SEWER SYSTEM MANAGEMENT PLAN

FOR THE

DAVENPORT, FREEDOM, SANTA CRUZ COUNTY SANITATION DISTRICTS AND THE COUNTY OF SANTA CRUZ

-2017-

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-2017-

SSMP DOCUMENT VERSION CONTROL

Effective Date:_____

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Supersedes Version: _____

Approved by:_____

SSMP SECTION	VERSION DATE	COMMENTS
Introduction	November 2016	Additional information about County Service Areas.
1. Goals	June 3, 2009	
2. Organization	November 2016	Update on staff changes.
3. Legal Authority	October 2011	SCCSD, Davenport, Freedom, CSA's.
4. Operation and Maintenance Program	November 2016	Update to pump station inspections. Update to the CCTV inspection program.
5. Design and Performance Provisions	June 3, 2009	
6. Overflow Emergency Response Plan	November 2016	Various updates to contact information and reporting requirements.
7. Fats, Oils and Grease (FOG) Control Program	November 2016	Additional information on FOG public outreach program and grease inspections.
8. System Evaluation and Capacity Assurance Plan	November 2016	Current Capital Improvement Plan.
9. Monitoring, Measurement, and Program Modifications	June 3, 2009	
10. SSMP Audits	2013	
11. Communications Program	June 3, 2009	

For information regarding the current version of this document please contact Beatriz Barranco at (831) 477-3907.

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ACRONYMS

BMP	Best Management Practice
CCTV	Closed-Circuit Television
CIP	Capital Improvement Program
CIWQS	California Integrated Water Quality System
CMMS	Computerized Maintenance Management System
CSA	County Service Area
CWEA	California Water Environment Association
DCSD	Davenport County Sanitation District
ECU	Environmental Compliance Unit
ERP	Enforcement Response Plan
FCSD	Freedom County Sanitation District
FEA	Finite Element Analysis
FOG	Fats, Oils, and Grease
FSE	Food Service Establishments
FTE	Full Time Employee
GIS	Geographic Information System
GRD	Grease Removal Device
I/I	Infiltration and Inflow
LRO	Legally Responsible Official
MRP	Monitoring and Reporting Program effective
MS4	9/9/13 Municipal Separate Storm Sewer System
NASSCO	National Association of Sewer Service Companies
NGO	Non-Government Organization
NOI	Notice of Intent
NPDES	National Pollution Discharge Elimination System
NOV	Notice of Violation
O&M	Operations & Maintenance
OERP	Overflow Emergency Response Plan
OES	Office of Emergency Services, State of California
PACP	Pipeline Assessment & Certification Program
PLSD	Private Sewer Lateral Discharge
PM	Preventive Maintenance
POTW	Publicly Owned Treatment Works
PM	Preventative Maintenance
PPE	Personal Protective Equipment
QA/QC	Quality Assurance/Quality Control

ACRONYMS

R/R	Rehabilitation or Repair/Replacement
RWQCB	Regional Water Quality Control Board
SCADA	Supervisory, Control and Data Acquisition System
SCCSD	Santa Cruz County Sanitation District
SECAP	System Evaluation and Capacity Assurance Plan
SOP	Standard Operating Procedures
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SSS WDR	Statewide General WDR for Sanitary Sewer Systems
SWRCB	State Water Resources Control Board
TPO	Treatment Plant Operator
UPC	Uniform Plumbing Code
USEPA	United States Environmental Protection Agency
WDID	Waste Discharge ID
WDR	Waste Discharge Requirements
WO	Work Order
WQMP	Water Quality Management Program
WWTP	Wastewater Treatment Plant

Introduction

This Sewer System Management Plan was prepared to cover the management, operation and maintenance, design, construction and emergency response of the Davenport Sanitation District, Freedom Sanitation District, Santa Cruz County Sanitation District and County Service Areas sanitary sewer systems. The three enterprise special districts are referred to as the Districts. The County Service Areas are referred to as the CSAs.

The County of Santa Cruz Public Works Department is responsible for the administration, engineering, maintenance, emergency response and construction of all County sanitation services. The department also manages various Board-governed special districts and County Service Areas. The Sanitation Operations unit is one of six organizational units within the Special Services Division of Public Works and provides operation and maintenance services to County sanitation districts and CSAs. Sanitation operations employees work in all Districts and County Service Areas. Each sanitation district is governed according to its specific code of regulations. The Districts' codes are very similar and some sections are adopted by reference from the Santa Cruz County Sanitation District Code. The CSAs are governed according to the Santa Cruz County Code of Regulations. Most of the County Code pertaining to sanitary sewer collection systems is adopted by reference from the SCCSD Code.

Sanitary Sewer Collection System Description

The unique features of the Districts' and CSAs' sanitary sewer systems must be taken into account when comparing it to other sanitary sewer systems. The Districts'/CSAs' sanitary sewer systems consist of geographically dispersed service areas with sometimes significant travel time. The relatively large number of pump stations and associated force mains increase staffing and cost.

DISTRICT'S:

Santa Cruz County Sanitation District

The SCCSD is governed by a three-member board and managed by the County's Department of Public Works under the direction of the District Board of Directors. The SCCSD includes the following areas in the County with sewer service: Aptos, Capitola, Soquel, and Live Oak. The SCCSD collection system is pumped to the City of Santa Cruz POTW for treatment. The District is required to comply with the requirements of the City of Santa Cruz NPDES permit NO. CA0048194.

Davenport County Sanitation District

The DCSD is governed by a District Board comprised of members of the Santa Cruz County Board of Supervisors. The DCSD is a nonprofit public agency providing treated drinking water and sewage collection, treatment and disposal services to the town of Davenport. Revenues to operate the District are collected yearly from residents and businesses that are connected to either the waterworks or the sanitary sewer system.

Sanitary Sewer Collection System Description

The Freedom County Sanitation District

The FCSD is governed by a District Board comprised of members of the Santa Cruz County Board of Supervisors and is a nonprofit public agency providing sewage collection, treatment and disposal service to the Freedom area. The FCSD collection system is pumped to the wastewater treatment plant on Beach Street, owned and operated by the City of Watsonville. The FCSD is required to comply with the City of Watsonville's NPDES permit NO. CA0048216.

COUNTY SERVICE AREAS:

The Sanitation Operations Division maintains and operates six small sewer systems in the County Service Areas. This includes unincorporated areas of the County that do not discharge to the Sanitation Districts. The CSAs are governed by the Santa Cruz County Board of Supervisors. The following CSAs were required to enroll under the GWDR.

CSA 5 Sand Dollar

This County Service Area has its own sewage treatment facilities which are maintained by the County Sanitation Operations Division. Revenues to maintain the sewage collection system are collected yearly from all residents whose homes are connected to the sanitary sewer system. The County does not own nor is it responsible for maintenance or repair of any portion of the sewer service laterals (the portion between the building and the public sewer main).

CSA 7 Boulder Creek

This County Service Area has its own sewage treatment facility which is maintained by the County Sanitation Operations Division. Revenues to maintain the sewage collection system are collected yearly from all residents whose homes are connected to the sanitary sewer system. The County does not own nor is it responsible for maintenance or repair of any portion of the sewer service laterals (the portion between the building and the public sewer main).

CSA 10 Rolling Woods

This County Service Area is connected to a gravity sewer main that delivers sewage to the regional POTW operated by the City of Santa Cruz. The collection system is maintained by the County Sanitation Operations Division. Revenues to maintain the sewage collection system are collected yearly from all residents whose homes are connected to the sanitary sewer system. The County does not own nor is it responsible for maintenance or repair of any portion of the sewer service laterals (the portion between the building and the public sewer main).

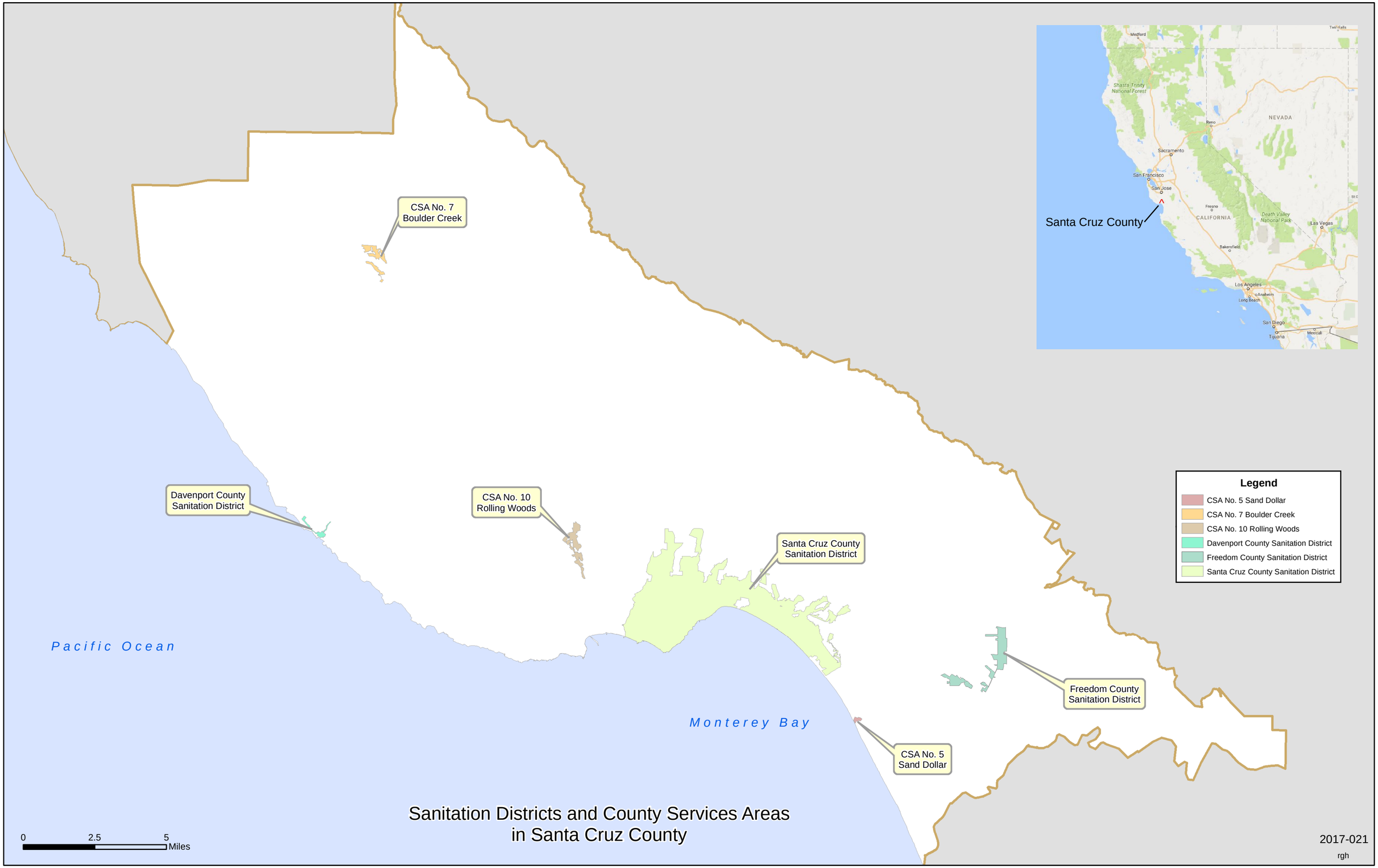
The other three CSAs, CSA 2-Place de Mer, CSA 20-Trestle Beach, and Buena Vista are not required to enroll under the Waste Discharge Requirements as they do not meet the minimum requirements for enrollment.

Santa Cruz County Sanitary Sewer Service Information by District/County Service Area

AGENCY/DISTRICT INFORMATION	DCSD	FCSD	SCCSD	CSA 5	CSA 7	CSA 10	Total
CIWQS WDID	3SSO10263	3SSO10267	3SSO10324	3SSO10323	3SS010326	3SSO10312	N/A
DISTRICT NAME	Davenport County Sanitation District	Freedom County Sanitation District	Santa Cruz County Sanitation District	Sand Dollar	Boulder Creek	Rolling Woods	N/A
POPULATION	215	4,158	72,200	218	650	78	77,519
SERVICE AREA, SQUARE MILES	0.10	1.1	1.36	1.00	0.24	0.42	4.22
SEWER CONNECTIONS, EACH	108	1,859	36,000	184	263	104	38,738
GOVERNING BODY	Board of Supervisors as District Board	Board of Supervisors as District Board	Santa Cruz County Sanitation District Board	Board of Supervisors	Board of Supervisors	Board of Supervisors	N/A
GRAVITY SEWERS, MILES	3.00	15.30	220.00	1.15	3.00	3.18	245.63
FORCE MAINS, MILES	1.30	1.20	14.00	0.53	1.27	0.35	18.65
PUMP STATIONS, EACH	3	9	35	2	5	0	49
LATERAL RESPONSIBILITY	None	None	None	None	None	None	None

Santa Cruz County Sanitary Sewer Service Information by District/County Service Area

AGENCY/DISTRICT INFORMATION	DCSD	FCSD	SCCSD	CSA 5	CSA 7	CSA 10	Total
SEWER CONSTRUCTION PERIOD							
2000- current	0.00	0.76	44.00	0.02	0.00	0.16	44.94
1980- 1999	0.75	9.95	33.00	0.00	0.00	3.02	46.72
1960-1979	2.25	3.06	132.00	0.00	3.00	0.00	140.31
1940-1959	0.00	1.53	6.60	1.13	0.00	0.00	9.26
1920-1939	0.00	0.00	4.40	0.00	0.00	0.00	4.40
1900-1919	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Miles	3.00	15.30	220.00	1.15	3.00	3.18	245.63



Sanitation Districts and County Services Areas in Santa Cruz County

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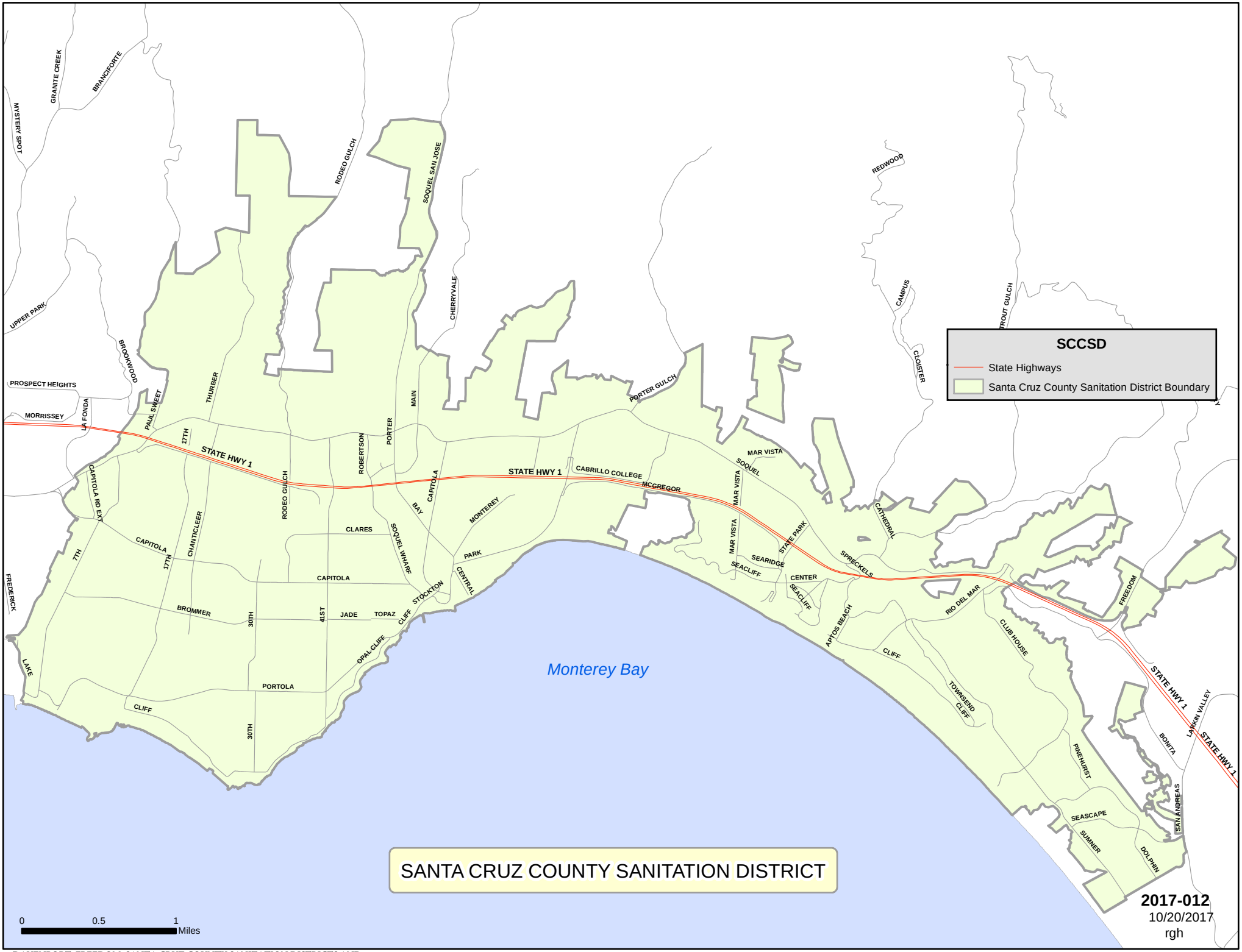
SCCSD
State Highways
Santa Cruz County Sanitation District Boundary
SANTA CRUZ COUNTY SANITATION DISTRICT
Monterey Bay
STATE HWY 1
0
0.5
1
Miles
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10/20/2017
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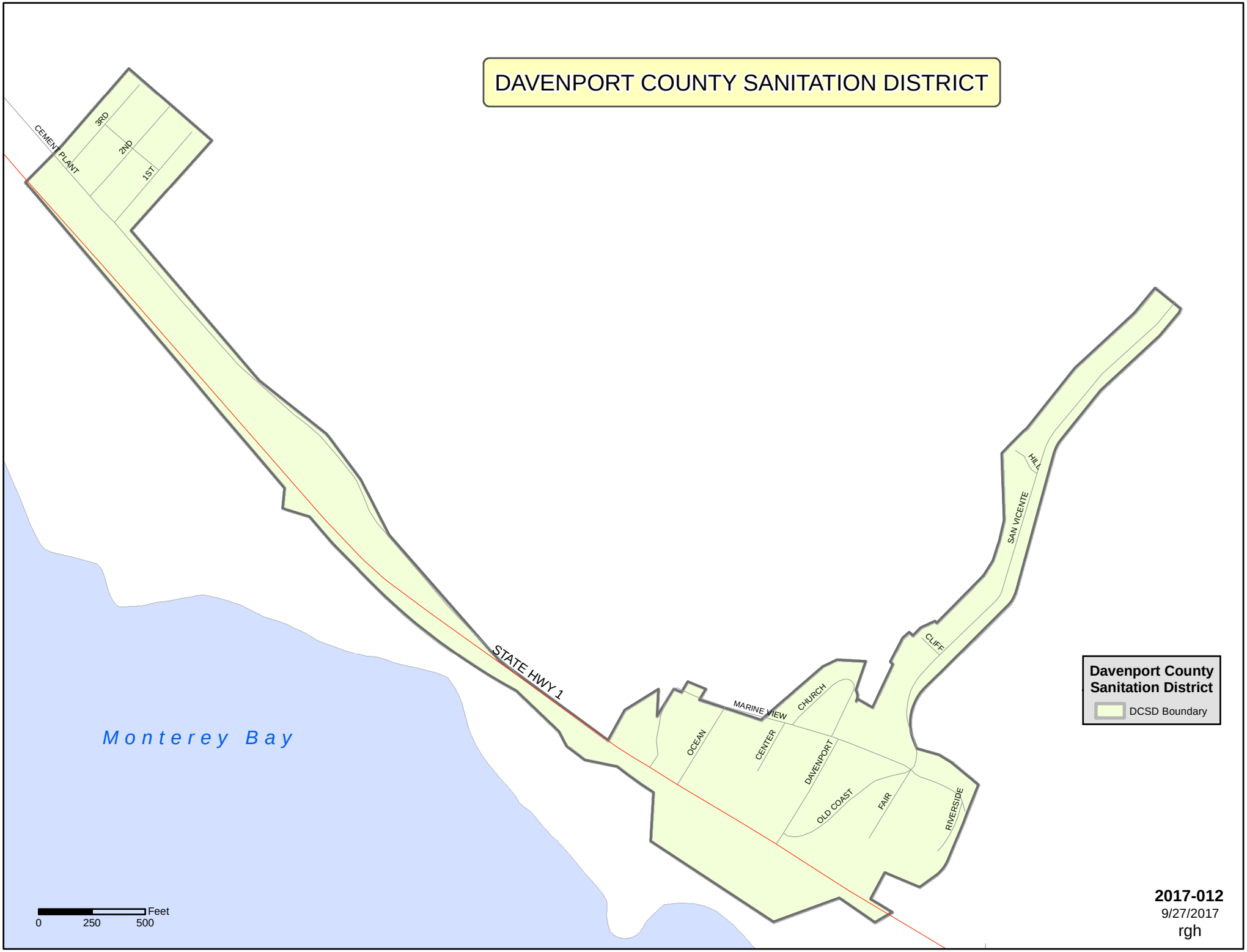
DAVENPORT COUNTY SANITATION DISTRICT
CEMENT PLANT
3RD
2ND
1ST
STATE HWY 1
Monterey Bay
MARINE VIEW
CHURCH
OCEAN
CENTER
DAVENPORT
OLD COAST
FAIR
RIVERSIDE
CLIFF
SAN VICENTE
HIL
Davenport County Sanitation District
DCSD Boundary
Feet
0
250
500
2017-012
9/27/2017
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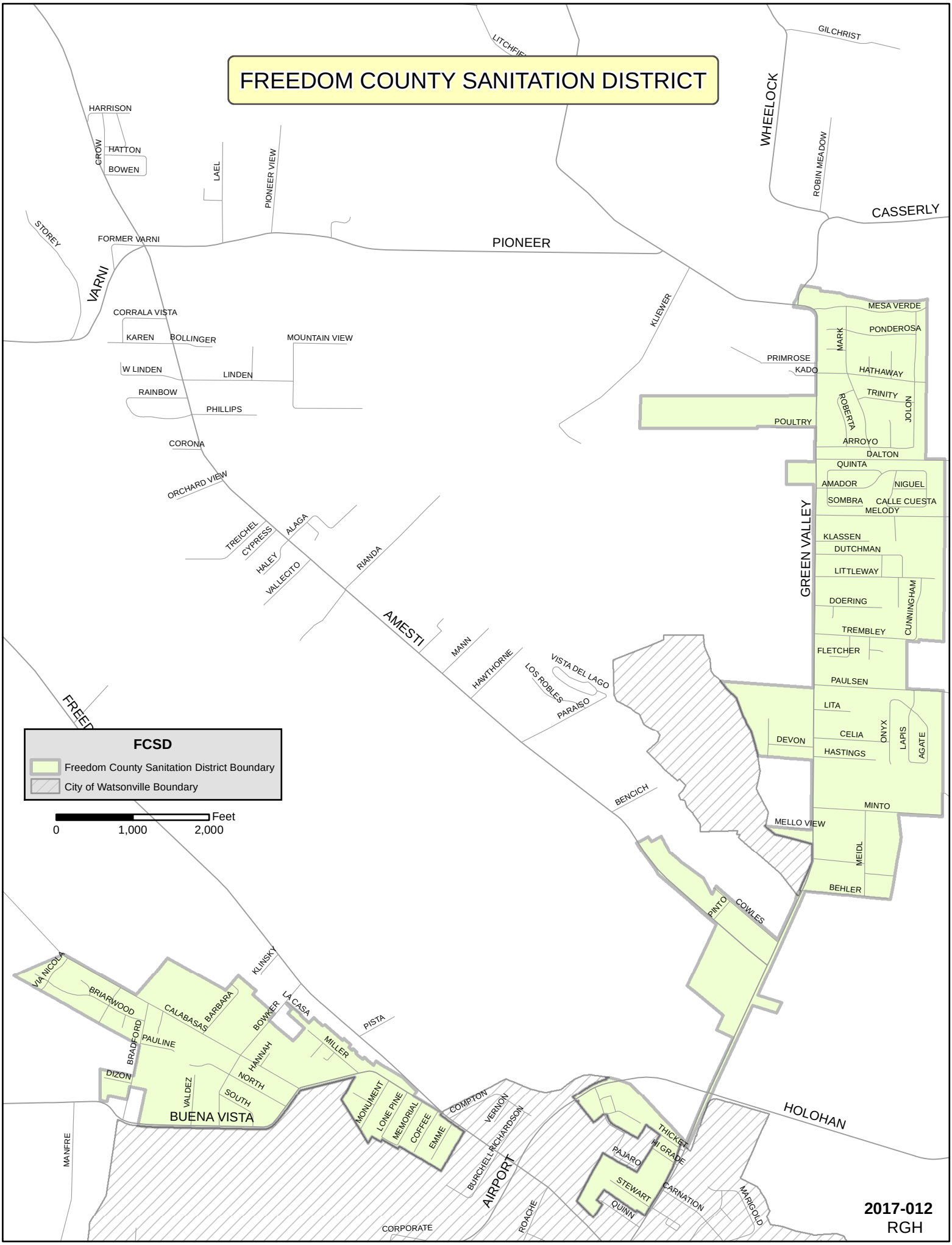
FREEDOM COUNTY SANITATION DISTRICT
HARRISON
CROW
HATTON
BOWEN
LAEL
PIONEER VIEW
WHEELOCK
ROBIN MEADOW
GILCHRIST
CASSERLY
STOREY
FORMER VARNI
PIONEER
VARNI
CORRALA VISTA
KAREN
BOLLINGER
MOUNTAIN VIEW
W LINDEN
LINDEN
RAINBOW
PHILLIPS
CORONA
ORCHARD VIEW
KLIEWER
MESA VERDE
PONDEROSA
MARK
PRIMROSE
KADO
HATHAWAY
TRINITY
ROBERTA
JOLON
POULTRY
ARROYO
DALTON
QUINTA
AMADOR
NIGUEL
SOMBRA
CALLE CUESTA
MELODY
GREEN VALLEY
KLASSEN
DUTCHMAN
LITTLEWAY
DOERING
CUNNINGHAM
TREMBLEY
FLETCHER
PAULSEN
LITA
CELIA
ONYX
LAPIS
AGATE
DEVON
HASTINGS
TREICHEL
CYPRESS
ALAGA
HALEY
VALLECITO
RIANDA
AMESTI
MANN
HAWTHORNE
VISTA DEL LAGO
LOS ROBLES
PARAISO
BENCICH
MINTO
MELLO VIEW
MEIDL
BEHLER
PINTO
COWLES
FREED
FCSD
Freedom County Sanitation District Boundary
City of Watsonville Boundary
Feet
0
1,000
2,000
KLINSKY
VIA NICOLA
BRIARWOOD
CALABASAS
BARBARA
BOWKER
LA CASA
PISTA
BRADFORD
PAULINE
MILLER
HANNAH
DIZON
NORTH
SOUTH
VALDEZ
BUENA VISTA
MONUMENT
LONE PINE
MEMORIAL
COFFEE
EMME
COMPTON
VERNON
BURCHELL RICHARDSON
AIRPORT
THICKET
MI GRADE
PAJARO
STEWART
QUINN
CARNATION
MARIGOLD
ROACHE
CORPORATE
HOLOHAN
MANFRE
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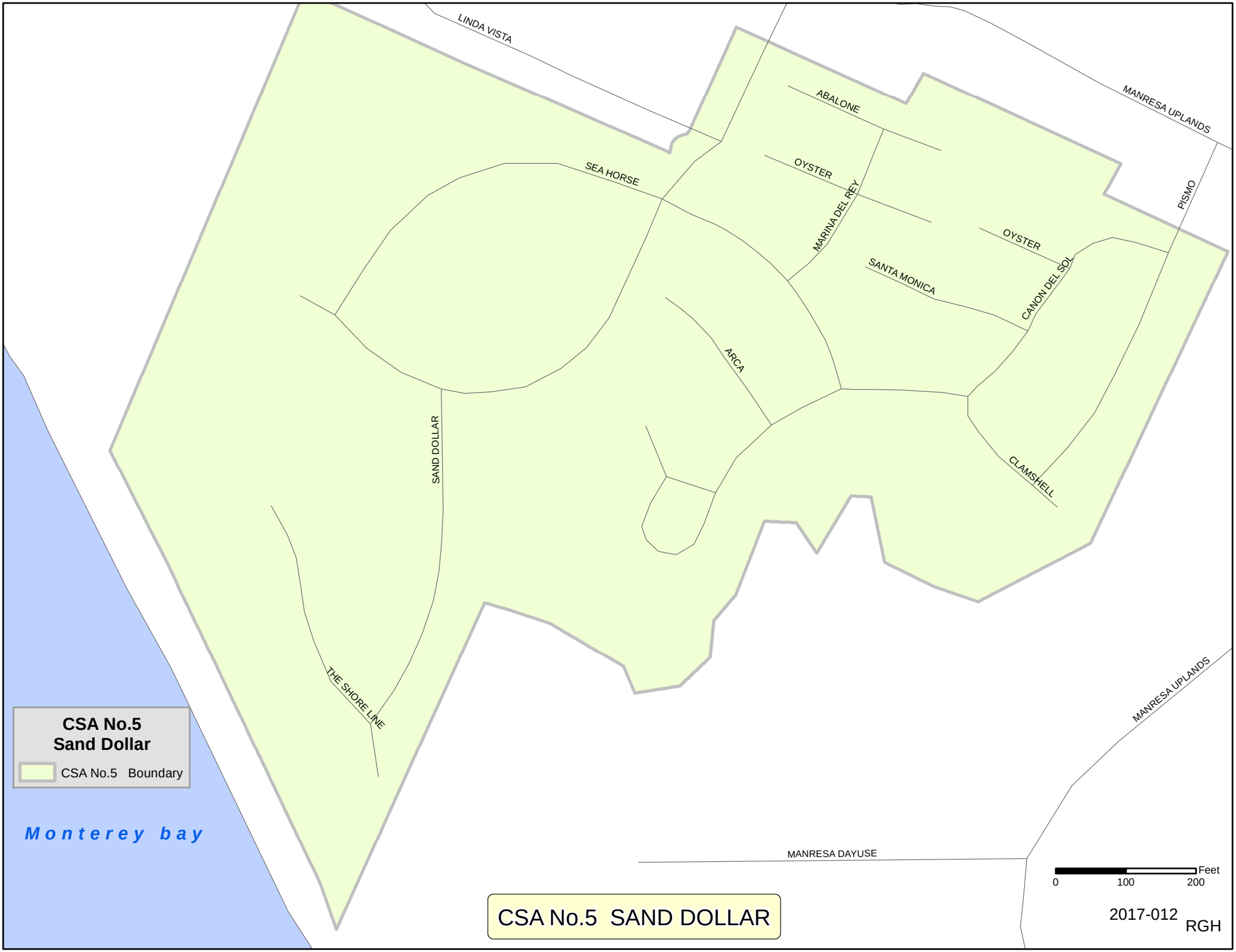
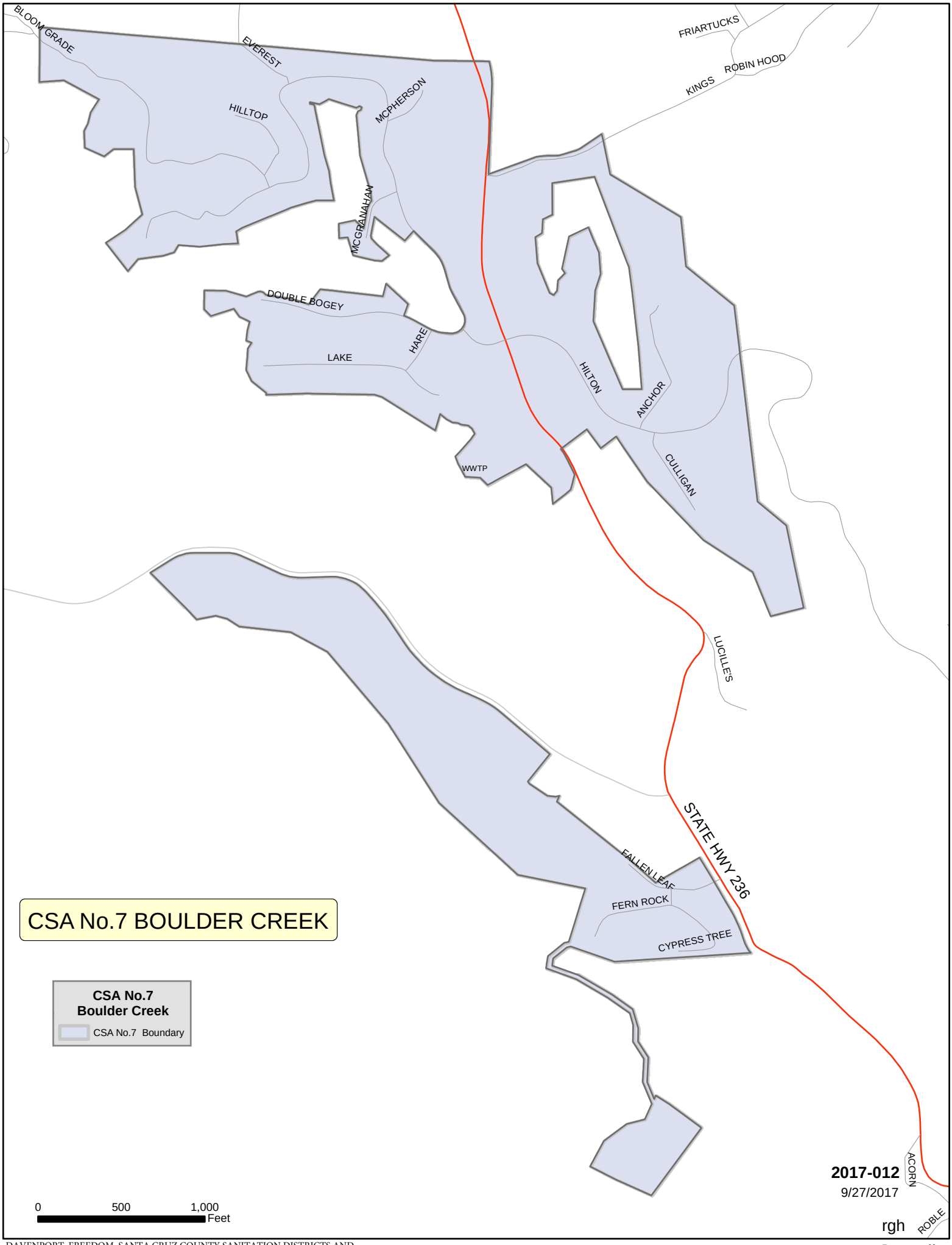

LINDA VISTA
MANRESA UPLANDS
ABALONE
OYSTER
SEA HORSE
MARINA DEL REY
PISMO
OYSTER
SANTA MONICA
CANON DEL SOL
ARCA
SAND DOLLAR
CLAMSHELL
THE SHORE LINE
MANRESA UPLANDS
MANRESA DAYUSE
CSA No.5
Sand Dollar
CSA No.5 Boundary
Monterey bay
Feet
0
100
200
CSA No.5 SAND DOLLAR
2017-012
RGH


BLOOM GRADE
EVEREST
HILLTOP
MCPHERSON
MCGRANAHAN
FRIARTUCKS
ROBIN HOOD
KINGS
DOUBLE BOGEY
LAKE
HARE
HILTON
ANCHOR
CULLIGAN
WWTP
LUCILLE'S
STATE HWY 236
FALLEN LEAF
FERN ROCK
CYPRESS TREE
ACORN
ROBLE
CSA No.7 BOULDER CREEK
CSA No.7
Boulder Creek
CSA No.7 Boundary
0
500
1,000
Feet
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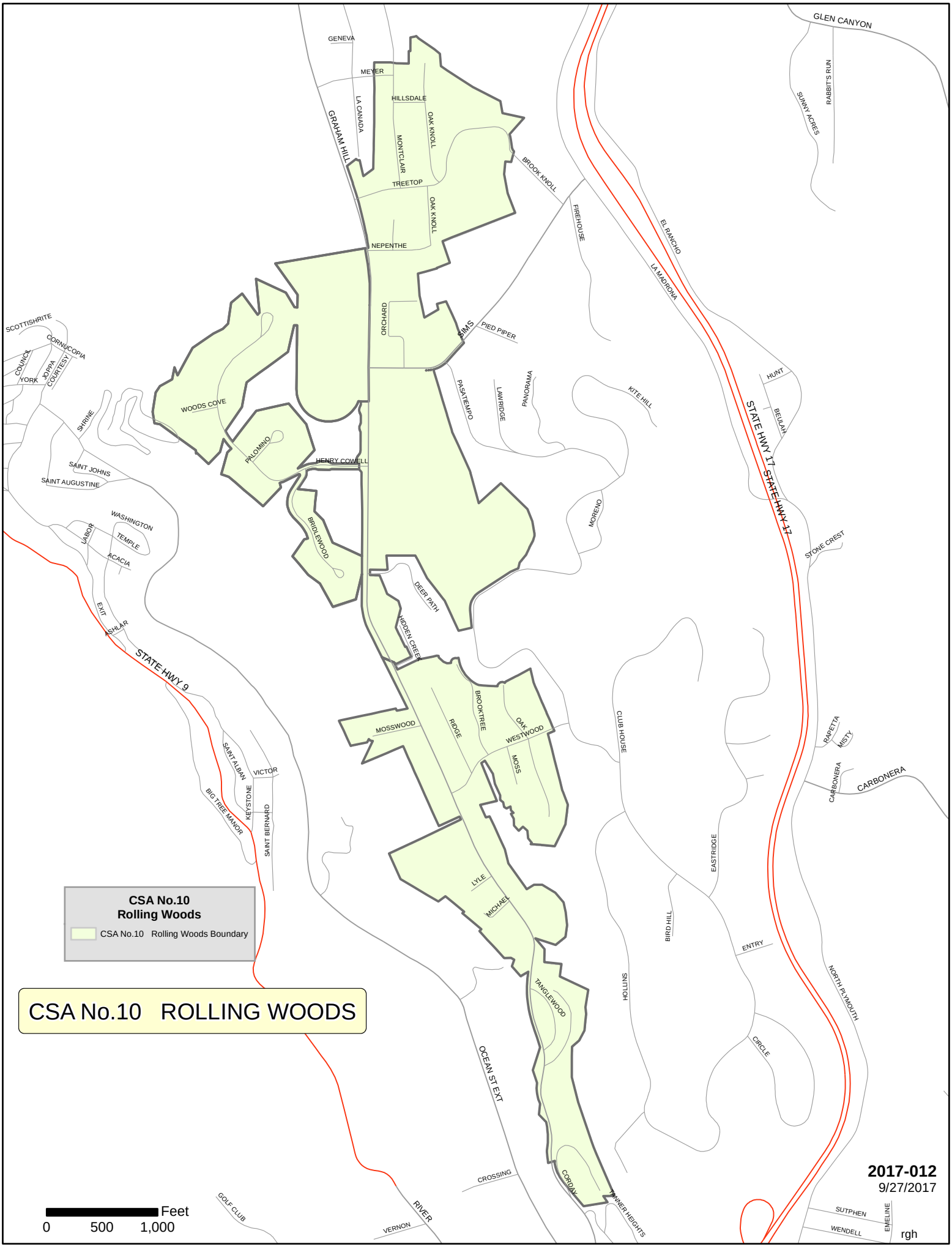
GLEN CANYON
GENEVA
MEYER
HILLSDALE
LA CANADA
GRAHAM HILL
MONTCLAIR
OAK KNOLL
TREETOP
OAK KNOLL
BROOK KNOLL
FIREHOUSE
NEPENTHE
ORCHARD
SIMS
PIED PIPER
EL RANCHO
LA MADRONA
SUNNY ACRES
RABBIT'S RUN
SCOTTISHRITE
CORNUCOPIA
COUNCIL
YORK
JOPPA
COURTESY
SHRINE
WOODS COVE
PALOMINO
HENRY COWELL
PASATIEMPO
LAWRIDGE
PANORAMA
KITE HILL
HUNT
BEULAH
STATE HWY 17
SAINT JOHNS
SAINT AUGUSTINE
WASHINGTON
LABOR
TEMPLE
ACACIA
BRIDLEWOOD
MORENO
STONE CREST
EXIT
ASHLAR
STATE HWY 9
DEER PATH
HIDDEN CREEK
MOSSWOOD
RIDGE
BROOKTREE
OAK
WESTWOOD
MOSS
CLUB HOUSE
RAPETTA
MISTY
CARBONERA
CARBONERA
SAINT ALBAN
VICTOR
KEYSTONE
BIG TREE MANOR
SAINT BERNARD
EASTRIDGE
LYLE
MICHAEL
BIRDHILL
ENTRY
TANGLEWOOD
SNYDER
NORTH PLYMOUTH
OCEAN ST EXT
CIRCLE
CROSSING
CORDAN
TANNER HEIGHTS
GOLF CLUB
RIVER
VERNON
SUTPHEN
WENDELL
EMELINE
CSA No.10
Rolling Woods
CSA No.10 Rolling Woods Boundary
CSA No.10 ROLLING WOODS
Feet
0 500 1,000
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9/27/2017
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Regulatory Requirements

The State Water Resources Control Board and the Central Coast Regional Water Quality Control Board regulate the management, operation, and maintenance of the Districts/CSAs sanitary sewer systems. The Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, SWRCB Order No. 2006-0003-DWQ (GWDR) as revised by Order No. WQ 2013-0058 -EXEC, effective September 9, 2013, California State Water Resources Control Board, establishes the requirements:

- Sanitary Sewer Overflows are prohibited,
- All SSOs, with the exception of PLSDs, irrespective of size, must be reported to the SWRCB electronically using the California Integrated Water Quality System, and the Districts/CSAs must prepare and implement an SSMP.

Organization of SSMP

The structure of this SSMP follows the section numbering and nomenclature specified in the GWDR. The SSMP includes twelve sections:

1. Goals
2. Organization
3. Legal Authority
4. Operation and Maintenance Program
5. Design and Performance Provisions
6. Overflow Emergency Response Plan
7. Fats, Oils, and Grease Control Program
8. System Evaluation and Capacity Assurance Plan
9. Monitoring, Measurement, and Program Modifications
10. SSMP Audits
11. Communication Program
12. Change Log

Element 1.

Goals

1.1 Introduction

This section of the SSMP formally states the Districts/CSAs goals for this SSMP.

1.2 Requirements for Goals Section

The goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of its sanitary sewer systems in order to reduce and prevent SSOs, as well as to mitigate any SSOs that do occur.

1.3 SSMP Goals:

1. To properly manage, operate, and maintain all parts of the Districts/CSAs sanitary sewer systems.
2. To provide adequate capacity to convey the peak wastewater flows. Adequate capacity, for the purposes of this SSMP, is defined as the capacity to convey the peak wastewater flows that are associated with the designed storm event.
3. To reduce the frequency of SSOs and, wherever possible, to prevent SSOs.
4. To mitigate the impacts that are associated with any SSO that may occur.
5. To meet all applicable regulatory notification and reporting requirements.

Element 2.

Organization

2.1 Introduction

This section of the SSMP identifies the District/CSA staff responsible for implementing this SSMP, responding to SSO events, and meeting the SSO reporting requirements.

2.2 Requirements for Organization Section

The SSMP must identify:

(a) The name of the responsible or authorized representative as described in Section J of the Waste Discharge Requirement Order.

(b) The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. The SSMP must identify lines of authority through an organization chart or similar document with a narrative explanation; and

(c) The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (such as County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES).

2.3 Organization

The organization chart for the management, operation, and maintenance of the enrolled Districts'/CSAs' sanitary sewer systems is shown on Table 2.1. The contact information for key sanitation operations staff is shown in Appendix 2-A. County Public Works Engineering and Sanitation Operations is responsible for all the maintenance, design, construction compliance and emergency response for all six enrolled systems and three unenrolled CSAs.

Table 2.1 SSMP Responsibility

JOB TITLE	SSMP IMPLEMENTATION AND MAINTENANCE RESPONSIBILITY
District Engineer/Director of Public Works	Overall SSMP Development and Implementation; Introduction and Appendices
Sanitation Operations Manager	1. Goals
Sanitation Operations Manager	2. Organization
Sanitation Operations Manager	3. Legal Authority
Sanitation Operations Manager	4. Operation and Maintenance Program
Senior Civil Engineer	5. Design and Performance Provisions
Sanitation Operations Manager	6. Overflow Emergency Response Plan
Environmental Programs Coordinator	7. Fats, Oils and Grease (FOG) Control Program
Senior Civil Engineer	8. System Evaluation and Capacity Assurance Plan
Sanitation Operations Manager	9. Monitoring, Measurement, and Program Modifications
Sanitation Operations Manager	10. SSMP Audits
Senior Civil Engineer and Sanitation Operations Manager	11. Communications Program
Note: All personnel are employees of SCCSD and/or the County of Santa Cruz	

2.4 Authorized Representative

The Director of Public Works is the Legally Responsible Official in all sanitary sewer system matters for the Districts/CSAs. The Assistant Director of Public Works is authorized to act in the Director's absence.

2.5 Responsibility for SSMP Implementation

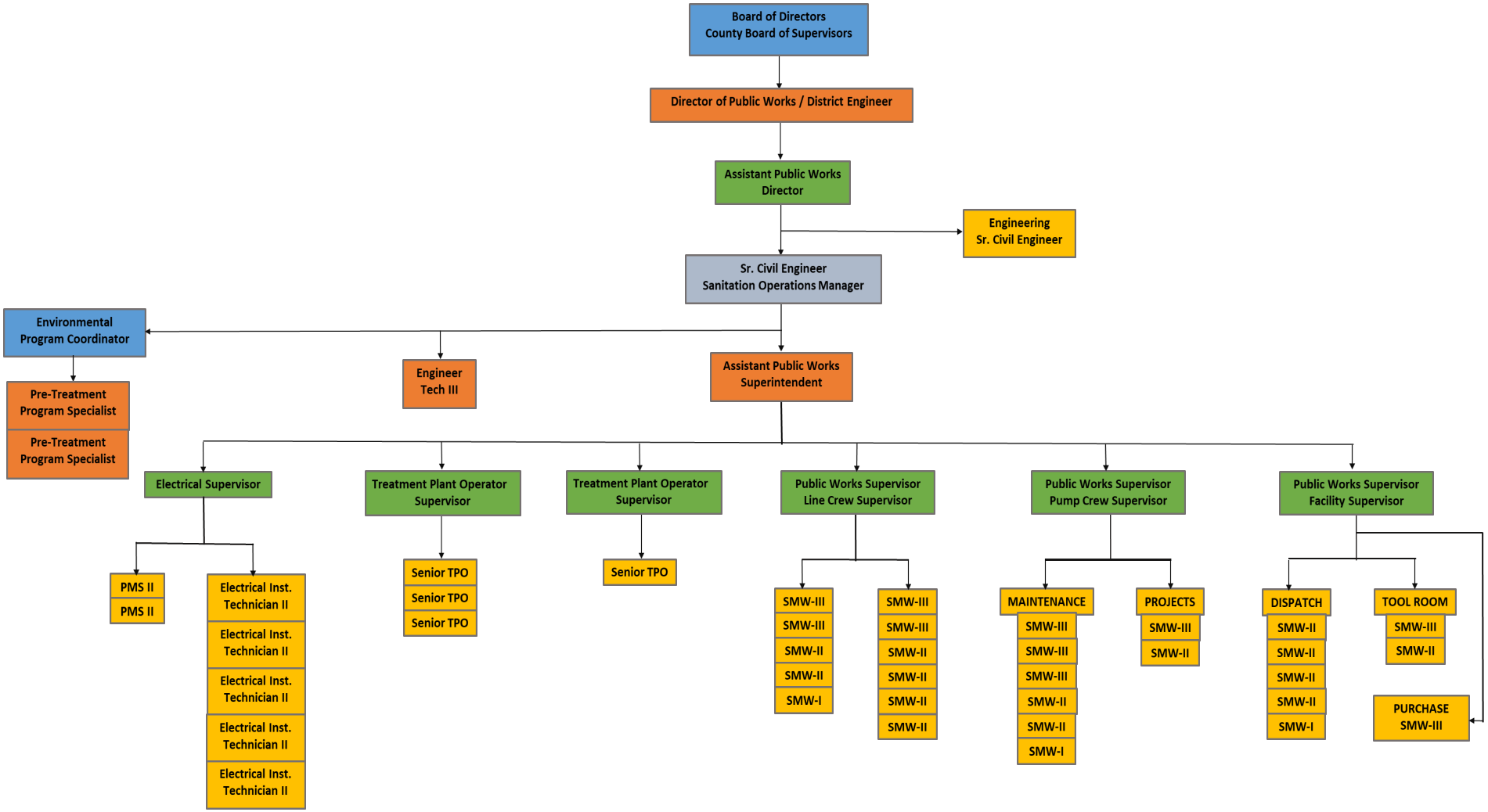
The Director of Public Works is responsible for developing, implementing, and maintaining all elements of the Districts/CSAs SSMP. He has delegated responsibility of sections of the SSMP as shown in Table 2.1 SSMP Responsibilities.

2.6 SSO Reporting Chain of Communication

Sanitation Operations has standard operating procedures for receiving, responding and reporting SSOs. Sanitation Operations has a Sanitation Maintenance Worker available 24-hours to receive sewer service calls and monitor alarms on SCADA. When a call is received or an alarm is set on SCADA, the appropriate crews are notified by dispatch. The crews respond immediately. The SMW at dispatch records all initial information from the reporting party and creates a Work Order and an SSO Record in the data management system (Lucity™). Once the responding crew is onsite, the Lead crew employee contacts the SMW at dispatch to update him/her on the details of the spill. The dispatcher then updates the Lucity™ records with the new information and notifies all appropriate parties including OES when required. The SSO Reporting process and responsibilities are described in detail in Section 6 of the SSMP Overflow Emergency Response Plan and shown in Figure 6.1 Notification and Response Procedures Flow Chart.

After the event, the SSO First Responder is responsible for completing the Field Stoppage Report and Reporting Party Interview form and communicating the details of the event to management. The Assistant Public Works Superintendent ensures that all necessary paperwork and Lucity™ data records are completed. The Assistant Public Works Superintendent is responsible for reporting in CIWQS. If the Assistant Public Works Superintendent is unavailable, one of the other LRO's will submit the report. A Data Submitter may begin the CIWQS report if the Public Works Assistant Superintendent is unavailable.

SANITATION OPERATIONS ORGANIZATION



INDEX OF ROLES RELATED TO SANITATION OPERATIONS

Assistant Director of Public Works/Assistant District Engineer - Legally Responsible Official under general direction, plans, organizes and directs the Special Services Division, the Transportation Division, the General Capital Projects/Development Division, and/or the Administrative Services Division of the Department of Public Works; acts as the Director in the absence of the Director of Public Works; and does other work as required. Assistant Director of Public Works is the fully functional assistant department head level and is responsible for operations, management, and supervision of several sections of the department.

Assistant Public Works Superintendent - Legally Responsible Official under direction, assist in the planning and supervision of the Road Repair and Maintenance, Sanitation, Fleet Services, or Solid Waste Divisions' activities and facilities; supervise staff assigned to a variety of activities; evaluate personnel and equipment safety, and institute appropriate safety programs; act in the absence of the Superintendent (if there is a Superintendent) or manager or others; and perform other duties as required.

Board of Directors - Establishes policy for the SCCSD.

Director of Public Works/District Engineer - Legally Responsible Official required by legislative and administrative determination of policy, to plan, organize and direct the work of the Department of Public Works; and to do other work as required. This position is responsible for administering the Department of Public Works including engineering, maintenance and construction of the County's roads, bikeways, sanitation and drainage facilities and solid waste disposal services. The Director of Public Works serves as Road Commissioner and District Engineer.

Electrical Instrumentation Supervisor - Positions in this series perform work related to the design, fabrication, installation, maintenance, operation, inspection, and testing of a variety of control systems equipment including, but not limited to, electrical, electronic, pneumatic, computer, micro processor and variable frequency drive, electro-mechanical, digital, telemetry, and analog components used in wastewater process control systems; and perform other duties as required.

Electrical Instrumentation Technician - Positions in this series perform work related to the design, fabrication, installation, maintenance, operation, inspection, and testing of a variety of control systems equipment including, but not limited to, electrical, electronic, pneumatic, computer, micro processor and variable frequency drive, electro-mechanical, digital, telemetry, and analog components used in wastewater process control systems; and perform other duties as required.

Environmental Programs Coordinator - Under direction, supervises, administers and manages the sampling, monitoring, and reporting programs for County household hazardous waste and solid waste programs; or industrial waste pretreatment, waste minimization, and source control programs; prepares, coordinates and administers grant funded programs in solid waste management, household hazardous waste management and resource recovery; or industrial waste pretreatment, waste minimization and source control; plans, develops and delivers hazardous, solid or industrial waste and waste minimization training programs; and does other work as required.

INDEX OF ROLES RELATED TO SANITATION OPERATIONS

Pretreatment Program Specialist - Under general supervision, inspects and monitors industrial and commercial wastewater sources for compliance with Federal, State and local discharge regulations; inspects pretreatment facilities, grease traps and interceptors; collects samples, and operates and maintains sampling equipment; and performs other work as required.

Public Works Supervisor - Under direction, to plan, assign and supervise the work of public works maintenance personnel in an assigned program/division (Roads, Sanitation, Solid Waste Disposal, or Drainage); assure the quality of the work performed; may perform the more difficult and technical work of the assigned division; and perform other duties as required.

Pump Maintenance Mechanic - Perform skilled mechanical repair and maintenance work on pumps, diesel engines and equipment in sewage transmission facilities, wastewater treatment plants and water treatment plants.

Sanitation Maintenance Worker -Under general supervision, perform a wide variety of tasks related to the maintenance and repair of pump stations and sewer lines and the maintenance of wastewater treatment and water treatment plants; and perform other duties as required.

Santa Cruz County Board of Supervisors - Establishes policy for the CSAs, Davenport, and Freedom County Sanitation Districts.

Senior Civil Engineer/ Sanitation Operations Manager – Plan, organize and manage the operation and maintenance of the Districts'/County's sanitation facilities; directs, through subordinate supervisors, the work of a staff engaged in a wide variety of activities connected with sanitation operations and maintenance; insures that all sanitation facilities comply with State and Federal laws and regulations.

Treatment Plant Operator -Under general supervision, to perform difficult and complex operations and maintenance functions for the County's wastewater and water treatment plants; to function as a lead worker to trainee operators; may act as chief plant operator for a class II or I wastewater treatment plant; and to perform other duties as required.

Treatment Plant Operator Supervisor -Under direction, to oversee all water or wastewater treatment operations, assist in the preparation of treatment plant budgets, plan, assign and supervise the work of a crew operating and maintaining wastewater or water treatment plants, and to perform other duties as required.

Element 3.

Legal Authority

3.1 Introduction

This section of the SSMP presents the Districts/CSAs legal authority to comply with the SSMP requirements.

3.2 Requirements for Legal Authority Section

(a) Prevent illicit discharges into its sanitary sewer system (examples may include infiltration and inflow (I/I), storm water, chemical dumping, unauthorized debris and cut roots, etc.);

(b) Require that sewers and connections be properly designed and constructed;

(c) Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the agency;

(d) Limit the discharge of fats, oils, and grease and other debris that may cause blockages; and

(e) Enforce any violation of its sewer ordinances.

3.3 Agencies Legal Authority

The County of Santa Cruz Public Works Department is responsible for the administration, engineering, maintenance, emergency response and construction of all County sanitation services. The department also manages various Board-governed special districts and County Service Areas. The Sanitation Operations unit is one of six organizational units within the Special Services Division of Public Works and provides operation and maintenance services to the Santa Cruz County Sanitation District, Freedom County Sanitation District, Davenport County Sanitation District and CSAs. Sanitation operations employees work in all districts and service areas. Each sanitation district is governed according to its specific code of regulations. The Districts/CSAs codes are very similar and some sections are adopted by reference from the SCCSD Code. The CSAs are governed according the Santa Cruz County Code of Regulations. Most of the County Code pertaining to sanitary sewer collection systems is adopted by reference from the SCCSD Code.

3.3 Agencies Legal Authority Continued

The legal authorities provided in the Districts and County Code for this SSMP are summarized in Table 3.1. Each of the three Districts has separate codes adopted by their Board of Directors applying only to that District. The CSAs operate under the County Code Title 7, Health and Safety, Chapter 7.39 Public Sewers.

District codes can be found at:

http://www.dpw.co.santa-cruz.ca.us/Home/Sanitation.aspx

Santa Cruz County Code can be found at:

http://www.santacruzcounty.us/

3.4 Satellite Agencies

Neither the Districts nor the County have any satellite sewer systems that discharge to their sanitary sewer systems.

The Legal Authorities for each District and CSA are presented in Table 3.1

Santa Cruz County Sanitation District Code-SCCSD

Freedom County Sanitation District Code-FCSD

Davenport County Sanitation District Code-DCSD

County of Santa Cruz Code of General Ordinances

Table 3.1 Summary of Legal Authority and Requirements

REQUIREMENT	SCCSD CODE REFERENCE	FCSD CODE REFERENCE	DCSD CODE REFERENCE	COUNTY OF SANTA CRUZ/ CSA'S CODE REFERENCE
GENERAL				
Prevent illicit discharges into the sanitary sewer system.	7.04.310	3.04.380	4.04.370 4.04.410	SCCC 7.39.020 Ordinances Adopted by Reference. SCCSD 7.04.310
Limit the discharge of fats, oils, and grease and other debris that may cause block-ages.	7.04.310	3.04.430 B	4.04.410	SCCC 7.39.020 Ordinances Adopted by Reference. SCCSD 7.04.310
Require that sewers and connections be properly designed and constructed.	7.04.140	3.04.280	4.04.270	SCCC 7.39.020 Ordinances Adopted by Reference. SCCSD 7.04.140, 7.04.240
Require proper installation, testing, and inspection of new and rehabilitated sew-ers.	7.04.140	3.04.280 3.04.290	4.04.270 4.04.200	SCCC 7.39.020 Ordinances Adopted by Reference. SCCSD 7.04.140

Table 3.1 Summary of Legal Authority and Requirements

REQUIREMENT	SCCSD CODE REFERENCE	FCSD CODE REFERENCE	DCSD CODE REFERENCE	COUNTY OF SANTA CRUZ/ CSA'S CODE REFERENCE
LATERALS				
Maintenance and Repair	7.04.070 7.04.325 7.04.375	3.04.220 3.04.465	4.04.220 4.04.446	SCCC 7.39.020 Ordinances Adopted by Reference. SCCSD 7.04.070, 7.04.325, 7.04.375
Ensure access for maintenance, inspection, or repairs for portions of the service lateral owned or maintained by the County.	7.04.380 (Private)	3.04.540	4.04.520	SCCC 7.39.020 Ordinances Adopted by Reference. SCCSD 7.04.380
Control infiltration and inflow (I/I) from private service laterals	7.04.375	3.04.465	4.04.445	SCCC 7.39.020 Ordinances Adopted by Reference. SCCSD 7.04.375A.1
FOG SOURCE CONTROL				
Limit the discharge of fats, oils, and grease and other debris that may cause blockages.	7.04.340 7.04.310	3.04.490 3.04.490A	4.04.410 4.04.470A, C	SCCC 7.39.020 Ordinances Adopted by Reference. SCCSD 7.04.340
Authority to inspect grease producing facilities.	7.04.340	3.04.540	4.04.520	SCCC 7.39.020 Ordinances Adopted by Reference. SCCSD 7.04.340

Table 3.1 Summary of Legal Authority and Requirements

REQUIREMENT	SCCSD CODE REFERENCE	FCSD CODE REFERENCE	DCSD CODE REFERENCE	COUNTY OF SANTA CRUZ/ CSA'S CODE REFERENCE
ENFORCEMENT				
Enforce any violation of its sewer ordinances.	1.12.010 7.04.545	3.04.467 Ordinances Adopted by Reference. SCCSD 7.04.545	4.04.530, 4.04.447 Ordinances Adopted by Reference. SCCSD 7.04.545	SCCC 7.39.020 Ordinances Adopted by Reference. SCCSD 7.04.545 SCCSD 1.12.010

Element 4.

Operations and Maintenance Program

4.1 Introduction

This section of the SSMP provides an overview of the Districts/CSAs operations and maintenance program.

4.2 Requirements for Operations & Maintenance Section

(a) Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable storm water conveyance facilities;

(b) Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventative Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders;

(c) Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short- and long-term plans plus a schedule for developing the funds needed for the capital improvement plan;

(d) Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained; and

(e) Provide equipment and replacement part inventories, including identification of critical replacement parts.

4.3 Collection System Maps

The Districts/CSAs maintain sewer collection system maps for all enrolled agencies using GIS and AutoCAD. Staff completed the maps for each of the Districts/CSAs in 2009.

The maps include all gravity line segments and manholes, pumping facilities, pressure pipes' valves, storm drains/catch basins and streams. In 2016, Sanitation Operations staff began using tablets in the field to view sanitary sewer maps through GIS. Hard copy maps produced from the GIS are used as necessary. The collection systems maps are updated continuously. Discrepancies identified by the field crews are forwarded to staff at the DA Porath Facility for action. High priority corrections will be completed as soon as possible. High priority corrections refers to incorrect or outdated mapping information that could cause the field crews to act in a manner that could cause an SSO. Low priority corrections are completed once a year.

CMMS

The Districts/CSAs utilize Lucity™ CMMS to manage assets, create work orders, track preventive maintenance, schedule repairs, track inventory, and record SSO events. Operations staff is working with the Management Information System staff to integrate Lucity™ and GIS in both the desktop and web based applications. Sewer asset information (pipe locations, material, size, manhole locations) can be accessed through the GIS application.

GraniteNet Inspection Software

The Districts/CSAs utilize Cues GraniteNet Inspection software to capture CCTV inspections. Operations staff is working with the Management Information System staff to integrate GraniteNet and GIS. GraniteNet provides asset information and PACP ratings. CCTV inspection reports and videos can be viewed for each asset inspected. Engineering can utilize this information to develop the CIP and prioritize projects.

4.4 Operation and Maintenance Program

The elements of the Districts/CSAs sewer system O&M program include:

- Proactive, preventive, and corrective maintenance of gravity sewers.
- Periodic inspection and preventive maintenance for pump station and force main facilities.
- Ongoing CCTV inspection program to determine the condition of the gravity sewers.
- Rehabilitation and replacement of collection system facilities that are in poor condition.

The details of the O&M program follow.

Preventative Maintenance

The District/CSAs have different methods of preventative maintenance and operation activities. Pipeline maintenance is performed on a daily basis by the line crews and includes regular sewer pipe cleaning, high frequency cleaning, and CCTV of the collection system. Sections of mainlines, where there is reported grease build up, pipe offsets, and excessive root intrusion require further assessment, are televised and the cleaning frequency is increased, or the pipe is repaired in-house or with a contractor. An area where grease is reported in the collection systems is further reviewed by the Environmental Compliance section. If the mainline sections require replacement, they are included in the CIP.

The Districts/CSAs are divided into basins alpha numerically. The cleaning schedule is assigned according to basin. Sanitation Operations proactively cleans all gravity sewers that are 12 inches in diameter and smaller every three years and preventively cleans sewer hotspots every 30 and 90 days depending on the severity of the hotspot. Hotspots are areas in the sewer collection system that have a history of blockages caused by grease, root intrusions, sags, and poor grade.

Sanitation Operations visually inspects the condition of its larger sewers (larger than 12 inches) every three years and conducts cleaning if needed. Two sewer-cleaning crews are assigned to these activities. Standard operating procedure for sewer cleaning is included as Appendix 4-A. These procedures are implemented in the three Districts/CSAs.

Gravity sewer cleaning is scheduled using work orders generated by Lucity™. Completed work is documented in Lucity™. Sanitation Operations staff will work with MIS staff to implement the codes shown in the Appendix 4A – Table 4.3 Criterion for Coding Debris Found During Cleaning. The completed work orders include field crew observations on the nature and quantity of materials removed from the gravity sewers during cleaning. This information, along with field crew recommendations, is used to establish the cleaning method and frequency.

Root Control

The Districts/CSAs contract for chemical root control throughout their systems on an as-needed basis. Approximately one third of the designated lines are treated by the contractor in the late spring of each calendar year. The City of Santa Cruz POTW must approve chemicals used by the root control contractor.

Sanitation Operations is currently conducting a review of the of the methods and materials used in this program to ensure that starting with the 2018 treatment program the following conditions are met:

- Blocking the line upstream and downstream of the area of application.
- Using root control agents that have a half-life of sixty (60) days or less and the breakdown products are non-toxic to aquatic plants or animals.
- Record keeping that includes identifying the PACP rating in the section being treated; a map identifying locations where treatment occurs; the chemical(s) used including the MSDS sheets; and the amounts applied.

Root Control - Continued

- Not applying any root control agent to any sewer line that has a known PACP rating of 4 or 5 unless the Districts/CSAs can ensure that none of the root control agent will escape the sewer line through any line defect.
- Not knowingly applying any root control agent in any location where groundwater can be contaminated via infiltration or exfiltration.
- Verifying through CCTV'ing of the sewer lines, whenever possible, prior to the expiration of the applicable warranty that the root control agent applied worked effectively to remove the identified root(s).

CCTV

Sanitation Operations uses CCTV to determine the condition of the gravity sewers and to determine the primary cause of blockages and SSOs. Sanitation Operations intends to continue inspecting the gravity sewers thereafter on a ten-year cycle. A CCTV inspection crew operates daily. The inspection data is reviewed by the Public Works Supervisor and the Sanitation Senior Civil Engineers to determine whether repair or rehabilitation/replacement is warranted. PACP ratings are used for both maintenance and structure.

Identified hot spots are used in prioritizing repair activities and for providing input to Public Works Sanitation Engineering on the Capital Improvement Program. Projects in the CIP are prioritized based on PACP ratings and Granite Net software. Additionally, Innovyze software is used to determine the likelihood and consequences of sewer system failures and will be used to develop the CIPs for each District and CSAs.

Pump Stations

The Districts/CSAs Pump Station O&M Program consists of monitoring, operational inspections, preventive maintenance, and corrective maintenance activities.

There are 55 pump stations throughout the Districts/CSAs. Nine employees are assigned to the pump crew. However, other sanitation operations staff may respond to pump stations when needed. Staff are cross-trained so they are able to work on various parts of the sewer collection systems. Pump stations are continuously monitored through a SCADA system. If the pumps are failing or wet well levels are too high or low, alarms are sent through SCADA, the SMW at dispatch reports the alarm, and the appropriate crew is notified of the alarms and responds. Pump stations are visually inspected every week. Facility or equipment problems observed during the operational inspections are repaired at that time or noted in logs maintained at the pump stations and on work orders for follow-up action. Pumps turn on and off based on flow and wet well levels. Large stations have backup pumps onsite.

Pump Stations - Continued

Stations that have pumps with over 40 horsepower motors are considered large. There are additional spare pumps stored at the sanitation operations facility located at 2750 Lode St. Santa Cruz CA, 95062. Electrical control panels are maintained by the electrical instrumentation technicians.

All but three the pump stations have emergency back-up generators onsite. The three stations without backup generators are smaller and have limited space. There are portable generators stored at the sanitation operations facility in case of an emergency. Generators are maintained by two pump mechanics.

Large pump stations will be inspected every two years and the remaining pump stations every three years. The information in the inspection will be used to identify major maintenance, rehabilitation and capital improvement needs. The pump facility inspection will be completed by a team that includes collection system and engineering staff as appropriate to the size and complexity of the facility. The facility inspections will be documented using the checklist included in Appendix 4-B. Sanitation Operations staff completes repairs and conducts maintenance. Specialty repairs, maintenance, or rehabilitation/ replacement are completed by contract. Identified capital improvement needs will be included in the Capital Improvement Program. The locations and photos of the pump stations for the Districts/CSAs are included in Appendix 4-C.

Force Mains

The Districts/CSAs force main O&M program consists of periodic inspections, preventive maintenance, and corrective maintenance activities.

The Districts/CSAs are members of Underground Service Alert and marks the location of the force mains to prevent damage by others during underground construction.

Air relief valves are inspected and maintained annually. Large force mains in the SCCSD are cleaned twice a year using a swab to scrub the line. This includes the force main from the DA Porath Facility to the City of Santa Cruz POTW and the 16-inch and 18-inch force mains from the Aptos Esplanade Pump Station to the transition structure in Park Avenue.

Sanitation Operations continues to develop a program to assess the condition of the force mains. The main transmission line from the DA Porath Facility to the City of Santa Cruz POTW was evaluated using a comprehensive approach which included a Close-Interval-Survey, electromagnetic internal inspections looking for broken bar wraps and steel cylinder corrosion, air pocket/leak detection surveys and hydraulic analysis. Additionally, a structural analysis was conducted, including a three-dimensional, nonlinear finite element analysis to determine the performance thresholds in light of any damage that was found.

Non-Routine Maintenance

Non-routine maintenance activities include investigation and response to any complaints regarding a manhole overflow, missing or shifted manhole covers, manhole covers that are excessively noisy, residential plumbing troubles, pump station malfunction, unexpected sewer odor, etc. Sewer complaints are investigated and appropriate actions are taken to resolve the source of the problem. The information is tracked in the Lucity™ data management system. Work orders are generated for all tasks including inspections, repairs, and SSOs. All complaint records are kept in Lucity™ including complaints that did not result in an SSO.

4.5 Rehabilitation and Replacement Plan

The Districts/CSAs Rehabilitation and Replacement Programs are driven by the condition of the sewer system assets. The condition of the gravity sewers is established using CCTV inspection. The condition of the pump stations is established during annual facility inspections and routine preventative maintenance activities.

The CCTV inspection results are based on the PACP standards: structural and maintenance defects are logged according to location and assigned a severity grade of 1 to 5 (1 indicates a minor defect and 5 indicates defects that are most significant and where failure is imminent). Future CCTV inspection frequencies may change based on the structural conditions identified during previous inspections. The condition-based inspection frequencies are shown in Table 4.1. The results of CCTV inspections (PACP ratings) will be integrated into the Districts/CSAs Innovyze InfoMaster software, which compiles PACP data, flow data, pipe age, and pipe material type in order to assign a "likelihood of failure" indicator to each pipe segment. This will, in turn, guide the Capital Improvement Program by prioritizing projects with a higher likelihood and consequence of failure. Currently the model is used for SCCSD. The goal of the Districts/CSAs is to develop models for FCSD, DCSD, CSA-5, CSA-7 and CSA-10 using the Innovyze software in the next three years.

Table 4.1 Condition-Based CCTV Inspection Frequencies

MAXIMUM PACP STRUCTURAL SEVERITY INDEX/LINE SEGMENT	CCTV RE-INSPECTION FREQUENCY
1	10 years
2	7 years
3	5 years
4	2 years
5	1 years

4.5 Rehabilitation and Replacement Plan - Continued

As stated earlier, pump station condition will be evaluated during periodic facility inspections and routine preventative maintenance.

Force main condition will be based on the future force main condition assessment program.

The sewer system projects that are included in the Five Year Capital Improvement Programs for the Districts/CSAs can be found on the County of Santa Cruz Department of Public Works Website at http://www.dpw.co.santa-cruz.ca.us/Home/Sanitation.aspx.

Public Works Sanitation Engineering is responsible for compiling condition and maintenance information for use in preparing and updating the Districts/CSAs Five Year Capital Improvement Program. Identified projects will be placed in priority order and included in the CIP.

The funds that support the CIP come from the Districts'/CSAs separate Sewer Funds. The Sewer Funds are enterprise funds for each agency that include revenues from sewer service charges, connection fees, and interest. The fees that provide the revenues are periodically reviewed and set based on current operating costs and identified capital improvement needs.

4.6 Training Program

The County uses a combination of in-house classes, on-the-job training, conferences, seminars, and other training opportunities to train its sanitation operations and engineering staff. County of Santa Cruz staff whom maintain the treatment plants are also trained on the OERP and WQMP.

Equipment and operations training is initially provided by the vendor or manufacturer of the equipment. Ongoing technical training is provided through on-the-job training and rotation among the different maintenance crews and equipment. Districts/CSAs also rely on regional and statewide training available through seminars and conferences. New employees receive orientation training on SSOs and the OERP/ WQMP. Annual in-class refresher training is conducted by private contractors. The training resources are shown in Table 4.2.

Table 4.2 Training Resources (Conferences, Seminars, and Materials)

SPONSOR	EVENT	TIMEFRAME	REFERENCE
Bay Area Clean Water Agencies	Collection System Committee	Monthly	http://www.bacwa.org
California Water Environment Association	State Conference	April	www.cwea.org
	Northern Regional Training Conference	September	
	Monterey Bay Section	Semi-Annually	
	San Francisco Bay and Santa Clara Valley Section Collection System Committees	Quarterly	
California State University, Sacramento	Videos, manuals, home study courses		www.owp.csus.edu
WDR and SSMP	Classroom	Annually	
Districts/CSAs	OERP/WQMP Training- Class-room and Field exercises	Semi-Annually and all new employees	
Private Contractors	PACP, Spill response volume estimation, and Pump Classes	Semi-Annually	
CSRMA	Sewer Summit	Annually	
Northern California Pipe Users Group	Sharing Technologies Seminar	Annually	www.norcalpug.com
Northern American Society for Trenchless Technologies	Various Trenchless Classes	As classes are offered	
California Association of Sanitation Agencies	Various	Varies as classes/ seminars are offered	www.casaweb.org

4.7 Contractors Working on District's/ CSAs Projects

Districts/CSAs contract language requires contractors working in the sanitary sewer system to provide training for their employees regarding the potential of their work to cause SSOs. Spill response procedures are discussed at pre-construction meetings. Construction specifications require that all contractors and subcontractors be experienced with sanitary sewer work and that they fully comply with all laws, regulations, and standards governing sewer work, sanitation, and public health.

4.8 Major Equipment

The list of the major equipment that Sanitation Operations uses in the operation and maintenance of the sewer systems is shown in Appendix 4-A, Table 4.1.

Definitions of Major Equipment:

Back Hoe - A back hoe is required to excavate, handle bulk material, and set and remove trench plating.

Boom Truck - A boom truck is required to carry tools, parts, and material to the site and provide a safe means of handling large and or heavy items.

Camera - A digital or disposable camera is required to record the conditions upon arrival, during clean up, and upon departure.

Closed Circuit Television Inspection Unit - A CCTV inspection unit is required to determine the root cause for all SSOs from gravity sewers.

Combination Sewer Cleaning Truck - A combination high velocity sewer cleaning truck with vacuum tank is required to clear blockages in gravity sewers, excavate soil, vacuum spilled sewage, and wash down the impacted area following the SSO event.

Confined Space Van – A confined space van is required to consolidate and transport the personal protective equipment (PPE), ventilation, lifting, and breathing apparatus which may be required to safely enter the work site.

Dump Truck - A dump truck is required to transport bulk material to and remove debris from the work site.

Portable Generators, Portable Pumps, Piping, and Hoses -Portable generators, portable pumps, piping, and hoses ranging in size from 2 to 6 inches in diameter are required to pump spilled sewage and/or contaminated water back into the sewer system.

Sewer Cleaning Truck - A high velocity sewer cleaning truck is required to perform routine maintenance of gravity sewers, clear blockages, and wash down the impacted area following an SSO event.

Spill Response Trailer - A spill response trailer is required to store and transport the equipment needed to effectively respond to sewer emergencies. The equipment and tools should include containment and clean up materials.

Trailer Mounted Air Compressor – A trailer mounted air compressor is required to run pneumatic tools for excavation and demolition in the field.

Vacuum Trucks – A vacuum truck is required to mitigate spills, bypass flow on a gravity line, and remove spilled sewage and wash down water.

Element 5.

Design and Performance Provisions

5.1 Introduction

This Section identifies the Districts/CSAs design, construction, and acceptance standards for new and rehabilitated sanitary sewer system facilities.

5.2 Requirements for Design and Construction Standards Section

(a) Design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems; and

(b) Procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

5.3 Design Criteria

Sanitary Sewer System Design Criteria are specified in the Santa Cruz County Design Criteria, February 2017 Edition located at the link below.

http://www.dpw.co.santa-cruz.ca.us/Portals/19/pdfs/DESIGNCRITERIA.pdf?ver=2017-07-17-115555-950

Element 6.

Overflow Emergency Response Plan

6.1 Introduction

The purpose of the Overflow Emergency Response Plan is to support an orderly and effective response to Sanitary Sewer Overflows. The OERP provides guidelines for Sanitation Operations staff to follow in responding to, cleaning up, and reporting SSOs that may occur within the Districts/CSAs.

6.2 Requirements for OERP Sections

(a) Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;

(b) A program to ensure appropriate response to all overflows;

(c) Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g. health agencies, regional water boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the Monitoring and Reporting Program (MRP). All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board Waste Discharge Requirements or National Pollutant Discharge Elimination System (NPDES) permit requirements. The Sewer System Management Plan should identify the officials who will receive immediate notification;

(d) Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;

(e) Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and

(f) A program to ensure that all reasonable steps are taken to contain untreated wastewater and prevent discharge of untreated wastewater to waters of the United States and minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.

6.3 Goals

- Respond quickly to minimize the volume of the SSO.
- Contain the spilled wastewater to the extent feasible.
- Eliminate the cause of the SSO.
- Minimize public contact with the spilled wastewater.
- Mitigate the impact of the SSO.
- Photograph and/or videotape the emergency response.
- Meet the regulatory reporting requirements.

6.4 SSO Detection

The processes that are employed to notify Sanitation Operations staff of the occurrence of an SSO include observation by the public, receipt of an alarm, or observation by County of Santa Cruz staff during the normal course of their work.

Public Observation

Public observation is the most common way that Sanitation Operations is notified of blockages and spills. Contact information for reporting sewer spills and backups is in the phone book and on The County of Santa Cruz Public Works website. The 24 hour telephone number for reporting sewer problems is (831) 477-3907.

Website: http://www.dpw.co.santa-cruz.ca.us/Home/Sanitation/SewerSpills.aspx

Normal Work Hour

Sanitation Operations regular working hours are Monday through Thursday from 7:00 a.m. to 4:30 p.m. and Friday from 7:00 a.m. to 3:30 p.m., except holidays. When a report of a sewer spill or backup is made during normal work hours, a dispatcher receives the call, takes the information from the caller, and communicates it to a field crew.

After Hours

Service calls are received by the Sanitation Operations SMW assigned to dispatch, who takes the information from the caller, and communicates it to Sanitation Operations On-Call Personnel.

Districts' and County Staff Observation

Staff conducts periodic inspections of sewer system facilities as part of their routine activities. Any problems noted with the sewer system facilities are reported to the appropriate Supervisor. If the problem is causing or may cause an SSO, Staff implement the OERP procedures. If the problem noted is not an emergency a work order is created to repair the problem.

Alarms

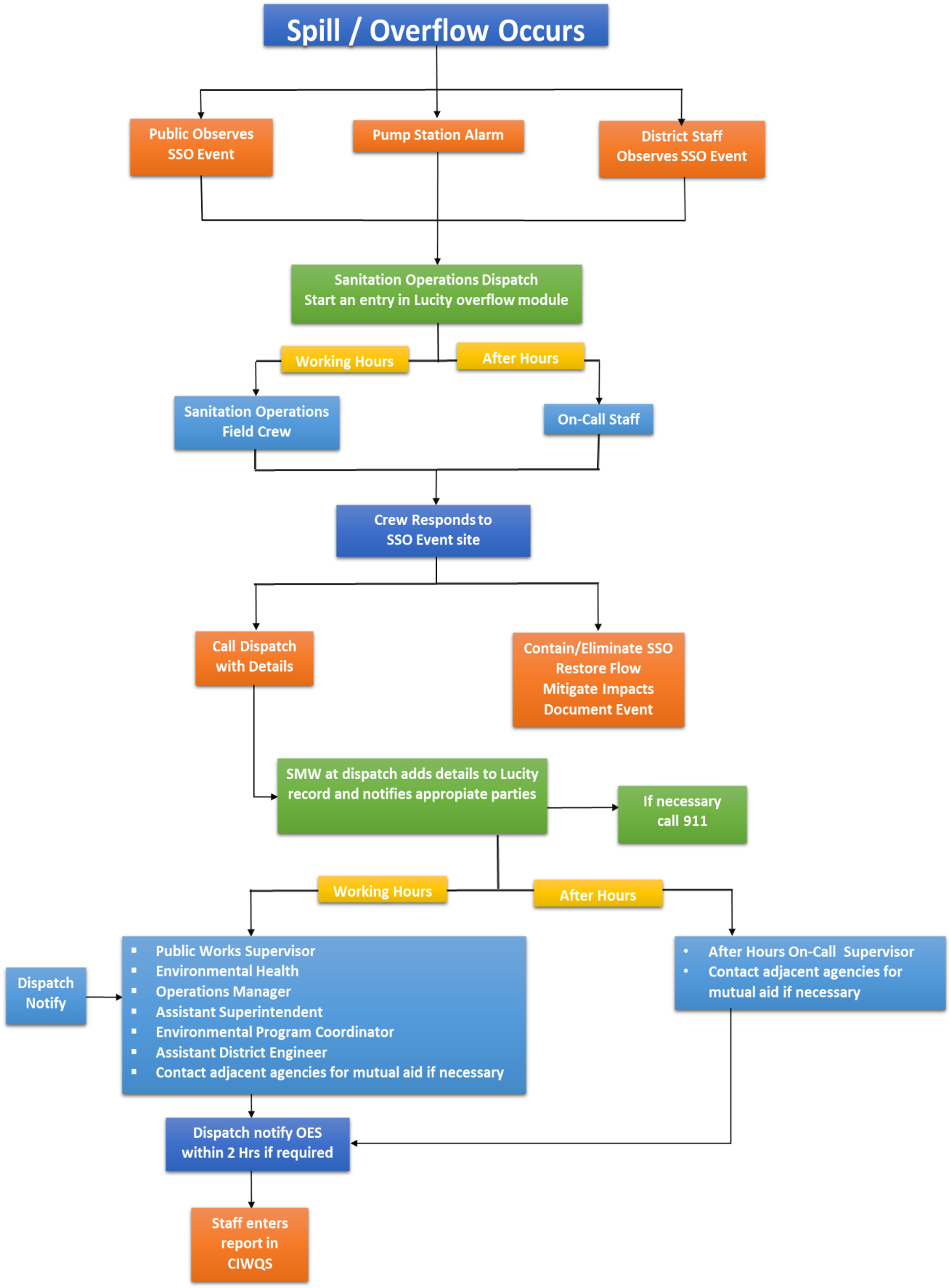
Pump Station alarms are monitored by a SMW at dispatch using SCADA. Alarm information is communicated to field crews during normal work hours and on call personnel after hours.

The District/CSAs also utilize Smartcover Monitoring Systems™, a remote manhole monitoring system that continuously delivers real time data of the collection systems. Currently SCCSD has eight sensor systems installed to monitor flow levels. The monitoring system activates alarms and high level advisories that are set at each location and are communicated to the SMW at dispatch through email. Alarms and high level advisories are communicated to field crews during normal work hours and on call personnel after hours.

6.5 SSO Response Procedures

Sewer service calls are considered high priority events that demand a prompt response. The notification and response procedure flow chart is shown in Figure 6.1.

Figure 6.1 Notification and Response Procedure Flow Chart



First Responder Priorities

The first responder's priorities are:

- To follow safe work practices.
- To respond promptly with the appropriate equipment.
- To contain the spill wherever feasible.
- To restore the flow as soon as practical.
- To minimize public access to and/or contact with the spilled sewage.
- To promptly notify the Public Works Supervisor (working hours) or the On Call Supervisor (after hours) in event of major SSO.
- To return the spilled sewage to the sewer system.
- To restore the area to its original condition (or as close as possible).
- To document by photograph or video emergency response field conditions.

Safety

The first responder is responsible for following safety procedures at all times. Special safety precautions must be observed when performing sewer work.

There may be times when personnel responding to a sewer system event are not familiar with potential safety hazards peculiar to sewer work. In such cases, it is appropriate to take the time to discuss safety issues, consider the order of work, and check safety equipment before starting the job.

Initial Response

The first responder must respond to the reporting party/problem site and visually check for potential sewer stoppages or overflows.

The first responder should:

- Note arrival time at site on the Field Stoppage and Reporting Party Interview Report form. A sample report is included as Appendix 6-B.
- Verify the existence of a sewer system spill or backup. Use the Ammonia test kit if it is not obvious.
- Identify and assess the affected area and extent of spill.
- Contact reporting party if time permits.

Initial Response - Continued

- Notify the Public Works Supervisor (working hours) or the On Call Supervisor (after hours):
    i. If the spill appears to be large, flowing to a storm drain, in a sensitive area, or there is doubt regarding the extent, impact, or how to proceed.
    ii. If additional help is needed.
- Document conditions upon arrival with photographs and/or videos.

Initiate Spill Containment Measures

The first responder should attempt to contain as much of the spilled sewage as possible using the following steps:

- Determine the immediate destination of the overflowing sewage.
- Plug storm drains using air plugs, sandbags, and/or plastic mats or visqueen to contain the spill, whenever appropriate. Containment measures include building berms, laying down mats to absorb the spill, and setting up bypass pumps. If spilled sewage has made contact with the storm drainage system, attempt to contain the spilled sewage by plugging downstream storm drainage facilities.
- Contain/direct the spilled sewage away from storm drains or surface waters using dike/dam or sandbags
- Pump around the blockage/pipe failure/pump station.

Restore Flow

To restore flow use the appropriate cleaning equipment, set up downstream of the blockage, and hydro clean upstream from a clear manhole. Attempt to remove the blockage from the system and observe the flows to ensure that the blockage does not recur downstream. Record the distance to the blockage from the cleaning manhole on the field stoppage report.

If the blockage cannot be cleared within a reasonable time (15 minutes), or the sewer requires construction repairs to restore flow, immediately contact other employees, contractors, and equipment suppliers.

6.6 Water Quality Monitoring Program

Water quality sampling and testing is required to determine the extent and impact of the SSO whenever there is an SSO that either enters a surface water or is discharged to a surface and poses a risk to public health or the environment. If an SSO poses an imminent and substantial endangerment to public health or the environment that cannot be fully mitigated by the current SOPs, the Districts/CSAs shall consult the County of Santa Cruz Environmental Health Department to determine the effects of the SSO on the environment. In addition, procedures outlined in the WQMP attached in Appendix 6.

In any area in which the County cannot confirm that all of the infectious materials from an SSO have been removed or mitigated, the Districts/CSAs shall post appropriate public notification signs and place barricades to keep vehicle and pedestrians away from contact with spilled sewage. For example, signs will be posted at creeks and streams that have been contaminated as a result of an SSO and at visible access locations until the risk of exposure has subsided to acceptable background levels. All signs and secured areas shall be photographed or videoed as part of the documentation of the emergency response.

Warning signs should be checked every day to ensure that they are still in place. Major spills warrant broader public notice. For major spills, the Districts/CSAs shall contact local media when significant areas may have been contaminated by sewage and may pose a danger to public health. The signs and other public notices will not be removed until the Health Department has determined there is no further risk to public health and the environment.

Water Quality Sampling

Water quality sampling and testing is required within 48 hours for Category 1 spills greater than or equal to 50,000 gallons.

The first responder to the SSO should collect the samples or notify the Environmental Compliance Officer during regular working hours or the On-call employee after hours to collect samples. Samples should be collected as soon as possible after the discovery of the SSO event.

The water quality samples should be collected, where feasible, from upstream of the spill, from the spill area, and downstream of the spill in flowing water. **Employees will not collect samples if it is not safe to do so.**

The water quality analyses shall include total and fecal coliform and ammonia. Additional samples will be taken to determine when posting of warning signs can be discontinued. Water quality samples will be collected by the Sanitation Operations staff and/or the County Environmental Health Department staff.

The Santa Cruz County Sanitation District lab or other certified lab will analyze the sample results to determine the nature and impact of the discharge. The analyses should include ammonia and bacterial indicators such as total coliform, fecal coliform.

Samples will be taken as follows:

- Sample far enough upstream of the SSO's point of entry into the surface water as to be free of contaminants from the SSO. Typically, 100-feet is sufficient, but this may vary on circumstances of the spill;
- Point of contact in the water body; and
- Sample 100 Feet Downstream of point of contact or to the furthest extent that the sewage has flowed since inception of the contact with the creek or flowing water body. Multiple samples should be taken every 100 feet to the final spill distance.
- Proper protective equipment should be used including gloves and eye protection.
- Bacteria samples will be collected in three sterile 120 mL containers located in spill kits. Samples must be analyzed within 6 hours.
- Ammonia samples will be collected in three 250 mL plastic containers.
- Samples should be labeled with location, date and time taken. The containers will be labeled Point (P) Upstream (U/S) and Downstream (D/S). If multiple samples are taken at the same point, label the containers with the sample number (D/S#1). The person taking the sample shall initiate and complete the Chain of Custody form for all samples taken.
- Samples are brought back to the sanitation operations facility and stored in the designated sample refrigerator or taken to the certified lab immediately.
- Photographs or videos will be taken to photo document the event. Responding crew should take enough pictures to cover the entire spill, damaged infrastructure and spill path. They should also take pictures of all posted warning signs.

The Santa Cruz County Sanitation District lab or other certified lab will analyze the sample results to determine the nature and impact of the discharge. The analyses should include ammonia and bacterial indicators such as total and fecal coliform. Samples should be taken as soon as possible but no longer than 48 hours of the Districts/CSAs becoming aware of the SSO. Appendix 6-F, Figure 6.1 is a sampling flow chart.

Additional samples will be taken to determine when warning signs can be removed. If sewage has reached a creek or flowing stream, samples should be taken along the flowing creek or stream until clear samples are found or until the flow is dammed and sewage vacuumed. The Santa Cruz County Environmental Health Department should review the analyses and follow-up analyses.

When sampling is not possible due to safety and/or weather conditions, employees are required to document the water body affected and use drainage maps to determine additional downstream discharge points and possible sampling locations. Samples will be collected once it is safe to do so.

6.7 Recovery and Clean-Up

The recovery and clean-up phase begins when the flow has been restored and the spilled sewage has been contained to the extent possible.

Estimate the Volume of Spilled Sewage

Use the methods outlined in Appendix 6-E to estimate the volume of the spilled sewage. Wherever possible, document the estimate using photos of the SSO site before and during the recovery operation.

Recovery of Spilled Sewage

Vacuum up and/or pump the spilled sewage and discharge it back into the sanitary sewer system. Document the collection system manhole where the recovered sewage is discharged back into the system.

Clean-Up

Clean-up procedures should be implemented to reduce the potential for human health issues and adverse environmental impacts that are associated with an SSO event. The procedures described are for dry weather conditions and should be modified as required for wet weather conditions. Where clean-up is beyond the capabilities of Sanitation Operations staff, a clean-up contractor will be used.

Private Property

Sanitation Operations Staff will follow the protocol outlined in Appendix 6-C.

Hard Surface Areas

Collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms.

Wash down the affected area with clean water until the water runs clear and vacuum up the wash water and discharge back into the collection system. Allow area to dry. Repeat the process if additional cleaning is required.

Landscaped and Unimproved Natural Vegetation

Collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms. Vacuum up any liquids. Remove contaminated soil and replace it with new soil. Allow area to dry.

Natural Waterways

The California Department of Fish and Wildlife should be notified in the event an SSO impacts any riparian habitat. The California Department of Fish and Wildlife will provide the professional guidance needed to effectively clean-up spills that occur in these sensitive environments.

Clean-up should proceed quickly in order to minimize negative impact.

Wet Weather Modifications

Omit flushing and sampling during heavy storm events with heavy runoff where flushing is not required and sampling would not provide meaningful results.

6.8 Public Notification

Post signs and place barricades to keep vehicles and pedestrians away from contact with spilled sewage. Do not remove the signs until directed by the Sanitation Operations Manager or the Assistant Public Works Superintendent. A sample warning sign is included as Appendix 6-G.

Creeks, streams and beaches that have been contaminated as a result of an SSO should be posted at visible access locations until the risk of contamination has subsided to acceptable background levels. The warning signs, once posted, should be checked every day to ensure that they are still in place.

In the event that an overflow occurs at night, the location should be inspected first thing the following day. The field crew should look for any signs of sewage solids and sewage-related material that may warrant additional clean-up activities.

Major spills may warrant broader public notice. The District Engineer will authorize contact with local media when significant areas may have been contaminated by sewage.

6.9 Failure Analysis Investigation

The objective of the failure analysis investigation is to determine the "root cause" of the SSO and to identify corrective action(s) needed that will reduce or eliminate future potential for the SSO to recur.

The investigation should include reviewing all relevant data to determine appropriate corrective action (s) for the line segment. The investigation should include:

- Reviewing the Field Stoppage Report and Reporting Party Interview form, Appendix 6-B and all other documentation developed for the incident.
- Reviewing past maintenance records;
- Reviewing available photographs and/or videos;
- Conducting a CCTV inspection to determine the condition of the line segment immediately following the SSO and reviewing the video and logs;
- Meeting with staff that responded to the spill;
- All sampling and monitoring results from the incident; and
- Review of Districts/CSAs SOPs and determination of any change resulting from the analysis.

The product of the failure analysis investigation should be the determination of the root cause and the identification of corrective actions. The post spill failure analysis form (Appendix 6-D) should be used to document the investigation. The Districts/CSAs intend to incorporate the post spill failure analysis form within the Lucity™ overflow module. All changes to operating processes and procedures in the SSMP resulting from the failure analysis shall be logged in the SSMP change log.

6.10 SSO Categories

The California State Water Resources Control Board has established guidelines for classifying and reporting SSOs. Reporting and documentation requirements vary based on category of SSO.

There are three categories of SSOs as defined by the SWRCB[1]: in the MRP effective September 9, 2013:

Category 1

Discharges of untreated or partially treated wastewater of any volume resulting from an enrollee's sanitary sewer system failure or flow condition that:

- Reach surface water and/or reach a drainage channel tributary to a surface water; or
- Reach a Municipal Separate Storm Sewer System and are not fully captured and returned to the sanitary sewer system or not otherwise captured and disposed of properly. Any volume of wastewater not recovered from the MS4 is considered to have reached surface water unless the storm drain system discharges to a dedicated storm water or groundwater infiltration basin (e.g. Infiltration pit, percolation pond).

Category 2

Discharges of untreated or partially treated wastewater of 1,000 gallons or greater resulting from an enrollee's sanitary sewer system failure or flow condition that do not reach surface water, a drainage channel, or a MS4 unless the entire SSO discharged to the storm drain system is fully recovered and disposed of properly.

Category 3

All other discharges of untreated or partially treated wastewater resulting from an enrollee's sanitary sewer system failure or flow condition.

Private Lateral Sewage Discharge (PLSD)

Discharges of untreated or partially treated wastewater resulting from blockages or other problems within a privately owned sewer lateral connected to the enrollee's sanitary sewer system or from other private sewer assets. PLSDs that the enrollee becomes aware of may be voluntarily reported to the California Integrated Water Quality System Online SSO Database.

[1] ***State Water Resources Control Board Monitoring and Reporting Program No. 2006-0003DWQ (as revised by Order No. WQ 2013-0058-EXEC),*** California State Water Resources Control Board, July 26, 2016.

6.11 SSO Documentation and Reporting

All SSOs should be thoroughly investigated and documented for use in managing the sewer system and meeting established notification and reporting requirements. The procedures for investigating and documenting SSOs are:

Internal SSO Reporting Procedures

Category 1

The responding crew will immediately notify the Public Works Supervisor (working hours) and Sanitation Operations Dispatch. Dispatch will call the On Call Supervisor (after hours). The Public Works Supervisor or On Call Supervisor will notify the Assistant Public Works Superintendent or the Sanitation Operations Manager.

If necessary, the Public Works Supervisor (working hours) or the On Call Supervisor (after hours) will meet with field crew(s) at the site of the SSO event to assess the situation and to document the conditions with photos and/or videos. The field crew will complete the Field Stoppage Report and Reporting Party Interview form and add details in a Lucity™ work order and overflow record (if possible). If a work order has not been created, the field crew will create one. The field report and Lucity™ records are reviewed and approved by the Public Works Supervisor and the Assistant Public Works Superintendent. A post spill debriefing meeting with all Staff involved in the response will follow the next day to go over the details of the event.

In the event of a very large overflow or an overflow in a sensitive area, the Sanitation Operations Manager will notify the District Engineer. The District Engineer may notify the County Administrative Officer.

Category 2

The field crew will immediately notify the Public Works Supervisor (working hours) and Sanitation Operations Dispatch. The responding crew will complete a Field Stoppage Report form and add details in a Lucity™ work order and overflow record (if possible). If a work order has not been created, the field crew will create one. The field report and Lucity™ records are reviewed and approved by the Public Works Supervisor and the Assistance Public Works Superintendent.

Category 3

The field crew will complete the Field Stoppage Report and Reporting Party Interview form and add details in a Lucity™ work order and Lucity™ overflow record. If a work order has not been created, the field crew will create one. The field report and Lucity™ records are reviewed and approved by the Public Works Supervisor and the Assistant Public Works Superintendent.

External SSO Reporting Procedures

The California Integrated Water Quality System electronic reporting system should be used for reporting SSO information to the SWRCB whenever possible. A flow chart and checklist are included as Figure 6.2 showing the external reporting response requirements based on the type of SSO.

Category 1 SSOs That Reach Waters of the State

If a Category 1 SSO that is greater than or equal to 1,000 gallons is discharged to surface water or spilled in a location where it probably will be discharged to surface water then the following reporting requirements apply:

- Within two hours of notification of the spill event the Public Works Supervisor or On Call Supervisor or dispatcher will:
  i. Notify OES (and obtain spill number for use in other reports); and
  ii. Notify the County Environmental Health Services Agency.
- Document all calls and all information received.
- Within 3 business days of the spill event, the Assistant Public Works Superintendent or Sanitation Operations Manager or other data submitter will submit the initial report in the CIWQS system.
- Within 15 calendar days of the conclusion of SSO response and remediation, the Assistant Public Works Superintendent or Sanitation Operations Manager or other designated LRO must certify the SSO in the CIWQS system.
- The Assistant Public Works Superintendent or Sanitation Operations Manager or other LRO will attach additional information to the certified report, in the form of an attachment, as needed at any time.

The Districts/CSAs must submit a technical report in the CIWQS database within 45 days after the end of the Category 1 SSO in which 50,000 gallons or greater are spilled to surface waters.

Category 2

Submit draft report on CIWQS within 3 business days of becoming aware of the SSO and certify within 15 calendar days of the SSO end date.

Category 3

Submit a certified report within 30 calendar days of the end of the month in which the SSO occurred.

Private Lateral Sewage Discharges

The Assistant Superintendent or Sanitation Operations Manager may report private lateral SSOs at the Districts/CSAs discretion, specifying that the sewage discharge occurred and was caused by a private lateral and identifying the responsible party (other than the Districts' or the County), if known.

No Spill Certification (Monthly)

If there are no SSOs during a calendar month, then the LRO will submit an electronic certified report in CIWQS that Districts/CSAs did not have any SSOs. The Assistant Public Works Superintendent or the Sanitation Operations Manager or other LRO will certify the report within 30 calendar days after the end of each calendar month.

Annual Collection System Questionnaire

The Assistant Public Works Superintendent shall annually update and submit a certified Collection System Questionnaire in the CIWQS system.

CIWQS Not Available

In the event that CIWQS is not available, the Assistant Public Works Superintendent or other LRO will fax all required information to the RWQCB office in accordance with the time schedules identified above. In such event, the LRO will submit the appropriate reports to the CIWQS system as soon as it becomes available. The RWQCB fax number is (805) 543-0397.

Additionally, for Category 1 spills greater than 50,000 gallons a SSO Technical Report is required and must be submitted within 45 calendar days of the SSO end date. This report shall include at a minimum the following:

Causes and Circumstances of the SSO

a. Complete and detailed explanation of how and when the SSO was discovered.

b. Diagram showing the SSO failure point, appearance point(s), and final destination(s).

c. Detailed description of the methodology employed and available data used to calculate the volume of the SSO and, if applicable, the SSO volume recovered.

d. Detailed description of the cause(s) of the SSO.

e. Copies of original field crew records used to document the SSO.

f. Historical maintenance records for the failure location.

g. Enrollee's Response to SSO:

    i. Chronological narrative description of all actions taken by enrollee to terminate the spill.

    ii. Explanation of how the SSMP Overflow Emergency Response plan was implemented to respond to and mitigate the SSO.

    iii. Final corrective action(s) completed and/or planned to be completed, including a schedule for actions not yet completed.

Causes and Circumstances of the SSO continued:

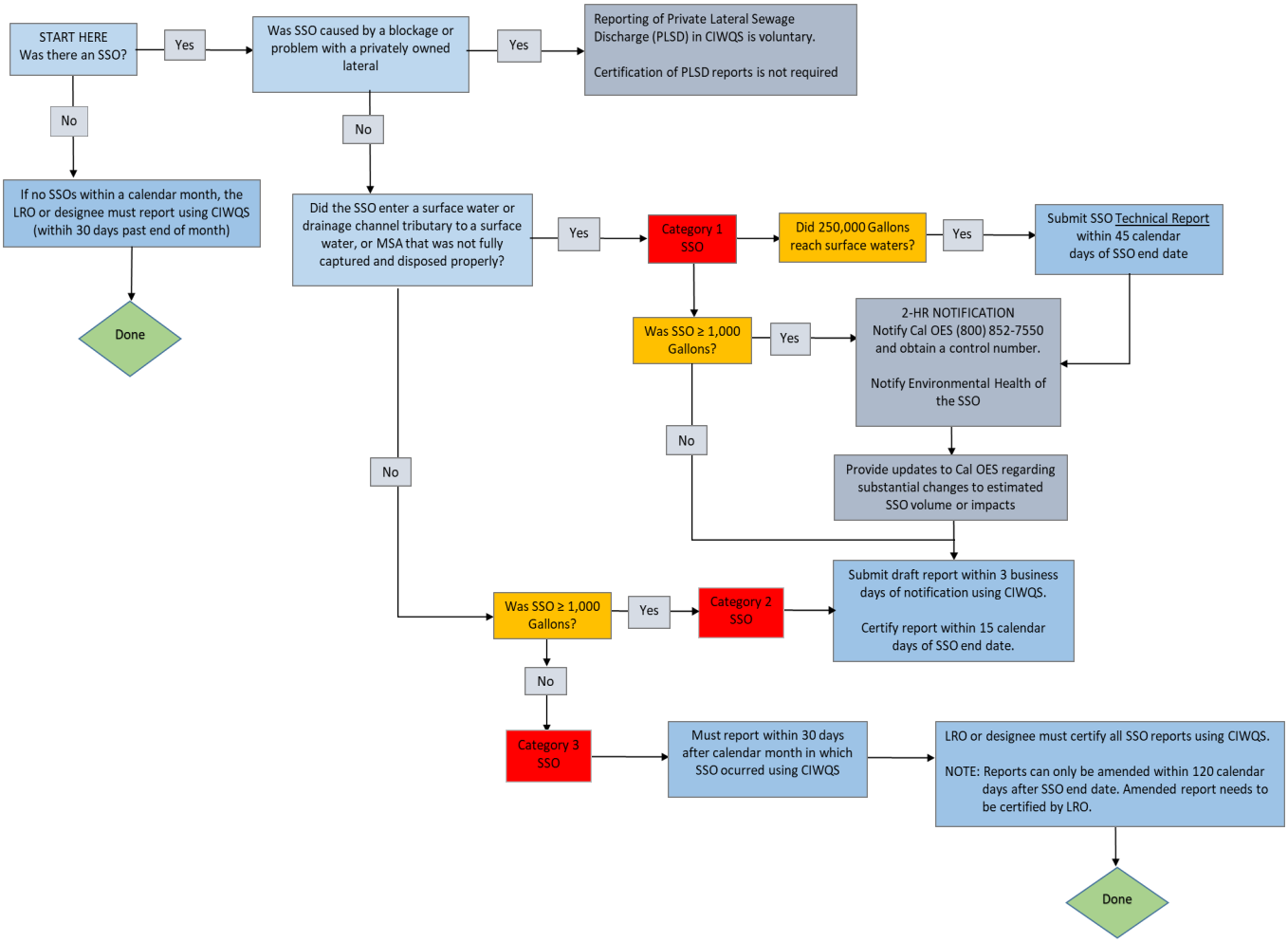
h. Water Quality Monitoring:

i. Description of all water quality sampling activities conducted including analytical results and evaluation of the results.

ii. Detailed location map illustrating all water quality sampling points.

Figure 6.2

Sanitary Sewer Overflow Response Plan: External Reporting Requirement Flow Chart



REPORTING AND CERTIFICATION CHECKLIST
Category 1 SSOs that reach Surface Waters
2-Hour Notification: • OES must be notified within two hours of a discharge of sewage greater than 1,000 gallons to a surface water or drainage channel (that is not fully captured and returned to sewer) Within 3 business days of Notification: • As a Category 1 SSO, it must be reported to SWRCB using CIWQS Within 15 Calendar days of SSO end date: • Must be certified by LRO using CIWQS Within 45 Calendar days of SSO end date: • If SSO was greater than 50,000 galloons, submit SSO Technical Report
Category 2 SSOs (≥1,000 gallons, no Property Damage or Surface Waters)
Within 3 business days of notification: • Must be reported to SWRCB using CIWQS Within 15 Calendar days of SSO end date: • Must be certified by LRO using CIWQS
Category 3 SSOs (≤1,000 gallons, no Property Damage or Surface Waters)
Within 30 days after end of calendar month with SSO event: • Must be reported and certified by LRO using CIWQS
Negative Reporting (No SSOs in Month)
Within 30 days past the end of the month: • Must be reported by LRO using CIWQS
Private Lateral SSOs (Reporting is Optional)
• If reporting is desired, report to SWRCB as "Private Lateral" SSO and Identify responsible party, if known, using CIWQS • Must be Certified by LRO using CIWQS
TWO-HOUR NOTIFICATION/24-HOUR CERTIFICATION & SWRCB
1) OES (916) 845-8911 OR (800) 852-7550, Make sure you ask for an "OES Control Number" (for RWQCB) 2) County Health Officer or Environmental Health Office • Phone Number: • After Hours:
CALIFORNIA INTEGRATED WATER QUALITY SYSTEMS (CIWQS)
SWRCB Reporting Timeframes Depend on the Size and Final Destination of the SSO: • CIWQS must be used for reporting if the website is available ⇒ http://ciwqs.waterboards.ca.gov ⇒ User Name: ⇒ Password: ⇒ Waste Discharge Identification Number (WDID): • RWQCB Fax is only for use if the CIWQS website is down

Internal SSO Documentation

Category 1, 2 and 3

The SMW at dispatch that receives the initial call will create a record in the Lucity™ sewer overflow module and a work order.

The first responder will complete the work order and the field stoppage report and provide copies to the Public Works Supervisor or On Call Supervisor. They will also update the sewer overflow module and work order.

The Public Works Assistant Superintendent will create and maintain a separate file for each individual SSO. Most of the information will be captured in the Lucity™ overflow module. The file should include the following information:

- Initial Sewer Service Call Report.
- Field Stoppage Report and Reporting Party information form.
- All CIWQS certified reports and emails verifying certification.
- All incident correspondence, field notes and customer interviews.
- Volume estimate calculations of spilled and recovered volumes.
- Failure analysis investigation results/debriefing meeting notes.
- Documentation of all changes to policies and procedures from debrief or failure analysis.
- Appropriate maps showing the spill location and sampling and signage locations.
- Photographs and videos of spill location.
- Electronic monitoring records relied upon.
- Water quality sampling and test results, if applicable.
- Claims handling forms provided to customers.

<u>Private Lateral SSOs</u>

The SMW at dispatch that receives the initial call will create a record in the Lucity™ sewer overflow module and a work order.

The first responder will complete the stoppage report and provide copies to the Public Works Supervisor or On Call Supervisor. They will also update the sewer overflow module.

A separate file will be prepared for each individual private lateral SSO, at the Public Works Assistant Superintendent's discretion. The file should include any relevant information from the Lucity™ overflow module and information from the above list. The Sanitation Operations Manager or The Assistant Public Works Superintendent shall determine whether to submit the PLSD to the CIWQS system.

External SSO Record Keeping Requirements

Individual SSO records must be maintained for all Districts/CSAs for five years from the date of the SSO. This period may be extended when requested by the SWRCB staff or the RWQCB Executive Officer.

All records shall be made available for review upon SWRCB or RWQCB staffs' request.

Records shall be retained for all SSOs, including but not limited to the following when applicable:

- CIWQS Certified report, (Is available online);
- All original recordings for continuous monitoring instrumentation;
- Service call records and complaint logs of calls received by Districts/CSAs;
- SSO calls;
- SSO records;
- Steps that have been and will be taken to prevent the SSO from recurring and a schedule to implement those steps;
- Work orders, work completed, and any other maintenance records from the previous five years which are associated with responses and investigations of system problems related to SSOs;
- A list and description of complaints from customers or others from the previous five years; and
- Documentation of performance and implementation measures for the previous five years.

If water quality samples are required by an environmental or health regulatory agency or State law or if voluntary monitoring is conducted by Districts/CSAs or its agent(s) as a result of any SSO, records of monitoring information shall include:

- The date, exact place, and time of sampling or measurements;
- The individual(s) who performed the sampling or measurements;
- The date(s) analyses were performed;
- The individual(s) who performed the analyses;
- The analytical technique or method used; and
- The results of such analyses.

6.12 Post SSO Event Debriefing

Every SSO event is an opportunity to evaluate the response and reporting procedures. Each SSO event is unique, with its own elements and challenges including volume, cause, location, terrain, and other parameters.

As soon as possible after major SSO events, all of the participants should meet to review the procedures used and to discuss what worked and where improvements could be made in responding to and mitigating future SSO events. The results of the debriefing should be recorded and tracked in the Lucity™ sewer overflow record to ensure the action items are completed.

6.13 SSO Response Training

This section provides information on the training that is required to support this Overflow Emergency Response Plan and the Water Quality Monitoring Plan.

Initial and Annual Refresher Training

All Sanitation Operations personnel who may have a role in responding to, reporting, and/or mitigating a sewer system overflow should receive regular training and field exercises on the contents of this Plan. All new employees should receive training before they are placed in a position where they may have to respond. Current employees should receive annual refresher training on these plans and the procedures to be followed.

SSO Response Drills

Periodic training drills should be held to ensure that employees are up-to-date on the procedures, the equipment is in working order, and the required materials are readily available. The training drills should cover scenarios typically observed during sewer-related emergencies (e.g. mainline blockage, mainline failure, force main failure, pump station failure, and lateral blockage). These drills will include practical volume estimation of both sewer spills and recovered volumes and start time evaluation techniques. The results and the observations during the drills will be recorded and follow-up action items will be tracked to ensure completion.

SSO Training Record Keeping

Records should be kept of all training that is provided in support of these plans. The records for all scheduled training courses and for each overflow emergency response training event and must include date, time, place, training content and description, name of trainer(s), and names of attendees.

Contractors Working on District's and County Sewer Facilities

All contractors working on the Districts/CSAs sewer facilities will be required to develop a project-specific OERP that is subject to Districts/CSAs approval. All contractor personnel will be required to receive training in the contractor's OERP and to follow that OERP in the event that they cause or observe an SSO.

Element 7.

FOG Control Program

7.1 Introduction

This section of the SSMP presents the Districts/CSAs approach to preventing FOG-related SSOs.

7.2 Requirements for FOG Control Section

(a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;

(b) A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area;

(c) The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;

(d) Requirements to install grease removal devices (such as traps or interceptors), design standards for the grease removal devices, maintenance requirements, Best Management Practices requirements, record keeping and reporting requirements;

(e) Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;

(f) An identification of sewer system sections subject to FOG blockages and the establishment of a cleaning maintenance schedule for each section; and

(g) Development and implementation of source control measures, for all sources of FOG discharged to the sewer system, for each sewer system section identified in (f) above.

7.3 FOG Source Control Program

The Districts/CSAs have a FOG Source Control Program that is administered, along with the Pretreatment Program, by the Environmental Compliance Unit (ECU). The FOG Source Control Program has been in place since 1977. There are 282 food service establishments that have FOG control devices in the Districts/CSAs. All commercial businesses are inspected annually or more if needed. 30 day flush schedules are implemented in areas that have higher grease loadings in the lines. The sewer line maintenance crew regularly meets with the ECU to discuss the problematic lines in the Districts/CSAs. Based on that information the ECU inspectors will investigate the sources of the grease problems and perform repeated FOG inspections.

Public Outreach

Residential

The residential FOG outreach program consists of advertising in local newspapers and mailers, as well as door hangers used in areas where known grease problems exist. The focus of the program is to educate residents and small businesses on the proper disposal of FOG and about the consequences of discharging grease and other harmful wastes into the sewer. All of the pollution prevention public outreach information is available on the Sanitation page of the County Public Works Website:

http://www.dpw.co.santa-cruz.ca.us/Home/Sanitation.aspx

Currently, the public outreach program contains several elements designed to help educate the public about FOG issues.

The bilingual “Think Before You Flush” pamphlet is distributed in residential areas that are consistently having problems. This mailer details what is not appropriate to send down residential sinks, and why these issues are important. The “Think Before You Flush” pamphlet details explicitly what causes FOG problems, how to reduce FOG loads on the sewer lines, and why it is important to eliminate FOG from sewer lines.

Additional public outreach materials include bilingual (Spanish and English) residential door hangers that are distributed to residential areas where sewer maintenance workers and repeat spills indicate there are FOG problems in sewer lines. As with the “Think Before You Flush ” pamphlet, the door hangers identify the problems associated with FOG and how these problems can be mitigated. The door hangers alert residents that the District/CSA is experiencing problems in the surrounding sewer lines due to grease. The FOG Alert door hanger is listed in Appendix 7-A.

Twice a year the Districts/CSAs publish an educational grease advertisement in several local papers to reduce residential sources of grease in the sanitary sewer. The advertisement is published before Thanksgiving and Christmas in order to reduce problems associated with grease from holiday foods. The ad details ways in which people can reduce FOG in sewers and properly dispose of cooking grease. The FOG advertisement is listed in Appendix 7-B.

The Districts/CSAs partnered with the Monterey Regional Water Control Agency to develop a television commercial that conveys the importance of keeping fats, oils and grease out of the sewers. The commercial is aired annually during the holiday season on public broadcasting channel.

The Districts/CSAs also utilizes Facebook and Twitter to provide outreach and education to the public.

Every year in April, the Districts/CSAs participates in Earth Day Santa Cruz. The event provides an opportunity to educate children and the community about proper use of residential sewers. The event is attended by nearly 3,000 people. Activities for children were developed for the event. Kids decorate their own grease can to take home and put in the freezer to store cooking grease. More information about Earth Day is located at: http://scearthday.org/

Commercial

Pretreatment inspectors educate businesses operating in Santa Cruz County on process-specific pollution prevention and waste minimization opportunities. Best Management Practices (BMPs) requirements for FSEs include installing screens on all sink drains used for dishwashing, eliminating the use of grease interceptor/trap additives, eliminating the use of garbage disposal units, scraping all plates prior to the primary rinse, and proper storage of used deep-fryer oil.

Districts/CSAs staff developed a bilingual Best Environmental Practices for Restaurants pamphlet that details the appropriate ways to reduce FOG in sewer laterals and municipal sewer lines. It also details proper janitorial cleaning methods, the differences between interior and exterior grease interceptors and their maintenance requirements.

http://www.dpw.co.santa-cruz.ca.us/Portals/19/pdfs/BMPs Restaurants.pdf?ver=2016-11-10-093329-830

http://www.dpw.co.santa-cruz.ca.us/Portals/19/pdfs/Sanitation/2016 SP Formatted for printing Restaurant BMP_SP.pdf

Green Business Program

Commercial outreach has also taken the form of the Monterey Bay Green Business Program. Goals of the green business program include promoting pollution prevention, waste minimization, and implementation of best management practices that go above and beyond the regulatory standards.

The program began certifying restaurants in July of 2004. A significant portion of the program for restaurants, hotels, and plumbers is dedicated to minimizing fats, oils, and grease into the sanitary sewer.

Several new jurisdictions joined the program in 2008, including San Benito County, several areas in Monterey County, and the City of Santa Cruz.

A Task Force consisting of multimedia regulators (stormwater, air, hazardous materials, as well as wastewater) and several non-profit organizations formed in 2004 continues to meet every quarter to coordinate the program.

Inspection and Enforcement

Significant effort has been focused on reducing Sanitary Sewer Overflows caused by FOG. All commercial businesses are inspected annually or more if needed. The Districts/CSAs Sewer Use Ordinances, are nearly identical, and each provides the legal authority to implement a FOG Control Program. Districts/CSAs codes require all FSEs to have a grease interceptor or trap. Grease interceptors and traps must meet sizing requirements and design criteria set forth by the Districts/CSAs. All grease interceptors and traps must be maintained according to a pump schedule specified by the District Engineer. Invoices and manifests of pumping must be sent to the ECU as proof of maintenance. The maximum allowable pump schedule is every 90 days, but may be more frequent if necessary. The sections of code that gives the Districts/CSAs legal authority to require grease removal devices and conduct inspections is listed in Table 7.1.

All inspections are unannounced. Inspectors use Lucity™ to query the facilities that are due for inspections. Some facilities will receive multiple inspections if corrective actions are required. In an effort to further the Districts/CSAs sustainability goals, the ECU utilizes tablets in order to make inspections a paperless process. The tablets sync inspection data in real-time to the database. Figure 7.1 is an FSE inspection form.

During the annual inspections, all grease interceptors, traps, and drains are visually inspected to see if grease and/or solids are being allowed to enter the sanitary sewer. Additionally, pump records and all FOG recordkeeping are reviewed to ensure that FSEs are complying with the Districts/CSAs Codes.

Sanitation Operations uses Lucity™ to filter and sort all problems and stoppages associated with grease. Staff uses the data to identify and track hotspots in order to implement the appropriate source control measures, ranging from public outreach in residential areas to inspection and monitoring of FOG producing facilities and their pretreatment devices. This also results in the field crews changing maintenance schedules for lines impacted by FOG situations.

Legal Authority Enforcement Response

The ECU staff has developed an Enforcement Response Plan in accordance with Federal Pretreatment guidelines that details timelines and enforcement actions that are specifically aimed at FOG compliance issues and violations. The Districts/CSAs are prepared to bring repetitive non-compliant dischargers before the Board of Directors for the appropriate assessment of monetary penalties. The ERP is included in the sewer use ordinances and is available at the Sanitation page of the County of Santa Cruz Public Works website.

http://www.dpw.co.santa-cruz.ca.us/Home/Sanitation.aspx

Table 7.1 FOG Legal Authority

FOG LEGAL AUTHORITY		
DISTRICT	CODE SECTION	CODE SECTION TITLE
SCCSD	7.04.310	Prohibited Wastes Designated
	7.04.340	Preliminary Treatment Facilities
	7.04.380	Inspection of Sewer Facilities on Private Premises
DCSD	4.04.410	Types of Wastes Prohibited
	4.04.430	Preliminary Treatment Facilities-Minimum Requirements
	4.04.520	Right of Entry for Inspection
FCSD	3.04.430	Types of Wastes Prohibited
	3.04.490	Preliminary Treatment Facilities-Minimum Requirements
	3.04.540	Right of Entry for Inspection
CSA	7.39.020	Ordinances adopted by reference SCCSD Title 7 Use of Sewers

7.4 FOG Evaluation

Special 30-day flush schedules are implemented by the sewer maintenance crew in areas that have higher grease loadings in the lines. The sewer line maintenance crew regularly meets with the ECU to discuss existing and new grease hotspots in the Districts/CSAs. Based on that information, the ECU investigates the sources of the grease problems and performs repeat inspections. FSE inspections are conducted by the ECU staff throughout the year. Significant effort is aimed at reducing grease related SSOs and storm-water pollution caused by FSEs. In addition, ECU staff review architectural plan sets for new FSEs to ensure implementation of Sewer Use Ordinance requirements for grease control devices in each of the six enrolled agencies.

7.5 Staffing

One Environmental Programs Coordinator and two Pretreatment Program Specialists staff the Pretreatment Program, which includes the FOG Source Control Program. All three employees are required to be certified Environmental Compliance Inspectors under the California Water Environment Association Technical Certification Program. The County and the Districts considers this current level of staffing to be adequate.

7.6 Commercial FOG Disposal Sites

Districts/CSAs believe that there are adequate disposal sites for the FOG generated within its service areas. Table 7.2 lists the names and locations of the disposal sites.

As described above, Districts/CSAs participates in the FOG outreach and the Green Business Program in order to reduce FOG in sewers. In addition to this program, there are a variety of options available for commercial FOG disposal:

- The City of Santa Cruz POTW has a disposal facility for FOG from commercial grease interceptors or traps. This facility has the capacity to handle FOG generated in both the City and Districts/CSAs. The FOG is blended with the sludge generated from treatment processes and then put through a digestion system that recovers methane produced from the breakdown of the sludge. This in turn helps to generate the electrical power needed to run the treatment facility.
- The wastewater treatment plant located in the City of Watsonville has a similar FOG disposal facility and energy co-generation program.
- Additional disposal facilities (for deep fryer-type cooking oil only) are available to residents at the Household Hazardous Waste disposal facilities in Ben Lomond, Buena Vista, and City of Santa Cruz landfills.
- Facilities that accept cooking oil from commercial sources are located at the County landfill sites.

Table 7.2 Commercial and Residential Fog Disposal Sites

COMMERCIAL AND RESIDENTIAL FOG DISPOSAL SITES
City of Santa Cruz POTW 110 California Street Santa Cruz, CA 95060 831-420-6050 http://www.cityofsantacruz.com/government/city-departments/public-works/wastewater-treatment-facility/liquid-waste-haulers
City of Watsonville WWTP 500 Clearwater Lane Watsonville, CA 95076 831-768-3170 https://www.cityofwatsonville.org/1460/Wastewater-Discharge-Permit-Applications
Buena Vista Landfill (Residential) 1231 Buena Vista Drive Watsonville, CA 95076 831-454-2430 http://dpw.co.santa-cruz.ca.us/Home/RecyclingSolidWaste.aspx
Ben Lomond Transfer Station 9835 Newell Creek Road Ben Lomond, CA 831-454-2430 (See the Buena Vista Landfill website for details)

Figure 7.1 Food Facility Inspection Report

SANTA CRUZ COUNTY SANITATION DISTRICT
Food Facility Inspection Report

APN	Today's Date: Last Inspection:	
Name of Establishment:		
Address:	City:	
Facility Contact:		Phone:
Type of food prepared		

☐ Dishwasher
☐ Low Temp. Sanitizer
☐ Garbage Disposal
☐ Oven
☐ Grill
☐ Fryer
☐ Stove
☐ 3 – Tub Wash Basin

INTERIOR GREASE TRAP		Size:	
Self Cleaning		☐ Yes	☐ No
Self Cleaning Log is maintained		☐ Yes	☐ No
Condition:	☐ Good	☐ Fair	☐ Poor
Last date of Service:		Pump Cycle:	
Liquid Waste Hauler			
EXTERIOR INTERCEPTOR		Size:	
Condition:	☐ Good	☐ Fair	☐ Poor
Outlet Tee's are in place		☐ Yes	☐ No
Last date of Service:		Pump Cycle:	
Liquid Waste Hauler			

Fats, Oil, and Grease Required Best Management Practices

Are screens being used to reduce solids?	☐ Yes	☐ No
Are grease trap additives being used?	☐ Yes	☐ No
If yes, name:_____		
Food from plates is scraped prior to primary rinse?	☐ Yes	☐ No

Stormwater Required Best Management Practices

Trash enclosures are free of litter and spills?	☐ Yes	☐ No
Used grease/oil containers are stored properly? (Covered, leak free, and away from storm drains).	☐ Yes	☐ No
Is mop wastewater going to sanitary sewer?	☐ Yes	☐ No
Kitchen equipment (floor mats, hoods, etc.) is cleaned inside and wastewater is discharged to sanitary sewer?	☐ Yes	☐ No
Wastewater from pressure washing or hosing down of outdoor areas (trash storage, sidewalks) is discharged to sanitary sewer?	☐ Yes	☐ No
Are liquids kept out of trash containers?	☐ Yes	☐ No
Employees trained on Stormwater BMPs?	☐ Yes	☐ No

Violation: ☐ Recommendation: ☐ Required: ☐

_____ Inspector Signature

_____ Facility Operator Signature

Element 8.

System Evaluation and Capacity Assurance Plan

8.1 Introduction

This section of the SSMP presents the Districts/CSAs programs and activities to provide adequate sewer system capacity. Staff monitors the sewer collection systems to ensure that they possess adequate capacity to serve those systems users.

8.2 Requirements for System Evaluation and Capacity Assurance Plan Section

(a) Evaluation: Actions needed to evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events;

(b) Design Criteria: Where design criteria do not exist or are deficient, undertake the evaluation identified in (a) above to establish appropriate design criteria;

(c) Capacity Enhancement Measures: The steps needed to establish a short- and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding; and

(d) Schedule: The Enrollee shall develop a schedule of completion dates for all portions of the capital improvement program developed in (a)-(c) above. This schedule shall be reviewed and updated consistent with the Sewer System Management Plan (SSMP) review and update requirements as described in Section D. 14.

8.3 Evaluation, Design Criteria, Capacity Enhancement Measures

The Districts/CSAs have an ongoing program of flow monitoring and hydraulic modeling to evaluate the capacity of their sanitary sewer system facilities. The capacity evaluation for the SCCSD was completed in 2011. The results of the evaluation is used to identify capacity enhancement projects. In 2016, the SCCSD built a 100,000 gallon overflow vault at the sanitation operations facility located at 2750 Lode St. Santa Cruz CA. The vault serves as secondary containment in the event that wet weather flows should overwhelm the pump station.

The CIP for the SCCSD is located at: http://dpw.co.santa-cruz.ca.us/Portals/19/CIP%20-%20%202017-22.pdf?ver=2017-08-25-130717-467

The Districts/CSAs intend to have hydraulic modeling complete for all Districts and CSAs by 2021.

Element 9.

Monitoring, Measurement, and Program Modifications

9.1 Introduction

This section presents the Districts/CSAs approach to Monitoring, Measurement, and Program Modifications.

9.2 Requirements for Monitoring, Measurement, and Program Modification Sections

(a) Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;

(b) Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;

(c) Assess the success of the preventative maintenance program;

(d) Update program elements, as appropriate, based on monitoring or performance evaluations; and

(e) Identify and illustrate SSO trends, including: frequency, location, and volume.

9.3 Performance Measures

The indicators that the Districts/CSAs will use to measure the performance of their sanitary sewer systems and the effectiveness of the SSMP are:

- Total number of SSOs;
- Number of SSOs for each cause (roots, grease, debris, pipe failure, capacity, pump station failures, and other);
- Portion of sewage contained compared to total volume spilled;
- Volume of spilled sewage discharged to surface water; and
- Comparison of planned to actual performance for preventive maintenance.

9.4 Performance Monitoring and Program Changes

The Districts/CSAs will evaluate the performance of their sanitary sewer systems at least annually using the performance measures identified in Section 9 of the SSMP – Performance Measures, above. The Districts/CSAs will update the data and analysis of performance measures at the time of the evaluation.

The Districts/CSAs may use other performance measures in the evaluation and will prioritize actions and initiate changes to this SSMP and the related programs based on the results of the evaluation. The performance measures are listed in Appendix 9-A.

Element 10.

SSMP Program Audits

10.1 Introduction

This section of the SSMP presents the process that the Districts/CSAs will follow to audit the SSMP.

As part of the SSMP, the Enrollee shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and compliance with the SSMP requirements identified in this subsection (D.13 of the WDR), including identification of any deficiencies in the SSMP and steps to correct them.

10.2 Requirements for SSMP Program Audits

The Districts/CSAs will audit the SSMP every two years. The audit will determine whether the SSMP meets the GWDR, whether the SSMP reflects Districts/CSAs current practices, and whether Districts/CSAs are following the SSMP. A team consisting of Districts/CSAs staff will coordinate the audit process. The audit team will include representatives from the County, SCCSD, DCSD and FCSD and may also include members from other areas of the County, outside agencies, and/or contractors.

The scope of the audit will cover each of the sections of the SSMP. The SSMP Audit Checklist, based on the WDR, will be used for the audit (included as Appendix 10-A).

The results of the audit will be included in an SSMP Audit Report. The SSMP Audit Report will focus on the effectiveness of the SSMP program, compliance with the GWDR, and identification of any deficiencies in the SSMP. The SSMP Audit Report will identify revisions that may be needed for a more effective program. Information collected as part of Section 9 of the SSMP – Monitoring, Measurement, and Program Modifications, will be used in preparing the audit. Tables and figures or charts will be used to summarize information about these indicators.

Element 11.

Communication Program

11.1 Introduction

This section of the SSMP is intended to outline the process involved in communicating with interested members of the public regarding the development, implementation, and performance of this plan.

11.2 Requirements for the Communication Program

The Enrollee shall communicate on a regular basis with the public on the development, implementation, and performance of its Sewer System Management Plan (SSMP). The communication system shall provide the public the opportunity to provide input to the Enrollee as the program is developed and implemented.

The Enrollee shall also create a plan of communication with systems that are tributary and/or satellite to the Enrollee's sanitary sewer system.

11.3 Communication during SSMP Development and Implementation

The County's Department of Public Works posted the SSMP on its website to inform interested members of the public of its development and implementation of the SSMP. The notice is:

> "Santa Cruz County has developed and is implementing a Sewer System Management Plan (SSMP) pursuant to State Water Resources Control Board Order 2006-003, Statewide General Discharge Requirements of Sanitary Sewer Systems. The goal of the SSMP is to minimize the frequency and severity of sanitary sewer overflows (SSOs). The SSMP covers the management, planning, design, and operation and maintenance of the County's sanitary sewer systems. Interested parties can contact the sanitation operations manager, Beatriz Barranco at 831-477-3907 for additional information. The Districts/CSAs report SSOs electronically to the California Integrated Water Quality System (CIWQS)".

The electronic SSO data, as well as information regarding regulatory actions, is available at:

http://www.waterboards.ca.gov/ciwqs/publicreports.html

11.4 Communicating Sanitary Sewer System Performance

The County of Santa Cruz Department of Public Works placed a notice on its website that the sanitary sewer performance information is available at the CIWQS public access website.

The Districts/CSAs report their performance annually, using the parameters listed in Section 9 of the SSMP – Monitoring, Measurement, and Program Modification, at a regularly scheduled meeting of their District Boards. The annual report will cover a calendar year. The reports will be presented by March 31 of the following year.

The Environmental Compliance Unit has an ongoing public outreach program. In addition to the informational brochures posted on the Public Works website, the Environmental Compliance Unit participates in Earth Day Santa Cruz every year and dedicates much of the booth activities and outreach to FOG awareness and proper use of sanitary sewers. Additionally, the ECU distributes door hangers and informational pamphlets about the problems with non-dispersible wipes in areas of concern.

When an SSO has occurred in a residential neighborhood, crews meet with residents to discuss the event. Door hangers are distributed to residents that are not home during the event. The ECU will follow up when the SSO is the result of a private lateral blockage. Informational pamphlets are distributed and a letter is sent to the responsible parties informing them of their requirements to maintain their sanitary sewer system. The SSO Alert door hanger is included in Appendix 11-A.

The District Boards and County Board of Supervisors agendas and meeting schedules are listed on the Public Works website. A list of sanitation projects and CIP documents are listed on the website as well. http://www.dpw.co.santa-cruz.ca.us/Home/Sanitation.aspx

11.5 Communication with Satellite Sanitary Sewer Systems

There are no satellite sanitary sewer systems.

Element 12.

SSMP Updates

12.1 Requirements

MRP Section E. 3. - Records documenting all changes made to the SSMP since its last certification indicating when a subsection(s) of the SSMP was changed and/or updated and who authorized the change or update. These records shall be attached to the SSMP.

The Districts/CSAs will update the SSMP at least every five years from the original adoption date of June 11, 2009. The Districts/CSAs will determine the need to update the SSMP more frequently based on the results of the annual audit and the performance of their sanitary sewer systems using information from the Monitoring and Measurement Program. In the event that the Districts/CSAs decide that an update is warranted, the process to complete the update will be identified at that time. Updates will be completed within one year following identification of the need for the update. The changes to the SSMP are tracked in the change log in Appendix 12-A.

Staff will seek the approval from the Districts/CSAs Boards for any significant changes to the SSMP. The authority for approval of minor changes such as employee names, contact information, or limited procedural changes is delegated to the District Engineer.

Appendix 1-A

Reserved

APPENDIX 1—SUPPORTING DOCUMENTS FOR ELEMENT 1

There are no Appendix documents to accompany Element 1. However, Appendix 1 is included as a placeholder for future documents.

Appendix 2-A

Operations Staff Contact Information

Key Wastewater Operations Staff Contact Information

NAME	JOB TITLE	PHONE NUMBER	EMAIL
John Presleigh	District Engineer/Director of Public Works Legally Responsible Official	(831) 454-2160	dpwweb@santacruzcounty.us
Colt Esenwein	Assistant Director of Public Works Legally Responsible Official	(831) 454-2160	colt.esenwein@santacruzcounty.us
Beatriz Barranco	Sanitation Operations Manager Legally Responsible Official	(831) 477-3907	beatriz.barranco@santacruzcounty.us
Kent Edler	Senior Civil Engineer	(831) 454-2160	kent.edler@santacruzcounty.us
Ed Luboff	Assistant Public Works Superintendent Legally Responsible Official	(831) 477-3907	ed.luboff@santacruzcounty.us
Vacant	Environmental Programs Coordinator Data Submitter	(831) 477-3907	Vacant
Sean Mathis	Line Crew Supervisor Data Submitter	(831) 477-3907	sean.mathis@santacruzcounty.us
Marisol Goulett	Pretreatment Program Specialist Data Submitter	(831) 477-3907	marisol.goulett@santacruzcounty.us
Leslie Rios	Pretreatment Program Specialist Data Submitter	(831) 477-3907	leslie.rios@santacruzcounty.us

Appendix 3-A

Reserved

APPENDIX 3—SUPPORTING DOCUMENTS FOR ELEMENT 3

There are no Appendix documents to accompany Element 3. However, Appendix 3 is included as a placeholder for future documents.

Appendix 4-A

Standard Operating Procedures for Sewer Cleaning

Purpose

The purpose of this Standard Operating Procedure is to ensure that sewer cleaning is performed in a manner that will produce a high quality result. Quality is important because it ensures that the sanitary sewers will not experience problems prior to their next scheduled cleaning.

Goal

The goal of cleaning a gravity sewer is to restore the flow area to 95% of the original flow area of the pipe.

Required Equipment and Tools

- Personal protective equipment (hardhat, steel toe boots, gloves, eye protection, face protection, hearing protection).
- Calibrated gas monitor for CO, LEL, O2 and H2S3. Proper safety cones, barricades, flagging, signs or other traffic control devices.
- Confined space equipment (tripod, harness, and ventilation blower).
- Sanitary sewer system map book, GIS cloud based maps.
- Combo sewer cleaner.
- Stone Age Tools Warthog or USB Primus sewer cleaning nozzle.
- Six-wire skid (“proofer”) in sizes that will be encountered during the day.
- Chain flail for roots.
- Debris traps in the sizes that will be encountered during the day.
- Manhole hook or pick-axe.
- Measuring wheel.
- Disinfectant.
- Root control treatment by contracted vendor.

Table 4.1 Major Equipment

MAJOR EQUIPMENT TYPE	QUANTITY	YEAR PURCHASED
Back Hoe	1	2003
Boom Truck	3	2006, 2009, 2014
CCTV Inspection Van	2	2006, 2010
Combination Sewer Cleaning Truck	2	2003, 2005
Confined Space Van	1	2006
Dump Truck	1	1986
Sewer Cleaning Truck	2	2003, 2010
Spill Response Trailer	1	2006
Trailer Mounted Air Compressor	1	2002
Vacuum Truck	2	2002, 2006

Required Forms

- Cleaning Work Order

Procedures for Sewer Cleaning Crew prior to Leaving the Yard

- Plan the work so that it starts in the upstream portion of the area and moves downstream.
- Wherever possible, plan to clean sewers from the downstream manhole.
- Inspect the sewer cleaning nozzles for wear. Replace nozzles that are excessively worn.
- If this is the first day that this cleaning unit is being used this week, inspect the first 200 feet of hose and couplings for damage or wear.

At the Jobsite

- Wear proper personnel protective equipment.
- Fill the water tank at or near the first jobsite.
- Determine and confirm location of upstream and downstream manholes (use street addresses, if possible).
- Look for any overhead utilities that may come into contact with the vacuum boom during the cleaning operation.
- Set up proper traffic control by placing traffic signs, flags, cones, and other traffic control devices.
- Move the cleaning unit into the traffic control so that the hose reel is positioned over the manhole.
- Prior to opening the manhole use the gas detector to determine if it is safe to open the manhole then proceed with the cleaning operation.

Cleaning Operation

- Insert the debris trap.
- Start the auxiliary engine.
- Lower the hose, with a guide or roller to protect the hose, into the manhole and direct it into the sewer to be cleaned.
- Start the high-pressure pump and set the engine speed to provide adequate pressure for the sewer cleaning operation.
- Open the water valve and allow the hose to proceed up the sewer. The hose speed should not exceed 2-3 feet per second.
- If there is little or no debris, allow the hose to proceed to the upstream manhole.
- If there is moderate to heavy debris, clean the remaining portion of the sewer in steps not to exceed 25% of the length of the sewer.
- Open the upstream manhole and verify that the nozzle is at or past the manhole.
- The sewer has been adequately cleaned when:
  - ⇒ Successive passes with a cleaning nozzle do not produce any additional debris, and
  - ⇒ The sewer is able to pass a full size, six-wire skid ("proofer") for its entire length.
- Determine the nature and quantity of the debris removed during the cleaning operation. Use the codes in Table 4.3 to report the nature and quantity of debris. Figure 4.1 is an excerpt from the CWEA "Best Practices Cleaning Results" publication and sets guidelines for coding debris found during fieldwork. Remove the debris from the manhole using the vacuum unit.
- Rewind the hose on the reel.
- Remove the debris trap.
- Clean the mating surface and close the manhole. Ensure that the manhole is properly seated.
- Enter the results on the Work Order.
- Move the cleaning unit, break down and stow the traffic controls.
- Proceed to the next cleaning jobsite.

At the End of the Day

- Inspect the equipment and tools for problems.
- Report any problems with equipment, tools, or sewers that were cleaned during the day to the supervisor.
- Turn in all completed cleaning work orders to the supervisor at end of shift. Or enter work order update in Lucity™.

Critical Spare Parts

The inventory form is shown in Table 4.2

The specialized equipment that is required to support the Overflow Emergency Response Plan is:

Table 4.2 Critical Spare Parts Inventory

DESCRIPTION/ASSOCIATED EQUIPMENT	NUMBER IN STOCK	LOCATION
Adjustable Repair Couplings	21 ea. 4”- 8” Clay to Plastic and Transite to Plastic	Lode St.
Air Compressor 185 Sullair	1	Lode St.
Confined Space entry equipment	1	Lode St.
Crane Truck	1	Lode St.
Dump Truck	1	Lode St.
Full Circle Repair Clamps	78 ea. 2.35” to 16.75”	Lode St.
Hymax Clamps for pipe repair, replacement pipe (4”-6”) 36” replacement pipe.	Varies	Lode St.
John Deere back hoe	1	Lode St.
Portable trash pumps ranging from 2” to 6” Hose 2”-4”	8	Lode St.
Portable generators ranging from 1-400 kilowatts. Used to supply power to small stations and package plants in the event of a power failure.	10	Lode St.
Spill response van equipped with plugs, berms, spill mats and an air compressor.	1	Lode St.
Station replacement pumps- (39)Flygt 3HP-230HP, (1) Myers 5HP, (3) Barnes Sump Pump-3HP, (1) BJM 2HP, (2) Paco Pumps 7.5HP, (1) Cornell pump, (1) US Motors 25HP, (1) Koffler 5HP.	49	Pump Stations and Lode St.

Table 4.3 Criterion for Coding Debris Found During Cleaning

TYPE OF DEBRIS	CLEAR (NO DEBRIS)	LIGHT	MODERATE	HEAVY
Sand, grit, rock	CLR	DL	DM	DH
Grease	CLR	GL	GM	GH
Roots	CLR	RL	RM	RH
Other (specify)	CLR	OL	OM	OH

Figure 4.1: Excerpt from CWEA publication, "Best Practices Cleaning Results"

STANDARD MEASURES OF OBSERVED RESULTS

Next to cleaning the sewer line, effective observation of results is the most important work product of the crew. This information is the basis for defining future maintenance activities. Consistency is important. The standards for "results" for six- and eight-inch diameter sewers are:

	Clear	Moderate	Heavy
Grit	No observable grit	Less than 5 gallons 15-20 minutes to clean 1-2 passes required Re-quires cleaning twice or less per year Only fine grit	More than 5 gallons More than 30 minutes to clean More than 4 passes required Requires cleaning four times per year
Grease	No observable grease	Small chunks/no "logs" 15-20 minutes to clean 1-2 passes required Requires cleaning twice or less per year	Big chunks/"logs" Operator concern for downstream plugging More than 30 minutes to clean More than 4 passes required
Liquefied grease		Vacuuming not required	Vacuuming not required
Roots	No observable roots	Thin/stringy roots present No large "clumps" 15-20 minutes to clean 1-2 passes required	Thick roots present Large "clumps" More than 30 minutes to clean More than 4 passes required
Other condition observations: - Pipe material fragments - Soil/dirt - Rock (pipe bedding) - Lost nozzle			

Appendix 4-B

Pump Station Inspection Checklist

INSPECTION INFORMATION	
Inspection date	
Inspection participants	
Facility name	
Facility address	
Comments	

Summary of Recommended Actions (in Priority Order)

RECOMMENDED ACTION(S)	PRIORITY

Pump Station Inspection Checklist

BACKGROUND INFORMATION (PRIOR 12 MONTHS)	
SSOs	
Equipment failures	
Alarm history (attach copy)	
Major maintenance activities completed (attach list if applicable)	
Pending work orders (attach copies)	
Operating problems (attach copy of operating log)	
Comments	

SECURITY FEATURES	
Fence and gate	
External lighting	
Visibility from street	
Doors and locks	
Intrusion alarm(s)	
Signs with emergency contact information	
Other security features	
Comments	

Pump Station Inspection Checklist

SAFETY FEATURES AND EQUIPMENT	
Signage (confined space, automatic equipment, hearing protection, etc.)	
Fall protection	
Emergency communication	
Equipment hand guards	
Hand rails and kickboards	
Platforms and grating	
Tag out and lock out equip-	
Hearing protection	
Eye wash	
Chemical storage	
Comments	

EXTERNAL APPEARANCE	
Fence	
Landscaping	
Building	
Control panels	
Other external features	
Comments	

Pump Station Inspection Checklist

BUILDING/STRUCTURE	
Pump station building	
Control room	
Dry well	
Wet well	
Other structures	
Comments	

INSTRUMENTATION AND CONTROLS (I&C) INCLUDING SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) FACILITIES	
Control panel	
Run time meters	
Flow meter	
Wet well level	
Alarms	
SCADA	
Other I&C	
Comments	

ELECTRICAL AND SWITCH GEAR	
Power drop	
Transformers	
Transfer switches	
Emergency generator and generator connection	
Starters	
Variable frequency drives	
Electrical cabinets	
Conduit and wireways	
Other electrical	
Comments	

Pump Station Inspection Checklist

MOTORS	
Lubrication	
Insulation	
Operating current	
Vibration and alignment	
Comments	

PUMPS	
Lubrication	
Vibration and alignment	
Seals	
Indicated flow and discharge pressure	
Shutoff head	
Corrosion and leakage evidence	
Drive shaft	
Casing wear (thickness)	
Other	
Comments	

VALVES AND PIPING	
Valve operation	
Valve condition	
Pipe condition	
Pipe support	
Other	
Comments	

Pump Station Inspection Checklist

OTHER	
Lighting	
Ventilation	
Support systems (air, water, etc.)	
Signage	
Employee facilities	
Sump pump	
Overhead crane/lift points	
Portable pump connections	
Portable pumps	
Comments	

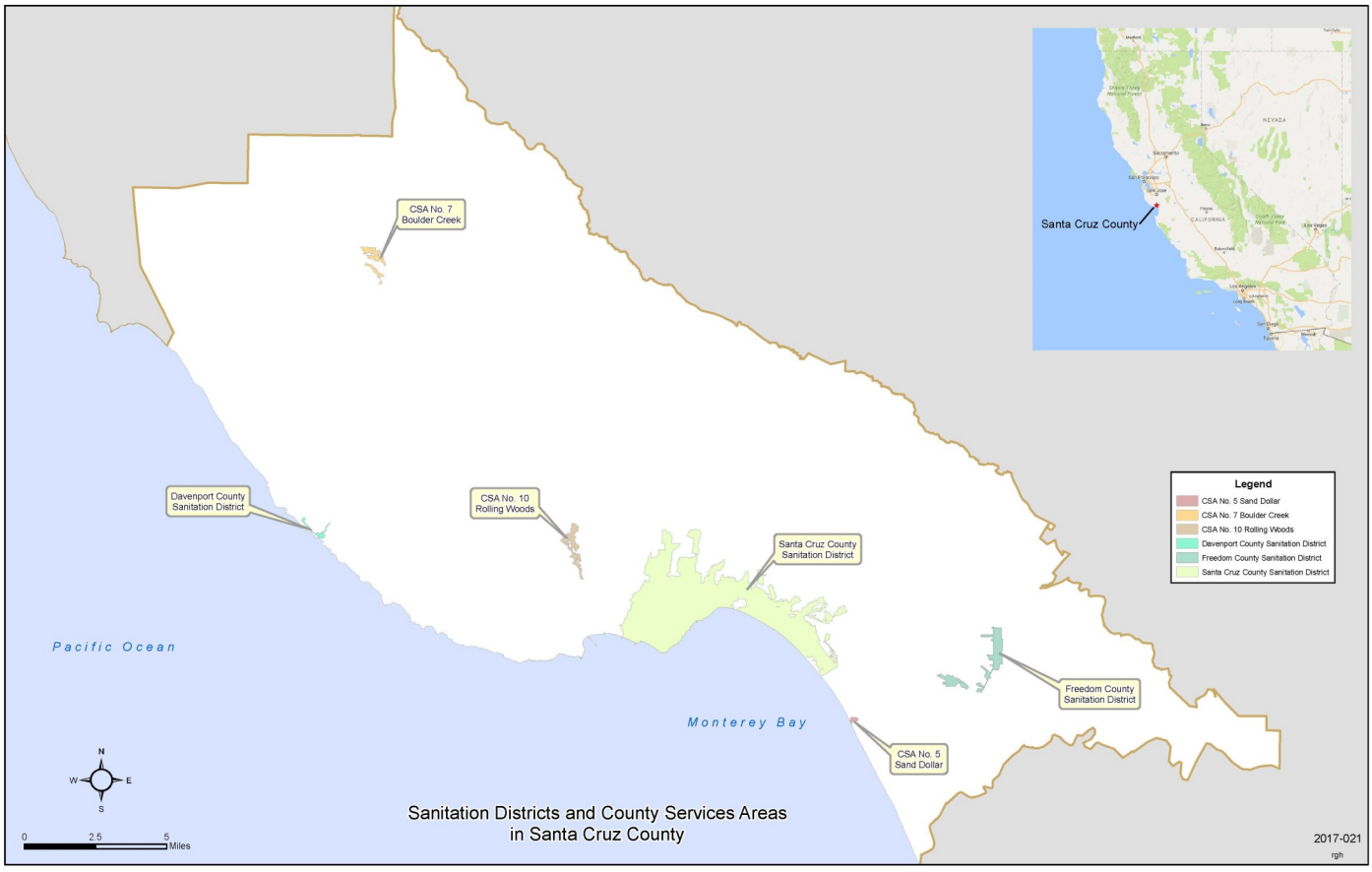
Signature:

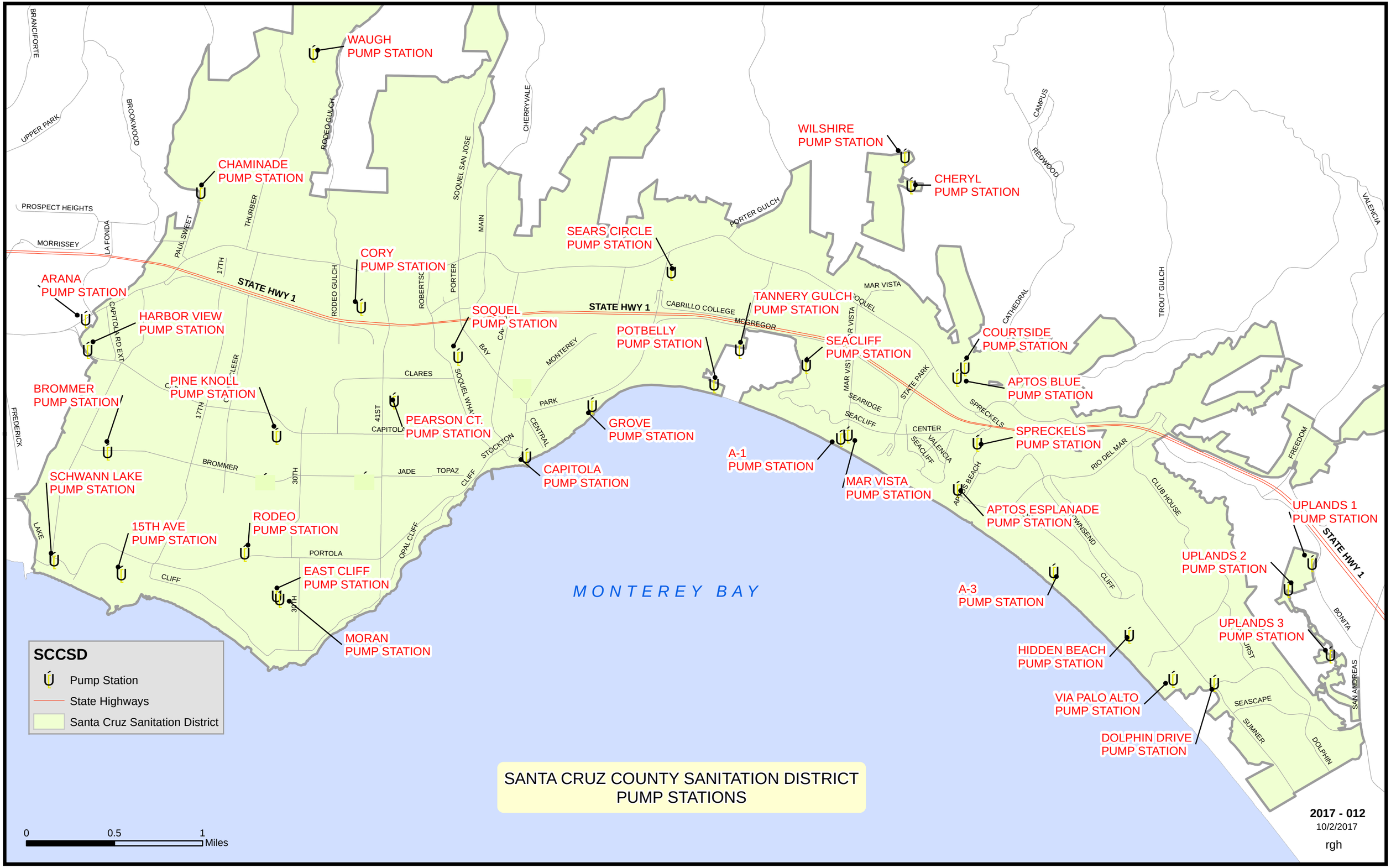
Title:

Date:

Appendix 4-C

Pump Station Photos




WAUGH PUMP STATION
CHAMINADE PUMP STATION
WILSHIRE PUMP STATION
CHERYL PUMP STATION
SEARS CIRCLE PUMP STATION
CORY PUMP STATION
ARANA PUMP STATION
HARBOR VIEW PUMP STATION
SOQUEL PUMP STATION
TANNERY GULCH PUMP STATION
POTBELLY PUMP STATION
SEACLIFF PUMP STATION
COURTSIDE PUMP STATION
APTOS BLUE PUMP STATION
BROMMER PUMP STATION
PINE KNOLL PUMP STATION
PEARSON CT. PUMP STATION
GROVE PUMP STATION
SPRECKELS PUMP STATION
A-1 PUMP STATION
CAPITOLA PUMP STATION
MAR VISTA PUMP STATION
SCHWANN LAKE PUMP STATION
15TH AVE PUMP STATION
RODEO PUMP STATION
APTOS ESPLANADE PUMP STATION
UPLANDS 1 PUMP STATION
EAST CLIFF PUMP STATION
UPLANDS 2 PUMP STATION
A-3 PUMP STATION
MORAN PUMP STATION
UPLANDS 3 PUMP STATION
HIDDEN BEACH PUMP STATION
VIA PALO ALTO PUMP STATION
DOLPHIN DRIVE PUMP STATION
STATE HWY 1
MONTEREY BAY
BRANCIFORTE
UPPER PARK
BROOKWOOD
PROSPECT HEIGHTS
MORRISSEY
LA FONDA
PAUL SWEET
THURBER
17TH
RODEO GULCH
SOQUEL SAN JOSE
CHERRYVALE
MAIN
PORTER
ROBERTS
PORTER GULCH
CAMPUS
REDWOOD
VALENCIA
TROUT GULCH
CATHEDRAL
MAR VISTA
SOQUEL
CABRILLO COLLEGE
MCGREGOR
CAPITOLA RD EXT
BAY
MONTEREY
CLARES
PARK
CENTRAL
STOCKTON
41ST
CAPITOLA
SOQUEL WHARF
FREDERICK
BROMMER
30TH
JADE
TOPAZ
CLIFF
LAKE
PORTOLA
OPAL CLIFF
SEARIDGE
SEACLIFF
STATE PARK
SPRECKELS
CENTER
VALENCIA
APTOS BEACH
RIO DEL MAR
CLUB HOUSE
TOWNSEND
FREEDOM
BONITA
JURST
SEASCAPE
SUMNER
DOLPHIN
SAN ANDREAS
SCCSD
Pump Station
State Highways
Santa Cruz Sanitation District
0
0.5
1
Miles
SANTA CRUZ COUNTY SANITATION DISTRICT
PUMP STATIONS
2017 - 012
10/2/2017
rgh

Appendix 4-C

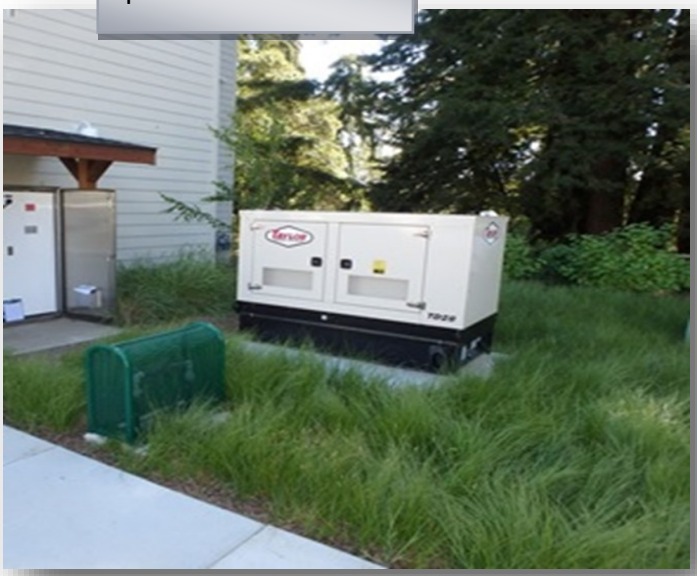
Santa Cruz County Sanitation District Pump Stations

15th Avenue

A1

A3

Aptos Blue



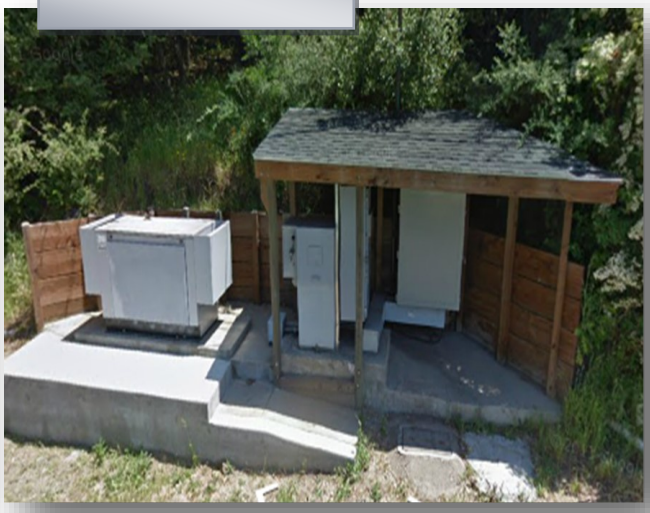
Santa Cruz County Sanitation District Pump Stations

Arana

Brommer

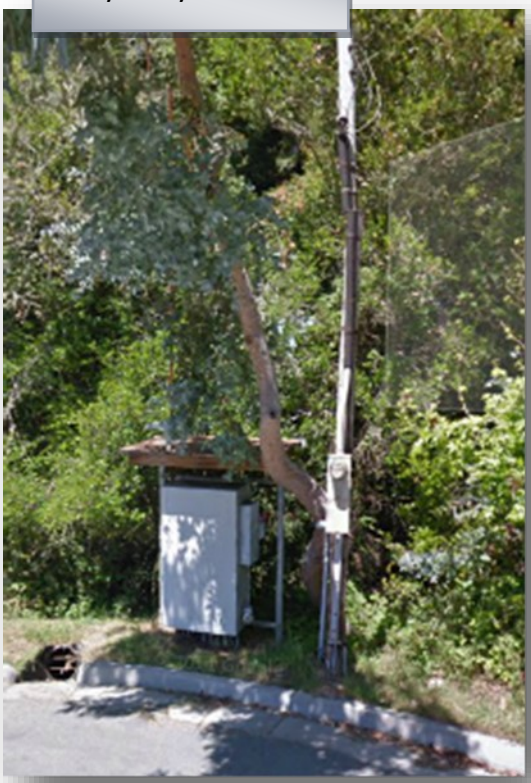
Capitola

Chaminade



Santa Cruz County Sanitation District Pump Stations

Cheryl Way



Cory Street

Courtside

Santa Cruz County Sanitation District Pump Stations

D.A. Porath

Dolphin Drive

Esplanade

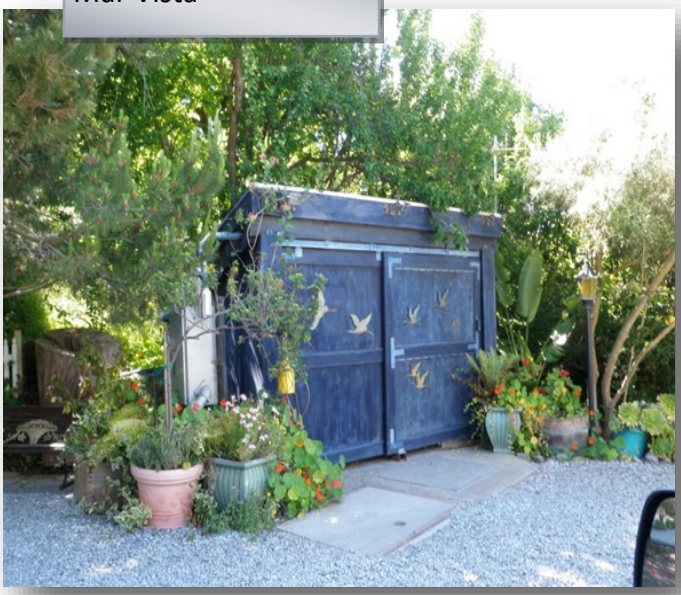
Grove

Santa Cruz County Sanitation District Pump Stations

Harbor View

Hidden Beach

Mar Vista



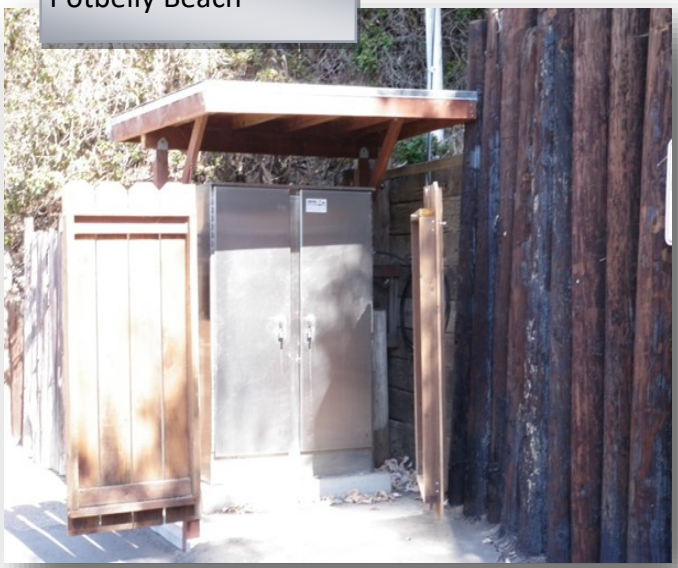
Moran

Santa Cruz County Sanitation District Pump Stations

Pearson Court

Pine Knoll

Potbelly Beach



Rodeo

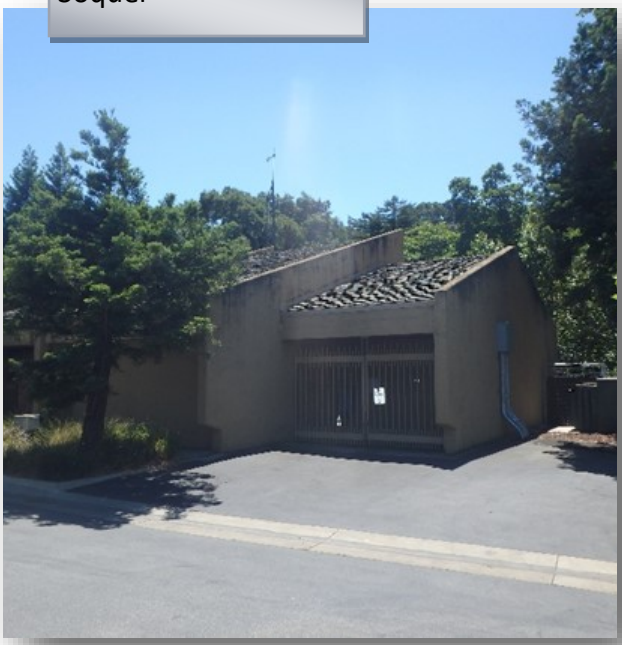
Santa Cruz County Sanitation District Pump Stations

Schwan Lake

Seacliff

Sears Circle

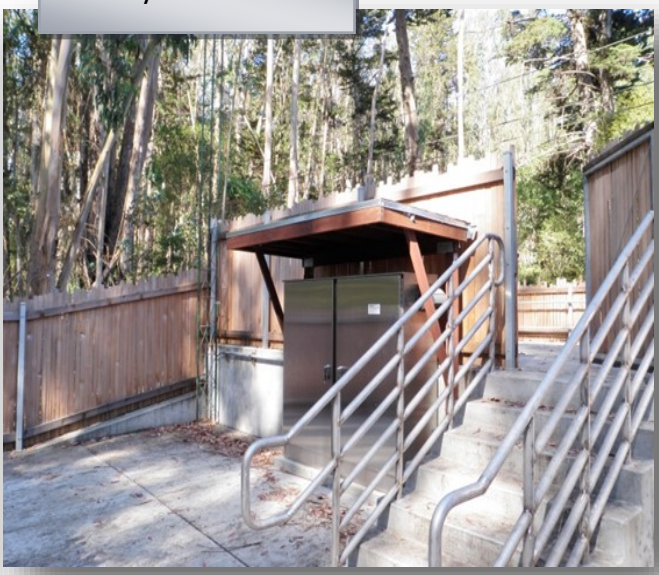
Soquel



Santa Cruz County Sanitation District Pump Stations

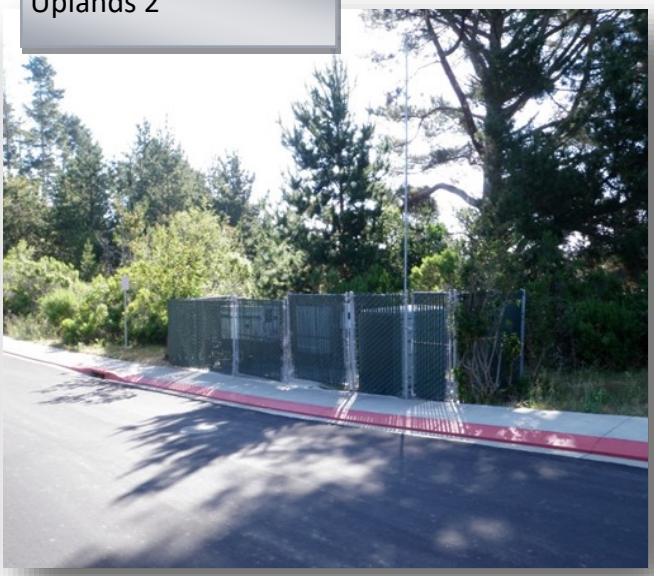
Spreckels

Tannery Gulch



Uplands 1

Uplands 2



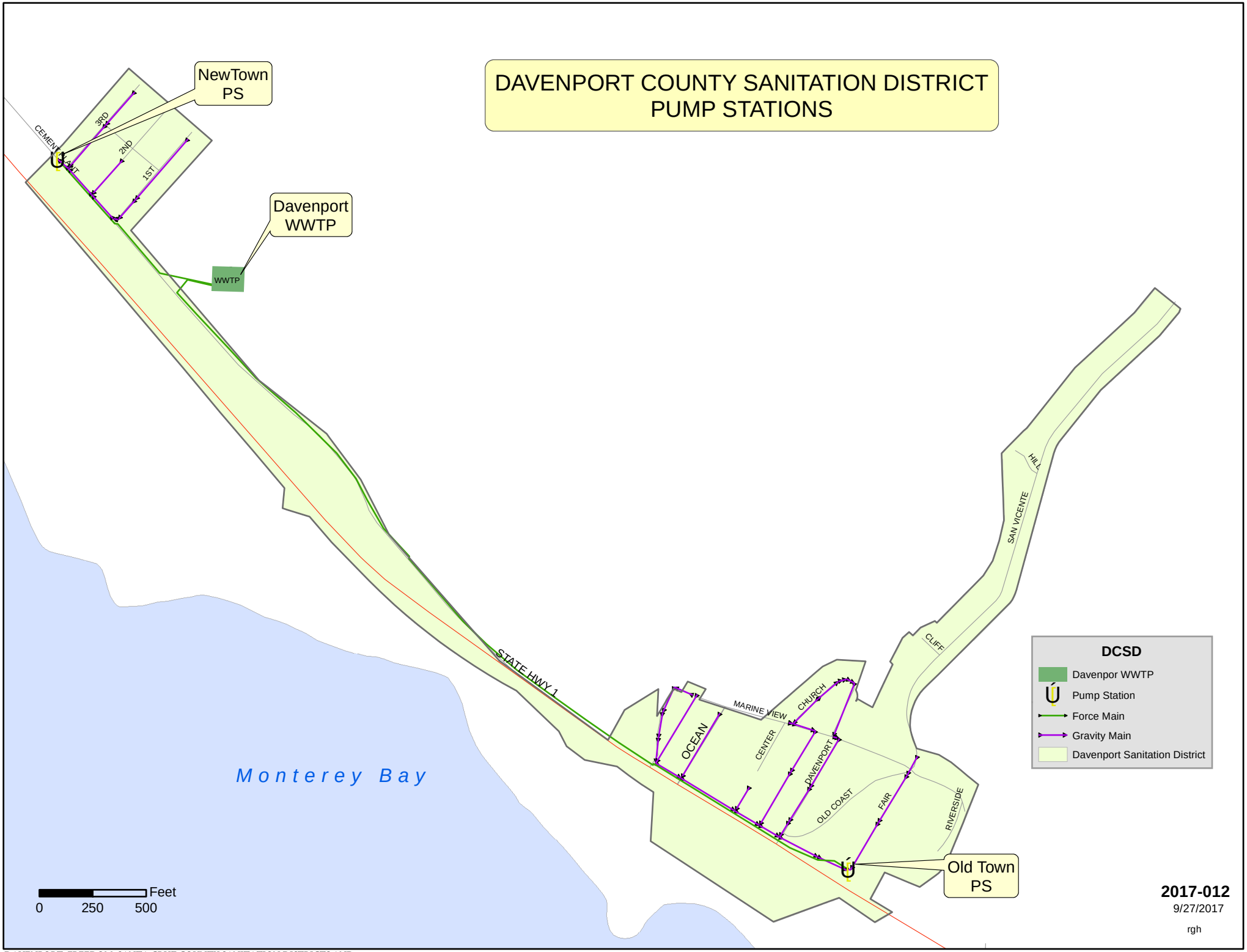
Santa Cruz County Sanitation District Pump Stations

Uplands 3

Via Palo Alto

Waugh Avenue

Wilshire

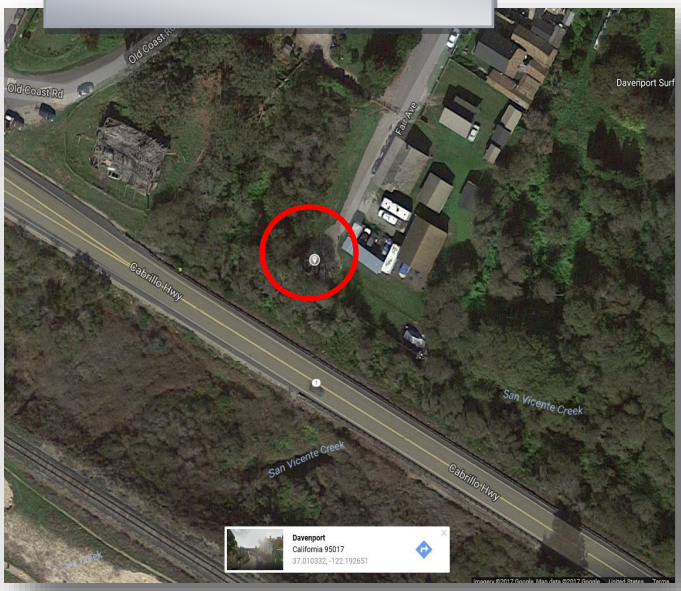

DAVENPORT COUNTY SANITATION DISTRICT
PUMP STATIONS
NewTown PS
Davenport WWTP
WWTP
3RD
2ND
1ST
STATE HWY 1
OCEAN
MARINE VIEW
CHURCH
CENTER
DAVENPORT
OLD COAST
FAIR
RIVERSIDE
CLIFF
SAN VICENTE
Monterey Bay
Old Town PS
DCSD
Davenpor WWTP
Pump Station
Force Main
Gravity Main
Davenport Sanitation District
Feet
0
250
500
2017-012
9/27/2017
rgh

Appendix 4-C

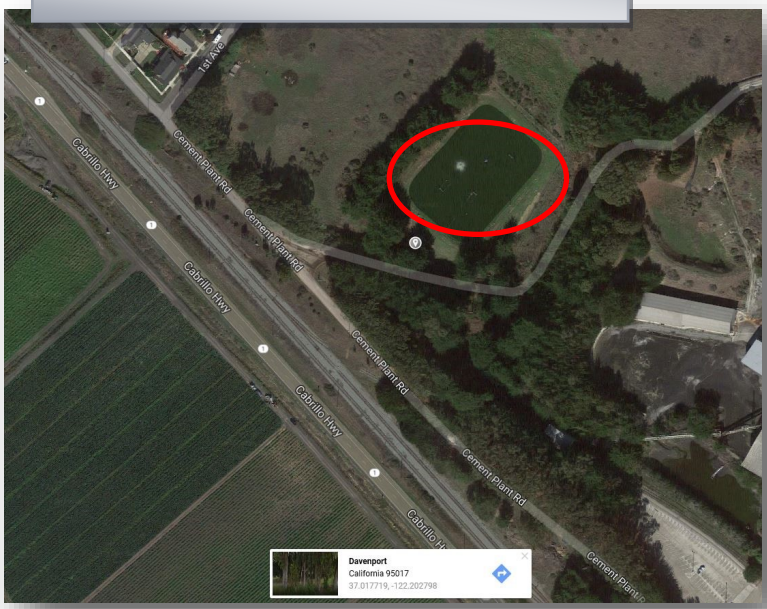
Davenport Pump Stations

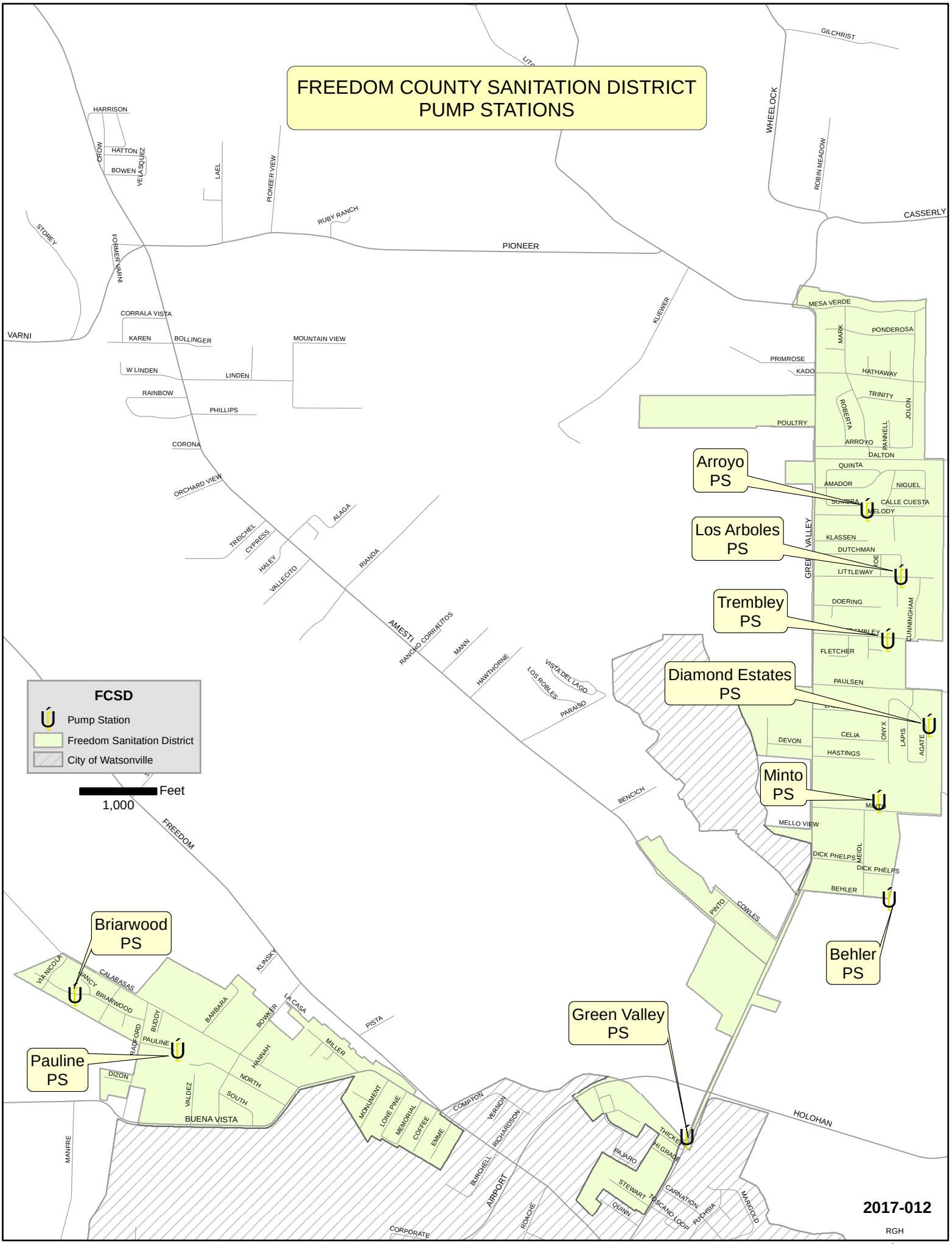
New Town

Old Town



Waste Water Treatment Plant




FREEDOM COUNTY SANITATION DISTRICT
PUMP STATIONS
Arroyo PS
Los Arboles PS
Trembley PS
Diamond Estates PS
Minto PS
Behler PS
Green Valley PS
Briarwood PS
Pauline PS
FCSD
Pump Station
Freedom Sanitation District
City of Watsonville
Feet
1,000
2017-012
RGH
PIONEER
FREEDOM
VARNI
CASSERLY
WHEELOCK
HOLOHAN
AIRPORT
BUENA VISTA
MESA VERDE
PONDEROSA
PRIMROSE
HATHAWAY
TRINITY
POULTRY
ARROYO
DALTON
QUINTA
AMADOR
NIGUEL
CALLE CUESTA
MELODY
KLASSEN
DUTCHMAN
LITTLEWAY
DOERING
FLETCHER
PAULSEN
CELIA
DEVON
HASTINGS
MELLO VIEW
DICK PHELPS
BEHLER
PINTO
COWLES
BENCICH
AMESTI
RANCHO CORRALITOS
MANN
HAWTHORNE
VISTA DEL LAGO
LOS ROBLES
PARAISO
RIANDA
ALAGA
TRECHEL
CYPRESS
HALEY
VALLECITO
ORCHARD VIEW
CORONA
CORRALA VISTA
KAREN
BOLLINGER
MOUNTAIN VIEW
W LINDEN
LINDEN
RAINBOW
PHILLIPS
KLIEWER
RUBY RANCH
PIONEER VIEW
LAEL
HARRISON
CROW
HATTON
BOWEN
VELASQUEZ
STOREY
FORMER VARNI
GILCHRIST
ROBIN MEADOW
KLINSKY
CALABASAS
VIA NICOLA
NANCY
BRIARWOOD
BUDDY
RADFORD
PAULINE
BARBARA
BOWKER
LA CASA
PISTA
MILLER
HANNAH
NORTH
SOUTH
VALDEZ
DIZON
MONUMENT
LONE PINE
MEMORIAL
COFFEE
EIMME
COMPTON
VERNON
RICHARDSON
BURCHELL
THICKE
HI GRADE
PAJARO
STEWART
TOSCANO LOOP
CARNATION
FUCHSIA
MARIGOLD
QUINN
ROACHE
CORPORATE
MANFRE
MARK
ROBERTA
JOLON
PANNELL
KOE
ONYX
LAPIS
AGATE
CUNNINGHAM
GREEN VALLEY

Appendix 4-C

Freedom County Sanitation District Pump Stations

Arroyo Verde

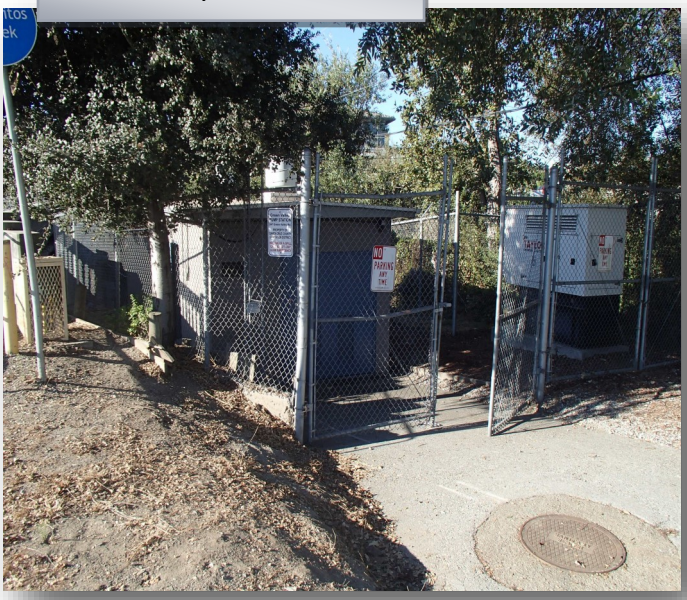
Behler

Briarwood

Diamond Estates

Freedom County Sanitation District Pump Stations

Green Valley



Los Arboles

Minto

Freedom County Sanitation District Pump Stations

Pauline

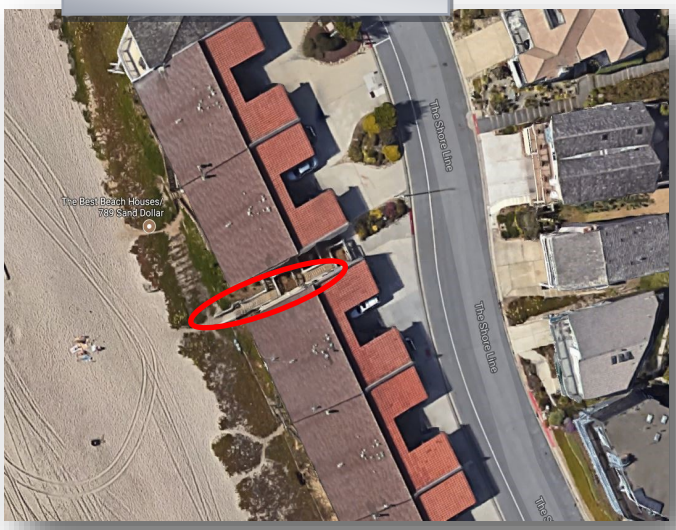
Trembley


LINDA VISTA
MANRESA UPLANDS
ABALONE
OYSTER
SEA HORSE
MARINA DEL REY
PISMO
OYSTER
SANTA MONICA
CANON DEL SOL
ARCA
SAND DOLLAR
Sand Dollar WWTP
WWTP
CLAMSHELL
WWTP
Cañon del Sol WWTP
Lower PS
THE SHORE LINE
MANRESA UPLANDS
Upper PS
MANRESA DAYUSE
CSA No.5
Sand Dollar
Waste Water Treatment Plant
Pump Station
CSA 5 - Sand Dollar
Monterey bay
Feet
0
100
200
CSA No.5 SAND DOLLAR
PUMP STATIONS
2017-012
rgh

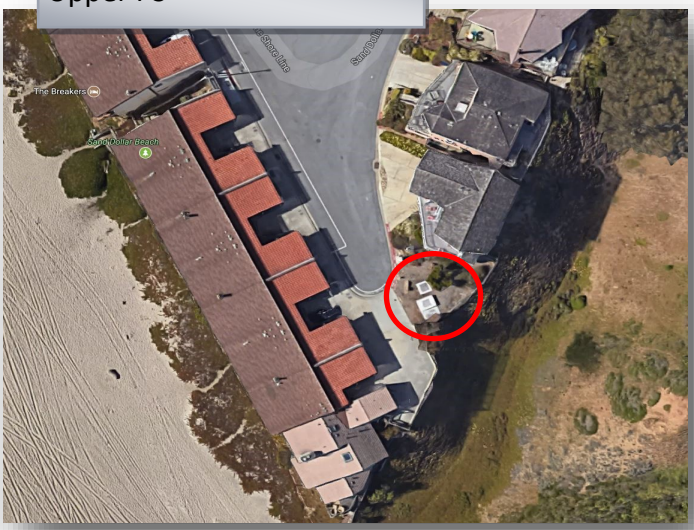
Appendix 4-C

CSA 5 Sand Dollar Pump Stations

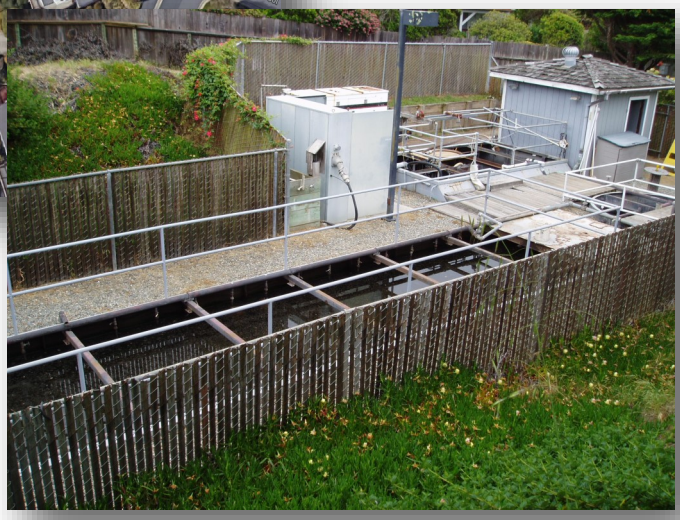
Lower PS

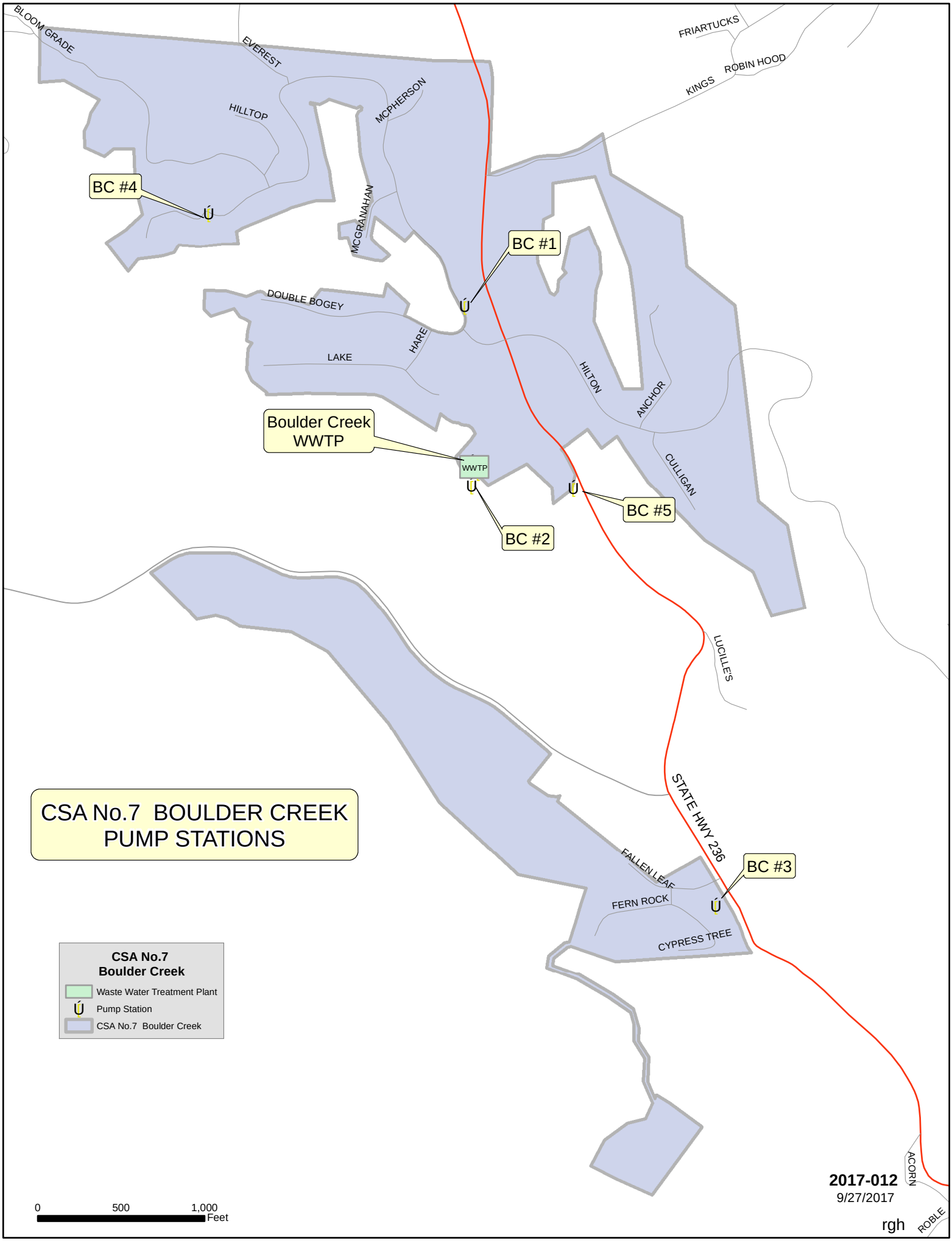


Upper PS



Canon del Sol WWTP & Sand Dollar WWTP

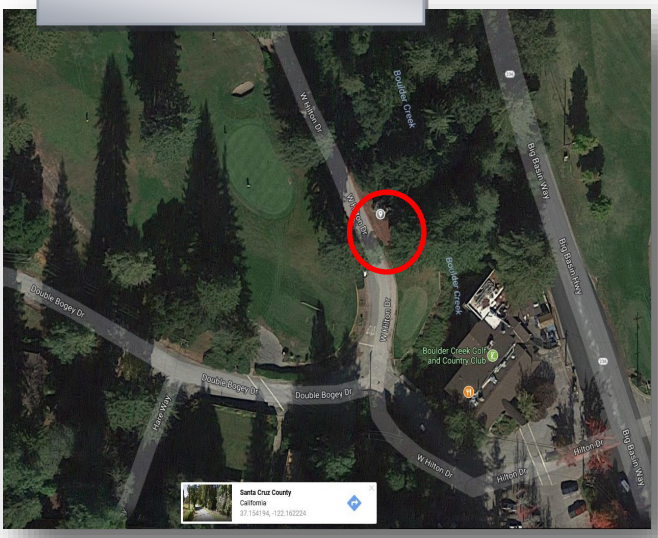



BLOOM GRADE
EVEREST
HILLTOP
MCPHERSON
MCGRANAHAN
FRIARTUCKS
ROBIN HOOD
KINGS
BC #4
BC #1
DOUBLE BOGEY
LAKE
HARE
HILTON
ANCHOR
CULLIGAN
Boulder Creek WWTP
WWTP
BC #2
BC #5
LUCILLE'S
STATE HWY 236
FALLEN LEAF
FERN ROCK
CYPRESS TREE
BC #3
ACORN
ROBLE
CSA No.7 BOULDER CREEK PUMP STATIONS
CSA No.7
Boulder Creek
Waste Water Treatment Plant
Pump Station
CSA No.7 Boulder Creek
0
500
1,000
Feet
2017-012
9/27/2017
rgh

Appendix 4-C

CSA 7 Boulder Creek Pump Stations

BC #1 - Clubhouse

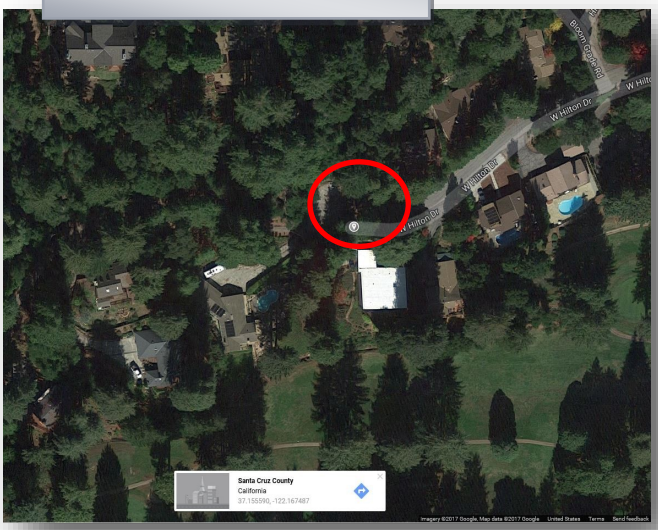


BC #2 - Lake & WWTP

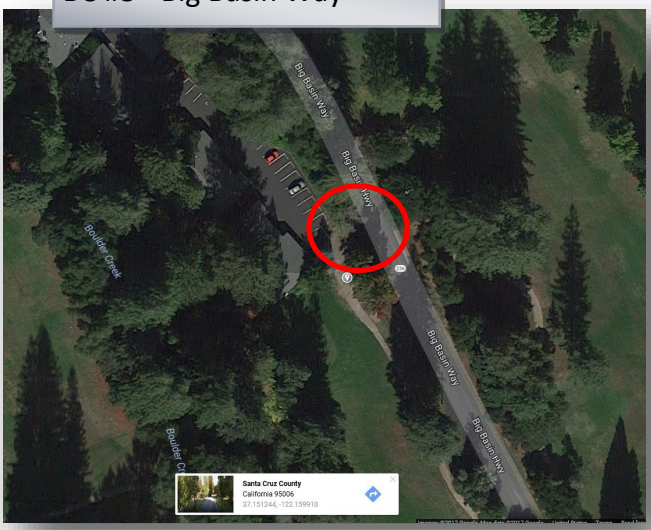
BC #3 - Fallen Leaf

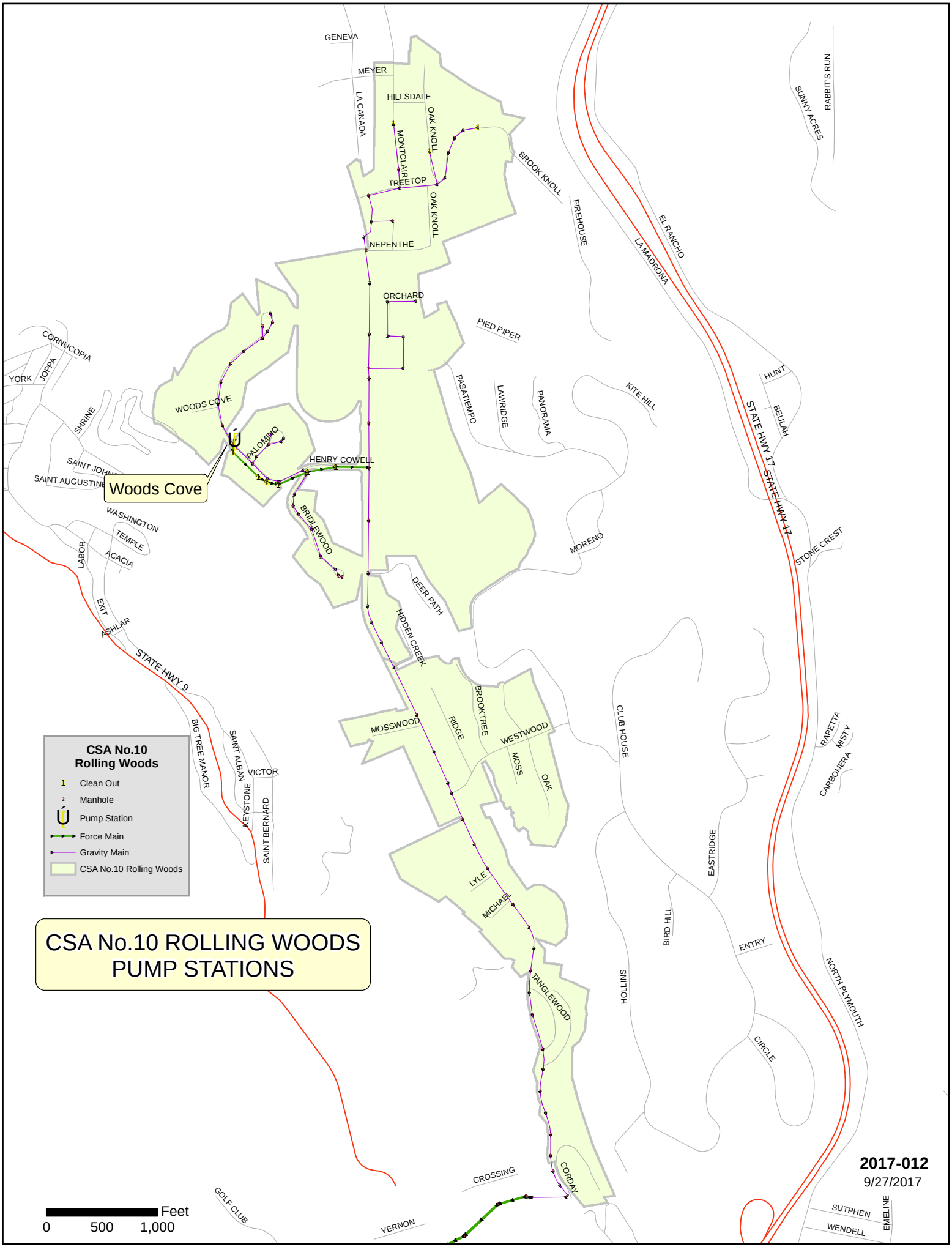
CSA 7 Boulder Creek Pump Stations

BC #4 - Hilton



BC #5 - Big Basin Way




GENEVA
MEYER
LA CANADA
HILLSDALE
OAK KNOLL
MONTCLAIR
TREETOP
OAK KNOLL
NEPENTHE
ORCHARD
BROOK KNOLL
FIREHOUSE
EL RANCHO
LA MADRONA
SUNNY ACRES
RABBIT'S RUN
PIED PIPER
PASATIEMPO
LAWRIDGE
PANORAMA
KITE HILL
HUNT
BEULAH
STATE HWY 17
STATE HWY 17
STONE CREST
MORENO
CORNUCOPIA
YORK
JOPPA
SHRINE
SAINT JOHNS
SAINT AUGUSTINE
WOODS COVE
PALOMINO
HENRY COWELL
BRIDLEWOOD
Woods Cove
WASHINGTON
TEMPLE
ACACIA
LABOR
EXIT
ASHLAR
STATE HWY 9
DEER PATH
HIDDEN CREEK
BIG TREE MANOR
SAINT ALBAN
VICTOR
KEYSTONE
SAINT BERNARD
MOSSWOOD
RIDGE
BROOKTREE
WESTWOOD
MOSS
OAK
CLUB HOUSE
RAPETTA
MISTY
CARBONERA
EASTRIDGE
LYLE
MICHAEL
BIRD HILL
ENTRY
HOLTON
TANGLEWOOD
NORTH PLYMOUTH
CIRCLE
CORDAY
CROSSING
GOLF CLUB
VERNON
SUTPHEN
WENDELL
EMELINE
CSA No.10
Rolling Woods
Clean Out
Manhole
Pump Station
Force Main
Gravity Main
CSA No.10 Rolling Woods
CSA No.10 ROLLING WOODS
PUMP STATIONS
2017-012
9/27/2017
Feet
0
500
1,000

Appendix 4-C

CSA 10 Rolling Woods Pump Station

Appendix 4-D

Pump Data

Pump Data

SANTA CRUZ COUNTY SANITATION DISTRICT			WDID 3SSO10324			
PUMP STATION	ADDRESS	HP	# OF PUMPS	FM SIZE	FM LENGTH	SPARE PUMPS
15th Avenue	262 15th Avenue	10	2	6-in	752 lf	1
A-1	Las Olas Drive	15	2	8-in	1270 lf	0
A-3	440 Beach Drive	7.4	2	10-in	280 lf	0
				18-in	2730 lf	
Aptos Blue	3200 Aptos Rancho Drive	5	2	4-in	466 lf	0
Aptos Esplanade	104 Marina Avenue	200	4	16-in	16,847 lf	
				18-in	16,847 lf	0
				24-in	1655 lf	
				27-in	885 lf	
				30-in	1843 lf	
Arana	2201 Soquel Avenue	23/20	2	8-in	1200 lf	1
Brommer	960 Brommer Street	15	3	8-in	1157 lf	0
Capitola	110 Monterey Avenue	73.7	3	10-in	1426 lf	1
				16-in	3242 lf	
				18-in	6223 lf	
				24-in	50 lf	
Chaminade	3700 Block of Paul Sweet Road	5	2	6-in	346 lf	2
Cheryl	1829 Cheryl Way	4	2	4-in	1115 lf	1
Cory	4035 Cory Street	5	2	4-in	237 lf	2
Courtside	7848 Tanias Court	7.5	2	4-in	1029 lf	1
DA Porath	2750 Lode Street	60/230	4	36-in	5 miles	1-60 HP/1-230 HP
Dolphin Drive	Dolphin & Sumner Avenue	30	3	10-in	800 lf	1
Grove	110 Grove Lane	5	2	4-in	400 lf	2
Harbor View	Capitola Road & Harborview Ct.		2	4-in	1094 lf	1
Hidden Beach	770 Cliff Drive	45	3	24-in	7660 lf	0
Mar Vista	110 Mar Vista Drive	3	2	3-in	150 lf	0
Moran	2750 Lode Street	20	5	10-in	118 lf	0
Pearson Court	4146 Pearson Court	3	2	4-in	295 lf	0
Pine Knoll	2546 Capitola Road	3	2	4-in	25 lf	1
Potbelly Beach	23 Potbelly Beach Road	1.7	3	2-in	1561 lf	2
Rodeo	1400 Block of Richmond Drive	45	5	16-in	1020 lf	2

Pump Data

SANTA CRUZ COUNTY SANITATION DISTRICT			WDID 3SSO10324			
PUMP STATION	ADDRESS	HP	# OF PUMPS	FM SIZE	FM LENGTH	SPARE PUMPS
Schwan Lake	Eastcliff & 7th Avenue	20	2	8-in	2040 lf	1
Seacliff	837 Seacliff Drive	18/15	2	8-in	621 lf	0
Sears Circle	18 Sears Circle	5	2	4-in	205 lf	0
Soquel	809 Bay Avenue	160	4	27-in	1265 lf	1
Spreckels	211 Forest Drive	20	2	8-in	129 lf	1
Tannery Gulch	181 New Brighton Road	10	2	8-in	729 lf	2
Uplands 1	102 Zanzibar	5	2	4-in	995 lf	1
Uplands 2	162 Zanzibar	6.2	2	4-in	1633 lf	0
Uplands 3	144 Castillo Court	5.5/6.2	2	4-in	832 lf	0
Via Palo Alto	1096 Via Palo Alto	5	2	6-in	829 lf	2
Waugh	407 Waugh Ave	3	2	4-in & 6-in	599 lf/60 lf	1
Wilshire	1752 Wilshire Drive	4	2	4-in	750 lf	0

Pump Data

DAVENPORT COUNTY SANITATION DISTRICT			WDID 3SSO10263			
PUMP STATION	ADDRESS	HP	# OF PUMPS	FM SIZE	FM LENGTH	SPARE PUMPS
New Town	Cement Plant Road	3	2	4-in	1067 lf	0
Old Town	30 Fair Avenue	23	2	4-in	4520 lf	1
FREEDOM COUNTY SANITATION DISTRICT			**WDID 3SSO10267**			
PUMP STATION	ADDRESS	HP	# OF PUMPS	FM SIZE	FM LENGTH	SPARE PUMPS
Arroyo Verde	326 Sombra Lane	5	2	6-in	918 lf	0
Behler	110 Behler Road	2.7	2	4-in	340 lf	1
Briarwood	309 Briarwood Drive	5	2	4-in	600 lf	0
Diamond Estates	135 Agate Drive	10	2	4-in	2213 lf	0
Green Valley	247 Green Valley Road	7.4/10	2	10-in	586 lf	2
Los Arboles	48 Littleway Lane	5	2	4-in	297 lf	0
Minto	33 Minto Road	3	2	4-in	214 lf	0
Pauline	116 Pauline Drive	5	2	3-in	514 lf	0
Trembley	42 Trembley Lane	10	2	4-in	990 lf	0
CSA NO. 5 - SAND DOLLAR			**WDID 3SSO10323**			
PUMP STATION	ADDRESS	HP	# OF PUMPS	FM SIZE	FM LENGTH	SPARE PUMPS
Sand Dollar Lower	775 Shoreline Drive	3/5	2	4-in	85 lf	0
Sand Dollar Upper	775 Shoreline Drive	5	2	4-in	982 lf	1

Pump Data

CSA NO. 7 - BOULDER CREEK			WDID 3SSO10326			
PUMP STATION	ADDRESS	HP	# OF PUMPS	FM SIZE	FM LENGTH	SPARE PUMPS
BC No. 1-Clubhouse	200 W Hilton Drive	2	2	3-in	245 lf	0
BC No. 2 -Lake	189 Lake Avenue	3	2	4-in	3790 lf	0
BC No. 3-Fallen Leaf	15999 Big Basin Way	25	2	4-in	1094 lf	2
BC No. 4-Hilton	321 W Hilton Drive	5	2	4-in	548 lf	1
BC No. 5-Big Basin Way	236 Big Basin Way	5	2	4-in	840 lf	0
CSA NO. 10 - ROLLING WOODS			**WDID 3SSO10312**			
PUMP STATION	ADDRESS	HP	# OF PUMPS	FM SIZE	FM LENGTH	SPARE PUMPS
Wood's Cove	374 Henry Cowell Drive	5	2	4-in	1881 lf	2

Appendix 5-A

Reserved

APPENDIX 5—SUPPORTING DOCUMENTS FOR ELEMENT 5

There are no Appendix documents to accompany Element 5. However, Appendix 5 is included as a placeholder for future documents.

Appendix 6-A

Overflow Emergency Response Plan Supporting Documents

County of Santa Cruz

Receiving a Sewer Service Call Report

Dispatch staff receiving the report

Date of Report: _____ Time of Report: _____

- ☐ What is the R/P's name? _____
- ☐ What is the R/P's phone number? _____
- ☐ What is the R/P's address? _____
- ☐ What is the address or location of the incident? _____
- ☐ Please describe the problem: _____

_____

_____

_____

- ☐ What time did the caller first notice the incident? _____
- ☐ Is liquid currently flowing? ☐ Yes ☐ No If No, what time did it stop? _____
- ☐ If the problem is Sewer Odor only, please specify where the smell is coming from:

_____

- ☐ Clearly communicate that if the blockage is in the Sewer Main Line it will be promptly cleared, **but that County staff is not allowed to work on a blockage in property owner/resident's private lateral line.**
- ☐ Show concern and empathy for the R/P, **but do not admit or deny liability.**
- ☐ Instruct the R/P to stay away from affected area. Including family members and pets.

If Overflow is in private property or inside home:

- ☐ Instruct R/P to place towels, rags, blankets, etc. between areas that have been affected and areas that have not been affected.
- ☐ Instruct R/P to turn off all plumbing appliances. (Laundry, shower, sinks, etc.)
- ☐ Instruct the R/P to not move any contaminated items (let professionals do this). They can move any uncontaminated items/property away from overflow area
- ☐ If possible, ask the R/P to take photographs of the damage.
- ☐ Dispatch crew to incident. Keep copy of report at dispatch, provide one to crew responding.
- ☐ Crew Responding: _____
- ☐ Create Lucity Work Order #: _____ Create Sewer Overflow Report #: _____
- ☐ Email Beatriz, Ed, Sean, and Ramon with report numbers.

**Put completed copy into Ramon's inbox for scanning and filing.* *Updated 3/23/2017*

SPILL NOTIFICATION

All spills that are less than 1000 gallons

Regardless of it reaching a waterway

OPEN LUCITY AND CREATE WORK ORDER AND OVERFLOW MODULE

(Does not need to be reported to CAL OES)

Document clearly in the diary details of original report including R/P, address and phone number.

- Clearly document time of actions taken (i.e. notification, arrival, stoppage broken, and departure), size of spill, cleanup involved, if waterway was reached, etc.
- Email Bea, Ed, Sean and Ramon brief description of spill and Lucity W.O. #
- Fill in all times and information on the On Call Tracking Sheet

SPILL NOTIFICATION

Notify within 2 hours of Spill

Spills that are 1000 gallons or above discharged to surface water or in a location where it will be discharged to surface water.

OPEN LUCITY AND CREATE WORK ORDER AND OVERFLOW MODULE

- CAL O.E.S.—Get Control # (800)852-7550
- Environmental Health* (831)454-2022
- Email John Ricker in Outlook

If original reported info changes, call CAL OES with revised info

*If Environmental Health is needed onsite but is not responding, notify NetCom at (831)471-1175 for assistance in contacting someone from E.H.

- Document clearly in the diary details of original report including R/P, address and phone number.
- Clearly document time of actions taken (i.e. notification, arrival, stoppage broken, and departure), size of spill, cleanup involved, if waterway was reached, etc.
- Email Bea, Ed, Sean and Ramon brief description of spill and Lucity W.O. #
- Fill in all times and information on the On Call Tracking Sheet

SPILL REPORTING AGENCIES

BOULDER CREEK AREA

IMMEDIATELY NOTIFY:

SANTA CRUZ CITY WATER TREATMENT PLANT

(831) 420-5457

(Sewer Spills may affect Santa Cruz City Water intake at San Lorenzo River)

Spills that are less than 1000 gallons

Regardless of it reaching a waterway

SEE SPILL NOTIFICATION PAGE 1

Appendix 6-B

FIELD STOPPAGE REPORT

AND

REPORTING PARTY INTERVIEW REPORT

Date:_____
Overflow Module #:_____
Lucity #:_____

GENERAL INFORMATION: COURTESY JETTING: YES NO

SCCSD STOPPAGE/NO SPILL SCCSD STOPPAGE/SPILL: PRIVATE: YES TBD

DATE OF REPORT: _____ TAKE PICTURES: YES NO

TIME OF CALL: _____AM____PM____ TIME CREW CALLED: _____AM____PM____

TIME IN SERVICE: _____AM____PM____ ARRIVED AT SITE: _____AM____PM____

WAS SPILL ACTIVE WHEN CREW ARRIVED ONSITE: YES NO

SPILL STOP TIME:_____AM____PM____

CREW: _____

EQUIPMENT: _____

SPILL INFORMATION:

SPILL SOURCE: M/H C/O PUMP STATION LATERAL
LINE BREAK FORCE MAIN
OTHER(explain):_____

SPILL DESTINATION:

WATER BODY	☐	BUILDING	☐	STORM DRAIN	☐ UNPAVED SURFACE
SURFACE WATER	☐	AC SURFACE	☐	CURB AND GUTTER	☐ DRAINAGE CHANNEL

LINE INFORMATION-BLOCKAGE:

LOWER MANHOLE:_____FT UPPER MANHOLE:_____FT TOTAL LENGTH RUN:_____FT
DISTANCE TO BLOCKAGE:_____FT
PIPE SIZE:_____ PIPE MATERIAL:_____

PRIMARY CAUSE:

DEBRIS OPERATOR ERROR PUMP STATION FAILURE ROOT INTRUSION
FLOW EXCEEDED CAPACITY PIPE STRUCTURAL PROBLEM LOSS OF ELECTRICITY
GREASE DEPOSITION (FOG) RAINFALL EXCEEDED DESIGN VANDALISM
OTHER(specify)_____

SECONDARY CAUSE(specify)**:**_____

SPILL APPEARANCE POINT:

BUILDING OR STRUCTURE FORCE MAIN GRAVITY SEWER
MANHOLE OTHER SEWER STRUCTURE PUMP STATION
LATERAL TREATMENT PLANT CLEAN OUT
OTHER(explain):_____

CLEAN-UP INFORMATION

TIME CLEAN UP STARTED:_____A.M. P.M. TIME CLEAN UP COMPLETED:_____A.M. P.M.
VOLUME RECOVERED (gal): _____ SIGNS POSTED: YES NO
DESCRIBE CLEAN UP: _____

DESCRIBE DAMAGE: _____

REPORTING PARTY INTERVIEW REPORT:

REPORTING PARTY (RP):_____ PHONE:_____

(RP) ADDRESS:_____ CITY_____

OVERFLOW ADDRESS:_____ CITY_____

IS LOCATION EASILY ACCESSIBLE BY THE PUBLIC: | YES | NO

HAS IT RAINED IN THE PAST WEEK: YES | NO

WHEN DID YOU FIRST NOTICE THE PROBLEM: DATE:_____ TIME:_____A.M. P.M.

FLOW: | CONTINUOUS | INTERMITTENT

WEATHER: RAINY | SUNNY AND DRY | CLOUDY

WHAT DID YOU OBSERVE:

ODOR WASTEWATER FLOWING OUT OF MANHOLE OVERLOWING CLEAN-OUT

WASTEWATER DRAINING FROM LANDSCAPING AND/OR POOLED IN YARD

WASTEWATER AND/OR SOLIDS IN NEARBY WATERBODY

SOLIDS, RAGS, TOILETTE PAPER BROKEN PIPE REPORTING PARTY'S LATERAL

WAS THERE A CHANGE IN APPEARANCE: YES NO

OTHER(explain): _____

HAVE YOU HAD ANY PLUMBING WORK LATELY: YES NO

If yes explain: _____

ADDITIONAL REPORTING PARTIES:

NAME:_____PHONE NUMBER:_____

NAME:_____PHONE NUMBER:_____

NAME:_____PHONE NUMBER:_____

OTHER COMMENTS AND OBSERVATIONS:_____

_____

_____

_____

Appendix 6-C

Private Property SSO

Sanitation Operations Staff will follow the protocol outlined in OERP.

Private Sanitary Sewer Systems

A. All sewer lines and lift stations from the building wall to and including the connection to the sewer main are the property of the owner of the connected building. All property owners whose properties are connected to a sewer main or otherwise connected to the Districts/ CSAs sewer system by sewer lateral shall, at their own expense, maintain the private sanitary sewer collection system and private sewer lateral in a fully functioning condition and ensure the lines are free of cracks, leaks, inflow or infiltration of extraneous water, root intrusion or open joints. Property owners shall ensure that lines drain freely to the sewer main without excessive sags that collect grease and sediments. Owners shall also ensure that pump or lift stations are maintained in proper working order.

B. Owners of Private Sanitary Sewer Systems shall ensure that they are maintained to prevent sanitary sewer overflows. If a sanitary sewer overflow occurs, the property owner shall cause the overflow to stop immediately and have sewer blockages, breaks, and other deficiencies permanently repaired by a licensed plumber within ten working days.

    1. If a sanitary sewer overflow occurs that flows off of the property, and response from the property owner is not immediate, or the property owner is unable to stop the overflow immediately, Districts/CSAs staff may enter onto the property and access to the sewer system to attempt to stop the overflow. The cost of material and labor for stopping the overflow shall be paid by the property owner. The District/CSAs will not be held liable for any damage to the sewer system while attempting to stop an overflow.

    2. The property owner shall be required to reimburse the District/CSAs for any fines levied against the District by regulatory agencies as a result of failure of the Private Sanitary Sewer System.

SCCSD Code Section 7.04.375, FCSD Code Section 3.04.465, DCSD Section 4.04.445, County of Santa Cruz adopted by reference SCCSD code 7.04.375

Appendix 6-D

Post SSO Debriefing

Post SSO Debriefing

COLLECTION SYSTEM FAILURE ANALYSIS FORM

Today's Date: _____ **Date of SSO:** _____

CIWQS SPILL ID: _____ **PREPARED BY:** _____

ADDRESS/LOCATION OF SSO: _____

TOTAL SSO VOLUME: _____ (GALLONS)

VOLUME RECOVERED: _____ (GALLONS)

CAUSE: ROOTS ☐ DEBRIS ☐ CAPACITY (HEAVY RAIN) ☐ CONSTRUCTION DAMAGE ☐
GREASE ☐ VANDALISM ☐ POWER FAILURE ☐ PUMP STATION FAILURE ☐

OTHER _____

SUMMARY OF HISTORICAL SSOS, BACKUPS, SERVICE CALLS

RECORDS REVIEWED BY: _____ **RECORD REVIEW DATE:** _____

DATE	CAUSE	PROBLEM

SUMMARY OF CCTV INFORMATION

CCTV INSPECTION DATE: _____

CCTV INSPECTION NUMBER: _____

CCTV TAPE REVIEWED BY: _____

CCTV OBSERVATIONS: _____

_____

_____

_____

RECOMMENDATIONS

NO CHANGES OR REPAIRS REQUIRED: _____

MAINTENANCE EQUIPMENT: _____

MAINTENANCE FREQUENCY: _____

REPAIR (LOCATION AND TYPE): _____

ADD TO CAPITAL IMPROVEMENT REHABILITATION/REPLACEMENT: _____

ADDITIONAL INFORMATION: _____

Meeting Atendees:

_____ _____ _____

_____ _____ _____

_____ _____ _____

Revised: 6/17 MG

County of Santa Cruz

DEPARTMENT OF PUBLIC WORKS

701 OCEAN STREET, SUITE 410, SANTA CRUZ, CA 95060-95060-4070

(831) 454-2160 FAX (831) 454-2385 TDD: (831) 454-2123

JOHN J. PRESLEIGH

DIRECTOR OF PUBLIC WORKS

If you have experienced a sewer back-up on your property please read the following information and take all necessary steps.

First Steps:

1. Keep people and pets away from the affected area.
2. Contact a restoration company to conduct proper clean-up.
3. Call a plumber if there is a problem in your lateral. You are responsible for your lateral from your building sewer to the sewer main of the District.
4. Take pictures if possible of the items affected.

Your Next Steps:

1. If you want to file a claim against the County please fill out the claim form. Provide as much detail as possible. For more information contact the Santa Cruz County Board of Supervisors Clerk (831) 454-2200.
2. Fill out the Affected Item Log sheet.
3. Keep all receipts of work done and expenses incurred as a result of the sewer back up.
4. Keep a copy of all documentation for your records.

Claims must be presented to the Clerk of the Board of Supervisors within 6 months. Mail Claim form and supporting documents to address on claim form or drop off at 701 Ocean St., Santa Cruz, CA, fifth floor (Board of Supervisors Clerk).

Pursuant to District Code Section 7.04.325, Property owners shall ensure that private sanitary sewer systems are maintained to prevent sanitary sewer overflows.

Pursuant to District Code Section 7.04.100, it is the property owner's responsibility to install & maintain an overflow or backflow protective device on your sewer lateral when any building's lowest floor elevation is less than one foot above the rim elevation of the nearest upstream manhole. For further information please contact Sanitation inspector at (831) 454-2160.

CLAIM AGAINST THE COUNTY OF SANTA CRUZ

(Pursuant to Section 910 et Seq., Govt. Code)

TO: BOARD OF SUPERVISORS
COUNTY OF SANTA CRUZ
ATTN: Clerk of the Board
Governmental Center
701 Ocean Street, Santa Cruz, CA 95060

1. Claimant's Name:

Address:

Phone No:

P.O. Box to which notices are to be sent:

2. Occurrence:

Date: Place:

3. Circumstances of occurrence or transaction giving rise to claim:

4. General description of indebtedness, obligation, injury, damage or loss incurred so far as is now known:

5. Name(s) of public employee(s) causing injury, damage or loss, if known:

6. Amount claimed now ……$

Estimated amount of future loss, if known ……$

TOTAL……...$

7. Basis for above computations:

8. If the amount claimed is over $10,000, indicate the court of jurisdiction:

Municipal Court Superior Court

CLAIMANT'S SIGNATURE: _____

Note: Claim must be presented to Clerk, Board of Supervisors, within six (6) months after the act which occasioned the injury.

Note: This claim and all attachments become Public Record and are scanned into the World Wide Web (Internet).

Americans with Disabilities Act questions or requests for accommodations may be directed to the ADA Coordinator at 454-2962 (TDD 454-2123).

PRINT

PER5003

AFFECTED PERSONAL PROPERTY

Description of Item	Quality	Age	Cost	Replacement Value

Name Address

Signature Date

COUNTY OF SANTA CRUZ
DEPARTMENT OF
Public WORKS

Help prevent Sanitary Sewer Overflows.
Be informed about your sewer system.

Sanitary sewer overflows (SSOs) are releases of raw sewage from a sanitary sewer system before it has reached a treatment facility. Raw sewage contains bacteria that endanger both human health and the environment. Damaged or clogged sewer laterals and lift stations can lead to sewer overflows.

The Santa Cruz County Sanitation District Code requires that you maintain your private sewer system to prevent sanitary sewer overflows. Develop a sewer system management plan for your property (see example attached).

Your sewer system requires preventative maintenance (PM). Develop a plan that specifies how and when the sewer is to be maintained. Clear lines on a regular basis using mechanical means, either flushing with water, or using a "snake".

Determine which lines clog more frequently and make sure those get cleared prior to an anticipated clog.

If you have a lift station on your property you need a PM plan. Follow the manufacturing specifications for the pump to determine the proper PM and frequency. Additionally, lift stations, sumps or wet wells can get clogged with grease and solids. To avoid overflows, make sure that they are completely pumped down on a regular basis or at least twice a year.

To learn about ways to prevent sewer overflows contact the Sanitation District at

(831) 477-3907 or visit www.dpw.co.santa-cruz.ca.us

SCCSD Code Section 7.04.375, Title 7 explains that owners of private sanitary sewer systems shall ensure that they are maintained to prevent sanitary sewer overflows.

Appendix 6-E

Overflow Emergency Response Plan Method for Estimating SSO

A variety of approaches exist for estimating the volume of a sanitary sewer spill. This appendix documents the methods that are most often employed. The person preparing the estimate should use the method most appropriate to the sewer overflow in question and use the best information available.

Form #_____

Eyeball Estimation Method Worksheet

Use this method only for small spills of less than 200 gallons.

Spill Date: _____ Location: _____

STEP 1: Position yourself so that you have a vantage point where you can see the entire spill.

STEP 2: Imagine one or more buckets or barrels of water tipped over. Depending on the size of the spill, select a bucket or barrel size as a frame of reference. It may be necessary to use more than one bucket/barrel size.

STEP 3: Estimate how many of each size bucket or barrel it would take to make an equivalent spill. Enter those numbers in Column A of the row in the table below that corresponds to the bucket/barrel sizes you are using as a frame of reference.

STEP 4: Multiply the number in Column A by the multiplier in Column B. Enter the result in Column C.

	A	B	C
Size of bucket(s) or barrel(s)	How many of this size?	Multiplier	Estimated Spill Volume (gallons)[1]
1 gallon water jug		x 1 gallons	
5 gallon bucket		x 5 gallons	
32 gallon trash can		x 32 gallons	
55 gallon drum		x 55 gallons	
Other: _____ gallons		x _____ gallons	
		Estimated Spill Volume:	

STEP 5: Is rainfall a factor in the spill? ☐ Yes ☐ No
If yes, what volume of the observed spill volume do you estimate is rainfall? _____ gallons
If yes, describe how you determined the amount of rainfall in the observed spill?

STEP 6: Calculate the estimated spill volume by subtracting the rainfall from the spill volume:

_____ gallons - _____ gallons = _____ gallons
Estimated Spill Volume Rainfall **Total Estimated Spill Volume**

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No
- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

Form #_____

Drop Bucket Estimation Method Worksheet

Use this method only for small spills where the entire flow stream can be captured in a bucket.

Spill Date: _____ Location: _____

STEP 1: Place a bucket under the flow stream. Volume of bucket: _____ gallons

STEP 2: Time how many minutes it takes to fill the bucket: _____ minutes

Convert seconds to minutes if necessary:

_____ ÷ 60 = _____

seconds — minutes (round to 2 decimals)

STEP 3: Divide the volume of the bucket by the time it took to fill the bucket. This equals the flow rate in gallons per minute.

_____ gallons ÷ _____ minutes = _____ gallons/minute (gpm)

Volume of Bucket — Time to Fill Bucket — Flow Rate

STEP 4: Complete the **Start Time Estimation Worksheet** to provide a detailed description of how start time was determined. Copy the information from the Start Time Estimation Worksheet here:

Spill Start Date: _____ Spill Start Time: _____ ☐ AM ☐ PM

Spill End Date: _____ Spill End Time: _____ ☐ AM ☐ PM

Spill Duration: _____ minutes

STEP 5: Multiply the flow rate times the duration of the spill to calculate the total estimated spill volume.

_____ gpm x _____ minutes = _____ gallons

Flow Rate — Flow Duration — **Estimated Spill Volume**

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

Form #_____

Duration and Flow Rate Photo Comparison Worksheet

Spill Date: _____ Location: _____

STEP 1: Compare the spill to reference images to estimate flow rate of the current overflow. Describe which reference photo(s) were used and any additional factors that influenced applying the reference photo data to the actual spill:

Flow Rate Based on Photo Comparison: _____ gallons per minute (gpm)

STEP 2: Complete the **Start Time Estimation Worksheet** to provide a detailed description of how start time was determined. Copy the information from the Start Time Estimation Worksheet here:

Spill Start Date: _____ Spill Start Time: _____ □ AM □ PM

Spill End Date: _____ Spill End Time: _____ □ AM □ PM

Spill Duration: _____ minutes

STEP 3: Multiply the spill rate by the spill duration to calculate the estimated spill volume.

_____ gpm X _____ minutes = _____ gallons

Flow Rate | Spill Duration | Estimated Spill Volume

STEP 4: Did the spill occur during a period of consistent flow in this portion of the sytem? ☐ Yes ☐ No

If no, explain how, based on this portion of the collection system and its users, you believe it may have impacted the estimated spill volume:

By what percentage are you adjusting the estimation? □ increase □ decrease _____ %

Translate the percentage into gallons: _____ gallons

STEP 5: Calculate the adjusted spill volume estimate:

_____ gallons + or - _____ gallons = _____ gallons

Estimated Spill Volume | Adjustment | **Estimated spill volume**

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

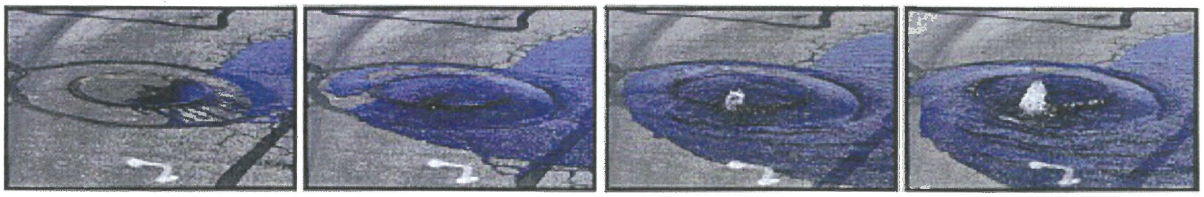
Duration and Flow Rate Photo Comparison Reference

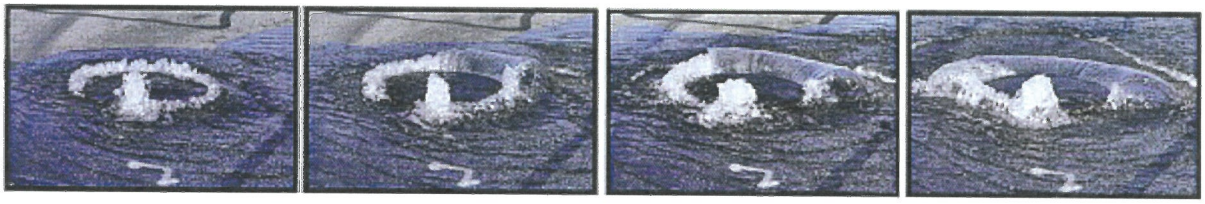
IMPORTANT NOTE:
These photographs are provided as examples only and will change with many factors.

SSCSC Manhole Overflow Gauge

CWEA Southern Section Collections Systems Committee
Overflow Simulation courtesy of Eastern Municipal Water District

24-inch manhole cover shown in all photos.

	5 gpm	25 gpm	50 gpm	100 gpm
Near View				
Far View				

	150 gpm	200 gpm	300 gpm	400 gpm
Near View				
Far View				

Form #_____

Area/Volume Method Worksheet: Ponded Sewage *(Page 1 of 2)*

Spill Date: _____ Location: _____

STEP 1: Describe spill area surface: □Asphalt □Concrete □Dirt □Landscape □Inside Building
□Other: _____

STEP 2: Draw/sketch the outline (footprint) of the spill. Then break the footprint down into recognizable shapes. Refer to the example on the **Area/Volume Method: Ponded Sewage Reference Page 1**.

STEP 3: Calculate the area of the footprint. Complete the table below for each shape identified in Step 2. If two shapes overlap, select one of the two shapes and estimate the percentage of that shape that does not overlap. Enter that percentage in the % Not Overlapping column. This will ensure that the overlap area is only counted once. Refer to the example on the Area/Volume Method: Ponded Sewage Reference Page 1.

Rectangles	Length	X	Width	X	% Not Overlapping	=	Area
	ft	X	ft	X	%	=	ft^2
	ft	X	ft	X	%	=	ft^2
	ft	X	ft	X	%	=	ft^2

Triangles	Base	X	Height	Multiplier	X	% Not Overlapping	=	Area
	ft	X	ft	÷ 2	X	%	=	ft^2
	ft	X	ft	÷ 2	X	%	=	ft^2
	ft	X	ft	÷ 2	X	%	=	ft^2

Circles	π	X	Radius	X	Radius	X	% Not Overlapping	=	Area
	3.14	X	ft	X	ft	X	%	=	ft^2
	3.14	X	ft	X	ft	X	%	=	ft^2
	3.14	X	ft	X	ft	X	%	=	ft^2

Total Spill Area (sum of all three tables above): _____ ft^2

STEP 4: Calculate the volume of the spill that **was NOT absorbed** into the ground. If the entire spill was absorbed, skip to Step 5.

a. If the spill is of varying depths, take several measurements at different depths and find the average.

_____ inches ÷ _____ = _____ inches ÷ 12 = _____ feet
sum of measurements | # of measurements | average depth in inches | average depth in feet of ponded sewage

b. Calculate spill volume of ponded sewage in cubic feet by multiplying the Total Spill Area in Step 3 by the average depth calculated in Step 4a. Convert from cubic feet to gallons by multiplying by 7.48.

_____ ft^2 x _____ ft = _____ ft^3 x 7.48 gal = _____ gallons
spill area (Step 3) | average depth (Step 4a) | spill volume in cubic feet | estimated volume of ponded sewage

GO TO PAGE 2

Form #_____

Area/Volume Method Worksheet: Ponded Sewage *(Page 2 of 2)*

STEP 5: Calculate the volume of the spill that **was absorbed** into the ground. If only a wet stain is observed, use the guidelines from the **Area/Volume Method: Ponded Sewage Reference Page 1** for the average depth instead of performing the calculations in Steps 5a and 5b below.

a. In order to perform this calculation, you must first determine the water content in the soil using the method described on **Area/Volume Method: Ponded Sewage Reference Page 2**:

Volume of known quantity of water:	V_1 = _____ gallons
Area of wetted footprint:	A = _____ ft^2
Average Depth of Wet Soil:	D = _____ ft
Volume of Wet Soil in Feet = A x D	V_2 = _____ ft^3
Convert cubic feet to gallons = V_2 x 7.48	V_3 = _____ gallons
Calculate water content in soil $V_1 \div V_3$ x 100	Water Content = _____ %

b. Calculate the depth of the actual sewage spill that was absorbed into the ground. First, measure the depth of the wet soil in several locations within the wetted area of the sewage spill. Determine the average depth of the wet soil by taking several measurements at different depths and finding the average. Convert the measurement to feet:

_____ inches	÷ _____	= _____ inches	÷ 12 = _____ feet
sum of measurements	# of measurements	average depth in inches	average depth in feet

c. Calculate volume of the spill that was absorbed into the ground in cubic feet by multiplying the Total Spill Area from Step 3 by the average depth calculated in Step 5b. Then convert from cubic feet to gallons by multiplying by 7.48. Then multiply by the water content percentage determined in Step 5a.

_____ ft^2	÷ _____ ft	= _____ ft^3	x 7.48 gal x	_____ %	= _____ gallons
spill area (Step 3)	average depth (Step 5b)	spill volume in cubic feet		water content (Step 5a)	estimated volume of absorbed sewage

STEP 6: Add the volume not absorbed (Step 4) plus the volume absorbed (Step 5) to get the total estimated volume:

_____ gallons	+ _____ gallons	= _____ gallons
volume not absorbed	volume absorbed	**Total Estimated Spill Volume**

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:

Name: _____ Signature: _____

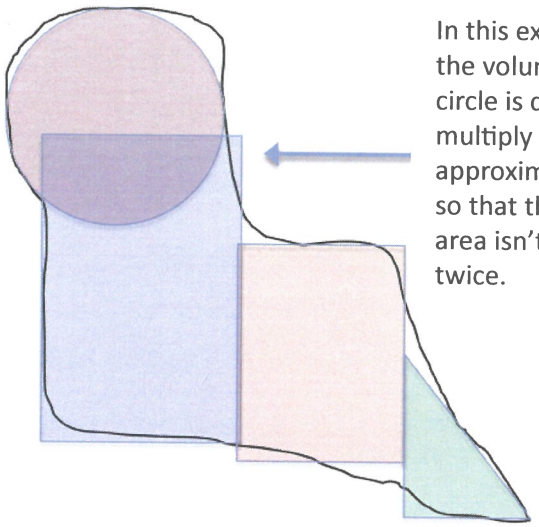
Job Title: _____ Date: _____

Miscellaneous computations:

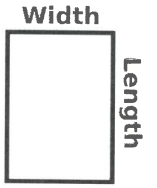
Computation	Formula/Guide
To convert inches to feet	Divide the inches by 12 or use the chart on the bottom right of this page.
Volume of one cubic foot	7.48 gallons of water
Area: Two-dimensional measurement represented in square feet	Square/rectangle: Area = Length x Width Circle: Area = πr^2 (where $\pi \approx 3.14$ and r = radius = ½ diameter) Triangle: Area = ½ (Base x Height)
Volume: Three-dimensional measurement represented in cubic feet	Rectangle/square footprint: Volume = Length x Width x Depth Circle footprint (cylinder): Volume = πr^2 x Depth (where $\pi \approx 3.14$ and r = radius = ½ diameter) Triangle footprint: Volume = ½ (Base x Height) x Depth
Depth: Contained or "Ponded" sewage	Measure actual depth of standing sewage whenever possible. When depth varies, measure several representative sample points and determine the average. Add the depth of the sample points and then divide that total by the number of sample points. If the depth is not measurable because it is only a wet stain, consider using the following estimated depths: • Depth of a wet stain on concrete surface: 0.0026' (1/32") • Depth of a wet stain on asphalt surface: 0.0013' (1/64")

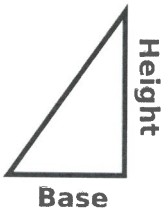
Example of how to draw/sketch the outline (footprint) of the spill for Step 2:

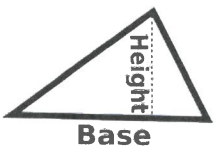
1. Sketch the outline of the spill (black line).
2. Break the sketch down into recognizable shapes (circles, squares, etc.) as well as you can.



In this example, after the volume of the circle is determined, multiply it by approximately 65% so that the overlap area isn't counted twice.







Convert Inches to Feet	
Inches	Feet
1/8"	0.01'
1/4"	0.02'
3/8"	0.01'
1/2"	0.04'
5/8"	0.05'
3/4"	0.06'
7/8"	0.07'
1"	0.08'
2"	0.17'
3"	0.25'
4"	0.33
5"	0.42'
6"	0.50'
7"	0.58'
8"	0.67'
9"	0.75'
10"	0.83'
11"	0.92'
12"	1.00'

Example of how to determine the water content in wetted soil, measured as a percentage.

By determining the water content in the soil when a known quantity of water is used, it will be possible to estimate the sewage content in the soil where the actual spill occurred.

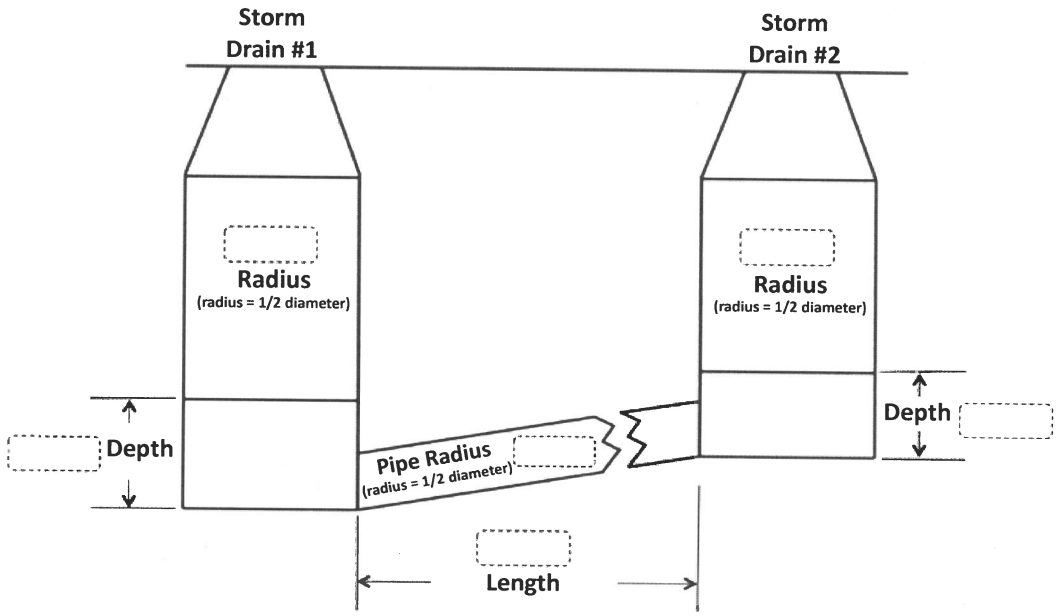
	Step	Example
	Select an area of dry soil (near the wetted footprint of the spill) to sample. If possible, use a form to keep the water contained to a geometric shape (circle, square, rectangle, etc.).	Place a 2 foot diameter form onto an area of dry soil.
V_1	Pour a known amount of water onto the soil and let it soak in for an adequate amount of time. (This quantity is V_1 in Step 5 on the worksheet)	Pour one gallon of water into the form and let it soak in for 15 minutes.
A	Pull the form and measure the AREA of the wetted soil. It will likely be larger than the form. (This measurement is A in Step 5 on the worksheet)	In this example, let's say the wetted soil footprint's diameter is 2 ft 2 in. We convert the inches to feet and get a diameter of 2.17 ft. The radius is ½ of the diameter, so r = 1.085 ft So using the formula: Area = πr^2 (where $\pi \approx 3.14$) the area of the footprint is 3.14 x 1.085 ft x 1.085 ft = 3.70 ft^2
D	Using a small hand tool, dig down into the soil until dry soil is reached. Measure the DEPTH of the wet soil. Do this in multiple locations and average the measurements. Convert to feet. (This measurement is D in Step 5 on the worksheet)	Dig into the soil in 3 locations and measure the depth of the wetted soil. It is usually easiest to measure this depth in inches, so in this example we will measure in inches and then convert to feet. In this example, let's say we take the following measurements: 2½ inches, 1½ inches and 3¾ inches We convert the measurements to decimals and get 2.5 in, 1.5 in, and 3.75 in. Then we average the 3 measurements by adding them together and then dividing by 3: 2.5 in + 1.5 in + 3.75 in = 7.75 in 7.75 in ÷ 3 = 2.58 in Convert the number to feet by dividing by 12: 2.58 in ÷ 12 in = 0.215 ft
V_2	Multiply the AREA of the wet soil by the average DEPTH of the wet soil to determine the VOLUME of the wet soil in cubic feet. (This measurement is V_2 in Step 5)	3.70 ft^2 x 0.215 ft = 0.80 ft^3
V_3	Multiply by 7.48 to convert the volume in cubic feet (ft^3) to the volume in gallons (gal). *NOTE: This measurement is V_3 in Step 5*	Multiply the volume in cubic feet by the conversion multiplier to get the volume in gallons 0.80 ft^3 x 7.48 gal/ft^3 = 6 gal
Water Content	Calculate the water content in the soil: • Since you started with a known amount, you know how much water is in the soil. • Divide that known amount of water by the calculated volume of soil to get the percent of water content in the soil.	Divide the known volume of water by the calculated volume of soil 1 gal ÷ 6 gal = .17 so 17% is the water content in the soil.

Form #_____

Area/Volume Method Worksheet: Sewage Contained in a Storm Drain System

Spill Date: _____ Location: _____

STEP 1: Take measurements (in feet) and enter them in the dashed boxes below.
Use the table to the right as needed to convert inch measurements to feet.



Convert Inches to Feet	
Inches	Feet
1/8"	0.01'
1/4"	0.02'
3/8"	0.01'
1/2"	0.04'
5/8"	0.05'
3/4"	0.06'
7/8"	0.07'
1"	0.08'
2"	0.17'
3"	0.25'
4"	0.33
5"	0.42'
6"	0.50'
7"	0.58'
8"	0.67'
9"	0.75'
10"	0.83'
11"	0.92'
12"	1.00'

STEP 2: Complete the table below for each part of the storm drain system diagrammed above.

Storm Drain #1	π	X	Radius	X	Radius	X	Depth	=	Volume
	3.14	X	ft	X	ft	X	ft	=	ft^3

Storm Drain #2	π	X	Radius	X	Radius	X	Depth	=	Volume
	3.14	X	ft	X	ft	X	ft	=	ft^3

Pipe	π	X	Radius	X	Radius	X	Length	=	Volume
	3.14	X	ft	X	ft	X	ft	=	ft^3

STEP 3: Add the right column together to calculate the total spill volume in cubic feet.
Multiply by 7.48 to convert to gallons.

_____ ft^3 + _____ ft^3 + _____ ft^3 x 7.48 = _____ gallons

Drain #1 Volume | Drain #2 Volume | Pipe Volume | **Estimated Spill Volume**

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

STEP 4: Attach a map of the impacted storm drain to this form for future reference.

This worksheet completed by:

Name: _____ Signature: _____

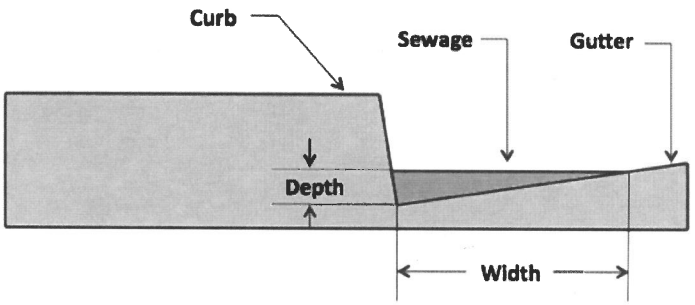
Job Title: _____ Date: _____

Don't forget photos!

Form #_____

Area/Volume Method Worksheet: Contained in a Roadway Gutter

Spill Date: _____ Location: _____



Convert Inches to Feet	
Inches	Feet
1/8"	0.01'
1/4"	0.02'
3/8"	0.01'
1/2"	0.04'
5/8"	0.05'
3/4"	0.06'
7/8"	0.07'
1"	0.08'
2"	0.17'
3"	0.25'
4"	0.33
5"	0.42'
6"	0.50'
7"	0.58'
8"	0.67'
9"	0.75'
10"	0.83'
11"	0.92'
12"	1.00'

STEP 1: Measure the length of the contained spill in feet: _____ feet

STEP 2: Measure the depth and width of the overflow in the gutter in feet at the upstream and downstream ends and at evenly spaced intervals if the slope changes in the flooded gutter length. Use the chart to the right as needed to convert inches to feet. For each location measured, calculate the cross-sectional area in square feet by multiplying the depth by the width and dividing by 2.

Location	Depth in Feet	x	Width in Feet	÷ 2	Cross-sectional Area
Upstream End	ft	x	ft	÷ 2	ft^2
Downstream End	ft	x	ft	÷ 2	ft^2
Interval (optional)	ft	x	ft	÷ 2	ft^2
Interval (optional)	ft	x	ft	÷ 2	ft^2
Interval (optional)	ft	x	ft	÷ 2	ft^2

STEP 3: Average all the area calculations from Step 2 by adding them together and dividing by the number of intervals (#). Calculate the volume in cubic feet by multiplying by length (Step 1).

_____ ft^2 ÷ _____ = _____ ft^2 x _____ ft = _____ ft^3

Sum of Areas # Average Area Length Est. spill volume in cubic feet

STEP 4: Convert the overflow volume from cubic feet to gallons:

_____ ft^3 X 7.48 = _____ gallons

Estimated spill volume in cubic feet **Estimated Spill Volume**

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

Don't forget photos!

Form #_____

Flow Calculation Worksheet

Spill Date: _____ Location: _____

Manhole #1 ID: _____ Manhole #2 ID: _____ Inside Pipe Diameter: _____ inches

STEP 1: Complete the **Start Time Estimation Worksheet** to provide a detailed description of how start time was determined. Copy the information from the Start Time Estimation Worksheet here:

Spill Start Date: _____ Spill Start Time: _____ ☐ AM ☐ PM

Spill End Date: _____ Spill End Time: _____ ☐ AM ☐ PM

Spill Duration: _____ minutes

STEP 2: Calculate spill velocity:

A. Measure the distance between the two manholes: _____ feet

B. Drop a ball in at the upstream manhole.

C. Measure the time it takes to arrive at the downstream manhole: _____ seconds

D. Divide the distance in feet from A by the time in seconds from C:

_____ feet ÷ _____ seconds = _____ feet/second = Velocity **(V)**

STEP 3: Calculate inside pipe diameter squared (D^2) by multiplying the pipe diameter by itself. Convert to feet.

D^2 = _____ X _____ = _____ $inches^2$ ÷ 144 = _____ $feet^2$

Inside Pipe diameter | Inside Pipe diameter | Diameter squared in inches | Diameter squared in feet

STEP 4: Calculate flow level (the depth of the flow) to pipe diameter ratio (L/D)

_____ inches ÷ _____ inches = **L/D** _____

Level of flow | Inside Pipe diameter

STEP 5: Identify Flow Unit Multiplier (K) in Table 1 using L/D. Read the GPM (Gallons Per Minute) column.

K = _____ gpm

STEP 6: Calculate the profiled flow by multiplying the numbers from Steps 2, 3 and 5 above.

_____ ft/sec x _____ feet x _____ = _____ GPM

Velocity (V) | Diameter Squared (D^2) | Multiplier (K) | Profiled Flow

STEP 7: Calculate the estimated spill volume by multiplying the numbers from Step 1 and Step 6.

_____ gpm x _____ minutes = _____ gallons

Profiled Flow | Spill Duration | **Estimated Spill Volume**

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

Table I Flow Unit Multiplier

L/D	K (Flow Unit Multiplier MGD	GPM	CFS
0.01	0.0009	0.5966	0.0013
0.02	0.0024	1.6824	0.0037
0.03	0.0044	3.0814	0.0069
0.04	0.0068	4.7296	0.0105
0.05	0.0095	6.5894	0.0147
0.06	0.0124	8.6351	0.0192
0.07	0.0156	10.8475	0.0242
0.08	0.0190	13.2113	0.0294
0.09	0.0226	15.7143	0.0350
0.10	0.0264	18.3460	0.0409
0.11	0.0304	21.0975	0.0470
0.12	0.0345	23.9609	0.0534
0.13	0.0388	26.9294	0.0600
0.14	0.0432	29.9967	0.0668
0.15	0.0477	33.1571	0.0739
0.16	0.0524	36.4056	0.0811
0.17	0.0572	39.7374	0.0885
0.18	0.0621	43.1480	0.0961
0.19	0.0672	46.6334	0.1039
0.20	0.0723	50.1898	0.1118
0.21	0.0775	53.8135	0.1199
0.22	0.0828	57.5012	0.1281
0.23	0.0882	61.2496	0.1365
0.24	0.0937	65.0555	0.1449
0.25	0.0992	68.9161	0.1535
0.26	0.1049	72.8286	0.1623
0.27	0.1106	76.7901	0.1711
0.28	0.1163	80.7982	0.1800
0.29	0.1222	84.8503	0.1890
0.30	0.1281	88.9439	0.1982
0.31	0.1340	93.0767	0.2074
0.32	0.1400	97.2464	0.2167
0.33	0.1461	101.4507	0.2260
0.34	0.1522	105.6875	0.2355
0.35	0.1583	109.9546	0.2450
0.36	0.1645	114.2500	0.2545
0.37	0.1707	118.5715	0.2642
0.38	0.1770	122.9172	0.2739
0.39	0.1833	127.2851	0.2836
0.40	0.1896	131.6733	0.2934
0.41	0.1960	136.0797	0.3032
0.42	0.2023	140.5026	0.3130
0.43	0.2087	144.9400	0.3229
0.44	0.2151	149.3902	0.3328
0.45	0.2215	153.8512	0.3428
0.46	0.2280	158.3212	0.3527
0.47	0.2344	162.7985	0.3627
0.48	0.2409	167.2811	0.3727
0.49	0.2473	171.7673	0.3827
0.50	0.2538	176.2553	0.3927

L/D	K (Flow Unit Multiplier MGD	GPM	CFS
0.51	0.6230	180.7472	0.4027
0.52	0.6384	185.2335	0.4127
0.53	0.6539	189.7162	0.4227
0.54	0.6693	194.1935	0.4327
0.55	0.6847	198.6636	0.4426
0.56	0.7001	203.1247	0.4526
0.57	0.7154	207.5749	0.4625
0.58	0.7307	212.0125	0.4724
0.59	0.7460	216.4354	0.4822
0.6	0.7612	220.8420	0.4920
0.61	0.7763	225.2302	0.5018
0.62	0.7913	229.5982	0.5115
0.63	0.8063	233.9440	0.5212
0.64	0.8212	238.2656	0.5308
0.65	0.8360	242.5611	0.5404
0.66	0.8507	246.8283	0.5499
0.67	0.8653	251.0651	0.5594
0.68	0.8798	255.2696	0.5687
0.69	0.8942	259.4393	0.5780
0.7	0.9084	263.5722	0.5872
0.71	0.9226	267.6659	0.5964
0.72	0.9365	271.7181	0.6054
0.73	0.9503	275.7263	0.6143
0.74	0.9640	279.6879	0.6231
0.75	0.9775	283.6004	0.6319
0.76	0.9908	287.4611	0.6405
0.77	1.0039	291.2671	0.6489
0.78	1.0168	295.0156	0.6573
0.79	1.0295	298.7033	0.6655
0.8	1.0420	302.3271	0.6736
0.81	1.0543	305.8836	0.6815
0.82	1.0663	309.3691	0.6893
0.83	1.0780	312.7798	0.6969
0.84	1.0895	316.1116	0.7043
0.85	1.1007	319.3602	0.7115
0.86	1.1116	322.5207	0.7186
0.87	1.1222	325.5881	0.7254
0.88	1.1324	328.5566	0.7320
0.89	1.1423	331.4201	0.7384
0.9	1.1518	334.1717	0.7445
0.91	1.1608	336.8034	0.7504
0.92	1.1695	339.3064	0.7560
0.93	1.1776	341.6703	0.7612
0.94	1.1852	343.8827	0.7662
0.95	1.1923	345.9285	0.7707
0.96	1.1987	347.7884	0.7749
0.97	1.2044	349.4366	0.7785
0.98	1.2092	350.8356	0.7816
0.99	1.2130	351.9215	0.7841
1.00	1.2150	352.5181	0.7854

L/D = Level to Diameter Ratio MGD = Millions of Gallons per Day GPM = Gallons per Minute CFS = Cubic Feet per Second

Form #_____

Lift Station Estimation Worksheet

Use this method only if the lift station influent and effluent rates are known.

Spill Date: _____ Location: _____

STEP 1: Identify the spill rate using flow meter data, which can be obtained from most SCADA systems.

- Influent Rate: If the spill is due to the station failure, then the rate of flow into the station less storage in the station wet well will be the spill rate.
- Effluent Rate: If the force main fails, then the pump discharge rate along with the cycle frequency will be the spill rate.

Spill Rate: _____ gallons/minute (gpm)

Last date the flow meter was calibrated: _____

What was the source of the data?

□ This agency

□ Another agency: Agency: _____

Contact Name: _____

Contact Telephone: _____

STEP 2: Complete the **Start Time Estimation Worksheet** to provide a detailed description of how start time was determined. Copy the information from the Start Time Estimation Worksheet here:

Spill Start Date: _____ Spill Start Time: _____ □ AM □ PM

Spill End Date: _____ Spill End Time: _____ □ AM □ PM

Spill Duration: _____ minutes

STEP 3: Multiply the spill rate by the spill duration to calculate the estimated spill volume.

_____ gpm X _____ minutes = _____ gallons

Spill Rate Spill Duration **Estimated spill volume**

Do you believe that this method has estimated the entire spill? ☐ Yes ☐ No

- If no, you MUST use additional methods to estimate the entire spill.
- If yes, it is advisable to use additional methods to support your estimation.

Explain why you believe this method has or has not estimated the entire spill:

This worksheet completed by:

Name: _____ Signature: _____

Job Title: _____ Date: _____

Appendix 6-F

Water Quality Monitoring Plan

Introduction

A water quality monitoring program is required for any Category 1 SSO of 50,000 gallons or more. Water quality testing for SSOs of 50,000 gallons or more must be completed within 48 hours of Sanitation Operations becoming aware of the SSO. Additionally water quality monitoring will be conducted whenever there is an SSO that either enters a surface water or is discharged to a surface and poses a risk to public health or the environment.

The Santa Cruz County Sanitation District lab or other certified lab must analyze the sample results to determine the nature and impact of the discharge. The analyses should include ammonia and bacterial indicators such as total coliform, fecal coliform, and enterococcus.

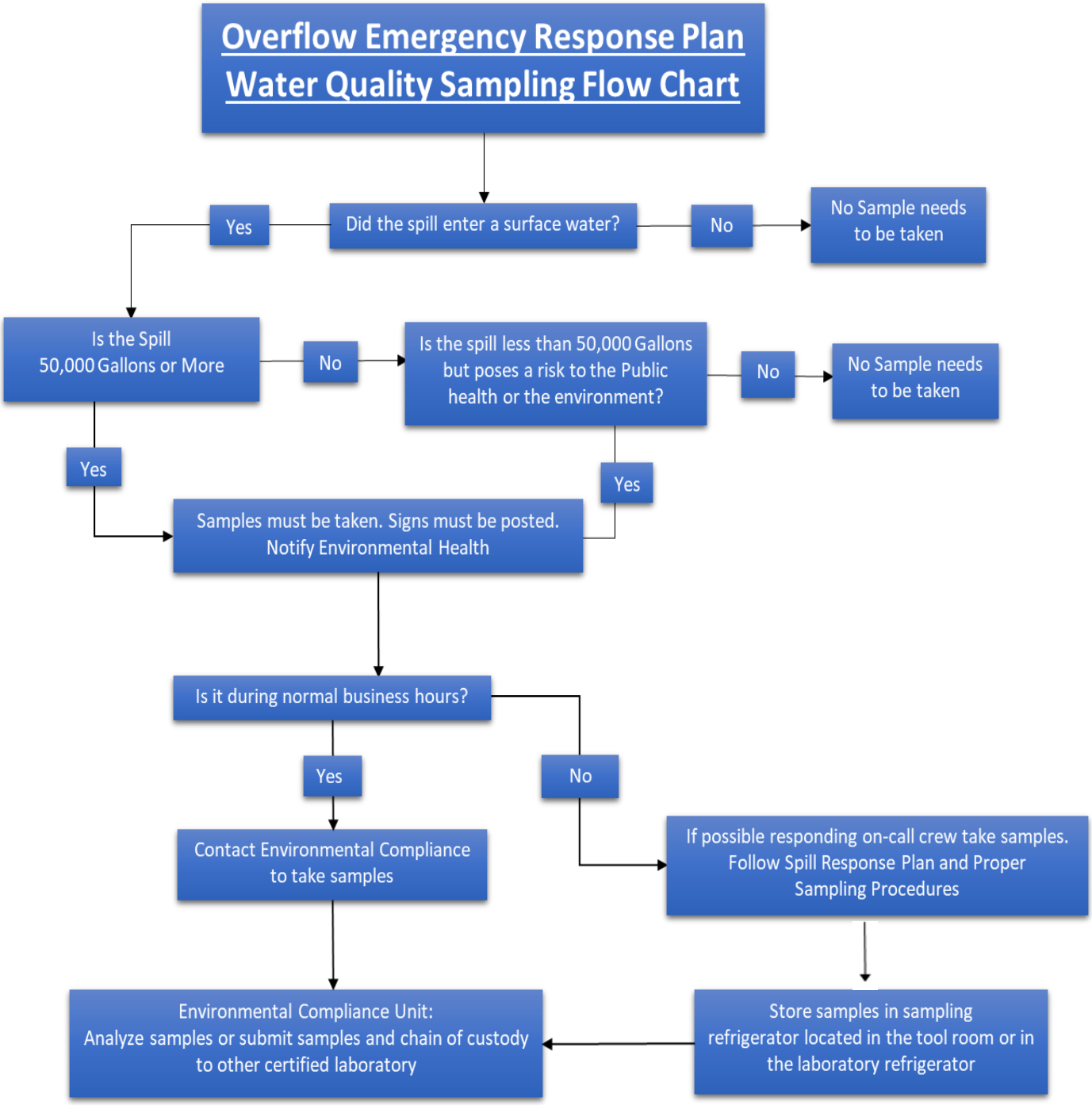
Water Quality Monitoring Requirements

State Water Resources Control Board Order No. WQ 2013-0058-EXEC, Amending Monitoring and Reporting Program for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (Effective September 9, 2013), requires the following:

To comply with subsection D7(v) of the SSS WDRs and Section D of the MRP, the enrollee shall develop and implement an SSO Water Quality Monitoring Program to assess impacts from Category SSOs to surface waters in which 50,000 gallons or greater are spilled to surface waters. The SSO Water Quality Monitoring Program, shall, at a minimum:

- Contain protocols for water quality monitoring.
- Account for spill travel time in the surface water and scenarios where monitoring may not be possible (e.g. safety, access restrictions, etc.).
- Require water quality analyses for ammonia and bacterial indicators to be performed by an accredited or certified laboratory.
- Require monitoring instruments and devices used to implement the SSO Water Quality Monitoring Program to be properly maintained and calibrated, including any records to document maintenance and calibration, as necessary, to ensure their continued accuracy.
- Within 48 hours of the enrollee becoming aware of the SSO, require water quality sampling for, at a minimum, the following constituents:
    i. Ammonia
    ii. Appropriate Bacterial indicator(s) per the applicable Basin Plan water quality objective or Regional Board direction that may include total and fecal coliform, enterococcus, and e-coli.

Figure 6.1 Water Quality Sampling Flow Chart provides the steps to be taken when sampling of spilled sewage is required by Sanitation Operations or contract providers.



It is important to track the spill. If the spill discharges to a storm drain and it is unable to be fully captured you must determine the path the sewage has taken. If it is unclear, use the storm drainage GIS maps to locate all downstream gulches, creeks, rivers, and ocean outfalls that could be impacted by the spill. Based on the maps, follow the spill. If the SSO reaches a surface water and it is 50,000 gallons or more, you must sample. You must also sample if the SSO either enters a surface water or is discharged to a surface water and poses a risk to public health or the environment.

DO NOT SAMPLE IF IT IS NOT SAFE TO DO SO.

Water Quality Sampling Equipment:

- Sampling Kit
- Sample poles and attachments (If needed get pole from Lode St. spill trailer)
- PPE
- Timer
- Chain of Custody forms
- Camera

Sampling Kit

All supervisors and leads should have sampling kits on their truck. The sampling kit contains:

- Cooler
- 3-sterile 120 mL sterile plastic containers for bacteria samples.
- 3-250 mL plastic sample bottles for ammonia
- Blue ice
- Field test kit (ammonia)
- Pen
- Sampling kits should be checked regularly to ensure all items are included and in good condition. Check that ammonia kits are not expired.

Sampling Procedures:

- Typically, 100 Feet up stream is sufficient, but this may vary on circumstances of the spill;
- Point of contact or every 100 feet in a moving water body until clear samples are observed;
- Sample 100 Feet Downstream of point of contact or to the furthest extent that the sewage has flowed since inception of the contact with the creek or flowing water body. Multiple samples should be taken every 100 feet to the final spill distance.
- Proper protective equipment should be used including gloves and eye protection.

Sampling Procedures, continued:

- Bacteria samples will be collected in three sterile 3 sterile 120 mL plastic containers located in spill kits. Samples must be analyzed within 6 hours. (If it is after hours the samples will be analyzed out of hold time).
- Ammonia samples will be collected in three 250 mL plastic containers. Samples should be labeled with location (location will be the sample ID), date and time taken. The containers will be labeled Point (P) Upstream (U/S) and Downstream (D/S). If more than one sample is taken, add the sample number (D/S#1). Samples must be placed on ice immediately.
- Samples are brought back to the sanitation operations facility and stored in the designated sample refrigerator or taken to the certified lab immediately.
- Pictures will be taken to photo document the event. Responding crew should take enough pictures to cover the entire spill, damaged infrastructure and spill path. They should also take pictures of all posted warning signs.

If sewage has reached a creek or flowing stream, you must account for spill travel time and samples should be taken along the flowing creek or stream until clear samples are found or until the flow is dammed and sewage vacuumed. The Santa Cruz County Environmental Health Department should review the analyses and follow-up analyses.

When sampling is not possible due to safety and/or weather conditions employees are required to document the water body affected and use drainage maps to determine additional downstream discharge points and possible sampling locations. You must account for spill travel time. Samples will be collected once it is safe to do so.

Additional samples will be taken to determine when warning signs can be removed.

Accounting for Spill Travel Time

Information regarding spill travel time should be used to inform decisions about sampling locations, both initial and follow-up and total number of samples to be collected.

A visual method can be used for estimating spill travel. This can be done by dropping a floatable debris in the surface water and timing how long it takes to travel over a measured distance (e.g., 100 feet). Include sections in the surface water where there are bends, bottlenecks, or other characteristics that may slow down the flow. If the first measurement is uncertain, this estimate may be performed three to five times, and the values averaged to determine an estimated travel time. The velocity in the upper portion of the water body can then be calculated by dividing the measured distance by the average time.

Sample Delivery

Samples should be delivered to the laboratory at the Lode St. facility. The Chain of Custody form, must be filled out and signed upon delivery. If the laboratory staff at Lode St. is unavailable, samples may be taken to either the City of Santa Cruz wastewater treatment plant or Soil Control Lab in Watsonville. You must call the labs first before taking the samples there.

APPROVED LABORATORIES	
SOIL CONTROL LAB	Lab: 831.724.5422 42 Hangar Way , Watsonville, CA 95076
CITY OF SANTA CRUZ WASTEWATER TREATMENT PLANT LAB **-Contact Akin Babatola**	Lab: 831.420.6045 Main: 831.420.6050 110 California St., Santa Cruz, CA 95060

Chain of Custody

SANITARY SEWER OVERFLOW MONITORING						ANALYSIS								
SAMPLERS - Name						TC	FC	ENT	Ammonia					
SAMPLERS - Signature														
Lucity Overflow #	Sample ID	Date/Time	Source Description Upstream/Downstream/Point	Container Size-mL	Glass/Plastic/ Whirl-Pak									COMMENTS/PRESERVATIVE
Reliquished by:				Date/Time	Received by:									Remarks:
Reliquished by:				Date/Time	Received by:									
Reliquished by:				Date/Time	Received by:									

Sewer Overflow Water Quality Sampling Instructions

Follow the instructions below when taking water quality samples for a sewer overflow event.

IF SPILL IS 50,000 GALLONS OR MORE AND ENTERED A STORM DRAIN OR WATERBODY YOU MUST SAMPLE. If a spill poses a threat to the public or the environment you must sample.
ONLY SAMPLE IF IT IS SAFE TO DO SO.

Wear proper PPE

Wear gloves and eye protection and use the sterile containers in your sampling cooler.

Prepare Sample Containers

Label sample containers prior to sampling. Include location, date, and time taken. Label containers as Point (P), Upstream (U/S), and Downstream (D/S). Your goal is to take **6 samples** if possible – 3 bottles for Ammonia and 3 bottles for bacteria.

Sample Collection

Collect samples from the middle depth of the stream. Avoid sampling debris. You may need to use the sampling pole (Located in the spill trailer).

Collect from these three locations:

- Sample **point of contact** in the water body. Fill one 250 mL plastic bottle and one 120 mL bacteria bottle.
- Typically, 100 feet **upstream** in suffiecient, but this may vary on circumstances of the spill. Fill one 250 mL plastic bottle and one 120 mL bacteria bottle.
- Sample a minimum of 100 feet **downstream** depending on spill travel time. Fill one 250 mL plastic bottle and one 120 mL bacteria bottle.

  ⇒ **Sample 100 feet downstream of point of contact or to the furthest extent that the sewage has flowed since inception of the contact with the creek or flowing water body. Collect one of each sample (ammonia and bacteria) for every additional 100 feet of spill travel until a clean sample is observed** (Include sample number on the label: D/S#1,2,3 etc. as well as approximate distance from point of contact).

Keep samples on ice and bring them back to the lab (refrigerator) at Lode St. Complete the Chain of Custody.

If sampling is not possible, thoroughly document the water body affected and use drainage maps to locate downstream discharge points. You must also account for spill travel time to estimate the distance traveled.

ESTIMATION OF SPILL TRAVEL TIME

Visual ft/sec measurement.

This may be done by observing or dropping floatable debris in the surface water and timing how long it takes to travel over a measured distance (e.g., 100 feet). Include sections in the surface water where there are bends, bottlenecks, or other characteristics that may slow down the flow. If the first measurement is uncertain, this estimate may be performed three to five times, and the values averaged to determine an estimated travel time.

This will provide a means to estimate the distance traveled and identify where the SSO may be headed within the waterway.

Appendix 6-G

Sample Warning Signs

DANGER!

CONTAMINATED WATER

KEEP OUT

AGUA CONTAMINADA

ALEJESE

PELIGRO!

Contact Santa Cruz County Sanitation District Operations at:
(831) 477-3907 for Additional Information

Appendix 7-A

FOG Control Program

Public Outreach and Supporting Documentation

FOG Alert Residential Door Hanger

Appendix 7-B

FOG Advertisement

Appendix 8-A

Reserved

APPENDIX 8—SUPPORTING DOCUMENTS FOR ELEMENT 8

There are no Appendix documents to accompany Element 8. However, Appendix 8 is included as a placeholder for future documents.

Appendix 9-A

Monitoring, Measurement and Program Modifications

PERFORMANCE MEASURES 1/1/12 TO 12/31/16

SANTA CRUZ COUNTY 3SSO10324	YEAR				
	2012	2013	2014	2015	2016
Number of SSOs	7	17	17	8	10
Volume, gallons	7,236	4,969	56,248	1,585	5,934
Median Volume, Gallons	1,034	292	3,309	198	593
Volume Recovered, Gallons	1,000	300	1,037	975	212
Portion Recovered (%)	14%	6%	2%	62%	4%
Volume to Surface Waters, gallons	1,600	1,490	4,760	325	5,114
Portion to Surface Waters (%)	22%	30%	8%	21%	86%
Primary Causes of SSOs	Debris 43%	Debris 47%	Debris 47%	Debris 50%	Other 40%
	Structure 43%	Roots 29%	Grease 35%	Grease 25%	Structure 30%
	Other 14%	Grease 11%	Other 12%	Roots 13%	Roots 20%
		Other 11%	Roots 6%	Other 12%	Grease 10%
Size of System, miles	220	220	220	220	220
SSO Rate, SSOs/100 Miles/Year	3.18	7.73	7.73	3.64	4.55
Volume Rate, Gallons/100 Miles/Year	3,289	2,259	25,567	720	2,697

PERFORMANCE MEASURES 1/1/12 TO 12/31/16

DAVENPORT 3SSO10263	YEAR				
	2012	2013	2014	2015	2016
Number of SSOs	NONE	NONE	NONE	NONE	NONE
Volume, gallons					
Median Volume, Gallons					
Volume Recovered, Gallons					
Portion Recovered (%)					
Volume to Surface Waters, gallons					
Portion to Surface Waters (%)					
Primary Causes of SSOs Grease/ Roots					
Size of System, miles	1	1	1	1	1
SSO Rate, SSOs/100 Miles/Year					
Volume Rate, Gallons/100 Miles/Year					

PERFORMANCE MEASURES 1/1/12 TO 12/31/16

FREEDOM 3SSO10267	YEAR				
	2012	2013	2014	2015	2016
Number of SSOs	1	1	NONE	NONE	NONE
Volume, gallons	20	40			
Median Volume, Gallons	20	40			
Volume Recovered, Gallons	20	20			
Portion Recovered (%)	100%	50%			
Volume to Surface Waters, gallons	0	20			
Portion to Surface Waters (%)	0%	50%			
Primary Causes of SSOs Grease/ Roots	Structure 100%	Structure 100%			
Size of System, miles	16	16	16	16	16
SSO Rate, SSOs/100 Miles/Year	6.25	6.25			
Volume Rate, Gallons/100 Miles/ Year	125	250			

PERFORMANCE MEASURES 1/1/12 TO 12/31/16

SAND DOLLAR - CSA #5 3SSO10323	YEAR				
	2012	2013	2014	2015	2016
Number of SSOs	NONE	NONE	NONE	NONE	NONE
Volume, gallons					
Median Volume, Gallons					
Volume Recovered, Gallons					
Portion Recovered (%)					
Volume to Surface Waters, gallons					
Portion to Surface Waters (%)					
Primary Causes of SSOs Grease/Roots					
Size of System, miles	1	1	1	1	1
SSO Rate, SSOs/100 Miles/Year					
Volume Rate, Gallons/100 Miles/Year					

PERFORMANCE MEASURES 1/1/12 TO 12/31/16

BOULDER CREEK - CSA #7 3SSO10326	YEAR				
	2012	2013	2014	2015	2016
Number of SSOs	3	NONE	NONE	NONE	NONE
Volume, gallons	30,075				
Median Volume, Gallons	10,025				
Volume Recovered, Gallons	0				
Portion Recovered (%)	0%				
Volume to Surface Waters, gallons	15,000				
Portion to Surface Waters (%)	50%				
Primary Causes of SSOs Grease/ Roots	Pump 34% Pipe 33% Other 33%				
Size of System, miles	3	3	3	3	3
SSO Rate, SSOs/100 Miles/Year	100				
Volume Rate, Gallons/100 Miles/Year	1,002,500				

PERFORMANCE MEASURES 1/1/12 TO 12/31/16

ROLLING WOODS - CSA #10 3SSO10312	YEAR				
	2012	2013	2014	2015	2016
Number of SSOs	NONE	1	NONE	NONE	NONE
Volume, gallons		15			
Median Volume, Gallons		15			
Volume Recovered, Gallons		0			
Portion Recovered (%)		0%			
Volume to Surface Waters, gallons		0			
Portion to Surface Waters (%)		0%			
Primary Causes of SSOs Grease/Roots		Debris 100%			
Size of System, miles	1	1	1	1	1
SSO Rate, SSOs/100 Miles/Year		100.00			
Volume Rate, Gallons/100 Miles/Year		1500			

Appendix 10-A

SSMP Program Audits

SSMP Audit Checklist

ELEMENT 1 – GOALS		YES	NO
A	Are the goals stated in the SSMP still appropriate and accurate?		
Discussion:			

ELEMENT 2 — ORGANIZATION		YES	NO
A	Is the list of Key Staff responsible for SSMP current?		
B	Is the SSO responder telephone list current?		
C	Is the organization chart current and correct?		
D	Is SSO reporting and response “Chain of Communication” current?		
E	Are the position descriptions an accurate portrayal of staff responsibilities?		
Discussion:			

ELEMENT 3 – LEGAL AUTHORITY	YES	NO
Does the SSMP cite the Districts' legal authority to:		
A Prevent illicit discharges?		
B Require proper design and construction of sewers and connections?		
C Ensure access for maintenance, inspection, or repairs for portions of	NA	
D Limit discharges of fats, oil, and grease?		
E Require the installation of grease removal equipment?		
F Enforce any violation of its sewer ordinances?		
G Were any changes or modifications made in the past year to the sewer		
Discussion:		

ELEMENT 4 – OPERATIONS AND MAINTENANCE		YES	NO
COLLECTION SYSTEM MAPS			
A	Does the SSMP reference the current process and procedures for maintaining the Districts' sanitary sewer system maps?		
B	Are the Districts' sanitary sewer system maps complete, current, and sufficiently detailed?		
C	Are storm drainage facilities identified on the collection system maps? If not, are SSO responders able to determine locations of storm drainage inlets and pipes for possible discharge to waters of the state?		
RESOURCES AND BUDGET			
D	Do the Districts and the County allocate sufficient funds for the effective operation, maintenance, and repair of their sanitary sewer systems and are the current budget structures documented in the SSMP?		
PRIORITIZED PREVENTIVE MAINTENANCE			
E	Does the SSMP describe current preventive maintenance activities and the system for prioritizing the cleaning of sewer lines?		
F	Based upon information in the Annual SSO Report, are the County's and the District's preventive maintenance activities sufficient and effective in minimizing SSOs and blockages?		
SCHEDULED INSPECTIONS AND CONDITION ASSESSMENTS			
F	Is there an ongoing condition assessment program sufficient to develop a capital improvement program addressing the proper management and protection of sanitary sewer system assets? Are the current components of this program documented in the SSMP?		
CONTINGENCY EQUIPMENT AND REPLACEMENT INVENTORY			
G	Does the SSMP list the major equipment currently used in the operation and maintenance of the sanitary sewer systems and does it document the procedures for inventory management?		
H	Are contingency equipment and replacement parts sufficient to respond to emergencies and properly conduct regular maintenance?		
TRAINING			
I	Does the SSMP document current training expectations and programs?		
J	Does the SSMP document currently outreach efforts to plumbers and building contractors?		
OUTREACH TO PLUMBERS AND BUILDING CONTRACTORS			
K	Does the SSMP document current outreach efforts to plumbers and building contractors?		

ELEMENT 5 – DESIGN AND PERFORMANCE STANDARDS		YES	NO
A	Does the SSMP reference current design and construction standards for the installation of new sanitary sewer systems, pump stations, and other appurtenances and for the rehabilitation and repair of existing sanitary sewer systems?		
B	Does the SSMP document current procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and the rehabilitation and repair of existing sewer lines?		
Discussion:			

ELEMENT 6 – OVERFLOW AND EMERGENCY RESPONSE PLAN		YES	NO
A	Does the Overflow Emergency Response Plan establish procedures for the emergency response, notification, and reporting of SSOs?		
B	Are staff and contractor personnel appropriately trained on the procedures of the Overflow Emergency Response Plan?		
C	Is the Overflow Emergency Response Plan effective in handling SSOs in order to safeguard public health and the environment?		
D	Are all SSO and claims reporting forms current or do they require revisions or additions?		
E	Does all SSO event recordkeeping meet the SSS GWDR requirements? Are all SSO event files complete and certified in the CIWQS system?		
F	Is all information in the CIWQS system current and correct? Have periodic reviews of the data been made during the year to assure compliance with SSS GWDR? Have all Technical Report and Water Quality Sampling requirements been certified and uploaded to the CIWQS data management system?		
G	Was required training on SSMP and OERP completed and documented? Were field exercises with field staff on SSO volume estimation conducted and documented?		
H	Did all public improvement plans and specifications that could impact collection system operations include requirements for OERP training or were contractor OERP programs at least as stringent as the County's OERP? Were regular items included in the project meeting agendas to discuss emergency response procedures and communications?		
Discussion:			

ELEMENT 7 – FATS, OILS, AND GREASE (FOG) CONTROL PROGRAM		YES	NO
A	Does the Fats, Oils, and Grease Control Program include efforts to educate the public on the proper handling and disposal of FOG?		
B	Does the FOG Control Program identify sections of the sanitary sewer system subject to FOG blockages, establish a cleaning schedule and address source control measures to minimize these blockages?		
C	Are requirements for grease removal devices, best environmental management practices, record keeping, and reporting estab-lished in the FOG Control Program?		
D	Do the Districts and the County have sufficient legal authority to imple-ment and enforce the FOG Control Program?		
E	Is the current FOG Control Program effective in minimizing blockages of sewer lines resulting from discharges of FOG to the system?		
Discussion:			

ELEMENT 8 – SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN		YES	NO
A	Does the hydraulic capacity evaluation identify deficiencies in the sani-tary sewer systems, establish sufficient design criteria and recommend both short-term and long-term capacity enhancement and improve-ment projects?		
B	Does the capital improvement program for the County and the Districts establish a schedule of approximate completion dates for both short-term and long-term improvements and is the schedule reviewed and updated to reflect current budgetary capabilities and activity ac-complishment?		
Discussion:			

ELEMENT 9 – MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS		YES	NO
A	Does the SSMP accurately portray the methods of tracking and reporting selected performance indicators?		
B	Are the Districts and the County able to sufficiently evaluate the effectiveness of SSMP elements based on relevant information?		
C	Have all graphs and tables of performance results been updated with the most current results?		
Discussion:			

ELEMENT 10 – SSMP AUDITS		YES	NO
A	Will the SSMP Audit be completed, reviewed and filed in the Appendix?		
Discussion:			

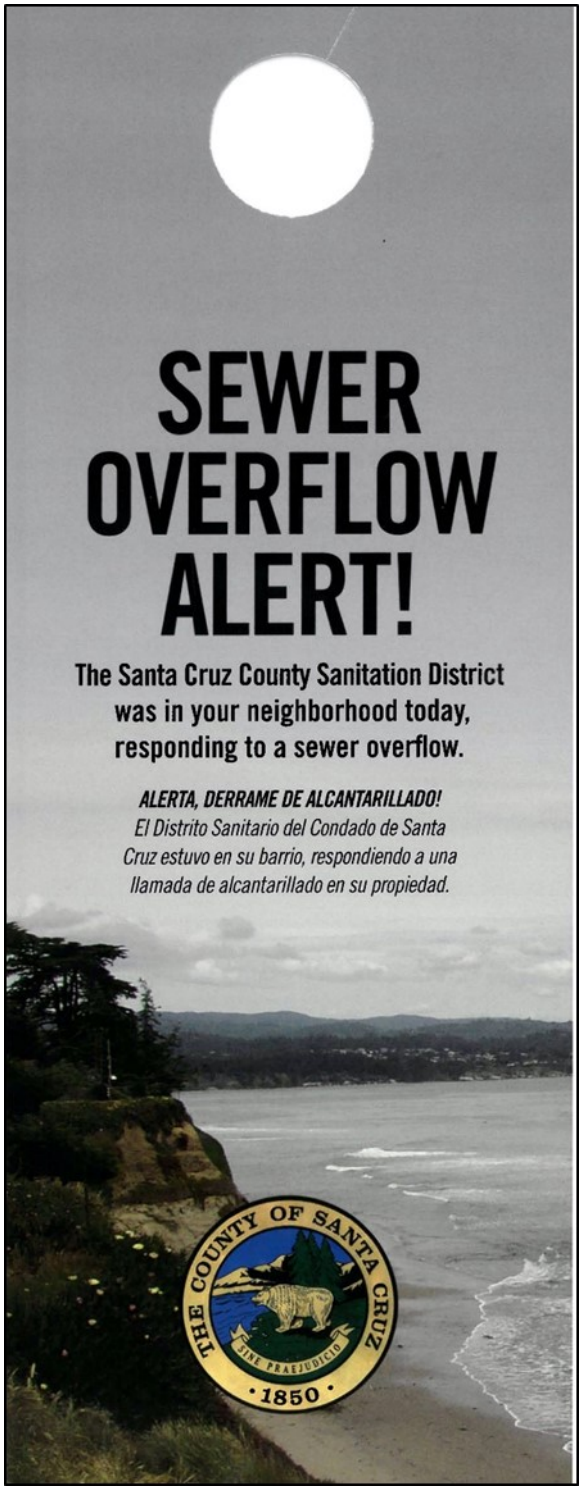
ELEMENT 11 – COMMUNICATION PROGRAM		Yes	No
A	Do the Districts and the County effectively communicate with the public, about the implementation of the SSMP and continue to address any feedback?		
B	Did the Board of Directors and the Board of Supervisors receive and review the Annual Sewer System Report? Was the annual report uploaded to the County's website and added to the Appendix.		
Discussion:			

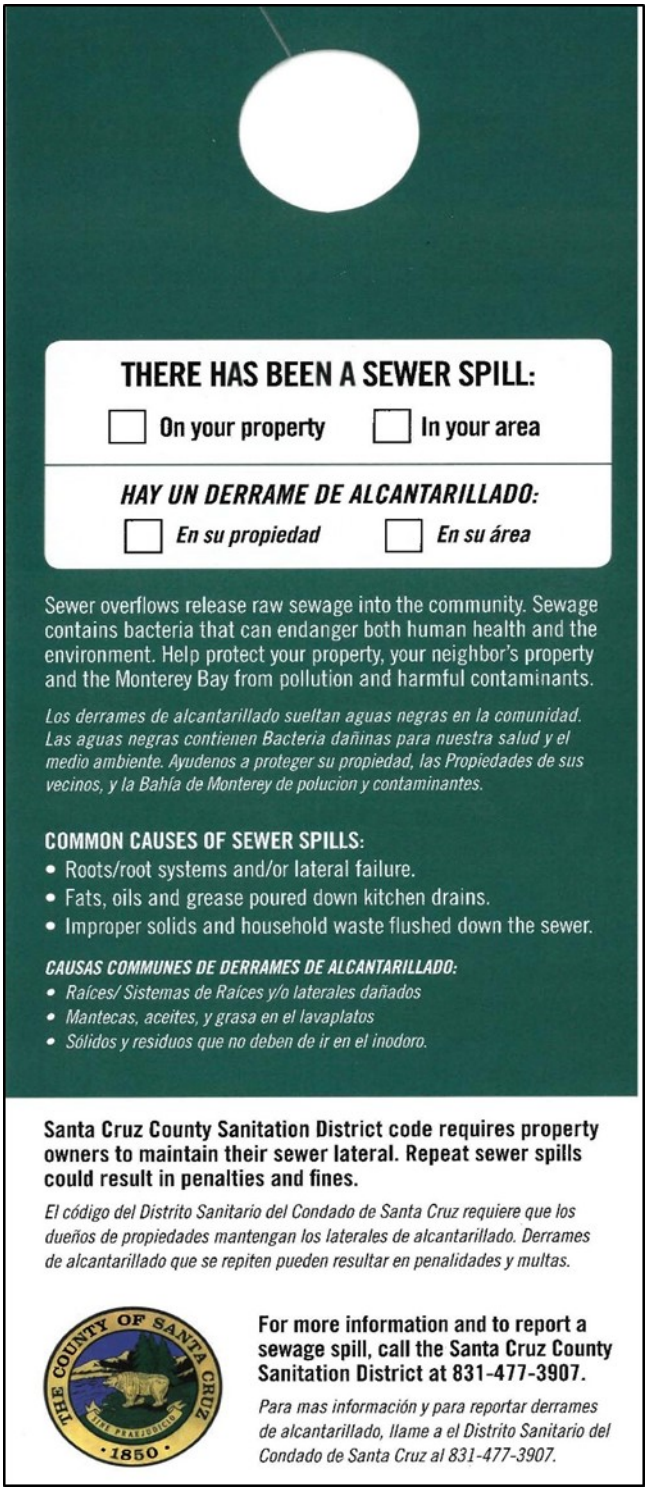
CHANGE LOG	YES	NO
A Is the SSMP Change Log, current and up to date?		
Discussion:		
Audit Team:_____ Date:		
Prepared By:_____ Date:		
Reviewed By:_____ Date:		

Appendix 11-A

Communication Program

Door Alert Hanger





Appendix 12-A

Change Log

SSMP ELEMENT #	DATE	DESCRIPTION OF CHANGE	PERSON AUTHORIZING CHANGE

Definitions

Best Management Practices - Refers to the procedures employed in commercial kitchens to minimize the quantity of grease that is discharged to the sanitary sewer system. Examples include scraping food scraps into the garbage can and dry wiping dishes and utensils prior to washing.

California Integrated Water Quality System - Refers to the State Water Resources Control Board online electronic reporting system that is used to report SSOs, certify completion of the SSMP, and provide information on the sanitary sewer system.

Capital Improvement Program - Refers to the document that identifies planned capital improvements to the Districts/CSAs sanitary sewer systems.

Certification of SSO Reports - The SWRCB requires the Legally Responsible Official to login to CIWQS within a given time period to electronically sign submitted reports thereby stating that to the best of his/her knowledge and belief, the information submitted is true, accurate, and complete.

City- Means the city of Santa Cruz

Closed Circuit Television - Refers to the process and equipment that is used to internally inspect the condition of gravity sewers.

Collection System – See Sanitary Sewer System.

Computerized Maintenance Management System - Refers to software and a database that is used to manage maintenance and condition assessment data including the production of work orders and the recording of work completed.

Condition Assessment: A report that comprises inspection, rating, and evaluation of the existing condition of a sewer collection system. Inspection is based upon closed circuit television ("CCTV") inspections for sewer lines; manhole inspections for structural defects; and inspections of pipe connections at the manhole. After CCTV inspection occurs, pipe conditions are assigned a grade such as the Pipeline Assessment and Certification Program ("PACP") rating system, developed by the National Association of Sewer Service Companies.

County - Refers to Santa Cruz County, California.

County Service Areas- Refers to specific areas within the County where the County operates and maintains sanitary sewer system facilities. These CSAs are governed by the County Board of Supervisors.

Districts - Refers to the Davenport, Freedom, and Santa Cruz County Sanitation Districts.

Davenport County Sanitation District-Separate special district governed by the County Board of Supervisors.

Enrollee – A public entity that owns or operates a sanitary sewer system and has submitted a complete and approved application for coverage under Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WQO No. 2006-0003-DWQ).

Definitions

Environmental Compliance Unit- The Environmental Compliance Unit implements the Pretreatment Program within the Santa Cruz County Sanitation Districts.

Environmental County Health - Refers to the Santa Cruz County Environmental Health Department.

Environmental Protection Agency- Refers to the United States Environmental Protection Agency.

Enforcement Response Plan- The Procedures indicating how the County of Santa Cruz and Santa Cruz County Sanitation Districts investigate and respond to instances of user noncompliance.

Fats, Oils, and Grease- Refers to fats, oils, and grease typically associated with food preparation and cooking activities that can cause blockages in the sanitary sewer system.

Full Condition Assessment- A Condition Assessment of all sewer lines in the sewer collection system.

Field Report - Refers to the Field Stoppage Report and Reporting Party Interview Report Form.

Food Service Establishment- Refers to commercial or industrial facilities where food is handled/prepared/ served that discharge to the sanitary sewer system.

Force Main - Refers to a pressure sewer used to convey wastewater from a pump station to the point of discharge.

Freedom County Sanitation District- Separate special district governed by the County Board of Supervisors.

Full-time Equivalent - Refers to the equivalent of 2,080 paid labor hours per year by a regular, temporary, or contract employee.

Waste Discharge Requirements - Refers to the State Water Resources Control Board Order No. 2006-0003, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, dated May 2, 2006, as revised on September 9, 2013.

Grease Removal Device - Refers to grease traps or grease interceptors that are installed to remove FOG from the wastewater flow at food service facilities.

Hotspot - A gravity sewer identified as requiring more frequent preventive maintenance to reduce the likelihood of SSOs.

Infiltration/Inflow - Refers to water that enters the sanitary sewer system from storm water and groundwater that increases the quantity of flow. Infiltration enters through defects in the sanitary sewer system after flowing through the soil. Inflow enters the sanitary sewer without flowing through the soil. Typical points of inflow are holes in manhole lids and direct connections to the sanitary sewer (e.g. storm drains, area drains, and roof leaders).

Legally Responsible Official - Refers to the individual who has been formally designated to certify reports and other actions that are submitted through CIWQS, the online SSO reporting system.

Definitions

Notification of an SSO - Refers to the time at which emergency response crews becomes aware of an SSO event through observation or notification by the public or other source.

Office of Emergency Services- Refers to the California Governor's Office of Emergency Services.

Pipeline Assessment and Certification Program -The North American Standard for pipeline defect identification and assessment, providing standardization and consistency to the methods in which pipeline conditions are identified, evaluated and managed.

The PACP assigns grades based on the significance of the defect, extent of damage, percentage of flow capacity restriction, and/or the amount of pipe wall loss due to deterioration. Grades are assigned as follows:

5 – Most significant defect

4 – Significant defect

3 – Moderate defect

2 – Minor to moderate defect

1 – Minor defect.

Preventative Maintenance- Refers to maintenance activities intended to prevent failures of the sanitary sewer system facilities (e.g. cleaning, CCTV, inspection).

Private Lateral Sewage Discharges- Sewage discharges that are caused by blockages or other problems within a privately owned lateral and voluntarily reported in CIWQS.

Private sewer- A sewer privately owned and not directly controlled by the County.

Private sewer lateral- The portion of a sanitary sewer line, including clean outs, overflow valves, backflow valves, "wye" branches, and appurtenances that connects the building sewer to the sewer main of the Districts/CSAs.

Public sewer- A sewer which is under jurisdiction of a District or the County of Santa Cruz.

Publicly Owned Treatment Works-[40 CFR 403.3(q)]- A treatment works (as defined by CWA section 212) that is owned by a state or municipality [as defined by CWA section 502(4)]. This definition includes any devices or systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW treatment plant. The term also means the municipality [as defined in CWA section 502(4)] that has jurisdiction over the indirect discharges to and the discharges from such a treatment works.

Property Damage Overflow - Property damage overflow refers to a sewer overflow or backup that damages private property.

Definitions

Sanitary Sewer Overflow - Any overflow, spill, release, discharge, or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs include:

(i) Overflows or releases of untreated or partially treated wastewater that reach waters of the United States;

(ii) Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and

(iii) Wastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.

Regional Water Quality Control Board- Refers to the Regional Water Quality Control Board for the Central Coast Region (Region 3).

Sanitary Sewer System - Refers to the portion of the sanitary sewer facilities that are owned by the Districts/CSAs operated by sanitation operations employees. Sanitary Sewer System can also refer to the portion of sanitary sewer facilities that are located in the enrolled County Service Areas and are maintained by sanitation operations.

Sanitation Operations- The Sanitation Division of Santa Cruz Public Works. Sanitation Operations is responsible for the collection of wastewater (sewage) for several sanitation districts including Santa Cruz Sanitation District, Freedom Sanitation District, Davenport Sanitation District and County Service Areas (CSAs) located within Santa Cruz County. Sanitation operations also provides water service (Davenport only), and Environmental Compliance.

Santa Cruz County Sanitation District-The sanitary sewer system in all of the unincorporated areas in the County including: Aptos, Capitola, Soquel, and other parts of Santa Cruz outside of the City of Santa Cruz. This is a separate enterprise special district governed by a Board composed of one member from the City of Capitola and Board members from the County Board of Supervisors Supervisorial Districts 1 and 2.

Sensitive Area - Refers to areas where an SSO could result in a fish kill or pose an imminent or substantial danger to human health (e.g. parks, aquatic habitats, etc.).

Significantly Defective- A sewer pipe is considered to be Significantly Defective if its condition receives a Structural or Operation and Maintenance grade of 4 or 5based on the PACP rating system.

Standard Operating Procedures - Refers to written procedures that pertain to specific activities employed by sanitation operations in the operation and maintenance of the sanitary sewer system.

State Water Resources Control Board - Refers to the California Environmental Protection Agency State Water Resources Control Board and staff responsible for protecting the State's water resources.

Surface Waters - See waters of the State.

Definitions

Surface Water Condition Assessment- A Condition Assessment of sewer lines in the sewer collection system located sufficiently proximate to a surface water that if defective, could allow exfiltration to that surface water. A sewer main is "sufficiently proximate" will depend upon a number of factors including age, composition and PACP rating of the sewer line in question, the nature of the defect, soil types, and groundwater patterns.

Treatment Plant Operator - Under general supervision, to perform difficult and complex operations and maintenance functions for the County's wastewater and water treatment plants; to function as a lead worker to trainee operators; may act as chief plant operator for a class II or I wastewater treatment plant; and to perform other duties as required.

Volume Recovered – Refers to the amount of spilled sewage that is returned to the sanitary sewer system. When recording the volume that is captured, the volume of water used for flushing and/or cleaning should not be included.

Water Body - A water body is any stream, creek, river, pond, impoundment, lagoon, wetland, or bay.

Waters of the State - Waters of the State (or waters of the United States) means any surface water, including saline waters, within the boundaries of California. In case of a sewage spill, storm drains are considered to be waters of the State unless the sewage is completely contained and returned to the sanitary sewer system and that portion of the storm drain is cleaned.

Water Quality Monitoring Program-The response activities and standard operating procedures to be utilized in the Overflow Emergency Response Plan, in the event a sanitary sewer overflow is 50,000 gallons or more or whenever there is an SSO that either enters a surface water or is discharged to a surface and poses a risk to public health or the environment.

Waste Discharge ID - A unique identifier used to report to the State database, CIWQS.

Work Order- Refers to a document (paper or electronic) that is used to assign work and to record the results of the completed work by Sanitation Operations staff.

References

State Water Resources Control Board Order No. 2006-0003 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, California State Water Resources Control Board, May 2, 2006.

State Water Resources Control Board Monitoring and Reporting Program order (as amended by Order No. WQ 2013-0058-EXEC), California State Water Resources Control Board, effective September 9, 2013.

A Guide for Developing and Updating of Sewer System Management Plans (SSMPs) September 2015