03	0.75	0.12	0.21	0	0
381	380	0.00240	8	0.47	0.22	5.92	0.01	0.00	0.01	0.03	0.75	0.12	0.21	0	0
389	390	0.00800	8	0.85	0.43	5.69	0.01	0.00	0.01	0.03	1.37	0.12	0.41	0	0
390	391	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.03	0.86	0.15	0.21	0	0
391	404	0.00120	15	2.39	1.28	0.00	0.00	0.00	1.22	2.28	2.08	0.84	0.06	0	0
392	391	0.00240	8	0.47	0.22	2.91	0.01	0.00	0.01	0.01	0.75	0.12	0.22	0	0
401	402	0.00240	8	0.47	0.22	7.42	0.01	0.00	0.01	0.03	0.96	0.17	0.21	0	0
402	403	0.00800	8	0.85	0.43	0.00	0.00	0.00	0.01	0.03	1.37	0.12	0.41	0	0
403	404	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.03	0.96	0.17	0.21	0	0
404	418	0.00120	15	2.39	1.28	0.00	0.00	0.00	1.25	2.32	2.07	0.86	0.04	0	0
405	404	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.03	0.96	0.17	0.21	0	0
406	405	0.00240	8	0.47	0.22	15.77	0.01	0.00	0.01	0.03	0.96	0.17	0.21	0	0
418	424	0.00120	15	2.39	1.28	5.48	0.01	0.00	1.26	2.34	2.07	0.87	0.03	0	0
424	433	0.00120	15	2.39	1.28	11.55	0.02	0.00	1.28	2.37	2.06	0.89	0.01	0	0
431	432	0.00240	8	0.47	0.22	14.01	0.03	0.00	0.03	0.06	1.14	0.23	0.20	0	0
432	346	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.06	1.14	0.23	0.20	0	0
433	435	0.00120	18	3.88	2.17	23.54	0.04	0.00	1.32	2.44	2.21	0.60	0.85	0	0
435	352	0.00120	18	3.88	2.17	0.00	0.00	0.00	1.32	2.44	2.21	0.60	0.85	0	0
444	445	0.00240	8	0.47	0.22	18.93	0.03	0.00	0.03	0.08	1.14	0.23	0.19	0	0
445	446	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.08	1.14	0.23	0.19	0	0
446	447	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.08	1.14	0.23	0.19	0	0
447	448	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.08	1.14	0.23	0.19	0	0
448	377	0.00120	15	2.39	1.28	0.00	0.00	0.00	1.18	2.21	2.08	0.81	0.10	0	0
449	448	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.11	0.25	1.62	0.45	0.11	0	0
450	449	0.00240	8	0.47	0.22	11.91	0.02	0.00	0.11	0.25	1.62	0.45	0.11	0	0
451	450	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.09	0.21	1.54	0.41	0.13	0	0
452	451	0.00240	8	0.47	0.22	21.19	0.04	0.00	0.09	0.21	1.54	0.41	0.13	0	0
453	452	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.06	0.13	1.36	0.32	0.17	0	0
454	453	0.00240	8	0.47	0.22	37.48	0.06	0.00	0.06	0.13	1.36	0.32	0.17	0	0
478	483	0.00200	12	1.26	0.65	4.05	0.01	0.00	1.04	1.95	2.49	1.00	0.00	15	15
483	448	0.00200	12	1.26	0.65	0.00	0.00	0.00	1.04	1.95	2.49	1.00	0.00	15	15
501	502	0.00240	8	0.47	0.22	8.34	0.01	0.00	0.01	0.04	0.96	0.17	0.21	0	0
502	512	0.00240	8	0.47	0.22	6.43	0.01	0.00	0.03	0.06	1.14	0.23	0.20	0	0
511	478	0.00200	12	1.26	0.65	0.00	0.00	0.00	1.03	1.94	2.47	1.00	0.00	15	15
512	511	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.06	1.14	0.23	0.20	0	0
513	514	0.00240	8	0.47	0.22	16.47	0.03	0.00	0.06	0.13	1.36	0.32	0.17	0	0
514	515	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.06	0.13	1.36	0.32	0.17	0	0
515	516	0.00240	8	0.47	0.22	12.29	0.02	0.00	0.08	0.18	1.49	0.38	0.14	0	0
516	517	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.08	0.18	1.49	0.38	0.14	0	0
517	518	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.08	0.18	1.49	0.38	0.14	0	0
518	511	0.00200	12	1.26	0.65	0.00	0.00	0.00	1.00	1.89	2.41	1.00	0.00	15	15

Sewer Analysis Results

Existing Condition

USMH	DSMH	Slope (ft/ft)	Diameter (inches)	Peak Capacity (cfs)	Average Capacity (cfs)	Area (acres)	Input Flow (cfs)	Point Source (cfs)	Average Flow (cfs)	Peak Design Flow (cfs)	Design Velocity (fps)	Depth Ratio (D/d)	Excess Capacity (cfs)	Replace Diameter (in)	Parallel Diameter (in)
519	518	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.27	0.56	1.85	0.54	0.11	0	0
520	519	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.27	0.56	1.85	0.54	0.11	0	0
522	520	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.27	0.56	1.85	0.54	0.11	0	0
523	522	0.00200	10	0.77	0.38	13.85	0.02	0.00	0.27	0.56	1.85	0.54	0.11	0	0
524	523	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.25	0.52	1.81	0.52	0.13	0	0
525	524	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.25	0.52	1.81	0.52	0.13	0	0
530	525	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.25	0.52	1.81	0.52	0.13	0	0
531	530	0.00800	8	0.85	0.43	0.00	0.00	0.00	0.06	0.13	2.08	0.23	0.37	0	0
561	562	0.00240	8	0.47	0.22	24.07	0.04	0.00	0.04	0.10	1.26	0.28	0.18	0	0
562	564	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.10	1.26	0.28	0.18	0	0
563	530	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.16	0.35	1.77	0.55	0.06	0	0
564	563	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.16	0.35	1.77	0.55	0.06	0	0
565	564	0.00240	8	0.47	0.22	22.95	0.07	0.00	0.12	0.26	1.64	0.47	0.10	0	0
570	530	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.07	1.14	0.23	0.19	0	0
571	570	0.00280	8	0.50	0.24	0.00	0.00	0.00	0.03	0.07	1.23	0.23	0.21	0	0
572	571	0.00280	8	0.50	0.24	0.00	0.00	0.00	0.03	0.07	1.23	0.23	0.21	0	0
573	572	0.00280	8	0.50	0.24	18.79	0.03	0.00	0.03	0.07	1.23	0.23	0.21	0	0
576	565	0.00240	8	0.47	0.22	26.44	0.05	0.00	0.05	0.11	1.29	0.29	0.18	0	0
599	513	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.07	1.14	0.23	0.19	0	0
602	518	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.65	1.26	2.32	1.00	0.00	15	12
603	602	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.65	1.26	2.32	1.00	0.00	15	12
604	603	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.61	1.19	2.19	1.00	0.00	15	12
605	603	0.00360	8	0.57	0.28	0.00	0.00	0.00	0.04	0.09	1.40	0.23	0.24	0	0
606	605	0.00360	8	0.57	0.28	21.26	0.04	0.00	0.04	0.09	1.40	0.23	0.24	0	0
611	599	0.00600	8	0.74	0.36	15.20	0.03	0.00	0.03	0.07	1.52	0.17	0.34	0	0
614	604	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.61	1.19	2.19	1.00	0.00	15	12
615	614	0.00360	8	0.57	0.28	0.00	0.00	0.00	0.04	0.08	1.40	0.23	0.24	0	0
616	615	0.00360	8	0.57	0.28	19.35	0.04	0.00	0.04	0.08	1.40	0.23	0.24	0	0
625	626	0.00240	8	0.47	0.22	31.52	0.08	0.00	0.08	0.18	1.49	0.38	0.14	0	0
626	627	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.08	0.18	1.49	0.38	0.14	0	0
627	614	0.00200	10	0.77	0.38	7.15	0.01	0.00	0.57	1.13	2.07	1.00	0.00	15	12
637	627	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.48	0.96	2.05	0.80	0.00	15	10
644	637	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.48	0.96	2.05	0.80	0.00	15	10
650	644	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.48	0.96	2.05	0.80	0.00	15	10
656	657	0.00360	8	0.57	0.28	6.52	0.01	0.00	0.01	0.03	1.05	0.15	0.27	0	0
657	658	0.00360	8	0.57	0.28	0.00	0.00	0.00	0.01	0.03	1.05	0.15	0.27	0	0
658	659	0.00360	8	0.57	0.28	0.00	0.00	0.00	0.01	0.03	1.05	0.15	0.27	0	0
659	650	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.48	0.96	2.05	0.80	0.00	15	10
660	659	0.00360	8	0.57	0.28	0.00	0.00	0.00	0.01	0.03	0.92	0.12	0.27	0	0
											0.92	0.12	0.27	0	0

Sewer Analysis Results

Existing Condition

USMH	DSMH	Slope (ft/ft)	Diameter (inches)	Peak Capacity (cfs)	Average Capacity (cfs)	Area (acres)	Input Flow (cfs)	Point Source (cfs)	Average Flow (cfs)	Peak Design Flow (cfs)	Design Velocity (fps)	Depth Ratio (D/d)	Excess Capacity (cfs)	Replace Diameter (in)	Parallel Diameter (in)
664	665	0.00240	8	0.47	0.22	8.61	0.02	0.00	0.05	0.11	1.29	0.29	0.17	0	0
665	666	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.09	0.20	1.54	0.41	0.13	0	0
666	667	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.12	0.27	1.64	0.47	0.10	0	0
667	668	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.12	0.27	1.64	0.47	0.10	0	0
668	659	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.46	0.92	2.04	0.77	0.00	15	10
669	668	0.00240	8	0.47	0.22	17.06	0.03	0.00	0.03	0.07	1.14	0.23	0.19	0	0
674	664	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.08	1.18	0.25	0.19	0	0
675	665	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.10	1.29	0.29	0.18	0	0
676	666	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.07	1.14	0.23	0.19	0	0
677	668	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.31	0.63	1.91	0.58	0.07	0	0
681	674	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.08	1.18	0.25	0.19	0	0
682	675	0.00240	8	0.47	0.22	24.14	0.04	0.00	0.04	0.10	1.29	0.29	0.18	0	0
683	676	0.00240	8	0.47	0.22	16.82	0.03	0.00	0.03	0.07	1.14	0.23	0.19	0	0
684	677	0.00200	10	0.77	0.38	0.00	0.00	0.00	0.31	0.63	1.91	0.58	0.07	0	0
687	694	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.08	0.18	1.49	0.38	0.14	0	0
688	687	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.08	0.18	1.49	0.38	0.14	0	0
689	681	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.08	1.18	0.25	0.19	0	0
693	684	0.00200	10	0.77	0.38	28.69	0.08	0.00	0.31	0.63	1.91	0.58	0.07	0	0
694	693	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.08	0.18	1.49	0.38	0.14	0	0
697	688	0.00240	8	0.47	0.22	15.67	0.02	0.00	0.08	0.18	1.49	0.38	0.14	0	0
698	697	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.06	0.13	1.36	0.32	0.17	0	0
699	698	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.06	0.13	1.36	0.32	0.17	0	0
700	699	0.00240	8	0.47	0.22	31.70	0.06	0.00	0.06	0.13	1.36	0.32	0.17	0	0
701	689	0.00240	8	0.47	0.22	18.03	0.03	0.00	0.03	0.08	1.18	0.25	0.19	0	0
705	693	0.00240	8	0.47	0.22	38.06	0.06	0.00	0.15	0.32	1.73	0.52	0.07	0	0
715	705	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.09	0.20	1.54	0.41	0.13	0	0
722	715	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.09	0.20	1.54	0.41	0.13	0	0
747	722	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.09	0.20	1.54	0.41	0.13	0	0
748	747	0.00240	8	0.47	0.22	36.50	0.09	0.00	0.09	0.20	1.54	0.41	0.13	0	0
784	785	0.00240	8	0.47	0.22	26.27	0.15	0.00	0.15	0.32	1.73	0.52	0.07	0	0
785	785A	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.15	0.32	1.73	0.52	0.07	0	0
785A	3024	0.29000	15	37.08	24.54	0.00	0.00	0.00	0.68	1.32	13.92	0.13	23.86	0	0
797	798	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.10	0.22	1.41	0.25	0.55	0	0
798	799	0.00200	12	1.26	0.65	13.14	0.04	0.00	0.14	0.29	1.55	0.29	0.51	0	0
799	800	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.14	0.29	1.55	0.29	0.51	0	0
800	801	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.14	0.29	1.55	0.29	0.51	0	0
801	802	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.14	0.29	1.55	0.29	0.51	0	0
802	803	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.14	0.29	1.55	0.29	0.51	0	0
803	30	0.00580	12	2.14	1.14	0.00	0.00	0.00	0.14	0.29	2.24	0.23	1.01	0	0
804	28	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.09	1.22	0.26	0.18	0	0
805	804	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.09	1.22	0.26	0.18	0	0

Sewer Analysis Results

Existing Condition

USMH	DSMH	Slope (ft/ft)	Diameter (inches)	Peak Capacity (cfs)	Average Capacity (cfs)	Area (acres)	Input Flow (cfs)	Point Source (cfs)	Average Flow (cfs)	Peak Design Flow (cfs)	Design Velocity (fps)	Depth Ratio (D/d)	Excess Capacity (cfs)	Replace Diameter (in)	Parallel Diameter (in)
806	805	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.01	0.02	0.75	0.12	0.22	0	0
807	806	0.00240	8	0.47	0.22	2.25	0.01	0.00	0.01	0.02	0.75	0.12	0.22	0	0
808	805	0.00240	8	0.47	0.22	11.53	0.03	0.00	0.03	0.08	1.22	0.26	0.19	0	0
809	810	0.00240	8	0.47	0.22	20.16	0.06	0.00	0.17	0.37	1.78	0.57	0.05	0	0
810	811	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.17	0.37	1.78	0.57	0.05	0	0
811	27	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.17	0.37	1.78	0.57	0.05	0	0
812	813	0.00240	8	0.47	0.22	10.50	0.04	0.00	0.04	0.09	1.22	0.26	0.19	0	0
813	814	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.09	1.22	0.26	0.19	0	0
814	815	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.09	1.22	0.26	0.19	0	0
815	817	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.04	0.09	1.22	0.26	0.19	0	0
816	817	0.00240	8	0.47	0.22	20.88	0.08	0.00	0.08	0.18	1.49	0.38	0.14	0	0
817	818	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.11	0.25	1.64	0.47	0.11	0	0
818	809	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.11	0.25	1.64	0.47	0.11	0	0
819	797	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.10	0.22	1.41	0.25	0.55	0	0
822	819	0.00200	12	1.26	0.65	43.09	0.10	0.00	0.10	0.22	1.41	0.25	0.55	0	0
823	26A	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.07	1.14	0.23	0.19	0	0
824	823	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.07	1.14	0.23	0.19	0	0
825	824	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.07	1.14	0.23	0.19	0	0
826	825	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.03	0.07	1.14	0.23	0.19	0	0
827	826	0.00240	8	0.47	0.22	16.06	0.03	0.00	0.03	0.07	1.14	0.23	0.19	0	0
828A	828	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.06	0.13	1.62	0.28	0.24	0	0
828	829	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.06	0.13	1.62	0.28	0.24	0	0
829	830	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.06	0.13	1.62	0.28	0.24	0	0
830	830A	0.01210	8	1.05	0.53	0.00	0.00	0.00	0.06	0.13	2.46	0.22	0.48	0	0
830A	25	0.01210	8	1.05	0.53	0.00	0.00	0.00	0.06	0.13	2.46	0.22	0.48	0	0
831	828A	0.00400	8	0.60	0.29	19.34	0.06	0.00	0.06	0.13	1.62	0.28	0.24	0	0
838	3037	0.01320	8	1.10	0.56	0.00	0.00	0.00	0.06	0.14	2.57	0.22	0.50	0	0
840	838	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.06	0.14	1.67	0.29	0.23	0	0
841	840	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.04	0.08	1.47	0.23	0.26	0	0
843	841	0.00400	8	0.60	0.29	22.75	0.04	0.00	0.04	0.08	1.47	0.23	0.26	0	0
853	853A	0.00200	8	0.43	0.20	22.92	0.07	0.00	0.07	0.16	1.36	0.38	0.13	0	0
853A	861	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.07	0.16	1.36	0.38	0.13	0	0
860	861	0.00474	8	0.66	0.32	5.73	0.01	0.00	0.01	0.03	1.05	0.12	0.31	0	0
861	864	0.00200	8	0.43	0.20	8.59	0.02	0.00	0.10	0.22	1.46	0.44	0.10	0	0
864	865	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.10	0.22	1.46	0.44	0.10	0	0
865	866	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.10	0.22	1.46	0.44	0.10	0	0
866	3044	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.10	0.22	1.46	0.44	0.10	0	0
898	905	0.00200	8	0.43	0.20	16.77	0.04	0.00	0.04	0.10	1.18	0.29	0.16	0	0
905	906	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.04	0.10	1.18	0.29	0.16	0	0
906	910	0.00200	8	0.43	0.20	5.26	0.01	0.00	0.05	0.12	1.24	0.32	0.15	0	0
910	911	0.00300	12	1.54	0.80	0.00	0.00	0.00	0.13	0.29	1.79	0.26	0.67	0	0

Sewer Analysis Results

Existing Condition

USMH	DSMH	Slope (ft/ft)	Diameter (inches)	Peak Capacity (cfs)	Average Capacity (cfs)	Area (acres)	Input Flow (cfs)	Point Source (cfs)	Average Flow (cfs)	Peak Design Flow (cfs)	Design Velocity (fps)	Depth Ratio (D/d)	Excess Capacity (cfs)	Replace Diameter (in)	Parallel Diameter (in)
911	347	0.00200	12	1.26	0.65	0.00	0.00	0.00	0.13	0.29	1.55	0.29	0.51	0	0
912A	912	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.06	0.13	1.30	0.35	0.14	0	0
912	910	0.00200	8	0.43	0.20	9.11	0.02	0.00	0.08	0.18	1.41	0.41	0.12	0	0
913A	912A	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.06	0.13	1.30	0.35	0.14	0	0
914	913A	0.00200	8	0.43	0.20	25.01	0.06	0.00	0.06	0.13	1.30	0.35	0.14	0	0
925	840	0.02120	8	1.39	0.72	16.13	0.03	0.00	0.03	0.06	2.39	0.13	0.69	0	0
936	937	0.00400	8	0.60	0.29	21.72	0.17	0.00	0.17	0.36	2.15	0.48	0.12	0	0
937	938	0.00400	8	0.60	0.29	13.01	0.12	0.00	0.29	0.59	2.41	0.65	0.01	0	0
938	3009	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.29	0.59	2.41	0.65	0.01	0	0
944	944A	0.04890	8	2.11	1.13	25.43	0.11	0.00	0.24	0.51	6.00	0.30	0.88	0	0
944A	982A	0.00092	27	10.01	6.01	0.00	0.00	0.00	0.41	0.82	1.44	0.20	5.60	0	0
945A	944	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.14	0.30	2.06	0.44	0.16	0	0
956	958	0.00200	8	0.43	0.20	8.08	0.02	0.00	0.02	0.04	0.88	0.17	0.18	0	0
958	959	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.02	0.04	0.88	0.17	0.18	0	0
959	981	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.03	0.08	1.11	0.26	0.17	0	0
960	959	0.00200	8	0.43	0.20	0.00	0.00	0.00	0.02	0.04	0.88	0.17	0.19	0	0
962	960	0.00200	8	0.43	0.20	6.39	0.02	0.00	0.02	0.04	0.88	0.17	0.19	0	0
972	973	0.00400	8	0.60	0.29	18.64	0.09	0.00	0.09	0.20	1.84	0.35	0.20	0	0
973	974A	0.00400	8	0.60	0.29	7.46	0.03	0.00	0.12	0.26	1.99	0.41	0.17	0	0
974A	3008	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.12	0.26	1.64	0.47	0.10	0	0
978	531	0.00240	8	0.47	0.22	32.78	0.06	0.00	0.06	0.13	1.36	0.32	0.17	0	0
979	1036	0.00140	18	4.19	2.35	1341.28	0.11	1.46	0.11	1.70	2.14	0.46	2.25	0	0
982A	3037	0.00092	27	10.01	6.01	0.00	0.00	0.00	0.41	0.82	1.44	0.20	5.60	0	0
993	994	0.00400	8	0.60	0.29	13.08	0.05	0.00	0.05	0.11	1.57	0.26	0.25	0	0
994	995	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.05	0.11	1.57	0.26	0.25	0	0
995	996	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.05	0.11	1.57	0.26	0.25	0	0
996	997	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.05	0.11	1.57	0.26	0.25	0	0
997	998	0.02890	8	1.62	0.85	0.00	0.00	0.00	0.05	0.11	3.16	0.16	0.80	0	0
998	944A	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.05	0.11	1.29	0.29	0.18	0	0
1001	1002	0.00400	8	0.60	0.29	8.16	0.01	0.00	0.01	0.04	1.11	0.15	0.28	0	0
1002	1003	0.04860	8	2.10	1.12	0.00	0.00	0.00	0.01	0.04	2.81	0.09	1.11	0	0
1003	3034	0.00092	27	10.01	6.01	0.00	0.00	0.00	0.49	0.97	1.53	0.22	5.52	0	0
1008	1009	0.00240	8	0.47	0.22	38.03	0.14	0.00	0.14	0.30	1.69	0.49	0.09	0	0
1009	945A	0.00240	8	0.47	0.22	0.00	0.00	0.00	0.14	0.30	1.69	0.49	0.09	0	0
1014	1015	0.00400	8	0.60	0.29	41.72	0.14	0.00	0.14	0.29	2.06	0.44	0.16	0	0
1015	1016	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.14	0.29	2.06	0.44	0.16	0	0
1016	1017	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.14	0.29	2.06	0.44	0.16	0	0
1017	2042	0.00400	8	0.60	0.29	0.00	0.00	0.00	0.14	0.29	2.06	0.44	0.16	0	0
1028	2019	0.00140	18	4.19	2.35	0.00	0.00	0.00	0.25	1.97	2.23	0.50	2.11	0	0
1030	1028	0.00140	18	4.19	2.35	0.00	0.00	0.00	0.11	1.70	2.14	0.46	2.25	0	0
1032	1030	0.00140	18	4.19	2.35	0.00	0.00	0.00	0.11	1.70	2.14	0.46	2.25	0	0

Sewer Analysis Results

Existing Condition

USMH	DSMH	Slope (ft/ft)	Diameter (inches)	Peak Capacity (cfs)	Average Capacity (cfs)	Area (acres)	Input Flow (cfs)	Point Source (cfs)	Average Flow (cfs)	Peak Design Flow (cfs)	Design Velocity (fps)	Depth Ratio (D/d)	Excess Capacity (cfs)	Replace Diameter (in)	Parallel Diameter (in)
1034	1032	0.00140	18	4.19	2.35	0.00	0.00	0.00	0.11	1.70	2.14	0.46	2.25	0	0
1036	1034	0.00150	18	4.34	2.44	0.00	0.00	0.00	0.11	1.70	2.20	0.45	2.33	0	0
1040	4002	0.57500	18	84.89	59.81	0.00	0.00	0.00	2.01	3.61	22.13	0.14	57.81	0	0
2001	2000	0.00052	51	41.04	27.37	92.98	0.00	0.00	6.48	12.21	2.41	0.39	20.89	0	0
2002	2001	0.00052	51	41.04	27.37	8.69	0.02	0.00	6.48	12.21	2.41	0.39	20.89	0	0
2003	2002	0.00066	39	22.61	14.42	0.00	0.00	0.00	2.51	5.90	2.19	0.36	11.91	0	0
2004	2003	0.00066	39	22.61	14.42	0.00	0.00	0.00	2.51	5.90	2.19	0.36	11.91	0	0
2005	2004	0.00066	39	22.61	14.42	0.00	0.00	0.00	2.51	5.90	2.19	0.36	11.91	0	0
2006	2005	0.00066	39	22.61	14.42	0.00	0.00	0.00	2.51	5.90	2.19	0.36	11.91	0	0
2007	2006	0.00066	39	22.61	14.42	0.00	0.00	0.00	2.51	5.90	2.19	0.36	11.91	0	0
2008	2007	0.00066	39	22.61	14.42	0.00	0.00	0.00	2.51	5.90	2.19	0.36	11.91	0	0
2009	2008	0.00066	39	22.61	14.42	0.00	0.00	0.00	2.51	5.90	2.19	0.36	11.91	0	0
2010	2009	0.00066	39	22.61	14.42	0.00	0.00	0.00	2.51	5.90	1.75	0.43	7.90	0	0
2011	2010	0.00036	39	16.70	10.41	0.00	0.00	0.00	2.51	5.90	1.75	0.43	7.90	0	0
2012	2011	0.00036	39	16.70	10.41	22.51	0.09	0.00	2.41	5.75	1.74	0.42	7.99	0	0
2013	2012	0.00036	39	16.70	10.41	0.00	0.00	0.00	2.41	5.75	1.74	0.42	7.99	0	0
2014	2013	0.00036	39	16.70	10.41	0.00	0.00	0.00	2.41	5.75	1.74	0.42	7.99	0	0
2015	2014	0.00036	39	16.70	10.41	0.00	0.00	0.00	2.41	5.75	1.74	0.42	7.99	0	0
2016	2015	0.00047	36	15.41	9.55	0.00	0.00	0.00	2.29	5.54	1.92	0.43	7.26	0	0
2017	2016	0.00047	36	15.41	9.55	0.00	0.00	0.00	2.29	5.54	1.92	0.43	7.26	0	0
2018	2050	0.00047	36	15.41	9.55	0.00	0.00	0.00	2.29	5.54	1.92	0.43	7.26	0	0
2019	2018	0.00047	36	15.41	9.55	0.00	0.00	0.00	2.29	5.54	1.92	0.43	7.26	0	0
2020	2019	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.04	3.67	1.69	0.35	7.40	0	0
2021	2020	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.04	3.67	1.69	0.35	7.40	0	0
2022	2021	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.04	3.67	1.69	0.35	7.40	0	0
2023	2022	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.04	3.67	1.69	0.35	7.40	0	0
2024	2023	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.04	3.67	1.69	0.35	7.40	0	0
2025	2024	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.04	3.67	1.69	0.35	7.40	0	0
2026	2025	0.00046	36	15.25	9.44	0.00	0.00	0.00	2.04	3.67	1.69	0.35	7.40	0	0
2027	2026	0.00046	36	15.25	9.44	0.00	0.00	0.00	1.56	2.86	1.58	0.30	7.88	0	0
2028	2027	0.00104	30	14.10	8.68	0.00	0.00	0.00	1.24	2.31	2.03	0.28	7.43	0	0
2029	2028	0.00104	30	14.10	8.68	0.00	0.00	0.00	1.24	2.31	2.03	0.28	7.43	0	0
2030	2029	0.00104	30	14.10	8.68	0.00	0.00	0.00	1.24	2.31	2.03	0.28	7.43	0	0
2031	2030	0.00104	30	14.10	8.68	0.00	0.00	0.00	1.24	2.31	2.03	0.28	7.43	0	0
2032	2031	0.00104	30	14.10	8.68	0.00	0.00	0.00	1.24	2.31	2.03	0.28	7.43	0	0
2033	2032	0.00104	30	14.10	8.68	0.00	0.00	0.00	1.24	2.31	2.03	0.28	7.43	0	0
2034	2033	0.00072	30	11.73	7.12	0.00	0.00	0.00	0.15	0.32	0.99	0.12	6.97	0	0
2035	2034	0.00072	30	11.73	7.12	0.00	0.00	0.00	0.15	0.32	0.99	0.12	6.97	0	0
2036	2035	0.00072	30	11.73	7.12	0.00	0.00	0.00	0.15	0.32	0.99	0.12	6.97	0	0
2037	2036	0.00072	30	11.73	7.12	0.00	0.00	0.00	0.15	0.32	0.99	0.12	6.97	0	0
2038	2037	0.00072	30	11.73	7.12	0.00	0.00	0.00	0.15	0.32	0.99	0.12	6.97	0	0

Sewer Analysis Results Existing Condition															
				Peak	Average		Input	Point	Average	Peak Design	Design	Depth	Excess	Replace	Parallel
		Slope	Diameter	Capacity	Capacity	Area	Flow	Source	Flow	Flow	Velocity	Ratio	Capacity	Diameter	Diameter
USMH	DSMH	(ft/ft)	(inches)	(cfs)	(cfs)	(acres)	(cfs)	(cfs)	(cfs)	(cfs)	(fps)	(D/d)	(cfs)	(in)	(in)
2039	2038	0.00063	30	10.97	6.63	0.00	0.00	0.00	0.15	0.32	0.94	0.12	6.48	0	0
2040	2039	0.00063	30	10.97	6.63	0.00	0.00	0.00	0.15	0.32	0.94	0.12	6.48	0	0
2041	2040	0.00063	30	10.97	6.63	0.00	0.00	0.00	0.15	0.32	0.94	0.12	6.48	0	0
2042	2041	0.00063	30	10.97	6.63	12.68	0.00	0.00	0.15	0.32	0.94	0.12	6.48	0	0
2043	2042	0.00063	30	10.97	6.63	4.42	0.01	0.00	0.01	0.03	0.49	0.04	6.61	0	0
2050	2017	0.00047	36	15.41	9.55	0.00	0.00	0.00	2.29	5.54	1.92	0.43	7.26	0	0
3000	4003	0.05600	24	57.06	39.02	0.00	0.00	0.00	1.95	3.52	9.41	0.17	37.06	0	0
3001	3000	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.95	3.52	2.11	0.37	5.78	0	0
3002	3001	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.95	3.52	2.11	0.37	5.78	0	0
3003	3002	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.95	3.52	2.11	0.37	5.78	0	0
3004	3003	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.95	3.52	2.11	0.37	5.78	0	0
3005	3004	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.95	3.52	2.11	0.37	5.78	0	0
3006	3005	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.95	3.52	2.11	0.37	5.78	0	0
3007	3006	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.95	3.52	2.11	0.37	5.78	0	0
3008	3007	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.95	3.52	2.11	0.37	5.78	0	0
3009	3008	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.83	3.32	2.07	0.36	5.90	0	0
3010	3009	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.55	2.83	1.98	0.33	6.19	0	0
3011	3010	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.55	2.83	1.98	0.33	6.19	0	0
3012	3011	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.55	2.83	1.98	0.33	6.19	0	0
3013	3012	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.55	2.83	1.98	0.33	6.19	0	0
3014	3013	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.49	2.74	1.96	0.33	6.25	0	0
3015	3050	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.49	2.74	1.93	0.33	6.05	0	0
3016	3015	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.49	2.74	1.93	0.33	6.05	0	0
3017	3016	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.45	2.67	1.92	0.33	6.08	0	0
3018	3017	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.45	2.67	1.92	0.33	6.08	0	0
3019	3018	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.45	2.67	1.92	0.33	6.08	0	0
3020	3019	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.45	2.67	1.92	0.33	6.08	0	0
3021	3020	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.45	2.67	1.92	0.33	6.08	0	0
3022	3021	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.45	2.67	1.92	0.33	6.08	0	0
3023	3022	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.45	2.67	1.92	0.33	6.08	0	0
3024	3023	0.00080	30	12.36	7.54	0.00	0.00	0.00	1.45	2.67	1.92	0.33	6.08	0	0
3025	3024	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.77	1.48	1.76	0.27	5.38	0	0
3026	3025	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.77	1.48	1.76	0.27	5.38	0	0
3027	3026	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.77	1.48	1.76	0.27	5.38	0	0
3028	3027	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.77	1.48	1.76	0.27	5.38	0	0
3029	3028	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.77	1.48	1.76	0.27	5.38	0	0
3030	3029	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.77	1.48	1.76	0.27	5.38	0	0
3031	3030	0.00096	27	10.23	6.14	0.00	0.00	0.00	0.77	1.48	1.76	0.27	5.38	0	0
3032	3031	0.00096	27	10.23	6.14	59.77	0.24	0.00	0.77	1.48	1.76	0.27	5.38	0	0
3033	3032	0.00092	27	10.01	6.01	11.06	0.04	0.00	0.53	1.04	1.56	0.23	5.48	0	0
3034	3033	0.00092	27	10.01	6.01	0.00	0.00	0.00	0.49	0.97	1.53	0.22	5.52	0	0

Sewer Analysis Results

Existing Condition

USMH	DSMH	Slope (ft/ft)	Diameter (inches)	Peak Capacity (cfs)	Average Capacity (cfs)	Area (acres)	Input Flow (cfs)	Point Source (cfs)	Average Flow (cfs)	Peak Design Flow (cfs)	Design Velocity (fps)	Depth Ratio (D/d)	Excess Capacity (cfs)	Replace Diameter (in)	Parallel Diameter (in)
3036	1003	0.00092	27	10.01	6.01	0.00	0.00	0.00	0.48	0.95	1.50	0.21	5.53	0	0
3037	3036	0.00092	27	10.01	6.01	3.32	0.01	0.00	0.48	0.95	1.50	0.21	5.53	0	0
3038	944A	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3039	3038	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3040	3039	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3041	3040	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3042	3041	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3043	3042	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3044	3043	0.00100	24	7.62	4.48	0.00	0.00	0.00	0.12	0.26	1.08	0.13	4.36	0	0
3045	3044	0.00114	21	5.70	3.28	0.00	0.00	0.00	0.02	0.05	0.73	0.07	3.26	0	0
3046	3045	0.00114	21	5.70	3.28	0.00	0.00	0.00	0.02	0.05	0.73	0.07	3.26	0	0
3047	3046	0.00114	21	5.70	3.28	0.00	0.00	0.00	0.02	0.05	0.73	0.07	3.26	0	0
3048	3047	0.00114	21	5.70	3.28	11.47	0.02	0.00	0.02	0.05	0.73	0.07	3.26	0	0
3050	3014	0.00084	30	12.67	7.74	0.00	0.00	0.00	1.49	2.74	1.96	0.33	6.25	0	0
4002	2002	0.10000	20	46.89	31.59	0.00	0.00	0.00	3.96	6.80	14.72	0.27	27.63	0	0
4003	4002	0.05600	24	57.06	39.02	0.00	0.00	0.00	1.95	3.52	9.41	0.17	37.06	0	0

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TITLE
UNITS
ANALYSIS
DESIGN
PEAKING
LANDUSE
PAGESIZE
DBFIN
***WARNING*** Can't find heading/identifier in OPTIONS file: GEOMHEADINGS DNINV
***WARNING*** Can't find heading/identifier in OPTIONS file: GEOMHEADINGS UPINV
Completed options reading from Y:\L03\250\CAD\BSWAN\EXIST1.OPT
***Processing DBF Geometry data
***WARNING*** DISCONNECTED STRIP AT MHs  981  959
***Processing DBF Sanitary Loading data
***Processing DBF Label data
DBFOUT
DBF file output will be sent to Y:\L03\250\CAD\BSWAN\OUTPUT\EXIST1
RUN
```

Summary of SWAN Units and Factors

****

UNITS

Length	= feet
Diameter	= inches
Flow	= cfs
Elevation	= feet
Area	= acres
Pressure	= psi
Head	= feet

DESIGN CRITERIA		ANALYSIS CRITERIA	
d/D	diam	d/D	diam
.50	12.	.67	12.
.75	57.	.90	57.
.93	99.	.93	99.

PEAKING FACTORS

K = 1.89
Ro = .93

MH Up	MH Down	Slope	Dia-meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel-ocity	Depth Ratio	Excess Avg Cap	Under Capac: Repl.	Rel'f	Identification
1014	1015	.00400	8	.60	.29	41.7	.14	.00	.14	.29	2.1	.44	.16			1014-1015
1015	1016	.00400	8	.60	.29	.0	.00	.00	.14	.29	2.1	.44	.16			1015-1016
1016	1017	.00400	8	.60	.29	.0	.00	.00	.14	.29	2.1	.44	.16			1016-1017
1017	2042	.00400	8	.60	.29	.0	.00	.00	.14	.29	2.1	.44	.16			1017-2042
+ + + END OF STRIP + + +																
1001	1002	.00400	8	.60	.29	8.2	.01	.00	.01	.04	1.1	.15	.28			1001-1002
1002	1003	.04860	8	2.10	1.12	.0	.00	.00	.01	.04	2.8	.09	1.11			1002-1003
+ + + END OF STRIP + + +																
993	994	.00400	8	.60	.29	13.1	.05	.00	.05	.11	1.6	.26	.25			993-994
994	995	.00400	8	.60	.29	.0	.00	.00	.05	.11	1.6	.26	.25			994-995
995	996	.00400	8	.60	.29	.0	.00	.00	.05	.11	1.6	.26	.25			995-996
996	997	.00400	8	.60	.29	.0	.00	.00	.05	.11	1.6	.26	.25			996-997
997	998	.02890	8	1.62	.85	.0	.00	.00	.05	.11	3.2	.16	.80			997-998
998	944A	.00240	8	.47	.22	.0	.00	.00	.05	.11	1.3	.29	.18			998-944A
+ + + END OF STRIP + + +																
972	973	.00400	8	.60	.29	18.6	.09	.00	.09	.20	1.8	.35	.20			972-973
973	974A	.00400	8	.60	.29	7.5	.03	.00	.12	.26	2.0	.41	.17			973-974A
974A	3008	.00240	8	.47	.22	.0	.00	.00	.12	.26	1.6	.47	.10			974A-3008
+ + + END OF STRIP + + +																
962	960	.00200	8	.43	.20	6.4	.02	.00	.02	.04	.9	.17	.19			962-960
960	959	.00200	8	.43	.20	.0	.00	.00	.02	.04	.9	.17	.19			960-959
+ + + END OF STRIP + + +																
956	958	.00200	8	.43	.20	8.1	.02	.00	.02	.04	.9	.17	.18			956-958
958	959	.00200	8	.43	.20	.0	.00	.00	.02	.04	.9	.17	.18			958-959
960	959								.02	.00 U						
959	981	.00200	8	.43	.20	.0	.00	.00	.03	.08	1.1	.26	.17			959-981
+ + + END OF STRIP + + +																
1008	1009	.00240	8	.47	.22	38.0	.14	.00	.14	.30	1.7	.49	.09			1008-1009
1009	945A	.00240	8	.47	.22	.0	.00	.00	.14	.30	1.7	.49	.09			1009-945A
945A	944	.00400	8	.60	.29	.0	.00	.00	.14	.30	2.1	.44	.16			945A-944
944	944A	.04890	8	2.11	1.13	25.4	.11	.00	.24	.51	6.0	.30	.88			944-944A
+ + + END OF STRIP + + +																
936	937	.00400	8	.60	.29	21.7	.17	.00	.17	.36	2.2	.48	.12			936-937
937	938	.00400	8	.60	.29	13.0	.12	.00	.29	.59	2.4	.65	.01			937-938
938	3009	.00400	8	.60	.29	.0	.00	.00	.29	.59	2.4	.65	.01			938-3009
+ + + END OF STRIP + + +																
925	840	.02120	8	1.39	.72	16.1	.03	.00	.03	.06	2.4	.13	.69			925-840
+ + + END OF STRIP + + +																
914	913A	.00200	8	.43	.20	25.0	.06	.00	.06	.13	1.3	.35	.14			914-913A
913A	912A	.00200	8	.43	.20	.0	.00	.00	.06	.13	1.3	.35	.14			913A-912A
912A	912	.00200	8	.43	.20	.0	.00	.00	.06	.13	1.3	.35	.14			912A-912
912	910	.00200	8	.43	.20	9.1	.02	.00	.08	.18	1.4	.41	.12			912-910

…'le Engineering Corporation
…ver Analysis Sanitary Load Applications
(Existing Condition)

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
+ + + END OF STRIP + + +																
60	861	.00474	8	.66	.32	5.7	.01	.00	.01	.03	1.1	.12	.31			860-861
+ + + END OF STRIP + + +																
853	853A	.00200	8	.43	.20	22.9	.07	.00	.07	.16	1.4	.38	.13			853-853A
53A	861	.00200	8	.43	.20	.0	.00	.00	.07	.16	1.4	.38	.13			853A-861
860	861								.01	.00 U						
861	864	.00200	8	.43	.20	8.6	.02	.00	.10	.22	1.5	.44	.10			861-864
864	865	.00200	8	.43	.20	.0	.00	.00	.10	.22	1.5	.44	.10			864-865
865	866	.00200	8	.43	.20	.0	.00	.00	.10	.22	1.5	.44	.10			865-866
866	3044	.00200	8	.43	.20	.0	.00	.00	.10	.22	1.5	.44	.10			866-3044
+ + + END OF STRIP + + +																
843	841	.00400	8	.60	.29	22.8	.04	.00	.04	.08	1.5	.23	.26			843-841
841	840	.00400	8	.60	.29	.0	.00	.00	.04	.08	1.5	.23	.26			841-840
925	840								.03	.00 U						
840	838	.00400	8	.60	.29	.0	.00	.00	.06	.14	1.7	.29	.23			840-838
838	3037	.01320	8	1.10	.56	.0	.00	.00	.06	.14	2.6	.22	.50			838-3037
+ + + END OF STRIP + + +																
831	828A	.00400	8	.60	.29	19.3	.06	.00	.06	.13	1.6	.28	.24			831-828A
828A	828	.00400	8	.60	.29	.0	.00	.00	.06	.13	1.6	.28	.24			828A-828
828	829	.00400	8	.60	.29	.0	.00	.00	.06	.13	1.6	.28	.24			828-829
829	830	.00400	8	.60	.29	.0	.00	.00	.06	.13	1.6	.28	.24			829-830
830	830A	.01210	8	1.05	.53	.0	.00	.00	.06	.13	2.5	.22	.47			830-830A
830A	25	.01210	8	1.05	.53	.0	.00	.00	.06	.13	2.5	.22	.47			830A-25
+ + + END OF STRIP + + +																
816	817	.00240	8	.47	.22	20.9	.08	.00	.08	.18	1.5	.38	.14			816-817
+ + + END OF STRIP + + +																
812	813	.00240	8	.47	.22	10.5	.04	.00	.04	.09	1.2	.26	.19			812-813
813	814	.00240	8	.47	.22	.0	.00	.00	.04	.09	1.2	.26	.19			813-814
814	815	.00240	8	.47	.22	.0	.00	.00	.04	.09	1.2	.26	.19			814-815
815	817	.00240	8	.47	.22	.0	.00	.00	.04	.09	1.2	.26	.19			815-817
816	817								.08	.00 U						
817	818	.00240	8	.47	.22	.0	.00	.00	.11	.25	1.6	.47	.11			817-818
818	809	.00240	8	.47	.22	.0	.00	.00	.11	.25	1.6	.47	.11			818-809
809	810	.00240	8	.47	.22	20.2	.06	.00	.17	.37	1.8	.57	.05			809-810
810	811	.00240	8	.47	.22	.0	.00	.00	.17	.37	1.8	.57	.05			810-811
811	27	.00240	8	.47	.22	.0	.00	.00	.17	.37	1.8	.57	.05			811-27
+ + + END OF STRIP + + +																
808	805	.00240	8	.47	.22	11.5	.03	.00	.03	.08	1.2	.26	.19			808-805
+ + + END OF STRIP + + +																
807	806	.00240	8	.47	.22	2.3	.01	.00	.01	.02	.7	.12	.22			807-806
806	805	.00240	8	.47	.22	.0	.00	.00	.01	.02	.7	.12	.22			806-805
808	805								.03	.00 U						
805	804	.00240	8	.47	.22	.0	.00	.00	.04	.09	1.2	.26	.18			805-804

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Capac: Repl. Rel'f	Identification
804	28	.00240	8	.47	.22	.0	.00	.00	.04	.09	1.2	.26	.18		804-28
+ + + + + + + + + + + + + END OF STRIP + + + + + + + + + + + + +															
784	785	.00240	8	.47	.22	26.3	.15	.00	.15	.32	1.7	.52	.07		784-785
785	785A	.00240	8	.47	.22	.0	.00	.00	.15	.32	1.7	.52	.07		785-785A
+ + + + + + + + + + + + + END OF STRIP + + + + + + + + + + + + +															
748	747	.00240	8	.47	.22	36.5	.09	.00	.09	.20	1.5	.41	.13		748-747
747	722	.00240	8	.47	.22	.0	.00	.00	.09	.20	1.5	.41	.13		747-722
722	715	.00240	8	.47	.22	.0	.00	.00	.09	.20	1.5	.41	.13		722-715
715	705	.00240	8	.47	.22	.0	.00	.00	.09	.20	1.5	.41	.13		715-705
705	693	.00240	8	.47	.22	38.1	.06	.00	.15	.32	1.7	.52	.07		705-693
+ + + + + + + + + + + + + END OF STRIP + + + + + + + + + + + + +															
683	676	.00240	8	.47	.22	16.8	.03	.00	.03	.07	1.1	.23	.19		683-676
676	666	.00240	8	.47	.22	.0	.00	.00	.03	.07	1.1	.23	.19		676-666
+ + + + + + + + + + + + + END OF STRIP + + + + + + + + + + + + +															
682	675	.00240	8	.47	.22	24.1	.04	.00	.04	.10	1.3	.29	.18		682-675
675	665	.00240	8	.47	.22	.0	.00	.00	.04	.10	1.3	.29	.18		675-665
+ + + + + + + + + + + + + END OF STRIP + + + + + + + + + + + + +															
669	668	.00240	8	.47	.22	17.1	.03	.00	.03	.07	1.1	.23	.19		669-668
+ + + + + + + + + + + + + END OF STRIP + + + + + + + + + + + + +															
701	689	.00240	8	.47	.22	18.0	.03	.00	.03	.08	1.2	.25	.19		701-689
689	681	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.2	.25	.19		689-681
681	674	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.2	.25	.19		681-674
674	664	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.2	.25	.19		674-664
664	665	.00240	8	.47	.22	8.6	.02	.00	.05	.11	1.3	.29	.17		664-665
675 665	665 666	.00240	8	.47	.22	.0	.00	.00	.04 .09	.00 U .20	1.5	.41	.13		665-666
676 666	666 667	.00240	8	.47	.22	.0	.00	.00	.03 .12	.00 U .27	1.6	.47	.10		666-667
667	668	.00240	8	.47	.22	.0	.00	.00	.12	.27	1.6	.47	.10		667-668
+ + + + + + + + + + + + + END OF STRIP + + + + + + + + + + + + +															
662	661	.00360	8	.57	.28	6.4	.01	.00	.01	.03	.9	.12	.27		662-661
661	660	.00360	0	.57	.28	.0	.00	.00	.01	.03	.9	.12	.27		661-660
660	659	.00360	8	.57	.28	.0	.00	.00	.01	.03	.9	.12	.27		660-659
+ + + + + + + + + + + + + END OF STRIP + + + + + + + + + + + + +															
656	657	.00360	8	.57	.28	6.5	.01	.00	.01	.03	1.1	.15	.27		656-657
657	658	.00360	8	.57	.28	.0	.00	.00	.01	.03	1.1	.15	.27		657-658
658	659	.00360	8	.57	.28	.0	.00	.00	.01	.03	1.1	.15	.27		658-659
+ + + + + + + + + + + + + END OF STRIP + + + + + + + + + + + + +															
625	626	.00240	8	.47	.22	31.5	.08	.00	.08	.18	1.5	.38	.14		625-626
626	627	.00240	8	.47	.22	.0	.00	.00	.08	.18	1.5	.38	.14		626-627
+ + + + + + + + + + + + + END OF STRIP + + + + + + + + + + + + +															
616	615	.00360	8	.57	.28	19.3	.04	.00	.04	.08	1.4	.23	.24		616-615

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Existing Condition)

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Capac: Repl.	Rel'f	Identification
615	614	.00360	8	.57	.28	.0	.00	.00	.04	.08	1.4	.23	.24			615-614
+ END OF STRIP +																
606	605	.00360	8	.57	.28	21.3	.04	.00	.04	.09	1.4	.23	.24			606-605
605	603	.00360	8	.57	.28	.0	.00	.00	.04	.09	1.4	.23	.24			605-603
+ END OF STRIP +																
573	572	.00280	8	.50	.24	18.8	.03	.00	.03	.07	1.2	.23	.21			573-572
572	571	.00280	8	.50	.24	.0	.00	.00	.03	.07	1.2	.23	.21			572-571
571	570	.00280	8	.50	.24	.0	.00	.00	.03	.07	1.2	.23	.21			571-570
570	530	.00240	8	.47	.22	.0	.00	.00	.03	.07	1.1	.23	.19			570-530
+ END OF STRIP +																
576	565	.00240	8	.47	.22	26.4	.05	.00	.05	.11	1.3	.29	.18			576-565
565	564	.00240	8	.47	.22	22.9	.07	.00	.12	.26	1.6	.47	.10			565-564
+ END OF STRIP +																
561	562	.00240	8	.47	.22	24.1	.04	.00	.04	.10	1.3	.28	.18			561-562
562	564	.00240	8	.47	.22	.0	.00	.00	.04	.10	1.3	.28	.18			562-564
565	564								.12	.00 U						
564	563	.00240	8	.47	.22	.0	.00	.00	.16	.35	1.8	.55	.06			564-563
563	530	.00240	8	.47	.22	.0	.00	.00	.16	.35	1.8	.55	.06			563-530
+ END OF STRIP +																
611	599	.00600	8	.74	.36	15.2	.03	.00	.03	.07	1.5	.17	.34			611-599
599	513	.00240	8	.47	.22	.0	.00	.00	.03	.07	1.1	.23	.19			599-513
513	514	.00240	8	.47	.22	16.5	.03	.00	.06	.13	1.4	.32	.17			513-514
514	515	.00240	8	.47	.22	.0	.00	.00	.06	.13	1.4	.32	.17			514-515
515	516	.00240	8	.47	.22	12.3	.02	.00	.08	.18	1.5	.38	.14			515-516
516	517	.00240	8	.47	.22	.0	.00	.00	.08	.18	1.5	.38	.14			516-517
517	518	.00240	8	.47	.22	.0	.00	.00	.08	.18	1.5	.38	.14			517-518
+ END OF STRIP +																
501	502	.00240	8	.47	.22	8.3	.01	.00	.01	.04	1.0	.17	.21			501-502
502	512	.00240	8	.47	.22	6.4	.01	.00	.03	.06	1.1	.23	.20			502-512
512	511	.00240	8	.47	.22	.0	.00	.00	.03	.06	1.1	.23	.20			512-511
+ END OF STRIP +																
454	453	.00240	0	.47	.22	37.5	.06	.00	.06	.13	1.4	.32	.17			454-453
453	452	.00240	8	.47	.22	.0	.00	.00	.06	.13	1.4	.32	.17			453-452
452	451	.00240	8	.47	.22	21.2	.04	.00	.09	.21	1.5	.41	.13			452-451
451	450	.00240	8	.47	.22	.0	.00	.00	.09	.21	1.5	.41	.13			451-450
450	449	.00240	8	.47	.22	11.9	.02	.00	.11	.25	1.6	.45	.11			450-449
449	448	.00240	8	.47	.22	.0	.00	.00	.11	.25	1.6	.45	.11			449-448
+ END OF STRIP +																
444	445	.00240	8	.47	.22	18.9	.03	.00	.03	.08	1.1	.23	.19			444-445
445	446	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.1	.23	.19			445-446
446	447	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.1	.23	.19			446-447
447	448	.00240	8	.47	.22	.0	.00	.00	.03	.08	1.1	.23	.19			447-448

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Capacities: Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
END OF STRIP																
406	405	.00240	8	.47	.22	15.8	.01	.00	.01	.03	1.0	.17	.21			406-405
405	404	.00240	8	.47	.22	.0	.00	.00	.01	.03	1.0	.17	.21			405-404
END OF STRIP																
401	402	.00240	8	.47	.22	7.4	.01	.00	.01	.03	1.0	.17	.21			401-402
402	403	.00800	8	.85	.43	.0	.00	.00	.01	.03	1.4	.12	.41			402-403
403	404	.00240	8	.47	.22	.0	.00	.00	.01	.03	1.0	.17	.21			403-404
END OF STRIP																
392	391	.00240	8	.47	.22	2.9	.01	.00	.01	.01	.7	.12	.22			392-391
END OF STRIP																
389	390	.00800	8	.85	.43	5.7	.01	.00	.01	.03	1.4	.12	.41			389-390
390	391	.00240	8	.47	.22	.0	.00	.00	.01	.03	.9	.15	.21			390-391
END OF STRIP																
381	380	.00240	8	.47	.22	5.9	.01	.00	.01	.03	.7	.12	.21			381-380
380	379	.00240	8	.47	.22	.0	.00	.00	.01	.03	.7	.12	.21			380-379
379	378	.00240	8	.47	.22	.0	.00	.00	.01	.03	.7	.12	.21			379-378
378	377	.00240	8	.47	.22	.0	.00	.00	.01	.03	.7	.12	.21			378-377
END OF STRIP																
374	375	.00240	8	.47	.22	8.0	.01	.00	.01	.04	1.0	.17	.21			374-375
375	376	.00520	8	.69	.34	.0	.00	.00	.01	.04	1.3	.15	.32			375-376
376	377	.00240	8	.47	.22	.0	.00	.00	.01	.04	1.0	.17	.21			376-377
END OF STRIP																
431	432	.00240	8	.47	.22	14.0	.03	.00	.03	.06	1.1	.23	.20			431-432
432	346	.00240	8	.47	.22	.0	.00	.00	.03	.06	1.1	.23	.20			432-346
346	347A	.00240	8	.47	.22	24.5	.08	.00	.10	.23	1.6	.44	.12			346-347A
347A	347	.00240	8	.47	.22	.0	.00	.00	.10	.23	1.6	.44	.12			347A-347
END OF STRIP																
280	279	.00240	8	.47	.22	24.0	.06	.00	.06	.14	1.4	.32	.16			280-279
279	278	.00240	8	.47	.22	.0	.00	.00	.06	.14	1.4	.32	.16			279-278
END OF STRIP																
245	244	.00240	8	.47	.22	14.2	.02	.00	.02	.05	1.1	.20	.20			245-244
END OF STRIP																
243	244	.00300	8	.52	.25	31.2	.05	.00	.05	.12	1.4	.29	.20			243-244
END OF STRIP																
212	211	.00780	8	.84	.42	4.0	.01	.00	.01	.02	1.1	.09	.41			212-211
END OF STRIP																
210	211	.00240	8	.47	.22	25.8	.05	.00	.05	.11	1.3	.29	.17			210-211
212	211								.01	.00 U						
211	244	.00910	8	.91	.46	.0	.00	.00	.06	.13	2.2	.23	.40			211-244
243	244								.05	.00 U						
245	244								.02	.00 U						
244	2015	.00240	8	.47	.22	.0	.00	.00	.13	.28	1.7	.48	.09			244-2015

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Existing Condition)

MH Up	MH Down	Slope	Dia-meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel-ocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	END OF STRIP	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +
204	205	.00320	8	.54	.26	19.4	.03	.00	.03	.08	1.3	.23	.23			204-205
+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	END OF STRIP	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +
187B	187A	.00200	8	.43	.20	16.3	.06	.00	.06	.14	1.3	.35	.14			187B-187A
187A	1028	.00200	8	.43	.20	.0	.00	.00	.06	.14	1.3	.35	.14			187A-1028
+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	END OF STRIP	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +
187	1028	.00200	8	.43	.20	36.7	.08	.00	.08	.17	1.4	.38	.13			187-1028
+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	END OF STRIP	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +
177	175A	.00400	8	.60	.29	20.3	.04	.00	.04	.09	1.5	.23	.26			177-175A
175A	175	.00400	8	.60	.29	.0	.00	.00	.04	.09	1.5	.23	.26			175A-175
175	174	.00400	8	.60	.29	.0	.00	.00	.04	.09	1.5	.23	.26			175-174
174	173	.00400	8	.60	.29	.0	.00	.00	.04	.09	1.5	.23	.26			174-173
173	172	.00400	8	.60	.29	.0	.00	.00	.04	.09	1.5	.23	.26			173-172
172	171	.00400	8	.60	.29	.0	.00	.00	.04	.09	1.5	.23	.26			172-171
171	3016	.00530	8	.69	.34	.0	.00	.00	.04	.09	1.6	.20	.30			171-3016
+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	END OF STRIP	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +
152	151	.00240	8	.47	.22	24.6	.17	.00	.17	.36	1.8	.55	.06			152-151
151	150	.00240	8	.47	.22	.0	.00	.00	.17	.36	1.8	.55	.06			151-150
150	149	.00240	8	.47	.22	.0	.00	.00	.17	.36	1.8	.55	.06			150-149
149	148	.00240	8	.47	.22	.0	.00	.00	.17	.36	1.8	,55	.06			149-148
148	147	.00240	8	.47	.22	.0	.00	.00	.17	.36	1.8	.55	.06			148-147
147	146	.00240	8	.47	.22	.0	.00	.00	.17	.36	1.8	.55	.06			147-146
146	145	.00240	8	.47	.22	.0	.00	.00	.17	.36	1.8	.55	.06			146-145
+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	END OF STRIP	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +
136	137	.00240	8	.47	.22	24.5	.16	.00	.16	.35	1.8	.55	.06			136-137
137	138	.00240	8	.47	.22	.0	.00	.00	.16	.35	1.8	.55	.06			137-138
138	139	.00240	8	.47	.22	.0	.00	.00	.16	.35	1.8	.55	.06			138-139
139	140	.00240	8	.47	.22	.0	.00	.00	.16	.35	1.8	.55	.06			139-140
140	141	.00240	8	.47	.22	.0	.00	.00	.16	.35	1.8	.55	.06			140-141
141	143	.00240	8	.47	.22	.0	.00	.00	.16	.35	1.8	.55	.06			141-143
143	144	.00240	8	.47	.22	.0	.00	.00	.16	.35	1.8	.55	.06			143-144
+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	END OF STRIP	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +	+ + + +
125	126	.00200	8	.43	.20	15.8	.09	.00	.09	.21	1.5	.44	.11			125-126
126	127	.00200	8	.43	.20	.0	.00	.00	.09	.21	1.5	.44	.11			126-127
127	128	.00200	8	.43	.20	.0	.00	.00	.09	.21	1.5	.44	.11			127-128
128	129	.00200	8	.43	.20	.0	.00	.00	.09	.21	1.5	.44	.11			128-129
129	130	.00200	8	.43	.20	.0	.00	.00	.09	.21	1.5	.44	.11			129-130
130	131	.00200	8	.43	.20	.0	.00	.00	.09	.21	1.5	.44	.11			130-131
131	132	.00200	8	.43	.20	.0	.00	.00	.09	.21	1.5	.44	.11			131-132
132	133	.00200	8	.43	.20	.0	.00	.00	.09	.21	1.5	.44	.11			132-133
133	134	.00240	8	.47	.22	44.8	.00	.00	.10	.22	1.6	.42	.13			133-134

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Existing Condition)

MH Up	MH Down	Slope	Dia- meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel- ocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
+ END OF STRIP +																
98	99	.00240	8	.47	.22	26.5	.18	.00	.18	.39	1.8	.60	.04			98-99
99	100	.00240	8	.47	.22	.0	.00	.00	.18	.39	1.8	.60	.04			99-100
100	101	.00240	8	.47	.22	.0	.00	.00	.18	.39	1.8	.60	.04			100-101
101	102	.00240	8	.47	.22	.0	.00	.00	.18	.39	1.8	.60	.04			101-102
102	103	.00240	8	.47	.22	.0	.00	.00	.18	.39	1.8	.60	.04			102-103
103	104	.00240	8	.47	.22	.0	.00	.00	.18	.39	1.8	.60	.04			103-104
104	105	.00240	8	.47	.22	.0	.00	.00	.18	.39	1.8	.60	.04			104-105
105	135	.00240	8	.47	.22	.0	.00	.00	.18	.39	1.8	.60	.04			105-135
+ END OF STRIP +																
81	82	.00240	8	.47	.22	19.1	.04	.00	.04	.09	1.2	.26	.19			81-82
82	83	.00240	8	.47	.22	.0	.00	.00	.04	.09	1.2	.26	.19			82-83
83	13	.00200	8	.43	.20	.0	.00	.00	.04	.09	1.1	.26	.17			83-13
+ END OF STRIP +																
75	76	.00240	8	.47	.22	25.7	.05	.00	.05	.11	1.3	.29	.18			75-76
76	86	.00240	8	.47	.22	.0	.00	.00	.05	.11	1.3	.29	.18			76-86
86	89	.00240	8	.47	.22	.0	.00	.00	.05	.11	1.3	.29	.18			86-89
89	92	.00240	8	.47	.22	.0	.00	.00	.05	.11	1.3	.29	.18			89-92
92	93	.00240	8	.47	.22	.0	.00	.00	.05	.11	1.3	.29	.18			92-93
93	94	.00200	8	.43	.20	4.8	.01	.00	.05	.13	1.2	.32	.15			93-94
94	95	.00200	8	.43	.20	.0	.00	.00	.05	.13	1.2	.32	.15			94-95
95	14	.00200	8	.43	.20	.0	.00	.00	.05	.13	1.2	.32	.15			95-14
+ END OF STRIP +																
827	826	.00240	8	.47	.22	16.1	.03	.00	.03	.07	1.1	.23	.19			827-826
826	825	.00240	8	.47	.22	.0	.00	.00	.03	.07	1.1	.23	.19			826-825
825	824	.00240	8	.47	.22	.0	.00	.00	.03	.07	1.1	.23	.19			825-824
824	823	.00240	8	.47	.22	.0	.00	.00	.03	.07	1.1	.23	.19			824-823
823	26A	.00240	8	.47	.22	.0	.00	.00	.03	.07	1.1	.23	.19			823-26A
26A	26	.00400	8	.60	.29	.0	.00	.00	.03	.07	1.4	.20	.26			26A-26
+ END OF STRIP +																
700	699	.00240	8	.47	.22	31.7	.06	.00	.06	.13	1.4	.32	.17			700-699
699	698	.00240	8	.47	.22	.0	.00	.00	.06	.13	1.4	.32	.17			699-698
698	697	.00240	8	.47	.22	.0	.00	.00	.06	.13	1.4	.32	.17			698-697
697	688	.00240	8	.47	.22	15.7	.02	.00	.08	.18	1.5	.38	.14			697-688
688	687	.00240	8	.47	.22	.0	.00	.00	.08	.18	1.5	.38	.14			688-687
687	694	.00240	8	.47	.22	.0	.00	.00	.08	.18	1.5	.38	.14			687-694
694	693	.00240	8	.47	.22	.0	.00	.00	.08	.18	1.5	.38	.14			694-693
705	693								.15	.00 U						
693	684	.00200	10	.77	.38	28.7	.08	.00	.31	.63	1.9	.58	.07			693-684
684	677	.00200	10	.77	.38	.0	.00	.00	.31	.63	1.9	.58	.07			684-677
677	668	.00200	10	.77	.38	.0	.00	.00	.31	.63	1.9	.58	.07			677-668
667	668								.12	.00 U						

MH Up	MH Down	Slope	Dia-meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel-ocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
669	668								.03	.00 U						
668	659	.00200	10	.77	.38	.0	.00	.00	.46	.92	2.0	.77		15	10	668-659
658	659								.01	.00 U						
660	659								.01	.00 U						
659	650	.00200	10	.77	.38	.0	.00	.00	.48	.96	2.0	.80		15	10	659-650
650	644	.00200	10	.77	.38	.0	.00	.00	.48	.96	2.0	.80		15	10	650-644
644	637	.00200	10	.77	.38	.0	.00	.00	.48	.96	2.0	.80		15	10	644-637
637	627	.00200	10	.77	.38	.0	.00	.00	.48	.96	2.0	.80		15	10	637-627
626	627								.08	.00 U						
627	614	.00200	10	.77	.38	7.2	.01	.00	.57	1.13	2.1	>1.0		15	12	627-614
615	614								.04	.00 U						
614	604	.00200	10	.77	.38	.0	.00	.00	.61	1.19	2.2	>1.0		15	12	614-604
604	603	.00200	10	.77	.38	.0	.00	.00	.61	1.19	2.2	>1.0		15	12	604-603
605	603								.04	.00 U						
603	602	.00200	10	.77	.38	.0	.00	.00	.65	1.26	2.3	>1.0		15	12	603-602
602	518	.00200	10	.77	.38	.0	.00	.00	.65	1.26	2.3	>1.0		15	12	602-518
+ + + END OF STRIP + + +																
258	257	.00240	8	.47	.22	37.5	.09	.00	.09	.20	1.5	.41	.13			258-257
257	256	.00240	8	.47	.22	.0	.00	.00	.09	.20	1.5	.41	.13			257-256
256	260	.00240	8	.47	.22	19.6	.03	.00	.12	.27	1.7	.48	.10			256-260
260	265	.00240	8	.47	.22	.0	.00	.00	.12	.27	1.7	.48	.10			260-265
265	269	.00240	8	.47	.22	.0	.00	.00	.12	.27	1.7	.48	.10			265-269
269	273	.00240	8	.47	.22	16.2	.03	.00	.15	.33	1.7	.52	.07			269-273
273	278	.00240	8	.47	.22	.0	.00	.00	.15	.33	1.7	.52	.07			273-278
279	278								.06	.00 U						
278	284	.00240	8	.47	.22	.0	.00	.00	.21	.44	1.9	.64	.01			278-284
284	292	.00240	8	.47	.22	10.2	.02	.00	.23	.48	1.9	.68		10	8	284-292
292	337	.00200	10	.77	.38	17.1	.03	.00	.26	.54	1.8	.52	.12			292-337
337	336	.00200	10	.77	.38	.0	.00	.00	.26	.54	1.8	.52	.12			337-336
+ + + END OF STRIP + + +																
228	229	.00340	10	1.01	.51	14.3	.03	.00	.03	.06	1.2	.15	.48			228-229
229	217	.00340	10	1.01	.51	.0	.00	.00	.03	.06	1.2	.15	.48			229-217
217	206	.00340	10	1.01	.51	.0	.00	.00	.03	.06	1.2	.15	.48			217-206
206	205	.00340	10	1.01	.51	.0	.00	.00	.03	.06	1.2	.15	.48			206-205
204	205								.03	.00 U						
205	249	.00340	10	1.01	.51	.0	.00	.00	.06	.13	1.5	.22	.45			205-249
249	3013	.00370	10	1.05	.53	.0	.00	.00	.06	.13	1.6	.22	.47			249-3013
+ + + END OF STRIP + + +																
37	53	.00160	10	.69	.34	51.8	.06	.00	.06	.13	1.2	.26	.28			37-53
53	5	.00160	10	.69	.34	.0	.00	.00	.06	.13	1.2	.26	.28			53-5
+ + + END OF STRIP + + +																
898	905	.00200	8	.43	.20	16.8	.04	.00	.04	.10	1.2	.29	.16			898-905
905	906	.00200	8	.43	.20	.0	.00	.00	.04	.10	1.2	.29	.16			905-906
906	910	.00200	8	.43	.20	5.3	.01	.00	.05	.12	1.2	.32	.15			906-910
912	910								.08	.00 U						
910	911	.00300	12	1.54	.80	.0	.00	.00	.13	.29	1.8	.26	.67			910-911

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Existing Condition)

MH Up	MH Down	Slope	Dia-meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel-ocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
911	347	.00200	12	1.26	.65	.0	.00	.00	.13	.29	1.5	.29	.51			911-347
347A	347								.10	.00 U						
347	348	.00240	8	.47	.22	.0	.00	.00	.24	.49	1.9	.70		10	8	347-348
348	349	.00240	8	.47	.22	6.6	.01	.00	.25	.51	1.9	.73		10	8	348-349
349	350	.00240	8	.47	.22	6.2	.01	.00	.26	.53	1.9	.74		10	8	349-350
350	351	.00400	8	.60	.29	.0	.00	.00	.26	.53	2.4	.61	.04			350-351
351	352	.00240	8	.47	.22	.0	.00	.00	.26	.53	1.9	.74		10	8	351-352
+ + + + + END OF STRIP + + + + +																
153	154	.00200	8	.43	.20	18.1	.09	.00	.09	.20	1.4	.42	.11			153-154
154	155	.00200	8	.43	.20	.0	.00	.00	.09	.20	1.4	.42	.11			154-155
155	156	.00200	8	.43	.20	.0	.00	.00	.09	.20	1.4	.42	.11			155-156
156	157	.00200	8	.43	.20	.0	.00	.00	.09	.20	1.4	.42	.11			156-157
157	158	.00200	8	.43	.20	.0	.00	.00	.09	.20	1.4	.42	.11			157-158
158	159	.00200	8	.43	.20	.0	.00	.00	.09	.20	1.4	.42	.11			158-159
159	160	.00200	8	.43	.20	.0	.00	.00	.09	.20	1.4	.42	.11			159-160
160	145	.00200	12	1.26	.65	.0	.00	.00	.09	.20	1.4	.24	.56			160-145
146	145								.17	.00 U						
145	144	.00200	12	1.26	.65	8.2	.02	.00	.27	.56	1.9	.41	.37			145-144
143	144								.16	.00 U						
144	144A	.00660	12	2.28	1.23	8.7	.04	.00	.48	.95	3.3	.40	.75			144-144A
144A	2026	.01200	12	3.08	1.69	.0	.00	.00	.48	.95	4.1	.34	1.21			144A-2026
+ + + + + END OF STRIP + + + + +																
106	107	.00240	8	.47	.22	26.8	.19	.00	.19	.40	1.8	.60	.03			106-107
107	108	.00240	8	.47	.22	.0	.00	.00	.19	.40	1.8	.60	.03			107-108
108	109	.00240	8	.47	.22	.0	.00	.00	.19	.40	1.8	.60	.03			108-109
109	110	.00240	8	.47	.22	.0	.00	.00	.19	.40	1.8	.60	.03			109-110
110	112	.00240	8	.47	.22	.0	.00	.00	.19	.40	1.8	.60	.03			110-112
112	113	.00240	8	.47	.22	.0	.00	.00	.19	.40	1.8	.60	.03			112-113
113	114	.00240	8	.47	.22	.0	.00	.00	.19	.40	1.8	.60	.03			113-114
114	134	.00240	8	.47	.22	.0	.00	.00	.19	.40	1.8	.60	.03			114-134
133	134								.10	.00 U						
134	135	.00230	10	.83	.41	.0	.00	.00	.28	.59	2.0	.54	.13			134-135
105	135								.18	.00 U						
135	2033	.00330	12	1.62	.84	.0	.00	.00	.47	.93	2.6	47	.38			135-2033
+ + + + + END OF STRIP + + + + +																
23	24	.00150	12	1.09	.55	6.7	.02	.00	.02	.05	.8	.13	.53			23-24
24	25	.00150	12	1.09	.55	.0	.00	.00	.02	.05	.8	.13	.53			24-25
830A	25								.06	.00 U						
25	25A	.00150	12	1.09	.55	.0	.00	.00	.08	.17	1.2	.24	.48			25-25A
25A	26	.00150	12	1.09	.55	.0	.00	.00	.08	.17	1.2	.24	.48			25A-26
26A	26								.03	.00 U						
26	27	.00150	12	1.09	.55	.0	.00	.00	.11	.24	1.3	.28	.45			26-27
811	27								.17	.00 U						
27	28	.00150	12	1.09	.55	.0	.00	.00	.28	.58	1.7	.45	.27			27-28
804	28								.04	.00 U						
28	29A	.00150	12	1.09	.55	.0	.00	.00	.32	.65	1.7	.49	.23			28-29A

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Existing Condition)

MH Up	MH Down	Slope	Dia-meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel-ocity	Depth Ratio	Excess Avg Cap	Under Capac: Repl.	Rel'f	Identification
29A	2027	.00380	12	1.73	.91	.0	.00	.00	.32	.65	2.4	.37	.59			29A-2027
+ END OF STRIP +																
3	4	.00200	10	.77	.38	31.5	.09	.00	.09	.20	1.4	.31	.29			3-4
4	5	.00282	10	.92	.46	16.0	.00	.00	.09	.20	1.6	.28	.37			4-5
53	5								.06	.00 U						
5	6	.00150	12	1.09	.55	30.5	.00	.00	.15	.32	1.4	.33	.41			5-6
6	7	.00150	12	1.09	.55	.0	.00	.00	.15	.32	1.4	.33	.41			6-7
7	8	.00150	12	1.09	.55	.0	.00	.00	.15	.32	1.4	.33	.41			7-8
8	9	.00150	12	1.09	.55	34.4	.06	.00	.21	.43	1.6	.39	.35			8-9
9	10	.00150	12	1.09	.55	.0	.00	.00	.21	.43	1.6	.39	.35			9-10
10	11	.00150	12	1.09	.55	.0	.00	.00	.21	.43	1.6	.39	.35			10-11
11	12	.00150	12	1.09	.55	6.0	.00	.00	.21	.43	1.6	.39	.35			11-12
12	13	.00150	12	1.09	.55	.0	.00	.00	.21	.43	1.6	.39	.35			12-13
83	13								.04	.00 U						
13	14	.00150	12	1.09	.55	.0	.00	.00	.24	.51	1.6	.42	.31			13-14
95	14								.05	.00 U						
14	15	.00150	12	1.09	.55	15.1	.00	.00	.30	.61	1.7	.47	.26			14-15
15	16	.00150	12	1.09	.55	.0	.00	.00	.30	.61	1.7	.47	.26			15-16
16	17	.00150	12	1.09	.55	.0	.00	.00	.30	.61	1.7	.47	.26			16-17
17	18	.00150	12	1.09	.55	.0	.00	.00	.30	.61	1.7	.47	.26			17-18
18	19	.00150	12	1.09	.55	50.3	.17	.00	.47	.94	1.9	.60	.08			18-19
19	20	.00150	12	1.09	.55	23.9	.07	.00	.54	1.07	1.9	.66	.01			19-20
20	21	.00150	12	1.09	.55	.0	.00	.00	.54	1.07	1.9	.66	.01			20-21
21	22	.00150	12	1.09	.55	.0	.00	.00	.54	1.07	1.9	.66	.01			21-22
22	2033	.06090	12	6.94	4.05	30.8	.09	.00	.63	1.23	7.8	.25	3.42			22-2033
+ END OF STRIP +																
822	819	.00200	12	1.26	.65	43.1	.10	.00	.10	.22	1.4	.25	.55			822-819
819	797	.00200	12	1.26	.65	.0	.00	.00	.10	.22	1.4	.25	.55			819-797
797	798	.00200	12	1.26	.65	.0	.00	.00	.10	.22	1.4	.25	.55			797-798
798	799	.00200	12	1.26	.65	13.1	.04	.00	.13	.29	1.5	.29	.51			798-799
799	800	.00200	12	1.26	.65	.0	.00	.00	.13	.29	1.5	.29	.51			799-800
800	801	.00200	12	1.26	.65	.0	.00	.00	.13	.29	1.5	.29	.51			800-801
801	802	.00200	12	1.26	.65	.0	.00	.00	.13	.29	1.5	.29	.51			801-802
802	803	.00200	12	1.26	.65	.0	.00	.00	.13	.29	1.5	.29	.51			802-803
803	30	.00580	12	2.14	1.14	.0	.00	.00	.13	.29	2.2	.23	1.01			803-30
30	31	.00150	15	2.67	1.45	.0	.00	.00	.13	.29	1.4	.23	1.31			30-31
31	32	.00150	15	2.67	1.45	19.7	.10	.00	.24	.50	1.6	.30	1.21			31-32
32	33	.00150	15	2.67	1.45	18.9	.11	.00	.34	.70	1.8	.36	1.11			32-33
33	785A	.00150	15	2.67	1.45	62.1	.19	.00	.53	1.05	2.0	.45	.91			33-785A
785	785A								.15	.00 U						
785A	3024	.29000	15	37.08	24.54	.0	.00	.00	.68	1.32	13.9	.13	23.86			785A-3024
+ END OF STRIP +																
978	531	.00240	8	.47	.22	32.8	.06	.00	.06	.13	1.4	.32	.17			978-531

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Existing Condition)

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Capacities: Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Capac: Repl.	Under Capac: Rel'f	Identification
531	530	.00800	8	.85	.43	.0	.00	.00	.06	.13	2.1	.23	.37			531-530
563	530								.16	.00 U						
570	530								.03	.00 U						
530	525	.00200	10	.77	.38	.0	.00	.00	.25	.52	1.8	.52	.13			530-525
525	524	.00200	10	.77	.38	.0	.00	.00	.25	.52	1.8	.52	.13			525-524
524	523	.00200	10	.77	.38	.0	.00	.00	.25	.52	1.8	.52	.13			524-523
523	522	.00200	10	.77	.38	13.8	.02	.00	.27	.56	1.9	.54	.11			523-522
522	520	.00200	10	.77	.38	.0	.00	.00	.27	.56	1.9	.54	.11			522-520
520	519	.00200	10	.77	.38	.0	.00	.00	.27	.56	1.9	.54	.11			520-519
519	518	.00200	10	.77	.38	.0	.00	.00	.27	.56	1.9	.54	.11			519-518
517	518								.08	.00 U						
602	518								.65	.00 U						
518	511	.00200	12	1.26	.65	.0	.00	.00	1.00	1.89	2.4	>1.0		15	15	518-511
512	511								.03	.00 U						
511	478	.00200	12	1.26	.65	.0	.00	.00	1.03	1.94	2.5	>1.0		15	15	511-478
478	483	.00200	12	1.26	.65	4.1	.01	.00	1.04	1.95	2.5	>1.0		15	15	478-483
483	448	.00200	12	1.26	.65	.0	.00	.00	1.04	1.95	2.5	>1.0		15	15	483-448
447	448								.03	.00 U						
449	448								.11	.00 U						
448	377	.00120	15	2.38	1.28	.0	.00	.00	1.18	2.21	2.1	.81	.10			448-377
376	377								.01	.00 U						
378	377								.01	.00 U						
377	391	.00120	15	2.38	1.28	.0	.00	.00	1.21	2.25	2.1	.83	.08			377-391
390	391								.01	.00 U						
392	391								.01	.00 U						
391	404	.00120	15	2.38	1.28	.0	.00	.00	1.22	2.28	2.1	.84	.06			391-404
403	404								.01	.00 U						
405	404								.01	.00 U						
404	418	.00120	15	2.38	1.28	.0	.00	.00	1.25	2.32	2.1	.86	.04			404-418
418	424	.00120	15	2.38	1.28	5.5	.01	.00	1.26	2.34	2.1	.87	.03			418-424
424	433	.00120	15	2.38	1.28	11.5	.02	.00	1.28	2.37	2.1	.89	.01			424-433
433	435	.00120	18	3.88	2.17	23.5	.04	.00	1.32	2.44	2.2	.60	.85			433-435
435	352	.00120	18	3.88	2.17	.0	.00	.00	1.32	2.44	2.2	.60	.85			435-352
351	352								.26	.00 U						
352	357	.00120	18	3.88	2.17	26.7	.05	.00	1.62	2.96	2.3	.69	.54			352-357
357	361	.00120	18	3.88	2.17	13.9	.03	.00	1.65	3.01	2.3	.69	.52			357-361
361	365	.00120	18	3.88	2.17	.0	.00	.00	1.65	3.01	2.3	.69	.52			361-365
365	366	.00120	18	3.88	2.17	23.9	.04	.00	1.69	3.08	2.3	.70	.48			365-366
366	323	.00120	18	3.88	2.17	.0	.00	.00	1.69	3.08	2.3	.70	.48			366-323
323	332A	.00120	18	3.88	2.17	26.4	.05	.00	1.74	3.16	2.3	.72	.43			323-332A
332A	332	.00120	18	3.88	2.17	.0	.00	.00	1.74	3.16	2.3	.72	.43			332A-332
332	333A	.00120	18	3.88	2.17	.0	.00	.00	1.74	3.16	2.3	.72	.43			332-333A
333A	333	.00120	18	3.88	2.17	.0	.00	.00	1.74	3.16	2.3	.72	.43			333A-333
333	334A	.00120	18	3.88	2.17	8.2	.01	.00	1.75	3.18	2.3	.72	.42			333-334A
334A	334	.00120	18	3.88	2.17	.0	.00	.00	1.75	3.18	2.3	.72	.42			334A-334
334	334B	.00120	18	3.88	2.17	.0	.00	.00	1.75	3.18	2.3	.72	.42			334-334B
334B	335A	.00120	18	3.88	2.17	.0	.00	.00	1.75	3.18	2.3	.72	.42			334B-335A
335A	335	.00120	18	3.88	2.17	.0	.00	.00	1.75	3.18	2.3	.72	.42			335A-335

Boyle Engineering Corporation
Sewer Analysis Sanitary Load Applications
(Existing Condition)

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
335	336A	.00120	18	3.88	2.17	.0	.00	.00	1.75	3.18	2.3	.72	.42			335-336A
336A	336	.00120	18	3.88	2.17	.0	.00	.00	1.75	3.18	2.3	.72	.42			336A-336
337	336								.26	.00 U						
336	1040	.00200	18	5.01	2.85	.0	.00	.00	2.01	3.61	2.9	.66	.84			336-1040
1040	4002	.57500	18	84.89	59.81	.0	.00	.00	2.01	3.61	22.1	.14	57.81			1040-4002

\+ END OF STRIP +

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
						.0	.00	1.46		1.46 U						
979	1036	.00140	18	4.19	2.35	1341.3	.11	.00	.11	1.70	2.1	.46	2.25			979-1036
1036	1034	.00150	18	4.34	2.44	.0	.00	.00	.11	1.70	2.2	.45	2.33			1036-1034
1034	1032	.00140	18	4.19	2.35	.0	.00	.00	.11	1.70	2.1	.46	2.25			1034-1032
1032	1030	.00140	18	4.19	2.35	.0	.00	.00	.11	1.70	2.1	.46	2.25			1032-1030
1030	1028	.00140	18	4.19	2.35	.0	.00	.00	.11	1.70	2.1	.46	2.25			1030-1028
187	1028								.08	.00 U						
187A	1028								.06	.00 U						
1028	2019	.00140	18	4.19	2.35	.0	.00	.00	.25	1.97	2.2	.50	2.11			1028-2019

\+ END OF STRIP +

MH Up	MH Down	Slope	Diameter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Velocity	Depth Ratio	Excess Avg Cap	Under Repl.	Capac: Rel'f	Identification
3048	3047	.00114	21	5.70	3.28	11.5	.02	.00	.02	.05	.7	.07	3.26			3048-3047
3047	3046	.00114	21	5.70	3.28	.0	.00	.00	.02	.05	.7	.07	3.26			3047-3046
3046	3045	.00114	21	5.70	3.28	.0	.00	.00	.02	.05	.7	.07	3.26			3046-3045
3045	3044	.00114	21	5.70	3.28	.0	.00	.00	.02	.05	.7	.07	3.26			3045-3044
866	3044								.10	.00 U						
3044	3043	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3044-3043
3043	3042	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3043-3042
3042	3041	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3042-3041
3041	3040	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3041-3040
3040	3039	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3040-3039
3039	3038	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3039-3038
3038	944A	.00100	24	7.62	4.48	.0	.00	.00	.12	.26	1.1	.13	4.36			3038-944A
944	944A								.24	.00 U						
998	944A								.05	.00 U						
944A	982A	.00092	27	10.01	6.01	.0	.00	.00	.41	.82	1.4	.20	5.60			944A-982A
982A	3037	.00092	27	10.01	6.01	.0	.00	.00	.41	.82	1.4	.20	5.60			982A-3037
838	3037								.06	.00 U						
3037	3036	.00092	27	10.01	6.01	3.3	.01	.00	.48	.95	1.5	.21	5.53			3037-3036
3036	1003	.00092	27	10.01	6.01	.0	.00	.00	.48	.95	1.5	.21	5.53			3036-1003
1002	1003								.01	.00 U						
1003	3034	.00092	27	10.01	6.01	.0	.00	.00	.49	.97	1.5	.22	5.52			1003-3034
3034	3033	.00092	27	10.01	6.01	.0	.00	.00	.49	.97	1.5	.22	5.52			3034-3033
3033	3032	.00092	27	10.01	6.01	11.1	.04	.00	.53	1.04	1.6	.23	5.48			3033-3032
3032	3031	.00096	27	10.23	6.14	59.8	.24	.00	.77	1.48	1.8	.27	5.38			3032-3031
3031	3030	.00096	27	10.23	6.14	.0	.00	.00	.77	1.48	1.8	.27	5.38			3031-3030
3030	3029	.00096	27	10.23	6.14	.0	.00	.00	.77	1.48	1.8	.27	5.38			3030-3029
3029	3028	.00096	27	10.23	6.14	.0	.00	.00	.77	1.48	1.8	.27	5.38			3029-3028
3028	3027	.00096	27	10.23	6.14	.0	.00	.00	.77	1.48	1.8	.27	5.38			3028-3027
3027	3026	.00096	27	10.23	6.14	.0	.00	.00	.77	1.48	1.8	.27	5.38			3027-3026
3026	3025	.00096	27	10.23	6.14	.0	.00	.00	.77	1.48	1.8	.27	5.38			3026-3025

MH Up	MH Down	Slope	Dia-meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel-ocity	Depth Ratio	Excess Avg Cap	Under Capac: Repl.	Rel'f	Identification
3025	3024	.00096	27	10.23	6.14	.0	.00	.00	.77	1.48	1.8	.27	5.38			3025-3024
785A	3024								.68	.00 U						
3024	3023	.00080	30	12.36	7.54	.0	.00	.00	1.45	2.67	1.9	.33	6.08			3024-3023
3023	3022	.00080	30	12.36	7.54	.0	.00	.00	1.45	2.67	1.9	.33	6.08			3023-3022
3022	3021	.00080	30	12.36	7.54	.0	.00	.00	1.45	2.67	1.9	.33	6.08			3022-3021
3021	3020	.00080	30	12.36	7.54	.0	.00	.00	1.45	2.67	1.9	.33	6.08			3021-3020
3020	3019	.00080	30	12.36	7.54	.0	.00	.00	1.45	2.67	1.9	.33	6.08			3020-3019
3019	3018	.00080	30	12.36	7.54	.0	.00	.00	1.45	2.67	1.9	.33	6.08			3019-3018
3018	3017	.00080	30	12.36	7.54	.0	.00	.00	1.45	2.67	1.9	.33	6.08			3018-3017
3017	3016	.00080	30	12.36	7.54	.0	.00	.00	1.45	2.67	1.9	.33	6.08			3017-3016
171	3016								.04	.00 U						
3016	3015	.00080	30	12.36	7.54	.0	.00	.00	1.49	2.74	1.9	.33	6.05			3016-3015
3015	3050	.00080	30	12.36	7.54	.0	.00	.00	1.49	2.74	1.9	.33	6.05			3015-3050
3050	3014	.00084	30	12.67	7.74	.0	.00	.00	1.49	2.74	2.0	.33	6.25			3050-3014
3014	3013	.00084	30	12.67	7.74	.0	.00	.00	1.49	2.74	2.0	.33	6.25			3014-3013
249	3013								.06	.00 U						
3013	3012	.00084	30	12.67	7.74	.0	.00	.00	1.55	2.83	2.0	.33	6.19			3013-3012
3012	3011	.00084	30	12.67	7.74	.0	.00	.00	1.55	2.83	2.0	.33	6.19			3012-3011
3011	3010	.00084	30	12.67	7.74	.0	.00	.00	1.55	2.83	2.0	.33	6.19			3011-3010
3010	3009	.00084	30	12.67	7.74	.0	.00	.00	1.55	2.83	2.0	.33	6.19			3010-3009
938	3009								.29	.00 U						
3009	3008	.00084	30	12.67	7.74	.0	.00	.00	1.83	3.32	2.1	.36	5.90			3009-3008
974A	3008								.12	.00 U						
3008	3007	.00084	30	12.67	7.74	.0	.00	.00	1.95	3.52	2.1	.37	5.78			3008-3007
3007	3006	.00084	30	12.67	7.74	.0	.00	.00	1.95	3.52	2.1	.37	5.78			3007-3006
3006	3005	.00084	30	12.67	7.74	.0	.00	.00	1.95	3.52	2.1	.37	5.78			3006-3005
3005	3004	.00084	30	12.67	7.74	.0	.00	.00	1.95	3.52	2.1	.37	5.78			3005-3004
3004	3003	.00084	30	12.67	7.74	.0	.00	.00	1.95	3.52	2.1	.37	5.78			3004-3003
3003	3002	.00084	30	12.67	7.74	.0	.00	.00	1.95	3.52	2.1	.37	5.78			3003-3002
3002	3001	.00084	30	12.67	7.74	.0	.00	.00	1.95	3.52	2.1	.37	5.78			3002-3001
3001	3000	.00084	30	12.67	7.74	.0	.00	.00	1.95	3.52	2.1	.37	5.78			3001-3000
3000	4003	.05600	24	57.06	39.01	.0	.00	.00	1.95	3.52	9.4	.17	37.06			3000-4003
4003	4002	.05600	24	57.06	39.01	.0	.00	.00	1.95	3.52	9.4	.17	37.06			4003-4002
1040	4002								2.01	.00 U						
4002	2002	.10000	20	46.89	31.59	.0	.00	.00	3.96	6.80	14.7	.27	27.63			4002-2002
+ END OF STRIP +																
2043	2042	.00063	30	10.97	6.63	4.4	.01	.00	.01	.03	.5	.04	6.61			2043-2042
1017	2042								.14	.00 U						
2042	2041	.00063	30	10.97	6.63	12.7	.00	.00	.15	.32	.9	.12	6.48			2042-2041
2041	2040	.00063	30	10.97	6.63	.0	.00	.00	.15	.32	.9	.12	6.48			2041-2040
2040	2039	.00063	30	10.97	6.63	.0	.00	.00	.15	.32	.9	.12	6.48			2040-2039
2039	2038	.00063	30	10.97	6.63	.0	.00	.00	.15	.32	.9	.12	6.48			2039-2038
2038	2037	.00072	30	11.73	7.12	.0	.00	.00	.15	.32	1.0	.12	6.97			2038-2037
2037	2036	.00072	30	11.73	7.12	.0	.00	.00	.15	.32	1.0	.12	6.97			2037-2036
2036	2035	.00072	30	11.73	7.12	.0	.00	.00	.15	.32	1.0	.12	6.97			2036-2035

MH Up	MH Down	Slope	Dia- meter	Capacities: Peak	Avg.	Area	Flow Input	Point Source	Avg. Flow	Total Flow	Vel- ocity	Depth Ratio	Excess Avg Cap	Under Capac: Repl.	Rel'f	Identification
2035	2034	.00072	30	11.73	7.12	.0	.00	.00	.15	.32	1.0	.12	6.97			2035-2034
2034	2033	.00072	30	11.73	7.12	.0	.00	.00	.15	.32	1.0	.12	6.97			2034-2033
22	2033								.63	.00 U						
135	2033								.47	.00 U						
2033	2032	.00104	30	14.10	8.68	.0	.00	.00	1.24	2.31	2.0	.28	7.43			2033-2032
2032	2031	.00104	30	14.10	8.68	.0	.00	.00	1.24	2.31	2.0	.28	7.43			2032-2031
2031	2030	.00104	30	14.10	8.68	.0	.00	.00	1.24	2.31	2.0	.28	7.43			2031-2030
2030	2029	.00104	30	14.10	8.68	.0	.00	.00	1.24	2.31	2.0	.28	7.43			2030-2029
2029	2028	.00104	30	14.10	8.68	.0	.00	.00	1.24	2.31	2.0	.28	7.43			2029-2028
2028	2027	.00104	30	14.10	8.68	.0	.00	.00	1.24	2.31	2.0	.28	7.43			2028-2027
29A	2027								.32	.00 U						
2027	2026	.00046	36	15.25	9.44	.0	.00	.00	1.56	2.86	1.6	.30	7.88			2027-2026
144A	2026								.48	.00 U						
2026	2025	.00046	36	15.25	9.44	.0	.00	.00	2.04	3.67	1.7	.35	7.40			2026-2025
2025	2024	.00046	36	15.25	9.44	.0	.00	.00	2.04	3.67	1.7	.35	7.40			2025-2024
2024	2023	.00046	36	15.25	9.44	.0	.00	.00	2.04	3.67	1.7	.35	7.40			2024-2023
2023	2022	.00046	36	15.25	9.44	.0	.00	.00	2.04	3.67	1.7	.35	7.40			2023-2022
2022	2021	.00046	36	15.25	9.44	.0	.00	.00	2.04	3.67	1.7	.35	7.40			2022-2021
2021	2020	.00046	36	15.25	9.44	.0	.00	.00	2.04	3.67	1.7	.35	7.40			2021-2020
2020	2019	.00046	36	15.25	9.44	.0	.00	.00	2.04	3.67	1.7	.35	7.40			2020-2019
1028	2019								.25	1.46 U						
2019	2018	.00047	36	15.41	9.55	.0	.00	.00	2.29	5.54	1.9	.43	7.26			2019-2018
2018	2050	.00047	36	15.41	9.55	.0	.00	.00	2.29	5.54	1.9	.43	7.26			2018-2050
2050	2017	.00047	36	15.41	9.55	.0	.00	.00	2.29	5.54	1.9	.43	7.26			2050-2017
2017	2016	.00047	36	15.41	9.55	.0	.00	.00	2.29	5.54	1.9	.43	7.26			2017-2016
2016	2015	.00047	36	15.41	9.55	.0	.00	.00	2.29	5.54	1.9	.43	7.26			2016-2015
244	2015								.13	.00 U						
2015	2014	.00036	39	16.70	10.41	.0	.00	.00	2.41	5.75	1.7	.42	7.99			2015-2014
2014	2013	.00036	39	16.70	10.41	.0	.00	.00	2.41	5.75	1.7	.42	7.99			2014-2013
2013	2012	.00036	39	16.70	10.41	.0	.00	.00	2.41	5.75	1.7	.42	7.99			2013-2012
2012	2011	.00036	39	16.70	10.41	22.5	.09	.00	2.51	5.90	1.8	.43	7.90			2012-2011
2011	2010	.00036	39	16.70	10.41	.0	.00	.00	2.51	5.90	1.8	.43	7.90			2011-2010
2010	2009	.00066	39	22.61	14.42	.0	.00	.00	2.51	5.90	2.2	.36	11.91			2010-2009
2009	2008	.00066	39	22.61	14.42	.0	.00	.00	2.51	5.90	2.2	.36	11.91			2009-2008
2008	2007	.00066	39	22.61	14.42	.0	.00	.00	2.51	5.90	2.2	.36	11.91			2008-2007
2007	2006	.00066	39	22.61	14.42	.0	.00	.00	2.51	5.90	2.2	.36	11.91			2007-2006
2006	2005	.00066	39	22.61	14.42	.0	.00	.00	2.51	5.90	2.2	.36	11.91			2006-2005
2005	2004	.00066	39	22.61	14.42	.0	.00	.00	2.51	5.90	2.2	.36	11.91			2005-2004
2004	2003	.00066	39	22.61	14.42	.0	.00	.00	2.51	5.90	2.2	.36	11.91			2004-2003
2003	2002	.00066	39	22.61	14.42	.0	.00	.00	2.51	5.90	2.2	.36	11.91			2003-2002
4002	2002								3.96	.00 U						
2002	2001	.00052	51	41.04	27.37	8.7	.02	.00	6.48	12.21	2.4	.39	20.89			2002-2001
2001	2000	.00052	51	41.04	27.37	93.0	.00	.00	6.48	12.21	2.4	.39	20.89			2001-2000

+ END OF AREA +

Boyle Engineering Corporation

Land Use Area Summary

SFR	245.59
SFR-OC	641.08
LDR-SB	71.29
LMFR	18.24
MFR	132.62
MFR-OC	16.94
HDR-SB	19.79
AFRC	1303.78
INST	5.99
OA	156.61
P	16.59
PI	222.34
PO	48.75
RB	49.95
S	126.52
OA-OC	16.65
P-OC	17.93
RB-OC	10.57
S-OC	43.40
C-SB	66.87
G-SB	58.83
OA-SB	69.44
RT-CYP	78.72
PR	522.49
	3960.97

END

Rossmoor / Los Alamitos Area Sewer District

N

Scale: 1"=500'

500 250 0 500 1,000

SCALE FEET

Legend

- District Boundary
- City Boundaries
- Sewer Manhole and Number

Sewer Pipe Diameters

- 8" Sewer Pipes
- 10" Sewer Pipes
- 12" Sewer Pipes
- 15" Sewer Pipes
- 18" Sewer Pipes
- 20" to 51" Trunk Sewers (OCSD)

CITY OF CYPRESS

CITY OF LONG BEACH

LOS ALAMITOS

ARMED FORCES

RESERVE CENTER

CITY OF LOS ALAMITOS

CITY OF GARDEN GROVE

LOS ANGELES COUNTY

CITY OF SEAL BEACH

CITY OF SEAL BEACH

RLASD SEWER PIPE & MANHOLE SYSTEM MAP PLATE 1

Manhole Inundation Investigation Project

Rossmoor/Los Alamitos Area Sewer District

Project Manager	Phil Stone, PE
Project Engineer	Lisa Nelson, PE

OC-L03-250-01

December 2000

BOYLE 1501 Quail Street, Newport Beach, CA 92660

Background

As a part of the Rossmoor / Los Alamitos Area Sewer District's (District) long-term plan to provide sewer collection service to its constituents, Boyle Engineering is preparing an updated sewer master plan which will include an inflow and infiltration element. Analyses and conclusions in the plan will be used to develop projects to repair, rehabilitate, and modify features of the sewer collection system to reduce inflow and infiltration, as well as repair damaged facilities.

A major source of inflow is suspected to be through openings such as vent-holes in the manhole covers. One manhole manufacturer cover (Neenah Foundry) has run tests to quantify the inflow. Using the results of these tests, one 24-inch manhole with three ¾" openings, which is the District's standard, would result in an inflow of 3.3 gallons per minute (gpm) for a water depth of flow of 1/8-inch and 9.3 gpm for a water depth of 1-inch.

The District has approximately 1000 manholes in the sewer collection system, a majority of which are located in public paved streets. This project identifies specific manholes which are routinely exposed to inundation during storm events and recommends that the openings in such manholes be plugged to reduce the possibility of inflow. Openings in the remaining manhole covers would remain open to provide ventilation for the sewer system.

Investigation

The streets and other areas of the District are primarily under the jurisdiction the City of Los Alamitos (City) and the County of Orange (County). The staff of both agencies was contacted to identify areas within the District that are subject to periodic flooding during storm events. These areas were then related to the location of District manholes to identify possible sources of inflow to the sewer system.

City of Los Alamitos

Within the City, twenty-one specific intersections were identified where local flooding historically occurs during storm events. These intersections and the corresponding manhole numbers are listed in Table 1.

Table 1. Manhole Locations Subject to Inundation

INTERSECTION	MANHOLE NUMBERS
Ball Rd. & Bloomfield St.	969
Catalina St. & Chestnut St.	793
Catalina St. & Oak St.	783
Catalina St. & Walnut St.	788
Chestnut St. & Sausalito St.	791
Farquhar Ave. & Maple St.	155
Harrisburg Rd. & Snark St.	198, 199A, 200
Howard Ave. & Enterprise Dr.	76
Howard Ave. & Reagan St.	147
Howard Ave. & Saratoga Dr.	92
Katella Ave. & Portal Dr.	19
Katella Ave. & Walnut St.	32
Los Alamitos Blvd. & Serpentine Dr.	812
Paseo Bonita & Bradbury Rd.	244
Paseo Bonita & Kempton Dr.	241
Reagan St. & Green Ave.	141
Reagan St. & Kempton Dr.	239
Reagan St. & Sausalito St.	816
Reagan St. & Serpentine Dr.	817
TOTAL:	**21 manholes**

For each of the manholes, it is expected that there will be four three-quarter inch openings that can be plugged using standard laboratory

plugs. These could be obtained for a total material cost of less than $100 and then installed by the District's current sewer contractor (Empire Pipe Cleaning) during future cleaning work for little or no additional labor cost.

County of Orange

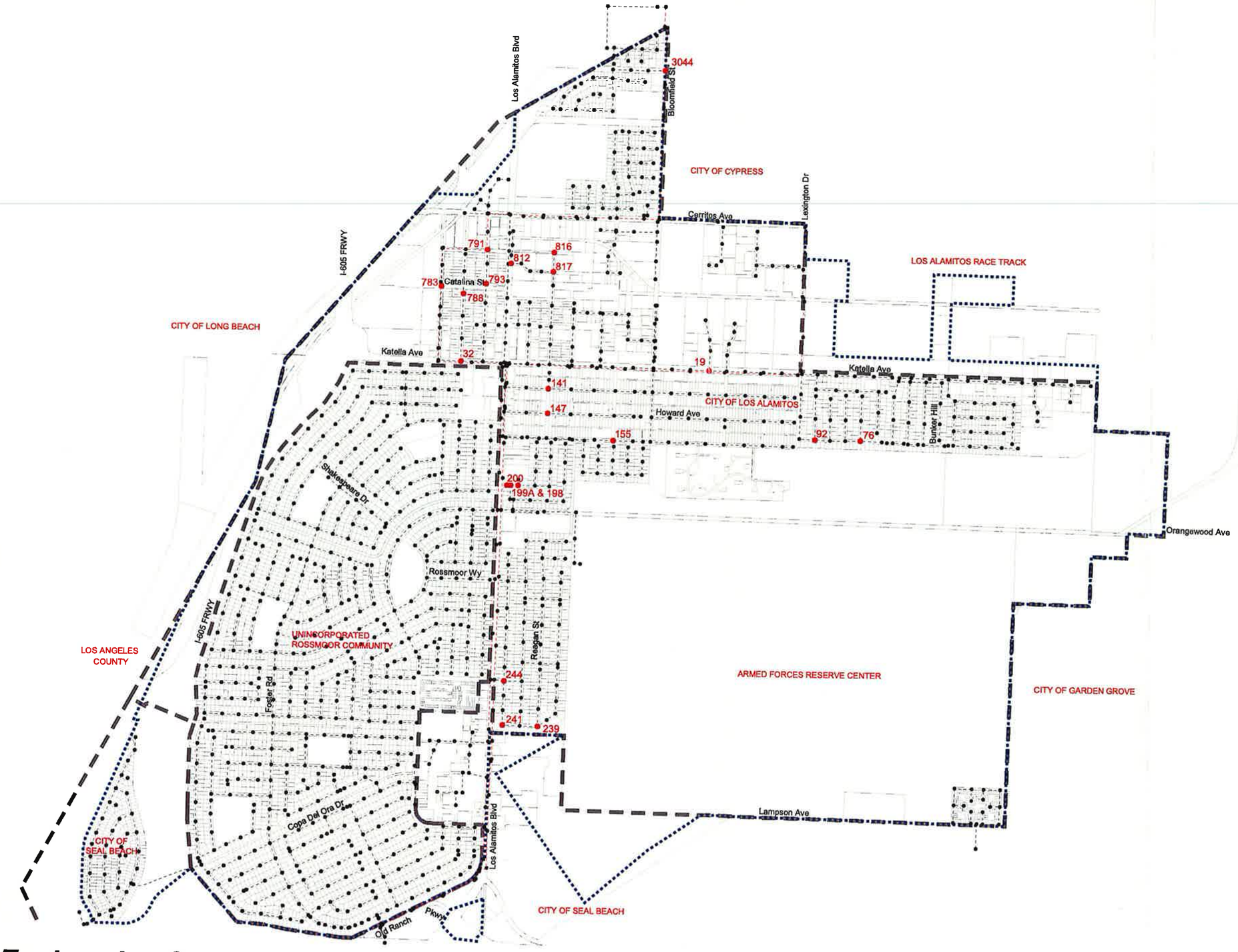
Rossmoor is located within an unincorporated region of the County. While many areas in Rossmoor experience periodic flooding during peak storms, no manholes have been identified for plugging as a part of this report.

According to County staff, it appears that currently much of the flooding is caused by pressure problems within the existing flood control channels. Four channels direct flood flows westerly from the Rossmoor area into the Los Alamitos Channel, which in turn drains to retention basins across the San Gabriel (605) Freeway. The retention basins do not always drain quickly enough, and if the channel is full, flows are then restricted, causing backup and flooding within the streets of Rossmoor. As the area is quite flat, the problems extend to a large portion of the area. To relieve the pressure and hopefully alleviate the flooding, construction on a new pump station is scheduled by the County to begin in the summer of 2001. Therefore, the District should wait until the flood control improvements are constructed to see if any residual flooding that affects District manholes occurs.

Recommendations

In view of the County's scheduled flood control improvements, no manholes within Rossmoor are recommended for plugging at this time to reduce the inflow and infiltration into the sewer system. However, upon completion of the new pump station, the RLASD should review the incidence of periodic flooding of manholes.

For the twenty-one manholes identified in the City of Los Alamitos, it is recommended that the openings be plugged using standard three-quarter inch laboratory plugs by Empire Pipe Cleaning during a future sewer cleaning work. The total expected material cost is less than $100.



Legend

- District Boundary
- City Boundaries
- Local Sewer
- OCSD Trunk Sewer
- Manholes
- Manholes Subject to Inundation

N

1800' 0 1800'

Rossmoor/Los Alamitos Area Sewer District

Manhole Inundation Investigation Project

Dec. 2000 | Figure 1

Boyle Engineering Corporation

Y:\L03\250\CAD\FIGURES\Inundation.apr

Review of CCTV Video Inspection Tapes

Rossmoor/Los Alamitos Area Sewer District

Boyle Engineering Corporation

Project Manager Philip E. Stone, PE

Project Engineer Lisa M. Nelson, PE

OC-L03-250-02

May 2001

BOYLE 1501 Quail Street, Newport Beach, CA 92658

Review of CCTV Video Inspection Tapes

Over the past 10 years the RLASD has performed closed circuit television inspection on approximately 49% of the total District system. During the fiscal year 2000/2001, Empire Pipe Cleaning performed CCTV video inspections of the remaining sewer pipes (over 143,000 lineal feet) and produced sixteen color video tapes with commentary and logs of the observations. These tapes will be kept on file at the RLASD's office for future reference.

The CCTV logs and tapes were reviewed to assess the general condition of the sewer system and identify areas requiring repair or rehabilitation. The three main types of items observed were:

- Mineral deposits
- Roots
- Cracks

The attached table lists the location of each of these items and a preliminary yes/no assessment as to whether or not it requires either further investigation or repair. Specific rehabilitation needs will be discussed further in the Sewer System Master Plan Update. Overall, the sewer lines were in good shape, mainly needing the removal of roots and/or mineral deposits. While there were some cracks present, most do not appear to require immediate attention; however, the cracks should be monitored for further deterioration in future video inspections.

Rossmoor/Los Alamitos Area Sewer District

REVIEW OF CCTV VIDEO TAPES

Tape	Date	Run	Total Length	Up MH	Down MH	Travel Direction	Footage	Comments	Immed. Action?
1	11/21/00	1	169.4	952	951	against	-		N
		2	300.6	951	953	with	134.1, 137.1	Multiple small cracks arou	[redacted]
				951	953		244.1	Crack at joint - large and	
		3	300.7	953	954	with	148.0, 267.6	Wedge-shaped cracks at	
		4	308.7	954	956	with	7.2	Crack at joint - shattered	
							300.8	Crack at joint with roots	
	11/22/00	5	176.6	955	954	against	163.3	Slight crack at joints.	
		6	300.3	956	958	against	-		N
		7	209.1	957	958	against	-		N
		8	124.1	958	959	with	-		N
		9	206.6	949	950	against	-		N
		10	299.8	950	948	with	-		N
		11	299.0	948	963	with	-		N
		12	310.1	963	962	with	-		N
		13	173.9	964	963	against	-		N
		14	310.7	962	960	with	-		N
		15	87.9	960	959	with	-		N
		16	228.3	959	981	with	24.9 - 51.2	Slight sag - pipe not submerged.	N
		17	5.5	961	960	with	5.5	Asphalt in invert, hindrance to flow - remove	Y
							-	<Note: camera unable to continue due to asphalt>	N
		17-A	199.9			against	199.9	Same asphalt in invert (camera blocked)	N
		18	355.9	43	42	with	-		N
	11/24/00	19	354.7	42	34	with	-		N
		20	352.1	988	987	against	-		N
		21	322.2	987	986	with	-		N
		22	302.0	992	987	against	-		N
		23	315.2	986	985	with	-		N
		24	352.2	34	35	against	-		N
		25	354.4	35	36	with	-		N
		26	354.0	36	37	with	351.8	Slight crack at manhole	[redacted]
		27	301.6	38	39	against	298.5	Slight infiltration - not significant - monitor	N
		28	301.0	39	40	with	-		N
		29	300.1	40	41	with	128.2	Slight infiltration - not significant	N
		30	249.6	44	45	against	244.9, 247.7	Calcium/mineral buildup at joints - clean	Y
							249.6	<Note: camera unable to continue due to buildup>	N
		30-A	54.2			with	54.2	Same calcium/mineral buildup at joint (camera again blocked)	N
	11/25/00	31	300.0	45	46	against	-		N
		32	300.8	46	47	with	-		N
		33	383.0	55	56	against	-		N
		34	375.3	56	57	with	-		N
		35	106.3	57	58	with	104.3	Calcium/mineral buildup at joint - clean	Y
							-	<Note: camera unable to continue due to buildup>	N
							193.6	Calcium/mineral buildup at joint - clean	Y
		35-A	272.0			against	206.2	Same calcium/mineral buildup at joint (camera again blocked)	-
	SUBTOTAL =		10,017.8						
2	11/25/00	36	298.2	58	59	with	4 locations	Calcium/mineral buildup at joints - clean	Y
		36-A	47.3			against	-		N
		37	291.7	60	61	against	-		N
		38	378.4	61	62	with	-		N
		39	327.3	62	63	with	14 locations	Calcium/mineral buildup at joints - clean	Y
		39A	47.6	62	63	against	-		N
		40	185.6	64	65	against	-		N
	11/27/00	41	383.6	65	66	with	-		N
		42	372.6	66	67	with	-		N
		43	370.8	67	68	with	2 short sags	Slight sags - pipe not submerged.	N
		44	199.5	69	70	against	-		N
		45	91.9	71	70	against	-		N
		46	414.5	70	72	with	67.1	Lateral with significant water	N
		47	413.1	72	73	with	-		N
		48	371.6	96	97	against	366.5	Small cracks in pipe - piece missing?	[redacted]
		49	371.8	97	80	with	-		N
		50	364.0	78	79	with	-		N
		51	363.2	77	76	with	-		N
	11/28/00	52	370.8	84	85	against	-		N
		53	369.1	85	86	with	139.6	Small cracks in pipe at bell	[redacted]
		54	372.2	87	88	against	-		N
		55	371.1	88	89	with	-		N
		56	392.9	90	91	against	-		N
		57	391.1	91	92	with	56.8	Roots in lateral	N
		58	411.0	75	76	against	-		N
		59	272.4	76	86	with	-		N
		60	277.7	86	89	with	-		N
		61	353.1	107	108	against	313.4	Slight sag - pipe not submerged.	N
		62	189.0	106	107	against	-		N
		63	352.6	108	109	with	64.3	Slight crack - not at joint	[redacted]

1, 2, 3
4, 5
6, 7
8
9
10
11
12

REVIEW OF CCTV VIDEO TAPES

Tape	Date	Run	Total Length	Up MH	Down MH	Travel Direction	Footage	Comments	Immed. Action?
							182.2	Short cracks, no displacement - monitor	N
	11/29/00	64	352.0	109	110	with	274.1	Metal at joint - not hindrance to flow	N
	SUBTOTAL =		9,767.7						
3	11/29/00	65	193.9	98	99	against	-		N
		66	352.2	99	100	with	24.6	Pressure flow at lateral	N
							81.8, 129.7, 185.2	Calcium/mineral buildup at joints - clean	Y
							190.6	Slight roots - remove	Y
							218.0, 239.0	Calcium/mineral buildup at joints - clean	Y
		67	273.9	100	101	with	71.9, 74.5	Calcium/mineral buildup at joints - clean	Y
							92.9, 98.9	Calcium/mineral buildup at joints - clean	Y
							144.4, 154.2, 157.1	Hair roots - remove	Y
							163.2, 193.2, 217.8	Calcium/mineral buildup at joints - clean	Y
							223.8, 239.1, 259.5	Calcium/mineral buildup at joints - clean	Y
							262.5, 272.0	Calcium/mineral buildup at joints - clean	Y
							272.0	<camera unable to continue>	N
		67A	80.8	100	101	against	20.9,23.5,56.5	Calcium/mineral buildup at joints - clean	Y
							59.0, 65.0, 80.8	Calcium/mineral buildup at joints - clean	Y
							80.8	<camera unable to continue>	N
		68	352.0	101	102	with	38.4	Calcium/mineral buildup at joints - clean	Y
							260.4	Calcium/mineral buildup at lateral - clean	Y
		69	175.2	153	154	against	172.1	Roots in lateral	N
		70	351.6	154	155	with	59.2	Slight sag - pipe not submerged	N
							200.9	Small cracks on top of pipe	[redacted]
							205.6, 257.7	Slight sags - pipe not submerged	N
		71	378.0	155	156	with	33.1, 35.4, 44.8	Hair roots - remove	Y
							57.0, 60.0	Hair roots - remove	Y
							176.0	Slight sag - pipe not submerged	N
		72	402.0	156	157	with	19.3, 31.3, 37.0	Hair roots - remove	Y
		73	412.1	157	158	with	297.4	Hair roots - remove	Y
		74	240.1	161	162	with	173.3	Calcium/mineral buildup at joints - clean	Y
		75	240.0	162	163	with	-		N
		76	246.3	164	165	against	-		N
		77	241.2	165	166	with	-		N
	12/1/00	78	238.7	167	168	with	-		N
		79	241.2	168	169	with	-		N
		80	240.5	170	180	with	-		N
		81	240.7	180	179	with	-		N
		82	332.3	181	182	against	-		N
		83	352.7	182	183	with	-		N
	12/2/00	84	350.6	183	184	with	-		N
		85	260.6	189	190	against	-		N
		86	262.1	190	191	with	-		N
		87	261.4	191	192	with	-		N
		88	262.5	193	194	against	4.0	Crack at joint	[redacted]
		89	262.4	194	195	with	-		N
		90	259.9	195	196	with	-		N
		91	262.5	192	196	with	-		N
		92	312.0	196	198	with	-		N
		93	126.0	198	199A	with	-		N
		94	105.6	199	198	with	107.6	offset joint - not hindering flow	N
							107.6	<camera unable to continue>	N
		94A	16.0	199	198	against	16.0	offset joint - not hindering flow	N
								<camera unable to continue>	N
		95	352.4	201	202	with	-		N
		96	351.2	202	203	with	-		N
		97	225.7	225	215	against	-		N
		98	180.8	226	225	against	-		N
		99	177.6	214	215	against	-		N
	SUBTOTAL =		9,614.7						
4	12/2/00	100	379.1	215	216	with	-		N
	12/4/00	101	356.4	216	217	with	301.0	Small root cluster at joint - remove	Y
		102	356.5	218	219	with	-		N
		103	353.5	219	220	against	59.2	Small cracks in pipe - monitor	N
							71.9	Small cracks in pipe - monitor	N
							173.1	Cracks at bell, displacement - fix	[redacted]
							203.2, 208.2	Calcium/mineral buildup at joints - clean	Y
							289.4	Calcium/mineral buildup at joint - clean	Y
		104	326.3	220	221	with	245.0	Calcium/mineral buildup at joint - clean	Y
		105	352.2	222	223	against	-		N
		106	353.5	223	224	with	-		N
		107	306.1	224	239	with	-		N
		108	357.5	230	231	against	-		N

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REVIEW OF CCTV VIDEO TAPES

Tape	Date	Run	Total Length	Up MH	Down MH	Travel Direction	Footage	Comments	Immed. Action?
		109	358.4	231	232	with	147.4	Calcium/mineral buildup at joint - clean	Y
		110	352.2	232	233	with	-		N
		111	310.4	234	235	against	-		N
		112	283.3	235	236	with	-		N
		113	233.6	236	237	against	-		N
		114	198.9	237	238	with	-		N
	12/5/00	115	191.5	238	239	against	-		N
		116	317.7	239	240	with	-		N
		117	103.0	240	241	with	95.6	Water back up due to plumbing snake	N
							102.5	Plumbing snake hanging out of lateral - notify owner/remove snake	Y
							-	<camera unable to continue>	N
		117A	214.1	240	241	against	142.6	Roots in lateral	N
							214.1	Plumbing snake hanging out of lateral - notify owner/remove snake	N
							-	<camera unable to continue>	N
		118	357.5	207	208	against	222.0	Hanging white roots - remove	Y
							292.6	Sloppy patch at lateral (~1/2" protrusion)	N
		119	358.5	208	209	with	208.3	Calcium/mineral buildup at joint - clean	Y
		120	362.7	209	210	against	96.8, 102.0	Calcium/mineral buildup at joint - clean	Y
							107.3, 129.4	Calcium/mineral buildup at joint - clean	Y
							264.0, 278.9	Minor downward offsets	N
							284.0, 296.4, 314.3	Minor downward offsets	N
							319.7	Calcium/mineral buildup at joint - clean	Y
							334.6, 339.4	Minor downward offsets	N
							347.2, 352.0	Minor downward offsets	N
		121	329.7	210	211	with	-		N
		122	291.1	212	211	with	-		N
		123	253.2	212	213	with	-		N
		124	249.5	213	240	with	-		N
		125	186.7	251	250	against	-		N
		126	284.1	250	249	with	218-284.1	Dark discoloration at crown of pipe	N
		127	147.7	1019	1020	against	-		Y
		128	222.9	1020	1021	with	53.8	Calcium/mineral buildup at joint - clean	
		129	210.2	1021	1022	with	130.0	Crack with calcium/mineral deposits - clean & repair	N
							196.8	Minor protrusion from joint (black; sealant?)	N
		130	292.0	1022	18	with	-		N
	SUBTOTAL =		9,250.0						
5	12/6/00	131	353.5	932	933	against	-		N
		132	197.9	933	934	with	-		N
		133	351.7	934	19	with	-		N
		134	225.6	920A	920	against	-		N
		135	215.4	919	920A	against	190.5	Hair roots - remove	Y
		136	136.0	921	920	against	-		N
		137	277.7	920	847	with	52.5, 62.4	Hair roots at top of pipe - remove	Y
							67.5, 136.4	Larger root intrusion - remove	Y
		138	250.0	848	847A	against	-		N
		139	250.9	847A	847	with	-		N
		140	260.0	847	845	with	220.3 to end	White deposits at crown of pipe along length	N
		141	258.7	845	843	with	18.5	Crack at crown of pipe - monitor	N
							-	White deposits at crown of pipe along length	N
		142	438.6	846	845	with	-	White deposits at crown of pipe along length	N
		143	411.8	844	843	with	-	White deposits at crown of pipe along length	N
		144	311.6	843	841	with	-	White deposits at crown of pipe along length	N
		145	329.4	842	841	against	-		N
	12/7/00	146	286.4	841	840	with	-		N
		147	251.2	840	838	with	-	White deposits at crown of pipe along length	N
		148	166.8	838	970	with	-		Y
		149	377.7	836	837	against	72.9	Calcium/mineral buildup at joint - clean	Y
							373.7	Calcium/mineral buildup at joint - clean	N
		150	258.5	837	838	with	-		N
		151	246.8	839	838	with	-	White deposits at crown of pipe along length	N
		152	220.3	1004	1105	against	-		N
		153	296.0	1105	1006	with	-		Y
		154	211.0	1006	1007	with	107.7	Hair roots - clean	Y
		155	224.4	1007	1008	against	89.7	Hair root at top - clean	Y
		156	67.7	1010	1008	against	65.2	Calcium/mineral buildup at joint - clean	N
							-	(Note: milky flow to manhole)	N
		157	277.4	1001	1002	with	-		Y
		158	378.1	1000	1001	against	11.2	Calcium/mineral buildup at joint - clean	N
		159	378.0	999	1002	with	-		Y
		160	301.7	1012	1013	against	20.0, 50.0, 222.4	Calcium/mineral buildup at joints - clean	Y
		161	301.5	1013	1014	with	35.0, 110.0, 120.0	Calcium/mineral buildup at joints - clean	N
	12/8/00	162	187.5	1018	1014	with	-		N
		163	130.6	993	994	against	-		N
		164	120.4	994	995	with	-		Y
		165	301.3	995	996	with	299.3	Submerged obstruction hindering flow - remove	

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REVIEW OF CCTV VIDEO TAPES

Tape	Date	Run	Total Length	Up MH	Down MH	Travel Direction	Footage	Comments	Immed. Action?
		166	301.4	996	997	against	-		N
		167	144.7	997	998	with	112.6	Hair roots - remove	Y
		168	265.2	876	874	against	-		N
		169	268.9	874	870	with	-		N
		170	242.8	870	869	with	-		N
		171	248.4	869	868	with	170.9	Substantial roots starting at joint/lateral - remove	Y
		172	215.7	873	870	against	-		N
		173	218.5	872	869	against	-		N
	SUBTOTAL =		11,157.7						
6	12/8/00	174	146.6	871	871A	against	54.9, 75.9, 101.2	Hair roots at joint - remove	Y
		175	147.0	871A	868	with	28.0	Hair roots at joint - remove	Y
		176	220.2	832A	832B	with	-		N
		177	131.1	832	831	against	72.5, 77.8, 82.7	Hair roots at joint - remove	Y
		178	236.0	831	828A	with	-		N
		179	235.0	828A	828	with	-		N
		180	237.5	827	826	with	169.8	Hair roots at joint - remove	Y
		181	238.6	826	825	with	-		N
	12/9/00	182	263.6	807	806	against	32.1, 35.1, 38.7	Hair roots at joint - remove	Y
							41.3, 62.5	Hair roots at joint - remove	Y
							68.8, 71.9	Hair roots at joint - remove	Y
							86.5	Substantial roots in lateral	N
							263.6	Lateral protrusion into main (1") - not hindering flow	N
							263.6	<camera unable to continue>	N
		182A	141.1	807	806	with	141.1	Same protruding lateral tap - not hindering flow	N
							141.1	<camera unable to continue>	N
		183	196.2	806	805	with	183.4	(note: pipe changes from clay to cast iron)	N
							190.0	(note: pipe changes back to clay)	N
		184	284.8	540	544	against	-		N
		185	286.0	544	545	with	281.5	Pipe offset (not hindering flow)	N
		186	284.2	545	546	with	200.8, 204.2	Calcium/mineral buildup at joint - clean	Y
							258.1, 271.4	Calcium/mineral buildup at joint - clean	Y
							281.6	Crack on bottom of pipe - repair	17
		187	285.2	546	554	against	43.5, 63.7	Calcium/mineral buildup at joint - clean	Y
							73.8, 93.5	Calcium/mineral buildup at joint - clean	Y
							107.2, 127.3	Calcium/mineral buildup at joint - clean	Y
							175.9	Possible sag - pipe not submerged	N
		188	284.3	554	560	with	31.1, 44.7, 88.3	Calcium/mineral buildup at joint - clean	Y
							108.4, 111.7	Calcium/mineral buildup at joint - clean	Y
		189	268.0	559	558	against	57.2, 63.5	Slight downward offsets - flow not hindered	N
							67.5	Calcium/mineral buildup at joint - clean	Y
							69.6, 70.6, 73.7	Slight downward offsets, <1/2 cm - flow not hindered	N
							77.2, 81.1, 83.9	Slight downward offsets, <1/2 cm - flow not hindered	N
							87.7, 94.4, 130.3	Slight downward offsets, <1/2 cm - flow not hindered	N
							135.1, 138.5, 175.3	Slight downward offsets, <1/2 cm - flow not hindered	N
							230.5, 233.4	Calcium/mineral buildup at joint - clean	Y
		190	265.6	558	557	with	8.4, 80.3, 154.8	Calcium/mineral buildup at joint - clean	Y
							168.7, 172.1	Calcium/mineral buildup at joint - clean	Y
							175.4	Calcium/mineral buildup (& heavy grease?) - clean	Y
							178.3, 182.1	Calcium/mineral buildup at joint - clean	Y
							185.6, 209.1	Calcium/mineral buildup at joint - clean	Y
							219.0	Slight downward offset - flow not hindered	N
							226.2, 260.1	Calcium/mineral buildup at joint - clean	Y
		191	299.2	557	556	against	11.0, 25.0, 34.7	Calcium/mineral buildup at joints - clean	Y
							38.2, 49.1, 55.6	Calcium/mineral buildup at joints - clean	Y
							110.1, 168.1	Calcium/mineral buildup at joints - clean	Y
							215.3	Slight downward offset	N
							243.2, 263.6	Calcium/mineral buildup at joints - clean	Y
		192	297.1	556	531	with	92.1, 108.4	Calcium/mineral buildup at joints - clean	Y
							112.0, 119.3	Calcium/mineral buildup at joints - clean	Y
							177.3, 180.9	Calcium/mineral buildup at joints - clean	Y
							208.2, 238.0	Calcium/mineral buildup at joints - clean	Y
							279.4, 286.3	Calcium/mineral buildup at joints - clean	Y
		193	296.1	539	542	against	84.8	Fairly extensive cracks - repair	18
		194	291.6	542	543	with	41.1	Calcium/mineral buildup at joint - clean	Y
							75.5	Multiple cracks; calcium/mineral buildup - clean & repair	19
							78.6, 129.5, 133.0	Calcium/mineral buildup at joints - clean	Y
							156.8	Large crack; calcium/mineral buildup - clean & repair	20
							157 to 160	Possible crack on top - monitor	N
							163.4, 190.0, 193.9	Calcium/mineral buildup at joint - clean	Y
							204.1	Several small cracks	N
							261.8	Calcium/mineral buildup; possible cracks - clean	Y
							278.7	Multiple cracks; calcium/mineral buildup - clean & repair	21
		195	293.0	543	552	against	11.7, 14.7, 18.0	Slight downward offsets - flow not hindered	N
							21.3, 24.0, 28.0	Slight downward offsets - flow not hindered	N
							31.4, 52.2	Slight downward offsets - flow not hindered	N

REVIEW OF CCTV VIDEO TAPES

Tape	Date	Run	Total Length	Up MH	Down MH	Travel Direction	Footage	Comments	Immed. Action?
							69.3	Crack & black slime - monitor	N
							69.3-90	Slight downward offsets - flow not hindered	N
							99.9	Crack & black slime - monitor	N
							113.6	Calcium/mineral buildup; possible cracks - clean	
							120.3	Several cracks - repair	
							126.9	Calcium/mineral buildup; possible cracks - clean	
							133.8	Calcium/mineral buildup at joint - clean	Y
							177.6, 181.3	Cracks around joints; mineral buildup - clean & repair	
							195.1, 198.4	Calcium/mineral buildup; possible cracks - clean	Y
							262.8	Calcium/mineral buildup at joint - clean	Y
		196	133.3	553	552	against	89.8	Crack (not at joint) - monitor	N
	12/12/00	197	307.4	552	551	against	297.7	Small cracks	N
		198	271.9	551	550	with	71.6, 139.1, 145.0	Calcium/mineral buildup at joints - clean	Y
							162.9, 203.1, 206.5	Calcium/mineral buildup at joints - clean	Y
		199	271.1	550	978	with	138.8, 142.3, 192.4	Calcium/mineral buildup at joints - clean	Y
							216.0, 220.6	Calcium/mineral buildup at joints - clean	Y
		200	223.8	535	536	against	100.1	Lots of roots protruding from lateral	N
		201	226.8	536	537	with	-		N
		202	128.2	537	538	against	-		N
		203	84.3	538C	538	against	20.7	Calcium/mineral buildup at joints - clean	Y
		204	187.1	538	534	with	145.4	Calcium/mineral buildup at joints - clean	Y
		205	185.0	534	532	with	-		N
		206	269.0	522	533	against	8.0	Possible sag - pipe not submerged	N
		207	125.6	533	532	with	-		N
		208	252.7	586	585	against	-		N
		209	252.6	585	584	with	-		N
		210	250.2	584	574	with	94.2	Roots in lateral	N
							195.4, 198.8	Calcium/mineral buildup at joints; possible cracks - clean	Y
							209.1	Calcium/mineral buildup at joint - clean	Y
	SUBTOTAL =		8,797.0						
7	12/12/00	212	250.8	587	575	with	116.0, 122.8	Calcium/mineral buildup at joints; possible cracks - clean & monitor	Y
							143.1	Calcium/mineral buildup at joint - clean	Y
							146.6	Calcium/mineral buildup at joints; possible cracks - clean	Y
							184.0	Calcium/mineral buildup and crack at joint - clean	Y
							203.3	Cracks - investigate further and repair	Y
							210.0	Calcium/mineral buildup at joints; possible cracks - clean	Y
							226.1	Calcium/mineral buildup and crack at joint - clean	Y
							229.8, 243.0	Calcium/mineral buildup at joints; possible cracks - clean	Y
							246.6	Cracks - investigate further and repair	Y
		213	287.1	574	575	against	150.4	Hair roots - remove	Y
							164.1, 167.5	Hair roots and mineral deposits - remove	Y
		214	87.0	575	576	with	-		N
		215	99.0	590C	590	against	-		N
		216	353.4	590	589	with	-		N
	12/13/00	217	353.5	589	578	with	-		N
		218	73.2	593C	593	against	-		N
		219	301.4	593	592	with	-		N
		220	252.6	594	595	with	-		N
		221	255.5	595	579	with	-		N
		222	352.1	597	590	against	76.1, 212.0	Hair roots - remove	Y
							220.7	Roots in lateral	N
							231.5	Substantial roots from lateral at 233.4 - remove	Y
							295.8	Hair roots - remove	Y
							301.1	Roots in lateral	N
		223	97.2	597C	597	against	-		N
		224	353.3	690	580	with	-		N
		225	248.5	743	742	against	53.9	Hair roots - remove	Y
		226	217.3	742	735	with	212.3	Long hairline cracks	N
		227	349.1	735	732	against	-		N
		228	353.0	732	729	with	-		N
		229	274.4	744	741	against	57.8	Hair roots - remove	Y
		230	265.2	741	734	with	-		N
		231	347.6	734	731	with	6.7	Start of sag (camera dipped)	N
							73.8	End of sag (water level drops from 1/2 full to <10%)	N
		232	353.4	731	728	with	-		N
	12/15/00	233	189.4	984	983	against	-		N
	12/15/00	234	4.5	line cap off	984	against	-		N
	12/15/00	235	50.9	983	982	with	49.1	Calcium/mineral buildup at joints - remove	Y
	12/15/00	236	255.5	738	739	against	203.7, 210.2	Roots - remove	Y
							230.7, 240.8, 245.3	Roots - remove	Y
	12/15/00	237	258.7	739	740	with	33.7	Roots in lateral	N
	12/15/00	238	300.5	740	732	against	-		N
	12/15/00	239	355.0	732	727	with	-		N
	12/15/00	240	320.3	737	736	against	-		N
	12/15/00	241	222.7	736	733	with	-		N

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REVIEW OF CCTV VIDEO TAPES

Tape	Date	Run	Total Length	Up MH	Down MH	Travel Direction	Footage	Comments	Immed. Action?
	12/15/00	242	329.0	733	726	against	34.9, 44.9, 120.0	Calcium/mineral buildup at joints - remove	Y
	12/15/00	243	325.3	726	700	with	222.9, 252.0	Calcium/mineral buildup at joints - remove	Y
							256.0, 272.8, 283.0	Calcium/mineral buildup at joints - remove	Y
	12/15/00	244	238.0	777	776	against	67.1	Hair roots - remove	Y
	12/15/00	245	223.0	781	777	against	-		N
	12/15/00	246	325.9	776	775	with	-		N
	12/15/00	247	201.1	775	774	with	-		N
	SUBTOTAL =		9,124.4						
8	12/20/00	248	384.1	768	767	against	-	Very slight downward offsets (no hindrance to flow)	N
		249	323.0	767	766	with	-		N
		250	361.5	765	764	against	34.4	Hair roots along wall - remove	Y
							293.9	Protrusion of roots from lateral (& white bugs)	N
		251	354.3	764	763	with	-		N
		252	201.2	763	762	with	-	(just a few cockroaches at the start)	N
		253	227.9	761	760	against	-		N
		254	297.5	760	757	with	140.5	Calcium/mineral buildup at joint - remove	Y
		255	336.4	757	753	against	66.2, 69.7	Calcium/mineral buildup at joints - remove	Y
		256	316.5	753	720	with	-		N
		257	335.7	720	713	against	-		N
		258	309.1	713	703	with	-		N
	12/21/00	259	358.3	703	691	against	68.1, 105.9, 197.0	Calcium/mineral buildup at joints - remove	Y
							200.5, 204.0	Calcium/mineral buildup at joints - remove	Y
							255-261	Sag - flow not hindered	N
		260	332.5	691	683	with	12.7, 281.4	Calcium/mineral buildup at joints - remove	Y
		261	333.5	683	676	against	103.5, 110.1, 113.7	Calcium/mineral buildup at joints - remove	Y
							117.0, 127.2, 150.5	Calcium/mineral buildup at joints - remove	Y
							160.7, 258.7, 265.6	Calcium/mineral buildup at joints - remove	Y
							279.5, 281.7	Calcium/mineral buildup at joints - remove	Y
							322.8, 329.9	Calcium/mineral buildup at joints - remove	Y
		262	293.5	676	666	with	73.1, 143.8, 211.1	Calcium/mineral buildup at joints - remove	Y
		263	221.5	758	754	against	69.4	Calcium/mineral buildup at joint - remove	Y
							73.0, 76.2	Hair roots around joint - remove	Y
							80.7	Roots in lateral	N
							84.6	Calcium/mineral buildup at joint - remove	Y
		264	353.6	754	721	with	-		N
		265	353.0	721	714	against	317.5	Calcium/mineral deposits - remove	Y
		266	353.7	714	704	with	-		N
		267	351.4	704	692	against	214.8	Calcium/mineral buildup at joint - remove	Y
		268	275.5	692	693	with	-		N
	12/22/00	269	124.2	673C	673	against	75.5, 113.2	Calcium/mineral buildup at joints - remove	Y
		270	297.3	673	672	with	52.1, 73.3, 75.9	Calcium/mineral buildup at joints - remove	Y
							79.2, 82.7, 95.4	Calcium/mineral buildup at joints - remove	Y
							116.0, 119.1	Calcium/mineral buildup at joints - remove	Y
							132.1	Long roots; calcium/mineral buildup at joint - remove	Y
							138.9, 142.3	Calcium/mineral buildup at joints - remove	Y
							149.0	Long roots; calcium/mineral buildup at joint - remove	Y
							228.0, 234.7	Calcium/mineral buildup at joints - remove	Y
		271	246.6	672	671	against	140.3, 144.0	Calcium/mineral buildup at joints - remove	Y
	SUBTOTAL =		7,341.8						
9	12/22/00	272	245.9	671	670	with	205.9, 209.2	Calcium/mineral buildup at joints - clean	Y
							216.6, 226.1, 242.7	Calcium/mineral buildup at joints - clean	Y
		273	234.5	686	679	against	-		N
		274	238.2	680	679	against	-	<lots of cockroaches>	N
							25.9, 29.3, 32.8	Calcium/mineral buildup at joints - clean	Y
		275	281.9	679	670	with	-	<lots of cockroaches>	N
							60.7, 70.9, 84.8	Calcium/mineral buildup at joints - clean	Y
							88.1, 105.2, 108.7	Calcium/mineral buildup at joints - clean	Y
							112.1, 119.0, 129.0	Calcium/mineral buildup at joints - clean	Y
							132.6, 193.2, 203.0	Calcium/mineral buildup at joints - clean	Y
							216.1, 222.7, 236.2	Calcium/mineral buildup at joints - clean	Y
							240.0, 266.0, 270.7	Calcium/mineral buildup at joints - clean	Y
	1/6/01	276	334.0	685	678	against	162.6	Calcium/mineral buildup at joints - clean	Y
		277	292.6	678	669	with	15.7, 116.9	Calcium/mineral buildup at joints - clean	Y
							190.7, 288.1	Calcium/mineral buildup at joints - clean	Y
		278	282.5	670	669	against	219 to 277	Sag? (pipe is 40% full, not really moving) - monitor	N
		279	285.4	669	668	with	-		N
		280	341.0	656	657	against	50.9	Roots in lateral	N
		281	337.6	657'	658	with	142.5	Calcium/mineral buildup at joint - clean	Y
		282	300.0	658	659	with	3.7	Crack and related mineral buildup at joint - repair	
							115.6, 142.7, 149.6	Calcium/mineral buildup at joints - clean	Y
							152.9, 156.3, 160.6	Calcium/mineral buildup at joints - clean	Y
							163.1, 166.3, 169.8	Calcium/mineral buildup at joints - clean	Y

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REVIEW OF CCTV VIDEO TAPES

Tape	Date	Run	Total Length	Up MH	Down MH	Travel Direction	Footage	Comments	Immed. Action?
							173.2, 176.6	Calcium/mineral buildup at joints - clean	Y
							180.0	Mineral buildup at joint; crack? - clean & monitor	Y
							185.0, 191.5, 195.3	Calcium/mineral buildup at joints - clean	Y
							198.8, 202.2, 232.4	Calcium/mineral buildup at joints - clean	Y
							235.9	Roots and mineral buildup at joint; crack? - clean & monitor	Y
							249.5	Substantial roots from lateral	N
		283	357.6	662	661	against	76.5, 79.6	Calcium/mineral buildup at joints - clean	Y
		284	357.0	661	660	with	-		N
		285	267.7	660	659	with	1.0, 23.1	Calcium/mineral buildup at joints - clean	Y
							72.6	Possible small crack - monitor	N
							120.1, 165.5, 214.4	Calcium/mineral buildup at joints - clean	Y
							245.2, 248.6	Calcium/mineral buildup at joints - clean	Y
							252.3, 255.3	Calcium/mineral buildup at joints - clean	Y
							257.2	Calcium/mineral buildup (not at joint) - clean & monitor	Y
							265.5	Calcium/mineral buildup at joints - clean	Y
							267.6	<camera unable to continue>	N
		287	354.6	663	662	against	-		N
		288	340.4	632	610	with	-		N
		289	250.6	654	631	with	-		N
		290	255.3	631	620	with	252.6, 254.0	Calcium/mineral buildup at joints - clean	Y
	1/8/01	291	278.3	620	609	with	206.3	Minor cracks - monitor	N
							212.4	Calcium/mineral buildup at joints - clean	Y
		292	285.9	610	609	against	-		N
		293	310.2	609	608	with	188.7	Calcium/mineral buildup at joints - clean	Y
		294	311.7	608	607	with	307.5	Calcium/mineral buildup at joints - clean	Y
		295	341.6	653	630	against	-		N
		296	341.0	630	618	with	139.7, 190.2, 235.8	Calcium/mineral buildup at joints - clean	Y
							246.0, 249.3, 252.1	Calcium/mineral buildup at joints - clean	Y
							256.1, 262.3	Calcium/mineral buildup at joints - clean	Y
		297	350.0	745	750	against	271.2, 300.0	Substantial roots from top - remove	Y
							343 to end	Lots of dangling roots - remove	Y
		298	305.5	750	749	with	-		N
		299	282.3	749	748	with	264.1	Calcium/mineral buildup at joints - clean	Y
	SUBTOTAL =		8,163.3						
10	1/8/01	300	291.2	780	779	against	9.5, 142.4, 157.5	Hair roots - remove	Y
							181.0, 224.7, 233.5	Hair roots - remove	Y
							236.9, 244.0, 271.1	Hair roots - remove	Y
		301	301.8	779	778	with	-		N
		302	323.3	778	773	with	-		N
		303	304.4	772	771	with	-		N
	1/10/01	304	283.1	771	770	with	108.9	Hair roots - remove	Y
							110.0	Roots in lateral	N
							115.0, 118.2, 124.9	Hair roots - remove	Y
		305	289.1	770	769	with	99.3	Roots in lateral	N
		306	171.5	651	652	against	-		N
		307	245.7	652	639	with	243.1, 244.4	Calcium/mineral buildup at joints - clean	Y
		308	270.3	639	629	with	58.4, 64.9, 71.7	Calcium/mineral buildup at joints - clean	Y
							98.2, 115.1, 213.7	Calcium/mineral buildup at joints - clean	Y
							217.0, 233.5	Calcium/mineral buildup at joints - clean	Y
							240.2, 243.5	Calcium/mineral buildup at joints - clean	Y
							253.9, 264.1	Calcium/mineral buildup at joints - clean	Y
		309	121.5	629	617	with	17.8, 47.2, 85.2	Calcium/mineral buildup at joints - clean	Y
							88.4, 112.5, 119.4	Calcium/mineral buildup at joints - clean	Y
							119.4	<camera unable to continue - remainder on Run 312>	N
		310	130.8	638	639	against	126.7, 127.9	Calcium/mineral buildup at joints - clean	Y
		311	320.0	628	629	with	81.5, 203.4	Calcium/mineral buildup at joints - clean	Y
							318.3	Crack just before manhole, not at joint - monitor	N
		312	121.3	629	617	against	-	<other half of Run 309>	N
							29.3, 42.9, 50.9	Calcium/mineral buildup at joints - clean	Y
							79.2, 89.8, 119.2	Calcium/mineral buildup at joints - clean	Y
		313	146.5	649	648	against	-		N
		314	271.0	648	643	with	264.8, 268.1	Calcium/mineral buildup at joints - clean	Y
		315	268.6	643	636	with	-	(Lots of white mineral deposits along crown of pipe)	N
							263.7	Calcium/mineral buildup at joints - clean	Y
							265.2	Cement blockage on bottom of pipe - remove	Y
		316	270.0	636	626	with	131.6, 138.4, 162.0	Calcium/mineral buildup at joints - clean	Y
							168.6, 185.5	Calcium/mineral buildup at joints - clean	Y
		317	320.5	647	642	against	-		N
		318	303.4	642	635	with	-		N
		319	302.7	635	625	with	299.1	Hair roots - remove	Y
		320	141.3	646A	646	against	56.7, 106.5, 113.5	Hair roots - remove	Y
		321	268.0	646	641	with	33.4, 36.9, 57.2	Hair roots - remove	Y
							60.4, 63.8	Hair roots - remove	Y
							67.1,70.4	Hair roots - remove	Y
							71.4	Substantial roots from lateral to 76.4 & 79.8 - remove	Y

REVIEW OF CCTV VIDEO TAPES

Tape	Date	Run	Total Length	Up MH	Down MH	Travel Direction	Footage	Comments	Immed. Action?
							86.3, 89.6, 93.1	Hair roots - remove	Y
							99.6, 112.2, 119.0	Hair roots - remove	Y
							132.6, 136.1, 139.3	Hair roots - remove	Y
							145.8, 149.3, 152.6	Hair roots - remove	Y
	1/11/01	322	272.8	641	634	with	131.7, 191.7	Calcium/mineral buildup at joints - clean	Y
							268.8	Calcium/mineral buildup at joint; infiltration - clean & repair	Y
		323	270.6	634	624	with	-		N
		324	356.1	622	612	against	37.3, 63.8	Streaks of black, tar-like substance along wall	N
		325	353.4	612	600	with	208.1	Full flow from lateral	N
							312.7, 329.6	Calcium/mineral buildup at joints - clean	Y
							349.9	Calcium/mineral buildup not at joint--crack?--clean & monitor	Y
		326	175.3	600	515	with	85.7	Protruding lateral connection - not hindering flow	N
							89.4, 96.1, 146.5	Calcium/mineral buildup at joints - clean	Y
							149.7, 153.0, 165.5	Calcium/mineral buildup at joints - clean	Y
							169.1, 172.6	Calcium/mineral buildup at joints - clean	Y
							172.6	<camera unable to continue>	N
		326A	20.8	600	515	against	11.7, 15.3, 18.6	Calcium/mineral buildup at joints - clean	Y
							18.6	<camera unable to continue>	N
		327	353.1	623	613	against	-		N
		328	349.6	613	601	with	13.3, 54.0, 57.6	Roots - remove	Y
							60.8, 64.1	Roots - remove	Y
							70.4, 74.2	Roots - remove	Y
							133.9; 160.2, 170.7	Heavy calcium/mineral deposits; crack? - clean & monitor	Y
							253.6, 264.2	Calcium/mineral buildup at joints - clean	Y
							347.7	Crack & glob - clean and monitor	Y
	SUBTOTAL =		7,617.7						
11	1/11/01	329	197.6	601	516	with	132.7, 155.0, 158.5	Calcium/mineral buildup at joints - clean	Y
							171.3, 175.4, 196.0	Significant mineral deposits - clean	Y
							-	<camera unable to continue - remainder unfilmed>	N
		330	201.8	505	510	against	-		N
		331	235.1	510	509	with	-		N
		332	236.4	509	508	with	-		N
		333	233.0	508	507	with	-		N
		334	236.5	507	506	with	-		N
	1/12/01	335	301.4	476	475	with	-		N
		336	265.4	474	473	with	98.3	Extensive roots & mineral buildup at joint - clean/remove	Y
							157.0	Calcium/mineral buildup at joint - clean	Y
		337	267.7	475	474	against	147.3	Hair roots (foggy, hard to see details) - remove	Y
		338	212.6	477	462	against	-		N
		339	237.5	462	461	with	174.9	Roots and calcium/mineral buildup at joint - clean/remove	Y
		340	234.9	461	460	with	-		N
		341	234.5	460	459	with	-		N
		342	233.1	459	458	with	177.7, 226.7	Calcium/mineral buildup at joints - clean	Y
							230.2	Black coating on top of pipe	N
		343	122.3	526	529	against	-		N
		344	265.5	529	528	with	-		N
		345	265.8	528	527	with	-		N
		346	268.0	527	500	with	-		N
		347	350.3	500	501	with	-		N
		348	335.4	501	502	against	-		N
		349	336.1	502	512	with	243.6	Calcium/mineral buildup at joint - clean	Y
		350	346.5	512	511	with	124.0	Calcium/mineral buildup at joint - clean	Y
	1/15/01	351	259.3	974	479	against	8.5, 250.3	Calcium/mineral buildup at joints - clean	Y
							254.6	Roots in lateral	N
		352	260.0	479	464	with	22.6, 26.4	Calcium/mineral buildup at joints - clean	Y
							58.3, 89.2	Calcium/mineral buildup at joints - clean	Y
		353	258.0	464	449	with	122.8, 126.3, 132.8	Calcium/mineral buildup at joints - clean	Y
							145.5, 169.1, 179.3	Calcium/mineral buildup at joints - clean	Y
							184.8, 191.0, 197.6	Calcium/mineral buildup at joints - clean	Y
							204.3, 245.8	Calcium/mineral buildup at joints - clean	Y
		354	262.7	503	480	against	-		N
		355	263.2	480	465	with	165.7	Roots (extend to lateral at 176.3) - remove	Y
							173.6	Roots in lateral	N
							176.3	Roots to/from lateral - remove	Y
		356	260.9	465	450	with	-		N
		357	119.0	492A	492	against	-		N
		358	351.3	492	481	with	-		N
		359	307.1	481	466	with	46.2, 99.4, 175.6	Calcium/mineral buildup at joints - clean	Y
							192.7	Mineral buildup around lateral perimeter--clean	Y
							208.0	Roots - remove	Y
							256.5	Roots in lateral	N
		360	304.6	466	451	with	94.2	Roots in lateral	N
							139.8, 198.9	Calcium/mineral buildup at joints - clean	Y
							202.2, 222.8	Calcium/mineral buildup at joints - clean	Y
							228.8, 238.9	Calcium/mineral buildup at joints - clean	Y

REVIEW OF CCTV VIDEO TAPES

Tape	Date	Run	Total Length	Up MH	Down MH	Travel Direction	Footage	Comments	Immed. Action?
							248.4, 302.7	Calcium/mineral buildup at joints - clean	Y
		361	309.5	482	467	with	-		N
		362	96.7	467	452	with	36.4, 39.8	Roots - remove	Y
							50.3	Calcium/mineral buildup at joint - clean	Y
							60.4	Roots and mineral buildup - remove/clean	Y
							94.4	Huge root mass at lateral - remove	Y
							-	<camera unable to continue due to roots>	N
		362A	217.1	467	452	against	159.3, 175.3, 189.2	Lots of roots at joints - remove	Y
							201.1	Long roots from lateral - remove	Y
							216.4	Huge root mass at lateral - remove	Y
							-	<camera unable to continue due to roots>	N
		363	182.8	493	494	against	-		N
		364	142.1	494	495	with	10.0, 24.0, 30.9	Calcium/mineral buildup at joints - clean	Y
							44.2, 61.0, 77.5	Calcium/mineral buildup at joints - clean	Y
							84.7, 87.8	Lots of roots at joints - remove	Y
		365	200.4	495	489	with	-		N
		366	247.5	491	490	with	11 to joint	Big crack on right - repair	[redacted]
							31.7, 44.9	Calcium/mineral buildup at joints - clean	Y
							52.0, 91.2	Calcium/mineral buildup at joints - clean	Y
		367	248.9	490	489	with	178.6, 207.1	Calcium/mineral buildup at joints - clean	Y
	SUBTOTAL =		9,908.5						
12	1/16/01	368	283.4	489	484	with	9.1, 245.3, 262.7	Calcium/mineral buildup at joints - clean	Y
							265.5, 279.5	Calcium/mineral buildup at joints - clean	Y
		369	302.4	496	497	against	200.2, 203.9, 207.0	Roots - remove	Y
							210.3, 220.2, 223.8	Roots - remove	Y
							226.7	Roots from lateral	N
							227.4	Roots - remove	Y
							230.4	Lots of roots from lateral - remove	Y
							234.0	Calcium/mineral buildup at joint - clean	Y
							280.4	(milky white flow from lateral, about 5% full)	N
		370	306.4	497	498	with	-		N
		371	325.8	498	484	with	209.0	Calcium/mineral buildup at joint - clean	Y
		372	267.8	484	485	with	174.7, 178.3	Calcium/mineral buildup at joints - clean	Y
		373	267.4	485	469	with	37.6	Crack on right - repair	[redacted]
							164.4	Calcium/mineral buildup at joint - clean	Y
							226.4	Sag? (pipe is 40-50% full to manhole) - monitor	N
		374	267.5	469	454	with	-	<pipe is 50% full to manhole>	N
		375	259.7	471	470	with	196.7, 213.8, 220.9	Calcium/mineral buildup at joints - clean	Y
							242.2, 249.3	Calcium/mineral buildup at joints - clean	Y
		376	258.9	470	469	with	3.2	Calcium/mineral buildup at joint - clean	Y
		377	259.9	472	471	against	-		N
		378	259.8	488	487	against	-		N
		379	261.2	487	486	with	125.8, 250.3, 257.5	Calcium/mineral buildup at joints - clean	Y
		380	258.3	486	485	with	168.0	Calcium/mineral buildup at joint; water infiltration - clean/repair	Y
							236.6, 246.7	Calcium/mineral buildup at joints - clean	Y
		381	270.9	386	385	against	-		N
		382	272.3	385	384	with	-		N
		383	273.1	384	383	with	-		N
	1/17/01	384	270.9	383	382	against	196.5	Calcium/mineral buildup at joint - clean	Y
		385	71.3	C/O	382	against	-		N
		386	280.9	382	394	with	145.8	Calcium/mineral buildup at joint - clean	Y
		387	86.5	394	409	with	38.9, 86.0	Calcium/mineral buildup at joints - clean	Y
							86.0	<camera unable to continue>	N
		387A	196.8	394	409	against	66.8, 121.5, 196.8	Calcium/mineral buildup at joints - clean	Y
							196.8	<camera unable to continue>	N
		388	52.7	409A	409	against	-		N
		389	281.3	409	410	with	23.7	Calcium/mineral buildup; water infiltration - clean and monitor	Y
							39.7, 176.6	Calcium mineral buildup (damp) at joints - clean	Y
							183.0, 186.1, 189.4	Calcium/mineral buildup at joints - clean	Y
							203.4, 206.8, 210.4	Calcium/mineral buildup at joints - clean	Y
							213.1, 229.6	Calcium/mineral buildup at joints - clean	Y
							236.6	Calcium/mineral buildup; water infiltration - clean and repair	Y
							273.9	Calcium/mineral buildup at joint - clean	Y
							279.4	Crack (not at joint) and mineral buildup - clean & repair	[redacted]
		390	351.5	395	396	with	233.6, 277.4	Calcium/mineral buildup at joints - clean	Y
		391	275.5	396	397	with	25.1, 42.3, 49.3	Calcium/mineral buildup at joints - clean	Y
							102.0, 105.2	Calcium/mineral buildup at joints - clean	Y
							278.0	Camera struggles at joints past 250, can't continue; offset? Monitor	N
		391A	78.7	396	397	against	78.5	<camera stops at same joint - can't tell if offset, pipe 40% full>	N
		392	232.3	398	397	against	54.9	Calcium/mineral buildup at joint - clean	Y
		393	200.5	397	412	with	71.1	Calcium/mineral buildup at joint - clean	Y
	1/18/01	394	232.5	412	411	against	-		N
		395	354.4	411	410	with	23.5, 44.2, 130.5	Calcium/mineral buildup at joints - clean	Y
							170.8, 250.8, 261.2	Calcium/mineral buildup at joints - clean	Y
							277.5, 283.2, 290.1	Calcium/mineral buildup at joints - clean	Y

REVIEW OF CCTV VIDEO TAPES

Tape	Date	Run	Total Length	Up MH	Down MH	Travel Direction	Footage	Comments	Immed. Action?
							293.6, 317.1, 320.6	Calcium/mineral buildup at joints - clean	Y
							330.4, 333.8	Calcium/mineral buildup at joints - clean	Y
							337.6, 350.4	Calcium/mineral buildup at joints; infiltration - clean & monitor	Y
		396	167.1	410	442	with	17.7, 31.6	Calcium/mineral buildup at joints - clean	Y
							88.6	Calcium/mineral buildup at joints; infiltration - clean & monitor	Y
							112.4, 158.6	Calcium/mineral buildup at joints - clean	Y
		397	217.6	440	441	with	-		N
		398	211.4	441	442	with	173.3	Calcium/mineral buildup at joint - clean	Y
		399	207.9	429	439	against	98.5	Calcium/mineral buildup at joints - clean	Y
		400	108.7	429C	429	against	-	water is backed up (30% full) to clean-out (10%) - monitor	N
								(flow seems stagnant, with a fair amount of waste)	-
		401	36.0	439C	439	against	-		N
		402	322.0	439	438	with	-	Periodic mineral buildup on sides and top w/ some thicker rings	N
		403	353.9	438	437	with	26.5, 308.0, 352.2	Calcium/mineral buildup at joints - clean	Y
		404	315.2	437	436	against	-	Some mineral buildup on sides and top of pipe	N
		405	100.8	436	434	with	-		N
		406	173.5	428C	428	against	94.7	Calcium/mineral buildup at joint - clean	Y
							-	Some mineral buildup on sides and top of pipe	N
	SUBTOTAL =		9,574.7						
13	1/18/01	407	199.6	428	427	with	127.6	Steady infiltration on left; mineral buildup - clean and monitor	Y
							131.1, 134.7	Calcium/mineral buildup at joints - clean	Y
		408	199.6	427	426	with	51.8, 62.0	Calcium/mineral buildup at joints - clean	Y
							137.3, 183.9	Calcium/mineral buildup at joints - clean	Y
		409	165.9	420	427	against	89.3	Calcium/mineral buildup at joint - clean	Y
		410	210.2	426	425	against	78.9	Calcium/mineral buildup at joint; infiltration - clean and monitor	Y
							110.3	Calcium/mineral buildup at joint - clean	Y
		411	354.9	419	425	against	75.8, 88.7, 134.0	Calcium/mineral buildup at joints - clean	Y
							205.6, 238.7	Calcium/mineral buildup at joints - clean	Y
		412	311.1	425	434	with	48.6, 65.2, 174.1	Calcium/mineral buildup at joints - clean	Y
							214.3, 217.9	Calcium/mineral buildup at joints - clean	Y
							231.8, 235.5	Calcium/mineral buildup at joints - clean	Y
	1/19/01	413	140.6	945	393	against	-		N
		414	352.4	393	406	with	317.1	Roots - remove	Y
		415	338.1	381	380	against	-		N
		416	338.0	380	379	with	176.0	Roots - remove	Y
		417	302.5	379	378	with	-		N
		418	300.3	378	377	with	-		N
		419	352.1	374	375	against	-		N
		420	84.7	374C	374	against	-		N
		421	353.1	375	376	with	11.0	Calcium/mineral buildup at joint - clean	Y
		422	207.5	376	377	with	148.6	Calcium/mineral buildup at joint - clean	Y
							198.3	Root at joint- remove	Y
							204.9	Calcium/mineral buildup at joint - clean	Y
							204.9	<camera unable to continue - remainder unfilmed>	N
		423	336.0	392	391	with	-		N
		424	353.7	389	390	with	225.8, 233.1, 236.5	Calcium/mineral buildup at joints - clean	Y
							242.4, 350.2	Calcium/mineral buildup at joints - clean	Y
		425	258.1	390	391	with	200.1	Calcium/mineral buildup at joint - clean	Y
							213.6	Roots and calcium/mineral buildup at joint - remove/clean	Y
							229.8, 238.9, 256.0	Calcium/mineral buildup at joints - clean	Y
							256.0	<camera unable to continue - remainder unfilmed>	N
		426	104.8	389C	389	against	48.4	Root at joint- remove	Y
		427	80.5	415C	415	against	-		N
		428	308.9	415	401	with	-		N
	1/20/01	429	269.8	401	402	with	133.2, 136.6	Roots at joints - remove	Y
		430	287.3	402	403	with	283.0	Calcium/mineral buildup at joint - clean	Y
		431	200.8	403	404	with	26.0, 36.5, 66.3	Calcium/mineral buildup at joints - clean	Y
		432	353.7	416	417	with	-		N
		433	302.4	388	400	against	-		N
		434	352.3	400	414	with	61.2	Roots in lateral	N
		435	352.7	414	421	with	-		N
		436	267.7	338	339	against	149.4	Roots in lateral	N
							166.8	Roots at joint - remove	Y
							182.5	Sudden jump in water level (backup from roots at next joint?)	N
							187.7	Roots at joint - remove	Y
							187.7 - end	Pipe is ~50% full, not moving much	N
		437	330.4	339	340	with	-		N
		438	315.0	340	341	with	-		N
		439	134.4	345C	345	against	80.2	Roots - remove	Y
		440	351.9	345	344	with	-		N
		441	237.6	344	343	against	-		N
		442	282.8	343	342	with	-		N
		443	231.4	342	341	with	-		N
		444	321.1	341	346	with	237.6	Minor crack - monitor	N

REVIEW OF CCTV VIDEO TAPES

Tape	Date	Run	Total Length	Up MH	Down MH	Travel Direction	Footage	Comments	Immed. Action?
	SUBTOTAL =		10,243.9						
14	1/27/01	445	154.3	277	276	against	-		N
		446	327.8	276	275	with	-		N
		447	330.9	275	274	with	-		N
		448	332.4	274	273	with	-		N
		449	129.0	322-C	322	against	-		N
		450	334.8	322	321	against	-		N
		451	341.5	321	320	with	-		N
		452	342.2	320	319	with	8.5	Minor calcium/mineral buildup (dry) at joint, no obstruction	N
		453	318.4	319-A	318	against	-		N
		454	86.6	319-C	319-A	against	-		N
		455	367.9	318	317	with	-		N
		456	352.1	317	316	with	39.3, 56.8, 67.3	Calcium/mineral buildup at joints - clean	Y
							203.5, 217.6	Calcium/mineral buildup at joints - clean	Y
							270.1, 273.5, 317.8	Calcium/mineral buildup at joints - clean	Y
		457	283.1	316	365	with	29.2, 108.5	Calcium/mineral buildup at joints - clean	Y
		458	280.7	319	316	against	-		N
		459	346.8	363	364	with	45.5, 171.3	Calcium/mineral buildup at joints - clean	Y
							214.4, 217.7	Calcium/mineral buildup at joints, protrusions - clean	Y
		460	303.2	364	365	with	16.6, 20.2, 175.5	Calcium/mineral buildup at joints - clean	Y
	2/3/01	461	300.9	268	267	against	269.9, 275.6	Roots at joints - remove	Y
							288.6	Roots in lateral	N
		462	301.2	267	266	with	-		N
		463	301.3	266	265	with	185.1	Calcium/mineral buildup at joint - clean	Y
							222.0, 246.9	Possible sag - pipe ~40% full - monitor	N
							298.1	Roots from lateral - remove	Y
							-	(Note: roots may be cause of "sag"--picture is murky from 222.0-end)	-
		464	235.9	309	308	against	111.3	Calcium/mineral buildup at joint - clean	Y
		465	282.1	308	306	with	-		N
		466	109.0	310-C	310-D	against	61.5, 71.2, 102.1	Calcium/mineral buildup at joints - clean	Y
		467	351.7	310-D	310-B	with	278.5	Roots at joint - remove	Y
		468	267.5	310-B	310-A	with	58.3, 105.9	Roots at joints - remove	Y
							113.9	Roots from lateral - remove	Y
							231.1	Possible sag - camera submerged, pipe ~40% full - monitor	N
							-	(Note: difficult to see cause of "sag"--picture is murky from 231.1-end)	-
		469	330.1	314	313	against	-		N
		470	353.8	313	312	with	-		N
		471	350.8	312	311	with	270.9	Calcium/mineral buildup at joint - clean	Y
							332.9	Roots at joint - remove	Y
		472	119.5	311-C	311	against	-		N
		473	286.5	311	310-A	with	168.9	Roots at joint - remove	Y
		474	41.8	310-A	310	with	-		N
		475	75.6	310	303	with	75.6	Large root at joint blocking camera - remove root	Y
		475-A	162.2			against	162.2	(Note: camera blocked due to same roots)	-
		476	129.6	359-C	359	against	-		N
		477	347.9	359	360	with	344.5	Calcium/mineral buildup at joint - clean	Y
	2/10/01	478	353.7	360	361	with	124.3, 260.7	Calcium/mineral buildup at joints - clean	Y
	SUBTOTAL =		9,332.8						
15	2/10/01	479	199.6	372	369	with	-		N
		480	125.9	331-C	331	against	-		N
		481	290.5	331	330	with	121.4, 124.8, 204.7	Roots at joints - remove	Y
							221.5, 272.9, 280.1	Roots at joints - remove	Y
							288.8	Large root mass at joint obstructing 1/2 of pipe - remove root	Y
		481-A	23.8	331	330	against	23.8	(Note: camera blocked due to same roots)	-
		482	255.2	330	329	with	13.7, 17.4, 20.7, 24.2	Roots at joints - remove	Y
		483	194.3	329	328	against	-		N
		484	174.3	328	325	with	-		N
		485	151.5	327-C	327	against	11.5	Water infiltration and related mineral deposits - clean	Y
							151.5	Debris at clean-out	N
		486	352.7	327	326	with	-		N
		487	352.3	326	325	with	58.5, 61.8	Calcium/mineral buildup at joints - remove	Y
		488	234.0	325	324	with	-		N
		489	221.8	324	323	with	-		N
		490	215.1	300	301	with	-		N
		491	210.8	301	302	with	-		N
		492	217.8	299	298	against	-		N
		493	210.2	298	296	with	-		N
		494	320.7	296	295	with	227.1, 230.6, 234.2	Roots at joints - remove	Y
							237.6, 244.6, 248.1	Roots at joints - remove	Y
							251.5, 262.4, 267.8	Roots at joints - remove	Y
							278.6, 281.6	Roots at joints - remove	Y
							285.1, 301.8	Roots at joints - remove	Y
		495	317.3	295	294	with	14.5, 18.1	Roots at joints - remove	Y

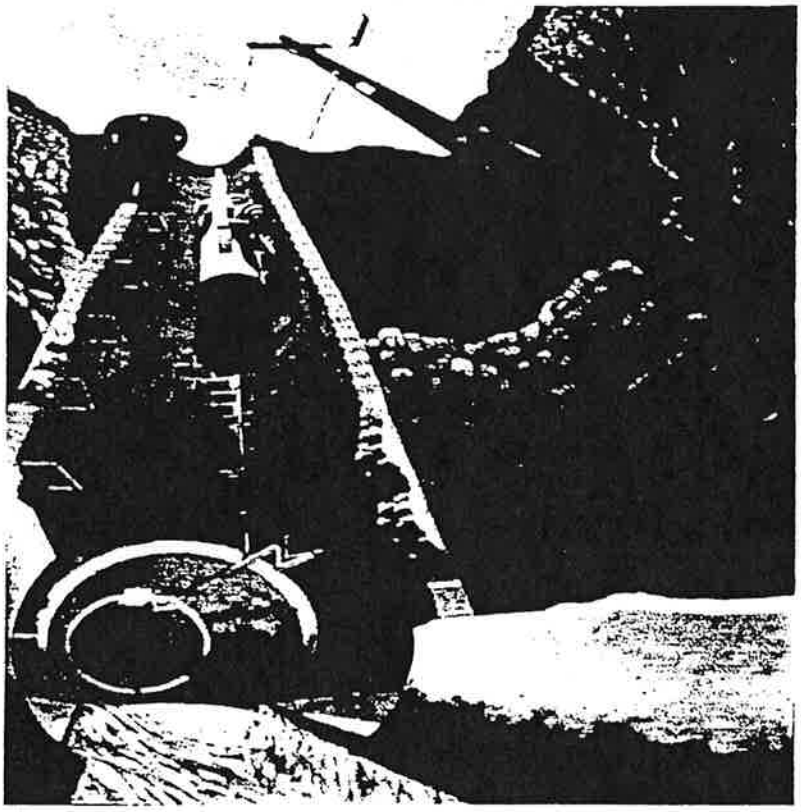
Rossmoor/Los Alamitos Area Sewer District

REVIEW OF CCTV VIDEO TAPES

Tape	Date	Run	Total Length	Up MH	Down MH	Travel Direction	Footage	Comments	Immed. Action?
	2/19/01	496	315.9	294	293	with	119.3	Roots at joints - remove	Y
							50-end	<Note: flow is low but milky white>	-
		497	303.0	293	292	with	start-135	<Note: flow is low but milky white>	-
		498	52.8	292	337	with	13.8, 20.4, 25.6, 29.0	Calcium/mineral buildup at joints - clean	Y
							35.7, 43.9, 47.9	Calcium/mineral buildup at joints - clean	Y
							52.8	Mineral buildup (40% blocked) at joint, camera blocked - clean	Y
							-	<Note: remaining portion of this reach was not filmed>	-
							start-50	<Note: milky white flow, about 50% full>	-
		499	90.7	337	336	with	9.3, 38.2, 42.4	Calcium/mineral buildup at joints - remove	Y
							87.8	Mineral buildup (1" protrusion) at joint, camera blocked - clean	Y
							-	<Note: remaining portion of this reach was not filmed>	-
							-	<Note: milky white flow, about 50% full>	-
		500	242.3	895	894	against	-		N
		501	206.4	897	901	with	-		N
		502	284.0	897	896	with	200.5	Single crack on left and right of lateral - monitor	N
		503	240.0	896	895	with	132.5, 192.9	Roots at joints - remove	Y
		504	172.0	899	898	with	24.4, 34.5, 51.2, 52.6	Roots at joints - remove	Y
							57.4 to 140.7	Roots at joints and along walls - remove	Y
	2/24/01	505	381.6	822	819	against	-		N
		506	279.3	819	797	with	54.7	Pressure flow from lateral	N
							203.6, 206.7	Calcium/mineral buildup at joints - remove	Y
							210.2, 214.4	Calcium/mineral buildup at joints - remove	Y
							218.5, 256.2	Calcium/mineral buildup at joints - remove	Y
		507	350.9	939	940	against	200-end	<Note: couldn't see clearly--pipe foggy>	N
		508	18.3	940	971	with	-		N
		509	309.9	941	940	against	-		N
		510	312.4	942	941	with	-		N
		511	309.1	943	942	against	-		N
		512	324.3	965	966	against	-		N
		513	309.4	966	967	with	-		N
		514	253.6	833	834	against	-		N
		515	332.2	834	835	with	145.6	Small crack at joint - monitor	N
							179.3	Pencil at joint (perpendicular to flow)	N
		516	49.1	835	835-A	with	-		N
		517	155.5	900	903	against	-		N
		518	263.2	899	900	against	-		N
	SUBTOTAL =		9,623.7						
16	2/24/01	519	281.8	903	904-A	with	-		N
		520	282.1	904-A	909	with	-		N
		521	98.8	904	903	against	-		N
		522	166.3	909	912	against	-		N
	2/27/01	523	-	820	821	against	10.1	Small crack at joint - monitor	N
							305.0	Rock in pipe - camera unable to continue	N
							-	<Note: reach re-filmed in Run 532>	-
		(524)	384.5	821	820	with	350.0	<Note: quick rise to about 50% flow - yellow, somewhat stagnant flow>	-
							375.0	<Note: quick drop back to about 10% flow shortly before manhole>	-
		525	194.3	931	930	against	26.1, 31.6, 44.2	Roots at joints - remove	Y
							51.0	Roots in lateral, starting to enter main - remove	Y
							190-end	Root or pipe, starting at top of manhole, bending into main - remove	Y
		526	179.0	930	929	with	-		N
		527	163.5	926	927	with	-		N
		528	249.5	927	928	against	-		N
		529	286.3	928	929	with	154.6	Roots at joint - remove	Y
	2/28/01	530	133.0	929	trunkline	with	-	<Note: trunkline at least half full>	N
		531	108.6	314-C	314	against	-		N
		532	396.2	820	821	against	10.8	Small cracks at joint (also noted in Run 523)	N
							-	<Note: rock in Run 523 no longer present, maybe downstream?>	-
		533	219.6	417	418	with	86.1, 89.5, 92.9	Roots at joints - remove	Y
							100.0, 103.2	Roots at joints - remove	Y
							107.0, 110.5	Roots at joints - remove	Y
							114.6	Calcium/mineral buildup at joint - clean	Y
							160.2	Roots and steady water infiltration at joint - remove & monitor	Y
		534	106.3	883	882	with	-		N
		535	110.3	913	914	with	-		N
		536	233.3	918-C	918-B	against	191.6	Large root mass at joint - remove	Y
		537	62.3	918-B	918-A	with	-		N
	SUBTOTAL =		3,655.7						

Total (tapes 1-16) = 143,191.4

Rossmoor/Los Alamitos Area Sewer District



Temporary Flow Monitoring Study
March 4, 2001 - March 10, 2001

Prepared for:
Boyle Engineering
1501 Quail Street
Newport Beach, CA 92660-2726

Prepared by:

ADS
ENVIRONMENTAL SERVICES

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LIST OF FIGURES AND TABLES

CHAPTER 1 Executive Summary

Boyle Engineering contracted with ADS Environmental Services to conduct flow monitoring at five (5) locations in Los Alamitos, California for a total of seven (7) consecutive days.

The following tasks were requested by Boyle Engineering and were performed by ADS Environmental Services:

- Investigate five (5) locations for suitable hydraulic conditions.
- Install temporary flow monitors at five (5) locations.
- Perform flow monitoring for a total of seven (7) days.
- Calculate flows at the five (5) sites and present results in a report.

ADS Environmental Services investigated the five (5) locations where flow monitoring was requested on March 2, 2001. Satisfactory conditions were found and all of the sites were installed by March 3, 2001. Seven consecutive days of flow monitoring was conducted from March 4, 2001 through March 10, 2001. The monitors were removed on March 17, 2001. A detailed description of these processes is presented in Section 3.3 of this report. The seven (7) days of flow monitoring data was used to calculate flow quantities for the sites. An explanation of the process used to quantify flows is described in Chapters 3 and 4 of this report. A summary of the data is presented in Table 1.1 and in Figure 1.1.

Table 1.1 Depth and Flow Summary by Site
Data presented at a 5 minute sample rate

Los Alamitos Area Sewer District
Flow Summary

	LA01	LA02	LA03	LA04	LA05
Pipe Diam. (in.)	18.00"	17.45"	8.00"	12.00"	8.00"
Total Flow (mg.)	5.504	1.882	0.667	2.782	0.190
Min Flow (MGD)	0.355	0.123	0.036	0.184	0.006
Avg Flow (MGD)	0.786	0.269	0.103	0.479	0.027
Max Flow (MGD)	1.564	0.766	0.231	0.630	0.058

CHAPTER 2 Introduction

2.1 Background

Boyle Engineering contracted with ADS Environmental Services to provide flow monitoring at five (5) locations in Los Alamitos, California. The objective of this study was to measure depth and velocity and to quantify flows.

2.2 Project Scope

The scope of this study involved using temporary flow monitors to quantify wastewater flow at five (5) locations in Los Alamitos, California for seven (7) consecutive days. Specifically, the study included the following key components.

- Investigate the proposed flow monitoring sites for adequate hydraulic conditions.
- Flow monitor installations.
- Flow monitor calibrations and data collections.
- Flow data analysis.

CHAPTER 3 Equipment and Methodology

3.1 Flow Quantification Methods

There are two main equations used to measure open channel flow; the Continuity equation and the Manning's equation. The Continuity equation, which is considered the most accurate, can be used if both depth of flow and velocity are available. The Manning's equation only requires depth of flow and certain physical characteristics of the pipe. A more detailed discussion of each equation follows.

3.1.1 Continuity Equation

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

$$Q = A * V$$

This equation is accurate in adverse conditions including surcharge, silt build up, and settling pipes and is used in this analysis. Most modern flow monitoring equipment, including the ADS Models, measure both depth and velocity and therefor use the Continuity equation to calculate flow.

3.1.2 Manning's Equation

Manning's equation states the following:

$$Q = 1.486 * A * Rh^{2/3} * s^{1/2} / n$$

Where,

Q = flow rate

A = wetted area

s = slope of the hydraulic grade line (ideally equal to slope of pipe)

n = roughness factor for the pipe

Rh = hydraulic radius (wetted area / wetted perimeter)

Values of s and n can be approximated using "As Built" drawings or an equivalent ratio developed through a series of field calibrations.

Although Manning's equation has been a traditional method of flow quantification, it requires free and unobstructed flow. Therefore, Manning's equation may not be suitable for sites with pump station influence, surcharge, silt buildup, or a variety of other factors.

3.2 Flow Monitoring Equipment

The monitor selected for this project was the ADS Model 1500-flow monitor. The 1500 is an area velocity flow monitor that uses both the Continuity and Manning's equations to measure flow.

The ADS Model 1500-flow monitor consists of data acquisition sensors and a battery powered microcomputer. The microcomputer includes a processor unit, data storage, and an on-board clock to control and synchronize the sensor recordings. The monitor was programmed to acquire and store depth of flow and velocity readings at 5-minute intervals. A laptop computer was used in the field to retrieve and store data from the monitor.

Three types of data acquisition sensors are available for Model 1500 flow monitor. The primary depth measurement device is the ADS quad-redundant ultrasonic level sensor. This sensor uses four independent ultrasonic transceivers in pairs to measure the distance from the face of the transceiver housing to the water surface (air range) with up to four transceiver pairs, of the available twelve, active at one time. The elapsed time between transmitting and receiving the ultrasonic waves is used to calculate the air range between the sensor and flow surface based on the speed of sound in air. Sensors in the transceiver housing measure temperature, which is used to compensate the ultrasonic signal travel time. The speed of sound will vary with temperature. Since the ultrasonic level sensor is

mounted out of the flow, it creates no disturbance to normal flow patterns and does not affect site hydraulics.

Redundant flow depth data, independent from the ultrasonic level sensor, can be provided by a pressure depth sensor. This sensor uses a piezo-resistive crystal to determine the difference between hydrostatic and atmospheric pressure. The pressure sensor is temperature compensated and vented to the atmosphere through a desiccant filled breather tube. Pressure depth sensors are typically used in larger size channels and applications where surcharging is anticipated. Its streamlined shape minimizes flow distortion.

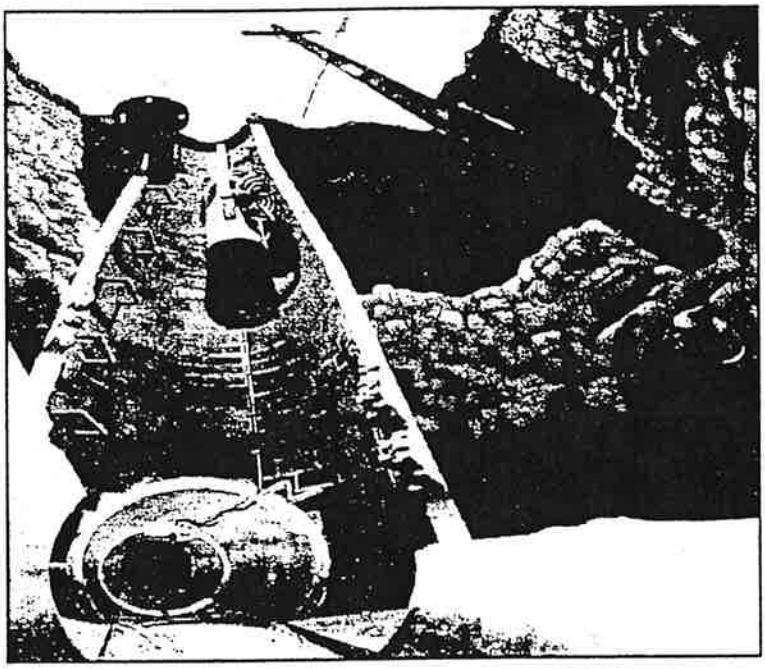
Velocity is measured using the ADS V-3 digital Doppler velocity sensor. This sensor measures velocity in the cross-sectional area of flow. An ultrasonic carrier is transmitted upstream into the flow, and is reflected by suspended particles, air bubbles, or organic matter with a frequency shift proportional to the velocity of the reflecting objects. The reflected signal is received by the sensor and processed using digital spectrum analysis to determine the peak flow velocity. Collected peak velocity information is filtered and processed using field calibration information and QuadraScan® software to determine the average velocity, which is used to calculate flow quantities. The sensor's small profile, measuring 1.5 inches by 1.125 inches by 0.50 inches thick, minimizes the affects on flow patterns and site hydraulics.

3.3 Installation

Installation of flow monitoring equipment typically proceeds in four steps. First, the site is investigated for safety and to determine physical and hydraulic suitability for the flow monitoring equipment. Second, the equipment is physically installed at the selected location. Third, the monitor is tested to assure proper operation of the velocity and depth of flow sensors and verify that the monitor clock is operational and synchronized to the master computer clock. Fourth, the depth and velocity sensors are confirmed and line calibrations are performed. A typical Model 1500 flow monitor installation is shown in Figure 3.1.

The installation presented in Figure 3.1 is typical for circular or oval pipes up to approximately 42-inches in diameter or height. In this type of installation, depth and velocity sensors are mounted on an expandable ring and installed one to two pipe diameters upstream of the pipe/manhole connection in the incoming sewer pipe. This reduces the affects of turbulence and backwater caused by the connection. This type of installation was used on this project.

Figure 3.1 Typical Installation



3.4 Data Collection, Calibration, and Quality Assurance

During the monitoring period, field crews visit each monitoring location on a weekly basis to retrieve data, verify proper monitor operation, and document field conditions. The following quality assurance steps are taken to assure the integrity of the data collected:

- **Measure Power Supply:** The monitor is powered by a dry cell battery pack. Power levels are recorded and battery packs replaced, if necessary. A separate battery provides back-up power to memory, which allows the primary battery to be replaced without the loss of data.

- **Perform Pipe Line Calibrations and Confirm Depth and Velocity:** During each site visit, a field crew member descends into the manhole to perform a field measurement of flow rate, depth and velocity to confirm they are in agreement with the monitor. Since the ADS V-3 velocity sensor measures peak velocity in the wetted cross-sectional area of flow, velocity profiles are also taken to develop a relationship between peak and average velocity in the line.

- **Measure Silt Level:** During each site visit, a member of the field crew descends into the manhole and measures and records the depth of silt at the bottom of the pipe. This data is used to compute the true area of flow.

- **Confirm Monitor Synchronization:** The field crew checks the flow monitor's clock for accuracy.

- **Upload and Review Data:** Data collected by the monitor is uploaded and reviewed for comparison with previous data. All readings are checked for consistency and screened for deviations in the flow patterns, which indicate system anomalies or equipment failure.

CHAPTER 4 Data Analysis and Presentation

4.1 Data Analysis

A flow monitor is programmed to collect data at 15 minute intervals throughout the monitoring period. The monitor stores raw data consisting of (1) the air range (distance from sensor to top of flow) for each active ultrasonic depth sensor pair and (2) the peak velocity. If the monitor is equipped with a pressure sensor, then a depth reading from this sensor is also stored. When the data is collected by the field personnel, typically using ADS's FieldScan® software, the air range is converted to depth data based on the pipe height and physical offset (distance from the top of the pipe to the surface of the ultrasonic sensor). The data is imported into ADS's QuadraScan® software and is examined by a data analyst to verify its integrity. Daily field reports and site visit records are reviewed by the data analyst to identify conditions that would affect the collected data.

Velocity profiles and line calibration data developed by the field personnel are reviewed by the data analyst to identify inconsistencies and verify its integrity. Velocity profiles are reviewed and an average to peak velocity ratio is calculated for the site. This ratio is used in converting the peak velocity measured by the sensor to the average velocity used in the Continuity equation. A hydraulic coefficient (HC) is calculated from the data for each line calibration. This hydraulic coefficient is the ratio of the coefficients s and n, previously discussed in the presentation of Manning's equation (section 3.1.2).

The data analyst selects which ultrasonic sensor pairs will be used to calculate the average ultrasonic depth information. Silt levels present at each site visit are reviewed and representative silt levels established.

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

4.2 Data Presentation

This type of flow monitoring project generates a large volume of data. To facilitate review of the data, results have been provided in graphical and tabular formats. The flow data is presented graphically in the form of wastewater flow hydrographs. These hydrographs depict the collected data plotted 7 days per page. The hydrographs facilitate visual inspection of diurnal flow patterns.

Tables are provided in daily and 15-minute averages. These tables show the flow rate for each day, along with the daily minimum and maximums, the times they were observed, the total daily flow, and total flow for the month (or monitoring period). The following explanation of terms may aid in interpretation of the tables and hydrographs:

AMMIN FLW – The MIN FLOW observed during the a.m. hours (in MGD)

AVGUDEPTH – Average ultrasonic depth measurement (in inches)

HYDRAULIC COEFF (HC) – Calibrated factor for use in the Manning equation

MAX FLOW – The maximum observed flow rate during the reporting period (in MGD)

MIN FLOW – The minimum observed flow rate during the reporting period (in MGD)

QFINAL – Final calculated flow rate (in MGD)

TABLE – Data used to convert depth and velocity information to flow rate

TOT FLOW – Total volume of flow recorded for the indicated time period (in MG)

4.3 Flow Monitoring Accuracy

Sensor accuracy for the ADS quad-redundant level sensor is +/- 1/8" for smooth flow surfaces with no surface waves. Turbulent hydraulic conditions and surface waves will result in greater variability, since the sensor can measure the crest or trough of a wave as readily as it can the

average depth. Since each stored sensor reading is the result of 4 individual measurements, some reduction in error is obtained. Calibration of the level sensor is also limited by the accuracy with which field personnel can measure the true flow depth. Depth correlations between monitor and field readings were generally +/- 1/4" throughout this project, after applying the "zero" adjustment to the monitor data.

Sensor accuracy for the ADS V-3 digital doppler velocity sensor is normally stated as a percentage of the sensor's full scale of 20 fps (based on a total range of –5 to 15 fps), and varies with the peak velocity range. For peak velocities between 0 and 5 feet per second, the accuracy is +/- 1.0% of full scale, or +/- 0.2 feet per second. For peak velocities between 5 and 10 feet per second, the accuracy is +/-1.5% of full scale, or +/- 0.3 feet per second. All peak velocity readings in this study are within these ranges.

CHAPTER 5 Flow Monitoring Results

Wastewater flow was monitored from March 4, 2001 through March 10, 2001 at five (5) locations in Los Alamitos, California. The flow monitors were removed on March 17, 2001. The flow monitor recorded depth and velocity and was used to calculate flow quantities on 5-minute sample rates. These samples were then used to calculate 15-minute flow quantities.

Sites 1 and 5 experienced mechanical failure during the first week of the study. The flow monitors were left in the pipes and collected data from March 10 through March 16, 2001 to compensate for the data loss.

Detailed flow results are presented in Appendix "A" of this report. The Appendix includes site sheets giving exact locations and conditions of the sites. Flow data is presented in tabular format (daily and 15-minute averages) and in graphical format (weekly hydrographs of 60-minute depth, velocity, and flow quantities).

Appendix "A"

Site Report

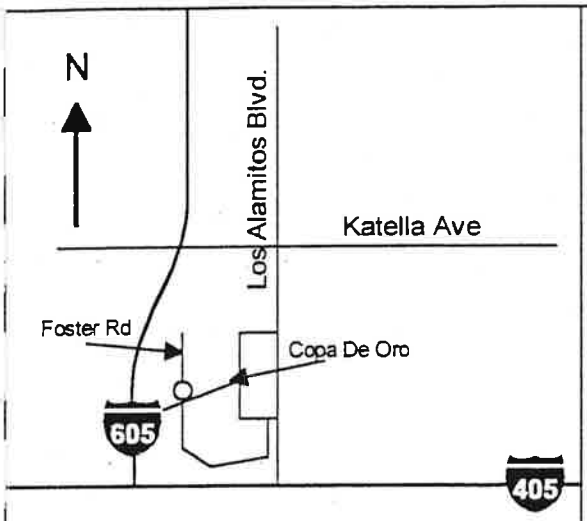
ADS ENVIRONMENTAL SERVICES

Site	Book # / MH #
LA01	MH 435

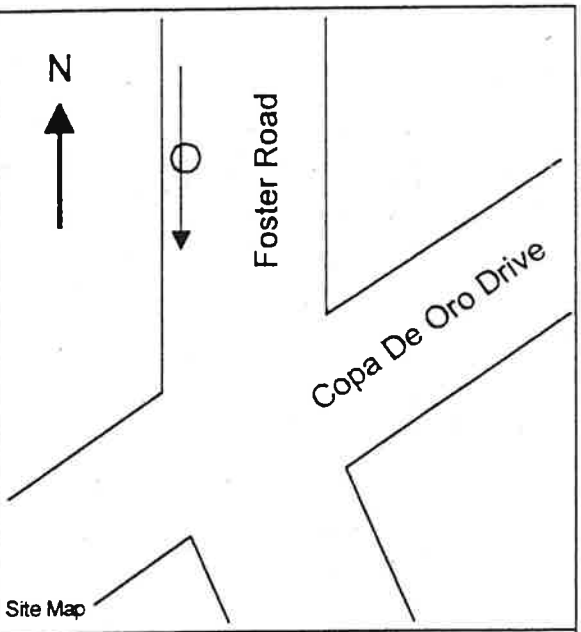
Project/Phase: Boyle, Los Alamitos | **Installed:** 3/09/01 | Diameter: 18.00" x 17.75" | ADS Job #: 11814.11

Address / Location: 12591 Foster Road North of Copa De De Oro Road. | **Initials:** NV

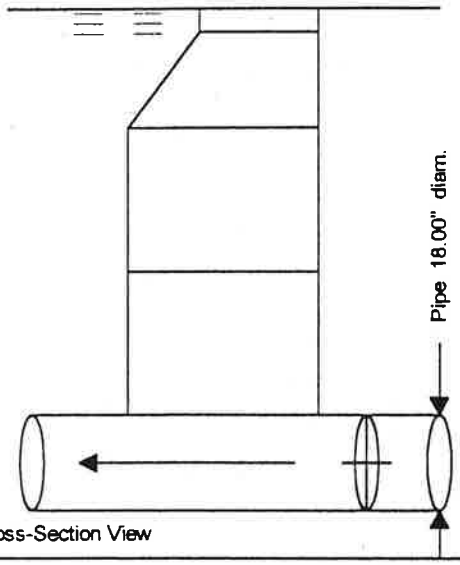
Access: Drive | **Landmark:**



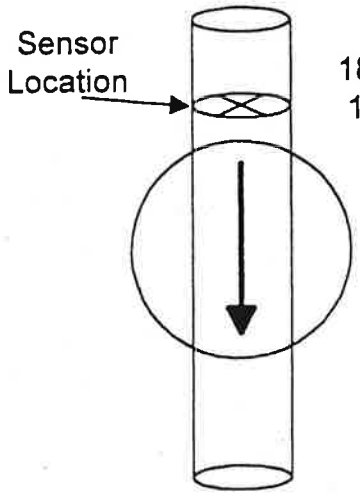
Access Map



Site Map



Cross-Section View



Plan View

Drawings Not to Scale

Installation
Stainless steel ring with ultrasonic and velocity sensors.

Safety
Good, light traffic

Gas Investigation

O2	20.9	%
H2S	0	ppm
CO	1	ppm
LEL	0	%

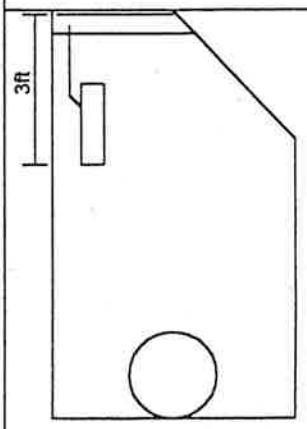
Traffic
Light

Pipe Material
VCP

Manhole Depth

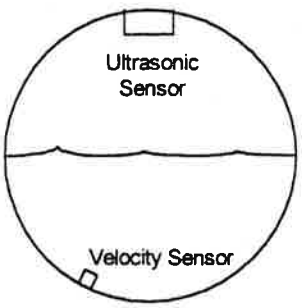
Pipe and M.H. Condition
Pipe and M.H. in good condition.

Manhole Profile



Show Any Defects

Pipe Profile



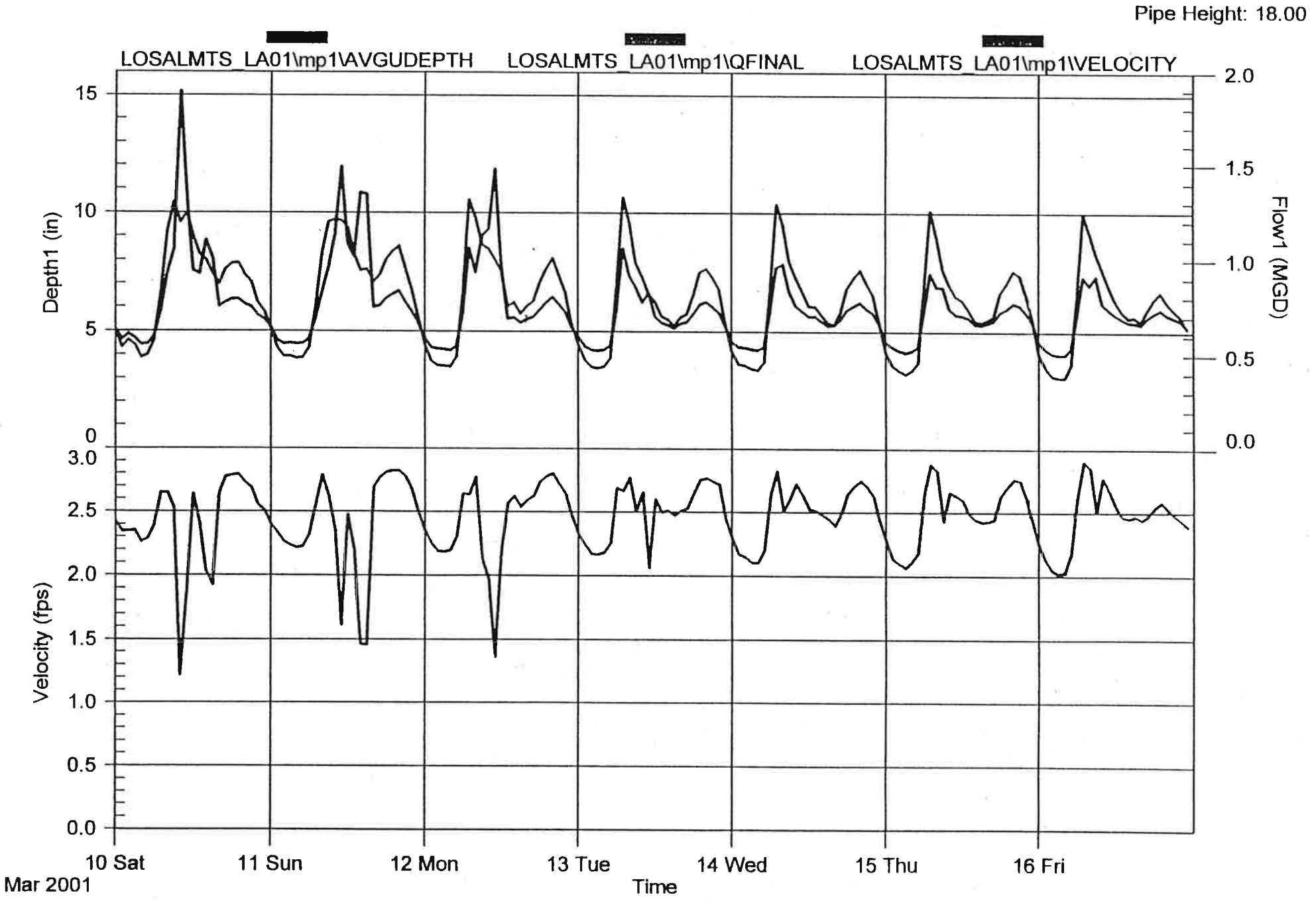
Show Sensor Locations

Hydraulics

Flow surface mostly smooth (+/- 0.25"). Flow moves well through pipe and invert. Line is in backup occasionally during the day due to pump station activity downstream.

Surcharge :	Yes		Height :	2.0' above crown	
Time 11:40	DOF 14.0"	+/- 0.25"	Velocity 1.20 fps	Silt 0.00"	

ADS Environmental Services



ADS Environmental Services

Flow Summary

Pipe Height 18.00

	LOSALMTS_LA01\mp1\AVGUDEPTH (inches)					LOSALMTS_LA01\mp1\VELOCITY (feet/sec)					LOSALMTS_LA01\mp1\QFINAL (MGD)					
Date	Time	Min.	Time	Max.	Average	Time	Min.	Time	Max.	Average	Time	Min.	Time	Max.	Average	Total
3/10/01	4:35	4.3	10:15	16.3	6.7	10:20	0.9	20:20	3.0	2.4	4:45	0.467	10:25	1.564	0.863	0.863
3/11/01	4:40	4.3	10:55	16.3	6.7	10:55	0.9	19:25	2.9	2.4	4:35	0.457	11:15	1.519	0.856	0.856
3/12/01	4:40	4.1	11:40	13.8	6.2	11:35	1.0	18:10	3.0	2.4	3:05	0.421	7:45	1.496	0.802	0.802
3/13/01	4:15	4.1	7:30	10.8	5.6	11:15	0.8	6:50	2.9	2.5	3:30	0.410	7:45	1.421	0.761	0.761
3/14/01	4:50	4.2	8:50	8.7	5.6	9:00	1.6	7:10	3.0	2.5	4:55	0.408	7:35	1.388	0.755	0.755
3/15/01	3:20	4.1	9:30	8.2	5.5	9:30	2.0	6:55	3.0	2.5	2:55	0.392	7:35	1.358	0.743	0.743
3/16/01	4:35	4.0	9:15	9.9	5.5	3:45	1.9	7:05	3.0	2.4	3:45	0.355	7:45	1.310	0.724	0.724
ReportAvg					6.0					2.4					0.786	
ReportTotal																5.504

LOSALMTS_LA01\mp1\AVGUDEPTH (inches):Dep
LOSALMTS_LA01\mp1\QFINAL (MGD):Flow

LOSALMTS_LA01\mp1\VELOCITY (feet/sec):Ve

	Saturday 3/10/01			Sunday 3/11/01			Monday 3/12/01			Tuesday 3/13/01			Wednesday 3/14/01			Thursday 3/15/01			Friday 3/16/01		
	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow
12:00	7.3	2.7	1.149	9.7	2.0	1.231	11.0	1.5	1.052	5.7	2.6	0.803	5.8	2.6	0.830	5.7	2.7	0.830	5.9	2.7	0.865
12:15	6.8	2.9	1.123	7.4	2.7	1.177	8.1	1.9	0.932	5.6	2.6	0.773	5.7	2.5	0.762	5.7	2.6	0.793	5.8	2.5	0.791
12:30	7.9	2.7	1.110	7.8	2.8	1.083	6.2	2.6	0.896	5.6	2.6	0.785	5.5	2.5	0.716	5.7	2.5	0.762	5.7	2.5	0.759
12:45	8.0	2.3	1.115	9.5	2.4	1.172	5.8	2.7	0.859	5.5	2.6	0.754	5.5	2.5	0.726	5.6	2.5	0.760	5.6	2.5	0.730
13:00	7.6	2.4	1.091	8.0	2.3	1.104	5.6	2.6	0.792	5.4	2.5	0.703	5.7	2.5	0.755	5.6	2.5	0.766	5.6	2.5	0.760
13:15	7.5	2.5	1.046	7.9	2.2	1.053	5.5	2.6	0.756	5.3	2.5	0.701	5.6	2.6	0.781	5.6	2.5	0.744	5.6	2.5	0.753
13:30	7.1	2.4	0.997	8.7	2.1	0.984	5.4	2.6	0.731	5.4	2.4	0.693	5.6	2.5	0.742	5.5	2.4	0.718	5.5	2.4	0.699
13:45	7.4	2.3	0.970	8.0	2.1	0.971	5.5	2.5	0.728	5.3	2.6	0.712	5.6	2.5	0.744	5.5	2.5	0.719	5.5	2.4	0.709
14:00	7.5	2.5	0.986	10.7	1.6	0.990	5.5	2.6	0.778	5.3	2.5	0.698	5.5	2.5	0.731	5.4	2.4	0.686	5.4	2.5	0.700
14:15	7.4	2.2	0.957	8.3	2.0	0.958	5.6	2.6	0.790	5.3	2.5	0.699	5.4	2.4	0.680	5.2	2.4	0.654	5.6	2.5	0.747
14:30	9.8	1.7	0.958	11.2	1.2	0.897	5.5	2.6	0.751	5.2	2.5	0.687	5.4	2.5	0.703	5.4	2.4	0.678	5.4	2.4	0.689
14:45	10.5	1.7	1.082	13.1	1.1	0.926	5.5	2.6	0.775	5.2	2.5	0.669	5.5	2.5	0.723	5.3	2.5	0.702	5.3	2.4	0.660
15:00	7.7	2.0	0.926	13.1	1.1	0.928	5.6	2.5	0.752	5.2	2.5	0.663	5.4	2.5	0.721	5.5	2.5	0.711	5.3	2.5	0.687
15:15	9.0	1.6	0.933	12.3	1.1	0.931	5.4	2.6	0.745	5.2	2.5	0.661	5.2	2.4	0.644	5.3	2.4	0.662	5.5	2.5	0.731
15:30	8.4	1.8	0.941	10.0	1.6	1.014	5.2	2.5	0.687	5.1	2.5	0.642	5.2	2.5	0.659	5.2	2.4	0.642	5.4	2.4	0.684
15:45	6.9	2.2	0.882	7.7	2.0	0.921	5.2	2.5	0.671	5.1	2.5	0.648	5.2	2.4	0.654	5.3	2.4	0.671	5.4	2.5	0.703
16:00	6.1	2.6	0.868	6.2	2.6	0.899	5.4	2.5	0.713	5.3	2.5	0.683	5.3	2.4	0.668	5.4	2.4	0.686	5.2	2.4	0.658
16:15	5.9	2.6	0.853	6.0	2.7	0.885	5.5	2.6	0.775	5.4	2.6	0.718	5.2	2.4	0.653	5.5	2.4	0.704	5.2	2.4	0.654
16:30	6.0	2.6	0.870	5.9	2.7	0.861	5.6	2.6	0.785	5.3	2.5	0.691	5.2	2.4	0.658	5.4	2.5	0.699	5.4	2.5	0.700
16:45	6.0	2.7	0.889	5.9	2.8	0.883	5.5	2.5	0.739	5.4	2.5	0.701	5.3	2.4	0.655	5.3	2.4	0.653	5.4	2.5	0.700
17:00	6.1	2.7	0.929	6.0	2.8	0.910	5.5	2.6	0.760	5.4	2.5	0.706	5.4	2.4	0.702	5.4	2.5	0.716	5.4	2.5	0.704
17:15	6.1	2.7	0.913	6.0	2.8	0.911	5.6	2.7	0.811	5.3	2.5	0.687	5.3	2.4	0.667	5.5	2.4	0.702	5.5	2.4	0.690
17:30	6.2	2.8	0.967	6.1	2.8	0.927	5.6	2.6	0.782	5.3	2.5	0.700	5.5	2.5	0.733	5.4	2.4	0.690	5.7	2.5	0.779
17:45	6.3	2.8	0.993	6.2	2.7	0.935	5.6	2.5	0.765	5.5	2.6	0.764	5.8	2.6	0.805	5.5	2.4	0.710	5.7	2.5	0.783
18:00	6.2	2.8	0.956	6.2	2.7	0.946	5.8	2.7	0.865	5.6	2.5	0.757	5.8	2.6	0.810	5.6	2.5	0.754	5.7	2.5	0.781
18:15	6.1	2.7	0.912	6.4	2.8	1.021	5.9	2.7	0.874	5.6	2.6	0.770	5.9	2.7	0.858	5.8	2.7	0.847	5.8	2.5	0.791
18:30	6.4	2.8	1.002	6.4	2.8	1.011	5.9	2.7	0.884	5.8	2.7	0.846	5.9	2.6	0.856	5.9	2.7	0.876	5.8	2.6	0.819
18:45	6.5	2.8	1.047	6.4	2.9	1.031	5.9	2.8	0.892	5.9	2.8	0.896	6.0	2.7	0.877	5.8	2.6	0.826	5.8	2.5	0.779
19:00	6.5	2.9	1.058	6.4	2.8	1.001	6.1	2.7	0.925	6.0	2.6	0.869	6.0	2.7	0.875	5.9	2.6	0.842	5.9	2.6	0.813
19:15	6.3	2.8	0.991	6.5	2.9	1.058	6.2	2.8	0.947	6.1	2.8	0.940	6.1	2.7	0.918	6.0	2.7	0.887	5.9	2.6	0.845
19:30	6.2	2.8	0.958	6.6	2.8	1.061	6.1	2.8	0.941	6.2	2.8	0.954	6.1	2.7	0.895	5.9	2.7	0.855	5.9	2.5	0.821
19:45	6.1	2.7	0.918	6.6	2.8	1.056	6.3	2.8	0.994	6.2	2.8	0.978	6.2	2.7	0.935	6.0	2.8	0.919	5.9	2.6	0.841
20:00	6.1	2.7	0.901	6.6	2.8	1.058	6.4	2.7	0.982	6.2	2.8	0.942	6.2	2.8	0.944	6.1	2.8	0.930	5.7	2.6	0.791
20:15	6.1	2.8	0.953	6.8	2.8	1.111	6.4	2.8	1.015	6.2	2.8	0.964	6.2	2.8	0.945	6.2	2.8	0.945	5.7	2.5	0.776
20:30	6.1	2.7	0.921	6.8	2.8	1.087	6.4	2.8	1.011	6.3	2.7	0.960	6.3	2.7	0.957	6.3	2.8	0.969	5.7	2.5	0.775
20:45	6.1	2.7	0.893	6.4	2.8	1.025	6.4	2.8	1.021	6.1	2.8	0.952	6.2	2.7	0.938	6.1	2.7	0.930	5.7	2.5	0.770
21:00	6.1	2.7	0.892	6.2	2.7	0.952	6.3	2.8	0.975	6.0	2.7	0.890	6.1	2.7	0.900	6.1	2.8	0.936	5.6	2.5	0.753
21:15	6.0	2.7	0.894	6.2	2.8	0.965	6.1	2.7	0.924	6.1	2.8	0.933	5.9	2.7	0.859	6.1	2.8	0.927	5.6	2.5	0.760
21:30	6.0	2.7	0.868	6.1	2.8	0.953	6.1	2.7	0.910	6.1	2.7	0.925	5.9	2.7	0.874	6.1	2.7	0.910	5.6	2.5	0.730
21:45	5.9	2.7	0.862	6.2	2.7	0.947	5.9	2.6	0.852	5.9	2.7	0.872	5.9	2.7	0.874	6.1	2.7	0.910	5.5	2.4	0.706
22:00	5.7	2.5	0.764	6.0	2.7	0.883	5.9	2.6	0.834	5.9	2.8	0.896	5.9	2.7	0.877	5.9	2.7	0.870	5.4	2.4	0.693
22:15	5.6	2.6	0.770	5.8	2.7	0.845	5.8	2.7	0.846	5.8	2.7	0.861	5.8	2.6	0.824	5.9	2.7	0.857	5.5	2.4	0.710
22:30	5.7	2.6	0.774	5.7	2.7	0.834	5.8	2.6	0.828	5.8	2.7	0.844	5.7	2.6	0.801	5.7	2.5	0.769	5.4	2.4	0.698
22:45	5.6	2.6	0.771	5.7	2.6	0.800	5.7	2.6	0.788	5.6	2.6	0.780	5.6	2.6	0.765	5.7	2.5	0.765	5.5	2.5	0.716
23:00	5.5	2.6	0.754	5.6	2.6	0.769	5.4	2.5	0.720	5.6	2.5	0.759	5.6	2.5	0.735	5.7	2.5	0.754	5.4	2.5	0.694
23:15	5.5	2.5	0.736	5.4	2.5	0.720	5.2	2.5	0.674	5.4	2.4	0.685	5.4	2.5	0.711	5.6	2.5	0.726	5.1	2.4	0.622
23:30	5.4	2.5	0.715	5.2	2.5	0.668	5.1	2.5	0.642	5.2	2.5	0.655	5.2	2.4	0.639	5.3	2.4	0.664	5.1	2.4	0.632
23:45	5.3	2.5	0.690	5.1	2.4	0.639	4.9	2.4	0.594	4.8	2.3	0.559	5.0	2.4	0.611	5.1	2.3	0.616	5.1	2.4	0.624
Total			0.863			0.856			0.802			0.761			0.755			0.743			0.724
Average	6.7	2.4	0.863	6.7	2.4	0.856	6.2	2.4	0.802	5.6	2.5	0.761	5.6	2.5	0.755	5.5	2.5	0.743	5.5	2.4	0.724
Min Time	4:35	10:20	4:45	4:40	10:55	4:35	4:40	11:35	3:05	4:15	11:15	3:30	4:50	9:00	4:55	3:20	9:30	2:55	4:35	3:45	3:45
Min Value	4.3	0.9	0.467	4.3	0.9	0.457	4.1	1.0	0.421	4.1	0.8	0.410	4.2	1.6	0.408	4.1	2.0	0.392	4.0	1.9	0.355
Max Time	10:15	20:20	10:25	10:55	19:25	11:15	11:40	18:10	7:45	7:30	6:50	7:45	8:50	7:10	7:35	9:30	6:55	7:35	9:15	7:05	7:45
Max Value	16.3	3.0	1.564	16.3	2.9	1.519	13.8	3.0	1.496	10.8	2.9	1.421	8.7	3.0	1.388	8.2	3.0	1.358	9.9	3.0	1.310
Week Avg																			6.0	2.4	0.786
WeekTotal																					5.504

ADS Environmental Services

LOSALMTS_LA01\mp1\AVGUDEPTH (inches):Dep
LOSALMTS_LA01\mp1\VELOCITY (feet/sec):Vel
LOSALMTS_LA01\mp1\QFINAL (MGD):Flow

Pipe Height 18.00

	Saturday 3/10/01			Sunday 3/11/01			Monday 3/12/01			Tuesday 3/13/01			Wednesday 3/14/01			Thursday 3/15/01			Friday 3/16/01		
	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow
0:00	5.3	2.5	0.691	5.3	2.4	0.678	5.0	2.4	0.605	4.9	2.4	0.584	4.6	2.4	0.542	4.9	2.3	0.571	4.9	2.3	0.573
0:15	5.1	2.4	0.633	5.2	2.4	0.659	4.8	2.3	0.556	4.8	2.4	0.574	4.6	2.3	0.511	4.6	2.3	0.528	4.5	2.2	0.497
0:30	4.9	2.4	0.593	5.1	2.4	0.628	4.6	2.3	0.527	4.8	2.3	0.556	4.6	2.3	0.527	4.5	2.3	0.491	4.4	2.3	0.481
0:45	4.8	2.4	0.583	4.9	2.3	0.580	4.5	2.3	0.511	4.6	2.2	0.514	4.5	2.2	0.498	4.4	2.2	0.473	4.5	2.2	0.473
1:00	4.8	2.4	0.578	4.8	2.4	0.583	4.3	2.3	0.481	4.4	2.3	0.491	4.3	2.2	0.457	4.4	2.2	0.459	4.4	2.2	0.453
1:15	4.6	2.3	0.529	4.6	2.3	0.539	4.3	2.2	0.459	4.4	2.3	0.477	4.4	2.2	0.464	4.3	2.1	0.442	4.3	2.1	0.440
1:30	4.6	2.3	0.532	4.6	2.3	0.516	4.3	2.2	0.465	4.4	2.2	0.468	4.3	2.1	0.447	4.3	2.1	0.446	4.3	2.1	0.427
1:45	4.5	2.3	0.506	4.5	2.3	0.494	4.3	2.2	0.454	4.3	2.2	0.449	4.3	2.2	0.445	4.3	2.1	0.436	4.2	2.1	0.416
2:00	4.5	2.3	0.502	4.5	2.3	0.499	4.3	2.2	0.451	4.2	2.2	0.445	4.3	2.2	0.454	4.3	2.1	0.439	4.1	2.0	0.395
2:15	4.7	2.3	0.542	4.5	2.3	0.495	4.2	2.2	0.446	4.2	2.2	0.443	4.3	2.2	0.450	4.2	2.1	0.421	4.1	2.1	0.394
2:30	5.0	2.4	0.626	4.4	2.2	0.486	4.3	2.2	0.445	4.2	2.1	0.427	4.3	2.1	0.435	4.2	2.1	0.417	4.1	2.1	0.390
2:45	5.2	2.3	0.626	4.4	2.3	0.484	4.2	2.2	0.431	4.2	2.1	0.427	4.3	2.1	0.441	4.2	2.1	0.407	4.1	2.1	0.390
3:00	5.0	2.4	0.625	4.4	2.2	0.484	4.2	2.2	0.436	4.2	2.1	0.423	4.3	2.1	0.439	4.1	2.1	0.399	4.1	2.0	0.390
3:15	4.7	2.4	0.551	4.5	2.2	0.496	4.3	2.2	0.447	4.2	2.1	0.426	4.2	2.1	0.431	4.1	2.1	0.394	4.1	2.0	0.386
3:30	4.5	2.3	0.516	4.5	2.2	0.488	4.2	2.2	0.440	4.2	2.1	0.424	4.3	2.1	0.425	4.2	2.1	0.412	4.0	2.0	0.381
3:45	4.5	2.3	0.508	4.5	2.2	0.490	4.2	2.2	0.437	4.2	2.2	0.447	4.2	2.1	0.414	4.1	2.1	0.400	4.0	2.0	0.370
4:00	4.4	2.3	0.495	4.5	2.2	0.482	4.2	2.2	0.438	4.2	2.2	0.435	4.2	2.1	0.419	4.2	2.1	0.417	4.1	2.1	0.391
4:15	4.4	2.3	0.490	4.5	2.2	0.493	4.2	2.2	0.433	4.2	2.2	0.431	4.2	2.1	0.424	4.2	2.1	0.427	4.0	2.0	0.374
4:30	4.4	2.3	0.475	4.4	2.2	0.471	4.2	2.2	0.436	4.2	2.2	0.438	4.2	2.1	0.426	4.2	2.1	0.414	4.0	2.0	0.376
4:45	4.4	2.2	0.474	4.4	2.2	0.470	4.2	2.2	0.438	4.3	2.2	0.449	4.2	2.1	0.416	4.2	2.1	0.420	4.1	2.0	0.389
5:00	4.4	2.3	0.485	4.4	2.2	0.474	4.3	2.2	0.453	4.3	2.2	0.455	4.3	2.1	0.431	4.3	2.1	0.427	4.1	2.1	0.407
5:15	4.4	2.3	0.492	4.5	2.2	0.483	4.3	2.3	0.472	4.3	2.2	0.461	4.3	2.2	0.447	4.3	2.1	0.446	4.3	2.1	0.438
5:30	4.5	2.3	0.495	4.5	2.2	0.487	4.4	2.3	0.500	4.4	2.2	0.479	4.3	2.2	0.463	4.4	2.2	0.466	4.4	2.2	0.464
5:45	4.5	2.3	0.514	4.5	2.2	0.495	4.6	2.4	0.528	4.7	2.3	0.543	4.5	2.3	0.512	4.5	2.3	0.499	4.5	2.3	0.497
6:00	4.5	2.3	0.511	4.5	2.3	0.511	4.9	2.4	0.602	5.1	2.4	0.640	5.0	2.4	0.610	5.0	2.4	0.617	5.0	2.4	0.611
6:15	4.6	2.4	0.536	4.6	2.3	0.514	5.5	2.6	0.746	5.5	2.6	0.755	5.6	2.5	0.759	5.6	2.5	0.755	5.4	2.5	0.711
6:30	4.9	2.4	0.594	4.7	2.3	0.545	5.9	2.8	0.887	6.0	2.8	0.930	6.0	2.8	0.917	6.0	2.7	0.914	5.8	2.7	0.841
6:45	5.1	2.5	0.649	4.8	2.3	0.571	6.4	2.8	1.026	6.6	2.9	1.095	6.5	2.8	1.040	6.5	2.9	1.061	6.3	2.9	1.022
7:00	5.4	2.5	0.696	5.1	2.4	0.626	7.2	2.8	1.188	7.7	2.7	1.251	7.0	2.9	1.183	6.8	2.9	1.146	6.9	2.9	1.159
7:15	5.8	2.7	0.831	5.4	2.5	0.703	7.7	2.7	1.269	8.0	2.7	1.316	7.7	2.8	1.303	7.3	2.9	1.243	7.3	2.9	1.252
7:30	5.9	2.7	0.877	5.7	2.6	0.807	9.8	2.6	1.418	9.9	2.5	1.365	8.2	2.7	1.369	7.8	2.9	1.347	7.6	2.8	1.277
7:45	6.2	2.8	0.946	5.8	2.7	0.842	9.3	2.4	1.382	8.3	2.7	1.377	7.9	2.8	1.318	7.8	2.8	1.303	7.3	2.9	1.266
8:00	6.4	2.8	1.020	6.2	2.8	0.964	8.0	2.6	1.246	7.9	2.7	1.286	7.7	2.7	1.261	7.2	2.9	1.224	7.1	3.0	1.225
8:15	7.1	2.7	1.111	6.4	2.8	1.012	7.6	2.8	1.258	7.5	2.8	1.247	7.4	2.8	1.222	6.8	2.9	1.135	7.0	3.0	1.184
8:30	8.3	2.4	1.234	6.6	2.8	1.073	7.3	2.8	1.210	7.3	2.8	1.179	7.7	2.5	1.163	6.7	2.8	1.071	6.8	2.8	1.083
8:45	7.9	2.6	1.250	7.4	2.6	1.112	7.0	2.9	1.169	6.7	2.8	1.069	8.5	2.0	1.077	6.7	2.7	1.044	6.9	2.7	1.070
9:00	8.4	2.5	1.274	7.2	2.7	1.132	6.6	2.8	1.053	6.4	2.8	1.032	8.0	2.2	1.107	6.8	2.5	0.952	8.5	2.2	1.143
9:15	8.3	2.5	1.297	8.1	2.5	1.222	7.1	2.5	1.034	7.0	2.5	1.030	6.3	2.8	0.984	7.3	2.2	0.952	8.2	2.3	1.055
9:30	8.4	2.6	1.332	7.7	2.7	1.221	11.9	1.4	1.069	7.7	1.9	0.896	6.2	2.7	0.914	7.1	2.4	0.949	6.2	2.8	0.966
9:45	8.5	2.5	1.318	7.7	2.6	1.216	10.4	1.7	1.152	6.3	2.8	0.978	6.2	2.8	0.954	6.2	2.7	0.935	6.3	2.7	0.969
10:00	12.9	1.4	1.136	7.8	2.6	1.241	9.7	2.0	1.081	6.0	2.8	0.909	6.1	2.8	0.933	6.2	2.7	0.924	6.3	2.8	1.006
10:15	16.2	1.1	1.219	7.7	2.7	1.249	8.7	2.2	1.092	6.1	2.7	0.930	6.1	2.8	0.934	6.1	2.7	0.903	6.2	2.8	0.966
10:30	15.9	1.2	1.248	7.9	2.6	1.243	8.2	2.1	1.029	6.0	2.7	0.897	6.1	2.7	0.909	5.9	2.6	0.842	6.1	2.7	0.921
10:45	15.7	1.1	1.167	12.8	1.4	1.113	10.5	1.6	1.026	6.7	2.4	0.885	6.0	2.6	0.861	5.8	2.6	0.801	6.1	2.7	0.901
11:00	13.1	1.4	1.208	15.0	1.2	1.160	8.3	2.0	0.993	7.6	1.5	0.790	5.8	2.7	0.835	5.8	2.7	0.847	6.0	2.8	0.910
11:15	10.5	2.0	1.359	12.6	1.5	1.301	12.2	1.2	0.939	7.1	1.4	0.792	5.7	2.6	0.820	5.7	2.6	0.819	6.0	2.7	0.878
11:30	10.9	1.7	1.221	10.6	1.8	1.219	13.7	1.1	0.988	5.9	2.7	0.862	5.9	2.6	0.837	5.6	2.6	0.773	5.9	2.6	0.830
11:45	8.5	2.3	1.192	9.5	1.9	1.139	13.2	1.2	1.071	5.7	2.7	0.826	5.9	2.6	0.833	5.6	2.6	0.797	5.8	2.6	0.835

ADS ENVIRONMENTAL SERVICES

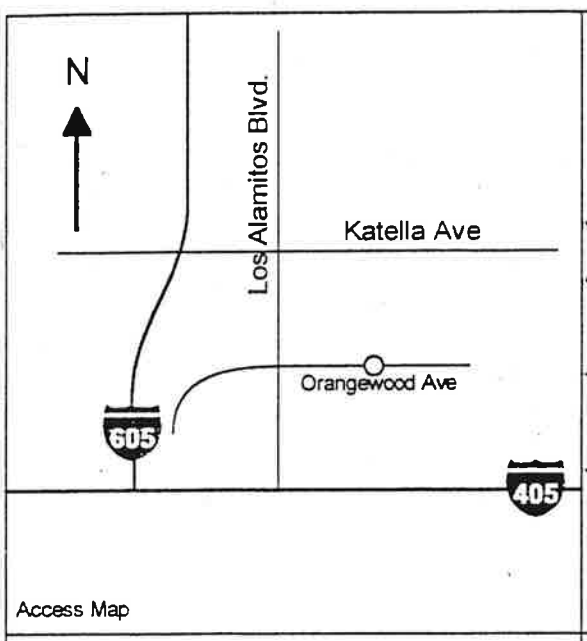
Site Report

Site	Book # / MH #
LOSAL02	MH 187B

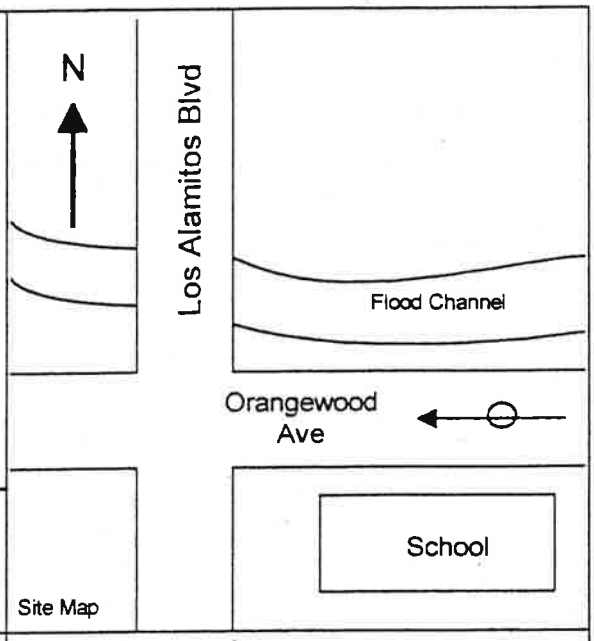
Project/Phase: Boyle, Los Alamitos | **Installed:** 3/09/01 | Diameter: 17.45" x 17.45" | ADS Job #: 11814.11

Address / Location: Orangewood Ave. in front of school. | **Initials:** NV

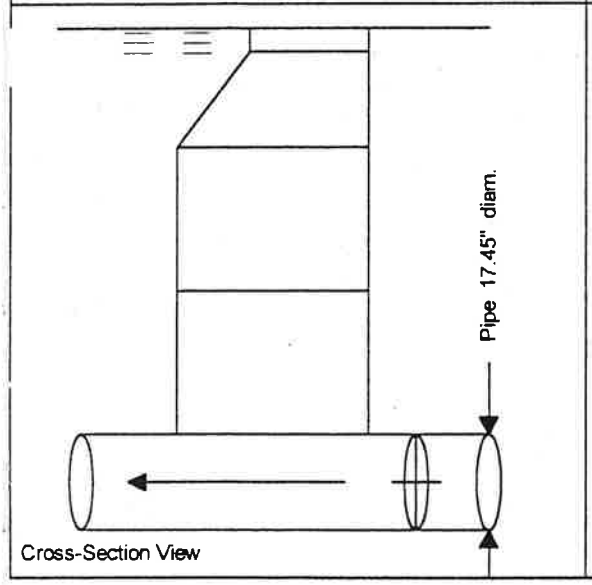
Access: Drive | **Landmark:** School



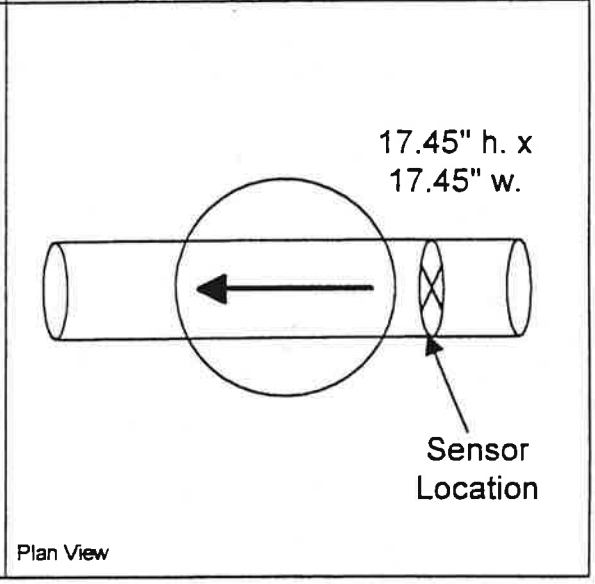
Access Map



Site Map



Cross-Section View



Plan View

Drawings Not to Scale

Installation
Stainless steel ring with ultrasonic and velocity sensors.

Safety
Good, light traffic

Gas Investigation

O2	20.6	%
H2S	0	ppm
CO	5	ppm
LEL	0	%

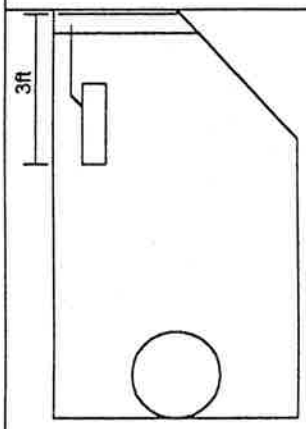
Traffic
Light

Pipe Material
VCP

Manhole Depth

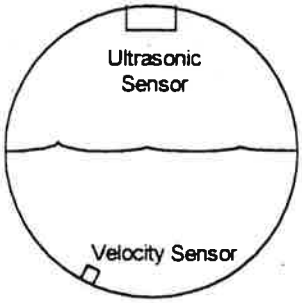
Pipe and M.H. Condition
Pipe and M.H. in good condition.

Manhole Profile



Show Any Defects

Pipe Profile



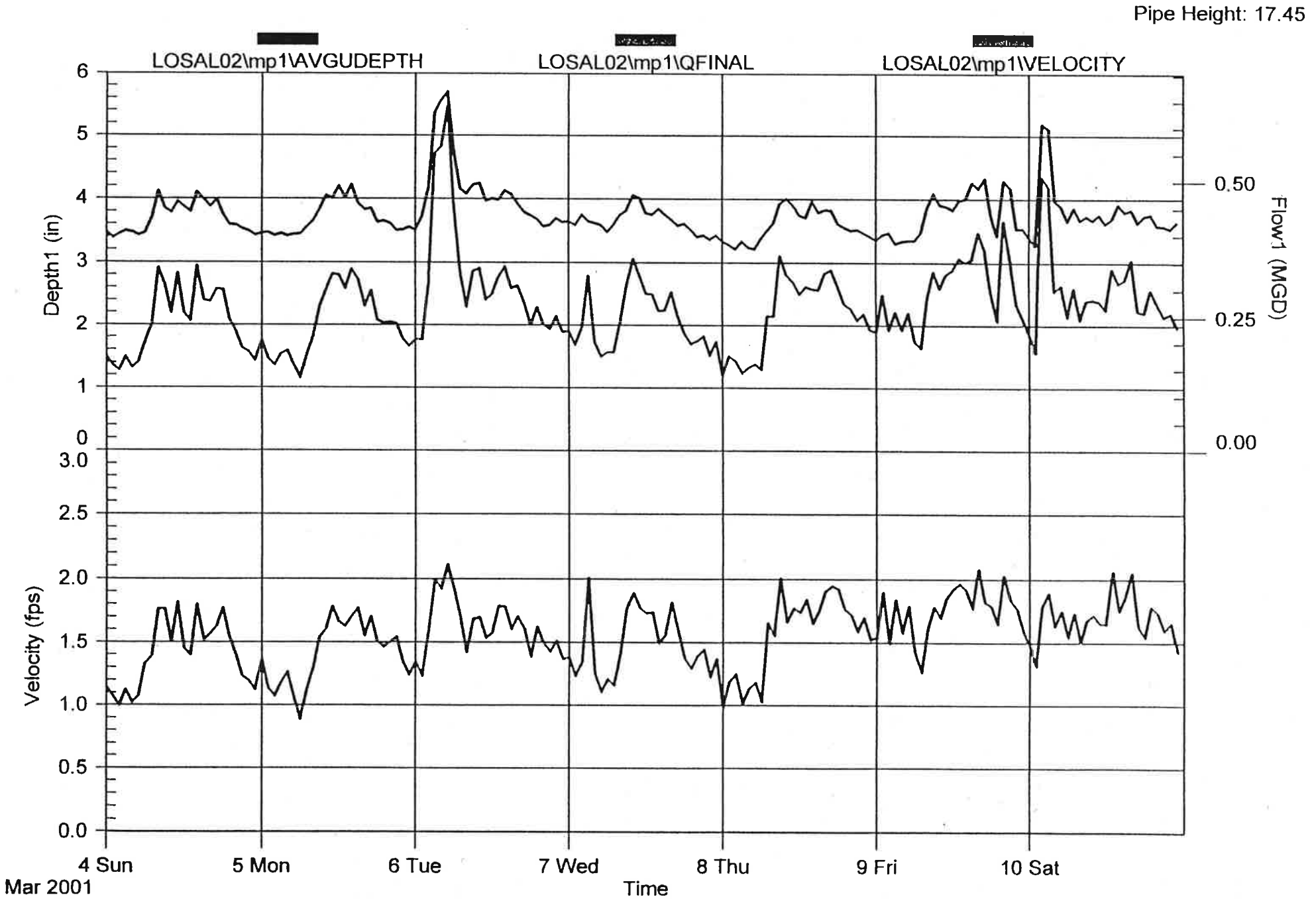
Show Sensor Locations

Hydraulics

Flow surface mostly smooth (+/- 0.25"). Flow moves well through invert with no sign of backup or surcharge.

Charge :	None		Height :	—	
Time 10:59	DOF 3.75"	+/- 0.25"	Velocity 1.75 fps	Silt 0.00"	

ADS Environmental Services



ADS Environmental Services

Flow Summary

Pipe Height 17.45

	LOSAL02\mp1\AVGUDEPTH (inches)					LOSAL02\mp1\VELOCITY (feet/sec)					LOSAL02\mp1\QFINAL (MGD)					
Date	Time	Min.	Time	Max.	Average	Time	Min.	Time	Max.	Average	Time	Min.	Time	Max.	Average	Total
3/4/01	1:45	3.3	8:15	4.2	3.7	4:15	0.8	18:00	2.1	1.4	4:15	0.123	8:15	0.401	0.235	0.235
3/5/01	3:30	3.3	14:15	4.3	3.7	6:00	0.8	15:15	2.0	1.4	6:30	0.123	14:30	0.379	0.237	0.237
3/6/01	0:30	3.4	5:00	6.0	4.1	0:30	0.9	5:15	2.2	1.6	0:30	0.140	5:00	0.687	0.324	0.324
3/7/01	22:00	3.2	10:45	4.2	3.6	1:00	0.9	10:15	2.2	1.5	22:45	0.130	10:15	0.409	0.242	0.242
3/8/01	6:15	3.1	11:00	4.2	3.6	6:00	0.8	9:15	2.2	1.6	5:45	0.109	10:30	0.401	0.252	0.252
3/9/01	3:00	3.2	20:30	4.8	3.7	7:15	1.1	12:45	2.3	1.7	7:00	0.164	20:30	0.506	0.298	0.298
3/10/01	1:15	3.1	2:45	6.6	3.8	1:45	1.1	13:45	2.3	1.7	1:45	0.147	2:30	0.766	0.294	0.294
ReportAvg					3.8					1.6					0.269	
ReportTotal																1.882

ADS Environmental Services

LOSAL02\mp1\AVGUDEPTH (inches):Dep
LOSAL02\mp1\QFINAL (MGD):Flow

LOSAL02\mp1\VELOCITY (feet/sec):Vel

Pipe Height 17.45

	Sunday 3/4/01			Monday 3/5/01			Tuesday 3/6/01			Wednesday 3/7/01			Thursday 3/8/01			Friday 3/9/01			Saturday 3/10/01		
	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow
0:00	3.5	1.0	0.161	3.5	1.3	0.194	3.5	1.8	0.279	3.6	1.9	0.308	3.3	0.9	0.127	3.3	1.2	0.168	3.4	1.3	0.186
0:15	3.4	1.1	0.169	3.5	1.8	0.281	3.6	1.5	0.249	3.6	1.4	0.234	3.4	1.0	0.145	3.5	1.5	0.229	3.5	1.6	0.239
0:30	3.4			3.3	1.2	0.179	3.4	0.9	0.140	3.6	0.9	0.153	3.4	1.1	0.165	3.3	1.4	0.206	3.4	1.6	0.235
0:45	3.5	1.2	0.188	3.5	1.1	0.163	3.5	1.0	0.158	3.7	1.2	0.194	3.3	0.9	0.121	3.4	2.0	0.282	3.3	1.4	0.201
1:00	3.4			3.5	1.2	0.183	3.6	1.0	0.159	3.5	0.9	0.132	3.4	1.0	0.145	3.5			3.4	1.6	0.241
1:15	3.4	1.0	0.141	3.3	1.1	0.165	3.6	1.3	0.208	3.5	1.0	0.161	3.1			3.2			3.1	1.1	0.149
1:30	3.5	1.3	0.194	3.5	1.1	0.172	3.8	1.3	0.218	3.6	1.5	0.244	3.4	1.3	0.200		1.9		3.3	1.3	0.191
1:45	3.3	0.9	0.133	3.5	1.0	0.161	3.8	1.4	0.240	3.8	1.4	0.249	3.1			3.6	1.9	0.297	3.2	1.1	0.147
2:00	3.5			3.3	1.1	0.155	4.0	1.5	0.278	4.0	1.6	0.300	3.3	1.2	0.166	3.6	1.6	0.254	3.3	1.3	0.184
2:15	3.5	0.9	0.135	3.5	1.0	0.148	4.2	1.6	0.311	3.7	1.9	0.313	3.1	1.6	0.213	3.4	1.3	0.191	4.2	1.9	0.371
2:30	3.3	1.0	0.138	3.5	1.2	0.182	4.2	1.5	0.299	3.6	0.9	0.144	3.3	0.8	0.117	3.3	1.7	0.241	6.5	2.1	0.766
2:45	3.5	1.2	0.184	3.3	1.0	0.148	4.2	1.8	0.351	3.7	1.0	0.159	3.1	1.3	0.173	3.5	1.4	0.213	6.6	1.9	0.707
3:00	3.5	1.2	0.192	3.5			4.6	2.1	0.470	3.6	2.1	0.332	3.3	0.9	0.121	3.2	1.8	0.235	5.9	2.0	0.621
3:15	3.4			3.5	1.1	0.170	5.3			3.6	2.1	0.337	3.4	0.9	0.136	3.4	1.7	0.255	5.3	1.5	0.422
3:30	3.5	0.9	0.139	3.3			5.8	2.0	0.614	3.6	2.0	0.315	3.2	1.1	0.145	3.3	1.9	0.262	4.8	1.9	0.456
3:45	3.6	1.2	0.199	3.5	1.3	0.201	5.8	1.9	0.580	3.7	1.9	0.317	3.4	1.2	0.175	3.3	2.0	0.279	4.4	2.2	0.458
4:00	3.5	1.2	0.188	3.4			5.5	1.9	0.549	3.8	1.7	0.286	3.2	0.9	0.127	3.4	1.8	0.260	4.2	1.4	0.277
4:15	3.4	0.8	0.123	3.3	1.5	0.213	5.5	1.8	0.504	3.6	1.0	0.156	3.3	1.1	0.151	3.2	1.6	0.223	4.0	1.7	0.323
4:30	3.5			3.5	1.1	0.166	5.5	1.9	0.552	3.5	1.2	0.184	3.2	1.3	0.179	3.4	1.5	0.230	3.9	1.6	0.278
4:45	3.5	1.1	0.162	3.3	1.1	0.155	5.7	2.1	0.653	3.6	1.1	0.180	3.2	1.2	0.161	3.2	1.3	0.185	3.8	1.8	0.313
5:00	3.4			3.4	1.0	0.145	6.0	2.1	0.687	3.6	1.1	0.174	3.2	1.3	0.176	3.3	1.2	0.177	3.9	1.5	0.273
5:15	3.5	1.1	0.172	3.5	1.1	0.167	5.8	2.2	0.679	3.5	1.0	0.153	3.2	1.1	0.149	3.4	2.0	0.300	4.0	2.1	0.376
5:30	3.4	0.9	0.136	3.3	0.9	0.125	5.6	1.9	0.566	3.6	1.1	0.181	3.3	1.5	0.209	3.2	1.9	0.255	3.8	1.7	0.301
5:45	3.3			3.5	1.3	0.198	5.4	2.2	0.626	3.6	1.2	0.190	3.1	0.8	0.109	3.4	2.0	0.297	3.8	1.7	0.286
6:00	3.5	1.4	0.223	3.5	0.8	0.123	5.1	2.1	0.554	3.3	0.9	0.134	3.4	0.8	0.118	3.2	1.4	0.197	3.6	1.3	0.212
6:15	3.4	1.4	0.199	3.3			4.8	2.0	0.469	3.5	1.3	0.197	3.1	0.9	0.116	3.4	1.2	0.175	3.6	1.7	0.270
6:30	3.4	1.1	0.166	3.5	0.8	0.123	4.6	2.0	0.458	3.6	1.2	0.186	3.4	1.2	0.184	3.5	1.6	0.249	3.6	1.8	0.287
6:45	3.5	1.4	0.214	3.5	1.1	0.170	4.5	1.6	0.343	3.5	1.4	0.216	3.6	1.1	0.183	3.4	1.3	0.190	3.7	1.4	0.232
7:00	3.5	1.5	0.236	3.4	0.9	0.138	4.3	2.1	0.427	3.5	1.3	0.203	3.6	0.9	0.139	3.4	1.1	0.164	3.8	1.9	0.323
7:15	3.5	1.0	0.156	3.5	1.0	0.149	4.2	1.8	0.356	3.6	1.1	0.181	3.4	2.0	0.289	3.5	1.1	0.167	3.9	1.7	0.302
7:30	3.8	1.2	0.208	3.7	1.3	0.209	4.1	1.4	0.268	3.6	1.1	0.173	3.5	1.9	0.289	3.5	1.5	0.228	3.9	1.7	0.298
7:45	4.0	1.8	0.333	3.6	1.2	0.203	4.0	1.5	0.282	3.6	1.1	0.175	3.5	1.9	0.291	3.5	1.3	0.205	3.8	1.6	0.290
8:00	4.0	1.8	0.328	3.7	1.2	0.204	4.0	1.5	0.271	3.6	1.2	0.191	3.4	1.1	0.160	3.8	1.4	0.249	3.8	1.5	0.266
8:15	4.2	2.0	0.401	3.6	1.3	0.204	4.1	1.5	0.293	3.7	1.2	0.204	3.6	1.7	0.265	3.8	1.6	0.290	3.7	1.4	0.231
8:30	4.2	1.8	0.346	3.6	1.1	0.185	4.0	1.4	0.266	3.8	1.7	0.292	3.7	1.8	0.299	3.9	1.7	0.304	3.6	1.2	0.200
8:45	4.0	1.5	0.284	3.7	1.5	0.254	4.2	1.2	0.242	3.8	1.5	0.267	3.8	1.6	0.282	3.9	1.6	0.293	3.6	1.8	0.284
9:00	4.0	2.0	0.364	3.8	1.2	0.213	4.3	1.7	0.354	3.8	2.1	0.355	3.8	1.7	0.301	4.1	1.9	0.375	3.7	1.8	0.295
9:15	3.8	1.6	0.287	3.9	2.0	0.351	4.4	1.5	0.329	3.9	1.7	0.297	3.9	2.2	0.400		1.6		3.8	1.8	0.308
9:30	3.8	1.5	0.267	3.8	1.4	0.247	4.1	1.8	0.347	3.8	1.8	0.303	4.0	2.0	0.361		2.0		3.8	1.3	0.221
9:45	3.8	1.9	0.319	3.8	1.5	0.267	4.0	1.7	0.312	3.8	1.5	0.269	3.9	2.1	0.386	4.0	1.6	0.293	3.6	1.9	0.296
10:00	3.8	1.3	0.228	3.8	1.7	0.295	4.1	1.9	0.354	3.9	1.4	0.257	3.8	1.4	0.254	3.9	1.2	0.211	3.5	1.8	0.267
10:15	3.8	1.8	0.308	4.0	1.4	0.264	4.1	1.5	0.289	4.0	2.2	0.409	3.9	1.6	0.286	3.9	2.1	0.368	3.5	1.6	0.251
10:30	3.8	1.4	0.246	4.1	1.9	0.361	4.3	1.8	0.378	4.1	1.9	0.374	4.1	2.1	0.401	3.9	1.5	0.271	3.7		
10:45	3.8	1.4	0.244	4.2	1.4	0.282	4.4	1.6	0.339	4.2	2.0	0.387		1.5		3.9	2.0	0.362	3.9	1.8	0.323
11:00	3.9	1.8	0.326	4.2	1.7	0.343	4.2	1.7	0.337	4.1	1.3	0.262	4.2	1.8	0.346	3.9	1.9	0.336	4.0	1.9	0.345
11:15	4.0	1.9	0.356	3.9	1.9	0.340	4.0	1.5	0.281	4.1	1.8	0.352	3.9	1.6	0.286	3.9	1.8	0.317	3.8	1.4	0.238
11:30	4.0	2.0	0.358	3.9	1.8	0.313	3.8	1.7	0.293	4.0	1.9	0.349	3.8	1.8	0.309	3.9	1.8	0.324	3.6	1.5	0.246
11:45	3.9	1.6	0.280	4.0	1.8	0.322	3.8	1.2	0.217	3.8	2.0	0.344	3.7	1.9	0.316	3.9	1.9	0.337	3.6	1.8	0.289

LOSAL02\vmp1\AVGUDEPTH (inches):Dep
LOSAL02\vmp1\QFINAL (MGD):Flow

LOSAL02\vmp1\VELOCITY (feet/sec):Vel

	Sunday 3/4/01			Monday 3/5/01			Tuesday 3/6/01			Wednesday 3/7/01			Thursday 3/8/01			Friday 3/9/01			Saturday 3/10/01		
	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow
12:00	3.8	1.8	0.311	4.2	1.5	0.292	3.9	1.5	0.263	3.7	1.9	0.310	3.7	1.3	0.221	3.6	1.8	0.284	3.6	1.6	0.264
12:15	3.9	1.6	0.296	4.2	1.8	0.360	3.9	1.5	0.268	3.8	2.0	0.339	3.7	1.8	0.305	3.7	1.6	0.279	3.6	1.8	0.294
12:30	3.9	1.0	0.189	4.2	1.9	0.376	4.1	1.5	0.300	3.9	1.5	0.261	3.7	1.9	0.318	3.9			3.7	1.6	0.271
12:45	3.8	1.3	0.227	4.1	1.5	0.283	4.1	1.8	0.337	3.8	1.5	0.265	3.8	1.9	0.326	4.1	2.3	0.433	3.5	1.4	0.225
13:00	3.7			4.0	1.6	0.309	4.0			3.7	2.1	0.350	3.6	1.7	0.271	3.9	2.0	0.367	3.6	2.0	0.322
13:15	3.7	1.4	0.237	4.0	1.8	0.326	3.9	1.7	0.312	3.6	2.0	0.317	3.6	1.8	0.289	4.1	1.4	0.274	3.6	2.2	0.350
13:30	3.8	1.1	0.190	3.9	1.5	0.264	3.8	1.9	0.334	3.7	1.4	0.233	3.7	1.8	0.286	4.0	2.2	0.401	3.7	1.8	0.291
13:45	4.0	1.7	0.310	4.1	1.6	0.309	4.2			4.0	1.4	0.267	3.9	2.1	0.377	3.9	2.2	0.395	3.8	2.3	0.391
14:00	4.1	1.8	0.343	4.2	1.5	0.309	4.2	1.6	0.317	3.9	1.5	0.269	4.1	1.9	0.362	3.9			3.9	2.0	0.359
14:15	4.1	2.0	0.384	4.3	1.6	0.321	4.1	1.8	0.340	3.8	1.4	0.243	4.1	1.7	0.321	3.9	2.0	0.350	3.9	1.6	0.293
14:30	4.1	1.5	0.293	4.2	1.9	0.379	4.0	1.9	0.348	3.8	1.4	0.235	3.8	1.4	0.246	4.0	2.1	0.390	3.8	1.7	0.286
14:45	4.1	1.9	0.352	4.2	1.8	0.344	4.1	1.9	0.367	3.9	1.7	0.297	3.8	1.6	0.279	4.3	1.4	0.293	4.1	1.6	0.313
15:00	4.0	1.5	0.277	4.0	1.9	0.344	4.1	1.8	0.353	3.9	1.3	0.233	3.9	1.9	0.331	4.4	1.9	0.402	3.9	1.9	0.341
15:15	4.1	1.5	0.296	3.9	2.0	0.367	4.0	1.6	0.298	3.6	1.5	0.251	3.8	1.7	0.296	4.2	2.0	0.393	3.8	1.9	0.322
15:30	4.0	1.8	0.322	3.9	1.5	0.279	4.0	1.3	0.239	3.7	1.8	0.303	3.8	1.9	0.320	4.2	1.7	0.333	3.7	1.6	0.277
15:45	3.8	1.3	0.224	3.8	1.6	0.290	4.0	1.7	0.323	3.8	1.5	0.264	3.7	1.5	0.255	4.1	1.5	0.301	3.7	2.0	0.342
16:00	3.8	1.2	0.216	3.9	1.5	0.276	4.1	2.0	0.377	3.8	1.8	0.300	3.8	2.0	0.332	4.1	2.1	0.397	3.8	2.1	0.361
16:15	3.9	1.9	0.337	3.9	1.4	0.262	3.9	1.5	0.282	3.7	1.6	0.263	3.7	1.8	0.298	4.1	2.1	0.400	3.9	2.2	0.400
16:30	3.9	1.8	0.317	3.8	1.6	0.284	3.8	1.7	0.294	3.6	2.0	0.319	3.9	2.2	0.387	4.1	2.2	0.425	3.9		
16:45	3.8	1.4	0.241	3.7	1.5	0.256	3.8	1.6	0.277	3.6	1.9	0.303	4.0	1.7	0.309	4.2	2.0	0.400	3.7	1.8	0.307
17:00	3.8	1.3	0.223	3.8	1.8	0.310	3.9	1.8	0.314	3.6	1.6	0.262	3.8	2.1	0.359	4.3	1.6	0.335	3.6	2.2	0.353
17:15	4.0	1.8	0.329	3.9	1.8	0.317	3.8	1.6	0.289	3.6	1.7	0.268	3.9	1.9	0.333	4.2	2.2	0.432	3.6	1.4	0.218
17:30	4.1	1.8	0.354	3.9	1.4	0.249	3.8	1.4	0.251	3.4	1.8	0.273	3.8	2.0	0.342	4.4	1.7	0.362	3.6	1.3	0.210
17:45	4.0	1.6	0.296	3.8	1.8	0.317	3.6	1.5	0.244	3.6	1.2	0.199	3.8	1.9	0.317	4.3	1.8	0.369	3.7	1.6	0.262
18:00	3.8	2.1	0.358	3.6	1.5	0.237	3.6	1.4	0.229	3.6	1.6	0.255	3.7	2.0	0.335	4.1	1.7	0.324	3.7	1.7	0.286
18:15	3.8	1.6	0.277	3.6			3.7			3.6	1.1	0.173	3.6	2.2	0.338	3.8	1.9	0.327	3.7	1.6	0.273
18:30	3.8	1.9	0.326	3.6	1.4	0.224	3.8	1.3	0.232	3.6	1.2	0.192	3.5	1.8	0.282	3.5	1.9	0.282	3.7	1.5	0.254
18:45	3.6	1.5	0.237	3.7	1.7	0.281	3.8	1.4	0.238	3.6	1.6	0.251	3.6	1.7	0.273	3.6			3.7	1.3	0.220
19:00	3.5	1.5	0.242	3.7	1.1	0.189	3.6	1.3	0.208	3.6	1.5	0.244	3.6	1.5	0.243	3.3	1.5	0.210	3.8	1.8	0.300
19:15	3.6	1.5	0.245	3.6	1.2	0.201	3.6	1.4	0.232	3.4	1.1	0.160	3.5	1.9	0.282	3.4	1.6	0.243	3.9	1.6	0.286
19:30	3.6	1.5	0.243	3.6			3.7	2.1	0.345	3.4	1.3	0.202	3.5	1.8	0.274	3.5	1.5	0.241	3.7	1.7	0.290
19:45	3.6	1.6	0.248	3.7	1.9	0.308	3.8	1.6	0.280	3.5	1.2	0.189	3.6	1.9	0.298	3.4	1.9	0.276	3.6	2.0	0.323
20:00	3.6	1.4	0.224	3.7	1.3	0.212	3.7	1.7	0.281	3.3	1.3	0.189	3.4	1.5	0.227	3.4			3.6	1.4	0.229
20:15	3.6	1.4	0.224	3.6	1.8	0.291	3.5	1.8	0.269	3.5	1.2	0.191	3.5			4.2	2.2	0.441	3.6	2.1	0.332
20:30	3.6	1.3	0.215	3.5	1.8	0.273	3.6	1.2	0.201	3.5	1.6	0.250	3.6	2.0	0.321	4.8	2.1	0.506	3.6	1.9	0.304
20:45	3.5	1.4	0.220	3.6	1.1	0.183	3.5	1.2	0.187	3.3	1.3	0.187	3.5	1.5	0.237	4.7	1.8	0.404	3.5	1.5	0.229
21:00	3.5	1.3	0.202	3.5	1.0	0.157	3.5	1.5	0.223	3.4	1.5	0.221	3.5	1.4	0.220	4.5	1.5	0.330	3.5	1.5	0.242
21:15	3.6	1.2	0.201	3.5	1.9	0.279	3.6	1.5	0.248	3.4	1.5	0.224	3.5	1.7	0.259	4.2	1.9	0.379	3.5	1.6	0.258
21:30	3.5	1.2	0.179	3.6	1.7	0.274	3.6	1.2	0.195	3.4	1.5	0.216	3.6	1.7	0.268	4.0	2.0	0.372	3.6	1.8	0.289
21:45	3.5	1.2	0.178	3.5			3.7	1.4	0.236	3.5	1.2	0.191	3.4	1.5	0.229	3.9	1.9	0.340	3.6	1.3	0.212
22:00	3.6	1.1	0.175	3.4	1.4	0.204	3.6			3.2	1.0	0.133	3.5	1.9	0.290	3.6	1.8	0.284	3.5	1.3	0.198
22:15	3.4	1.0	0.144	3.5	1.2	0.186	3.6	1.6	0.268	3.4	1.4	0.217	3.6	1.4	0.228	3.5	1.6	0.252	3.4	1.9	0.281
22:30	3.4	1.0	0.145	3.6	1.4	0.232	3.7	1.6	0.277	3.4	1.5	0.230	3.4	1.7	0.252	3.6	1.8	0.277	3.6	1.9	0.298
22:45	3.5	1.7	0.267	3.5	1.3	0.208	3.8	1.2	0.201	3.3	0.9	0.130	3.4	1.7	0.249	3.3	1.9	0.275	3.7	1.5	0.248
23:00	3.4	1.2	0.177	3.5	1.1	0.169	3.7	1.7	0.277	3.5	1.5	0.236	3.5	1.7	0.263	3.3	1.6	0.227	3.7	1.5	0.247
23:15	3.5	1.4	0.208	3.6	1.6	0.254	3.6	1.1	0.180	3.4	1.3	0.200	3.3	1.2	0.163	3.5	1.4	0.218	3.7	1.2	0.207
23:30	3.5	1.0	0.157	3.6	1.3	0.217	3.6	1.3	0.207	3.3	1.2	0.174	3.4	1.6	0.236	3.6	1.5	0.244	3.6	1.6	0.258
23:45	3.3	0.9	0.124	3.5	0.9	0.138	3.6	1.3	0.219	3.5	1.3	0.199	3.4	1.6	0.242	3.6	1.8	0.294	3.5	1.3	0.207
Total			0.235			0.237			0.324			0.242			0.252			0.298			0.294
Average	3.7	1.4	0.235	3.7	1.4	0.237	4.1	1.6	0.324	3.6	1.5	0.242	3.6	1.6	0.252	3.7	1.7	0.298	3.8	1.7	0.294
Min Time	1:45	4:15	4:15	3:30	6:00	6:30	0:30	0:30	0:30	22:00	1:00	22:45	6:15	6:00	5:45	3:00	7:15	7:00	1:15	1:45	1:45
Min Value	3.3	0.8	0.123	3.3	0.8	0.123	3.4	0.9	0.140	3.2	0.9	0.130	3.1	0.8	0.109	3.2	1.1	0.164	3.1	1.1	0.147
Max Time	8:15	18:00	8:15	14:15	15:15	14:30	5:00	5:15	5:00	10:45	10:15	10:15	11:00	9:15	10:30	20:30	12:45	20:30	2:45	13:45	2:30
Max Value	4.2	2.1	0.401	4.3	2.0	0.379	6.0	2.2	0.687	4.2	2.2	0.409	4.2	2.2	0.401	4.8	2.3	0.506	6.6	2.3	0.766
Week Avg																			3.8	1.6	0.269
WeekTotal																					1.882

ADS ENVIRONMENTAL SERVICES

Site Report

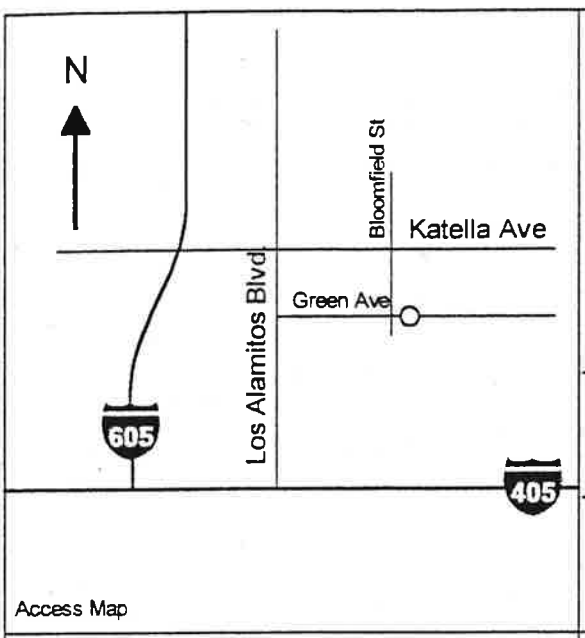
Site	Book # / MH #
LOSAL03	MH 105

Project/Phase: Boyle, Los Alamitos | **Installed:** 3/09/01 | Diameter: 8.00" x 8.00" | ADS Job #: 11814.11

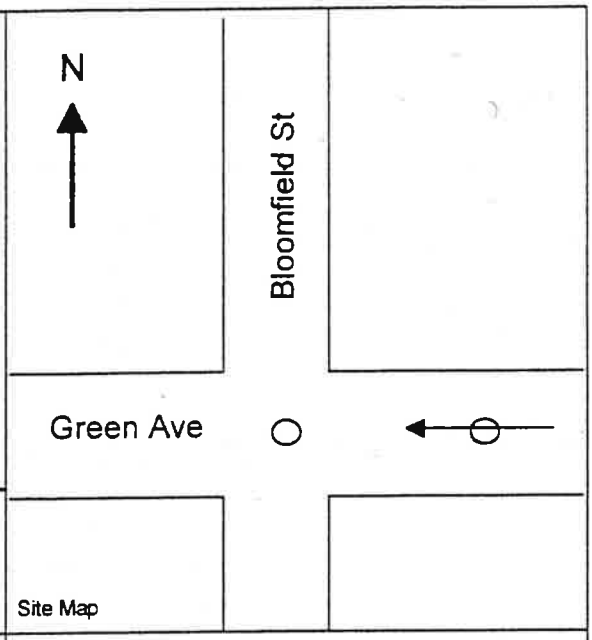
Address / Location: 4050 Green Ave. East of Bloomfield. | **Initials:** NV

Access: Drive

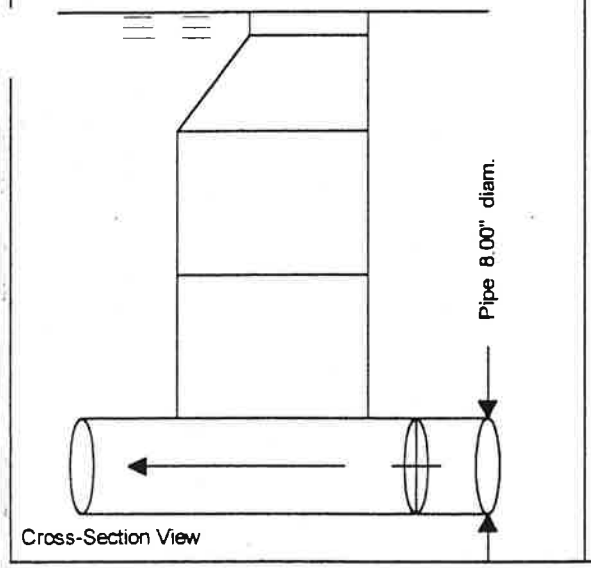
Landmark:



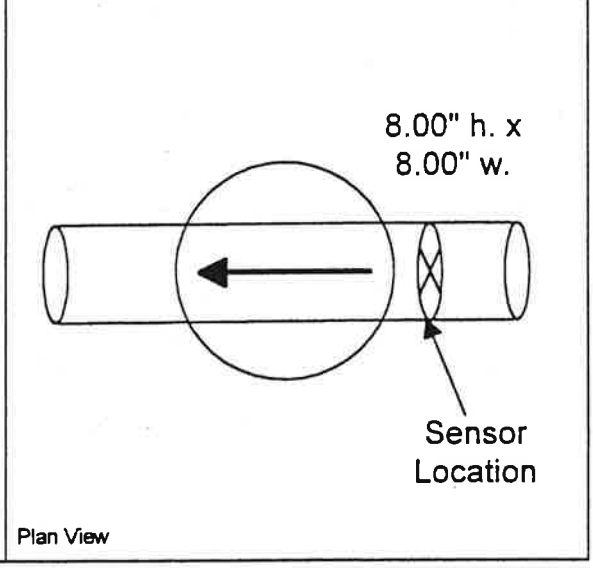
Access Map



Site Map



Cross-Section View



Plan View

Drawings Not to Scale

Installation
Stainless steel ring with ultrasonic and velocity sensors.

Safety
Good, light traffic

Gas Investigation

O2	20.3	%
H2S	0	ppm
CO	1	ppm
LEL	0	%

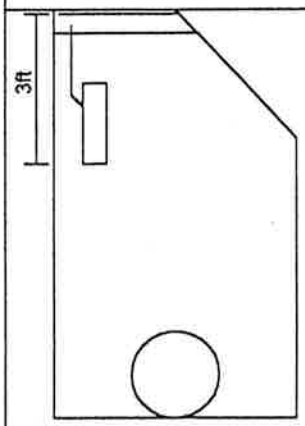
Traffic
Light

Pipe Material
VCP

Manhole Depth

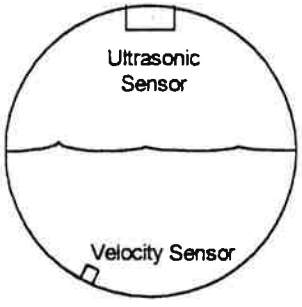
Pipe and M.H. Condition
Pipe and M.H. in good condition.

Manhole Profile



Show Any Defects

Pipe Profile



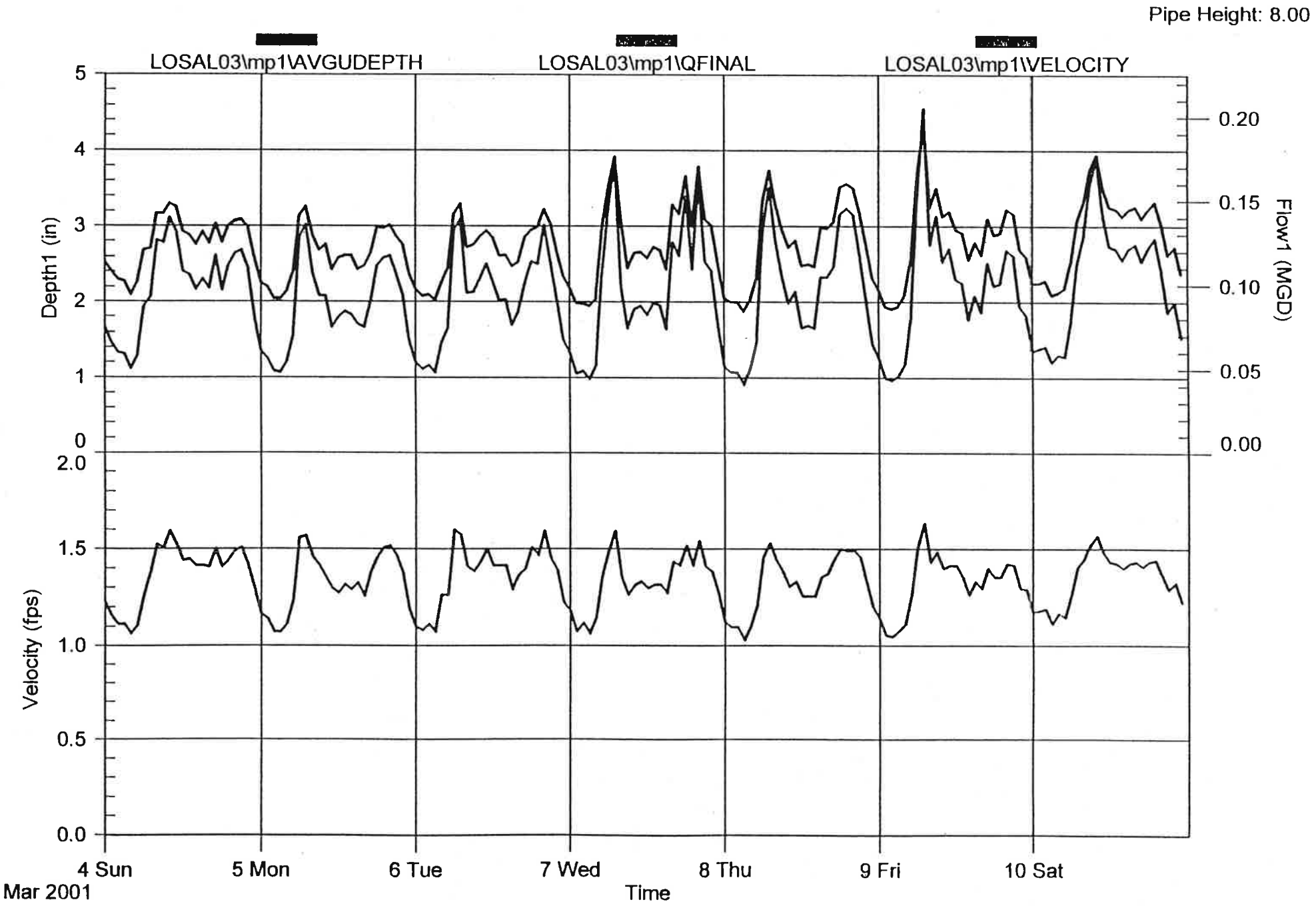
Show Sensor Locations

Hydraulics

Flow surface mostly smooth (+/- 0.25"). Flow moves well through invert with no sign of backup or surcharge.

harge :	None			Height :	—		
ime	13:00	DOF	2.75"	+/- 0.25"	Velocity	1.38 fps	Silt 0.00"

ADS Environmental Services



ADS Environmental Services

Flow Summary

Pipe Height 8.00

	LOSAL03\mp1\AVGUDEPTH (inches)					LOSAL03\mp1\VELOCITY (feet/sec)					LOSAL03\mp1\QFINAL (MGD)					
Date	Time	Min.	Time	Max.	Average	Time	Min.	Time	Max.	Average	Time	Min.	Time	Max.	Average	Total
3/4/01	4:30	1.9	8:45	3.4	2.8	4:30	1.0	10:45	1.7	1.4	4:30	0.042	10:45	0.159	0.097	0.097
3/5/01	4:00	2.0	7:30	3.5	2.6	3:30	1.0	7:30	1.7	1.3	3:30	0.045	7:30	0.157	0.086	0.086
3/6/01	3:00	2.0	7:30	3.6	2.7	3:00	1.0	7:30	1.7	1.4	3:00	0.043	7:30	0.169	0.092	0.092
3/7/01	0:00	1.8	7:15	4.7	2.8	1:15	1.0	7:00	1.8	1.3	1:15	0.037	7:15	0.231	0.097	0.097
3/8/01	1:00	1.8	19:00	4.1	2.8	3:45	1.0	17:45	1.6	1.3	3:45	0.037	19:00	0.182	0.094	0.094
3/9/01	1:30	1.8	7:15	4.7	2.8	1:45	0.9	7:15	1.7	1.3	1:45	0.036	7:15	0.231	0.098	0.098
3/10/01	1:00	1.8	9:45	4.4	2.9	3:15	1.0	9:45	1.6	1.3	3:15	0.037	9:45	0.212	0.103	0.103
ReportAvg					2.8					1.3					0.095	
ReportTotal																0.667

ADS Environmental Services

LOSAL03\mp1\AVGUDEPTH (inches):Dep
LOSAL03\mp1\VELOCITY (feet/sec):Vel
LOSAL03\mp1\QFINAL (MGD):Flow

Pipe Height 8.00

	Sunday 3/4/01			Monday 3/5/01			Tuesday 3/6/01			Wednesday 3/7/01			Thursday 3/8/01			Friday 3/9/01			Saturday 3/10/01		
	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow
0:00	2.4	1.2	0.070	2.3	1.1	0.062	2.2	1.1	0.058	1.8	1.0	0.040	2.1	1.2	0.057	2.3	1.2	0.064	2.3	1.2	0.064
0:15	2.6	1.2	0.075	2.2	1.2	0.061	2.1	1.0	0.050	2.6	1.3	0.080	2.2	1.1	0.057	1.9	1.1	0.045	2.2	1.1	0.057
0:30	2.7	1.3	0.085	2.2	1.2	0.060	2.1	1.1	0.051	2.2	1.2	0.063	1.9	1.1	0.045	2.3	1.2	0.064	2.2	1.1	0.057
0:45	2.4	1.2	0.068	2.2	1.1	0.058	2.2	1.1	0.057	2.1	1.2	0.055	1.9	1.1	0.045	2.1	1.1	0.051	2.3	1.2	0.065
1:00	2.4	1.2	0.068	2.4	1.3	0.074	2.0	1.0	0.048	2.0	1.1	0.047	1.8	1.0	0.040	2.1	1.1	0.051	1.8	1.0	0.040
1:15	2.4	1.1	0.066	2.1	1.1	0.052	2.0	1.1	0.048	1.8	1.0	0.037	2.1	1.1	0.051	2.1	1.1	0.051	2.6	1.3	0.080
1:30	2.4	1.2	0.068	2.2			2.1	1.1	0.051	2.3	1.2	0.066	1.8	1.0	0.040	1.8	1.0	0.040	2.4	1.2	0.072
1:45	2.3	1.1	0.060				2.1	1.1	0.054	1.8	1.0	0.039	2.3	1.2	0.064	1.8	0.9	0.036	2.2	1.1	0.057
2:00	2.3	1.1	0.060	2.0	1.1	0.048	2.1	1.1	0.052	1.9	1.1	0.045	2.2	1.1	0.057	2.2	1.1	0.057	2.2	1.1	0.057
2:15				2.0	1.0	0.046	2.0	1.1	0.046	2.1	1.2	0.055	1.8	1.0	0.040	1.8	1.0	0.039	2.6	1.3	0.080
2:30	2.1	1.0	0.049		1.0		2.1	1.2	0.057	1.9			2.1	1.1	0.051	1.8	1.0	0.039	2.1	1.1	0.051
2:45	2.6	1.2	0.075	2.1	1.1	0.052	2.1	1.1	0.054	1.9	1.1	0.045	1.9	1.1	0.045	1.8	1.0	0.039	2.3	1.2	0.065
3:00	2.1	1.1	0.050	2.1	1.1	0.052	2.0	1.0	0.043	1.9			1.9	1.1	0.045	2.3	1.2	0.065	1.9	1.1	0.045
3:15				2.0	1.0	0.047	2.0	1.0	0.046	1.9			1.9			1.8	1.0	0.039	1.8	1.0	0.037
3:30	2.4	1.1	0.066	2.0	1.0	0.045	2.0	1.1	0.051	1.8	1.0	0.039	1.8	1.0	0.039	1.8			2.7	1.3	0.087
3:45					1.1		2.1	1.1	0.051	2.1	1.1	0.053	1.8	1.0	0.037	1.8	1.0	0.040	1.9	1.1	0.045
4:00				2.0			2.1	1.4	0.066	1.9	1.1	0.049	1.8			1.8	1.0	0.039	1.9		
4:15	2.0	1.0	0.046	2.1	1.0	0.049	2.3	1.2	0.061	2.1	1.1	0.053	1.9	1.1	0.044	2.3	1.2	0.064	2.3	1.2	0.065
4:30	1.9	1.0	0.042	2.2	1.1	0.059	2.3	1.2	0.065	2.1	1.1	0.053	1.8	1.0	0.039	1.9	1.1	0.045	1.8	1.0	0.040
4:45	2.3	1.1	0.060	2.3	1.2	0.062	2.3	1.3	0.069	2.0	1.1	0.052	2.6	1.3	0.080	2.3	1.2	0.064	2.4	1.2	0.072
5:00	2.1	1.0	0.048	2.4	1.1	0.066	2.2	1.1	0.057	2.1	1.1	0.053	2.0	1.1	0.047	2.2	1.1	0.057	1.9	1.1	0.045
5:15	2.1	1.1	0.050	2.3	1.3	0.070	2.5	1.3	0.076	3.2	1.4	0.118	2.2	1.2	0.063	2.3	1.2	0.065	2.4	1.2	0.069
5:30	2.4	1.1	0.066	2.4	1.3	0.076	2.5	1.3	0.079	3.3	1.4	0.128	2.3	1.1	0.060	2.7	1.3	0.087	2.2	1.1	0.057
5:45	2.4	1.1	0.066	2.4	1.2	0.067	2.6	1.3	0.082	3.3	1.4	0.128	2.7	1.4	0.094	3.1	1.4	0.109	2.2	1.1	0.057
6:00	3.1	1.4	0.112	2.8	1.3	0.093	3.1	1.6	0.128	3.1	1.4	0.109	3.1	1.4	0.109	3.3	1.4	0.128	2.2	1.1	0.057
6:15		1.1		3.1	1.6	0.133	2.7	1.6	0.108	2.7	1.4	0.094	2.8	1.4	0.099	3.3	1.4	0.128	2.4	1.2	0.072
6:30	2.4	1.2	0.066	3.3	1.6	0.137	3.3	1.6	0.143	4.2	1.6	0.193	3.8	1.5	0.164	3.8	1.5	0.164	2.7	1.3	0.087
6:45	2.6	1.3	0.080	3.4	1.6	0.151	3.5	1.6	0.151	4.1	1.6	0.182	3.7	1.5	0.154	4.2	1.6	0.193	2.8	1.3	0.095
7:00	2.5	1.3	0.076	3.4	1.6	0.152	3.5	1.6	0.149		1.8					4.4	1.6	0.212	2.7	1.3	0.091
7:15	2.9	1.5	0.109	3.1	1.5	0.118	3.3	1.5	0.134	4.7	1.7	0.231	3.8	1.5	0.164	4.7	1.7	0.231	3.4	1.5	0.137
7:30	2.8	1.3	0.092	3.5	1.7	0.157	3.6	1.7	0.169	3.8	1.5	0.164	3.7	1.5	0.154	4.4	1.6	0.212	2.8	1.3	0.095
7:45	2.6	1.4	0.094	3.1	1.4	0.115	2.8	1.4	0.102	2.8	1.3	0.094				3.8	1.5	0.164	3.3	1.4	0.128
8:00	2.9	1.6	0.119	2.9	1.5	0.113	3.1	1.5	0.118	3.8			3.7	1.5	0.154	3.7	1.5	0.154	3.4	1.5	0.137
8:15	3.2	1.5	0.125	2.9	1.5	0.109	2.8	1.3	0.093	3.2	1.4	0.118	3.0	1.4	0.111	2.7	1.3	0.087	2.8	1.3	0.095
8:30	3.1	1.5	0.121		1.5		2.5	1.4	0.087	2.8	1.4	0.098	3.3	1.4	0.128	3.3	1.4	0.128	3.2	1.4	0.118
8:45	3.4	1.5	0.141		1.3		2.5	1.4	0.081	2.4	1.2	0.070	3.1	1.4	0.109	3.3	1.4	0.128	3.8	1.5	0.164
9:00	3.2	1.5	0.127	2.7	1.4	0.095	2.6	1.2	0.080	2.5	1.3	0.080	3.3	1.4	0.128	3.7	1.5	0.154	3.4	1.5	0.137
9:15	3.2	1.5	0.132		1.4		2.9	1.5	0.108	2.2	1.1	0.057	3.3	1.4	0.128	3.7	1.5	0.154	3.1	1.4	0.109
9:30	3.2	1.5	0.129	2.6	1.5	0.098	2.8			2.6	1.3	0.088	2.6	1.3	0.080	3.3	1.4	0.128	4.1	1.6	0.182
9:45	3.0	1.4	0.112	2.7	1.3	0.086	2.7	1.4	0.094	2.4	1.2	0.072	2.6	1.3	0.086				4.4	1.6	0.212
10:00	3.3	1.5	0.134	2.7	1.4	0.094	2.8	1.4	0.100	2.6	1.3	0.082	2.3	1.2	0.064	3.3	1.4	0.128	4.4	1.6	0.212
10:15	3.2	1.6	0.135	2.5	1.3	0.076	2.8	1.5	0.104	2.4	1.2	0.072	2.7	1.3	0.087	3.1	1.4	0.109	3.4	1.5	0.137
10:30	3.2	1.5	0.130	2.9	1.4	0.104	3.0	1.3	0.102	2.8	1.3	0.095	2.7	1.3	0.087	3.1	1.4	0.109	4.1	1.6	0.182
10:45	3.4	1.7	0.159	2.9	1.3	0.099	2.9	1.4	0.108	2.8	1.3	0.093	3.2	1.4	0.118	3.1	1.4	0.109	3.8	1.5	0.164
11:00	3.3	1.5	0.135	2.6	1.3	0.086	3.0	1.5	0.118	2.7	1.3	0.092	2.4	1.2	0.072	2.3	1.2	0.065	3.4	1.5	0.137
11:15	3.3	1.5	0.134		1.3		3.0	1.5	0.119	2.7	1.4	0.095	2.3	1.2	0.065	3.4	1.5	0.137	3.1	1.4	0.109
11:30	3.2	1.5	0.129	2.3	1.3	0.070	3.1	1.5	0.124	2.6	1.3	0.082	3.3	1.4	0.128	3.8	1.5	0.164	4.2	1.6	0.193
11:45	3.2	1.5	0.126	2.3	1.2	0.064	2.6	1.4	0.090	2.6	1.3	0.080	3.2	1.4	0.118	3.2	1.4	0.118	3.3	1.4	0.128

LOSAL03\mp1\AVGUDEPTH (inches):Dep
LOSAL03\mp1\QFINAL (MGD):Flow

LOSAL03\mp1\VELOCITY (feet/sec):Vel

	Sunday 3/4/01			Monday 3/5/01			Tuesday 3/6/01			Wednesday 3/7/01			Thursday 3/8/01			Friday 3/9/01			Saturday 3/10/01		
	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow
12:00	2.8	1.3	0.096	2.4	1.2	0.066	2.8	1.4	0.099	3.1	1.4	0.109	2.4	1.2	0.072		1.6		3.2	1.4	0.118
12:15	3.0	1.5	0.121	2.8	1.4	0.099	2.8	1.4	0.098	2.4	1.3	0.073	2.5	1.3	0.075	3.1	1.4	0.109	3.3	1.4	0.128
12:30	2.7	1.3	0.091	2.6	1.3	0.085	2.7	1.4	0.093	2.4	1.3	0.074	2.3	1.2	0.064	2.8	1.3	0.095	3.2	1.4	0.118
12:45	3.1	1.5	0.122	2.4	1.2	0.071	3.0	1.5	0.117	2.4	1.2	0.071	2.7	1.3	0.087	2.8			3.3	1.4	0.128
13:00	2.7	1.4	0.098	2.6	1.3	0.082	2.6	1.4	0.089	2.4	1.2	0.072	2.6	1.3	0.080	2.8	1.3	0.095	3.7	1.5	0.154
13:15	2.8	1.4	0.098	2.4	1.3	0.075	2.8	1.4	0.102	2.8	1.3	0.095	2.3	1.2	0.065	3.3	1.4	0.128	3.2	1.4	0.118
13:30	3.1	1.5	0.117	2.7	1.3	0.090	2.5	1.6	0.097	2.6	1.3	0.080	2.3	1.2	0.064	3.1	1.4	0.109	3.2	1.4	0.118
13:45	2.9	1.5	0.109	2.7	1.3	0.089	2.5	1.2	0.074	3.1	1.4	0.109	2.8	1.3	0.095	2.4	1.2	0.072	2.8	1.3	0.095
14:00	2.7	1.4	0.097	2.7	1.2	0.082	2.5	1.3	0.079	2.8	1.3	0.095	2.4	1.2	0.072	2.3	1.2	0.064	3.1	1.4	0.109
14:15	2.7	1.4	0.091	2.6	1.3	0.087	2.5	1.4	0.086	3.1	1.4	0.109	2.6	1.3	0.080	2.4	1.2	0.072	2.7	1.3	0.087
14:30	2.8	1.4	0.102	2.6	1.3	0.080	2.9	1.5	0.111	2.4	1.2	0.072	2.3	1.2	0.065	2.4	1.2	0.072	3.1	1.4	0.109
14:45	2.8	1.4	0.098	2.6	1.3	0.080	2.6	1.4	0.088	2.4	1.3	0.074	2.6	1.3	0.080	3.1	1.4	0.109	3.7	1.5	0.154
15:00	2.7	1.3	0.088	2.5	1.3	0.076	2.3	1.3	0.072	2.4	1.3	0.074	3.2	1.4	0.118	2.6	1.3	0.080	2.8	1.3	0.095
15:15	2.6	1.3	0.085	2.4	1.4	0.080	2.5	1.3	0.079	2.4	1.2	0.069	2.5	1.2	0.072	2.6	1.3	0.080	3.1	1.4	0.109
15:30	3.1			2.6	1.3	0.084	2.6	1.2	0.078	2.6	1.3	0.080	3.1	1.4	0.109	3.3	1.4	0.128	3.3	1.4	0.128
15:45	3.2	1.5	0.131	2.3	1.2	0.066	2.5	1.3	0.076	2.4	1.3	0.071	3.2	1.4	0.118	2.7	1.3	0.087	3.7	1.5	0.154
16:00	2.8	1.3	0.094	2.4	1.2	0.070	2.6	1.4	0.089	3.1	1.4	0.109	3.2	1.4	0.118	2.8	1.3	0.095	3.4	1.5	0.137
16:15	2.7	1.3	0.089	2.4	1.2	0.073	2.6	1.5	0.097	3.3	1.4	0.128	3.1	1.4	0.109	2.4	1.2	0.072	3.1	1.4	0.109
16:30	2.5	1.4	0.087	2.5	1.2	0.076	2.4	1.2	0.071	3.7	1.5	0.154	2.8	1.3	0.095	2.6	1.3	0.080	2.8	1.3	0.095
16:45	3.1	1.5	0.121	2.6	1.3	0.080	2.5	1.3	0.078	3.1	1.4	0.109	2.8	1.3	0.095	2.7	1.3	0.087	3.7	1.5	0.154
17:00	3.1	1.5	0.120	2.5	1.3	0.081	2.9	1.2	0.091	3.1	1.4	0.109	3.2	1.4	0.118	2.7	1.3	0.087	3.2	1.4	0.118
17:15	3.1	1.5	0.124	2.6	1.2	0.076	2.9	1.4	0.103	2.8	1.3	0.095	2.7	1.3	0.087	3.2	1.4	0.118	3.4	1.5	0.137
17:30	3.1	1.5	0.124	2.5	1.4	0.087	2.9	1.4	0.105	3.3	1.4	0.128	3.2	1.4	0.118	3.2	1.4	0.118	2.7	1.3	0.091
17:45	2.8	1.4	0.100	2.9	1.5	0.116	2.8	1.5	0.106	3.4	1.5	0.137		1.6		3.3	1.4	0.128	3.1	1.4	0.109
18:00	2.8	1.4	0.098	2.9	1.5	0.112	2.9	1.6	0.119	4.1	1.6	0.182	3.2	1.4	0.118	2.7	1.3	0.087	3.3	1.4	0.128
18:15		1.4		2.7	1.4	0.094	2.9	1.5	0.111	3.4	1.5	0.137	3.3	1.4	0.128	3.2	1.4	0.118	3.4	1.5	0.137
18:30	2.8	1.3	0.092	2.9	1.4	0.109	2.9	1.5	0.111	3.3	1.4	0.128	3.7	1.5	0.154	2.9	1.3	0.097	3.3	1.4	0.128
18:45	2.8	1.4	0.102	3.3	1.5	0.131	3.0	1.5	0.113	3.8	1.5	0.164		1.6		2.8	1.3	0.095	2.8	1.3	0.095
19:00	3.3	1.5	0.134	3.1	1.7	0.137	3.2	1.6	0.133	3.1	1.4	0.116	4.1	1.6	0.182	2.8	1.3	0.095	3.3	1.4	0.128
19:15	3.1	1.4	0.115	2.7	1.4	0.093	2.8	1.4	0.099	3.0	1.4	0.113	3.7	1.5	0.154	3.2	1.4	0.118	3.1	1.4	0.109
19:30	2.7	1.3	0.092	3.3	1.6	0.138	3.1	1.4	0.116	3.3	1.4	0.128	3.1	1.4	0.109	3.1	1.4	0.109	3.7	1.5	0.154
19:45	2.9	1.4	0.105	2.8	1.4	0.096	2.9	1.4	0.101	2.5	1.3	0.079	3.4	1.5	0.137	2.6	1.3	0.080	3.2	1.4	0.118
20:00	3.0	1.4	0.111	3.1	1.6	0.129	3.0	1.5	0.116	3.4	1.5	0.137	3.3	1.4	0.128	3.2	1.4	0.118	3.7	1.5	0.154
20:15	3.3	1.6	0.137	2.9	1.4	0.107	3.4	1.7	0.152	3.8	1.5	0.164	3.8	1.5	0.164	3.2	1.4	0.118	3.1	1.4	0.109
20:30	3.0	1.5	0.114	2.7	1.5	0.106	3.3	1.5	0.134	3.8	1.5	0.164	3.4	1.5	0.137	3.2	1.4	0.118	3.1	1.4	0.109
20:45	3.0	1.5	0.112	3.3	1.4	0.128	3.2	1.6	0.139	4.1	1.6	0.182	3.4	1.5	0.137	3.3	1.4	0.128	2.3	1.2	0.064
21:00	3.1	1.5	0.120	2.9	1.4	0.109	3.1	1.5	0.124	2.7	1.3	0.089	3.2	1.4	0.118	3.1	1.4	0.109	2.3	1.2	0.065
21:15	3.1	1.5	0.118	2.9	1.5	0.110	3.1	1.4	0.111	2.9	1.4	0.101		1.6		2.8	1.3	0.095	2.7	1.3	0.087
21:30	3.1	1.5	0.118	3.0	1.4	0.111	3.0	1.4	0.107	3.4	1.5	0.137	3.1	1.4	0.109	3.3	1.4	0.128	2.4	1.2	0.072
21:45	3.1	1.6	0.127	2.6	1.5	0.094	3.0	1.4	0.110	3.3	1.4	0.128	3.3	1.4	0.128	3.4	1.5	0.137	3.1	1.4	0.109
22:00	3.3	1.5	0.137	3.0	1.4	0.104	2.7	1.3	0.092	3.7	1.5	0.154	3.1	1.4	0.109	2.8	1.3	0.095	2.8	1.3	0.095
22:15	3.1	1.5	0.118	2.7	1.4	0.094	2.7	1.4	0.095	2.6	1.3	0.083	2.8	1.3	0.095	2.3	1.2	0.064	2.6	1.3	0.080
22:30	3.0	1.4	0.107	2.7	1.3	0.090	2.7	1.5	0.103	3.1	1.4	0.109	2.8	1.3	0.095	2.6	1.3	0.080	2.7	1.3	0.087
22:45	2.5	1.3	0.077	2.6	1.4	0.088	2.4	1.3	0.074	2.7	1.3	0.087	2.3	1.2	0.065	3.1	1.4	0.109	2.8	1.3	0.095
23:00	2.6	1.2	0.079	2.5	1.2	0.071	2.4	1.2	0.072	2.6	1.3	0.080	2.2	1.1	0.057	2.8	1.3	0.080	2.3	1.2	0.064
23:15	2.7	1.3	0.086	2.3	1.1	0.056	2.4	1.3	0.072	2.7	1.3	0.087	2.3	1.2	0.065	2.8	1.3	0.095	2.4	1.2	0.072
23:30	2.6	1.4	0.087	2.3	1.2	0.064	2.3	1.2	0.065	2.4	1.2	0.068	2.3	1.2	0.064	2.4	1.2	0.072	2.4	1.2	0.072
23:45		1.3		2.4	1.3	0.074	2.2	1.1	0.059	2.4	1.3	0.074	2.4	1.2	0.072	2.6	1.3	0.080	2.3	1.2	0.065
Total			0.097			0.086			0.092			0.097			0.094			0.098			0.103
Average	2.8	1.4	0.097	2.6	1.3	0.086	2.7	1.4	0.092	2.8	1.3	0.097	2.8	1.3	0.094	2.8	1.3	0.098	2.9	1.3	0.103
Min Time	4:30	4:30	4:30	4:00	3:30	3:30	3:00	3:00	3:00	0:00	1:15	1:15	1:00	3:45	3:45	1:30	1:45	1:45	1:00	3:15	3:15
Min Value	1.9	1.0	0.042	2.0	1.0	0.045	2.0	1.0	0.043	1.8	1.0	0.037	1.8	1.0	0.037	1.8	0.9	0.036	1.8	1.0	0.037
Max Time	8:45	10:45	10:45	7:30	7:30	7:30	7:30	7:30	7:30	7:15	7:00	7:15	19:00	17:45	19:00	7:15	7:15	7:15	9:45	9:45	9:45
Max Value	3.4	1.7	0.159	3.5	1.7	0.157	3.6	1.7	0.169	4.7	1.8	0.231	4.1	1.6	0.182	4.7	1.7	0.231	4.4	1.6	0.212
Week Avg																			2.8	1.3	0.095
WeekTotal																					0.667

ADS ENVIRONMENTAL SERVICES

Site Report

Site	Book # / MH #
LOSAL04	MH 21

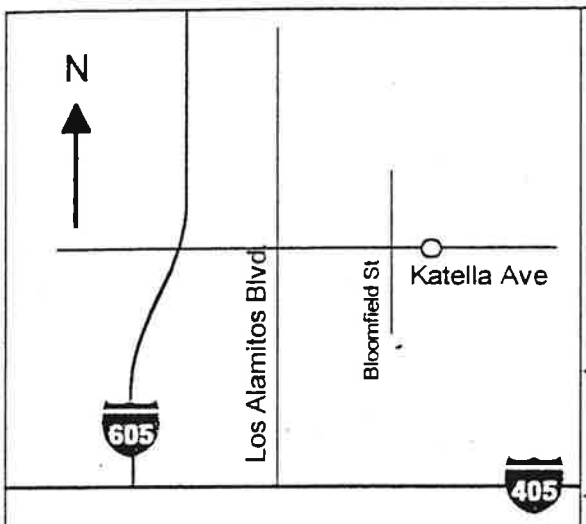
Project/Phase: Boyle, Los Alamitos | **Installed:** 3/09/01

Address / Location: 4022 Katela Ave. East of Bloomfield. | **Initials:** NV

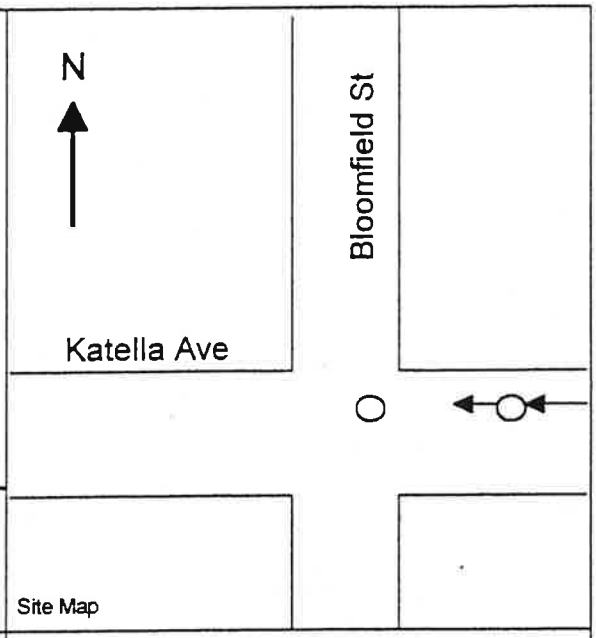
Diameter	ADS Job #
12.00" x 12.00"	11814.11

Access: Drive

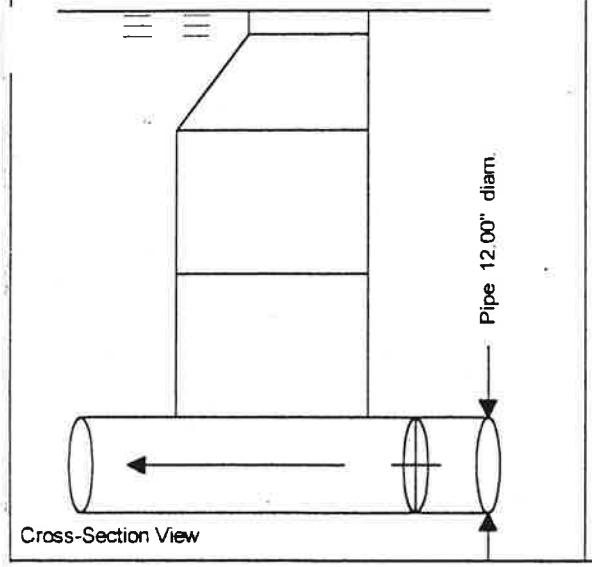
Landmark:



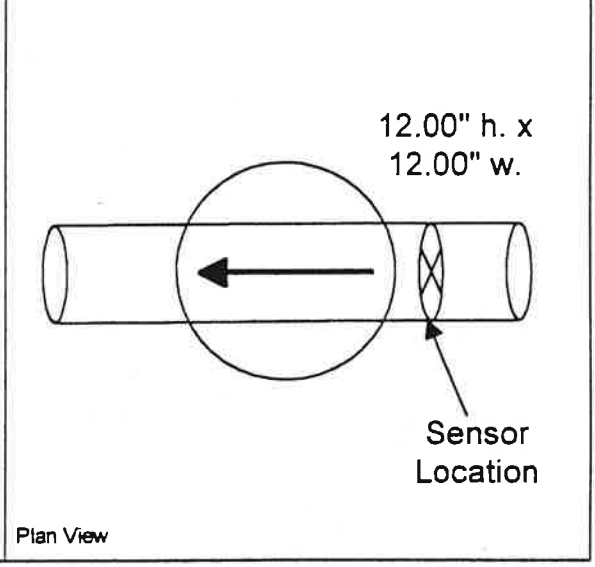
Access Map



Site Map



Cross-Section View



Plan View

Drawings Not to Scale

Installation

Stainless steel ring with ultrasonic and velocity sensors.

Safety

Traffic

Gas Investigation

O2	20.3	%
H2S	0	ppm
CO	1	ppm
LEL	0	%

Traffic

Moderate/Heavy

Pipe Material

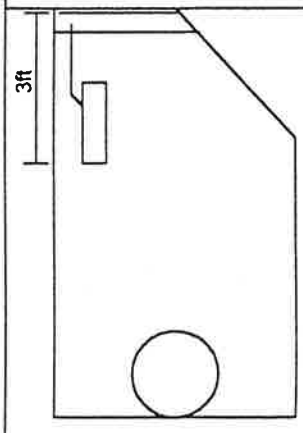
VCP

Manhole Depth

Pipe and M.H. Condition

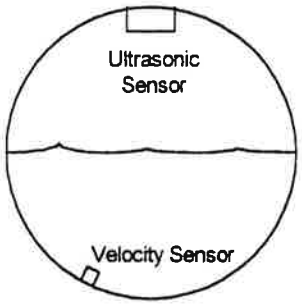
Pipe and M.H. in good condition.

Manhole Profile



Show Any Defects

Pipe Profile



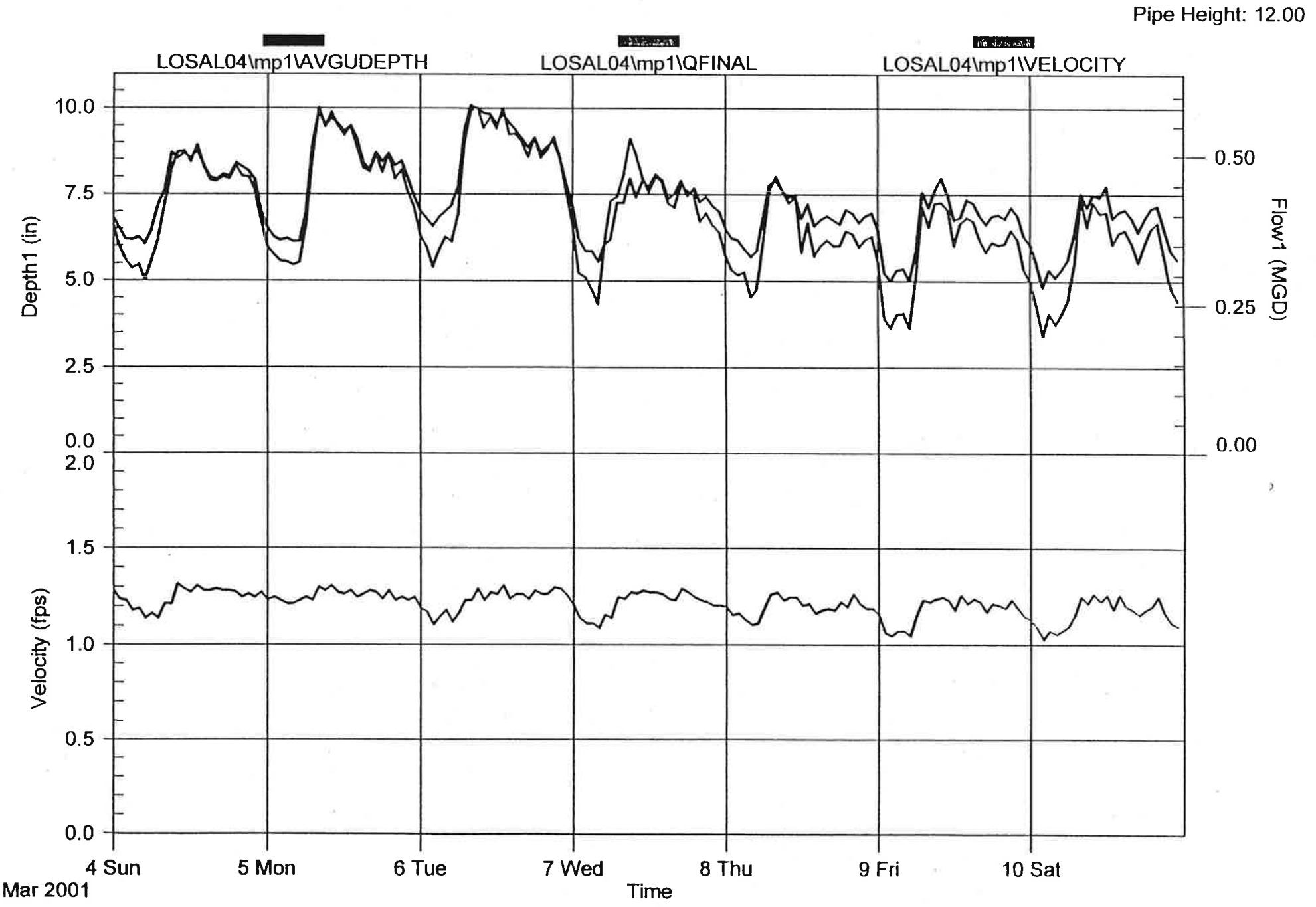
Show Sensor Locations

Hydraulics

Flow surface mostly smooth (+/- 0.25"). Flow moves well through invert with no sign of backup or surcharge.

harge :	None		Height :	—	
ime 13:55	DOF 9.0"	+/- 0.25"	Velocity 1.25 fps	Silt 0.00"	

ADS Environmental Services



ADS Environmental Services

Flow Summary

Pipe Height 12.00

	LOSAL04\vmp1\AVGUDEPTH (inches)					LOSAL04\vmp1\VELOCITY (feet/sec)					LOSAL04\vmp1\QFINAL (MGD)					
Date	Time	Min.	Time	Max.	Average	Time	Min.	Time	Max.	Average	Time	Min.	Time	Max.	Average	Total
3/4/01	5:15	6.0	9:45	9.2	7.6	5:15	1.0	10:45	1.4	1.2	5:15	0.263	13:30	0.536	0.422	0.422
3/5/01	5:30	6.0	8:00	10.3	8.1	20:00	1.1	19:30	1.4	1.3	5:30	0.307	10:15	0.598	0.455	0.455
3/6/01	3:00	6.4	9:30	10.4	8.6	2:30	1.0	22:00	1.4	1.2	2:30	0.302	9:30	0.630	0.479	0.479
3/7/01	2:30	5.0	13:45	8.6	7.1	2:30	1.0	17:15	1.4	1.2	4:00	0.210	9:15	0.572	0.405	0.405
3/8/01	3:00	5.0	21:15	8.0	6.8	3:00	1.0	18:15	1.3	1.2	4:00	0.238	10:30	0.472	0.359	0.359
3/9/01	1:45	4.6	10:45	8.8	6.6	1:45	1.0	13:45	1.3	1.2	1:45	0.184	13:30	0.457	0.337	0.337
3/10/01	2:00	4.6	8:00	8.2	6.4	2:00	1.0	14:00	1.3	1.2	2:00	0.184	8:00	0.457	0.324	0.324
ReportAvg					7.3					1.2					0.397	
ReportTotal																2.782

ADS Environmental Services

LOSAL04\mp1\AVGUDEPTH (inches):Dep
LOSAL04\mp1\VELOCITY (feet/sec):Vel
LOSAL04\mp1\QFINAL (MGD):Flow

Pipe Height 12.00

	Sunday 3/4/01			Monday 3/5/01			Tuesday 3/6/01			Wednesday 3/7/01			Thursday 3/8/01			Friday 3/9/01			Saturday 3/10/01		
	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow
0:00	7.0	1.3	0.395	6.8	1.2	0.371	6.8	1.2	0.359	7.9	1.2	0.441	6.8	1.2	0.352	7.1	1.2	0.377	5.4	1.1	0.238
0:15	6.9	1.3	0.383	6.6	1.2	0.356	6.9	1.2	0.366	6.8	1.2	0.348	6.7	1.2	0.341	5.9	1.1	0.277	6.3	1.1	0.307
0:30	6.8	1.3	0.389	6.5	1.2	0.338	7.0	1.1	0.354	7.2	1.2	0.385	6.3	1.3		6.9	1.2	0.357	6.3	1.1	0.307
0:45	6.6	1.2	0.356	6.2	1.2	0.322	7.4	1.2	0.386	6.8	1.2	0.348	6.3	1.1	0.307	5.9	1.1	0.277	6.3	1.1	0.307
1:00	6.5	1.3	0.362	6.2	1.2	0.329	7.0	1.1	0.354	6.8	1.2	0.349	6.3	1.1	0.307	5.4	1.1	0.238	5.4	1.1	0.238
1:15	6.7	1.2	0.362	6.2	1.2	0.321	6.8	1.2	0.348	5.9	1.1	0.277	5.9	1.1	0.277	5.9	1.1	0.277	5.4	1.1	0.238
1:30	6.5	1.2	0.349	6.3	1.2	0.335	6.7	1.2	0.344	5.9	1.1	0.277	6.4	1.2	0.323	5.0	1.0	0.210	5.4	1.1	0.238
1:45	6.3	1.2	0.320	6.4	1.3	0.349	6.7	1.2	0.340	6.3	1.1	0.307	6.4	1.2	0.326	4.6	1.0	0.184	5.9	1.1	0.277
2:00	6.2	1.2	0.322	6.3	1.2	0.335	6.5	1.1	0.310	6.3	1.1	0.307		1.2		5.4	1.1	0.238	4.6	1.0	0.184
2:15	6.3	1.2	0.333	6.2	1.2	0.319	6.5	1.1	0.320	6.3	1.1	0.307	5.9	1.1	0.277	4.6	1.0	0.184	4.6	1.0	0.184
2:30	6.2	1.3	0.337	6.1	1.2	0.312	6.7	1.0	0.302	5.0	1.0		6.4	1.1	0.316	5.4	1.1	0.238	5.0	1.0	0.210
2:45	6.1	1.2	0.305	6.1	1.2	0.324	6.6	1.1	0.320	5.9	1.1	0.277	6.2	1.1	0.305	4.6	1.0	0.184	5.0	1.0	0.210
3:00	6.0	1.2	0.299	6.0	1.2	0.318	6.4	1.1	0.308	5.9	1.1	0.277	5.0	1.0		5.4	1.1	0.238	5.4	1.1	0.238
3:15	6.1	1.2	0.317	6.2	1.2	0.320	6.8	1.2	0.359	6.3	1.1	0.307	6.0	1.1	0.290	5.0	1.0	0.210	5.4	1.1	0.238
3:30	6.3	1.2	0.316	6.3	1.2	0.328	7.0	1.1	0.344	5.4	1.1	0.238	6.4	1.2	0.323	5.0	1.0	0.210	5.9	1.1	0.277
3:45	6.3	1.1	0.307	6.3	1.2	0.320	7.0	1.1	0.354	5.9	1.1	0.277	6.2	1.1	0.306	5.9	1.1	0.277	4.6	1.0	0.184
4:00	6.3	1.1	0.310	6.2	1.2	0.319	6.9	1.1	0.345	5.0	1.0	0.210	5.4	1.1	0.238	5.4	1.1	0.238	5.4	1.1	0.238
4:15	6.2	1.2	0.328	6.1	1.2	0.317	6.9	1.2	0.367	5.4	1.1	0.238	5.9	1.1	0.277	4.6	1.0	0.184	5.0	1.0	0.210
4:30	6.1	1.2	0.308	6.0	1.2	0.310	7.0	1.2	0.365	5.9	1.1	0.277	6.1	1.1	0.297	6.0	1.1	0.283	5.0	1.0	0.210
4:45	6.3	1.2	0.320	6.2	1.2	0.319	7.2	1.2	0.375	5.9	1.1	0.277	5.4	1.1	0.238	5.4	1.1	0.238	5.0	1.0	0.210
5:00	6.1	1.1	0.296	6.1	1.2	0.317	7.2	1.1	0.354	5.9	1.1	0.277	5.9	1.1	0.277	4.6	1.0	0.184	5.0	1.0	0.210
5:15	6.0	1.0	0.263	6.1	1.2	0.325	7.2	1.1	0.353	6.3	1.1	0.306	5.9	1.1	0.277	5.4	1.1	0.238	5.4	1.1	0.238
5:30	6.0	1.2	0.298	6.0	1.2	0.307	7.1	1.1	0.349		1.2	0.440	6.3	1.1	0.307	5.0	1.0	0.210	5.0	1.0	0.210
5:45	6.1	1.2	0.308	6.3	1.2	0.335	7.2	1.1	0.365	5.9	1.1	0.377	5.4	1.1	0.238	5.0	1.0	0.210	5.9	1.1	0.277
6:00	6.2	1.2	0.311	6.5	1.2	0.351	7.4	1.2	0.388	5.9	1.1	0.473	6.7	1.2	0.344	6.3	1.1	0.307	5.9	1.1	0.277
6:15	6.3	1.2	0.319	6.9	1.3	0.385	7.6	1.1	0.374	5.9	1.1	0.472	6.7	1.2	0.342	5.4	1.1	0.238	5.0	1.0	0.210
6:30	6.5	1.2	0.332	7.0	1.2	0.375	7.7	1.2	0.407	6.3	1.1	0.404	7.3	1.2	0.390	5.9	1.1	0.277	5.4	1.1	0.238
6:45	6.7	1.1	0.323	7.4	1.2	0.408	8.2	1.2	0.435	6.8	1.2	0.348	6.8	1.2	0.348	5.9	1.3		6.3	1.1	0.307
7:00	6.8	1.1	0.332	8.0	1.3	0.475	8.5	1.2	0.467	7.3	1.2	0.390	7.4	1.2	0.400	7.6	1.2	0.420	6.3	1.1	0.307
7:15	7.4	1.1	0.374	8.7	1.2	0.479	9.4	1.3	0.545	7.3	1.2	0.390	7.9	1.2	0.441	7.3	1.2	0.390	6.3	1.1	0.307
7:30	7.1	1.1	0.344	9.4	1.2	0.516	9.8	1.2	0.522	7.3	1.3	0.472	7.9	1.3	0.472	7.3	1.2	0.390	6.3	1.1	0.307
7:45	7.2	1.2	0.374	9.6	1.2	0.515	9.8	1.2	0.555		1.2	0.476	7.9	1.3	0.457	8.1	1.2	0.456	6.8	1.2	0.348
8:00	7.4	1.2	0.396	10.3	1.3	0.594		1.2		7.3	1.3	0.462	7.9	1.3		6.8	1.2	0.348	8.2	1.2	0.457
8:15	7.4	1.2	0.397	9.9	1.3	0.574		1.2			1.2	0.429	7.9	1.3	0.472	7.3	1.2	0.390	6.8	1.3	
8:30	7.7	1.2	0.407	9.8	1.3	0.582		1.2		7.3	1.2	0.490		1.2	0.463		1.3		7.3	1.2	0.390
8:45	8.1	1.2	0.452	9.7	1.3	0.575	10.2	1.3	0.589	7.3	1.2	0.490		1.2	0.458	7.3	1.2	0.390	7.9	1.2	0.441
9:00	8.5	1.1	0.437	9.9	1.3	0.575	10.0	1.3	0.611	7.9	1.2	0.541	7.9	1.2	0.441	7.4	1.2	0.412	6.8	1.2	0.348
9:15	8.4	1.2	0.473	9.6	1.3	0.571	10.1	1.2	0.566	7.9	1.3	0.572	6.8	1.2		7.9	1.2	0.441	7.3	1.2	0.390
9:30	8.7	1.3	0.506	9.4	1.2	0.530	10.4	1.3	0.630	7.9	1.3	0.474	7.9	1.2	0.441	7.9	1.2	0.441		1.2	
9:45	9.2	1.2	0.492	9.0	1.3	0.522	9.4	1.2	0.518	8.2	1.2	0.527	7.9	1.2	0.441	7.3	1.2	0.390	7.3	1.2	0.390
10:00	8.7	1.2	0.490	9.6	1.3	0.587	9.3	1.3	0.552	7.9	1.3	0.523	7.3	1.2	0.390	7.9	1.2	0.441	7.3	1.3	
10:15	8.6	1.3	0.521	9.8	1.3	0.598	9.7	1.1	0.489	7.3	1.2	0.490	7.3	1.2	0.390	7.3	1.2	0.390	7.3	1.3	
10:30	8.5	1.3	0.495	9.9	1.3	0.574	10.3	1.2	0.577	7.3		0.513		1.2	0.472	7.9	1.2	0.441		1.2	
10:45	8.3	1.4	0.520	9.5	1.2	0.534	10.2	1.2	0.572	7.3	1.3	0.474	7.3	1.3	0.472	8.8	1.3		7.9	1.2	0.441
11:00	8.7	1.2	0.488	9.6	1.3	0.554	10.2	1.2	0.573	7.9	1.2	0.441	7.3	1.3	0.456	7.3	1.2	0.390	7.9	1.2	0.441
11:15	8.7			9.5	1.2	0.535	9.8	1.3	0.567	7.9	1.3	0.471		1.2	0.451	7.3	1.2	0.390	7.3	1.2	0.390
11:30	8.8	1.3	0.526	10.0	1.3	0.593	10.1	1.3	0.581	7.9	1.3		7.3	1.2	0.390		1.2			1.2	
11:45	8.5	1.3	0.507	9.2	1.2	0.518	9.3	1.3	0.538		1.3	0.469	7.9	1.2	0.441	7.9	1.2	0.441	7.3	1.2	0.390

LOSAL04\mp1\AVGUDEPTH (inches):Dep
LOSAL04\mp1\QFINAL (MGD):Flow

LOSAL04\mp1\VELOCITY (feet/sec):Vel

	Sunday 3/4/01			Monday 3/5/01			Tuesday 3/6/01			Wednesday 3/7/01			Thursday 3/8/01			Friday 3/9/01			Saturday 3/10/01		
	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow
12:00	8.5	1.3	0.493	9.2	1.2	0.508	9.3	1.3	0.541	7.9	1.3	0.472	7.3	1.2	0.390	7.3	1.2	0.390	7.3	1.2	0.390
12:15	8.4	1.2	0.470	9.2	1.2	0.508	9.9	1.3	0.573	7.9	1.3	0.456	7.3	1.3		6.8	1.2	0.348	7.9	1.2	0.441
12:30	8.6	1.2	0.485	9.4	1.3	0.548	9.3	1.2	0.495	7.3	1.2	0.390	5.9	1.1	0.277	6.3	1.1	0.307		1.3	
12:45	8.6	1.3	0.510	9.4	1.3	0.577	9.6	1.3	0.573	7.9	1.2	0.441	6.8	1.2	0.348	6.8	1.2	0.348	7.9	1.3	
13:00	8.7	1.3	0.520	9.2	1.2	0.519	9.9	1.3	0.573	7.9	1.2	0.441	7.9	1.2	0.441	6.8	1.3		6.8	1.2	0.348
13:15	8.9	1.2	0.500	9.5	1.3	0.564	9.7	1.3	0.578	7.9	1.2	0.441	6.8	1.2	0.348	6.3	1.1	0.307	6.8	1.2	0.348
13:30	8.8	1.3	0.536	9.8	1.2	0.551	10.1	1.3	0.612	7.9	1.3		7.3	1.2	0.390	8.2	1.2	0.457	6.8	1.2	0.348
13:45	8.7	1.3	0.514	9.5	1.3	0.567	9.6	1.3	0.557	8.6	1.3	0.501	6.9	1.2	0.369	6.3	1.3		6.9	1.2	0.358
14:00	8.7	1.3	0.501	9.2	1.2	0.494	9.1	1.3	0.542	7.9	1.2	0.441	6.3	1.1	0.307	8.0	1.2	0.449	6.8	1.3	
14:15	8.5	1.3	0.503	9.2	1.3	0.549	9.6	1.2	0.527	8.0	1.2	0.445	7.4	1.2	0.398	7.9	1.2	0.441	7.3	1.2	0.390
14:30	8.0	1.2	0.450	9.2	1.2	0.518	10.1	1.2	0.566	7.9	1.3	0.472	6.3	1.1	0.307	6.8	1.2	0.348	7.3	1.3	
14:45	8.1	1.3	0.463	8.9	1.2	0.500	9.6	1.2	0.511	7.9	1.3	0.462	6.4	1.1	0.314	6.8	1.2	0.348	6.8	1.2	0.348
15:00	8.1	1.2	0.452	8.8	1.3	0.509	9.5	1.2	0.535	7.3	1.2	0.390	7.1	1.2	0.380	7.3	1.2	0.390	7.9	1.2	0.441
15:15	8.0	1.2	0.447	8.7	1.2	0.488	9.7	1.3	0.565	7.3	1.3	0.472	6.8	1.2	0.350	7.3	1.3		7.3	1.2	0.390
15:30	8.0	1.3	0.463	8.3	1.2	0.465	9.4	1.2	0.533	7.9	1.2	0.441	7.3	1.2	0.390	7.3	1.2	0.390	7.3	1.2	0.390
15:45	7.9	1.3	0.476	7.9	1.3	0.452	8.9	1.3	0.515	7.1	1.2	0.377	5.9	1.1	0.277	7.3	1.2	0.390	5.9	1.1	0.277
16:00	7.8	1.2	0.436	8.0	1.2	0.439	8.6	1.2	0.471	7.3	1.2	0.390	6.8	1.2	0.347	6.8	1.2	0.348	6.3	1.1	0.307
16:15	7.7	1.3	0.454	8.1	1.3	0.467	9.2	1.2	0.522	7.3	1.2	0.390	7.3	1.2	0.390	6.8	1.3		6.8	1.2	0.348
16:30	7.9	1.3	0.479	8.2	1.3	0.499	9.5	1.3	0.563	7.9	1.2	0.441	7.3	1.2	0.390	6.8	1.2	0.348	7.9	1.2	0.441
16:45	8.2	1.2	0.460	8.5	1.3	0.489	9.2	1.3	0.534	7.7	1.2	0.430	6.3	1.1	0.307	7.3	1.2	0.390	6.3	1.1	0.307
17:00	8.1	1.3	0.479	8.7	1.3	0.501	8.8	1.2	0.499	7.9	1.3	0.450	6.3	1.1	0.307	6.3	1.1	0.307	6.8	1.2	0.348
17:15	8.1	1.2	0.455	8.6	1.2	0.485	9.1	1.2	0.512	7.9	1.4	0.436	7.3	1.2	0.390	6.8	1.2	0.348	6.8	1.2	0.348
17:30	8.1	1.3	0.467	8.7	1.3	0.520	8.8	1.2	0.486	7.9	1.2	0.441	6.8	1.2	0.348	7.3	1.2	0.390	6.8	1.2	0.348
17:45	7.9	1.3	0.456	8.8	1.2	0.495	8.7	1.2	0.492	7.9	1.2	0.471	6.8	1.2	0.348	6.3	1.1	0.307	5.4	1.1	0.238
18:00	7.9	1.2	0.440	8.5	1.3	0.489	9.1	1.3	0.541	7.3	1.2	0.390	6.3	1.1	0.307	6.8	1.2	0.348	7.3	1.2	0.390
18:15	8.1	1.3	0.478	8.5	1.2	0.455	8.9	1.3	0.530	8.1	1.2	0.452	6.3	1.3		6.3	1.1	0.307	5.9	1.1	0.277
18:30	8.0	1.3	0.463	8.4	1.2	0.462	9.1	1.2	0.501	7.3	1.3	0.472	7.3	1.2	0.390	7.3	1.2	0.390	7.3	1.2	0.390
18:45	8.1	1.3	0.465	8.3	1.3	0.482	9.4	1.3	0.547	7.3	1.3	0.452	6.8	1.2	0.348	7.3	1.3		6.8	1.2	0.348
19:00	8.1	1.3	0.468	8.7	1.2	0.492	8.8	1.3	0.509	7.9	1.2	0.441	6.8	1.2	0.348	6.9	1.2	0.357	6.8	1.2	0.348
19:15	8.5	1.2	0.477	9.0	1.3	0.522	8.5	1.3	0.490	7.0	1.2	0.374	7.5	1.2	0.406	6.3	1.1	0.307	7.9	1.2	0.441
19:30	8.6	1.3	0.495	8.8	1.4	0.548	9.1	1.3	0.528	7.9	1.2	0.441	7.3	1.2	0.390	7.3	1.2	0.390	7.9	1.2	0.441
19:45	8.5	1.3	0.490	8.2	1.2	0.447	8.4	1.2	0.458	7.9	1.3	0.472	6.8	1.2	0.348	7.3	1.3		5.9	1.1	0.277
20:00	8.1	1.3	0.469	8.2	1.1	0.424	8.5	1.3	0.491	7.9	1.2	0.441	7.5	1.2	0.417	6.3	1.1	0.307	6.8	1.2	0.348
20:15	8.3	1.3	0.479	8.2	1.3	0.486	8.7	1.2	0.490	6.9	1.2	0.354	6.8	1.3		6.4	1.2	0.323	6.8	1.3	
20:30	8.5	1.2	0.464	8.2	1.2	0.463	9.3	1.2	0.523		1.3		6.8	1.2	0.348	7.3	1.2	0.390	7.3	1.2	0.390
20:45	8.2	1.2	0.451	8.6	1.2	0.474	9.1	1.3	0.527	7.3	1.2	0.390	6.8	1.3		7.3	1.2	0.390	7.9	1.2	0.441
21:00	8.3	1.3	0.490	8.5	1.3	0.493	9.2	1.2	0.521	7.9	1.2	0.444	6.3	1.1	0.307	7.3	1.2	0.390	7.3	1.2	0.390
21:15	8.2	1.2	0.461	8.8	1.2	0.496	9.3	1.3	0.552	7.3	1.2	0.390	8.0	1.2	0.446	7.3	1.2	0.390	5.9	1.1	0.277
21:30	8.1	1.2	0.454	8.4	1.2	0.461	8.9	1.3	0.533	7.3	1.2	0.390	6.3	1.1	0.307	7.3	1.3		6.3	1.1	0.307
21:45	8.1	1.2	0.454	8.1	1.2	0.453	8.7	1.3	0.520	7.3	1.2	0.390	6.3	1.3		6.8	1.2	0.348	6.8	1.2	0.348
22:00	8.1	1.1	0.420	7.9	1.2	0.430	8.9	1.4	0.554	6.3	1.1	0.307	6.8	1.2	0.348	7.3	1.2	0.390	6.3	1.1	0.307
22:15	8.1	1.3	0.464	7.9	1.2	0.428	8.6	1.3	0.501	7.3	1.2	0.390	7.3	1.2	0.390	6.8	1.2	0.348	5.0	1.0	0.210
22:30	7.9	1.3	0.467	8.1	1.3	0.464	8.4	1.2	0.472	8.0	1.2	0.446	6.8	1.2	0.348	6.8	1.2	0.348	5.9	1.1	0.277
22:45	7.6	1.2	0.420	8.0	1.2	0.438	8.1	1.2	0.454	7.3	1.2	0.390	6.8	1.2	0.348	6.8	1.2	0.348	6.3	1.1	0.307
23:00	7.2	1.2	0.388	7.8	1.3	0.458	8.1	1.3	0.468	7.4	1.2	0.407	7.3	1.2	0.390	6.8	1.2	0.348	5.9	1.1	0.277
23:15	7.0	1.3	0.396	7.7	1.2	0.414	7.9	1.2	0.441	7.6	1.2	0.423	7.3	1.2	0.390	6.3	1.1	0.307	5.9	1.1	0.277
23:30	7.0	1.2	0.383	7.4	1.2	0.408	7.7	1.3	0.450	6.8	1.2	0.348	7.5	1.2	0.403	6.3	1.1	0.307	5.4	1.1	0.238
23:45	6.9	1.3	0.404	7.0	1.2	0.374	7.5	1.2	0.391	6.3	1.1	0.307	5.9	1.1	0.277	5.9	1.1	0.277	5.4	1.1	0.238
Total			0.422			0.455			0.479			0.405			0.359			0.337			0.324
Average	7.6	1.2	0.422	8.1	1.3	0.455	8.6	1.2	0.479	7.1	1.2	0.405	6.8	1.2	0.359	6.6	1.2	0.337	6.4	1.2	0.324
Min Time	5:15	5:15	5:15	5:30	20:00	5:30	3:00	2:30	2:30	2:30	2:30	4:00	3:00	3:00	4:00	1:45	1:45	1:45	2:00	2:00	2:00
Min Value	6.0	1.0	0.263	6.0	1.1	0.307	6.4	1.0	0.302	5.0	1.0	0.210	5.0	1.0	0.238	4.6	1.0	0.184	4.6	1.0	0.184
Max Time	9:45	10:45	13:30	8:00	19:30	10:15	9:30	22:00	9:30	13:45	17:15	9:15	21:15	18:15	10:30	10:45	13:45	13:30	8:00	14:00	8:00
Max Value	9.2	1.4	0.536	10.3	1.4	0.598	10.4	1.4	0.630	8.6	1.4	0.572	8.0	1.3	0.472	8.8	1.3	0.457	8.2	1.3	0.457
Week Avg																			7.3	1.2	0.397
WeekTotal																					2.782

ADS ENVIRONMENTAL SERVICES

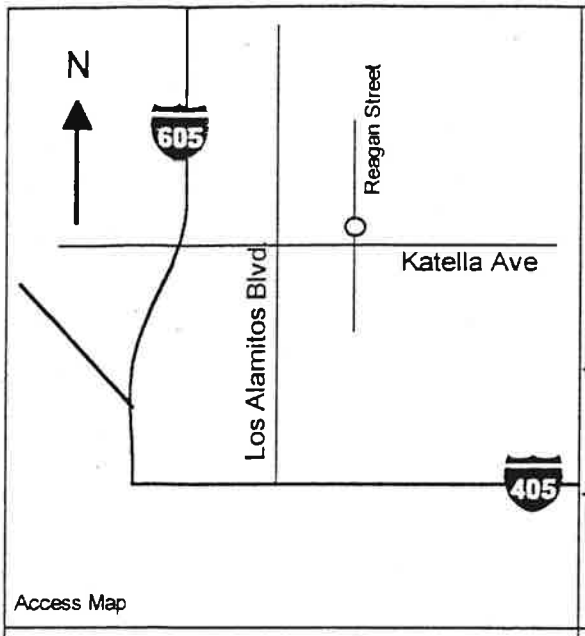
Site Report

Site	Book # / MH #
LOSAL05	MH 811

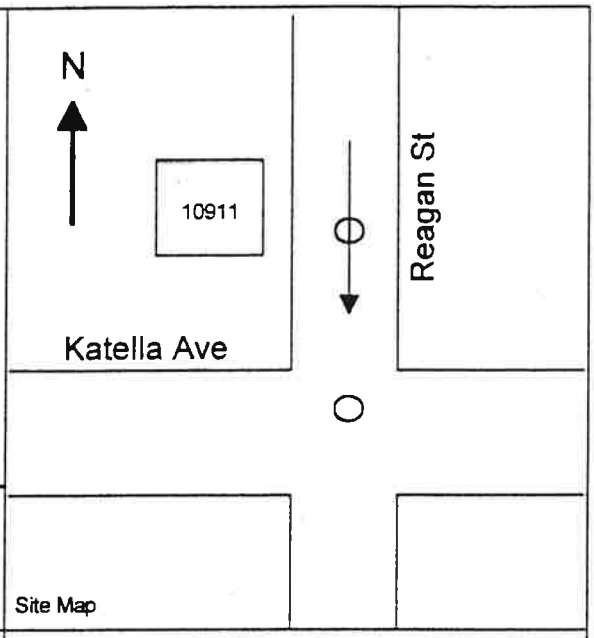
Project/Phase: Boyle, Los Alamitos | **Installed:** 3/09/01 | Diameter: 8.00" x 8.00" | ADS Job #: 11814.11

ress / Location: 10911 Reagan Street. North of Katela Ave. | **Initials:** NV

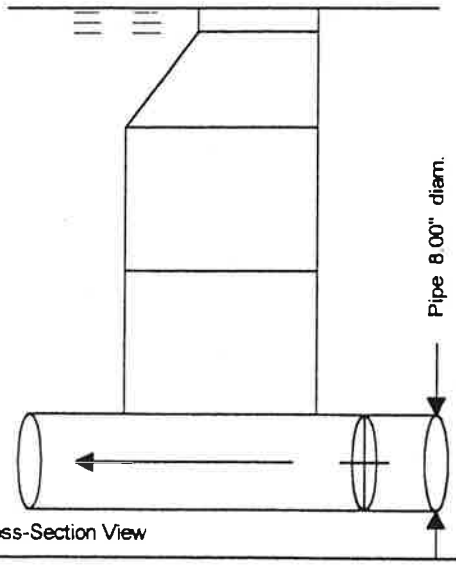
Access: Drive | **Landmark:**



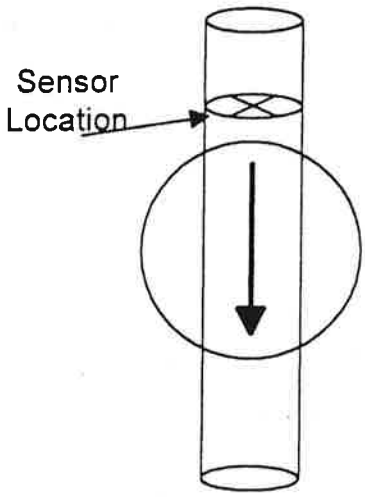
Access Map



Site Map



Cross-Section View



Plan View

Drawings Not to Scale

Installation
Stainless steel ring with ultrasonic and velocity sensors.

Safety
Good, light traffic.

Gas Investigation

O2	20.9	%
H2S	0	ppm
CO	1	ppm
LEL	0	%

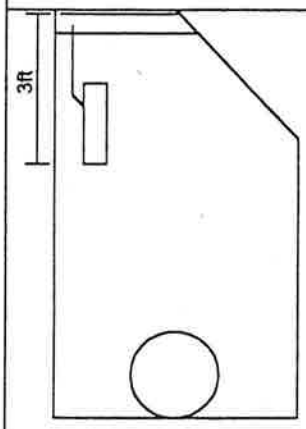
Traffic
Light

Pipe Material
VCP

Manhole Depth

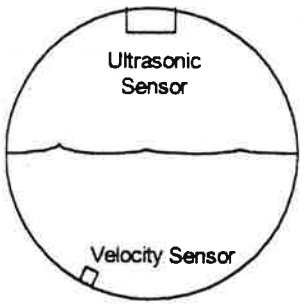
Pipe and M.H. Condition
Pipe and M.H. in good condition.

Manhole Profile



Show Any Defects

Pipe Profile



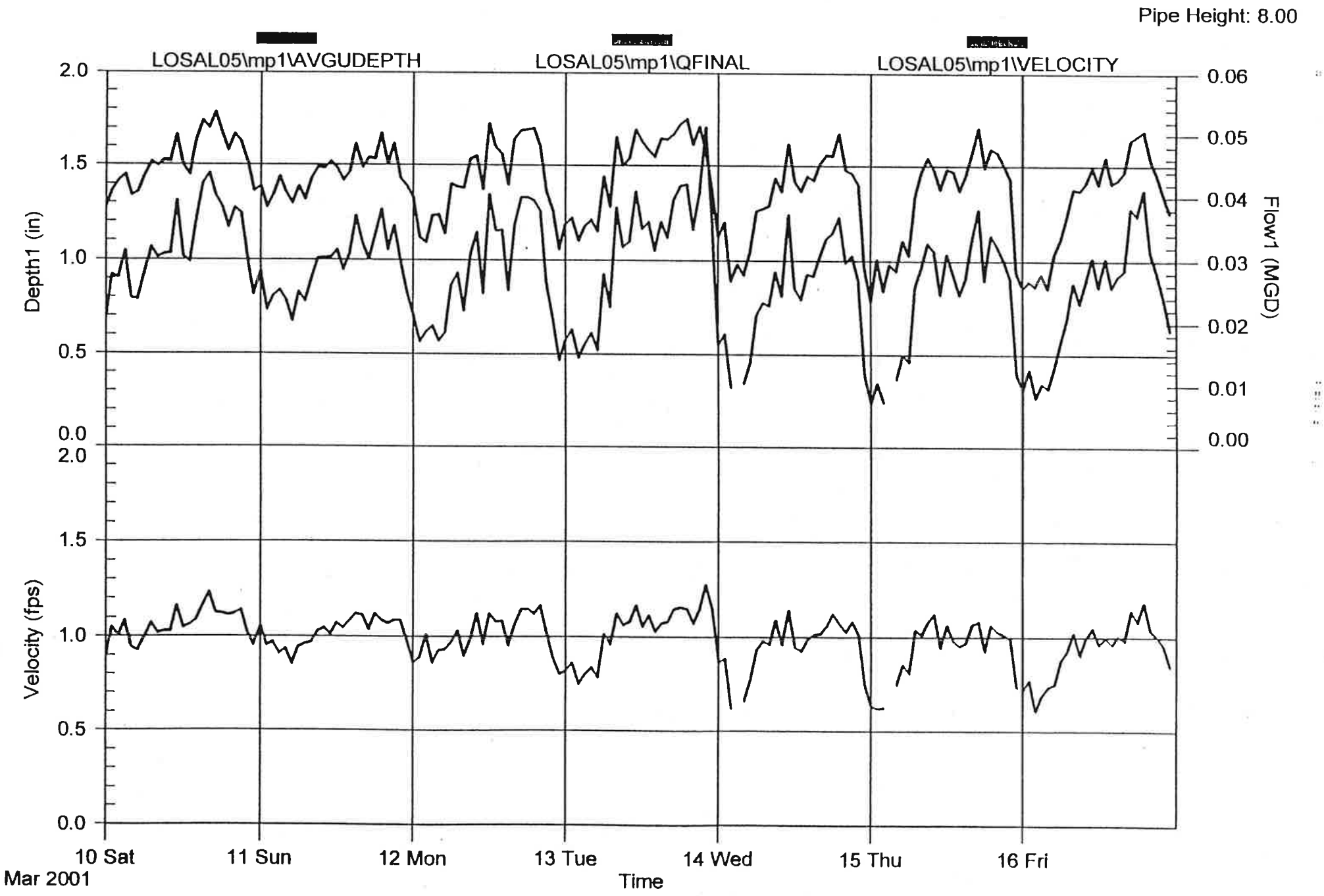
Show Sensor Locations

Hydraulics

Flow surface mostly smooth (+/- 0.13"). Flow moves well through invert with no sign of backup or surcharge. Low flows expected at night.

harge : None			Height : —		
ime 12:00	DOF 1.50"	+/- 0.13"	Velocity 0.90 fps	Silt 0.00"	

ADS Environmental Services



ADS Environmental Services

Flow Summary

Pipe Height 8.00

	LOSAL05\mp1\AVGUDEPTH (inches)					LOSAL05\mp1\VELOCITY (feet/sec)					LOSAL05\mp1\QFINAL (MGD)					
Date	Time	Min.	Time	Max.	Average	Time	Min.	Time	Max.	Average	Time	Min.	Time	Max.	Average	Total
3/10/01	3:45	1.1	17:00	2.0	1.5	0:00	0.8	16:15	1.3	1.1	4:45	0.018	15:30	0.049	0.032	0.032
3/11/01	1:15	1.3	19:45	1.9	1.5	2:00	0.8	0:15	1.3	1.0	2:00	0.018	19:45	0.051	0.029	0.029
3/12/01	23:45	1.0	12:30	2.0	1.4	22:45	0.7	7:15	1.3	1.0	23:45	0.013	12:30	0.052	0.028	0.028
3/13/01	2:15	1.0	22:15	2.0	1.5	2:00	0.6	22:15	1.3	1.0	2:15	0.010	22:15	0.058	0.031	0.031
3/14/01	23:45	0.8	11:45	1.8	1.3	2:00	0.6	21:15	1.3	0.9	2:00	0.008	19:15	0.045	0.024	0.024
3/15/01	0:45	0.8	17:45	1.8	1.3	1:45	0.5	16:45	1.3	0.9	0:45	0.006	16:45	0.051	0.023	0.023
3/16/01	1:15	0.7	17:30	1.9	1.3	2:15	0.5	19:30	1.3	0.9	2:15	0.007	17:30	0.051	0.023	0.023
ReportAvg					1.4					1.0					0.027	
ReportTotal																0.190

ADS Environmental Services

LOSAL05\mp1\AVGUDEPTH (inches):Dep
LOSAL05\mp1\QFINAL (MGD):Flow

LOSAL05\mp1\VELOCITY (feet/sec):Vel

Pipe Height 8.00

	Saturday 3/10/01			Sunday 3/11/01			Monday 3/12/01			Tuesday 3/13/01			Wednesday 3/14/01			Thursday 3/15/01			Friday 3/16/01		
	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow
0:00	1.3	0.8	0.018	1.5	0.9	0.027	1.4	1.0	0.026	1.0	0.8	0.014	1.2			0.8			0.9	0.8	0.011
0:15	1.2	0.9	0.019	1.3	1.3	0.033	1.3	0.8	0.020	1.2	0.8	0.018	1.1	0.8	0.015	0.8	0.6	0.007	0.8	0.7	0.008
0:30	1.3	0.8	0.020	1.5	1.0	0.028	1.3	0.9	0.021	1.2	0.8	0.018	1.1			0.8	0.6	0.008	0.8	0.6	0.007
0:45	1.3	1.0	0.025	1.3			1.3	0.7	0.018	1.3	0.8	0.019	1.1	0.8	0.016	0.8	0.6	0.006	0.9	0.8	0.010
1:00	1.3	1.0	0.025	1.3	0.9	0.020	1.3	0.9	0.022	1.3	0.9	0.022	1.1			1.0	0.6	0.010	0.9	0.7	0.010
1:15	1.4	1.1	0.032	1.3	0.9	0.020	1.1	0.8	0.015	1.3	0.9	0.022	1.3			1.0			0.7		
1:30	1.3			1.3			1.0	0.9	0.015	1.2	0.8	0.018	1.2	0.9	0.019	1.0	0.7	0.012	1.1	0.9	0.018
1:45	1.4	1.0	0.025	1.3	1.1	0.025	1.1			1.1	0.7	0.013	1.2	0.9	0.018	1.1	0.5	0.009	0.8	0.6	0.007
2:00	1.4	1.0	0.025	1.3	0.8	0.018	1.0			1.0	0.6	0.010	0.9	0.6	0.008	0.8	0.6	0.007	0.8		
2:15	1.4	1.0	0.026	1.3	0.9	0.023	1.0			1.0	0.6	0.010	0.8			0.8	0.6	0.006	0.9	0.5	0.007
2:30	1.4	0.9	0.026	1.3	1.1	0.026	1.0	1.1	0.018	1.2	0.8	0.017	0.9			0.8	0.7	0.008	0.8	0.7	0.008
2:45	1.5	1.0	0.031	1.5	1.0	0.029	1.3	0.9	0.022	1.2	0.9	0.020	1.0	0.7	0.011	1.0			0.9	0.6	0.009
3:00	1.4	1.0	0.026	1.5	1.0	0.030	1.2	0.8	0.016	1.2	0.8	0.019	1.2						1.0	0.7	0.010
3:15	1.5			1.5	0.9	0.027	1.3	1.0	0.022	1.2	0.8	0.016	1.1			1.0			1.0	0.7	0.011
3:30	1.8	1.1	0.042	1.4	0.8	0.022	1.3	0.8	0.020	1.1	0.8	0.016	0.8			0.9			0.9	0.7	0.010
3:45	1.1	1.1	0.023	1.4	0.8	0.021	1.2			1.1	0.7	0.015	0.8			0.9			0.8		
4:00	1.3	0.9	0.020	1.3	1.0	0.025	1.1	0.8	0.017	1.1	0.7	0.014	0.9	0.6	0.008	0.9			0.8	0.6	0.007
4:15	1.5	1.1	0.033	1.3	1.0	0.025	1.2	0.8	0.017	1.1	0.8	0.016	0.8			0.9	0.7	0.009	0.8	0.8	0.010
4:30	1.3	1.0	0.025	1.4	0.9	0.023	1.3	1.0		1.5	1.0	0.028	1.0	0.7	0.013	1.0	0.8	0.012	0.8	0.7	0.009
4:45	1.2	0.8	0.018	1.3	0.9	0.022				1.1	0.8	0.016	0.9	0.7	0.010	1.0	0.8	0.013	1.0	0.7	0.012
5:00	1.3	0.9	0.021	1.3	0.8	0.020				1.1	0.8	0.015	1.1	0.8	0.014	1.0	0.9	0.014	1.2	0.8	0.017
5:15	1.3	0.9	0.022	1.3	0.9	0.021	1.2	0.8	0.018	1.2	0.8	0.016	1.0	0.8	0.012	1.2	0.8	0.017	1.1	0.8	0.015
5:30	1.4	1.0	0.029	1.3	0.8	0.020	1.0	0.8	0.014	1.1	0.7	0.014	1.0	0.7	0.011	1.3			1.0	0.7	0.012
5:45	1.4	0.9	0.023	1.3	0.8	0.019	1.1	1.1	0.023	1.2	0.8	0.017	1.1	0.8	0.016	1.0			0.9	0.6	0.008
6:00	1.4	0.9	0.024	1.3	0.8	0.019	1.2	0.8	0.016	1.4	1.0	0.027	1.2	0.9	0.019	0.9	0.8	0.012	1.1	0.7	0.013
6:15	1.5	1.1	0.032	1.4	0.9	0.022	1.5	0.9	0.027	1.3	1.1	0.026	1.3	0.9	0.022	1.1	0.8	0.015	1.1	1.0	0.021
6:30	1.4	1.0	0.025	1.4	1.0	0.028	1.5	0.9	0.027	1.5	0.9	0.027	1.3	0.9	0.023	1.1	0.8	0.017	1.3	1.0	0.025
6:45	1.5	1.0	0.029	1.4	1.1	0.030	1.5	1.2	0.034	1.5	1.0	0.030	1.3	0.9	0.021	1.0	0.8	0.012	0.9	0.7	0.010
7:00	1.4	0.9	0.025	1.3	0.8	0.020	1.3	0.9	0.021	1.3	1.1	0.027	1.0	0.8	0.013	1.2	1.0	0.023	1.2	1.0	0.022
7:15	1.6	1.2	0.037	1.3	1.1	0.026	1.6	1.3	0.043	1.2	0.9	0.019	1.5	1.0	0.028	1.3	1.1	0.027	1.0	0.7	0.013
7:30	1.5	1.1	0.031	1.3	0.9	0.020	1.5	1.1	0.031	1.2	0.8	0.019	1.2	0.8	0.018	1.3	0.9	0.023	1.3	0.9	0.023
7:45	1.6	1.1	0.035	1.4	1.0	0.027	1.2	0.8	0.016	1.4	1.0	0.025	1.3	1.3	0.033	1.4	1.1	0.030	1.4	1.0	0.026
8:00	1.7	1.1	0.041	1.3	0.8	0.020	1.4			1.5	1.0	0.028	1.3	1.2	0.029	1.3	1.0	0.025	1.3	1.0	0.024
8:15	1.6	1.1	0.036	1.6	1.1	0.036				1.6	1.1	0.034	1.2	0.8	0.016	1.4	1.0	0.028	1.3	0.9	0.022
8:30	1.3	1.0	0.024	1.4	1.0	0.027	1.3	0.9	0.023	1.9	1.2	0.050	1.3	1.0	0.023	1.4	0.9	0.026	1.3	1.2	0.029
8:45	1.3	0.9	0.021	1.3			1.5	1.0	0.027	1.7	1.2	0.041	1.4	0.9	0.023	1.6	1.1	0.036	1.5	1.0	0.030
9:00	1.7	1.1	0.037	1.3	0.9	0.022	1.5	1.0	0.029	1.7	1.2	0.041	1.4	1.0	0.026	1.5	1.1	0.031	1.3	0.9	0.023
9:15	1.5	1.0	0.029	1.7	1.2	0.041	1.7	1.1	0.037	1.5	1.0	0.030	1.6	1.0	0.032	1.8	1.1	0.042	1.3	0.9	0.021
9:30	1.4	1.0	0.028	1.6	1.0	0.032	1.5	0.9	0.026	1.4				1.3		1.6			1.5	0.9	0.027
9:45	1.5	1.0	0.029	1.4	1.0	0.026		0.9		1.5	1.0	0.028	1.3	1.1	0.026	1.3	1.0	0.024	1.3	0.9	0.021
10:00	1.5	1.0	0.029	1.5	1.1	0.032	1.5	1.2	0.036	1.4	0.9	0.025		1.1			1.2		1.5	1.0	0.028
10:15	1.6	1.2	0.040	1.4	1.1	0.028	1.6	1.1	0.035	1.5	1.1	0.034	1.4	1.0	0.028	1.6	1.1	0.038			
10:30	1.3	0.8	0.021	1.7	1.1	0.036	1.6	1.1	0.036	1.5	1.1	0.035	1.3	0.9	0.022	1.3	0.9	0.022	1.4	1.0	0.025
10:45	1.7	1.0	0.034	1.3	0.9	0.024	1.5	1.0	0.030	1.7	1.1	0.038	1.3	0.8	0.020	1.5	1.2	0.034	1.4	1.0	0.027
11:00	1.7			1.5	1.0	0.029	1.4	0.9	0.023	1.7	1.2	0.042	1.7	1.2	0.040	1.4	1.0	0.027	1.5	1.0	0.030
11:15	1.5	1.1	0.033	1.4	0.9	0.025	1.3	1.1	0.026	1.8	1.1	0.041	1.5	1.1	0.032	1.3	0.8	0.018	1.6	1.1	0.034
11:30	1.8	1.3	0.049	1.7	1.1	0.040	1.4	1.0	0.027	1.5	1.0	0.030	1.5	1.1	0.032	1.4	1.1	0.031	1.5	1.1	0.034
11:45	1.7			1.5	0.9	0.027	1.4	0.9	0.022	1.8	1.3	0.049	1.8	1.1	0.044	1.3	0.9	0.022	1.3	0.9	0.023

LOSAL05\mp1\AVGUDEPTH (inches):Dep
LOSAL05\mp1\QFINAL (MGD):Flow

LOSAL05\mp1\VELOCITY (feet/sec):Vel

	Saturday 3/10/01			Sunday 3/11/01			Monday 3/12/01			Tuesday 3/13/01			Wednesday 3/14/01			Thursday 3/15/01			Friday 3/16/01		
	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow	Dep	Vel	Flow
12:00	1.6	1.1	0.034	1.3	0.9	0.022	1.5	1.0	0.032	1.6	1.0	0.034	1.3	0.8	0.021	1.5	1.1	0.030	1.3	0.9	0.021
12:15	1.5	1.2	0.035	1.7	1.3	0.044	1.7	1.1	0.040	1.8	1.1	0.042	1.5	1.0	0.029	1.3	0.9	0.021	1.3	0.9	0.023
12:30	1.4	0.9	0.025	1.6	1.1	0.036	2.0	1.2	0.052	1.6	1.1	0.036	1.4	0.9	0.026	1.5	1.1	0.032	1.4	0.9	0.024
12:45	1.5	1.0	0.028	1.3	0.9	0.023	1.7	1.1	0.037	1.5	1.0	0.028	1.4	1.0	0.026	1.7	1.2	0.041	1.5	1.1	0.033
13:00	1.5	1.0	0.028	1.3	0.8	0.020	1.5	1.0	0.029	1.3	0.9	0.023	1.3	0.9	0.022	1.5	0.9	0.027	1.5	1.0	0.028
13:15	1.5	1.0	0.030	1.5	1.0	0.029	1.5	1.1	0.032	1.5	1.2	0.035	1.3	0.9	0.022	1.5	0.9	0.027	1.6	1.0	0.031
13:30	1.5	1.2	0.035	1.4	1.2	0.033	1.7	1.1	0.040	1.5	1.1	0.033	1.5	1.0	0.029	1.5	1.0	0.028	1.5	1.0	0.028
13:45	1.3	1.0	0.025	1.4	1.1	0.031	1.7	1.1	0.038	1.9	1.2	0.053	1.3	0.9	0.021	1.5	1.0	0.030	1.6	1.0	0.033
14:00	1.7	1.1	0.038	1.5	1.1	0.034	1.5			1.6	1.1	0.034	1.5	1.0	0.028	1.5	1.0	0.031	1.4	1.0	0.026
14:15	1.4	1.0	0.025	1.4	1.1	0.028	1.6	0.9	0.031	1.6	1.1	0.035	1.3	0.9	0.023	1.3	1.0	0.024	1.5	1.0	0.028
14:30	1.8	1.1	0.043	1.5	1.1	0.031	1.6	1.3	0.042	1.5	1.0	0.029	1.7	1.2	0.040	1.3	0.9	0.022	1.3	0.9	0.021
14:45	1.7	1.1	0.039	1.4			1.5	1.1	0.031	1.5	1.0	0.028	1.3	0.8	0.021	1.3	0.9	0.021	1.4	1.0	0.028
15:00	1.7	1.2	0.043	1.5	1.0	0.030	1.5	1.0	0.028	1.6	1.0	0.032	1.3	0.9	0.023	1.5	0.9	0.027	1.3	1.0	0.024
15:15	1.7	1.1	0.036	1.7	1.2	0.040	1.3	1.0	0.024	1.8	1.1	0.043	1.4	1.0	0.028	1.3	0.9	0.021	1.5	1.1	0.031
15:30	1.9	1.2	0.049	1.8	1.3	0.049	1.3	0.9	0.023	1.7	1.1	0.038	1.4	1.0	0.027	1.5	1.0	0.030	1.6	1.0	0.033
15:45	1.7	1.2	0.040	1.5	1.0	0.027	1.4	0.9	0.024	1.6	1.0	0.031	1.5	1.1	0.032	1.5	1.0	0.029	1.3	0.9	0.022
16:00	1.6			1.5	1.1	0.030	1.7	1.1	0.038	1.5	1.1	0.032	1.7	1.1	0.041	1.5	1.0	0.028	1.3	0.9	0.022
16:15	1.7	1.3	0.045	1.6	1.1	0.038	1.6	1.0	0.033	1.9			1.6	1.0	0.032	1.2	0.8	0.019	1.5	1.0	0.029
16:30	1.9	1.2	0.047	1.4	1.0	0.025	1.5	1.0	0.028	1.5			1.4	1.0	0.026	1.8			1.3	0.8	0.020
16:45	1.7	1.2	0.040	1.5	1.2	0.035	1.8	1.1	0.043	1.6	1.1	0.035	1.3	0.9	0.023	1.8	1.3	0.051	1.8	1.1	0.043
17:00	2.0			1.5	1.0	0.031	1.8	1.2	0.045	1.7	1.1	0.039	1.7	1.1	0.039	1.7	1.1	0.039	1.7	1.1	0.037
17:15	1.8	1.1	0.044	1.5	1.0	0.028	1.7	1.2	0.040	1.5	1.0	0.028	1.4	0.9	0.025	1.6	0.9	0.031	1.5	1.2	0.035
17:30	1.7			1.5			1.5	1.0	0.030	1.7	1.2	0.042	1.5			1.7	1.0	0.035	1.9	1.2	0.051
17:45	1.6	1.1	0.035	1.7			1.8	1.2	0.044	1.9	1.2	0.049	1.7	1.1	0.038	1.8	1.2	0.046	1.5	1.0	0.030
18:00	1.7	1.2	0.041	1.5	1.1	0.033	1.8	1.2	0.046	1.6	1.1	0.035	1.5	1.1	0.031	1.5	0.8	0.023	1.5	1.0	0.028
18:15	1.7	1.1	0.037	1.5	1.1	0.031	1.6	1.0	0.035	1.8	1.1	0.042	1.6	1.1	0.036	1.5	1.0	0.028	1.7	1.1	0.038
18:30	1.7	1.1	0.037	1.7	1.2	0.041	1.6	1.2	0.040	1.6	1.1	0.034	1.6	1.1	0.036	1.5	0.9	0.027	1.7	1.0	0.035
18:45	1.7	1.1	0.038	1.5	1.0	0.030	1.7	1.1	0.039	2.0	1.3	0.056	1.5	1.2	0.034	1.5	1.0	0.029	1.8	1.2	0.048
19:00	1.5	1.1	0.032	1.5	0.9	0.028	1.8	1.2	0.046	1.8	1.1	0.043	1.6	1.0	0.033	1.5	1.1	0.033	1.5	1.1	0.033
19:15	1.5	1.1	0.033	1.8	1.2	0.046	1.7	1.1	0.037	1.8	1.2	0.049	1.8	1.2	0.045	1.6	1.0	0.032	1.6	1.1	0.037
19:30	1.7	1.2	0.043	1.4	1.0	0.027	1.8	1.1	0.042	1.7	1.1	0.039	1.6	1.0	0.034	1.5	1.0	0.030	1.8	1.3	0.050
19:45	1.5	1.1	0.033	1.9	1.2	0.051	1.6	1.0	0.032	1.7	1.1	0.037	1.7	1.0	0.035	1.8	1.1	0.039	1.8	1.1	0.044
20:00	1.6	1.1	0.035	1.6	1.1	0.035	1.6	1.2	0.042	1.7	1.0	0.034	1.6	1.2	0.038	1.6	1.0	0.034	1.5	1.0	0.029
20:15	1.7	1.1	0.036	1.5	1.0	0.029	1.4	1.0	0.026	1.5	1.1	0.034	1.5	1.0	0.029	1.5	1.0	0.028	1.5	1.0	0.030
20:30	1.7	1.1	0.037	1.6	1.1	0.035	1.7	1.1	0.038	1.5	1.0	0.029	1.3	0.9	0.023	1.7	1.1	0.037	1.5	1.1	0.031
20:45	1.7	1.2	0.044	1.4	1.0	0.027	1.7	1.3	0.044	1.8	1.1	0.042	1.5	1.0	0.028	1.5	1.0	0.030	1.6	1.0	0.034
21:00	1.7	1.1	0.039	1.6	1.1	0.038	1.4	1.3	0.034	1.7	1.2	0.042	1.4	1.0	0.027	1.4	1.0	0.028	1.5	1.0	0.028
21:15	1.7	1.1	0.037	1.5	1.0	0.031	1.4	1.0	0.028	1.7	1.1	0.038	1.6	1.3	0.044	1.4	0.9	0.026	1.5	1.0	0.028
21:30	1.6	1.1	0.036	1.7	1.0	0.035	1.3	0.9	0.022	1.8	1.1	0.044	1.4	1.0	0.025	1.4	0.9	0.024	1.5	1.1	0.032
21:45	1.6	1.2	0.037	1.7	1.1	0.037	1.3	0.9	0.020	1.7	1.1	0.038	1.4	1.0	0.026	1.7	1.2	0.042	1.3	1.0	0.024
22:00	1.5	1.0	0.030	1.5	1.2	0.036	1.3	0.8	0.020	1.7	1.2	0.040	1.5	1.1	0.033	1.7	1.1	0.036	1.3	0.9	0.023
22:15	1.5	1.0	0.028	1.4	1.0	0.026	1.3	0.9	0.023	2.0	1.3	0.058	1.4	1.0	0.025	1.5	0.9	0.027	1.5	1.0	0.028
22:30	1.5	1.0	0.030	1.3	1.1	0.027	1.3	1.1	0.027	1.3			1.4	1.0	0.027	1.4	1.0	0.026	1.2	0.8	0.017
22:45	1.6	1.0	0.034	1.5	1.0	0.030	1.1	0.7	0.013	1.3			1.3	0.9	0.022	1.2	0.9	0.020	1.4	1.1	0.028
23:00	1.5	1.0	0.030	1.3	0.9	0.023	1.0	0.9	0.014	1.8	1.3	0.048	1.1	0.8	0.016	1.0			1.3	0.8	0.020
23:15	1.4	1.0	0.026	1.4	1.0	0.027	1.1	0.8	0.015	1.2			1.0	0.8	0.012	1.0	0.8	0.012	1.3	0.8	0.020
23:30	1.3	0.8	0.019	1.3	1.0	0.024	1.1			1.2			1.0	0.6	0.010	1.0	0.8	0.012	1.2	0.9	0.019
23:45	1.3	0.9	0.023	1.5			1.0	0.8	0.013	1.3	1.0	0.024	0.8	0.7	0.008	0.8	0.5	0.006	1.2	0.8	0.017
Total			0.032			0.029			0.028			0.031			0.024			0.023			0.023
Average	1.5	1.1	0.032	1.5	1.0	0.029	1.4	1.0	0.028	1.5	1.0	0.031	1.3	0.9	0.024	1.3	0.9	0.023	1.3	0.9	0.023
Min Time	3:45	0:00	4:45	1:15	2:00	2:00	23:45	22:45	23:45	2:15	2:00	2:15	23:45	2:00	2:00	0:45	1:45	0:45	1:15	2:15	2:15
Min Value	1.1	0.8	0.018	1.3	0.8	0.018	1.0	0.7	0.013	1.0	0.6	0.010	0.8	0.6	0.008	0.8	0.5	0.006	0.7	0.5	0.007
Max Time	17:00	16:15	15:30	19:45	0:15	19:45	12:30	7:15	12:30	22:15	22:15	22:15	11:45	21:15	19:15	17:45	16:45	16:45	17:30	19:30	17:30
Max Value	2.0	1.3	0.049	1.9	1.3	0.051	2.0	1.3	0.052	2.0	1.3	0.058	1.8	1.3	0.045	1.8	1.3	0.051	1.9	1.3	0.051
Week Avg																			1.4	1.0	0.027
WeekTotal																					0.190